

ΜΕΛΕΤΕΣ ΣΤΗ ΜΝΗΜΗ
ΜΑΡΙΟΥ Ε. ΓΕΩΡΓΙΑΔΗ

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ΜΑΡΙΟΣ Α. ΓΕΩΡΓΙΑΔΗΣ
(1916 - 1980)

ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ	
ΑΡ. ΕΙΣ.	28744
COMP.	15570
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ΒΙΒΛΙΟΘΗΚΗ	

Όταν στις 29 Μαρτίου 1980 οι φοιτητές της Σχολής σήκωσαν, στους ώμους τους, την σκεπασμένη με την σημαία της σορό, τότε συνειδητοποιήθηκε η τραγική μοίρα του Πρύτανη που άφηρε ατέλειωτο το έργο του.

Η Πολιτεία με τον Υφυπουργό σε θέματα Ανώτατης Παιδείας, η Σχολή με τον αρχαιότερο Καθηγητή της, οι ομότιμοι Καθηγητές με τον εκπρόσωπό τους και οι συνεργάτες του αποχαιρέτησαν με πραγματική οδύνη τον Μάριο Γεωργιάδη, που ο θάνατος τον βρήκε στο αξίωμα του Πρύτανη.

Αξίωμα που ουδέποτε ο ίδιος επεδίωξε και μόνο η επιμονή σχεδόν όλων των συναδέλφων του τον έπεισε να το επωμισθεί, σε μιά εποχή μάλιστα πολύ ταραγμένη για την ανώτατη παιδεία.

Ο Μ. Γεωργιάδης, ο οποίος υπήρξε πρωτοπόρος στη διδασκαλία της Οικονομικής των Επιχειρήσεων στη χώρα μας, άφησε πλούσιο επιστημονικό έργο, που παρουσιάζεται στο κείμενο που ακολουθεί.

Αν και άνθρωπος ανστηρών αρχών, ο Μ. Γεωργιάδης απέδιδε δικαιοσύνη με ανθρωπιά και επιείκεια.

Ήταν άτομο με έντονη κοινωνική προβολή, που συνοδεύονταν από σεμνότητα.

Με το λεπτό του χιούμορ έδιδε στους συνομιλητές του την αίσθηση της πραγματικότητας.

Η Σχολή με την έκδοση του τόμου αυτού αποτίει φόρο τιμής και ευγνωμοσύνης που ωφείλει στη μνήμη του Μάριου Γεωργιάδη, που χάθηκε τόσο αναπάντεχα.

ΜΑΡΙΟΣ Ε. ΓΕΩΡΓΙΑΔΗΣ

Ο Μάριος Γεωργιάδης γεννήθηκε τον Ιούλιο του 1916 στη Μυτιλήνη και μεγάλωσε στην Αθήνα, όπου και τέλειωσε τις εγκύκλιες σπουδές του.

Σπούδασε Οικονομικές Επιστήμες στην Ανωτάτη Σχολή Οικονομικών και Εμπορικών Επιστημών Αθηνών και στην Οικονομική Σχολή του Πανεπιστημίου της Ρώμης.

Έλαβε μέρος στον Ελληνοϊταλικό πόλεμο και υπηρέτησε στο Τμήμα μελετών του Υπουργείου Εμπορίου μέχρι το 1962.

Αναγορεύτηκε διδάκτορας το 1946 από την Ανωτάτη Σχολή Οικονομικών και Εμπορικών Επιστημών για την διατριβήν του «Η αξία υπερπροσόδου της επιχειρήσεως»

Στη Σχολή εδίδαξε Οικονομική των Επιχειρήσεων και Marketing επί 27 έτη (1954-80) ως τακτικός Καθηγητής της έδρας της Οικονομικής των Επιχειρήσεων.

Τα συγγράμματά του αναφέρονται σε θέματα της Οικονομικής των Επιχειρήσεων και του Marketing και διακρίνονται για την πρωτοπορία τους στα αντίστοιχα θέματα. Από αυτά ενδεικτικά αναφέρονται τα ακόλουθα :

Η πολιτική τιμών εις τας Βιομηχανικές Επιχειρήσεις, 1948.

Το πρόβλημα της ρευστότητας εις τας Τραπεζικές και Βιομηχανικές Επιχειρήσεις, 1950.

Η θεωρία της τιμής αντικαταστάσεως και η εφαρμογή εις τας κρατικές κοστολογήσεις, 1952.

Η Οικονομική των Επιχειρήσεων, 1954.

Το κόστος διαθέσεως, 1957.

Η τεχνική ερεύνης και κατακτήσεως της αγοράς (Marketing), 1961.

Η χρηματοδότησις των Επιχειρήσεων, 1963.

Η Ξενοδοχειακή Οικονομική, 1977.

Η Οργάνωσις των Επιχειρήσεων, 1978.

Με τα έργα αυτά καθώς και τις αποδόσεις στα ελληνικά των έργων των Μ. Rawls «Η ανάλυσις της Εκμεταλλεύσεως» και L. Batardon «Περί εμπορικών Εταιρειών» πλούτισε αποτελεσματικά την Ελληνική Βιβλιογραφία σε ένα χώρο τόσο σημαντικό και ευαίσθητο.

Παράλληλα πολλά άρθρα και μελέτες του δημοσιεύθηκαν σε οικονομικά περιοδικά.

Διετέλεσε μέλος πολλών επιτροπών, σε θέματα κυρίως φορολογικά και αγρονομικά, διαφόρων κρατικών αρχών.

Γνωρίζοντας ότι η Οικονομική των Επιχειρήσεων σχετίζεται άμεσα με την εμπειρία, εργάστηκε σαν σύμβουλος και οργανωτής μεγάλων επιχειρήσεων.

Αξιοσημείωτη υπήρξε η διδασκαλία του στην Ανωτέρα Τηλεπικοινωνιακή Σχολή του ΟΤΕ και σε σεμινάρια του ΕΛΚΕΠΑ σε θέματα οργάνωσης και λειτουργίας των επιχειρήσεων.

Έλαβε μέρος σε πολλά διεθνή συνέδρια και ήταν μέλος της Ελληνικής Εταιρείας Οικονομικών Επιστημών.

Το επιστημονικό αυτό έργο του Μάριου Γεωργιάδη ολοκλήρωνε η αγάπη του για την Σχολή και η αγωνία του για το μέλλον της. Αγωνία που παρουσιάζεται ανάγλυφη στις εγκυκλίους που απηύθυνε όταν ανέλαβε τα Πρυτανικά του καθήκοντα, τα οποία δεν πρόλαβε να τελειώσει.

Η ΑΣΑΦΕΙΑ ΣΤΗΝ ΟΙΚΟΝΟΜΙΚΗ

ΑΝΤΩΝΙΟΥ Χ. ΠΑΝΑΓΙΩΤΟΠΟΥΛΟΥ

Πρύτανη Ανωτάτης Βιομηχανικής Σχολής Πειραιώς

Ο Μάριος Γεωργιάδης, που χάθηκε τόσο αναπάντεχα, τόνιζε πάντοτε στα μαθήματά του την σημασία της ασάφειας που κυριαρχεί στο χώρο της επιχείρησης και της αγοράς.

Ανάμεσα στους λόγους που εμπόδισαν την εφαρμογή της σκέψης των καθολικών πνευμάτων και του λογισμού, που πηγάζει από την αστήρευτη πηγή των μαθηματικών, ήταν και η μυωπική διαίρεση των επιστημών σε ακριβείς και μη ακριβείς.

Η καθυστέρηση που προέκυψε από τον διαχωρισμό αυτό αποδείχθηκε καταστροφική τόσο για τις επιστήμες όσο και για τον άνθρωπο. Η γιγαντιαία προσπάθεια, που έγινε τα τελευταία σαράντα χρόνια για να κερδηθεί ο χαμένος χρόνος, δεν κατόρθωσε να καλύψει ακόμη την διαφορά που υπάρχει ανάμεσα στο τεχνολογικό και ανθρωπιστικό πεδίο του σύγχρονου πολιτισμού.

Το γεγονός ότι υπάρχουν φαινόμενα και καταστάσεις που δεν μπορούν να περιγραφούν με τις μεθόδους του κλασσικού λογισμού, υπήρξε το κύριο επιχείρημα εκείνων που δεν ήθελαν να παραδεχθούν την στασιμότητα ορισμένων επιστημών, στο χώρο των προβλημάτων που περιμένουν λύση.

Βασικά η μη ακριβής γνώση μπορεί να οφείλεται σε τρεις λόγους, στην αβεβαιότητα, στο σφάλμα και στην ασάφεια. Ο πρώτος λόγος, η αβεβαιότητα, έννοια συνυφασμένη με μελλοντικές προσδοκίες αντιμετωπίστηκε γρήγορα με το λογισμό των πιθανοτήτων και την θεωρία των στατιστικών αποφάσεων.

Όμοια το σφάλμα, που οφείλεται σε κακή εκτίμηση, προσδιορίζεται με την βοήθεια στατιστικών υποδειγμάτων.

Ο τρίτος λόγος, η ασάφεια, που προέρχεται από δομές καταστάσεων η/και φαινομένων, μπορεί να ερευνηθεί σήμερα με την βοήθεια των ασαφών συνόλων που δημιούργησε ο Zadeh (1965).

Με τα ασαφή σύνολα, που βασίζονται στις θεωρίες της πλειότιμης λογικής, όπως τις θεμελίωσαν οι Post (1921) Lukasiewicz (1937) και Maisil (1940), ο Zadeh επεδίωξε «μια προσέγγιση ανάμεσα στην ακριβολογία των κλασικών μαθηματικών και την λεπτή ασάφεια του πραγματικού κόσμου».

Προοριζόμενα για την μελέτη και επίλυση προβλημάτων της τεχνολογίας, τα ασαφή σύνολα δεν άργησαν να εισχωρήσουν στο χώρο της Οικονομικής, των Πολιτικών και Διοικητικών Επιστημών, της Κοινωνιολογίας της Ψυχολογίας και της Γλωσσολογίας, δηλαδή επιστημών σχετικών με την συμπεριφορά του ανθρώπου.

Βέβαια στην Οικονομική, όπου είχε προηγηθεί με τους Arrow και Debreu η μαθηματική δόμηση του επιπέδου της θεμελίωσης της, η εμφάνιση των ασαφών συνόλων χαιρετίσθηκε από τους πρωτοπόρους της επιστήμης αυτής.

Η ανάγκη της προσέγγισης προβλημάτων στα οποία κυριαρχούν προτάσεις της μορφής : «το εισόδημα είναι μικρό», «η επιχείρηση δεν έχει καλές προοπτικές», «θα έχουμε μια όχι πάρα πολύ μεγάλη αύξηση του πληθωρισμού», «τό κόστος του προϊόντος α δεν πρέπει να είναι πάρα πολύ υψηλότερο από εκείνο του προϊόντος β», «η τιμή του προϊόντος πρέπει να γίνει πολύ μεγαλύτερη των 100 χιλιάδων», «αν η οικονομική δραστηριότητα φθάσει σε πολύ χαμηλά επίπεδα, τότε πρέπει να αυξηθούν αποτελεσματικά οι επενδύσεις», έγινε αφορμή να παραμερισθεί η στείρα αντίληψη του ποιοτικού και να εφαρμοσθεί ο λογισμός των ασαφών συνόλων.

Η βασική ιδέα του Zadeh ότι η χαρακτηριστική συνάρτηση των στοιχείων ενός συνόλου δεν πρέπει να περιορίζεται στο σύνολο $\{0,1\}$, αλλά να εκτείνεται στο απέραντο σύνολο που ορίζει το διάστημα $[0,1]$ ήταν αρκετή.

Έτσι ο επόμενος πίνακας περιγράφει πλήρως τις προτιμήσεις δύο καταναλωτών, όσο αφορά την ποιότητα των έξι αγαθών του συνόλου

$$E = \{ \chi_1, \chi_2, \chi_3, \chi_4, \chi_5, \chi_6 \}$$

	χ_1	χ_2	χ_3	χ_4	χ_5	χ_6
A ~	0	0,2	0,9	0	1	0
B ~	0,5	0,8	0	1	1	0,6

ενώ με το κατωτέρω διάγραμμα αποδίδεται η πρόταση «το εισόδημα x είναι μικρό».



Για τα ασαφή σύνολα ισχύουν οι ακόλουθοι συμβολισμοί – ορισμοί :

E : το βασικό σύνολο αναφοράς.

X : ένα ασαφές υποσύνολο¹⁾ του E .

M : το διάστημα $[0,1]$

$\mu : E \rightarrow M$: η χαρακτηριστική συνάρτηση συμμετοχής των στοιχείων του ασαφούς (υπο)συνόλου X .

$\mu(x)$: ο βαθμός συμμετοχής του στοιχείου x στο ασαφές (υπο)σύνολο X .

$x \in X$: το στοιχείο x ανήκει στο ασαφές (υπο)σύνολο X με βαθμό συμμετοχής $\mu(x)$.

$\mu(x)$: ο βαθμός συμμετοχής του στοιχείου x στο ασαφές (υπο)σύνολο X .

Έτσι από τον προηγούμενο πίνακα των δύο καταναλωτών είναι :

$x_1 \in A, \quad x_2 \in A, \quad x_3 \in A \text{ ή } x_3 \notin A, \quad x_4 \in A, \quad x_5 \in A \text{ ή } x_5 \in A, \quad x_6 \in A \text{ ή } x_6 \notin A$
 $0,5 \sim \quad 0,3 \sim \quad 0 \sim \quad \sim \quad 0,8 \sim \quad 1 \sim \quad \sim \quad 0 \sim \quad \sim$

που ερμηνεύουν αντίστοιχα ότι ο πρώτος καταναλωτής δίδει βαθμό προτίμησης 0,5 στο πρώτο αγαθό, 0,3 στο δεύτερο, απορρίπτει το τρίτο, κ.ο.κ.

1) Η περισπωμένη για να διακρίνεται από το κοινό σύνολο X .

Αντίστοιχα το διάγραμμα, του παραδείγματος του εισοδήματος, ανήκει στη συνάρτηση

$$\mu(\chi) = \frac{1}{1+\kappa\chi^2} \quad / [0, \infty) \text{ με } 1 < \kappa$$

που ανταποκρίνεται σαν χαρακτηριστική συνάρτηση συμμετοχής στην ιδιαιτερότητα της πρότασης (με την κατάλληλη εκλογή της τιμής της παραμέτρου).

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Έστω ένας οικονομικός χώρος, που περιλαμβάνει καταναλωτές, παραγωγούς, υπηρεσίες, επιχειρήσεις, ενώσεις, περιφέρειες κ.λ.π. και ορίζεται από το ζευγάρι $(\mathcal{E}, \mathcal{D})$ όπου \mathcal{E} μία οικογένεια συνόλων και \mathcal{D} μία οικογένεια μαθηματικών δομών πάνω στην \mathcal{E} . Ο χώρος αυτός είναι ασαφής όταν ένα τουλάχιστον σύνολο της \mathcal{E} είναι ασαφές.

Έτσι μία οικονομική περιοχή είναι ασαφής όταν υπάρχουν στοιχεία της που είναι κάτω από την κυριαρχία και άλλων περιοχών. Η κατανάλωση ωρισμένων αγαθών είναι ασαφής όταν, σε έρευνα της αγοράς τους, κυριαρχούν απαντήσεις της μορφής «πολύ συχνά», «καμιά φορά», «σπάνια».

Με βάση τους προηγούμενους συμβολισμούς και ορισμούς ορίζονται οι ακόλουθες πιο βασικές σχέσεις και πράξεις της Άλγεβρας των ασαφών (υπο) συνόλων ενός βασικού συνόλου E :

$$\text{ισότητα} \quad \underset{\sim}{A} = \underset{\sim}{B} \quad \Leftrightarrow \quad \underset{\sim}{\mu(\chi)}_A = \underset{\sim}{\mu(\chi)}_B \quad \forall \chi \in E$$

$$\text{Εγκλεισμός} \quad \underset{\sim}{A} \subseteq \underset{\sim}{B} \quad \Leftrightarrow \quad \underset{\sim}{\mu(\chi)}_A \leq \underset{\sim}{\mu(\chi)}_B \quad \forall \chi \in E$$

$$\text{Ενωση} \quad \underset{\sim}{A} \cup \underset{\sim}{B} \quad \Leftrightarrow \quad \underset{\sim}{\mu(\chi)}_{A \cup B} = \max(\underset{\sim}{\mu(\chi)}_A, \underset{\sim}{\mu(\chi)}_B) \quad \forall \chi \in E$$

Τομή $\underset{\sim}{A} \underset{\sim}{\cap} B \Leftrightarrow \mu(\chi) = \min(\mu(\chi), \mu(\chi)) \quad \forall \chi \in E$

Συμπλήρωμα $\underset{\sim}{\overline{A}} \Leftrightarrow \mu(\chi) = 1 - \mu(\chi) \quad \forall \chi \in E$

Έτσι για τα ασαφή σύνολα των δύο καταναλωτών του πρώτου παραδείγματος θα είναι αντίστοιχα :

	χ_1	χ_2	χ_3	χ_4	χ_5	χ_6
$\underset{\sim}{A}$	0	0,2	0,9	0	1	0
$\underset{\sim}{B}$	0,5	0,8	0	1	1	0,6
$\underset{\sim}{\overline{A}}$	1	0,8	0,1	1	0	1
$\underset{\sim}{B}$	0,5	0,2	1	0	0	0,4
$\underset{\sim}{\underset{\sim}{A} \underset{\sim}{\cap} B}$	0,5	0,8	0,9	1	1	0,6
$\underset{\sim}{\underset{\sim}{\overline{A}} \underset{\sim}{\cap} B}$	0	0,2	0	0	1	0

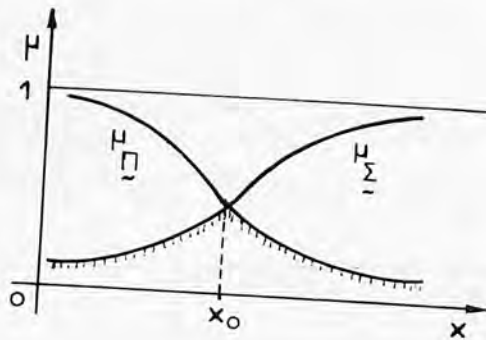
Έστω E το σύνολο των δεδομένων εναλλακτικών δυνατοτήτων μιας οικονομίας, τα στοιχεία του οποίου υπόκεινται στους σκοπούς και στους περιορισμούς της.

Στην οικονομία αυτή κάθε ασαφές (υπο)σύνολο $\tilde{\Sigma}$ του E , του οποίου η χαρακτηριστική συνάρτηση συμμετοχής εκφράζει τον βαθμό επιθυμίας των στοιχείων του, αποτελεί ένα ασαφή σκοπό.

Αντίστοιχα ασαφή περιορισμό, αποτελεί κάθε ασαφές (υπο)σύνολο $\tilde{\Pi}$ του E , του οποίου η χαρακτηριστική συνάρτηση συμμετοχής εκφράζει το όριο επιλογής των στοιχείων του.

Η τομή των ασαφών (υπο)συνόλων $\tilde{\Sigma}$ και $\tilde{\Pi}$ δηλ. το ασαφές (υπο)σύνολο $\tilde{A} = \tilde{\Sigma} \cap \tilde{\Pi}$ είναι μία ασαφής απόφαση στην οικονομία, γιατί η αντίστοιχη χαρακτηριστική συνάρτηση συμμετοχής του εκφράζει την πραγματοποίηση του ασαφούς σκοπού, χωρίς να χειροτερεύει την εκπλήρωση του αντίστοιχου ασαφούς περιορισμού, αφού $\mu_{\tilde{A}}(x) = \min(\mu_{\tilde{\Sigma}}(x), \mu_{\tilde{\Pi}}(x)) \forall x \in E$.

Στην περίπτωση που οι συναρτήσεις $\mu_{\tilde{\Sigma}}$ και $\mu_{\tilde{\Pi}}$ είναι μονοσήμαντα ορισμένες τότε από τα αντίστοιχα διαγράμματα τους προκύπτει το διάγραμμα της συνάρτη-



σης $\mu_{\tilde{A}}$ καθώς και η εναλλακτική δυνατότητα x_0 της άριστης απόφασης στην οικονομία.

Η κυρτότητα και ο βαθμός στάθμισης των συναρτήσεων σκοπού και περιορισμού καθώς και το μονοσήμαντο του σημείου χ_0 είναι βασικά προβλήματα, που ξεκινούν από τ' αντίστοιχα προβλήματα της θεωρίας της κλασσικής ισορροπίας της οικονομίας.

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Μετά τα ασαφή σύνολα και τις στοιχειώδεις τους πράξεις, η βάση του λογισμού τους συμπληρώνεται με τις ασαφείς σχέσεις και τις ασαφείς συναρτήσεις, των οποίων η παρουσίαση δεν είναι δυνατή στα πλαίσια ενός εισαγωγικού άρθρου, γεγονός όμως που περιορίζει και τον χώρο των παραδειγμάτων των εφαρμογών στην Οικονομική στο κείμενο αυτό.

Μία πλούσια συλλογή τέτοιων εφαρμογών περιέχεται στο ειδικό περιοδικό *Fuzzy sets and systems, An international Journal* (North - Holland) του οποίου τα άρθρα καταρρίπτουν τον μύθο της καταδίκης της ασάφειας στο όνομα της δίτιμης λογικής.

Σήμερα οι θεωρητικοί τομείς των Μαθηματικών: Άλγεβρα, Ανάλυση, Γεωμετρία, Τοπολογία, Πιθανότητες, Λογική κ.λ.π. διαθέτουν τους ασαφείς κλάδους τους, ενώ στα εφηρμοσμένα Μαθηματικά υπάρχουν τα ασαφή Μαθηματικά Προγράμματα, Παιγνία, Γραφήματα, Αυτόματα κ.λ.π.

Με τα ασαφή σύνολα πολλαπλασιάζονται τα ερεθίσματα της φαντασίας και διευρύνεται το φάσμα της επιστημονικής γνώσης. Αναμφίβολα λοιπόν σημαντική θα είναι η επίδρασή τους και στην οικονομική σκέψη.

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ECONOMIC LIBERALISM IN ITALY 1800 - 1850

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The territorial and dynastic division of Europe following the Congress of Vienna, led to the creation of a new order in Italy in which, as well as the Church State and a few dukedoms, four political and administrative entities became clearly defined re-established only partly on the existing states previous to the Revolution : the kingdom of Sardinia (Piedmont), the kingdom of Lombardo-Veneto, the grand-duchy of Tuscany and the kingdom of the two Sicilies.

A large part of Italy fell under the influence of the Austrian empire ; the provinces of Lombardy and Venice became an integral part of it with practically no autonomy ; the grand-duchy of Tuscany was governed by the younger brother of the emperor of Austria ; an agreement between Austria and the Bourbon monarchy in 1815 finally sealed a close relationship between the international and the home policy of the Austrian empire and that of the kingdom of the two Sicilies, so that even the command of the Neapolitan troops was to be given to, an Austrian general. Only the Piedmont remained outside Austrian influence and was the decisive obstacle to a complete domination of Italian territory by Austria ; in fact, as well as being able to count on a solid protection by the other European states, it could defend its complete autonomy in administration and economic policy.

These four different Italian states achieved quite different types of economic development in the first half of the nineteenth century, as a consequence of the different choices in economic policy and the difference in the economic

structure existing in each of these states at the end of the eighteenth century. During the first half of the century in each of these states there was a lively debate on economic policy in which many economists took part.

It could be interesting to try and reconstruct the role played by economic liberalism in the above-mentioned debate, by what it was influenced and what were the salient points.

As is well known, there no outstanding economists in Italy in the first half of the nineteenth century, with the possible exception of F. Ferrara (1810–1900) a Sicilian later exiled in Turin, and whose main works began to be published right at the beginning of the second half of the century.

The majority of those who activated the economic debate at that time were also patriots who were fighting for national unity, and who were involved in politics and public administration. They were mainly concerned with the need to find ways of achieving national independence and the choice of economic policy which would favour the development of the state in which they were active.

To have a better understanding of this debate we should be aware both of the economic conditions of each state at the beginning of the nineteenth century, their choices of economic policy and of the development realized in each of them historic determinism if we do not realize that the Italian economists of the beginning of the nineteenth century were strongly influenced by the great tradition of their predecessors of the previous century.

It is appropriate to start with a brief outline of the Italian economic thought of the eighteenth century, which had its two poles of influence in Naples and Milano.

Two fairly general remarks must be made at this point. The first concerns the chronological aspect of this paper, which should be taken entirely in a conventional way. Perhaps a more clearly defined and more significant period could have been the years between 1814 and 1848 already studied almost fifty years ago by K. R. Greenfield in his classic book *Economics and Liberalism in the Risorgimento*. On that work however, the dates delimiting the period had a strictly political justification from just before the Congress of Vienna up to the year of the revolutions in Europe. But they have no precise significance within the history of economic thought in Italy. And so it seemed worthwhile to respect the widespread acceptance of «round figures», but in our choice

there is also the reason that 1850 coincides with the beginning of that great monument to economic science, the «Biblioteca dell' Economista» directed by Francesco Ferrara.

The second point is of considerable importance and concerns the way in which the free-trade message of Italian economists of that time was mostly understood, as will become more clear later. We should, however, point out straight away that the real *punctum divisionis* in their discussions was constituted by international economic policy; the free-traders on the one hand, the protectionists or the inheritors of mercantilism, on the other.

The Italian historians of economic thought, and even J.A. Schumpeter have often insisted on the distinction, and sometimes even on a contraposition of the «Neapolitan School» and the so-called «Milanese School», the former centered mostly around the figure of A. Genovesi (1712–1769), while the latter had C. Beccaria (1738–1794) and P. Verri (1728–1797) as its main exponents. Among these economists there can be and should be found considerable differences, but there are also common motives which characterise the whole of economic thought in eighteenth century Italy.

Political economy, according to them, meant the study of the principles on which system of government could be based in order to create the maximum available wealth for a nation. According to many writers, it is the job of the economists to point out the way to achieve the «welfare of the largest possible number» or rather the «greatest happiness divided by the largest number».

The ideas of these economists, who often start life as scholars of philosophy or of juridico-institutional studies, are still strongly influenced by the mercantilist line, which had had in Italy even before Genovesi fairly outstanding promoters. It is for this reason that often find repeated in their writing the wish to favour the birth of national industries created to make use of local raw materials; this should have come about through the ban on the exportation of such raw materials and through some restrictions imposed on the importation of potentially competitive foreign products. If in Genovesi—for whom «commerce should serve the state and not the state which should serve commerce»—we even see a ban on the importation of luxury goods, other authors maintain that a wise use of customs duties may be sufficient to achieve in-state transformation of raw materials, together with a policy of defence against the importation of foreign products.

The opinion in favour of internal free-trade was widespread: there were

those like Genovesi, who were still dominated by vaguely mercantilistic influences, and saw in the above policies, a way of creating a wider market for national products ; others, like Beccaria, appeared to be influenced by the Physiocrats, and who saw in the unification of the markets of agricultural products a way of ensuring a «bon-prix» for these latter.

Apart from these points which are fairly common to all the economists mentioned here, there are other points related to economic freedom on which they differ. There is, for example, in Beccaria a clear perception of the limits of a protective policy in international trade, while in Verri we can note, as is well known, an attempt at theorising on the relationship between economic freedom, the market price and the economic wealth of a nation.

Beccaria writes :

in international trade «up to a point, one nation may prosper to the detriment of another ; but beyond that point the real prosperity of a nation produces the prosperity of other nations. It is impossible for men to be alone in their misery or in their happiness. This is so because nature has chosen to create a hidden interdependence between all things and a brotherhood – even though it is not understood – among human kind» (C. Beccaria, *Elementi di Economia Politica*, 1769 although published in print in 1804, Part II, chap. IV, par. XXXIV).

As often happens to Beccaria, who has sometimes been pointed out as the first author who has elaborated the principle of the division of labour stressing some of its economically important consequences, the reference to nature is mentioned in passing, and the same with the interdependence between «economic things» ; he does not state however how men, while members of the same family, may achieve economically an equilibrium where the interests of the individual and that of the community are simultaneously satisfied.

In P. Verri we can note a further step forward. His reasoning can be summed up thus :

The wealth of a nation is the abundance of goods and the abundance of a particular good is measured by its market price : «to be more precise the price increases, all other factors remaining constant, as the desired good becomes rare» (P. Verri, *Meditazioni sulla Economia Politica*, 1771, chap.

IV). The general rule is that «the price of goods depends on the number of sellers compared to the number of buyers» (ivi).

If we accept that it is not wise to try to diminish the price of a good by limiting the number of buyers through legislative measures (because through experience we know that, after an initial stage, «the number of sellers will diminish faster in proportion to that of buyers» (chap. XI)), the price of a good may diminish only by increasing the number of sellers (that is, increasing the supply), which can only be brought about by a policy of complete economic freedom. An increasing number of sellers does not only mean an increase in the offer of goods, but also a «greater difficulty in agreement» between the sellers themselves (*Riflessioni sulle leggi vincolanti principalmente nel commercio dei grani*, written in 1769 and published in 1797, part I); in such a way as to «make private interest coincide with public interest» which is – for Verri – the art of having good laws.

We should point out that often, even in the eighteenth century, Italian economists tried to define some slightly theoretic aspects when discussing the problems of economic policy as they emerged in each respective state.

Even though, in the meantime, the first chairs in political economy had been instated – first in Naples, then in Milan – the economic debate tended to be concrete questions and was conducted primarily by social reformers, the so-called «enlighteners». The relationship between «environment» and content in economic thought became closer in Italy in the first half of the nineteenth century.

In the second half of the eighteenth century some considerable changes in the customs laws came about in the single Italian states; in particular, in the last twenty years of the century there had been, with the exception of Piedmont, the complete abolition of internal customs. Previous to that, between 1766 and 1776, but only in Lombardy and Tuscany, free internal trade in corn had been introduced and almost simultaneously, its free export too.

As regards industrial policy, we can note that the king of Naples had founded in 1783 state manufacture of silk; meanwhile the art and craft guilds had been abolished in Tuscany. Although the main Italian states had fairly weak and predominantly agricultural economies, they had always followed a gradual and cautious policy of abolition of the restrictions on internal and external trade, and this tendency was continued even after the Congress of Vienna, when some significant difference began to emerge in their economies. Within the general framework of an economy still overwhelmingly agricultural and also based on the exi-

stence of small craftsmen and home workers, the Lombardo-Veneto regions slowly began to emerge as regions where there was a promising development in some industries, principally that of silk manufacture, strongly connected to the use of agricultural products (silk - cocoons, cotton, wool and linen).

Eventhough the Piedmontese economy was not very dissimilar, although behind that of Lombardy, the southern economy remained stagnant and in serious difficulty for a long time, while in Tuscany a good standard of living was noticeable due also to a good balance between agriculture and manufacture. The iron industry was on the whole in its initial stages, in the same way as the paper industry ; the small craftsmen whose wares were produced mainly for local consumption continued to be widespread.

In the agriculture of each state two fairly different cases emerged concerning agrarian contracts : in the Lombardy plains (and in Piedmont) tenants were quite common, in Tuscany there was a predominance of «mezzadria» (a share-cropping kind of contract). In this latter state, the high standard of living of the population was thus attributed to the timely opening to external trade of agricultural products, to a relatively well-balanced productive structure not favoured by special measures for agriculture, but also to the effects of an agrarian contract which gave peasant farmers the right to take part in the decisions regarding the production of the agrarian farm and to the economic results thus obtained. Tuscany, then which in 1850 had little more than one and a half million inhabitants (while Lombardo-Veneto had more than five million and the kingdom of the two Sicilies more than six) would seem to have been an oasis with fairly different features from the other states.

In terms of customs policy, in comparison with the exports which were almost exempt of tax, there were a wide variety of taxes on imports. Tuscany and the Lombardo-Veneto were not well protected from duties on the importation of wine and oil ; Tuscany had low duties even on worked iron, unlike Lombardy and the kingdom of the two Sicilies. Where there were such duties on linen, wool and silk they were high ; in Piedmont there was a general rise in customs duties in 1830.

By the end of the first fifty years of the century, two factors of great economic importance became evident ; the first was the birth and spread of a high number of local banks (in 1846 there were about 80 in the whole of Italy) ; the second was the construction of the first railways ; these latter, which began to be put into use in 1839, by 1850 had reached a total length of 600 km., out of which

220 were in Tuscany, little less than 200 in Lombardo-Veneto, 113 in Piedmont and 84 in the kingdom of the two Sicilies.

The Italian economists played an active role in making of the above decisions. These economists had become considerable in number and had obtained complete recognition as such in the university. From the first years following the congress of Vienna many journals were born (at least ten of them) in which Italian economists published a large quantity of articles. As well as the ones in Milan, the subject of an excellent study by K.D.R. Greenfield, some journals of great influence in Tuscany in Naples and in Sicily were born and prospered. The debate among economists began to spread mainly in the pages of these journals, rather than the weighty tomes of the eighteenth century.

Very often the work of these journals was greatly hampered by police censure, and some of these restrictions concerned even the writing of Italian economists, who were mostly attracted by conspiracies or by political life, some of whom even ending in prison. The involvement in the Italian «Risorgimento» was for many an occasion for a considerable change in interest; even those who had begun by studying political economy professionally ended by taking part in the barricades of '48 or in prison, or in a government position. Thus began a tradition which was confirmed in the second half of the nineteenth century when it became almost a general rule to have economists in government.

The old explanation according to which economic thought in the Italy of the «Risorgimento» is different in quality from that in the eighteenth century because of the idea that political involvement robbed the study of political economy of something, should at least be pointed out, even though we need to find an explanation which does more justice to the rich variety of cases and cultural experiences of its economists.

There remains the fact which is of particular importance here, that these economists, who were so involved in favouring the «Risorgimento» of a country which is not only divided economically, but also economically backward, were for the most part against measures of economic protection even with regard to the infant industries.

The panorama of the Italian economists of this period naturally includes even the exceptions and among these, the most significant is the Lombard M. Gioja (1767-1829) a genial and vigorous economist, whose work, which runs into many volumes, may serve us on this occasion as the *anti-hero* in the history of economic Liberalism in Italy in the first half of the nineteenth century.

Gioja worked on two lines of premises : a) that competition is a condition of instability in the economic system since it has a tendency to degenerate into a monopoly ; b) that the individual, in an attempt to secure his own interest does not necessary achieve an advantage for the whole community. His guidelines for an economic policy, thus, is based on an active role by the state, which should accept the task not only of searching for the conditions for competition, but also that of protective national industries, to favour the infant industries, to guarantee the quality of the products, to intervene where it deems price to be too high.

Political economy, for Gioja, is a system of precepts capable of accelerating the growth of an economy. In the particular case of Italy (or rather, Lombardy) his suggestion is for a rapid process of industrialisation favoured by growing large – size firms ; even for agriculture he counts on a rapid growth in productivity ; through the spreading of tenants on large farms.

According to Gioja the state has a wide – stretching role ; it is almost that of general planification ; it is the state's task to guarantee the efficacy of the entire economic system through a multiple presence ; one can say an almost unlimited one.

It is of significance that the work of Gioja has remained almost isolated from the Italian economists of his time. Even in Lombardy, for which many of the pages of this economist seem to have been especially written, very soon Gioja's work was superseded by economists who were contrary to his ideas, as we shall see shortly. Only in the South, did his writings have some echo, but among a small minority, when, after 1835, they began to consider an industrial awakening.

But Gioja found his fiercest adversaries in Tuscany, where there was prevalent a strong faith in free trade and in the social and economic virtues of agriculture. He was accused of having strongly «sustained restrictive ideas and of having discouraged the youth from the study of English and French works through his offensive and uncontrolled way in which he dealt with them» (F. Forti, *Memoria sulla necessità di provvedere per mezzo di libri elementari all' istruzione del pubblico nelle scienze economiche*, *Atti dell'I. e R. Accademia economico – agraria dei Georgofili*, Florence, 1831, vol. IX, pp. 225 – 6). He was made to observe that, through competition, it is true that man

«is anxious only on account of things to his own advantage», but, «while he is guided by thei invisible Hand of the Almighty to serve a greater purpose, to promote, as well as things to his own use, the general utility of the society

of which he forms part» [A.M. (A. Mugnai)], «Esame critico delle Dottrine Economiche, dai sig. Melchiorre Gioja nel fascicolo del Maggio 1827 della Biblioteca Italiana a pag. 192», *Nuovo Giornale de' Letterati*, Pisa, 1827, XV, sez. Letteratura, p. 87).

As well as a complete acceptance of a *laissez faire à la Say*, there was dominant in Tuscany the old message of the first Sismondi (from the early years of the nineteenth century and which will recur in his latest works), which was based on the great virtues of the social harmony of a predominantly agricultural economy founded on the «*mezzadria*».

Apart from the special case of Tuscany, where there was not a single economist of a certain standing during the period examined, we can distinguish in the panorama of Italian economic thought many culturally significant positions relating to the subjects of economic Liberalism.

The first is recognizable in Lombardy and can be identified in the line put forward in the work of G. D. Romagnosi (1761 – 1836) and C. Cattaneo (1801 – 1869).

The economy, for Romagnosi, is not simply the study of the «naked and indefinite production and reproduction of wealth» (Cfr. *Opere edite ed inedite*, Milano, 1845, vol. VI., p. 12), but the science which guarantees «the social order of wealth» (i v i, VI, 88). Economic science, especially as seen by English economists, has been conceived as an «abstract mechanism» moved by a «rude personal advantage» (i v i, VI, 140). It is only in the Italian tradition of the eighteenth century that we can find the right care in producing a «doctrine and an art for the equal spread of pleasant goods»; we are dealing here with a situation similar to that of «a good head of a family who would like to see all his children well provided for» (i v i, 14).

Über many aspects, Romagnosi was referring – even though not explicitly – to a classical opinion expressed by G. Pecchio, for whom the difference between Italian and English economists consists of

«their definition of political economy and their methods for dealing with it. For the English it is an isolated science; it is the science of producing wealth for a nation, and this is the exclusive object of their research. On the other hand, the Italians see it as a comprehensive science, such as the science of the administration and deal with it in all its connections with morality and public happiness.

The English, who are ever in favour of the division of labour, seem to have applied this principle even to this science, having isolated it from all other». English economists, then, «praise the productive manufacturing population because it increases the wealth of a nation without being too concerned about the health and the vigour of the population . . . they promote the use of machinery, because they produce goods in abundance at a lesser cost . . . they see in the worker no more than a productive machine, he is condemned to spend all his energy . . . if they take care to see that he is well nourished, it is with the object of obtaining a larger product».

As opposed to this the

«method followed by the Italians is totally different, because these deal with this science in all its aspects. They not only seek wealth, but also the welfare of the majority. This second aim is as important as the first for them» (G. Pecchio, *Storia della economia pubblica in Italia*, II edition, Milan, 1832, pp. /49 – 51 and 456).

This opinion was deep – rooted in Italian economists during the first decades of the nineteenth century ; it was based on a limiting interpretation of the thought of the classic economists as well as the traditional idea of political economy as a part of the most general art of government.

In Romagnosi, however, we can distinguish, even though with great difficulty, the basic idea that through an «universal and free competition», «the social order of wealth» may be achieved.

Let us see briefly how. Competition is, in Romagnosi, a «dogma» and it is the condition which ensures the «economic and moral improvement of a country». It guarantees

«the equalisation of the usefulness of each individual through the exercise of reciprocal freedom . . . Each day one goes to the market or the shop, where the seller asks ten and the buyer offers five ; both agree finally on seven. In this way they can satisfy their own interest and goods may be exchanged» (O p e r e, cit. VI, 39).

In order that this may come about, a situation of c o m p e t i t i o n must be created and not a situation where one has «unlimited power». The idea of c o m p e t i t i o n implies, then, an active role by the state which should ensure the equality of all in the eyes of the law, a policy of substantial equality of economic power

among competitors (hence his propensity for small farms), the fixing of weights and measures in such a way as to show clearly the quality of the goods, the guarantee that who has worked well and produced well may draw the advantage. Apart from this, there should be no other form of state intervention : «the mania for introducing rules is the plague of the economic world» (ivi, IV, 770).

A system of this type, does not permit the accumulation of large fortunes thus creating wide economic differences. Men are driven by the «need which stimulates» while they are still poor ; they are dominated by an «inertia which holds them back» when they become rich : thus describing a «large economic curve» which impedes the creation of monopolistic conditions.

Romagnosi even affirmed the great advantages of economic competition using his culture which was predominantly with giuridical roots. A good giuridical system is – by definition – an adequate condition in order to achieve even social equity. There is not even the most elementary theory on prices or value in his work. The idea, however, that the economic fortune of the individual goes through a kind of biological cycle is altogether new, at least among Italian economists of that time. It was the task of C. Cattaneo, a disciple of Romagnosi, to pose with great strenght the problem of the advantages of economic freedom in international trade. In a strong criticism of F. List work, Cattaneo declared himself to be even contrary to the protection of the infant industries.

«Those who take upon themselves the protection of the birth of infant industries are then obliged to continue the protection of adult industries» (written in 1843 and has now been published in C. Cattaneo, *Scritti economici*, Florence, 1956, vol. II, p. 411).

But being in favour of an «absolute freedom in industry», Cattaneo cautioned those in government to introduce such freedom gradually and carefully :

«government men cannot run straight to the target and must tack wisely with the sails ; because the ship does not move by the light of the stars, but by the force of the winds» (ivi, p. 421).

The economic liberalism of C. Cavour (1810 – 1861) was different in nature to that of Romagnosi, and it is important to refer to it for the role which this politician played in bringing about national unity. The economic liberalism of Cavour, which referred mostly to international commerce, was born of the political preoccupation of not isolating, primarily Piedmont and then Italy as a whole, from the other European countries which were more economically advanced on which depended the achievement of political independence.

Cavour knew the classical English economists well, and in his writings he often refers to the work of Smith, Ricardo and even Senior, but where economic freedom is concerned he ends up by referring to their work as the place where there is to be found irrefutable evidence of the advantages of the freedom of a free trade policy. Greeting with great enthusiasm R. Cobden during his trip to Italy (in the first half of 1847), Cavour said that the

«freedom of trade will create for Italy advantages whose importance cannot be overrated, because if this freedom is of use in a large country which has a vast market, it is indispensable to the development of industry which has a vast market, it is indispensable to the development of industries and commerce in a nation which is divided by many customs frontiers where the products of the land and of labour are rejected and which cannot be overcome» (*Scritti di Economia*, 1815 – 1850, Milan, 1962, pp. 283).

The approach to economic liberalism is found to be different again in two professional economists, A. Scialoja (1817 – 1877) and the already mentioned F. Ferrara, both from the south both exiled in Piedmont after 1848. For these economists, the principle of economic freedom is a «dogma» – this is often how they put it –; it is the economic assumption on which a modern state should be organised.

However, economic liberalism is in Scialoja more reasoned and more rational and in Ferrara it is seen more as a by – product of civil freedom.

It is interesting then to see in Scialoja a hint at reasoning to demonstrate that free international trade guarantees a good allocation of the resources among various countries.

«It was decided to produce cloth in those countries where the cost of production was the double of its price abroad. It was then decided to forbid the importation of cloth, or even to make it more difficult with an enormous tax . . . the mellifluous word *protection* was invented while it would have been more accurate to speak of oppression or robbery; and in the shadow of this protection enormous capitals and a great deal of work abandoned the industries where natural profit was diminished, and they flocked towards those which gave large artificial gains» (A. Scialoja, «Bastiat e la libera concorrenza», introduction to F. Bastiat, *Sofismi economici*, Florence, 1847, pp. 25 – 6).

The frequent recourse to history and the profound conviction that political freedom cannot exist without economic freedom were the reasons for F. Ferrara's economic liberalism who, within the panorama of his contemporaries, is distinguished by the great oratorical passion and for the incisive prose and the rhetoric which he readily and willingly used.

The history of humanity can almost be divided into two parts : that of tyranny and that of liberty. The passage from one to the other is

«that moment in which an economist said and proved that God, throwing man into the world, had implicitly ordered governments to *laisser faire, laisser passer*» (Prolusione to the Course in Political Economy for the Academic year 1848 - 49 at the University of Turin in *Economisti Italiani del Risorgimento*, Turin, 1933, p. 250).

All this means the abolition of any form of privilege, the elimination of restrictions on the commerce of corn, the removal of any customs regulations, the construction of modern infrastructure, the free circulation of ideas : the putting into effect, that is, the Romagnosian Universal free competition.

In the social organisation of each the alternative is very simple :

«either man is hopelessly condemned to roll eternally the stone of his suffering, or if there is any hope of avoiding this, it is to be found in the increased rate of its economic progress, and the rate of its economic progress is to be found in the only force on which it can depend : freedom» (Prolusione to the Course in Political Economy in 1851, in *Economisti*, op. cit., p. 289).

Ferrara has no doubts on the subject : however much men have tried to deny this great principle :

«one single law governs us : EITHER FREEDOM IN EVERYTHING AND FOR EVERYONE, OR DESOLATION AND MISERY» (Closing lecture at the end of the 1851 - 52 course, in *Economisti*, op. cit., p. 301).

Having only just arrived in Turin, exiled from the kingdom of the two Sicilies, Ferrara was overcome by the fever of freedom. He was planning that great cultural initiative - the most important in the field of Political Economy

in Italy – which was called «Biblioteca dell' Economista». In a long series of volumes he edited in Italian almost all that had been published in English and in French after the Physiocrats. Each hefty tome was preceded by a long introduction by him, in which the recurrent motive of evaluation on the economists was determined by their position on free trade. Whoever was no more than a lukewarm defender of it, was destined to suffer severe criticism; for the other the way was open for a more motivated opinion.

Ferrara lived another half century and his economic thought became somewhat richer in theoretic content; he still had the overpowering need to put himself forward as the champion of economic freedom.

Thus even in his work economic liberalism was, first and foremost, a principle of social philosophy and represented the way in which the great principle of political freedom had to be effected in the production and circulation of wealth. Even here, the adherence to economic liberalism became a great stimulus in order to give real force to the principle of «laissez faire». The mark he left was the determination to make this principle fairly general: his judgments were always measured by this yard-stick: he was then in favour of the railways because they could enlarge the market for some products, and he was against «copyright» because he feared that this may restrict the diffusion of ideas.

In the economic liberalism in Italy in the first half of the nineteenth century, we often see prevalent philosophic or political motives. The effort of giving a theoretic content to the choice of economic policy (on the whole) international, is fairly modest. The willingness to open up the Italian economy in relation to international economy is fairly well-rooted and widespread, but it is difficult to find convincing evidence to justify taking this decision.

Italian economists stick to the principle of «economic freedom» drawing on the great tradition of the last decades of the eighteenth century, when, also for the influence of Physiocratic ideas, we had the victorious battle for the free circulation of corn within each state and between the states. The intellectual itinerary of these economists, starting from P. Verri, goes through J. B. Say and F. Bastiat, after having by-passed A. Smith. The classical English economists of the nineteenth century are early quoted and usually with no more than formal acknowledgements.

It must be admitted that we are not yet able to explain adequately the relative decadence of economic thought in Italy during that period. We can say that when we read P. Verri or C. Beccaria and compare them with A. Smith one has the impression of studying contemporary texts made of the same concep-

tual dough and containing similar problems ; when we read G.D. Romagnosi or even C. Cattaneo and we compare their work with that of D. Ricardo or J. S. Mill, the sensation is that of studying authors belonging to different planets.

It should then be no surprise that economic liberalism in the Italy of this period, personified by authors hardly definable as professional economists, tends to appear with a physionomy which is in a wide sense philosophic and political. *

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ΤΟ ΑΥΤΟΜΑΤΟ ΦΑΙΝΟΜΕΝΟ HALL ΤΩΝ ΜΑΓΝΗΤΙΚΩΝ ΥΛΙΚΩΝ

ΑΛΕΞΑΝΔΡΟΥ Γ. ΘΕΟΔΟΣΙΟΥ

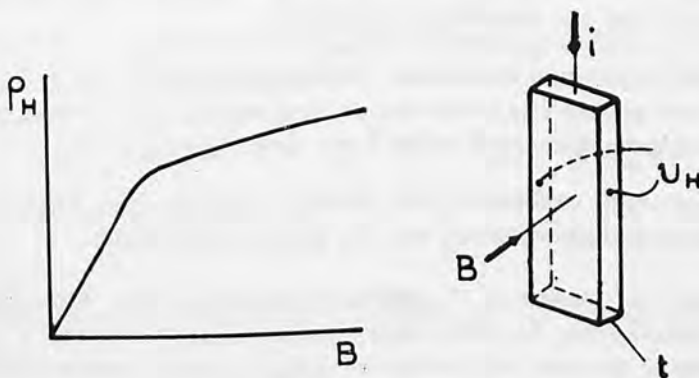
Προπρύτανη Πανεπιστημίου Πατρών

Η κατάσταση των ΑΕΙ επέζηε την σκέψη του Μάριου Γεωργιάδη. Αυτό ήταν εμφανές κατά τις πολυάριθμες συσκέψεις των Πρυτάνεων 1979 - 80. Και έγινε θύμα αυτής της Καταστάσεως.

Αυτό το άρθρο αφιερώνεται με τον προσήκοντα σεβασμό στην μνήμη του.

Γαλβανομαγνητικά—Θερμόμαγνητικά φαινόμενα

Στήν έρευνα τών ποικίλων ιδιοτήτων τών μαγνητικών υλικών πού γίνεται στο Έργαστήριο τής Α΄ Έδρας Φυσικής, περιλαμβάνεται και τò φαινόμενο Hall. Από εικοσαετίας και πλέον είναι γνωστό ðτι τò φαινόμενο Hall τών υλικών αυτών είναι πολυπλοκώτερο εν συγκρίσει πρòς τò τών άλλων υλικών. Τά πειραματικά δεδομένα παρουσιάζουν τήν πορεία τής καμπύλης τού σχήματος πού αντιστοιχεί σέ ώρισμένη θερμοκρασία τού υλικού. Ή ποσότητα $\rho_H = \frac{U_H}{i}$ t είναι ή ειδική αντίσταση Hall (Hall resistivity) και B τò μαγνητικό πεδίο*. Ή έμπειρικός τύπος πού περιγράφει τò φαινόμενο Hall έχει τή μορφή



Σχήμα 1

* Ή έννοια τών συμβόλων φαίνεται στο σχήμα 1.

$$\rho_H = R_0 B + R_s \mu_0 M \quad (1)$$

όπου M ή εκάστοτε μαγνήτιση του υλικού. Το δεύτερο μέρος της καμπύλης του σχήματος 1 αρχίζει εκεί όπου έχει επιτευχθεί ο μαγνητικός κόρος. Με όρισμένες μεθόδους μπορούμε να προσδιορίσουμε τους συντελεστές R_0 και R_s που αντιστοιχούν στο σύννηθες φαινόμενο Hall (R_0) και το ανώμαλο ή το αυτόματο φαινόμενο Hall (R_s). Σημειωτέον ότι ο πρώτος προσθετός αρκεί για την περιγραφή του φαινομένου Hall και των μη μαγνητικών υλικών. Η πλαγία έκτροπή των φορέων αγωγιμότητας (π.χ. ηλεκτρονίων) προκαλείται από την εξάσκηση της δυνάμεως Lorentz, που έρμηνεύει πλήρως τον πρώτο προσθετό της εξ. (1).

Το ενδιαφέρον της Φυσικής είναι να καταλήξει στην σχέση (1) με θεωρητικούς συλλογισμούς. Η άφεταιρία των σχετικών υπολογισμών είναι η εξίσωση (Boltzmann transport equation) που αναφέρεται σε φαινόμενα μεταφοράς, όπως π.χ. την ηλεκτρική και την θερμική αγωγιμότητα των στερεών. Η εξάσκηση μαγνητικού πεδίου ή η εφαρμογή βαθμίδος θερμοκρασίας επί του υλικού δημιουργεί σειρά άλλων φαινομένων που φέρονται με το όνομα γαλβανωμαγνητικά και θερμομαγνητικά αντιστοιχώς. Τα φαινόμενα αυτά έρευνώνται σε όλο τον κόσμο λόγω της πρακτικής σπουδαιότητός τους. Η κατάλληλη επεξεργασία της εξίσωσης Boltzmann οδηγεί στην εύρεση των συντελεστών των φαινομένων αυτών.

Τα βασικά φαινόμενα είναι τα της ηλεκτρικής και θερμικής αγωγιμότητας των διαφόρων στερεών. Ό,τι διαφοροποιεί τους αντιστοιχούς συντελεστές σε διάφορα υλικά είναι οι μηχανισμοί σκεδάσεως των φορέων του ηλεκτρισμού (π.χ. ηλεκτρόνια) και της θερμότητας (φωνόνια).

Με τον όρο μηχανισμοί σκεδάσεως των φορέων έννοσθε αιτίες που προκαλούν έκτροπή των φορέων από την κανονική τους πορεία, όπως αυτή καθορίζεται από το εφαρμοζόμενο ηλεκτρικό πεδίο ή την βαθμίδα θερμοκρασίας.

Οί μηχανισμοί σκεδάσεως των φορέων αγωγιμότητας ποικίλουν ανάλογως της περιοχής θερμοκρασίας και της φύσεως του υλικού.

Σε χαμηλές θερμοκρασίες ή σκέδαση συμβαίνει από προσμίξεις και πλεγματικές διαταραχές. Σε υψηλότερες θερμοκρασίες επικρατεί ή σκέδαση των φορέων από τα φωνόνια, των οποίων το φάσμα συνεχώς εμπλουτίζεται. Ειδικώς στα μαγνητικά υλικά η αύξηση της θερμοκρασίας διαταράσσει την τάξη που επικρατεί στο σύστημα των spin. Η διαταραχή αυτή διαδίδεται υπό μορφήν κυμάτων (spin waves) με quantum ενεργείας το magnon. Η σκέδαση συντελείται

κατά την ἀλληλεπίδραση ηλεκτρονίου-magnon. Όμως οί παραπάνω μηχανισμοί δέν εξασφαλίζουν ασύμμετρη σκέδαση. Χρειάζονται και άλλες ἀλληλεπιδράσεις για την ἐρμηνεία τών πειραματικών δεδομένων.

Με την ἐξάσκηση μαγνητικού πεδίου στο ύλικό ἐμφανίζονται πρόσθετοι μηχανισμοί σκεδάσεως τών φορέων του ήλεκτρισμού, που ἀνιχνεύονται ως φαινόμενο Hall και φαινόμενο Etinghausen. Πρόκειται για τὰ δύο γαλβανομαγνητικά φαινόμενα. Προς αυτά τὰ δύο ἀντιστοιχούν τὰ θερμομαγνητικά φαινόμενα (Nernst και Righi-Leduc) που ἐμφανίζονται όταν ἀντί ηλεκτρικού πεδίου ἐφαρμόζουμε τὰ ἄκρα του ὑλικού βαθμίδα θερμοκρασίας*, ἐνῶ συγχρόνως ἐξασκεῖται μαγνητικό πεδίο.

Ἡ ἐξίσωση μεταφορᾶς του Boltzmann

Ἡ κατάσταση ἐνὸς συνόλου σωματίων που βρίσκεται σὲ ἰσορροπία περιγράφεται για δεδομένο χρόνο t με τὴ συνάρτηση κατανομῆς, στὴν ὁποία καταλήγει ἡ Στατιστικὴ Maxwell-Boltzmann.

Για ἓνα κλασικό ἀέριο, ὁ Boltzmann διετύπωσε τὴν ἐξαδιάστατη συνάρτηση κατανομῆς

$$f(x, y, z, p_x, p_y, p_z) \quad (1)$$

που ὀρίζεται ἔτσι ὥστε ἡ παράσταση

$$f(x, y, z, p_x, p_y, p_z) dx dy dz dp_x dp_y dp_z \quad (2)$$

δίνει τὸν ἀριθμὸ μορίων ἀερίου που ἔχουν συντεταγμένες θέσεως και συνιστώσες ὀρμῆς ἐντὸς τών περιοχῶν

$$\begin{array}{lcl} x \rightarrow x + dx & & p_x \rightarrow p_x + dp_x \\ y \rightarrow y + dy & \text{και} & p_y \rightarrow p_y + dp_y \\ z \rightarrow z + dz & & p_z \rightarrow p_z + dp_z \end{array} \quad (3)$$

Ὁ στοιχειώδης ὄγκος $dx dy dz$ ἐντοπίζεται με τὶς συντεταγμένες (x, y, z) του

* Σχετικά προς τὰ τέσσερα αυτά φαινόμενα εἶναι και τὰ φαινόμενα Seebeck και Peltier, μεγάλης πρακτικῆς σπουδαιότητος, που δέν χρειάζονται τὴν ἐξάσκηση μαγνητικού πεδίου.

χώρου και η κυψελίδα $dr_x dr_y dr_z$ έντοπίζεται στο χώρο των όρμων με τις συνιστώσες (p_x, p_y, p_z) ή με το άνωσμα \vec{p} .

Η παράσταση (2) γράφεται συχνά με τη μορφή

$$f(\vec{r}, \vec{p}) d^3 r d^3 p$$

όπου \vec{r} ή επιβατική ακτίνα στο σημείο (x, y, z) και \vec{p} ή όρμη του σωματίου.

Η συνάρτηση κατανομής όριου αλλάζει όταν στο σύστημα των μορίων επιδρά κάποιο έξωτερικό αίτιο, π.χ. ή ύπαρξη βαθμίδος πυκνότητας ή βαθμίδος θερμοκρασίας προκαλεί ροή μάζης ή θερμότητας αντίστοιχως.

Ο Lorentz (1905) κατέστρωσε την εξίσωση που διέπει τις ιδιότητες μεταφορās των στερεών, τη γνωστή εξίσωση μεταφορās του Boltzmann. Αντί του κλασικού αέριου, ο Lorentz έθεώρησε το ήλεκτρονικό άεριο που είχε εισαχθεί δέκα χρόνια ένωρίτερα.

Η μεθοδολογία της Στατιστικής εφαρμόζεται και στα κβαντικά φαινόμενα, εκεί δηλ. όπου κβαντικές συνθήκες περιγράφουν την συμπεριφορά ενός συνόλου σωματίων. Αντί της $f(\vec{r}, \vec{p})$ γράφουμε την συνάρτηση $f(\vec{r}, \vec{k})$, όπου $k = \frac{2\pi}{\lambda}$ είναι το κυμαάνωσμα.

Η εξάρτηση της συναρτήσεως f από το \vec{r} δηλώνει την επίδραση της θερμοκρασίας. Η παρουσία του \vec{k} δηλώνει την εξάρτηση της f από την ένέργεια μέσω της σχέσεως

$$E_k = \frac{h^2}{8\pi^2 m} k^2$$

Εάν αναφερθούμε σε όμογενές στερεό ύλικό και δέν εφαρμόζουμε, πρός το παρόν, βαθμίδα θερμοκρασίας, τότε μπορούμε αντί της συναρτήσεως $f(\vec{r}, \vec{k})$, να άρκεσθούμε στη συνάρτηση f που δέν εξαρτάται από τις συντεταγμένες θέσεως (x, y, z) . Δεχόμαστε ότι ή συνάρτηση f εξαρτάται μόνο από την ένέργεια του σωματίου, ή όποία ένέργεια συσχετίζεται με την τιμή k του κυματανύσματος.

Γιά τον έντοπισμό του θέματος, θεωρούμε ότι τα σωματία είναι τα έλεύθερα

ηλεκτρόνια μετάλλου, ή συμπεριφορά τών όποιών περιγράφεται από την κβαντική στατιστική Fermi-Dirac.

Αρχίζοντας από την κατάσταση ίσορροπίας f^0 (equilibrium state) ζητούμε την συνάρτηση f που χαρακτηρίζει τó σύνολο σωματίων, μετά την εφαρμογή έξω-

τερικής επιδράσεως π.χ. ηλεκτρικού πεδίου \vec{E} . Η εφαρμογή του πεδίου προκαλεί διαταραχή τής κατανομής τών ηλεκτρονίων, στην όποία δρούν ανασταλτικώς διάφοροι μηχανισμοί συγκρούσεων τών ηλεκτρονίων. Τελικώς επικρατεί μόνιμη κατάσταση (steady state) όπου οί ρυθμοί μεταβολής του f από τις δύο αιτίες* αντισταθμίζονται άμοιβαίως δηλ.

$$\left. \frac{\partial f}{\partial t} \right|_{\text{field}} = - \left. \frac{\partial f}{\partial t} \right|_{\text{coll}} \quad (4)$$

Ας χειρισθούμε χωριστά κάθε μέλος τής εξισώσεως αυτής στον χώρο του κυματανύσματος k . Η μεταβολή τής συναρτησεως f υπό την επίδραση ηλεκτρικού πεδίου γράφεται ως εξής :

$$\left. \frac{\partial f}{\partial t} \right|_{\text{field}} = \frac{\partial f}{\partial t} \frac{\partial k}{\partial t} = \frac{\vec{F}}{h/2\pi} \text{grad}_k f \quad (5)$$

Η έκφραση αυτή προκύπτει από τόν συνδυασμό τών σχέσεων $\lambda = \frac{h}{p}$ και

$k = \frac{2\pi}{\lambda}$ που δίνουν $p = \frac{hk}{2\pi}$ και $\frac{dp}{dt} = \vec{F} = \frac{h}{2\pi} \frac{dk}{dt} = eE$, όπου e τó φορτίο του ηλεκτρονίου. Με τήν εξάσκηση εκ τός του ηλεκτρικού πεδίου \vec{E} , καθέτου

μαγνητικού πεδίου \vec{B} , ή εξ. (5) γίνεται

$$\left. \frac{\partial f}{\partial t} \right|_{\text{field}} = \frac{e}{h/2\pi} (\vec{E} + v_k \times \vec{B}) \text{grad}_k f \quad (6)$$

δηλ. στη θέση τής δυνάμεως \vec{F} τής εξ. (5) γράφουμε τήν γνωστή δύναμη Lorentz

* Οί δείκτες field και coll σημειώνουν τις δύο αιτίες.

Εύκολα προκύπτει ότι το δεξιό μέλος της εξ. (6) γράφεται ως εξής :

$$e (\vec{E} + \vec{v} \times \vec{B}) \cdot \vec{v} = \frac{\partial f}{\partial E} \quad (6a)$$

όπου $\vec{v} = \frac{\hbar \vec{k}}{2\pi m}$ και E ή ενέργεια των ηλεκτρονίων. Συχνά την ταχύτητα σηνουμε με v_k για να την συσχετίσουμε με ομάδα κυμάτων κυματανύσματος k . Με μείω την ίδια έννοια θέτουμε τον δείκτη k όπως f_k και E_k για να αναφερθούμε στην κατάσταση k .

Όταν στο ύλικό εφαρμόζουμε επί πλέον θερμοβαθμίδα τότε η έκφραση της εξ. (5) αποκτᾶ και ἄλλον προσθετέο :

$$\begin{aligned} \left. \frac{\partial f}{\partial t} \right|_{\text{field}} &= \vec{v} \cdot \text{grad}_r f + \frac{\vec{F}}{h/2\pi} \cdot \text{grad}_k f \\ &= \vec{v} \cdot \text{grad}_r T + \frac{\vec{F}}{h/2\pi} \cdot \text{grad}_k f \end{aligned} \quad (5a)$$

όπου ο πρώτος προσθετέος δεξιᾶ δικαιολογείται ως εξής :

$$\frac{\partial f}{\partial t} = \frac{\partial f}{\partial t} + \vec{v} \cdot \frac{\partial f}{\partial \vec{r}} = \vec{v} \cdot \frac{\partial f}{\partial \vec{r}} = \vec{v} \cdot \frac{\partial T}{\partial \vec{r}} = \vec{v} \cdot \text{grad}_r T \quad (5\beta)$$

Εισάγεται ἔτσι ἡ θερμοβαθμίδα ∇T , ἡ ὁποία προκαλεῖ ροὴ θερμότητος πού ὀδηγεῖ στὴν θερμικὴ ἀγωγιμότητα καὶ ἄλλα φαινόμενα.

Ὁ χρόνος ἀποκαταστάσεως

Προχωροῦμε τώρα στὴν ἀνάλυση τοῦ δεξιοῦ μέλους τῆς εξ. (4) πού ἀναφέρεται στὶς συγκρούσεις τῶν φορέων ἀγωγιμότητος, πού ὀδηγοῦν στὴν μόνιμη κατάσταση. Δύο μέθοδοι μποροῦν νά ὀδηγήσουν στὸν σκοπὸ αὐτόν :

Κατὰ μία προσεγγιστικὴ μέθοδο γράφουμε :

$$\left. \frac{\partial f}{\partial t} \right|_{\text{coll}} = - \frac{f - f^0}{\tau} \quad (7)$$

όπου τ ο χρόνος αποκαταστάσεως* (relaxation time) και f^0 η συνάρτηση κατανομής που περιγράφει την κατάσταση ισορροπίας (πριν εφαρμοσθεί δηλ. ηλεκτρικό πεδίο). Ο χρόνος αποκαταστάσεως (που αντιστοιχεί στη σταθερά χρόνου των γνωστών μεταβατικών φαινομένων), έχει εδώ τη θέση του, αφού καθορίζει τον ρυθμό με τον οποίο το σύστημα επανέρχεται στην αρχική ισορροπία μετά την απομάκρυνση του ηλεκτρικού πεδίου. Σημειωτέον ότι κάθε μηχανισμός σκεδάσεως των φορέων έχει τον δικό του χρόνο αποκαταστάσεως τ .

Αν οι εκφράσεις (6α) και (5β) αντικατασταθούν στην εξ. (4) και ληφθεί υπ' όψη η εξ. (7) τότε προκύπτει

$$\vec{v} \frac{\partial f}{\partial T} + \nabla T + e(\vec{E} + \vec{v} \times \vec{B}) \cdot \vec{v} \frac{\partial f}{\partial E} = - \frac{f - f^0}{\tau} \quad (8)$$

από την οποία θέλουμε να υπολογίσουμε την τιμή του f . Απλοποιούμε τα πράγματα αν δεχθούμε ασθενή εξωτερική επίδραση. Τότε η τιμή της f λίγο αποκλίνει από την f^0 . Γράφουμε λοιπόν

$$g = f - f^0 \quad (9)$$

και αντικαθιστούμε την τιμή $f = g + f^0$ στην εξ. (4) λαμβάνοντας υπ' όψη την εξ. (5α):

$$\vec{v} \frac{\partial f^0}{\partial T} + \frac{e}{h/2\pi} (\vec{E} + \vec{v} \times \vec{B}) \frac{\partial f^0}{\partial k} = - \frac{\partial g}{\partial t} \Big|_{\text{coll}} - \vec{v} \frac{\partial g}{\partial T} - \frac{e}{h/2\pi} (\vec{E} + \vec{v} \times \vec{B}) \frac{\partial g}{\partial k}$$

Με την εισαγωγή της συναρτήσεως Fermi-Dirac που ισχύει για τα μέταλλα:

* Το αντίστροφο του χρόνου τ (δηλ. το τ^{-1}) δίνει την πιθανότητα σκεδάσεως.

$$f^0 = \frac{1}{eE - F_F / kT_{+1}}$$

λαμβάνουμε τη γραμμική εξίσωση Boltzmann

$$\frac{\partial f^0}{\partial E} \vec{v} \left[\frac{E - E_F}{T} \vec{\nabla} T + e \left(E - \frac{1}{e} \vec{\nabla} E_F \right) \right] = \frac{\partial f}{\partial t} \Bigg|_{\text{coll}} - \vec{v} \frac{\partial g}{\partial r} + \frac{e}{h/2\pi} (\vec{v} \times \mathbf{B}) \frac{\partial g}{\partial \mathbf{k}} \quad (10)$$

Η παρουσία της ποσότητας $\vec{\nabla} E_F$ προβλέπει την μεταβολή της ενέργειας Fermi ως προς την θεωρούμενη θέση εντός του υλικού. Η μεταβολή του E_F οφείλεται στην διαφορετική θερμοκρασία που υφίσταται από θέσεως σε θέση.

Από την εξίσωση Boltzmann αποβλέπουμε στὸν ὑπολογισμό της συναρτήσεως g και ἐν συνεχείᾳ της f κατὰ τὴν ἐξ. (9). Ἡ τιμὴ f ἐπιτρέπει τὸν ὑπολογισμό της πυκνότητας ρεύματος

$$\vec{j} = \int e \vec{v} f d^3k = \int e \vec{v} (f^0 + g) d^3k \quad (11)$$

ἢ της ἀντίστοιχης ποσότητας της θερμικῆς ροῆς, ὅταν στὸ ὑλικὸ ἐφαρμόζεται θερμοβαθμίδα.

Στὴν ἔρευνα τοῦ φαινομένου Hall ἐξασκοῦμε ἠλεκτρικὸ καὶ μαγνητικὸ πεδίο χωρὶς ὅμως νὰ ἐφαρμόζουμε θερμοβαθμίδα. Μὲ τὴ χρησιμοποίηση τοῦ χρόνου ἀποκαταστάσεως τ , ἡ ἐξ. (10) γίνεται

$$-\frac{\partial f^0}{\partial E} \vec{v} e E = \frac{g}{\tau} + \frac{e}{h/2\pi} (\vec{v} \times \mathbf{B}) \frac{\partial g}{\partial \mathbf{k}}$$

ἀπὸ τὴν ὁποία ὑπολογίζουμε τὸ g καὶ στὴ συνέχεια τὴν πυκνότητα ρεύματος \vec{j} .

Ἡ θερμοδυναμικὴ τῶν μὴ ἀντιστρεπτῶν μεταβολῶν.

Ἄλλὰ τὰ φαινόμενα ροῆς ἠλεκτρικοῦ φορτίου (ἢ ἐνεργείας) ἀντιμετωπίζονται καὶ μὲ τὶς μεθόδους της θερμοδυναμικῆς τῶν μὴ ἀντιστρε-

π τ ὠ ν μ ε τ α β ὠ λ ὠ ν (irreversible thermodynamics). Ὁ ὑπολογισμὸς καταλήγει στὴ σχέση :

$$j_x = \sigma_{\alpha\beta} E_\beta + \overset{(1)}{\sigma_{\alpha\beta\gamma}} E_\beta B_\gamma + \overset{(2)}{\sigma_{\alpha\beta\gamma\delta}} E_\beta B_\gamma B_\delta \quad (12)$$

Καθένας ἀπὸ τοὺς δείκτες α, β, γ, δ παίρνει τὶς τιμὲς τῶν συντεταγμένων x, y, z.

Ἡ συνεπτυγμένη μορφή τῆς ἐξ. (12) γράφεται ἀναλυτικότερα ὡς ἐξῆς :

$$j_x = \sum_{\beta=1}^3 \sigma_{\alpha\beta} E_\beta + \sum_{\beta=1}^3 \sum_{\gamma=1}^3 \sigma_{\alpha\beta\gamma} E_\beta B_\gamma + \sum_{\beta=1}^3 \sum_{\gamma=1}^3 \sum_{\delta=1}^3 \sigma_{\alpha\beta\gamma\delta} E_\beta B_\gamma B_\delta$$

Ἐπάρχουν καὶ οἱ ἀντίστοιχες ἐκφράσεις γιὰ τὶς ἄλλες δύο συνιστώσες τῆς πυκνότητος ρεύματος. Προκύπτουν ἔτσι γιὰ τὸν συντελεστὴ $\sigma_{\alpha\beta}$ ἑννέα συνιστώσες ποὶ ἀποτελοῦν τὸν τανυστὴ τῆς εἰδικῆς ἀγωγιμότητος, χαρακτηριστικὸ τῶν ἀνισοτρόπων ὑλικῶν. Ὁμοίως καὶ τὰ $\sigma_{\alpha\beta\gamma}$, $\sigma_{\alpha\beta\gamma\delta}$ παρίστανται μὲ τανυστάς. Ἡ σύγκριση τῶν δύο ἐκφράσεων τῆς πυκνότητος ρεύματος (ἀπὸ τὴν ἐξίσωση Boltzmann καὶ τὴν Ἱερμοδυναμικὴ) ὀδηγεῖ στὶς ἀναλυτικὲς ἐκφράσεις τῶν συντελεστῶν σ τῆς ἐξ. (12).

Στὴν περίπτωση σιδηρομαγνητικῶν ὑλικῶν ἡ ἐξ. (12) γίνεται

$$j_x = \sigma_{\alpha\beta} E_\beta + \overset{(1)}{\sigma_{\alpha\beta\gamma}} E_\beta B_\gamma + \overset{(2)}{\sigma_{\alpha\beta\gamma}} E_\beta M_\gamma \quad (13)$$

Ἡ φυσικὴ σημασία τῶν προσθετῶν τῆς ἐξ. (13) εἶναι ἡ ἐξῆς :

Ὁ πρῶτος προσθετέος δίνει τὴν συνήθη ἠλεκτρικὴ ἀγωγιμότητα χωρὶς δηλ. τὴν ἐξάσκηση μαγνητικοῦ πεδίου, ὁ δεῦτερος καὶ ὁ τρίτος προσθετέος δίνουν τὸ ὀμαλὸ καὶ τὸ αὐτόματο φαινόμενο Hall. Ὁ περαιτέρω χειρισμὸς τῶν ἐξ. (12) καὶ (13) καθορίζεται ἀπὸ τὸ κρυσταλλικὸ σύστημα στὸ ὁποῖο ἀνήκει τὸ ὑλικό.

Μὲ εἰδικὴ ἀναφορὰ στὸ κυβικὸ σύστημα, ἡ συνιστώσα x τῆς πυκνότητος ρεύματος παίρνει τὴ μορφή :

$$j_x = \sigma_0 E_x + \sigma_H (E_y B_z - E_z B_y) + \sigma_H (E_y M_z - E_z M_y) \quad (13a)$$

καὶ ἀνάλογε οἱ ἄλλες δύο συνιστώσες j_y καὶ j_z . Ἀπὸ τὴν παραπάνω ἐξίσωση προκύπτει

$$\rho_H = \frac{E_y}{j_x} = \frac{\sigma_H}{\sigma_0^2} B_z + \frac{\sigma_H}{\sigma_0^2} M_z \quad (1)$$

που συγκρίνεται άμέσως με την έμπειρική έξ. (1).

Ή πιθανότητα μεταβάσεως

Κατ' άλλον, όμως πολύπλοκο, τρόπον ύπολογισμού του $\left. \frac{\partial f}{\partial t} \right|_{\text{coll}}$ χρησιμοποιούμε την πιθανότητα μεταβάσεως του ήλεκτρονίου (transition probability) από κάποια κατάσταση k σε άλλη k' .

Ένα ήλεκτρόνιο, κατόπιν έλαστικής συγκρούσεως, πηγαίνει από την κατάσταση που χαρακτηρίζεται από το κυματόνυσμα k στην κατάσταση k' . Το πλήθος των ήλεκτρονίων που ανά μονάδα χρόνου κάνουν αυτήν την μετάβαση είναι

$$W(\vec{k}, \vec{k}') f_k (1 - f_{k'})$$

όπου $W(\vec{k}, \vec{k}')$ ή πιθανότητα μεταβάσεως και $f_k, f_{k'}$ σχετίζονται με την κατάληψη των αντίστοιχων καταστάσεων. Συγκεκριμέως το f_k μετράει τον αριθμό των φορέων στην κατάσταση k και το $(1-f_{k'})$ τον αριθμό των κενών στην τελική κατάσταση.

Έπειδή συμβαίνουν και οι αντίστροφες μεταβάσεις ήλεκτρονίων (δηλ. από k' στο k) γράφουμε τη σχέση :

$$\left. \frac{\partial f}{\partial t} \right|_{\text{coll}} = \int \{ W(\vec{k}', \vec{k}) f_{k'} (1-f_k) - W(\vec{k}, \vec{k}') f_k (1-f_{k'}) \} dk' \quad (14)$$

Ή ολοκλήρωση εκτείνεται στο πλήθος των καταστάσεων k' .

Έπειδιθ θεωροϋμε τήν περίπτωση τής ελαστικῆς σκεδάσεως, ισχύει *

$$\vec{W}(k, \vec{k}') = \vec{W}(\vec{k}', k)$$

καί ἡ πιθανότητα μεταβάσεως βγαίνει κοινός παράγων στήν ἐξ. (9). Μέσα στο ὀλοκλήρωμα ἐμφανίζεται ἡ διαφορά μεταξύ τοῦ ἀριθμοῦ ἠλεκτρονίων πού τὸ κυματάνυσμα γίνεται k ἀνά μονάδα χρόνου καί ἐκείνων πού ἀλλάζουν k πρὸς κάποια ἄλλη τιμὴ κυματανύσματος.

Προφανῶς ἡ τιμὴ $\left. \frac{\partial f}{\partial t} \right|_{\text{coll}}$ γίνεται ἴση μὲ τὸ μηδέν ὅταν δέν ἐξασκεῖται

ἠλεκτρικὸ πεδίο. Ἡ ἀντικατάσταση τῶν ἐκφράσεων (6) καί (14) στήν ἐξ. (4), μᾶς δίνει τὴν ὀλοκληρο-διαφορικὴ ἐξίσωση Boltzmann, ὅταν στο ὑλικὸ ἐξασκεῖται ἠλεκτρικὸ πεδίο \vec{E} καί μαγνητικὸ πεδίο \vec{B} :

$$\frac{e}{h/2\pi} (\vec{E} + \vec{v}_k \times \vec{B}) \text{grad}_k f = \int \vec{W}(k, \vec{k}') \{f_{k'}(1-f_k) - f_k(1-f_{k'})\} d\vec{k}'$$

* Ἀλληλεπιδράσεις πού προκαλοῦν ἀσύμμετρη σκέδαση

Ἐς παραμερίσουμε τώρα τὶς μαθηματικὲς δυσκολίες πού παρουσιάζει ἡ λύση τῆς ἐξισώσεως Boltzmann καί ἄς προχωρήσουμε στο φυσικὸ πρόβλημα. Ὁ στόχος εἶναι νὰ δικαιολογήσουμε τὸ ἠῦξημένο φαινόμενο Hall τῶν μαγνητικῶν ὑλικῶν. Τὸ πρόβλημα συνίσταται στὸν ὑπολογισμό τῆς πιθανότητας μεταβάσεως $W(k, \vec{k}')$ ὅταν στο ὑλικὸ ἐξασκεῖται σταθερὰ ἐξωτερικὴ ἐπίδραση. Ἡ ἐπίδραση αὐτὴ προκαλεῖ μετατόπιση τῆς συναρτήσεως ἀπὸ τὴν τιμὴ f^0 σὲ νέα τιμὴ f .

* Κατὰ τὴν κατανομὴ Boltzmann γράφουμε $\frac{\vec{W}(k, \vec{k}')}{\vec{W}(\vec{k}', k)} = \frac{eE' - E}{kT}$ ὅπου στήν ελα-

στικὴ σκέδαση εἶναι $E = E'$.

Ὁ χρυσοῦς κανόνας Dirac δίνει

$$W(\vec{k}, \vec{k}') = \frac{2\pi}{h/2\pi} \langle \vec{k}' | H_{int} | \vec{k} \rangle \delta(E_{\vec{k}'} - E_{\vec{k}}) \quad (15)$$

Ἐμφανίζεται ἐδῶ τὸ στοιχείο μῆτρας τῆς συναρτήσεως Hamilton ποῦ περιγράφει κάποια νεοεισαγόμενη ἀλληλεπίδραση. Ἐννοοῦμε ἀλληλεπίδραση ποῦ ἐπηρεάζει τὴν κίνηση τῶν φορέων μέσα στὸ κρυσταλλικὸ πλέγμα τοῦ στερεοῦ. Ἡ παρουσία τῆς συναρτήσεως δέλτα, ἐκφράζει τὴν διατήρηση τῆς ἐνεργείας ποῦ ἰσχύει στὴν ἐλαστικὴ σκέδαση.

Πρὶν ἀσχοληθοῦμε μὲ τὶς ἀλληλεπιδράσεις ποῦ μᾶς ἐνδιαφέρουν στὸ αὐτόματο φαινόμενο Hall, ἄς ἀναφερθοῦμε στὴν ἀλληλεπίδραση στὴν ὁποία ὀφείλεται ἓνα μέρος τῆς ἠλεκτρικῆς ἀντιστάσεως τῶν ὑλικῶν. Πρόκειται γιὰ τὴν ἀλληλεπίδραση Coulomb μεταξὺ τῶν ἠλεκτρονίων ἀγωγιμότητος καὶ τῶν ἰόντων τοῦ κρυσταλλικοῦ πλέγματος. Ὁ ἀντίστοιχος προσθετός τῆς συναρτήσεως Hamilton τοῦ συστήματος εἶναι

$$H_{int} = \sum_{j \neq 1} \frac{N}{4\pi\epsilon_0} \frac{Ze^2}{|\vec{r} - \vec{R}_j|}$$

ὅπου N τὸ πλῆθος τῶν θεωρουμένων ἰόντων καὶ r, R_j οἱ ἐπιβατικὲς ἀκτίνες τοῦ ἠλεκτρονίου καὶ τοῦ j ἰόντος ἀπὸ κάποια ἀφετηρία.

Πολλοὶ καταπιάστηκαν τὶς τελευταῖες δεκαετίες μὲ τὴν ἐρμηνεία τοῦ φαινομένου Hall τῶν μαγνητικῶν ὑλικῶν. Κατ' ἀρχὴν ἓνας μηχανισμὸς ποῦ ἐπηρεάζει τὴν κίνηση τῶν ἠλεκτρονίων ἀγωγιμότητος ἀναμένεται νὰ δίνει συμμετρικὴ σκέδαση δεξιὰ καὶ ἀριστερά. Τέτοια σκέδαση ὅμως δὲν συμβάλλει στὴν ἐρμηνεία τοῦ αὐτομάτου φαινομένου Hall. Ὁ μηχανισμὸς τῆς ἀλληλεπιδράσεως πρέπει νὰ ἐξασφαλίζει ἀσύμμετρη σκέδαση τῶν ἠλεκτρονίων, κατὰ προτίμηση δεξιά. πρὸς τὴν μία μόνο πλευρὰ τοῦ ὑλικοῦ*. Πρέπει ἐπίσης ἢ ἀπόκλιση τῶν φο-

* Μὲ πειράματα σκεδάσεως σωματίων α διεπίστωσε ὁ Rutherford τὴν ὑπαρξὴ τοῦ πυρήνος τῶν ἀτόμων. Ἀλλὰ, πειράματα σκεδάσεως νευκλεονίων συνεχίζονται ἐπάνω σὲ πυρῆνες μὲ στόχο τὴν εὑρεση τῆς δομῆς τοῦ πυρήνος. Σὲ πολλὲς περιπτώσεις ἡ γωνιακὴ κατανομὴ τῆς σκεδάσεως παρουσιάζει ἀνισοτροπία δηλ. διαφορετικὴ πιθανότητα σκεδάσεως τῶν νευκλεονίων δεξιὰ καὶ ἀριστερὰ τῆς ἀρχικῆς δέσμης.

ρέων να συμπίπτει με εκείνη του συνήθους φαινομένου Hall, που οφείλεται στην δύναμη Lorentz.

Ότι μετρούμε άμεσα στο φαινόμενο Hall είναι η τάση Hall U_H (Σχ. 1). Οί μηχανισμοί σκεδάσεως πρέπει να δίνουν την σωστή πολικότητα της τάσεως αυτής (σύγκριση με το πείραμα) καθώς και το μέγεθός της, ακόμη την εξάρτηση από τα χαρακτηριστικά του υλικού και την θερμοκρασία του. Ένδιαφέρον παρουσιάζει ακόμη η πορεία του φαινομένου όταν το υλικό μεταπίπτει στην παραμαγνητική φάση (θερμοκρασία Curie ή Néel).

Πολλοί έχουν έρευνήσει μηχανισμούς σκεδάσεως των φορέων που εμφανίζονται στα μαγνητικά υλικά και μπορούν να δικαιολογήσουν το ένισχυμένο φαινόμενο Hall των υλικών αυτών.

Είναι γνωστό ότι η μαγνήτιση οφείλεται στον προσανατολισμό των μαγνητικών ροπών των spin των άσυμπληρώτων υποφλοιών. Λόγω της παρουσίας της μαγνήτισεως M στην έξ. (1), ο όποιοσδήποτε μηχανισμός σκεδάσεως των φορέων πρέπει να λαμβάνει υπ' όψη το spin των ηλεκτρονίων αυτών.

Τα μαγνητικά υλικά ταξινομούνται σε δύο ομάδες, του σιδήρου και των σπανίων γαιών. Όλα τα στοιχεία αυτά είναι μεταβατικά με όπες στους υποφλοιούς 3d και 4f αντίστοιχως.

Στα υλικά αυτά εμφανίζεται η άλληλεπίδραση s-d, μεταξύ του spin σ του ηλεκτρονίου άγωγιμότητας και του spin S_n του μη συμπληρωμένου υποφλοιού d.

Ο σχετικός όρος στην συνάρτηση Hamilton είναι

$$H_1 = - \sum_{n=1}^N \mathbf{J}(\mathbf{r} - \mathbf{R}_n) \cdot \sigma \cdot \mathbf{S}_n \quad (16)$$

Το N είναι το σύνολο των δομικών λίθων του στερεού και το $\mathbf{J}(\mathbf{r} - \mathbf{R}_n)$ το ολοκλήρωμα ανταλλαγής.

Μία άλλη άλληλεπίδραση στα μαγνητικά υλικά είναι μεταξύ του spin S_n του μη συμπληρωμένου υποφλοιού και της στροφορμής L_n του ηλεκτρονίου άγωγιμότητας. Προς το spin S_n είναι συνυφασμένη ή μαγνητική ροπή M . Στις γνωστές περιοχές Weiss είναι προσανατολισμένες αυτές οι μαγνητικές ροπές. Σε κάθε δομικό λίθο του πλέγματος είναι, λοιπόν, έντοπισμένη μία μαγνητική ροπή που δημιουργεί στο περιβάλλον της ένα μαγνητικό πεδίο. Ένα ηλεκτρόνιο άγωγιμότητας υφίσταται κατά την διαδρομή του την επίδραση του μαγνητικού αυτού πεδίου. Πρόκειται για την άλληλεπίδραση s-o (spin-orbit) που καθορίζει ένα νέο όρο στη συνάρτηση Hamilton:

$$H_2 = - \frac{\mu_0}{4\pi} \frac{ge^2}{2m^2} \sum_{n=1}^N \frac{\vec{S}_n \cdot \vec{L}_n}{|\vec{r} - \vec{R}_n|^3}$$

όπου g ο παράγων Landé, μ_0 ή μαγνητική διαπερατότητα του κενού, L είναι η στροφορμή του ηλεκτρονίου ίση προς $\vec{r} \times \vec{p}$, όπου p ή όρμη του ηλεκτρονίου και \vec{r} ή επιβατική ακτίνα, από τον δομικό λίθο του πλέγματος προς το ηλεκτρόνιο*.

Μετά την εισαγωγή αυτών των αλληλεπιδράσεων που περιγράφονται από το άθροισμα $H_1 + H_2$ και άποτελούν διαταραχές στην άνεμπόδιστη κίνηση των φορέων το επόμενο βήμα είναι ο ύπολογισμός της πιθανότητας μεταβάσεως.

Με τη μέθοδο των διαταραχών μπορούμε να υπολογίσουμε τα στοιχεία μήτρας διαφόρων τάξεων (προσεγγίσεων κατά Born). Τα στοιχεία αυτά καθορίζουν την αντίστοιχη πιθανότητα μεταβάσεως.

Έτσι ο ύπολογισμός της πιθανότητας μεταβάσεως πρώτης τάξεως που γίνεται με βάση τις συναρτήσεις H_1 και H_2 , δεν εξασφαλίζει ασύμμετρη σκέδαση των φορέων της αγωγιμότητας. Αντιθέτως, η πιθανότητα μεταβάσεως δευτέρας τάξεως οδηγεί σε ασύμμετρη σκέδαση (skew scattering) που συμβάλλει στο αυτόματο φαινόμενο Hall.

Η ασύμμετρία σκεδάσεως σχετίζεται με την αλλαγή του αλγεβρικού σημείου του H_2 της εξ. (17) όταν η σκέδαση συμβαίνει προς δύο συμμετρικές θέσεις, εκατέρωθεν του επιπέδου που σχηματίζει ή διεύθυνση προσπτώσεως με το άνωσμα της μαγνητικής ροπής M .

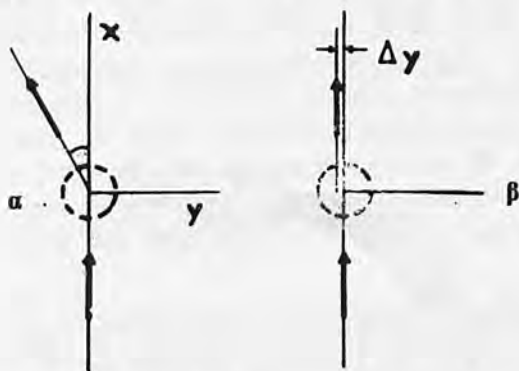
Για την έρμηνεία του αυτόματου φαινομένου Hall των μαγνητικών υλικών σε θερμοκρασίες δωματίου και άνω, έχει μελετηθεί και άλλος μηχανισμός, ο της έγκαρσίας εκτοπίσεως (side jump). Συμβαίνει όταν ο συρμός κυμάτων που περιγράφει το κινούμενο ηλεκτρόνιο σκεδάζεται από προσμίξεις ή φωνόνια. Εάν το κυματάνωσμα του προσπίπτοντος ηλεκτρονίου είναι κατά την διεύθυνση

* Η αλληλεπίδραση s-o εμφανίζεται και στο άμαγνήτιστο υλικό σε κάθε περιοχή Weiss. Λόγω όμως του ποικίλου προσανατολισμού των περιοχών Weiss δεν γίνεται μακροσκοπικώς εμφανής ή ασύμμετρη σκέδαση.

Η εξάσκηση μαγνητικού πεδίου στο υλικό προκαλεί τον βαθμιαίο προσανατολισμό των περιοχών Weiss και την εμφάνιση της ασύμμετρου σκεδάσεως. Έτσι δικαιολογείται η εξάρτηση του ρ_H από την μαγνήτιση M , κατά την εξ. (1).

Σημειωτέον ότι η ασύμμετρη σκέδαση εμφανίζεται στα ισχυρά παραμαγνητικά και τα αντισηδηρομαγνητικά υλικά που έχουν ισχυρές έντοπισμένες μαγνητικές ροπές.

x , το μαγνητικό πεδίο εξασκεύεται κατά την διεύθυνση z , τότε ή εκτόπιση συμβαίνει κατά τόν άξονα y (Σχ. 2β) και υπολογίζεται ότι ή τιμή της είναι $\Delta y = 10^{-10} \text{m}$



Σχήμα 2

Στό α του ίδιου σχήματος φαίνεται ή ασύμμετρη σκέδαση (skew scattering).

Έπέκταση τής άλληλεπιδράσεως τών φορέων με τά φωνόνια είναι και ή άλληλεπίδραση τών φερρέων με τά magnon που είναι τό quantum τών κυμάτων spin. Πράγματι, ή ύψωση τής θερμοκρασίας προκαλεί διαταραχή του προσανατολισμού τών spin τών μαγνητικών ίόντων, που διαδίδεται με μορφή κύματος (spin wave).

Ή άφετηρία τών σχετικών υπολογισμών είναι ή συνάρτηση Hamilton, που μέσω τής πιθανότητας μεταβάσεως εισάγεται στην εξίσωση μεταφοράς του Boltzmann.

Στόχος τών σχετικών θεωρητικών έρευνών είναι ή παραγωγή τής εξ. (1). Έπειδή είναι πειραματικό δεδομένο ότι ό δεύτερος προσθετός τής εξ. (1) είναι πολύ μεγαλύτερος του πρώτου, αναμένεται ότι οι μηχανισμοί ασυμμέτρου σκεδάσεως (skew scattering και side jump) θα έπηρεάζουν την αντίσταση ρ τών υλικών. Ή θεωρητική έπεξεργασία καταλήγει στην σχέση

$$R_s = a \rho + b \rho^2 \quad (18)$$

τής όποιας ό έλεγχος ισχύος της είναι προσιτός όταν πειραματικές τιμές R_s και ρ συναρτήσσει τής θερμοκρασίας δεδομένου υλικού είναι διαθέσιμος. Οι δύο προσθετέοι τής εξ. (18) αντίστοιχούν στις περιπτώσεις α και β του σχήματος 2.

Άλλο σημείο έλέγχου τής θεωρίας είναι ή πορεία τής καμπύλης $R_s \rightarrow T$. Ή θεωρία του αυτόματου φαινομένου Hall προβλέπει αύξηση τής τιμής R_s καθώς ή θερμοκρασία αυξάνεται μέχρι τής τιμής $\sim 0,9 T_c$, όπου παρουσιάζεται μέγιστο τής τιμής R_s και άκολουθεί πτώση καθώς τό υλικό μεταπίπτει στην παραμαγνητική φάση. T_c είναι ή θερμοκρασία Curie.

Νά τονισθει ἐδῶ ὅτι οἱ θεωρίες πού καταπιάνονται μὲ τὴν ἐρμηνεία τοῦ αὐτόματου φαινομένου Hall, εἶναι ἀπὸ τὶς περισσότερο πολὺπλοκες τῆς Φυσικῆς Στερεῆς Καταστάσεως καὶ θεωρεῖται ὅτι τὸ θέμα αὐτὸ δὲν ἔχει ἀντιμετωπισθεῖ πρὸς τὸ παρὸν ἱκανοποιητικά. Πρόοδος θὰ συντελεσθεῖ ἂν περισσότερα πειραματικά οὐδομένα εἶναι διαθέσιμα στὴν διεθνή βιβλιογραφία. Ἐπίσης οἱ πολυάριθμες δημοσιευμένες θεωρητικὲς ἐρευνες αναφέρονται κυρίως στὰ σιδηρομαγνητικά καὶ κάπως στὰ ἀντισιδηρομαγνητικά ὑλικά, χωρὶς νὰ ἐπεκτείνονται καθόλου στὰ σιδηριμαγνητικά. Ἡ ἐρευνα πού γίνεται στὸ Ἔργαστήριο αὐτὸ ἐντοπίζεται ἀκριβῶς στὰ σιδηριμαγνητικά καὶ ἀντισιδηρομαγνητικά ὑλικά σὲ περιοχὴ ἀπὸ θερμοκρασία δωματίου καὶ μέχρι πέρα τοῦ σημείου Néel.

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CREEK MERCHANTS AND MARINERS AT SEVILLE DURING THE 16th CENTURY

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That Seville became the meeting place of merchants and mariners from many parts of Europe after the discovery of America by Columbus is not astonishing. The wide horizon of trading possibilities which opened it self with the various expeditions of Columbus, his rivals and successors and which were still surmounted by the Conquistadores, could not but attract as well earnest and honest representatives of the commercial world as well as adventurers in spite of the prohibitive policy, which the government of the crown of Castile followed from the beginning. Officially it was not allowed to foreigners, such as Genoveses, Netherlanders or Germans to go to the Caribbean or the Tierra Firme and to settle there¹. Only members of the Crown of Castile were favoured in the beginning and even those of the Crown of Aragon were excluded. This changed however when Charles, the Habsburg grand son of king Fernando the Catholic, became King of Spain. He, under the influence of the more liberal traditions of the Netherlands, did not hesitate for a long time to liberalize the trade with America. Thus in February 1524 he allowed non-Spanish people to enter into trade with «Indias», the Spanish denomination for the new continent. On the 10th of November of the same year he allowed members of the Empire and Genovese people to migrate to America and to settle there with the condition that they were married and that they took with them their wives and they obliged themselves to stay there for 10 years. On the 17th of November 1526 even these conditions were abolished. Thus the way

1) Richard Konetzke, *Legislación sobre inmigración de extranjeros en America durante la eoca colonial* «Revista Internat. de Sogologia, 3 1945, 269-299 ; ib. *La legislación sobre inmigración de extranjeros en America durante el reinado de Carlos V : Charles Quint et son temps*, Paris 1959 pp. 3 - 111.

was open for people of states which were in friendly relations with the Emperor or at least were considered to be neutrals. Thus it did not take a long time that we find the traces of Greeks which had settled at Seville and stood in business relations with America or participated in the shipping activity of the «carrera de Indias» as mariners. For the time being a full picture of these activities is not yet possible. Documentation is too scattered and much investigation will be necessary to get more details. Findings in the Archivo General de Indias at Seville may help to complete the picture. Another place of sources is the Archivo de Protocolos, and the following documents are taken from there. They illustrate a part of the activity of the banking agency which the German firm of the Fuggers maintained at Sevilla. From the thirties their agent was Christoph (Spanish : Cristóbal) Raiser (or Rayser).²

II

The documents which are at our disposition are from the office of the «escribano» Alonso de Cazalla, a notary who during long years stood in close contacts with the Fugger agency.³ The documents are from the years 1554, 1555 and 1557. The first document has the date of the 31st of July 1554. It sounds the following way : Francisco Griego, citizen of Seville, living in the parish of San Lorenzo and Jacome de Rodas, citizen, too, and living in the parish of San Salvador, as well as Juan de Lias citizen and living in the parish of San Lorenzo, acknowledged the fact that they owed to Cristóbal Rayser who lived in Seville, but for the time being was outside (on business) 156.000 maravedis which were for 26 quintals of copper. They bought them from Rayser for the price of 6000 maravedis the quintal and had received them already. They promised to pay their debt within 18 months. On the margin of the document stood the cancellation of the debt with the signature of Rayser.⁴

That the three who appeared before the notary were of Greek origin is visible from the names. Unfortunately there is nothing added which might help to state from where they came originally. Interesting the fact that they received the credit for 18 months. We find such conditions in many other documents. They

2) Hermann Kellenbenz, Die frühen Bankgeschäfte der Fuggerschen Faktorei in Sevilla in : *Revue Internationale d' Histoire de la Banque* 8, 1974 pp. 200 – 215.

3) We thank Professor Enrique Otte (University of Berlin) for the kindness to put copies of the following documents to our desposition.

4) See annex document nr. 1.

must be seen in connection with the time which passed until a ship going to America had returned to Andalusia.⁵ We may conclude that the three Greeks had made a partnership for the trade with America.

On Friday the 27th of September 1555 Francisco Griego appeared again in the office of the notary, but now he lived in the parish of San Vicente and confessed to owe to Rayser (who again was absent from Seville) 136.500 maravedis. They were the rest of the sum of 498.000 maravedis which Griego, Juan «Delmas» and Jacome de Rodas together owe for two contracts of debt. The one with the sum of 342.000 maravedis was signed on the 4th of June 1554, the other with the sum of 156.000 maravedis on the 31st of July of the same year. Now Griego promised to pay the sum of 136.500 maravedis at Seville within a year and earlier when the fleet which now was to go to Indias, under the command of Pedro Mencéndez de Valdés, 20 days after it had returned.⁶

From the next day, Saturday the 28th of September, we have another document of the notary. There his wife is called Juana «Rasti». They confess to owe 136.500 maravedis as the remaining part of the 498.000 maravedis which Griego, Juan Delios and Jacome de Rodas had obliged themselves to pay to Rayser by two contracts issued by Alonso de Cazalla, the one the date of 4th of June 1554 with the sum of 342.000 maravedis, the other with the sum of 156.000 maravedis and the date of 31st July of the same year. Now they promised to pay the remaining part after a year or, when the fleet commanded by Pedro Menéndez which now passed to the Indies would return earlier, a month after its arrival. This document has the marginal note of cancellation with the date of the 25th September 1556 and the signature of Cristobal Rayser.⁷

On the 11th of February 1557 Griego and his wife Juana Rosa confess to owe 430.000 maravedis to Rayser for 86 quintals, that is 80 quintals of copper and 6 of tin in plates for 5000 maravedis each quintal. They promised to pay the sum within 2 years. A note on the margin says that on the 19th of January 1559 Thomas Miller representing Cristóbal Rayser (by his power issued on the 31st of August 1558) received the sum above mentioned by Pedro de Morga and therefore ordered to cancel the document.⁸

On the 23rd of December 1557 Jacome de Rodas, now living in the parish

5) Pierre and Huguette Chaunu, *Seville et l'Atlantique (1504-1650)*, 12 vols. Paris 1955-1960.

6) See annex document nr. 2.

7) See annex document nr. 3.

8) See annex document nr. 4.

of Santa Maria, confessed to bail for the 430.000 maravedis which Griego owed to Rayser. Griego had the intention to sail to the Indies and Rayser would not leave him pass before he had given sufficient security. Now Jacome de Rodas obliged himself with Griego and his wife to pay the sum on the 11th of February 1559. A marginal note remarks the cancellation as a testimony that the sum had been payed.

There is a remaining document from 1557 which illustrates the business relations of a Greek merchant with Marocco.

On the 8th of May 1557 Leonis Catacochino, a citizen of Cadiz, made a contract with Francisco de Mariaca, a merchant of Vizcaya living in Cadiz, to rescue four Flemish people who had become Maroccan prisoners at the Cape of Agadir about 9 years ago and got into the power of the Xarife of the town of Marueccos. Mariaca acted as an agent of Cristóbal Rayser at Seville and he again was the agent of the Augsburg merchant Heinrich Neithart who at that time lived at Valladolid and on the 4th of April had given his power to Mariaca. Catacochino was to get 900 ducats for his activity, 600 of them immediately and the remaining 300 when there existed the proof that the four Flemish people had been put into liberty in the «alhondiga» of the Christians in the town of Maroucos (Marrakesh). In addition Catacochino promised to pay the debts of the prisoners up to 30 ducats. Moreover he had to receive 6000 maravedis for the pay of the rights of «alfaqueria». Finally Catacochino payed what the prisoners ate and drunk and what they spent until they came into the country of the Christians. It was a condition for Catacochino that he should not pay more than 1000 ounces of silver. If the costs of the rescue were higher, Catacochino was not bound to his obligation. If the costs were less than 1000 ounces, Catacochino received that part because he made his voyage to Barbary on his own risk.

On the 1th of June 1557, with a copy of the notarial document issued at Cadiz in the office of the Cadiz notary Luis Vinran, Mariaca appeared in Seville in the office of Alonso de Cazalla together with Cristobal Rayer with whom he had collaborated since several years and repeated the conditions which he had made with Catacochino except the 6000 maravedis for the rights of the alfaqueria, because Neithart in his letter did not mention them. If Neithart did not like to pay them Mariaca promised to pay them himself. It was stipulated that Catacochino should execute his promise within the next five months. Now the sum which Catacochino should receive was raised to 1000 ducats in gold. For the said purpose, Mariaca received 600 ducats which Neithart payed to Pedro Luis

Torregrossa, to whom Mariaca owed the sum for certain «topos»⁹ which he bought from him for the rescue of the prisoners. The remaining 400 ducats were to be paid at Seville as soon as there existed a testimony of Christians that the prisoners had been rescued. If the rescue was not realized Catacochino had to return the 600 ducats to Neihart or his agent at Seville 15 days after the term stipulated had expired.

We see from the document that merchants living at Cadiz, such as Catacochino and Mariaca, stood in trade relations with Barbary, here Marocco, and used their trade relations to rescue Christians, who had become prisoners of the moslems.

III

It would be an interesting chapter to follow the traces of Greek shippers and merchants at Seville, Cadiz or Lisbon during the following years. Some of them worked for Venetian merchants. Wilfrid Brulez who worked in the archives of the Venetian notaries, f.i., mentions Dimo Pappagiannopoli from Zante who, in 1590 loaded 48 sacks of pepper at Lisbon.¹⁰ And here, at the end of our small contribution to Greek history we mention the name of Theotocopoli, who came from Venice to Spain and found a new homestead at Toledo, becoming famous as «el Greco».

ANNEX

Archivo de Protocolos de Sevilla.
Of. XV.-Alonso de Cazalla.
Lib. 2o. de 1554.

No 1

F. 239-(CCXXXVI). = Francisco Griego, vecino de esta ciudad de Sevilla, en la collación de San Lorenzo, y yo Jácome de Rodas, vecino de esta dicha ciudad en la collación de San Salvador, y yo Juan de Lias, vecino de esta dicha ciudad en la dicha collación de San Lorenzo, nos todos tres de mancomún y a voz de uno, y cada uno de nos por el todo renunciando otorgamos y conocemos que

9) I cannot explain the real sense of the word in the context of the document. See annex document nr. 5.

10) Wilfried Brulez, *Marchands flamands à Venise, I (1568 - 1605)*, (Études d'histoire économique et sociale publiées par l'Institut Historique Belge. Rome, t. VI), Bruxelles - Rome 1965, p. 96 nr. 280.

debemos dar y pagar a vos Cristóbal Rayser, alemán, estante en esta dicha ciudad de Sevilla, que estáis ausente 159.000 mrs los caules son por 26 quintales de cobre que de vos recibimos comprados, a precio de seis mil maravedies el quintal, yson en nuestro poder y estos dichos 156.000 mrs. de este dicho deudo otorgamos y prometemos, y nos obligamos de os los dar y pagar aquí en Sevilla desde hoy día que esta carta es fecha hasta 18 meses cumplidos primeros siguientes.

Fo. vto. := Sevilla martes 31 de julio de 1554.

4

Hay nota marginal de cancelación, firmada por Cristóbal Rayser, a 28 de septiembre de 1555 años.

Archivo de Protocolos de Sevilla.
Of. XV. - Alonso de Cazalla.
Lib. 2o - 2o . de 1555.

No 2

F.DCCCXCVIII.vto. = Francisco Griego, vecino de esta ciudad de Sevilla en la collación de San Vicente, otorgo y conozco que debo dar y pagar a vos Cristóbal Rayser, alemán, estante en esta dicha ciudad de Sevilla que estais ausente 136.500 mrs los cuales son que yo os resto debiendo, y por pagar de 498.000 mrs. que yo y Juan Delmas y Jacome de Rodas, vecinos de esta dicha ciudad de Sevilla, de mancomún y a voz de uno y cada uno por el todo, nos obligamos de os dar y pagar por dos contratos de deudo que os hicimos y otorgamos ante Alonso de Cazalla, escribanó público de Sevilla : uno de contia de 342.000 mrs. en 4 dias del mes de junio del año que paso de 1554 anos y el otro de contia de 156.000 mrs. que paso en 31 dias del mes de julio del dicho ano y estos dichos 136.500 mrs. de este dicho deudo otorgo y prometo y me obligo de os los dar y pagar aquí en Sevilla. desde hoy día que esta carta es hecha hasta un ano primero que viene y antes si antes vienera la flota que ahora va a las dichas Indias, de que va por general Pedro Menéndez de Valdés, veinte dias después de que viniere, so pena del doblo.

F. DCCC = XCIX. = Sevilla viernes 27 de septiembre de 1555.

No 3

F.DCCCCI.= Francisco Griego y yo Juana Rasti, su mujer, vecinos que somos de esta ciudad de Sevilla en la collación de San Vicente ; yo la dicha Juana Rasti, con licencia y otorgamiento, y placer y consentimiento del dicho mi marido..... otorgamos y conocemos que debemos dar y pagar a vos Cristóbal Rayser, aleman estante en esta dicha ciudad de Sevilla, que estáis ausente, 136.500 mrs los cuales son que yo el dicho Francisco Griego os resto debiendo y por pagar de 498.000 mrs. que yo y Juan Delios, y Jacomes de Rodas, vecinos de esta dicha ciudad de Sevilla, de mancomún y a voz de uno, y cada uno por el todo, nos obligamos de os dar y pagar por dos contratos públicos de deudo, que pasaron ante Alonso de Cazalla, escribano público de Sevilla : el uno de contia de 342.000 mrs. en 4 dias del mes de junio del año que pasó de 1554 anos, y el otro de contia de 156.000 mrs. que pasó en 31 dias de del mes de julio del dicho ano pasado, porque las contias restantes a cumplimiento de los dichos deudos yo y el dicho Juan Delios os los he mos dado y pagado, y yo os quedo deudor de la dicha contia del dicho deudo.....

Fo. vto. = ... y estos dichos 136.500 mrs. de este dicho deudo otorgamos y prometemos y nos obligamos de os los dar y pagar aqui en Sevilla..... desde hoy dia que esta carta es hecha hasta un ano cumplido primero siguiente, so pena del doblo, o antes si antes vienera la flota en que vapor general Pedro Meléndez, que ahora va a las Indias, un mes después que viniere, so la dicha pena Sevilla sábado 28 de septiembre de 1555.

Hay nota marginal de cancelación, firmada por Cristobal Rayser, en 25 de septiembre de 1556 años.

No 4

F.CCCLXIX. = Francisco Griego, y yo Juana Rosa, su mujer, vecinos que somos de esta muy noble y muy leal ciudad de Sevilla en la colación de San Vicente..... otorgamos y conocemos que debemos dar y pagar a vos Cristóbal Rayser, aleman, estante en esta ciudad de Sevilla, que estáis ausente...
... 430.000 mrs los cuales son por 86 quintales, los 80 quintales de ellos de cobre en medias boletas, y los seis quintales de es taño en planchas, todo a precio de cinco mil maravedies cada quintal, lo cual todo de vos recibimos comprado, y es en nuestro poder....
..... y estos dichos 430.000 mrs. de este dicho deudo otorgamos, prometemos y nos obligamos de os los darypagar aquí en Sevilla en paz y en salvo, sin pleito ni contienda alguna, desde hoy dia de la fecha de esta carta hasta dos años cumplidos primeros siguientes, so pena del doblo.....

Fo. vto. = Sevilla jueves 11 de febrero de 1557.

Nota marginal: En XIX de enero de MDLIX años pareció Tomás Miller, en nombre de Cristóbal Rayser, y por su poder ante mí en XXXI de agos to de MDLVIII anos, y otorgo que recibio la contia de este contrato en Pedro de Morga, y lo mandó chancellar Tomás Miller. (Rubricado).

No 5

F.MLII. = Jácome de Rodas, vecino de esta ciudad de Sevilla en la colación de Santa Maria, otorgo y conozco a vos Cristobal Rayser, alemán, estante en esta dicha ciudad de Sevilla, que estáis ausente y digo que por cuanto Francisco Griego y Juana Rodriguez, su mujer, vecinos de esta dicha ciudad en la collación de San Vicente, de mancomún y a voz de uno, os son deudores de 430.000 mrs. de que el plazo de la paga de ellos es a 11 dias del mes de febrero que vendra de 1559 años, por contrato de deudo que pasó ante Alonso de Cazalla,

Fo.vto = escribano público de Sevilla, en 11 dias del mes de febrero de este año en que estamos de 1557 años, y porque el dicho Francisco Griego de presente va a las Indias del mar océano, y le queriais detener para que os diese seguridad a la paga de ellos, y a mi ruego y suyo no usá is de rigor en cuanto a ello por mi mediación ; por ende yo por esta presente carta otorgo que me obligo juntamente con los dichos Francisco Griego y Juana Rodriguez, sumujer, en el dicho contrato de deudo por su fiador y principal pagador..... de os dar y pagar las dichas 430.000 mrs. en 11 de febrero de 1559 años.....
..... Sevilla 23 de diciembre de 1557.

Hay nota marginal de cancelación por cobrado firmada por Tomas Miller.

Ofo. XV. – Alonso de Cazalla.
Lib. 1o – 2o de 1557.

No 6

F. MCXCVI – vto. = Sepan quantos esta carta vieren como yo Francisco de Mariaca, residente en la ciudad de Cadiz, al presente estante en esta ciudad de Sevilla, en nombre y en voz de Leonis Catacochino, vecino de la dicha ciudad de Cadiz, y por virtud de el poder que de él tengo que pasó ante Luis Vinran, escribano publico de ella, en 8 dias del mes de mayo que pasó de este año en que estamos de la fecha de esta carta, su tenor del cual es este que se sigue :

F. MCXCVII. = Sepan quantos esta carta vieren como yo Leonis Catacochino, vecino que soy de esta ciudad de Cádiz, otorgo y conozco, y digo que por quanto yo, a ruego e intercesión de Francisco de Mariaca, mercader vizcaino, estante en esta dicha ciudad, que está presente, yo he procurado el rescate y libertad de quatro flamencos que esta cautivos en Marruecos, en poder de enemigos de nuestra santa fè católica, que cautivaron en el cabo de Aguer puede haber nueve años, poco más o menos, y porque sobre la orden que se ha de tener en el dicho rescate ha habido, entre el dicho Francisco de Mariaca y mi, concierto y capitulaciones, las cuales quiero que vayan en esta escritura, y son las siguientes :

Primeramente que el dicho Francisco de Mariaca haga en mi nombre el dicho asiento y concierto con Cristóbal Rayzer, alemán, residente en la ciudad de Sevilla, en nombre de Enrique Neytarte, mercader alemán estante en la villa de Valladolid, que por el rescate de los dichos cuatro cautivos me hayan de dar nuevecientos ducados de oro, los 600 ducados luego, y los otros 300 ducados restantes cuando se trajere testimonio de mercaderes cristianos como estan rescatados y puestos en libertad en la alhóndiga de los cristianos de la ciudad de Marruecos, que es en Berberia.

Fo, vto. = Ytem que si algunas deudas debieren los dichos cautivos, que yo el dicho Leonis Catacochino las tengo de hacer pagar hasta en cantidad de treinta ducados, y que lo que así pagare lo traiga por testimonio de ducados, con lo demas, o la parte que de ello se pagare. Ytem que también se me ha de pagar seis mil maravedíes por razón de los derechos del alfaquequeria de los dichos cautivos.

Ytem es condicion que desde el dia que los dichos flamencos fuesen puestos en libertad en la dicha alhóndiga de Marruecos, y desde allí hasta ser puestos en tierra de cristianos, se me ha de pagar la costa que hicieren de comida y bebida, y pasaje que en ellos se gastare. Ytem es condición que por el rescate de los dichos flamencos no pueda dar mas de hasta mil onzas de plata, porque si mas rescate quissieren por ellos, en tal caso yo no sea obligado al rescate de ellos, y sea ninguna la escritura que sobre ello se hiciere, y dende abajo lo que menos costare sea para mi por razón que el dicho rescate ha de ir de aquí a Berberia a riesgo riesgo mío (sic).

Ytem es condición que puestos que sean los dichos cuatro flamencos en libertad, en la dicha alhóndiga, sea visto haber yo cumplido, y que si, lo que Dios no quiera, ellos, o alguno de ellos, se tornaren moros o murieren, o les sucediere algún inconveniente que por él seán detenidos en Berberia, o que no quisieren venir, o que viniendo muriesen, o fuesen tomados de turcos o franceses, o de amigos y enemigos, que lo susodicho, o cualquier de ellos, no sea a mi cargo ni riesgo.

F.MCXCVIII=Ytem es condición que si viniendo los dichos cristianos a tierra de cristianos, ellos, o cualquier de ellos, fuesen cautivos por enemigos vasallos del xarife en cuyo poder estan los dichos cautivos, que yo sea obligado a procurar la libertad de ellos de poder de los que así

los cautivaren, porque esta condición es la que yo tengo de sacar al dicho xarife del tiempo del rescate de los dichos cristianos, y tomar su palabra de ello, y en defecto de no sacar la dicha condición con edicho xarife, si viniendo fueren cautivos de los dichos sus vasallos, sea obligado yo a los rescatar a mi costa.

Ytem es condición que en caso que yo no pueda rescatar los dichos cristianos por las dichas mil onzas, yo sea obligado a volver y restituir lo que hubiere recibido luego, porque así somos de acuerdo. Y con las dichas condiciones, y con cada una de ellas, yo doy todo mi poder cumplido, cual de derecho se requiere, al dicho Francisco de Maciaca, porque pueda obligar y obligue a que cumpliré mediante la divina gracia las dichas condiciones, y una de ellas, y sobre ello pueda hacer y otorgar la escritura, o escrituras que le fueren pedidas y demandadas, y que convengan de se hacer, y recibir y reciba los seiscientos ducados, y darse de ellos, en mi nombre, por contento, o lo confesar haber habido y recibido, porque siendo por el dicho Francisco de

Fo,vto = Mariaca hechas y otorgadas, yo por la presente las hago y otorgo, y me obligo, y prometo de las guardar y cumplir, en todo y por todo, según que en ellas, y en cada una de ellas, se contuviere, en la cual, o en las cuales, pueda renunciar y renuncie mi propio fuero, y me someter y someta al fuero, y jurisdicción y domicilio de la dicha ciudad de Sevilla, renunciando, como yo por esta renuncio, la ley si convenierit de jurisdiccion; y cuan cumplido poder tengo, tal lo doy y otorgo al dicho Francisco de Mariaca, con todas sus incidencias y dependencias, y de anexidades y conexidades; y para haber por firme este poder, y lo que por virtud de él se hiciere, obligo mi persona y bienes, habidos y por haber, y lo firmé de mi nombre en el registro de Luis Vinran, escribano público de Cádiz y de su majestad, ante qui en lo otorgué, que es fecha la carta en la dicha ciudad de Cádiz, en las casas de la morada del dicho escribano, sabado ocho dias del mes de mayo año del nacimiento de nuestro Salvador Jesucristo de 1557 años. Y yo el dicho escribano público doy fé que conozco al dicho otorgante y que es el mismo contenido en este poder. Testigos que fueron presentes a la ver Andrés Saco, genovés, y Tomás Tonson, mercader inglés, y Juan de Entrano, florentín, vecinos y estantes en Cádiz. Leonís Catacochino. Pasó ante mí el dicho Luis Vinran, escribano público.

Y yo Luis Vinran, escribano público del número de la muy noble y leal ciudad de Cádiz, y de su majestad, fui presente y lo hice escribir y hice aquí este mío signo (esá el signo notarial) a tal en testimonio de verdad.

Luis Binran, escribano público. (Rubricado).

F.MCXCIX. = Y yo el dicho Francisco de Mariaca, en el dicho nombre del dicho Leonis Catacochino, y por virtud del dicho poder de suso incorporado, y otrosí en nombre y voz de Enrique Neytarte, alemán estante en la villa de Valladolid, y por la comisión que tengo para lo en esta carta contenido por su carta fecha en la dicha villa a diez días de abril de este año en que estamos de la fecha de está carta, otorgo y conozco que obligo al dicho Leonis Catacochino, por virtud del dicho su poder, al dicho Enrique Neytarte, en tal manera que el dicho Leonís Catacochino, mediante Dios nuestro Señor, entienda en sacar los cuatro cautivos flamencos en el dicho su poder contenidos, que estan cautivos en la ciudad de Marruecos en poder del xarife, y en razón de ello hará y tendrá, y cumplirá todos los capítulos y condiciones en el dicho su poder contenidos, guardándose y cumpliéndose por el dicho Enrique Neytarte, al cual yo obligo por la dicha su comisión que los guardara y cumplira como en ellos se contiene, excepto quanto al capítulo que en él dice que se le den por los derechos de alfaquería de los dichos cautivos seis mil maravedies, porque el dicho Enrique Neytarte en su carta no hace mención de ellos, y sino los quisiere pagar yo los haré buenos al dicho Leonís Catacochino, y los pagaré por quanto yo se lo prometo : y otorgo y obligo al dicho al dicho Leonís Catacochino que dentro de seis meses desde el día de la fecha de esta carta primetos venideros, sacará del dicho cautiverio los dichos cuatro cristianos flamencos cautivos del dicho cautiverio en que están, y los pondrá en tierra de cristianos, asi segun y como por el dicho su poder se obliga a lo cumplir, habiendo y que haya por el costo y todas las costas de los dichos cuatro cautivos mil ducados de oro, y no más. Y otorgo que recibí de Cristóbal Rayzer, alemán estante en esta dicha ciudad, en nombre y por el dicho Enrique Nautarte, seiscientos ducados de oro, en cuenta y pago de los dichos mil ducados, los cuales me dió y pagó por la dicha carta que tengo del dicho Enrique Naytarte, los cuales dichos seiscientos ducados por mi dió y pagó a Pedro Luis Torregrosa, a quien yo los hube a pa-

gar por ciertos topos, que de él compré para el rescate de los dichos cautivos, de que soy pagado a mi voluntad, y cerca del recibo de ellos renuncio y los cuatrocientos ducados restantes, o los que menos se pagaren obligo al dicho Enrique Neytarte, por la dicha comisión, que de él tengo, que los pagara al dicho Leonís Catacochino Leonís Catacochino aquí en Sevilla, sin pleito alguno, en di neros de contado luego que mostrare por testimonio de cristianos haberlos sacado y rescatado del dicho cautiverio, y libres en el alhóndiga de la dicha ciudad de Marruecos, o en otra parte de los reinos del jarife, y obligo al dicho Leonís Catacochio, pór el dicho su poder, que lo hara y cumplirá todo conforme allo contenido en el dicho su poder, y no los pudiendo sacar del dicho cautiverio, y siendo fallecidos, o tornados moros, lo que Dios no quiera, que volverá y tornara, y daría y pagaria al dicho Enrique Neytarte, o quien snu poder hubiere, los dichos seiscientos ducados que recibió, aquí en Sevilla sin pleito alguno quince días después de cumplido el dicho plazo en que le obligo que los sacará del dicho cautiverio no los habiendo sacado, según dicho es.

Otrosí obligo al dicho Leonis Catacochinc, por el dicho su poder, y al dicho Enrique Neytarte, por la dicha su comisión, que lo tendrán, y harán, y cumplan así, y no lo contradirán, so pena de cien mil maravedís para la parte a lo dicho obediente

Sevilla martes 10 de junio de 1557.

THE EUROPEAN ECONOMIC COMMUNITY : TOWARD A COMMON DEVELOPMENT POLICY ?

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The Treaty of Rome, which established the European Economic Community (EEC) in 1958, did not treat external economic relations as a high priority item. The EEC early initiatives in external economic relations were limited in scope and were based on Articles 113 and 238 of the Treaty of Rome. These articles allowed the EEC to sign trade and association agreements with countries in the Mediterranean Basin and Africa. In the early 1970's, EEC's external relations began to experience an expansion. The 1972 Paris Summit Conference mandated the broadening of EEC's external economic relations ; events related to the post-1973 oil crisis reemphasized the EEC's need for interdependence with the developing countries ; and the EEC's enlargement to 9 members in 1973 transformed it to a potentially leading economic power with expanded interests on a world-wide scale.¹

It is assumed that EEC's effective use of economic power in influencing world economic development depends in no small measure on the coalescing of national interests into common policies. Thus, it is the purpose of this study to discover the nature and rationale of the process leading to the emergence of EEC's development policies. To accomplish this task the study will describe the evolution of the EEC's trade and development policies with countries of the Mediterranean Basin, with the associated developing countries of Africa, Caribbean,

1. Effective January 1, 1981, Greece has become a full member bringing the total membership to ten.

and Pacific and with the non – associated developing countries covered by the EEC Generalized System of Preferences. In addition, EEC and Organization for Economic Cooperation and Development data will be used to provide a complementary assessment on the size and types of EEC aid programs. It is hoped that the study will contribute toward a better understanding of the approaches employed and the contributions made by the EEC in the implementation of its development policies at a time when many developing countries are experiencing critical needs for increased inflows of resources. In the final analysis, the question of whether the EEC has a common development policy will be answered.

THE EEC IN THE MEDITERRANEAN

Early Policies, 1962 – 1972

Between 1962 and 1972 the EEC signed a number of trade agreements with countries of the Mediterranean Basin. These agreements fall into three categories: 1) Association agreements under article 238 of the Treaty of Rome which were signed by Greece in 1962 and Turkey in 1964. These agreements provided for the possibility of full membership² following a relatively long period of transition during which reciprocal tariff disarmament and economic development assistance to Greece and Turkey would be granted. Malta in 1970 and Cyprus in 1972 also signed association agreements which might possibly lead to customs unions. Moreover, in 1969, Morocco and Algeria signed trade preference agreements with the possibility of broadening them to include economic and financial cooperation. 2 Trade preference agreements under Article 113 of the Treaty of Rome which were signed by Spain and Israel in 1970 and Lebanon and Egypt in 1972. The main feature of these agreements was reciprocity in trade concessions. 3) Non – preference trade agreements, also under Article 113 of the Treaty of Rome, with Yugoslavia being the first to sign in 1970. This agreement provided that the parties involved would move to improve trade relations by adherence to the most – favored – nation principle.

A detailed review of these agreements leads to the conclusion that a great deal of diversity not only in legal form but in trade concession characterized them.

The type of agreement a given Mediterranean country signed depended on

2. For a discussion of different forms of economic integration see Balassa, B., *The Theory of Economic Integration*, Homewood, Ill.,: Irwin, 1961.

whether it was European, on whether it had prior political ties with the EEC and on whether its political system was acceptable to the EEC. For instance, it is interesting to note that Greece and Turkey received comprehensive association agreements while Franco's Spain was denied an association agreement and Yugoslavia received only a non-preference trade agreement.

Tariff concessions by the EEC also varied depending on the type of agreement signed as well as the degree of competitiveness of the products involved. In general, the EEC made more generous tariff concessions to Mediterranean industrial rather than to agricultural exports.³ Italy's objections to liberal agricultural concessions for its Mediterranean competitors were a major influence on the scope of EEC's agreements in the Mediterranean.

Moreover, a major uniting force for EEC's involvement in the Mediterranean is the economic interdependence relationship which has prevailed for years between Western Europe and Mediterranean countries. Many Mediterranean countries carry more than 50 percent of their trade with the EEC. Developments in the energy field have accentuated this interdependence. About a third of the petroleum requirements of Western Europe are met by the North African countries. Another manifestation of this relationship in the 1960's and early 1970's was the two-way movement of labor to the EEC countries and of Western European tourists to the Mediterranean countries. Both of these movements have had profound economic influences on both areas. Estimates⁴ show that in 1972 there were about 4 million «guest» workers in the EEC countries and in 1969 several million tourists were recorded at the frontiers of Greece, Spain, and Turkey.

It can be concluded that considerable diversity characterized the original agreements with the Mediterranean countries. Most of them were limited in scope. The only agreements which provided for a broad base of trade and development cooperation were the Athens and Ankara Agreements. It will be remembered, however, that these two agreements dealt with countries which are part of Europe and which are potential full members of the EEC.

3. The EEC has been criticized for this on the grounds that concessions for industrial products are not too meaningful to the LDCs.

4. See OECD, *International Tourism and Tourism Policy in OECD Member Countries*, Paris: 1971, and Livi-Vaccii, M., *Report on the Demographic and Social Pattern of Migrants in Europe Especially with Regard to International Migrations*, Council of Europe Document, CDE, 1971.

The New Mediterranean Policy Since 1973

As early as February 1970, the EEC became involved in preliminary discussions concerning a «new» or «global» Mediterranean policy.⁵ This development was motivated by the EEC interest to put its external relations on a more rational basis and to meet the criticism of the narrowness in scope of the original agreements. Moreover, the Mediterranean, because of the intensified Arab–Israeli conflict, continued to be an area of potentially explosive political developments and of great concern to the EEC countries. But the real impetus for the concept of a «new» Mediterranean policy came about because of the EEC enlargement, i.e., the accession of U.K., Ireland, and Denmark to the EEC. In this regard, the Accession Treaty required that the three new members implement effective January 1, 1973, the provisions of the EEC's agreements with the Mediterranean countries like Israel and Spain, the enlargement posed problems of considerable importance because they had traditionally maintained a high volume of trade with the new members and under more favorable terms than those of the EEC. Malta, and Cyprus have also had close and substantial trade relations with the U.K. Thus to compensate for possible erosions of their markets, many of the Mediterranean countries sought additional concessions from the EEC in the form of new protocols and revised agreements. These requests were timely because a number of the original agreements were coming up for renegotiation.

On November 7, 1972, the EEC Council adopted a set of principles regarding the proposed «new» or «global» Mediterranean policy. The objective of the new approach was the implementation of a coherent and comprehensive trade and development cooperation policy aimed at all countries in the Mediterranean Basin.⁶

The major principles of this new Mediterranean policy are :

a. To define as Mediterranean countries eligible to be included in the new policy all countries with borders in the Mediterranean plus Portugal by assimilation and Jordan.

5. The EEC defines its global approach to the Mediterranean countries as the development of a coherent and comprehensive policy dealing with all these countries. See Commission of European Communities, *The European Community and the Third World*, Luxembourg: 1977.

6. The non-EEC countries with borders in the Mediterranean are: Greece, Turkey, Spain, Yugoslavia, Albania, Lebanon, Israel, Egypt, Syria, Tunisia, Algeria, Morocco, Libya (and Jordan and Portugal by assimilation).

b. To clarify that full membership into the EEC is restricted to the European countries of the Mediterranean whose political and economic conditions are approximately similar to the EEC members.

c. To harmonize the trade concessions to the Mediterranean countries. In this connection, the ultimate free entry in the EEC of all industrial products of the Mediterranean countries and the granting of substantial concessions to agricultural products of the Mediterranean countries is visualized.

d. To expand each agreement so that it includes a trade section and an economic cooperation section.

e. To allow reciprocity which may not necessarily be in the form of reverse preferences.

f. To renew agreements which have expired or to negotiate new ones.

Since the EEC Council announced adoption of its «new» approach in the Mediterranean Basin the following major developments have occurred :

1. On June 12, 1975, Greece applied for full membership to the EEC. Negotiations between the EEC and Greece were formally opened on July 27, 1976. An agreement leading to Greece's accession was signed on May 28, 1979.⁷

2. New financial protocols between the EEC and Greece in 1976 and the EEC and Turkey in 1977 expanded the volume of development and financial assistance to these countries. A total of 280 million European Units of Account (EUA) were pledged to Greece and 310 million EUA to Turkey. 3. In view of the political changes which took place in Portugal and Spain, discussions have been held concerning the possibility of Portuguese and Spanish membership in the EEC. In the meantime, a broad program of trade cooperation and assistance including 150 million EUA in emergency aid was offered Portugal. The association agreements of Cyprus and Malta have been broadened to take account of the enlargement of the EEC and to commit additional EEC assistance. 5. Comprehensive cooperation agreements covering areas such as economic, financial, technical, trade and labor were signed in 1977 between the EEC and the Maghreb countries, i. e., Algeria, Morocco and Tunisia, and between the EEC and the Mashreq countries, i.e., Egypt, Syria, Jordan and Lebanon. With regard to financial resources, 144 million EUA, 130 million EUA and 95 million EUA were pledged to Algeria,

7. For a discussion of Greece's application for full membership in the EEC see Kondonassis A. J. «The European Economic Community and Greece : Toward a Full Membership», *Economia Internazionale*, 1977, Vol. XXX N. 2-3, pp. 270-281.

Morocco, and Tunisia respectively. Similarly, 170 million EUA, 60 million EUA, and 40 million EUA were offered to Egypt, Syria, and Jordan respectively. 6. A broadening of the base of the agreement between the EEC and Israel took place including the pledging of 30 million EUA to be used for Israel's industrialization.

The above events demonstrate that since 1973 the EEC has moved to accomplish the following in the Mediterranean: 1. To make good on its promise to extend its trade and development policy to all countries with borders in Mediterranean plus Jordan and Portugal;⁸ 2. To open the door for negotiations leading to possible further enlargement of the EEC membership by the inclusion as full members of Greece, Spain, Portugal, and perhaps Turkey, if Turkey's economic conditions warrant it; 3. To broaden the base of all agreements with Mediterranean countries by the addition of a development cooperation and assistance section. Little progress, however, has been made on harmonizing and extending trade concessions to Mediterranean agricultural products.

It can be concluded that the so called «new» or «global» Mediterranean policy is certainly a step in the direction of a more coherent and comprehensive external economic relations policy of the EEC in the Mediterranean.⁹ But, as Claude Cheysson, the EEC Commissioner in charge of Development, has said, the real beginning of EEC's global approach to international cooperation is the Lome Convention. We turn our attention now to a review of this convention.

THE LOME CONVENTION

The Lome Convention was signed on February 28, 1975 in Lome, Togo. It is a five year program of trade and economic and development cooperation between the EEC and 46 Less Developed Countries (LDCs) of Africa and Commonwealth countries of the Pacific and the Caribbean (ACP). The Convention superseded the more limited in scope Yaounde and Arusha Conventions.

Yaounde Convention I in 1963 and Yaounde Convention II in 1969, between the EEC and 18 African countries and the Madagascar,¹⁰ aimed at the creation

8. The only Mediterranean countries without EEC agreements are Albania and Libya.

9. See Kondonassis, A.J., *The European Economic Community in the Mediterranean: Developments and Prospects on a Mediterranean Policy*, Athens: Center of Planning and Economic Research, 1976.

10. The original 18 Yaounde associates (AASM countries) are: Mauritania, Mali, Voltaic Republic, Niger, Senegal, Ivory Coast, Togo, Dahomey, Cameroon, Chad, Centrafrican

of free trade areas between the EEC and the African signatories. The Arusha Convention which became effective in 1969 provided for a limited association agreement between the EEC and Kenya, Tanzania and Uganda.

Many of the original LDCs which signed the Lome Convention had ties of long standing with the EEC. The accession of U.K. to the EEC in 1973 placed the U.K. in a position to influence the negotiations. The Lome Convention created the largest free trade area in existence comprising the 18 African countries of the Yaounde Convention (AASM countries), 22 Commonwealth States and 6 other African countries.¹¹ The basic provisions of the Lome Convention are :

a. 96 percent of the ACP agricultural exports will enter the EEC free of import quotas and duties. The remaining 4 percent of the ACP farm exports will get EEC preferential treatment. The ACP will give the EEC 9 no reverse preferences, but will not discriminate among the EEC members.

b. An innovative aspect of the Convention is the export earnings stabilization plan (Stabex). Over 375 million EUA will be set aside to aid countries heavily dependent on the export of certain raw materials and agricultural items against price and production level fluctuations.

c. A guarantee of purchase and supply by both parties of fixed quantities of sugar is established.

d. A total of 3.390 billion EUA (.375 billion EUA in the export stabilization fund and 2.625 billion EUA in financial aid) EEC aid to the ACP countries for the duration of the Convention is promised. The total is about 3 times the amount of aid provided by the Yaounde II Convention.

e. The EEC promised to help the ACP nations develop and diversify their industrial capacity.

Experiences with the implementation of the Lome Convention justify the general conclusion that it worked relatively satisfactorily. The ACP countries ex-

Republic, Gabon, Peoples Republic of the Congo, Zaire, Rwanda, Burundi, Somalia, Madagascar (On January 1, 1973 Mauritius joined the other 18).

11. The original ACP countries are : In Africa, the 18 AASM countries, the Arusha Countries (Kenya, Tanzania, and Uganda) and Mauritius, Botswana, the Gambia, Ghana, Lesotho, Malawi, Nigeria, Sierra Leone, Swaziland, Zambia, Ethiopia, Equatorial Guinea, Guinea-Bissau, Liberia, and Sudan ; in the Caribbean, Bahamas, Barbados, Grenada, Guyana, Jamaica, Trinidad and Tobago ; in the Pacific, Fiji, Tonga, and Western Samoa.

panded the volume of their exports to the EEC by about 14 percent in 1976 and by 26 percent in 1977. A large component of the aid promised to the ACP countries was granted and an increasing number of industrial projects were approved for financing. The ACP countries, however, have registered a number of concerns about Lomé. They have felt that the size of aid was inadequate, that the coverage of Stabex was limited and that their trade preferences in the EEC market were diluted because of the EEC agreements with the Maghreb and Mashreq countries and the expanded EEC generalized preferences.

In view of the fact that the Lomé Convention was scheduled to expire on February 28, 1980, following lengthy and difficult negotiations, a new agreement was signed between the EEC and an expanded group comprising 58 African, Caribbean and Pacific States on October 31, 1979.¹² This new agreement, Lomé II, will be effective until 1985. The major new features of Lomé II are :

- a. An increase in the amount of aid to 5.6 billion EUA has been promised.
- b. The amount of aid for Stabex has been increased from 375 million EUA to 550 million EUA and the system's coverage has been expanded from 34 to 44 tropical products.
- c. The EEC has agreed to make additional concessions on a few ACP agricultural products but not to provide free entry.
- d. A broad program for industrial cooperation and rural modernization is provided in Lomé II. The program provides for industrial training, the development of indigenous technology, and measures to stimulate research and development especially in the area of energy. The importance of food production and fisheries is also emphasized by Lomé II.

Notwithstanding the criticisms of Lomé (I), some of which have been addressed in Lomé II, both conventions must be viewed as innovative approaches to international cooperation. Apart from the important provisions contained in the Conventions, e.g., non-reciprocity, Stabex, sugar guarantee program, the agreements are unique arrangements in which a number of developed and many LDCs joined forces to pursue a multilateral program of trade and development cooperation.

It must be recognized, however, that EEC's agreements with the Mediterranean

12. The new additions to the OCP group are : Cape Verde, Comoros, Djibouti, Dominica, Kiribati, Sao Tome et Principe, St. Lucia, Tuvalu, Papua - New Guinea, Surinam, Seychelles and Solomon Islands.

and the ACP countries are examples of trade and development policies on a regional level. EEC's instrument toward the LDCs on a world-wide level is its Generalized System of Preferences. It will be examined next.

THE GENERALIZED SYSTEM OF PREFERENCES

To counter charges of the non-associated LDCs that the EEC's Common External Tariff has prevented entry into the EEC of their manufactured and semi-manufactured products and that this has hurt their development, the EEC was the first to take steps to initiate a Generalized System of (tariff) Preferences in 1971 (GSP). It came about following the commitment the industrialized nations made to the LDCs at the United Nations Conference on Trade and Development (UNCTAD) in 1970. The main characteristics of the GSP are: 1. Trade preferences are non-discriminatory because they are extended to all LDCs.

2. They are non-reciprocal. 3. The preferences are generalized, because they must be granted by all industrialized countries.

The adoption of the GSP by the EEC is an important step toward the implementation of its global development policy. The system initially involved the granting of free access up to a specified volume or ceiling calculated annually for semi-manufactured and manufactured products and a number of processed agricultural products originating in the LDCs. For sensitive products there has been a system of tariff quotas. To prevent abuses, exporting nations must issue certificates of origin. Since its inception, the EEC's GSP has been improved by increasing the number of countries involved and the products covered and by reducing the restrictions on the products of the list. Generalized preferences in 1977 covered 296 processed agricultural products and all industrial products from 111 countries. The total potential value of LDC exports freed is placed at 1,235 million EUA for processed agricultural products and 4,992 million EUA for manufactured products. Because of inadequate information and the complexity of the system, it is estimated that less than 70 percent of the potential volume of trade of the LDCs which may benefit from the scheme actually takes advantage of it.

In regard to the other industrialized nations, they have been slow in adopting a GSP. Britain introduced a GSP scheme in 1972 but following its accession to the EEC it adopted, along with Denmark, the EEC GSP scheme on January 1, 1974. Canada adopted a scheme in 1974, Ireland in 1975 and the USA in 1975.

The adoption of the GSP by the EEC in 1971 demonstrates the seriousness of purpose which characterizes its efforts to develop a policy on a world wide level. This attitude of the EEC becomes more significant when it is considered in the light of the possible erosions the GSP might cause on the EEC preferences to its Mediterranean and other associates and the tardy responses to initiate a GSP by the other developed countries.¹³

We have examined three major trade and development initiatives of the EEC. The next section attempts to complement these reviews by reference to data on EEC aid programs.

DATA ON EEC AID PROGRAMS

Since 1969, when the Pearson Report was first published, the 1 percent and 0.7 percent of G.N.P. targets have been endorsed by most donors of economic assistance. Moreover, a consensus has emerged which favors improvements in the quality of aid programs including the placement of more emphasis on multilateral aid.¹⁴

A review of data in Table 1 shows that a number of EEC countries have improved their quantitative performance in economic assistance since 1970. Belgium, France, Netherlands and the United Kingdom met the 1 percent of G.N.P. target in 1970 while all EEC donor countries met the target in 1978. No EEC donor countries met the .7 percent target in 1970 while Denmark and Netherlands met it in 1978. Aggregatively, the EEC countries accounted for 38.43 percent and 49.42 percent of the total resource transfers to the LDCs in 1970 and 1978 respectively. The same countries accounted for 37.30 percent and 44.10 percent of the total official assistance transfers to the LDCs in 1970 and 1978. Obviously, the EEC countries have emerged as a most important contributor of aid.

Data in Tables 2 and 3 provide a summary view of the size of aid involved in Lome I and the EEC agreements with the countries of the Mediterranean. Ad-

13. For a discussion on Generalized Preferences see Commission of the European Communities, *The European Community and the Third World*, Luxembourg: 1944.

14. The Pearson Report recommended that each developed country increase its total resource transfers to the LDCs to a minimum of 1 percent of its G.N.P. and the official resource transfers to a minimum of .40 of its G.N.P. In addition, it recommended increased emphasis on multilateral aid, grants, and untied aid. The United Nations Conferences on Trade and Development have reaffirmed these recommendations.

ditional information on bilateral and multilateral aid is presented in Table 4. A review of the data shows that with the exception of Italy, all other EEC donor countries contributed most of their official development assistance in the form of bilateral aid. In fact, 71.64 percent and 74.89 percent of the EEC countries official development assistance was of the bilateral variety in 1977 and 1978 respectively.

CONCLUSIONS

It must be apparent that the EEC external relations initially took the form of regional involvements. These involvements were *ad hoc*, limited in scope responses to requests for bilateral negotiations. Gradually *ad hoc*ism has been replaced by more coherence, and limited by more comprehensive agreements. Moreover, regionalism has begun to be complemented by a world-wide outlook.

The reviews of the EEC involvements in the Mediterranean, Africa, the Pacific and the Caribbean and globally demonstrate that the EEC's external relations have been evolving and expanding. A similar conclusion can be drawn from the analysis of the data on EEC aid programs.

But what the above findings tell about the EEC's implementation of a common policy?

It must be obvious that the national interests of the EEC members were important driving forces for EEC's involvements in the Mediterranean and in the Lomé Conventions. Moreover, it was the eventual coalescing of these national interests into common goals which accounts for the progress made toward the development of more coherent, comprehensive, global, and world-wide EEC programs. Nevertheless, national goals among the EEC countries continue to have priority ranking over collective goals. It must be remembered that the EEC comprises 9 countries of different size and national objectives. Notwithstanding their agreed common enterprises, a variety of national aid programs exist and, as was mentioned previously, the majority of official development assistance funds to LDCs are channeled on a bilateral basis. In other words, development assistance programs continue to be viewed by the donor countries as instruments of national foreign policy. Thus, to the extent that the EEC countries do not translate their collective power into a common foreign policy, the development of a common development policy would continue to be an elusive goal.

TABLE 4
OFFICIAL DEVELOPMENT ASSISTANCE BY BILATERAL AND
MULTILATERAL COMPONENTS
1977 - 1978

Countries	Total ODA		Total Bilateral		Total Multilateral		Commitments in \$million			
	1977	1978	1977	1978	1977	1978	Bilateral as % of Total ODA		Multilateral as % of Total ODA	
							1977	1978	1977	1978
Australia	552.9	629.4	460.1	453.0	92.8	176.4	83.21	71.97	16.79	28
Australia	129.7	159.3	88.3	114.6	41.4	44.7	68.08	71.93	31.92	28.07
Belgium	501.1	538.7	263.6	312.3	237.5	226.4	52.60	57.97	47.40	42.03
Canada	1,324.5	1,591.0	901.8	1,137.0	422.7	454.0	68.08	71.46	31.92	28.54
Denmark	286.9	579.6	155.1	394.8	131.7	184.8	54.06	68.11	45.94	31.89
Finland	60.0	75.8	23.1	35.1	36.9	40.7	38.50	46.30	61.50	53.70
France	2,820.6	3,503.1	2,453.1	2,976.6	367.5	526.5	86.97	84.97	13.13	15.03
Germany	2,562.4	3,388.6	1,717.8	2,445.7	844.6	942.9	67.03	72.17	32.97	27.83
Italy	305.0	397.9	77.9	62.9	227.1	335.0	25.54	15.80	74.46	84.20
Japan	2,602.0	3,236.4	1,899.7	2,272.1	702.3	964.3	73.00	70.20	27.00	29.80
Netherlands	1,217.9	1,663.1	909.6	1,271.8	308.3	391.3	74.68	76.47	25.32	23.53
New Zealand	43.8	56.8	34.8	46.8	9.0	10.0	79.45	82.39	20.55	17.61
Norway	318.6	392.5	168.2	223.1	150.4	169.4	52.79	56.84	47.21	43.16
Sweden	1,002.9	822.3	685.1	520.7	317.7	301.7	68.31	63.32	31.69	36.68
Switzerland	228.4	176.1	153.6	115.1	74.8	61.0	67.25	65.36	32.75	34.64
United Kingdom	1,059.2	1,938.8	693.9	1,530.1	365.3	408.8	65.51	78.91	34.49	21.09
United States	6,295.7	6,338.6	4,290.9	4,756.6	2,004.8	2,182.0	68.15	68.55	31.85	31.45
Total DAC	21,311.5	26,088.0	14,976.6	18,668.3	6,334.8	7,499.8	70.27	71.63	29.73	28.37

Source: Organization for Economic Cooperation and Development, Development Cooperation, Paris, OECD, November 2 1979.

TABLE 2
FINANCIAL COOPERATION WITH MEDITERRANEAN DEVELOPING COUNTRIES

	1977-81					in million EUA		
	Algeria	Morocco	Tunisia	Egypt	Jordan	Syria	Lebanon	Israel
EIB loans	70	56	41	93	18	34	20	30
Special loans	19	58	39	14	4	7	2	—
Grants	25	16	15	63	18	19	8	—
Total	114	130	95	170	40	60	30	30

Source : Commission of the European Communities, The European Community and the Third world Office for Official Publications, Luxemburg, November, 1977.

TABLE 3
LOME I
OVERALL FINANCIAL RESOURCES FOR PERIOD 1-4-1976 to 1-3-1980 in million EUA FUNDS COMMITTED AS OF SEPT. 8. 1977

EDF	3,054	EDF	910
Grants	2,137	Grants	655
Loans on special terms	440	Loans on special terms	122
Risk Capital	97	Risk Capital	29
Stabex	380	Stabex	104
EIB	390	EIB	86
Total	3,444	Total	996

Source : Commission of the European Communities, The European Community and the Third World, Office for Official Publications, Luxemburg, November, 1977.

TABLE 1
THE TOTAL NET FLOW OF RESOURCES AND NET OFFICIAL DEVELOPMENT
ASSISTANCE FROM DEVELOPMENT ASSISTANCE COMMITTEE COUNTRIES
TO DEVELOPING COUNTRIES AND MULTILATERAL AGENCIES

Disbursements in Smillion and as a
percent of G.N.P.

Countries	1970				1978			
	Total Resources		Official Assistance		Total Resources		Official Assistance	
	Smil.	%GNP	Smil.	%GNP	Smil.	%GNP	Smil.	%GNP
Australia	394	1.15	202	.59	614	.57	419	.45
Austria	96	.67	11	.07	491	.84	156	.27
Belgium	309	1.19	120	.46	2,794	2.85	536	.55
Canada	630	.77	346	.42	2,193	1.09	1,060	.52
Denmark	86	.54	59	.38	634	1.23	383	.74
Finland	25	.24	7	.06	134	.40	383	.74
Finland	25	.24	7	.06	134	.40	55	.17
France	1,835	1.24	971	.66	7,929	1.68	2,705	.57
W. Germany	1,487	.79	599	.32	7,204	1.13	1,990	.31
Italy	682	.73	147	.16	3,157	1.21	175	.07
Japan	1,824	.92	458	.23	10,703	1.09	2,215	.23
Netherlands	428	1.34	296	.61	2,645	2.03	1,027	.79
New Zealand	23	.38	14	.23	85	.52	55	.34
Norway	67	.59	37	.32	633	1.60	355	.90
Sweden	229	.74	117	.38	1,337	1.53	783	.90
Switzerland	137	.67	30	.15	3,727	4.23	173	.20
United Kingdom	1,247	1.01	447	.36	10,083	3.27	1,212	.39
United States	6,304	.63	3,046	.31	15,330	.73	4,831	.23
Total DAC	15,803	.78	6,807	.34	69,693	1.23	18,204	.32

Source: Organization for Economic Cooperation and Development, Development Cooperation, Paris, OECD, November.

ΤΟ ΔΙΚΑΣΤΗΡΙΟΝ ΤΗΣ ΕΥΡΩΠΑΪΚΗΣ ΟΙΚΟΝΟΜΙΚΗΣ ΚΟΙΝΟΤΗΤΟΣ (Ε.Ο.Κ.)

ΔΗΜΟΣΘΕΝΗ Α. ΚΡΙΜΠΑ

Τακτικού Καθηγητή ΑΣΟΕΕ

ΕΙΣΑΓΩΓΙΚΑΙ ΠΑΡΑΤΗΡΗΣΕΙΣ

Δια πρώτην φοράν από της εποχής της δυναστείας του Καρόλου του Μεγάλου (Καρλομάγνου) κατά τον μεσαίωνα και της μάλλον βραχείας διαρκείας δεσποτείας του μεγάλου Ναπολέοντος εις τους νεωτέρους χρόνους εγκαθιδρύθη και πάλιν μία υπερεθνική ευρωπαϊκή νομοθετική εξουσία. Το εκ ταύτης πηγάζον δικαίον όπερ καλείται Κοινοτικόν δικαίον ισχύει ενιαίως και ολοκληρωτικώς εις άπασαν την επικράτειαν της ευρωπαϊκής οικονομικής κοινότητος. Τον σεβασμόν του δικαίου τούτου και την ερμηνείαν και εφαρμογήν της περί της ΕΟΚ συνθήκης καλείται να διασφαλίζη το δικαστήριον ευρωπαϊκών κοινοτήτων.

Δια των κατωτέρω παρατηρήσεων επιχειρούμε την ενημέρωσιν επί της δικαιοδοσίας του δικαστηρίου τούτου ήτις καθορίζεται υπό των σχετικών άρθρων των ιδρυτικών συνθηκών. Πριν εισέλθωμεν εις την δικαιοδοτικήν αρμοδιότητα του δικαστηρίου πρέπει να τονίσωμεν ότι τούτο συγκροτείται από ένδεκα δικαστάς επικουρούμενους υπό τριών εισαγγελέων. Άπαντες εκλέγονται μεταξύ προσωπικότητων εγνωσμένης ανεξαρτησίας και κύρους, διορίζονται δε κοινή συμφωνία δι' έξ έτη υπό των κυβερνήσεων των κρατών-μελών. Οι δικασταί πρέπει να έχουν τα κατά την νομοθεσίαν του κράτους των απαραίτητα δια τον διορισμόν εις ανώτατα δικαστικά λειτουργήματα προσόντα ή να είναι νομομαθείς ανεγνωρισμένου κύρους.

Οι δικασταί ούτοι εκλέγονν μεταξύ των τον Πρόεδρον του δικαστηρίου δια τρία έτη, η δε θητεία αυτού δύναται ν' ανανεωθή. Οι εισαγγελείς δεν αποτελούν μέλη του δικαστηρίου ούτε λαμβάνουν μέρος εις την διάσκεψιν δια την έκδοσιν της αποφάσεως αλλ' υποβάλλουν εις το δικαστήριον ητιολογημένας προτάσεις επί των συζητουμένων υποθέσεων και γνωμοδοτούν κατά τας διαφόρους φάσεις της διαδικασίας. Το δικαστήριον συνεδριάζει εν ολομελεία πλην

όμως δύναται να δημιουργήσει τμήματα ίνα προβαίνουν εις ωρισμένα ανακριτικά έργα ή να κρίνουν ωρισμένας κατηγορίας υποθέσεων συμφώνως προς τους όρους του σχετικού προς αυτό κανονισμού.

Το δικαστήριο εφαρμόζει τό τε πρωτεύον ως και το δευτερεύον κοινοτικόν δίκαιον. Ως πρωτεύον δίκαιον χαρακτηρίζονται αι ευρωπαϊκαί συνθήκαι επί τη βάσει των οποίων διαρθρούται η εσωτερική κοινοτική έννομος τάξις. Αύται αποτελούν πρωτεύουσαν πηγήν δικαίου. Ως δευτερεύον δίκαιον χαρακτηρίζεται το περιέχον κανόνας εσωτερικού δικαίου ήτοι τοιούτους θεσπιζομένους υπό των κοινοτικών οργάνων κατ' εφαρμογήν των σχετικών συνθηκών και εντός των υπ' αυτών καθοριζομένων ορίων.

Α'. ΔΙΚΑΙΟΔΟΣΙΑ ΩΣ ΣΥΝΤΑΓΜΑΤΙΚΟΝ ΔΙΚΑΣΤΗΡΙΟΝ

Ερχόμεθα ήδη εις την ειδικωτέραν εξέτασιν της δικαιοδοτικής αρμοδιότητος του δικαστηρίου ευρωπαϊκών κοινοτήτων.

Εάν η Επιτροπή κρίνη ότι κράτος – μέλος παρέβη μίαν των βαρυνουσών αυτό εκ της συνθήκης υποχρεώσεων του εκδίδει ητιολογημένην απόφασιν επί τούτου, οπότε εάν το περί ου πρόκειται κράτος δεν συμμορφωθή προς την απόφασιν ταύτην, η επιτροπή δύναται να προσφύγη εις το δικαστήριο. Εάν το δικαστήριο αναγνωρίση ότι κράτος – μέλος παρέβη μίαν των βαρυνουσών αυτό βάσει της συνθήκης υποχρεώσεων του, το κράτος τούτο υποχρεούται να λάβη τα μέτρα τα οποία συνεπάγεται η εκτέλεσις της αποφάσεώς του δικαστηρίου.

Όθεν το δικαστήριο εκδικάζει διαφοράς το μεν μεταξύ κοινότητος και κρατών – μελών, το δε μεταξύ κρατών – μελών εν σχέσει προς παράβασιν των υποχρεώσεων των των βαρυνουσών αυτά δυνάμει της περί ΕΟΚ συνθήκης.

Ως γνωστόν η επιτροπή εξετάζουσα συνεχώς τα εις τα κράτη ισχύοντα συστήματα βοηθείας, προτείνει εις αυτά τα απαιτούμενα κατάλληλα μέτρα δια την προοδευτικήν ανάπτυξιν ή λειτουργίαν της κοινής αγοράς.

Το δικαστήριο αποφασίζει επί προσφυγής της επιτροπής ή οιουδήποτε ενδιαφερομένου κράτους κατ' άλλου κράτους – μέλους, όταν το τελευταίον δεν συμμορφούται προς απόφασιν της επιτροπής ήτις καταργεί ή τροποποιεί οικονομικήν βοήθειαν παρεχομένην υπό του εν λόγω κράτους καθ' όσον κρίνει το ασυμβίβαστον αυτής προς την κοινήν αγοράν ή ότι χρησιμοποιείται αύτη καταχρηστικώς.

Παν κράτος – μέλος δύναται να λάβη μέτρα άτινα θεωρεί αναγκαία δια την

προστασίαν των βασικών συμφερόντων της ασφαλείας αυτού και προς τούτο τα κράτη – μέλη αλληλοσυμβουλευόνται ίνα λαμβάνουν από κοινού τα αναγκαία μέτρα ώστε να μη παραβλαφθή η λειτουργία της κοινής αγοράς υπό των μέτρων τούτων. Εάν δια των ανωτέρω μέτρων συντελείται καταστρατήγησις των όρων του εις την κοινήν αγοράν συναγωνισμού επιτρέπεται η προσφυγή της επιτροπής ή κράτους – μέλους κατ' άλλου κράτους – μέλους όταν το τελευταίον ποιήται κατάχρησιν των υπό των άρθρων 223 και 224 προβλεπομένων δικαιωμάτων.

Οι υπό του Συμβουλίου θεσπιθέντες βάσει της συνθήκης κανονισμοί, δύνανται να παράσχουν εις το δικαστήριον αρμοδιότητα πλήρους δικαιοδοσίας όσον αφορά τας υπό των κανονισμών τούτων προβλεπομένας κυρώσεις. (άρθρον 172). Η διάταξις αύτη παρέχει εις το δικαστήριον πλήρη δικαιοδοσίαν καθ' όσον τούτο δύναται να ακυρώση επιβληθείσας διοικητικές κυρώσεις ή και ν' αυξομείωση αυτάς δια τροποποιήσεως της σχετικής πράξεως.

Μεγάλην σημασίαν έχει η αρμοδιότης του δικαστηρίου επί π ρ ο δ ι κ α σ τ ι κ ώ ν ερωτημάτων. Ούτω το άρθρον 177 προβλέπει ότι το δικαστήριον είναι αρμόδιον να αποφασίζη προδικαστικώς :

α) επί της ερμηνείας της παρούσης συνθήκης.

β) επί της νομιμότητος και ερμηνείας των υπό των οργάνων της κοινότητος εκδοθεισών πράξεων.

γ) επί της ερμηνείας των δια πράξεως του συμβουλίου καταστατικών των ιδρυομένων οργανισμών, εφ' όσον τα καταστατικά ταύτα προβλέπουν τούτο.

Εις το σημείον τούτο προσήκει η εξής διάκρισις : Όταν τοιούτο θέμα ανακύψη ενώπιον δικαστικής αρχής ενός των κρατών – μελών, αύτη εάν κρίνη ότι δια την έκδοσιν της αποφάσεώς της είναι αναγκαία επί του σημείου τούτου, απόφασις του δικαστηρίου δ ύ ν α τ α ι ν α ζητήση από το δικαστήριον ν' αποφανθή σχετικώς.

Όταν τοιούτο θέμα ανακύψη εξ υποθέσεως εκ κ ρ ε μ ο ύ σ η ς ενώπιον εθνικής τινος δικαστικής αρχής, της οποίας αι αποφάσεις δ ε ν υπόκεινται εις δικαστικήν προσφυγήν κατά το δίκαιον του κράτους του εθνικού δικαστηρίου, τότε το εν λόγω δικαστήριον υ π ο χ ρ ε ο ύ τ α ι ν α φέρη το θέμα ενώπιον του δικαστηρίου της ΕΟΚ. Η αρμοδιότης του άρθρου 177 παρέχει εις το δικαστήριον την ευκαιρίαν ν' αποφαινεται εις θέματα ερμηνείας του κοινοτικού δικαίου τα οποία προέκυψαν εις διαφοράς εκδικαζομένας ενώπιον των εθνικών δικαστηρίων. Είναι προφανές ότι το άρθρον 177 επιτελεί σημαντικήν λειτουργίαν προς εξασφάλισιν ενότητος ερμηνείας και εφαρμογής του κοινοτικού δικαίου εντός

των κρατών – μελών και εναρμόνισιν της εννόμου τάξεως αυτών προς την κοινοτικήν τοιαύτην. Εκ της συνεργασίας του εθνικού δικαστηρίου μετά του ευρωπαϊκού τοιούτου αγόμεθα εις την δημιουργίαν «δικαίου συγχωνεύσεως ή ενσωματωμένου δικαίου (droit d' integration) όπερ συνιστά απαραίτητον προϋπόθεσιν της πολιτικής και οικονομικής συγχωνεύσεως της κοινότητος.

Ζητήματα προκριματικής ρυθμίσεως κατά το άρθρον 177 προκύπτουν εις τας ακόλουθους ενδεικτικάς περιπτώσεις : 'Όταν προτείνεται η ακυρότης διοικητικής πράξεως λόγω αντιθέσεώς της προς το ουσιαστικόν κοινοτικόν δικαίον ή όταν προβάλλεται ιδιωτικόν δικαίωμα επί τη βάσει της συνθήκης ή πράξεως της κοινότητος αμέσου εφαρμογής όπως είναι τα δικαιώματα εγκασταστάσεως ή ελευθέρας κινήσεως εργατών.

Το ευρωπαϊκόν δικαστήριον έχει αρμοδιότητα να ερμηνεύη τό τε πρωτεύον κοινοτικόν δικαίον ως και το δευτερεύον τοιούτο. Έχουν εκδοθεί πλείονες δικαστικάί αποφάσεις εν σχέσει προς το περιεχόμενον και την έκτασιν της αρμοδιότητος του ευρωπαϊκού δικαστηρίου κατά το άρθρον 177. Εκ των αποφάσεων αυτών συνάγεται ότι το ευρωπαϊκόν δικαστήριον έχει αρμοδιότητα να ερμηνεύη την συνθήκην ή τας πράξεις των κοινοτικών οργάνων ή να κρίνη την ισχύν των, ενώ τα εθνικά δικαστήρια έχουν αρμοδιότητα να κρίνουν περί της εφαρμογής αυτών. Εις περίπτωσιν καθ' ην το εθνικόν δικαστήριον απευθύνεται εις το δικαστήριον της ΕΟΚ κατά τρόπον ατελή, το ευρωπαϊκόν δικαστήριον επιλέγει τας σχετικάς ερωτήσεις τας αφορώσας εις την ερμηνείαν της συνθήκης.

Το ευρωπαϊκόν δικαστήριον έχει υιοθετήσει την αρχήν της μη αναμίξεως του εις θέματα άτινα ανήκουν εις την αρμοδιότητα των εθνικών δικαστηρίων. Εφ' ω και έχει αρνηθή την αρμοδιότητα εις τας ακόλουθους περιπτώσεις :

α) έχει απόσχει να ερμηνεύση ή ν' αποφανθή περί της ισχύος εσωτερικού νόμου ή πράξεως.

β) έχει απόσχει ν' αποφασίξη επί άλλων θεμάτων πλην των αμέσως ή εμμέσως τιθεμένων τοιούτων εν σχέσει προς την ερμηνείαν ή την ισχύν.

γ) δεν υπεισέρχεται εις τα πραγματικά περιστατικά της υποθέσεως ουδέ εις τα κίνητρα και τα κριτήρια τα ωθήσαντα τον εθνικόν δικαστήν εις την υποβολήν του προδικαστικού ερωτήματος περί της ερμηνείας της συνθήκης.

Αποτελέσματα της αποφάσεως ήτις εκδίδεται κατά το άρθρον 177.

Ενταύθα πρέπει ευθύς εξ αρχής να διαστείλωμεν εάν πρόκειται περί προδι-

καστικής ερμηνευτικής αποφάσεως ή περί αποφάσεως ήτις κρίνει το κύρος κοινοτικής πράξεως.

Εις την πρώτην κατηγορίαν περιπτώσεων έχει υποστηριχθή ως ορθότερα η άποψις καθ' ην το διατακτικόν των εν λόγω αποφάσεων είναι ισοδύναμον προς νέαν διατύπωσιν του κανόνος δικαίου ούτως ώστε η δοθείσα ερμηνεία ν' αποτελή ενιαίον σύνολον μετά του ερμηνευθέντος κανόνος δικαίου της συνθήκης.

Πάντως το ευρωπαϊκόν δικαστήριον υπόκειται εις την επίδρασιν των πολιτικών και οικονομικών δεδομένων άτινα υπάρχουν κατά την έκδοσιν της αποφάσεώς του. Εξ άλλου αι προδικαστικά αύται αποφάσεις είναι παραλλήλως πράξεις κοινοτικού οργάνου και κατά συνέπειαν δύνανται ν' αποτελέσουν και αύθις αντικείμενον προδικαστικής παραπομπής ενώπιον του ευρωπαϊκού δικαστηρίου το οποίον δεν κωλύεται απολύτως εκ των προηγουμένων αποφάσεών του. Εφ' ω και τα δικάζοντα εις τελευταίον βαθμόν εθνικά δικαστήρια έχουν την δυνατότητα είτε ν' απευθυνθούν εξ αρχής εις το ευρωπαϊκόν δικαστήριον, είτε να υιοθετήσουν την προηγουμένην απόφασιν του ευρωπαϊκού δικαστηρίου, αποκλειομένης πάντως της περιπτώσεως να προβούν αυτά ταύτα εις την ερμηνείαν της συνθήκης.

Εις την δευτέραν κατηγορίαν περιπτώσεων γίνεται διαστολή μεταξύ των αποφάσεων αίτινες κρίνουν κοινοτικήν πράξιν ως ισχυράν και των κρινουσών αυτήν ως ανίσχυρον.

Τα αποτελέσματα της προδικαστικής αποφάσεως ήτις δέχεται την υπό κρίσιν πράξιν ως ισχυράν έχουν ισχύν μεταξύ των μερών (inter partes). Αντιθέτως τ' αποτελέσματα των αποφάσεων των κρινουσών τας πράξεις ως μη ισχυράς στασιάζονται. Η επί του ζητήματος τούτου κρατήσασα άποψις του ευρωπαϊκού δικαστηρίου ετάχθη υπέρ της θεωρίας της μεταξύ των μερών ισχύος των αποτελεσμάτων του άρθρου 177. Εις την υιοθέτησιν της σκέψεως ταύτης εβάρυνε κυρίως η επικράτησις της αρχής της ασφαλείας του δικαίου. Δέον εν τούτοις να υπογραμμισθή ότι εις την πράξιν αι εν λόγω προδικαστικά αποφάσεις του ευρωπαϊκού δικαστηρίου συνεπάγονται αποτελέσματα οιονεί έναντι πάντων (quasi erga omnes) καθ' όσον συνηθίζεται το εκδόσαν την πράξιν όργανον να λαμβάνη τα δέοντα μέτρα θεραπείας ή αποκαταστάσεως των πράξεων αίτινες εκρίθησαν ως μη ισχυραί υπό του ευρωπαϊκού δικαστηρίου.

Β'. ΔΙΚΑΙΟΔΟΣΙΑ ΩΣ ΔΙΟΙΚΗΤΙΚΟΝ ΔΙΚΑΣΤΗΡΙΟΝ

Χρήζει ιδιαιτέρας εξάρσεως ότι δια της συνθήκης της Ρώμης συνεστήθη

έννομος τάξις εκ της οποίας δημιουργούνται δικαιώματα και υποχρεώσεις φυσικών και νομικών προσώπων και δη κατά τρόπον άμεσον, ήτοι ανεξαρτήτως μετατροπής των σχετικών κανόνων και των πράξεων του συμβουλίου και της επιτροπής, εις τας σχέσεις μεταξύ κρατών – μελών και προσώπων υποκειμένων εις το δίκαιον αυτών. Αι εν λόγω δ' όμως πράξεις του συμβουλίου και της επιτροπής δεν αφήνονται ανεξέλεγκτοι. Προς τούτο έχει προβλεφθή ο έλεγχος της νομιμότητος των πράξεων τούτων όστις υπάγεται εις την αρμοδιότητα του ευρωπαϊκού δικαστηρίου. Ούτω το άρθρον 173 ορίζει ότι το δικαστήριον ελέγχει την νομιμότητα των πράξεων του συμβουλίου και της επιτροπής πλην των συστάσεων και γνωμοδοτήσεων. Η νομολογία του ευρωπαϊκού δικαστηρίου εθεώρησε παραδεκτήν αίτησιν ακυρώσεως κατά «συζητήσεως» του ευρωπαϊκού συμβουλίου ήτις καθώριζε την στάσιν ην ώφειλον ν' ακολουθήσουν τα κράτη – μέλη κατά τας διεξαγομένας διαπραγματεύσεις δια την συνομολόγησιν της ευρωπαϊκής συνθήκης μεταφορών ξηράς. Εντεύθεν έπεται ότι το άρθρον 173 αφορά εις πάσαν πράξιν του Συμβουλίου και της Επιτροπής συνεπαγομένην εννόμους συνεπείας και δεν περιορίζεται απλώς εις τους κανονισμούς, τας κατευθυντηρίους οδηγίας και τας αποφάσεις. Το ευρωπαϊκόν δικαστήριον απεφάνθη ότι η ανωτέρω «συζητήσεις» δεν είχαν απλώς πληροφοριακόν ή συμβουλευτικόν χαρακτήρα αλλά δεσμευτικόν τοιούτον ως προς την συμπεριφοράν ην θα ηκολούθουν τα κράτη – μέλη κατά τας ανωτέρω διαπραγματεύσεις. Πάντως κατά ρητήν εξαίρεσιν της ειρημένης διατάξεως δεν προσβάλλονται δι' αιτήσεων ακυρώσεως αι γνωμοδοτήσεις ή συστάσεις, και γενικώτερον πάσα άλλη πράξις εστερημένη δεσμευτικού χαρακτήρος και δη ανεξαρτήτως προς τον χαρακτηρισμόν της (π.χ. διακηρύξεις – Declarations του Συμβουλίου ή της Επιτροπής ή γνωστοποιήσεις – Notifications).

Ιδιαιτέραν σημασίαν έχει ο προσδιορισμός του κριτηρίου της εν προκειμένω διακρίσεως, καθ' όσον τούτο είναι ουσιαστικόν και ουχί τυπικόν. Τούτο δηλοί ότι ο χαρακτηρισμός γίνεται ουχί βάσει της ονομασίας ην προσδίδει το εκδόσαν την πράξιν όργανον αλλά βάσει του περιεχομένου της πράξεως ως αποφάσεως ή γνωμοδοτήσεως. Ενταύθα αναπτύσσει ευελιξίαν το ευρωπαϊκόν δικαστήριον.

Ίνα επιληφθή το ευρωπαϊκόν δικαστήριον του ελέγχου της νομιμότητος απαιτείται η υποβολή αιτήσεως ακυρώσεως καθ' όσον το δικαστήριον δεν ενεργεί εν προκειμένω αυτεπαγγέλτως. Δικαίωμα προς τούτο έχουν τα κράτη – μέλη, το Συμβούλιον και η Επιτροπή. Δικαίωμα ν' ασκήσουν αίτησιν ακυρώσεως έχουν ωσαύτως φυσικά ή νομικά πρόσωπα ήτοι επί το απλούστερον ιδιώται, πλην όμως το δικαίωμά των τούτο είναι περιωρισμένον. Εν προκειμένω ποιούμεθα την εξής διάκρισιν : Τα φυσικά ή νομικά πρόσωπα δύνανται ν' ασκήσουν προσφυγήν

κατά των αποφάσεων αίτινες σχετίζονται προς αυτά ως επίσης και κατ' εκείνων των αποφάσεων αίτινες αφορούν έτερον πρόσωπον αλλά θίγουν όμως αυτά ευθέως και ατομικώς. Παρατηρούμεν κατά ταύτα μίαν διαφοροποίησιν του δικαιώματος της προσφυγής όπερ προκειμένου περί κρατών – μελών είναι τρόπον τινα απεριόριστον καθ' όσον δεν υποχρεούνται ν' αποδείξουν έννομον προς τούτο συμφέρον, όπερ λαμβάνεται ως δεδομένον κατ' εφαρμογήν της διατάξεως του άρθρου 5 της Συνθήκης το οποίον επιβάλλει θετικώς και αρνητικώς εις τα κράτη – μέλη την υποχρέωσιν να διευκολύνουν την κοινότητα εις την εκπλήρωσιν της αποστολής της. Το δικαίωμα των κρατών – μελών προς άσκησιν της προσφυγής εξικνεΐται και επί των ατομικών αποφάσεων αίτινες αναφέρονται εις φυσικά ή νομικά πρόσωπα καθ' όσον η σχετική διάταξις του άρθρου 173 παρ. 1 δεν κάμνει διάκρισιν τινα εν προκειμένω.

Ελέχθη ότι το δικαίωμα των ιδιωτών (φυσικών ή νομικών προσώπων) προς υποβολήν αιτήσεως ακυρώσεως πρέπει να θεμελιώνεται επί άμέσου και ατομικού προς τούτο εννόμου συμφέροντος (παρ. 2 άρθρου 173). Το ευρωπαϊκόν δικαστήριο υπεγράμμισεν ότι αι διατάξεις αι σχετικαί με το δικαίωμα εννόμου προστασίας πρέπει να μη ερμηνεύονται στενώς (Plaumann case). Κατ' ακολουθίαν τούτου αναγνωρίζεται εις τους ιδιώτας το δικαίωμα να ασκήσουν προσφυγήν κατ' αποφάσεων του Συμβουλίου και της Επιτροπής και εις ας περιπτώσεις αύται αφορούν εις κράτη – μέλη. Δια το παραδεκτόν της προσφυγής πρέπει αι δύο προϋποθέσεις ήτοι του άμέσου και του ατομικού συμφέροντος να συνυπάρχουν εις εκάστην περίπτωσιν καθ' ην κρίνεται αίτησις ακυρώσεως ιδιώτου εναντίον αποφάσεως αναφερομένης εις τρίτον πρόσωπον. Εν προκειμένω ερευνάται υπό του δικαστηρίου κατ' αρχήν η ύπαρξις της δευτέρας προϋποθέσεως, τουτέστιν του ατομικού εννόμου συμφέροντος με την σκέψιν ότι εάν το προβαλλόμενον έννομον συμφέρον δεν είναι ατομικόν, περιττεύει η έρευνα της πρώτης προϋποθέσεως, ήτοι του εάν είναι άμεσον.

Το ευρωπαϊκόν δικαστήριο ανεγνώρισεν την ύπαρξιν ατομικού εννόμου συμφέροντος εις περιπτώσεις καθ' άς κατά τον χρόνον της εκδόσεως της προσβαλλομένης αποφάσεως ήτο δυνατός ο προσδιορισμός κατά τρόπον επακριβή των δι' αυτής επηρεαζομένων προσώπων. Εφ' ω και συνέβαλε τα μάλα εις τούτο ως ορόσημον η αναδρομική ισχύς των προσβληθεισών αποφάσεων, ήτις και κατέστησεν δυνατόν τον ακριβή προσδιορισμόν του αριθμού και της ταυτότητος των προσώπων άτινα εθίγοντο υπό των προσβαλλομένων αποφάσεων (Toerper cases και λοιπαί). Το «άμεσον» του εννόμου συμφέροντος κατά την προσβολήν αποφάσεως απευθυνθείσης προς κράτος – μέλος υφίσταται' όταν αύτη είναι άμεσως εφαρμοστή (directly enforceable). Τα κριτήρια εφ' ων ερείδεται το άμεσον και ατομικόν του εννόμου συμφέροντος έχουν εισαχθή διαπλαστικώς υπό της

νομολογίας του ευρωπαϊκού δικαστηρίου κατά την εκδίκαση αιτήσεων ακυρώσεως ιδιωτών εναντίον αποφάσεων αίτινες απευθύνθησαν προς κράτη – μέλη.

Τα φυσικά και νομικά πρόσωπα (ιδιώται) δεν δύνανται να ζητήσουν την ακύρωση πάσης πράξεως του Συμβουλίου και της Επιτροπής άνευ διακρίσεως, αλλά μόνον ατομικές αποφάσεις αίτινες αναφέρονται εις ταύτα ή άλλας πράξεις ατομικού χαρακτήρος, ουχί δ' όμως κανονισμούς ή κατευθυντηρίου οδηγίας.

Κατά το άρθρον 189 οι κανονισμοί είναι πράξεις έχουσαι γενικήν εφαρμογήν, αίτινες δεσμεύουν καθ' ολοκληρίαν και είναι αμέσου εφαρμογής εις πάντα τα κράτη – μέλη, δημιουργούν δε δικαιώματα και υποχρεώσεις δι' απλούς ιδιώτας.

Εκ λόγων νομικής ασφαλείας έχει επιβληθή ο αποκλεισμός της δυνατότητος ασκήσεως αιτήσεως ακυρώσεως υπό ιδιωτών κατά κανονισμών ή κατευθυντηρίων οδηγιών. Έτι περαιτέρω και ειδικώς ως προς τας οδηγίας ρητέον ότι τα μέτρα εκτελέσεως των κατευθυντηρίων οδηγιών δεν είναι άλλο τι ει μη μέτρα της εσωτερικής εννόμου τάξεως των κρατών – μελών και ως τοιαύτα εκφεύγουν της δικαιοδοσίας του ευρωπαϊκού δικαστηρίου. Πάντως ίνα χαρακτηρισθή πράξις τις ως κανονισμός ή απόφασις θα ληφθή υπ' όψιν το περιεχόμενον και ο σκοπός της πράξεως και ουχί η εξωτερική μορφή αυτής. Εφ' ω και είναι δεκτικά προσβολής δι' αιτήσεως ακυρώσεως πράξεις αίτινες φέρουν εξωτερικώς την ονομασίαν του «κανονισμού» ενώ εν τη ουσία των είναι αποφάσεις ή γενικώτερον πράξεις ατομικού χαρακτήρος. Το ευρωπαϊκόν δικαστήριον έχει προσδώσει ελαστικήν ερμηνείαν εις τον όρον «κανονισμός» και δη προς την κατεύθυνσιν υιοθετήσεως ευνοϊκής προς τους ιδιώτας θέσεως, ήτις συνίσταται εις το ότι θεωρεί αρκετόν το ότι ανευρίσκονται εις τον κανονισμόν στοιχεία αποφάσεως ίνα γίνη δεκτή η αίτησις ακυρώσεως του φυσικού ή νομικού προσώπου. Τούτο άγει κατ' ακολουθίαν εις την διαμόρφωσιν της εννοίας της μικτής πράξεως ήτις ως γνωστόν ενδέχεται να δημιουργήσει κινδύνους.

Λόγοι ακυρώσεως

Οι λόγοι ακυρώσεως ορίζονται περιοριστικώς ως ακολούθως :

α) αναρμοδιότης της αρχής ήτις εξέδωσε την πράξιν.

β) παράβασις ουσιώδους τύπου υποχρεωτικώς προβλεπομένου εν σχέσει προς την ενέργειαν της πράξεως.

γ) ουσιαστική παράβασις της Συνθήκης ή παντός κανόνος δικαίου σχετικού προς την εφαρμογήν αυτής.

δ) κατάχρησις εξουσίας.

Προθεσμία αιτήσεως ακυρώσεως

Αι υπό του άρθρου 173 προβλεπόμενοι προσφυγαί πρέπει να υποβάλλονται εντός προθεσμίας δύο μηνών αναλόγως της περιπτώσεως, είτε από της δημοσιεύσεως της πράξεως, είτε από της κοινοποιήσεώς της εις τον ενάγοντα, ή εις περίπτωσιν μη κοινοποιήσεως, αφ' ης ημέρας έλαβε ούτος γνώσιν της περί ης πρόκειται πράξεως.

Αποτελέσματα της αιτήσεως ακυρώσεως

Εάν η προσφυγή κριθή βάσιμος το δικαστήριον θ' απαγγείλη την ολικήν ή μερικήν ακύρωσιν της προσβληθείσης πράξεως. Η ακύρωσις ανατρέχει εις τον χρόνον της εκδόσεως της ακυρωθείσης πράξεως. Το όργανον όπερ εξέδωσεν την ακυρωθείσαν πράξιν υποχρεούται να λάβη τα μέτρα τα οποία συνεπάγεται η απόφασις του δικαστηρίου. Τούτο δηλοί την υποχρέωσιν συμμορφώσεως του οργάνου προς την ακυρωτικήν απόφασιν.

Κατ' εφαρμογήν του άρθρου 215 της Συνθήκης δικαιούται ο υπέρ ου η ακύρωσις ζημιωθείς να ζητήση αποζημίωσιν παρά της Κοινότητος ήτις θα εκδικασθή υπό του ευρωπαϊκού δικαστηρίου συμφώνως προς τας γενικάς κοινάς αρχάς της νομοθεσίας των κρατών - μελών.

Προς ολοκλήρωσιν της δια του παρόντος επιχειρηθείσης συνοπτικής ενημερώσεως πρέπει εν τέλει να μνημονευθή ότι το δικαστήριον ευρωπαϊκών κοινοτήτων έχει επίσης διαιτητικήν και γνωμοδοτικήν αρμοδιότητα κατ' εφαρμογήν των άρθρων 181, 182 και 228 παρ. 1 εδαφ. 2 της συνθήκης.

ΚΥΡΙΩΤΕΡΑ ΒΙΒΛΙΟΓΡΑΦΙΑ

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Schlochauer, *Die Zuständigkeiten des Gerichtshofes der Europäischen Gemeinschaften* εις *FESTSCHRIFT OPHÜLS* 167, Valentine, *The Court of Justice of the Euro-*

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LA TEORIA DELLA POPOLAZIONE NEGLI SCRITTORI ITALIANI DEL XVIII SECOLO

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1. INTRODUZIONE

I problemi della popolazione hanno assunto rilievo particolare a partire dal XVIII secolo, allorquando nell' Europa occidentale sia andava manifestando una delle più eccezionali spinte demografiche. Certamente prima di quell' epoca il fenomeno demografico aveva sempre attirato l' attenzione degli studiosi, ma non in modo sistematico, al punto da fare sviluppare, attraverso le teorie elaborate, una «scienza della popolazione».

Considerazione intorno alla popolazione si ritrovano nei trattati dei moralisti e dei filosofi (1), o nell' ambito di dottrine che esaltano la grandezza dello Stato

1) Basti citare per tutti, due fra i più importanti filosofi dell' antica Grecia : PLATONE e ARISTOTELE.

PLATONE, sostenitore del principio di staticità della popolazione, si preoccupa di dare un rigoroso equilibrio tra la popolazione e le sussistenze, fissa la popolazione della sua Città-Stato ad un limite piuttosto basso. «Questa scarsità demografica — afferma il TOZZI — non ha tanto una spiegazione politica, quanto una ragione economica ; che consiste nella reale povertà del territorio in cui PLATONE (...), immagina i personaggi delle sue costruzioni teoriche». Scriveva PLATONE in *Della Repubblica* (V, 8, 460, A, p. 327) : «Il numero dei connubli lo lasceremo stabilire dalle autorità ; basta che mantengano stabile, quanto più possibile, il numero dei cittadini, tenendo presenti le guerre, le malattie ed altri accidenti del genere, così che il nostro Stato resti nè troppo grande nè troppo piccolo».

ARISTOTELE, invece, a differenza di PLATONE, non stabilisce un optimum per la popolazione. Egli, in linea generale, afferma che l' optimum di popolazione d' una città consiste nella «maggior popolazione conciliabile con le esigenze della vita civile e della visione complessiva dell' organismo». (*Della Politica* VII, 4, 1326, B, p. 228). Non trascurava, tut-

e la sua potenza ; qualità queste ultime identificate nell' andamento numerico della popolazione. A partire dal XVIII secolo, la società europea subisce un rapido processo di trasformazione del quale la spinta demografica è nello stesso tempo causa e conseguenza. Con l'industrializzazione, anche i rapporti tra le classi sociali, in Europa, vengono rivoluzionati, emerge la classe della borghesia e si crea, per la prima volta, la contrapposizione sociale tra borghesia e proletariato.

In rapido incremento demografico non fa che rendere drammatica tale contrapposizione ; perchè la pressione numerica del proletariato nel mercato del lavoro consolida il potere economico della borghesia e causa, nel quadro istituzionale del sistema capitalistico, i primi fenomeni di sfruttamento, che saranno più tardi teorizzati acutamente da MARX e dai seguaci dell'indirizzo socialista.

Così, le teorie della popolazione vengono recepite per la prima volta negli schemi della teoria economica. Si abbandonano le posizioni moralistiche finì a se stesse, o le identificazioni tra la popolazione e la grandezza dello Stato.

Possiamo dire che nel momento stesso in cui il «lavoro» diventa «merce» oggetto di scambio, la teoria della popolazione viene integrata nella teoria economica e, in particolare ad opera di alcune correnti di pensiero economico, la teoria della popolazione viene correlata alle leggi economiche che regolano la domanda e l'offerta di lavoro. Si pongono alla base di tali leggi la produttività del lavoro ed il concetto di reintegrazione della merce lavoro, che negli schemi degli economisti classici si spinge al limite delle sussistenze.

Nell' ambito delle istituzioni precapitalistiche la popolazione non poteva costituire una categoria economica, perchè mancava un mercato che desse i parametri di valutazione della merce lavoro intrinsecamente correlata alla popolazione stessa. Tutto, nei sistemi precapitalistici, si esauriva all' interno della «corte» secondo i finì del «principe», governatore sovrano ; così, ad esempio, la legge di riproduzione degli schiavi, nel sistema ad economia feudale, veniva riferita al tornaconto del «signore». In riferimento al quadro economico del feudalesimo, il

tavia, di considerare questo limite in rapporto al limite assoluto imposto dalle sussistenze. Infatti, afferma la necessità di una correlazione tra il numero degli abitanti della Città - Stato e la campagna da questa posseduta quando scrive che : «il territorio deve essere tanto grande che gli abitanti possano vivervi senza sollecitudini tormentosi come si conviene ad uomini liberi ed assennati» (Della politica, VII, 5, 1326 B, p. 228). TOZZI G., *Economisti greci e romani*, Feltrinelli, Milano, 1861, pp. 116-7 e 194-5. LUTFALLA M., *L'Etat Stationnaire*, Gauthier-Villars, Paris, 1964, pp. 7-15. GONNARD R., *Histoire des doctrines de la population*, Nouvelle Librairie Nationale, Paris, 1923.

principio della popolazione era un fatto esogeno, governato soprattutto da leggi naturali e dal volere sovrano del signore.

E' quindi, solo con l'avvento del capitalismo che il principio della popolazione diventa endogeno al quadro economico istituzionale e che in tale quadro viene studiato da economisti e demografi.

Per questi motivi, i primi contributi di un certo rilievo ad una teoria della popolazione si possono riscontrare solo a partire dall'epoca del mercantilismo, cioè di quel movimento politico ed economico che ha favorito in Europa l'avvento dei sistemi capitalistici, ed è soltanto da MALTHUS in poi che le teorie della popolazione vengono sistematicamente studiate.

L'eterogenità della realtà italiana, sottoposta in parte al dominio austriaco e alla realtà italiana, sottoposta in parte al dominio austriaco e alla politica dei Savoia e dei Borboni, in parte attraversata dalla decadenza delle vecchie repubbliche, ha determinato l'impossibilità di adottare un'unità nei metodi di governo e negli assetti economici e il permanere di strutture feudali, per cui lo sviluppo capitalistico ha proceduto lentamente.

In questo contesto gli scrittori illuministi italiani, intorno alla metà del secolo, hanno apportato un più incisivo impegno intellettuale, facendosi ad un tempo promotori e adepti di istanze riformatrici, contribuendo a ristabilire una circolazione di idee ed un migliore avvicinamento alla cultura europea del tempo².

In questo saggio ci limitiamo a considerare i contributi, fino al XVIII secolo, degli economisti italiani alla teoria della popolazione, mostrando l'attualità di un dibattito che si è sviluppato in termini particolarmente interessanti in quel periodo storico nel quale si fondavano i primi sistemi capitalistici.

2. IL PROBLEMA DEMOGRAFICO NEI MERCANTILISTI ITALIANI.

Intorno al XVI secolo i motivi economici cominciano ad assumere qualche rilievo nello studio dei movimenti demografici; così, nella dottrina mercantilistica, la popolazione viene studiata nei suoi riflessi economici, come fattore di produzione e come destinataria della ricchezza nazionale.

2) A. MACCHIORO, *Studi di Storia del Pensiero Economico*, Feltrinelli Milano, 1970, pp. SANTUCCI A., *Interpretazione dell'Illuminismo*, il Mulino, Bologna, 1979. CARPANETTO D., *L'Italia del settecento illuminismo e movimento riformatore*, Loescher, Torino, 1980.

Le numerose teorie a sostegno dell' espansione demografica, nell'età mercantilistica, denotano una tendenza generalmente favorevole all' incremento della popolazione, che costituisce la più ricca fonte di ricchezza delle nazioni³. L'ottimismo dei mercantilisti nei riguardi dell' espansione demografica, era giustificato dal fatto che un fenomeno di iperpopolazione non si era loro ancora manifestato in tutta la sua drammaticità. È, infatti, solo verso la fine del diciottesimo secolo che, col nascere dell' industria moderna, si cominciarono a sentire gli effetti negativi della pressione demografica. L'accelerato ritmo dello sviluppo economico porterà, in realtà, verso la fine del XVIII secolo, al grave fenomeno della disoccupazione. Proprio a partire da quell' epoca si assisterà ad una inversione di opinioni nella letteratura economica sulla popolazione e si cominceranno ad elaborare quelle dottrine pessimistiche che troveranno, più tardi, la più completa espressione nella teoria malthusiana della popolazione.

Nel complesso il pensiero dei mercantilisti sullo sviluppo demografico è improntato ad un atteggiamento ottimistico, all' quale tuttavia, non sfuggono alcune ombre circa gli effetti negativi della iperpopolazione⁴.

Se già a livello il dibattito sulla popolazione tendeva a polarizzarsi su tesi ben debinite che, solo per esigenza di sintesi, possiamo definire rispettivamente ottimistiche e pessimistiche, in Italia il problema non destava ancora molto interesse, data anche l'eterogeneità della struttura socio-politica in cui trovavasi l'Italia nel settecento. Questo atteggiamento a gnostico degli italiani viene sottolineato anche da J. SCHUMPETER, il quale osserva come il disinteresse degli italiani si manifestasse: «sia nell' atteggiamento favorevole a una popolazione numerosa

3) A tal proposito sintetizza HOUMANIDIS L.: «I mercantilisti consideravano la popolazione come il fattore fondamentale per lo sviluppo dell' economia di uno Stato, e questo perché a loro parere una popolazione limitata portava a mancanza di forze armate, insufficienza di manodopera, alti salari, alti costi, impossibilità di concorrenza sul mercato internazionale e quindi povertà e impotenza militare. Era tanta la loro paura di una situazione di sottopopolazione che incoraggiavano le nascite e seguivano generalmente una politica antimalthusiana». HOUMANIDIS L. TH., *I mercantilisti e lo Stato*, in «Il ruolo dello Stato nel pensiero degli economisti», a cura di R. Finzi il Mulino, Bologna, 1977, pp. 75-6. STRANGELAND L. E., *Pre-malthusian doctrines of population*, The Columbia University Press New York, 1904.

4) Tuttavia, anche tra i mercantilisti non sono mancate tendenze opposte alla generale convinzione della necessità dell' incremento demografico. Tra i dissenzienti oltre al BOTERO di cui trattiamo nel testo, ricordiamo il SUSSMILCH, cfr. BOLDRINI M., *Il principio della popolazione* di G. P. SUSSMILCH, in «Annuario della Università Cattolica del Sacro Cuore», Vita e Pensiero, Milano, 1932.

e rapidamente crescente, sia, (...), verso l'atteggiamento opposto, di tipo malthusiano»⁵.

Se consideriamo, infatti, due tra gli scrittori italiani del mercantilismo più rappresentativi in fatto di popolazione verso l'uno o l'altro «atteggiamento» cioè: MACHIAVELLI e BOTERO, dobbiamo notare col SINIGAGLIA che: «né l'uno né l'altro ci desidero un lavoro sistematico sul soggetto, ma frammenti sparsi qua e là nelle loro opere, d'un valore immenso sia per l'epoca in cui furono scritti, sia per il loro contenuto»⁶.

Il MACHIAVELLI, fautore dell'incremento demografico perché rafforza lo Stato e lo difende da ogni ostilità interna ed esterna, considera il rapporto che intercorre fra accrescimento della popolazione e produttività delle terre. Sull'incremento demografico agisce, generalmente, un agente fisico — la produttività della terra — che limita l'aumento indefinito della popolazione. Tuttavia, l'eccesso di popolazione non è un male da evitare, sostiene il MACHIAVELLI, che guarda al benessere dello Stato e non del singolo individuo, ma un bene da auspicarsi.

• Egli, di fronte alle esigenze della società italiana del tempo, vede nell'incremento della popolazione la giusta premessa alla costituzione di quello «Stato nazionale» che è potenza e benessere all'interno, potenza ed espansione all'esterno⁷.

5) SCHUMPETER J. A., Storia dell'analisi economica, Trad. it. Einaudi, Torino, 1959, vol. I, p. 304.

Significativi aspetti della diversità di atteggiamenti si colgono analizzando il pensiero di altri economisti. Il CHILD, economista e uomo d'affari inglese, sostenne che: «molte nazioni (...) sono più o meno ricche o povere in proporzione alla scarsità o abbondanza degli individui, non alla sterilità o fertilità delle loro terre». CHILD sir J., *New discourse of trade*, 1963, p. 179.

Altro sostenitore inglese dello sviluppo demografico fu Sir W. TEMPLE, statista e scrittore del XVII sec., secondo il quale: «la causa vera e naturale del commercio e della ricchezza consiste in un numero di individui proporzionato alla estensione della terra da loro abitata». TEMPLE sir W., *An Essay upon the Advancement of Trade in Ireland* in «Opere (1814), vol. III.

Anche PETTY, nel Trattato delle imposte e dei tributi, sostiene che la «scarsità di popolazione è reale povertà e, una nazione dove vi sono otto milioni di persone, è ricca più del doppio rispetto ad un'altra che sul medesimo territorio ne conta solo quattro». PETTY sir W., *Treatise on Taxes*, trad. it. in «W. PETTY, scritti», Jota, 1972, p. 75.

6) SINIGAGLIA A., *La teoria economica della popolazione in Italia*, Bologna, 1881, p. 15.

7) Nota il MACHIAVELLI che all'eccesso di popolazione si può provvedere col l'emigrazione verso le colonie, in quanto ciò non priva la madre patria di tante energie al bisogno

In conclusione, per il MACHIAVELLI, l'incremento demografico è sempre da perseguire in quanto costituisce il fondamento della felicità, della sicurezza, del benessere dello Stato.

Un audace dissidente all'incremento indefinito della popolazione lo troviamo in GIOVANNI BOTERO, che nel 1589—due secoli prima di MALTHUS—contrappose il «limitato potere nutritivo della terra all'illimitato potere di riproduzione dell'uomo». Questa è proprio la tesi malthusiana, sebbene il pensiero del BOTERO, differisca da quello di MALTHUS, perchè il primo concepisce il potere nutritivo della terra come una quantità fissa a differenza del MALTHUS che lo considera variabile secondo una progressione aritmetica⁸. Nel libro terzo delle cause della grandezza e magnificenza della città egli considera che la popolazione aumenta in relazione alla fecondità umana (virtus generativa), mentre i mezzi di sussistenza (virtus nutritiva) non aumentano secondo una legge demografica e finiscono con l'agire come forza frenante dello sviluppo demografico⁹.

«La moltitudine delle genti è necessaria alla difesa e alla ricchezza dello Stato, e la politica del principe — sostiene il BOTERO — deve essere volta a promuovere, insieme allo sviluppo demografico, un uguale sviluppo del settore agricolo — in quanto l'agricoltura è il fondamento della propagazione —

(Istorie fiorentine libro II, cap. I e II). Tuttavia, in mancanza di questo sbocco l'eccesso di popolazione, comunque, annullato dalla fame, dalle malattie e dalle inondazioni (cap. V, Libro II dei Discorsi). Cfr. VILLARI P., Nicolo Machiavelli, voll. 3, 1877-82.

8) L'opera del MALTHUS apparve la prima volta nel 1798 da anonimo sotto il titolo: «An Essay on the Principle of Population as it affects the future improvement of Society with remarks on the speculations of Mr. Godwin, Mr. Condorcet and other writers».

La seconda edizione del 1803 fu sostanzialmente riveduta ed ampliata notevolmente e tale resto nelle successive edizioni rispettivamente del 1806, del 1807, del 1817 e infine del 1826. Solo da notare le appendici alla terza e alla quarta edizione del 1806 e del 1817 nelle quali MALTHUS confuta le numerose critiche rivolte dai suoi contemporanei alla sua opera.

L'edizione italiana del «Saggio» è stata edita sulla traduzione della sesta edizione. La prima edizione del «Saggio», quella più discussa e che tante critiche ha suscitato, solo recentemente è apparsa nella traduzione italiana col titolo: «Primo saggio sulla popolazione», con introduzione di GIORGIO NEBBIA, Laterza, Roma - Bari, 1976. Per una analisi critica del pensiero di MALTHUS cfr. L'Introduzione di PIERO BARUCCI al volume MALTHUS, Principi di Economia Politica, ISEDI, Milano, 1972.

9) BOTERO G., Della ragion di Stato con tre libri Delle cause della grandezza delle città, a cura di FIRPO L., UTET, Torino, 1948, p. 401 - 2. Cfr. anche la nota di FIRPO L., Botero Giovanni, in «Dizionario Biografico degli Italiani», Roma, 1971, vol. XIII, p. 352 - 362.

e del settore industriale.» Egli biasima la politica governativa, seguita dagli inglesi, che trascura lo sviluppo dell' agricoltura lasciando che molte terre fertili fossero adibite a parchi : da ciò le carestie di frumento, l'ascesa vertiginosa della disoccupazione e la diffusione della miseria¹⁰.

La quantificazione della teoria della popolazione non è il solo aspetto innovativo nella costruzione del BOTERO, che si impone, soprattutto, nel voler considerare il fenomeno della popolazione nel contesto della realtà economica, cioè come relazione che intercorre tra popolazione e territorio, tra popolazione e sussistenze (agricoltura). Ecco perchè nel BOTERO si riscontra il primo e valido tentativo verso una costruzione sistematica della teoria della popolazione.

Tuttavia, nè il MACHIAVELLI nè il BOTERO diedero, nel complesso, al principio della popolazione quella sistematicità e completezza cui si perverrà col malthusianesimo. Pertanto, essi vanno considerati solo dei precursori della teoria della popolazione per aver preso in considerazione e in modo differente la forza riproduttiva dell'uomo, la limitatezza delle sussistenze, il pericolo di un eccesso di popolazione.

3. GLI SCRITTORI ITALIANI DEL SETTECENTO : LA SCUOLA NAPOLETANA

Gli economisti italiani del settecento svolsero un ruolo chiaramente riformatore sulla realtà economica ad essi contemporanea, nel loro pensiero emergono caratteri tipici ora dei mercantilisti ora dei fisiocratici. Da quest'ultimi trassero quel metodo d' indagine che cerca nell' esame dei problemi concreti la dimostrazione, la conferma delle formulazioni teorico - scientifiche¹¹.

Motivo, invece, per il quale la scuola italiana del settecento non ebbe risonanza oltre i confini nazionali, probabilmente, fu il suo forte «regionalismo». Lo SCHUMPETER distingue gli economisti italiani di quella epoca in due «scuole»: la scuola napoletana e quella milanese¹².

10) BOTERO G., *Della ragion di Stato*, op. cit., libro settimo e ottavo.

11) Sul metodo della scuola napoletana cfr. FUSCO A. M., *Lo storico dell' economica e gli economisti italiani del settecento: qualche riflessione di metodo*, in «Rivista di Politica Economica», IV, Giugno 1974, p. 755.

12) SCHUMPETER J. A., op. cit., vol. I, p. 214. MEOLI U., *Lineamenti di storia delle idee economiche*, UTET, Torino, 1978, pp. 153 - 157.

Ci occuperemo prima della scuola napoletana, ossia del movimento riformista napoletano che conscio dell'arretratezza del Mezzogiorno si oppose ai grandi conflitti che dividono le classi sociali. Esso, in altre parole, si propose di spezzare il pessimismo, lo scetticismo di cui era saturata quella società.

Per uscire dall'arretratezza scientifica e tecnica del Napoletano bisognava intervenire con provvedimenti operativi e non mediante le astrazioni ideologiche che finiscono col paralizzare la crescita economica. Da qui la necessità di un valido programma riformista capace di debellare quello stato di decadimento economico - sociale e politico che si era perpetrato nel tempo. Infatti, quel movimento riformista intendeva operare, in termini di autonomia politica, di potenza e di indipendenza, per uno sviluppo economico capace di competere con le altre e più progredite economie europee.

In particolare, della scuola napoletana, attraverso il GENOVESI, il FILANGIERI e il BRIGANTI, vengono qui considerati soltanto i contributi alla teoria della popolazione. Più generalmente, gli economisti italiani del settecento considerarono lo sviluppo demografico, non sotto l'aspetto quantitativo, in quanto l'individuo non è più considerato mero strumento di grandezza dello Stato, bensì nelle sue implicazioni qualitative, connesse perciò, al benessere sociale della popolazione.

Secondo GENOVESI¹⁴ lo sviluppo demografico costituisce l'obiettivo prio-

13) SINIGAGLIA A., op. cit., p. 21. Un quadro completo degli economisti italiani del settecento e l'influenza da loro esercitata sulle riforme introdotte in quel tempo è in: PECCHIO G., *Storia dell'economia pubblica in Italia*, Lugano, 1832. ARIAS G., *La théorie de la population en Italie avant Malthus*, in «Revue d'Histoire Economique et sociale», anno X, n. 3-4, Paris, 1912. REYNAUD P., *La théorie de la population en Italie au XVIIIe siècle*, Rousseau, Paris, 1904.

14) GENOVESI A. (1712 - 1769), primogenito d'una famiglia numerosa e destinato alla vita ecclesiastica, fu professore prima di etica e filosofia morale, poi di economia e commercio, nell'Università di Napoli. Esperto delle condizioni economiche del Regno di Napoli e retto dall'illuminismo di Carlo III di Borbone, il GENOVESI caratterizzò col suo insegnamento il movimento intellettuale della scuola napoletana. AA.VV., *Studi in onore di Antonio Genovesi*, (a cura di D. DEMARCO), L'arte tipografica, Napoli, 1959. VENTURI F., *Settecento riformatore da Muratori a Beccaria*, Einaudi, Torino, 1969, pp. 523-644, dello stesso autore, *Illuministi italiani*, t.V, *Riformatori napoletani*, R; Ricciardi, Milano, 1862. TAGLIACOZZO G., *Economisti napoletani del sec. XVII e XVIII*, Cappelli, Bologna, 1937. CUTOLO A., *Antonio Genovesi*, 1926. DEMARCO D., *Quello che è vivo del pensiero economico di A. Genovesi*, in «Rassegna Economica», 1957, n. 1. NUCCIO O., *Economisti e riformisti meridionali del '700*, Bizzarri, Roma, 1971, pp. 85 - 192.

ritario della politica economica, egli infatti, definisce «l' economia civile» quella parte (della politica) che riguarda «le regole da rendere la sottoposta nazione popolata, ricca, potente, saggia, polita»¹⁵.

Egli non perviene a delle conclusioni universali, assolute valide per tutti i luoghi e per tutti i tempi; in quanto il problema demografico, legato alle condizioni socio-ambientali delle diverse realtà storiche, non può essere risolto dappertutto nella medesima maniera. Più specificatamente, egli si propone di dare un complesso organico di precetti operativi validi ad assicurare al Regno di Napoli un armonico sviluppo socio-economico.

Egli, mercantilista ma che vive in un'epoca caratterizzata dal declino del mercantilismo e dall'affermarsi dell'indirizzo fisiocratico, esamina lo sviluppo demografico sia sotto l'aspetto quantitativo che qualitativo finalizzato alla determinazione di una «giusta popolazione»¹⁶.

L'interpretazione del problema demografico è vitale allo sviluppo economico da qui la necessità per il GENOVESI di far sì «che la popolazione di un paese, in bello e fecondo clima situato, sia la massima possibile»¹⁷. Egli, infatti pone maggiore attenzione al fenomeno della sottopopolazione e ai criteri da seguire per combatterla. Tra le cause che determinano la sottopopolazione egli annovera: l'arretratezza dell'agricoltura, la deficienza delle manifatture e del commercio, i costumi eccessivamente rilassati, il notevole aumento del celibato, le

15) GENOVESI A., *Lezioni di economia civile*, in «Biblioteca dell' Economista», Torino, 1852, vol. III, serie I, p. 1.

16) Afferma il GENOVESI in proposito: «Un paese che per la sua estensione, pel clima per la bontà delle sue terre, per sito, per l'ingegno degli abitanti può alimentare cinque milioni di persone, se non nutrice che due è mezzo spopolato: se ne alimenta uno, spopolato di quattro quinti: se ne mantiene tre è spopolato di due quinti. Ma se gli avvenisse di averne sei o sette, sarebbe popolato al di sopra delle sue forze: vizio non meno contrario e nemico alla sua civile felicità, di quel che sia la spopolazione». GENOVESI A., *Lezioni*, in «Biblioteca dell' Economista», op. cit., pp. 29-30. Cfr. anche DE VERGOTTINI M., *Antonio Genovesi e il problema della popolazione*, in «Studi in onore di Antonio Genovesi», op. cit., p. 131. FORTUNATI P., *La popolazione nel pensiero di Antonio Genovesi*, in «S.O.A.G.», op. cit., p. 155. LASORSA G., *Il pensiero demografico del Genovesi nel suo tempo*, in «S.O.A.G.», op. cit., p. 253. SENSINI G., *La teoria della popolazione negli scritti di Antonio Genovesi*, in «S.O.A.G.», op. cit., p. 314 e segg. TROISI M., *Teoria e politica della popolazione*, in «Rivista Internazionale di Scienze Sociali», Anno XLVIII (1940).

17) GENOVESI A., *Lezioni*, op. cit., dal «Ragionamento sul commercio in generale», paragrafo IV, p. 314.

continue guerre, le frequenti epidemie, l'alta concentrazione della proprietà, i fidecommessi ed il grande aumento della proprietà ecclesiastica.

Per allontanare gli effetti negativi della sottopopolazione e conseguire quella giusta popolazione — sempre perseguita — i mezzi indicati dal GENOVESI consistono nell'adozione di quei provvedimenti atti a rimuovere uno di quegli ostacoli, come ad esempio: l'incoraggiamento alle nozze, il miglioramento e lo sviluppo dell'agricoltura, delle manifatture, del commercio.

La realtà storica sembra soccorrere il GENOVESI nella conferma alle sue teorie allorchè sostiene che il Regno di Napoli «è notevolmente decaduto «in fatto di popolazione», non già per cause naturali, ma morali. Perciò, a mitigare gli effetti negativi che scaturiscono dalla sottopopolazione, dalla ineguale distribuzione della proprietà, dell'arretratezza dell'agricoltura, il GENOVESI propone una precisa riforma che permetta, innanzi tutto, di aumentare il numero dei piccoli proprietari¹⁸.

Ma, se il fenomeno della sottopopolazione è un male da eliminare, non meno temibile è il fenomeno opposto; quello della sovrappopolazione che, dato l'ottimismo del GENOVESI, si presenta «come una eventualità», senza quei toni di drammaticità adottati dal MALTHUS, poichè, generalmente, la popolazione — sostiene — l'abate napoletano — è proporzionata ai mezzi di sussistenza. Ma la sovrappopolazione va combattuta e quando non si può provvedere con l'emigrazione, il celibato — che MALTHUS inclusera tra i freni preventivi — ossia il ritardo delle nozze è il mezzo più idoneo all'eccessivo sviluppo demografico.

Anche il FILANGIERI¹⁹, che subì l'influsso del GENOVESI, considera tra le priorità di una Nazione l'incremento demografico. Egli attribuisce notevole importanza allo sviluppo dell'agricoltura, tanto da vedere il problema demografico sotto un'ottica produttivistica: l'incremento della popolazione non può

18) GENOVESI A., *Lezioni*; op. cit., p. 212. Particolare interesse egli volge all'agricoltura «perchè niun altro mestiere — sostiene — è più atto ad aumentare e mantenere la popolazione, non essendovene altro che (...) più abbondevolmente, provvegga alla nostra vita», cfr. GENOVESI A., *ibidem*, p. 330.

19) FILANGIERI G. (1752-88) di nobile famiglia napoletana ed educato alla scuola del GENOVESI, ripone fiducia nella validità di un'illuminata legislazione. Infatti, è nel «contesto del programma legislativo — egli dice — che va inserito lo schema economico» il quale si fonda principalmente nelle leggi della popolazione e della formazione e distribuzione della ricchezza. Cfr. VENTURI F., *Nota introduttiva a Filangieri G.*, in «*Illuministi Italiani*», op. cit.; NUCCIO O., *Gaetano Filangieri e le leggi economiche*, appendice al vol. XXXII degli «*Scrittori classici ital. di econ. politica*», op. cit.

essere illimitato — anche se il suo incremento genera ricchezza e benessere—ma è funzione della capacità produttiva dell' agricoltura ²⁰.

A differenza dell' abate napoletano il FILANGIERI estende la sua analisi non solo al Regno di Napoli, ma ad un territorio più vasto o quale l'Europa, nel quale la decadenza dell' agricoltura ha determinato lo «stato infelice della sua popolazione» ²¹. Egli attribuisce le cause della sottopopolazione: alla grande concentrazione della proprietà fondiaria; all' esorbitante ricchezza degli ecclesiastici, all' eccessivo onere finanziario, alla politica bellicista delle Nazioni.

Le proposte di riforme, indicate dal FILANGIERI, consistono in un insieme di provvedimenti legislativi che incidono sulla struttura economica in modo tale da eliminare quegli ostacoli che impediscono la formazione e la circolazione della ricchezza. E il provvedimento più immediato risiede nell' aumentare il numero dei proprietari terrieri.

Altro economista appartenente alla scuola napoletana è: FILIPPO BRIGANTI ²², il quale nell' *Esame economico* anticipa alcune proposizioni presenti poi negli scritti di MALTHUS. Egli analizza il rapporto che intercorre tra popolazione e sussistenze e come queste siano funzione del lavoro, al fine di

20) «Se l' agricoltura è molto lontana da quel grado di perfezione al quale avrebbe potuto pervenire, se una porzione del territorio di questo paese non è coltivata e l' altra pel difetto di coltura non produce quello che portrebbe produrre (...) se molti boschi inutili non si sono recisi (...); se, in una parola, si osserva che gli abitanti di questo paese esigono dalla natura molto meno di quello ch' essa potrebbe offrire alla loro industria, (...), si può asserire con certezza che la sua popolazione è molto indietro. Questa verità è così chiara e così evidente, che sarebbe una stranezza l' impegnarsi a dimostrarla». FILANGIERI G., *Libro II, Delle leggi politiche ed economiche*, op. cit., p. 659. NUCCIO O., *Economisti e riformisti del '700*, op. cit., p. 201-9. BERTOLINO A., *Il problema della popolazione nel pensiero di G. FILANGIERI e le sue relazioni con le correnti intellettuali del sec. XVIII*, in «Studi Senesi», 1926, ora in «Esplorazioni nella storia del pensiero economico», Firenze, 1950.

21) FILANGIERI G., *Delle leggi politiche ed economiche*, in «Biblioteca dell' Economista», op. cit., p. 660.

22) Il giudizio sull' opera di F. BRIGANTI (1725-1804) pugliese, è stato piuttosto controverso. Negativo prima, il PECCHIO ne sconsiglia la lettura, è stato riabilitato poi dal MASSA il quale non limita la sua analisi solo all' *Esame economico*, ma anche e soprattutto, all' *Esame analitico* in quanto strettamente connesso. MASSA C., *Filippo Briganti e le sue dottrine economiche*, Trani, 1897, pp. 95-126, PECCHIO G., op. cit., p. 324-37. VENTURI F., *Filippo Briganti*, in «Dizionario biografico degli Italiani», vol. 14, Roma, 1972, pp. 254-58. RUGGERO-MAZZONE S., *Un economista pugliese del settecento: Filippo Briganti*, Università degli Studi, Bari, 1964.

individuare le cause che alterano e quelle che migliorano l'equilibrio di tale rapporto.

Il BRIGANTI come già aveva fatto il GENOVESI, nell' esaminare lo sviluppo demografico, puntualizza il concetto di «giusta popolazione», o meglio di «numero proporzionato alle circostanze locali»²³.

Distingue le cause che alterano l' equilibrio popolazione - sussistenze in cause fisiche, che scaturiscono dalla natura, e cause morali, che derivano dall' uomo. Tra le prime indica: l'aria, l' acqua e la terra; tra le cause morali indica la proprietà e l'industria che «riuniscono le forze individue», l'onestà e la temperanza, che «dilatano le forze aggregate e tutte insieme influiscono a rendere numerosa la popolazione».

Sebbene le cause morali, generalmente, provochino un incremento demografico non mancano tra esse quelle che operano in senso contrario e che il BRIGANTI individua nella schiavitù, sia essa domestica che civile, la prima annula «l' fecondità degli uomini», l' altra «spossa la fertilità dei campi»²⁴; nell' eccessivo peso tributario, nel lusso esagerato, nelle guerre, nelle primogeniture, ecc.

Nel BRIGANTI lo squilibrio tra popolazione e sussistenza non assume toni drammatici. Egli, teorico del progresso e del «principio di perfettibilità», è ottimista sulle sorti dell' umanità, crepito di perfettibilità», è ottimista sulle sorti dell' umanità, crede nelle capacità dell' uomo di vincere e superare gli ostacoli causa dello squilibrio. Egli è eccessivamente fiducioso sul ruolo del la ra-

23) Pochi uomini su un vasto territorio, «per quanto la fertilità del suolo, gl' inviti all' agricoltura e la di loro attività non rimanga chiosa, non giungono mai a dissodare e coltivare tutte le spaziose campagne del loro dominio, che in gran parte dovrà coprirsi di folte boscaglie e divenire infame ricettacolo delle fiere». Una moltitudine, invece, situata su una terra sterile «ed estenuata da involontarie astinenze e da crudeli privazioni, non costituire mai la forza di uno stato florido e potente, perchè forte non è mai quel popolo che si moltiplica nell' indigenza, ma quel che si nutre nell' opulenza». BRIGANTI F., *Esame economico del sistema civile*, in «Scrittori classici ital. di economia politica», Milano, 1804, t. XXIX, pp. 319 - 20. NUCCIO O., *Filippo Briganti e l'idea del progresso*, appendice ai voll. XXVIII e XXIX della raccolta «Scrittori classici ital. di economia politica», op. cit., pp. XXXI - XLIII.

24) Dove l' uomo non è libero, sentenzia il BRIGANTI, «ivi il cittadino non pensi a propagare se medesimo». Perchè anche se la storia non conferma ciò «luoghi ben vi sono che smentiscono la teoria del sistema economico». Così la Svezia sotto un governo libero «à scemata di numero», mentre «il popolo di Grecia sotto un dispotismo tirannico» non è stata ridotta a quantità minima. BRIGANTI F., *Esame economico*, op. cit., p. 317.

gione che abbinata all'istruzione permette di superare gli ostacoli²⁵.

I popoli istruiti e dediti al lavoro «sanno render copiosa la loro sussistenza col favore dell'agricoltura, della pastorizia, e creando nuovi beni coll'istruzione»²⁶. Ecco come all'insufficienza delle sussistenze gli uomini, data la loro capacità dell'inventiva e la loro laboriosità, si oppongono creando e perfezionando gli strumenti della produzione. Ottimista, dunque, sulle capacità della ragione per realizzare l'equilibrio tra la popolazione e le sussistenze, il BRIGANTI rigetta i morali restraints di cui tratteranno poi l'ORTES e il MALTHUS, soprattutto non accetta il celibato ad eccezione del celibato religioso, in quanto causa di dissoluzione dei costumi.

4. GLI SCRITTORI ITALIANI DEL SETTECENTO : LA SCUOLA MILANESE

Nella scuola milanese, invece, le idee riformiste che si agitavano nell'Italia del XVIII secolo, hanno toni più realistici, ma anche più polemici e critici rispetto agli altri economisti contemporanei. Tra i maggiori esponenti della scuola milanese che si sono interessati dello sviluppo demografico vanno considerati il BECCARIA ed il VERRI.

Il BECCARIA²⁷ è dopo l'ORTES, come vedremo, il miglior precursore della teoria malthusiana della popolazione, non per aver dato più sistematicità all'argomento, ma per aver confutato la validità della relazione tra incremento demografico e potenza delle nazioni. Egli è avverso alla teoria che vuole un aumento illimitato della popolazione. Per l'economista milanese lo sviluppo demografico ha dei limiti al di là dei quali non può crescere o diminuire indefinitamente, essendo condizionato dai mezzi di sussistenza.

25) Secondo il BRIGANTI dovrebbe «astenersi dagli inutili tentativi della propagazione chiunque non avesse una fisica e morale attitudine di dare esistenza, e consistenza ai nuovi rampolli dell'umanità». BRIGANTI F., *Esame analitico del sistema legale*, t. III, p. 34.

26) BRIGANTI F., *Esame economico*, op. cit., p. 360.

27) CESARE BECCARIA (1738-93), primogenito di una nobile famiglia milanese, coprì nel 1768 la cattedra di «economia pubblica» in Milano, la seconda in Italia dopo quella del GENOVESI. VENTURI F., *Beccaria Cesare*, in «Dizionario biografico degli Italiani», vol. 7. Roma, 1965, pp. 458-69. NUCCIO O., *Cesare Beccaria economista riformatore*, appendice ai voll. XI e XII della «Raccolta Scrittori classici italiani di economia politica» SCHUMPETER J.A., op. cit., vol. I, p. 216-219.

Il BECCARIA fa esplicito riferimento alla relazione di funzionalità che intercorre tra popolazione e produttività decrescente della terra rilevando che quest'ultima costituisce il limite assoluto dell'incremento del genere umano. Egli, infatti, dice che: «la popolazione crescerà sino a che possano crescere i mezzi della sussistenza e questi mezzi in un dato luogo possono crescere finchè la terra sia giunta al suo colmo di feracità per mezzo della perfezione dell'agricoltura»²⁸. Egli, tuttavia, non conferisce a tale concetto il rilievo che più tardi altri economisti vi avrebbero attribuito.

Quindi, seguendo la strada tracciata da altri scrittori dell'epoca, l'economista milanese individua le cause della sottopopolazione ed i mezzi per combatterla. Distingue le cause fisiche da quelle morali includendo tra le prime: il clima e l'ambiente malsano, poichè «i Paesi rinchiusi tra monti che fermino i vapori esalanti dalla terra, e le terre paludose e ripiene d'acqua stagnanti, sia naturalmente, sia artificialmente per alcuni generi di coltura sono quelle in cui costantemente le malattie sono più frequenti, e per conseguenza le morti»; altre cause che determinano la diminuzione della popolazione sono le malattie epidemiche che si possono combattere e distruggere «colla perfezione e buon regolamento della medicina» ed i morbi contagiosi che si combattono con opportuni interventi economico-finanziari.

Tra le cause morali, più numerose e difficili ad eliminare, il BECCARIA distingue: l'ignoranza, le «maniere differenti della nozze, rese più rare in diversi Paesi da molte cagioni»²⁹, dal fenomeno migratorio, dovuto alla difficoltà di trovare un lavoro remunerativo, all'eccessivo carico fiscale e all'urbanesimo.

Il BECCARIA, però, non si ferma soltanto ad una esposizione delle sue idee, ma va al di là dei suoi predecessori svolgendo, senza precedenti, un'indagine applicativa sulla popolazione della Lombardia nel biennio 1788-89. Il suo scopo è quello di dimostrare che il problema demografico non deve essere soltanto una mera indagine aritmetica, ma uno strumento atto ad indicare una normativa economica. In altre parole, la teoria della popolazione è parte della economia per la relazione che intercorre tra popolazione e risorse alimentari, e queste a loro volta sono funzione della capacità produttiva delle terre messe a coltura come di ogni altra attività agricola³⁰.

28) BECCARIA C., *Elementi di economia politica*, in «Biblioteca dell'Economista», op. cit., p. 405.

29) Il modello ideale di famiglia deve, per il BECCARIA, essere formato da cinque persone: due coniugi e tre figli. Ne consegue che «perchè le nozze siano incoraggiate è necessario che il valore minimo del massimo travaglio d'un uomo rappresenti almeno cinque alimenti giornalieri». BECCARIA C., *Elementi di Economia politica*, op. cit., p. 409.

30) Egli insiste, particolarmente, sul ruolo di dipendenza dell'uomo dalle risorse alimentari

In PIETRO VERRI³¹ la teoria della popolazione rientra nei canoni della tematica del tempo, in quanto sostiene che: «la forza di uno Stato deve misurarsi dal numero degli uomini che vi campano ben nodriti, e che quanto più uno Stato è popolato, tanto maggiori debbono essere le interne consumazioni; quanto maggiori sono queste, tanto più debb' essere animata l'annua riproduzione»³². Però, non affronta il problema solo in termini quantitativi, ma soprattutto, qualitativi, egli guarda al benessere della popolazione allorchè pone l'accento sul fatto che gli uomini siano «ben nodriti».

Ma la caratteristica più rilevante della teoria della popolazione del VERRI è quella di avere un carattere spiccatamente moderno. Infatti, il BECCARIA, considera determinante allo sviluppo demografico il problema dell'urbanesimo in quanto i centri densamente popolati sono anche punti di irradiazione dello sviluppo economico nazionale. Il modello ideale di Stato è delimitato da un territorio di dimensioni ottimali in cui gli uomini possono facilmente comunicare tra di loro, e nello stesso tempo non essere costretti a «dover cercare l'alimento al di fuori».

Il vantaggio di avere città popolate anche se non congestionate non è soltanto d'ordine economico, ma anche politico e sociale come traspare da un passo di una lettera al fratello Alessandro del 1770: «l'uomo isolato perfettamente, è un essere debolissimo; l'attività, il numero delle idee si moltiplicano nella costipazione: l'uomo di studio si lega co' secoli passati, colle nazioni remote, co' pochi cittadini, che gli sono all'unisono e così si forma: tutto fermenta e vegeta,

come si deduce dalla seguente sua considerazione: «chiaro che la popolazione essendo una conseguenza degli accresciuti mezzi di sussistenza, piuttosto che questi essere d'ogni ricerca e di ogni regolamento l'accrescimento di questi mezzi di sussistenza, che da niente altro che dalla terra si possono ottenere, e lasciare il resto alle cure segrete ed imperscrutabili della natura perpetratrice delle generazioni». BECCARIA C., *Elementi di economia civile*, op. cit. p. 405-6.

31) PIETRO VERRI (1728-97) di nobile famiglia milanese, approda agli studi economici dopo lunghe discussioni con l'amico inglese: Lloyd. Il primo lavoro economico del VERRI tratta *Gli elementi del commercio*. Cfr. NUCCIO O., *Pietro Verri e le teorie economiche in Lombardia nella seconda metà del '700* appendice al vol. XV, XVI e XVII della «*Raccolta Scrittori Classici italiani di Economia politica*». MANFRA M. R., *Pietro Verri ed i problemi economici del suo tempo*, Dante Alighieri, Napoli, 1932, pp. 166-71. VIRGILI F., *il problema della popolazione*, Milano, 1924.

32) VERRI P., *Meditazioni sulla Economia politica*, in «*Biblioteca dell'Economista*», op. cit., p. 503.

quando è coacervato il genere umano; tutto dorme e languisce, quando è diviso. Se ciò è, dunque, i costumi, le leggi, il senso della morale, della libertà, della giustizia, tutto dipende da questa diradazione o ammuccchiamento. Un popolo ammuccchiato non può stabilmente essere schiavo; e può esserlo un popolo sparso, perchè il secondo ha meno energia per resistere (...). Forse il vero spirito delle leggi scaturisce da questo principio; assai più che dal clima; forse dalla diversa posizione dipende il decidere se convenga più un governo che un altro»³³.

Come si vede, a differenza della scuola napoletana, quella milanese non indulge all'ottimismo ma assume toni più moderati e, soprattutto, inserisce il problema della popolazione in una prospettiva scientifica alla base della quale si collocano gli obiettivi di sviluppo economico.

E' da notare, inoltre, che gli studi della scuola milanese realisticamente anticipano alcune grosse problematiche attuali, quali quelle del congestionamento urbano e del malessere delle grandi città. In loro emerge l'esigenza di collegare anche il problema della popolazione ad un disegno urbanistico in termini di ricerca di una dimensione ottimale della città.

5. UN ECONOMISTA VENEZIANO: GIAMMARIA ORTES

GIAMMARIA ORTES con la sua opera fondamentale «Dell' Economia Nazionale» si oppone a tutti quegli economisti riformisti che si prodigarono per la realizzazione di riforme e che in materia di popolazione scrissero della necessità di rimozione degli ostacoli all'incremento popolazione e della ricchezza. E' su quest'ultimo argomento che le sue critiche furono più fortunate tanto da far vedere in lui un perfetto anticipatore di molte osservazioni sostenute trent'anni dopo da MALTHUS.

L'ORTES, in sintonia con il clima di immobilismo politico ed economico cui era pervenuta la Vecchia Repubblica Veneta volgente al tramonto, ha «una visione statica della realtà economica» nella quale ritiene immutabile il rapporto che intercorre tra la ricchezza nazionale (capitale nazionale) e la popolazione, ciò che può variare è solo la sua distribuzione. Per l'ORTES la teoria della popolazione deve essere affrontata nel contesto della scienza economica la quale individua «le leggi economiche che governano l'equilibrio tra popolazione e mezzi alimentari»³⁴.

33) Carteggio tra Pietro ed Alessandro Verri dal 1766 al 1797, IV, pp. 54 - 55.

34) ORTES G., *Dell' Economia Nazionale*, in «Biblioteca dell' Economista»,

Ma a differenza di altri scrittori che sostengono, generalmente l'accrescimento demografico in quanto fonte di «ricchezza» e «potenza nazionale», l'ORTES sostiene, invece, che: «la popolazione in qualunque nazione abbia a contenersi fra certi limiti, nè più ristretti nè più estesi di quei che convengono per provvedere da se stessa alla sua sussistenza senza ricorrere ad altri, oltrepassando i quai limiti o mancando da quelli non possa dirsi né libera né sicura, né per la sua sussistenza indipendente da altre nazioni»³⁵. L'ORTES concentra il suo interesse sul problema distributivo oltre che su quello quantitativo dello sviluppo demografico.

Egli esamina, le leggi naturali che regolano sia lo sviluppo demografico che quello dei mezzi di sussistenza, nonchè i limiti — riscontrabili nell'ordinamento economico naturale — entro i quali può accrescersi la popolazione e realizzarsi nel contempo il più elevato benessere. Studia anche perchè nella realtà i suddetti limiti non sono rispettati e quali conseguenze scaturiscono quest'ultimo in caso. La capacità di riproduzione degli uomine varia in progressione geometrica — può, in mancanza di ostacoli, crescere illimitatamente come negli animali, tuttavia, a differenza di questi — nota l'ORTES — essa è frenata dalla «ragione illuminata dall'esperienza»³⁶.

Una soluzione immediata al problema di equilibrio tra la popolazione e le

op. cit., cap. II e III del libro V. GIAMMARIA ORTES (1713 - 90) entrò giovanissimo nel monastero dei Camaldolesi di Murano che successivamente abbandonò dopo aver ottenuto una «regolare secolarizzazione». Dice di lui il VENTURI: «Per tutto il resto della sua vita accettò come limite una tradizione religiosa che non volle mai mettere in dubbio, che restò ferma e grigia di fronte ai suoi occhi come il muro di una cella ideale, da cui non uscì mai e dentro la quale sentì tanto più libera la sua volontà di ragionare e di misurare». VENTURI F., Settecento riformatore, op. cit., p. 405.

35) ORTES G., *Riflessione sulla popolazione delle nazioni per rapporto all'economia nazionale*, 1790. Sul pensiero di G. ORTES cfr. UGGE' A., *La teoria della popolazione di Giammaria Ortes*, in «Giornale degli economisti», vol. LXVIII, a. 1938. LAMPERTICO F., *Giammaria Ortes e la scienza economica del suo tempo*, 1865, pp. 238 - 43. PECCHIO G., op. cit., p. 302 - 12. LORIA A., *La modernità di G. Ortes*, in «Verso la giustizia sociale», Milano, Soc. Editrice Libreria, 1904 e 1908. TORCELLAN G., *Un economista settecentesco: Giammaria Ortes*, in «Rivista storica italiana», a LXXV (1963), n. 4, Ibidem, *Scritti su Ortes*, in «Settecento veneto e altri scritti storici», Torino, 1969. Ibidem, *Giammaria Ortes*, in «Illuministi italiani», vol. 46, t. VII, R. Ricciardi, Milano, 1965.

36) ORTES accenna a un termine finito nella sua progressione, mentre MALTHUS più propriamente lascia indefinite le sue progressioni.

risorse alimentari, viene indicata dall' ORTES, nella pratica del celibato, che MALTHUS indichera come *m o r a l r e s t r a i n t*.

Le tesi sulla popolazione, formulate dall' ORTES, appaiono in alcuni punti insufficientemente dimostrate, cio è dovuto al fatto che egli si basa su astrazioni e su calcoli ipotetici, a differenza di MALTHUS che per dimostrare le sue teorie fa ricchi riferimenti alla storia ed ai fatti realmente accaduti.

6. CONCLUSIONE

E' da dire, in via conclusiva, che gli economisti italiani precursori del malthusianesimo, anticiparono alcune moderne problematiche, sia pure senza impiegare raffinati strumenti di analisi di cui oggi dispone la teoria economica.

Dalle considerazioni sin qui brevemente svolte si possono ricavare alcune relazioni tra le vecchie teorie e le recenti formulazioni dottrinarie in materia demografica.

Va notato ad esempio, che la relazione tra popolazione e risorse individuata dai pre-malthusiani, oggi viene ripresa, in termini di popolazione ed equa distribuzione del reddito. Non si può, infatti, parlare di sovrappopolazione sin quando esistono sprechi di risorse, o sin quando esistono paesi sviluppati e paesi in via di sviluppo; la componente demografica è indubbiamente la causa principale della condizione economica, ma lo sviluppo, oggi più che mai, è un fenomeno mondiale, non puo essere limitato a pochi paesi, sui quali vivono pochi milioni di uomini ³⁶.

Il problema della pianificazione demografica in relazione alle risorse oggi può essere affrontato con maggiore consapevolezza, perchè lo sviluppo della metodologia statistica consente di fare previsioni demografiche certamente più attendibili di quelle del periodo pre-malthusiano. Ecco perchè oggi a differenza di ieri il problema della popolazione non può essere affrontato con atteggiamenti emotivi di pessimismo e di ottimismo, esso va valutato obiettivamente in relazione ad un rapporto equilibrato tra uomo, ambiente e risorse produttive. Ovviamente tale rapporto dipende sempre dai giudizi di valore ai quali la società aderisce.

37) SAUVY A., *De Malthus à Mao Tse-Toung*, Editions Denoel, Paris, 1958, trad. it., *Poca terra nel 2000*, Laterza, Bari, 1960. CLARK C., *Popolazione e sviluppo*, in «Rivista di Politica Economica», marzo 1973, fasc. III, a. LXIII.

TRADE CREDIT AND MONETARY POLICY: SOME PRELIMINARY RESULTS FROM A SMALL OPEN ECONOMY

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I. INTRODUCTION *

The evidence on record concerning the determinants of interbusiness credits is deficient in at least three important respects. Foremost among them is that, from Meltzer's (1960) original investigation to that of Kanninen's (1976) very recently, no attempt has been made to separate the effects associated with the type of industry from those related to the firm size. Whether the industry structure, the customers' absolute size, or their relative liquidity position is the proper criterion for credit extension remains thus unclear. The second deficiency lies in the fact that all existing results have been obtained from constructs based on the presumption of a close economy model. Yet, the implications of foreign trade credit for monetary policy in most but the biggest countries should be of particular significance. Lastly, the studies that have appeared to date are too

* The research on which I report herein was carried out essentially while I was associated with the Bank of Greece back in 1978. To prepare the paper for the present occasion I took advantage of the research work I was doing in 1980 on a related project under a Ford Foundation grant and the good services of many friends and associates. Specifically, have benefited from the comments of Mr. W. H. White, of the International Monetary Fund, and a number of participants in the session on credit rationing of the European Meeting of the Econometric Society in Geneva. Moreover, Messrs N. Manassakis, G. Psalidopoulos and P. Maurogenis gave me valuable assistance in collecting the data and carrying out the computations. To all these gentlemen I extend my sincere appreciation. However, as in the four years that have elapsed since the paper was submitted for publication I have become aware of its serious shortcomings, I should like to absolve them from any responsibility.

partial in the sense that they concentrate on the behavior of mercantile credit in the manufacturing sector alone, excluding wholesaling and relailing. The objective in this paper is to present a set of estimates pertaining to the determinants of trade credit decisions in a relatively large number of Greek manufacturing firms over the 1967–1972 period, which, in my opinion, shed considerable light on these outstanding issues.

To foreshadow the type of evidence that emerges from the empirical analysis, two results need only be mentioned here. First, concerning the question of the proper criteria for interbusiness trade credit extensions, the estimates indicate that the decisions to give and take trade credit are influenced differently by such firm-specific characteristics as relative liquidity, liquidity, firm size and industry structure. More specifically, whereas extending trade credit is found to be affected only by the firm's relative liquidity position, the decision to take trade credit, aside from relative liquidity, is also influenced by the firm's liquidity and size. Secondly, the results show that the direct expansionary effect on accounts payable abroad, due to a tightening of monetary policy is weaker than the contractionary effect exerted on them through the dampening of domestic economic activity as reflected in the course of accounts receivable. Obviously, if confirmed by further research, these findings would go a long way towards filling the gaps in existing knowledge in this area.

Next section lays out the model on which the empirical analysis is based. The nature and origin of the data sample employed as well as the definition of the variables entering the various estimations are described in Section III. Section IV presents and comments on the results and, finally, Section V summarizes the conclusions.

II. THE STRUCTURAL MODEL

Beginning with Nadiri's (1969) work, where trade credit is conceived and treated as a selling cost in the framework of the Nerlove–Arrow (1962) dynamic model of advertising expenditures, the restrictions to be placed on the testable forms of the demand for and supply of trade credit started to be derived from a priori considerations. Given the desirable properties of Nadiri's approach, I would also have liked to be able to adapt it for the present occasion. However, at this time such an undertaking would be at least premature. Because, while, on the one hand, Nadiri's model is marred by a number of conceptual inconsistencies, on the other, its reformulation offered by Bitros (1976) has been uncovered more recently to have its own limitations.

Yet the fact alone that a sufficiently general trade credit model cannot be derived at the present from the theory of rational entrepreneurial behavior should not deter research work. Rather, to the contrary, there are good reasons to suggest that for the time being one ought to start with the least restrictive trade credit model, which would be one involving few or no restrictions derived from economic theory. The methodological approach taken here is consistent with this latter view. For, as it will be seen below, the model I have elected to use is a linear one with explanatory variables which, on the basis of prior information and my own speculations, ought to influence trade credit decisions, leaving aside all questions about the nature of constraints that one would be obliged to impose depending on one's presumptions regarding firm objectives, competitive conditions, and specifications of the production process.

To be more specific, the model postulated for the purposes of this paper is the following :

$$(1) A_t = \alpha_{11} + \alpha_{13}R_t + \alpha_{13}LQ_t + \alpha_{14}C_{2t} + \alpha_{15}X_{1t} + V_{1t}$$

$$(2) L_t = \alpha_{21} + \alpha_{22}M_t + \alpha_{23}LQ_t + \alpha_{24}C_{3t} + \alpha_{25}X_{2t} + V_{2t},$$

where A_t represents the outstanding amount of receivables at t ; R_t stands for the value of sales at t ; LQ_t is an indicator of liquidity at t ; C_{3t} is the carrying cost of receivables at t ; L_t denotes the outstanding amount of payables at t ; M_t corresponds to the value of intermediate goods purchased during the period t ; C_{2t} is the carrying cost of payables at t ; X_{1t} , X_{2t} are vectors of current and lagged variables which will be specified as the need may arise, and V_{1t} and V_{2t} are random disturbances at time t . In addition, for reasons which will be explained shortly, the investigation is extended to study the behavior of net trade credit. The model mechanism employed to this effect, obtained by subtracting (1) and (2) side by side, is given by

$$(3) NC_t = \beta_1 + \beta_2R_t + \beta_3M_t + \beta_4LQ_t + \beta_5C_{2t} + \beta_6C_{3t} + \beta_7X_{3t} + V_{3t},$$

with the new variable NC_t defined as the difference between receivables and payables at t and the β_i s being functions of the corresponding coefficients in (1) and (2).

Turning to the structural characteristics of (1) and (2), several comments are in order. Of primal importance is the question of the nature and extent of interactions to be allowed for between A_t and L_t , since, as they stand, (1) and (2) are disjoint in the sense that they do not allow for either simultaneous or lagged cross effects in any direction. Considering the view that at each point in

time the decisions on input purchases, and hence on the potential amount to be added to L_t , antedate the determination of trade credit terms on sales and, also, the fact that the amount added to A_t per period depends heavily on the financial policies of other firms, the exclusion of simultaneous interactions between A_t and L_t seems well justified; but the abstraction from the feedbacks which may exist between A_t and L_t has less to recommend it. Because, if not for anything else, disadvantageous developments in the course of A_t (L_t) should lead, albeit with some lag, to corrective actions on the part of the firm regarding the evolution of L_t (A_t) and the other variables determining the availability of funds. On these grounds, it is appropriate that (1) and (2) be expanded to include the lagged terms of both A_t and L_t .

Another aspect in need of elaboration concerns the probable direction of causation between A_t and R_t , on the one hand, and L_t and M_t , on the other. Drawing on the realization that firms extend trade credit to their customers primarily as an enticement for sales, two possibilities come to mind. If sales terms remain constant then, increases in R_t (M_t) should tend to be associated with increases in A_t (L_t), respectively. But whenever sales terms change there may be a strong causal relationship going the other way, with credit extensions raising R_t and M_t according as A_t and L_t would increase. Very frequently, and particularly at times of volatile monetary policies, the most likely situation would be that the interactions would be exerted in both directions. In this event, (1) and (2) would have to be considered as part of a larger system involving also equations in R_t and M_t . However, as the sample data which will be used below for the estimations come from a period of relative monetary stability, it should be adequate to treat R_t and M_t as exogenous variables.

Next there are two issues surrounding the specification of the liquidity variable LQ_t . Foremost among them is the question of whether LQ_t is to be defined as the firm's own liquidity or, perhaps, be measured by taking the firm's own liquidity relative to that of its customers. By its very nature the concept of relative liquidity is an abstract index showing how much more liquid a firm is in relation to its customers without regard to their size. Therefore, its use in (1) and (2) would be considered a good proxy for the effects on A_t and L_t which would derive solely from changes in the liquidity position among firms. In particular, an increase in this index, *ceteris paribus*, would be expected to increase A_t and reduce L_t . By contrast, use of the firm's own liquidity would be a proxy for size and as such it would tend to capture the effects of the firm's monopoly power in the product and input markets. As a result, an increase in the firm's own liquidity, *ceteris paribus*, would be expected to reduce its receivables and increase

its payables. To allow for these possibilities, the specification of (1) and (2) must be augmented to include both the absolute and the relative liquidity variables.

The second issue associated with the specification of LIQ_t is how to account for the impact on A_t and L_t of credit rationing because, in Greece, this practice is so widespread on the part of the lending institutions that no theory could be expected to provide satisfactory interpretative results without taking it under consideration. Now given that Greek firms do not have significant access for loanable funds to sources other than the banking system, it is highly likely that the absolute and relative liquidity variables considered in the preceding paragraph may reflect the effects of bank credit arrangements specifically authorized for the particular branches of industry in which the various firms belong. However, these variables alone are unlikely to pick the influence on the firm's trade credit policies of the extensive assortment of selective credit controls which impel enterprises to employ short-term funds to finance long-term investments. For this reason, I feel, a plant and equipment related measure should be added to the list of explanatory variables in both equations. As such, I have elected to use the user cost of capital or the long term interest rate, whichever of the two turns out to perform best according to standard statistical criteria.

Imposing at this stage all the revisions contemplated above, equations (1)–(2) transform into.

$$(1') A_t = \alpha_{11} + \alpha_{12}R_t + \alpha_{13}LIQ_t + \alpha_{14}RLIQ_t + \alpha_{15}c_{1t} + \alpha_{16}c_{2t} + \alpha_{17}A_{t-1} + \alpha_{18}L_{t-1} + \alpha_{19}X_{1t} + V_{1t}$$

$$(2') L_t = \alpha_{21} + \alpha_{22}M_t + \alpha_{23}LIQ_t + \alpha_{24}RLIQ_t + \alpha_{25}c_{1t} + \alpha_{26}c_{3t} + \alpha_{27}A_{t-1} + \alpha_{28}L_{t-1} + \alpha_{29}X_{2t} + V_{2t},$$

where the new symbols LIQ_t , $RLIQ_t$ and c_{1t} stand respectively for the firm's own liquidity, relative liquidity and the user cost of capital, and $(\alpha_{12}, \alpha_{14}, \alpha_{22}, \alpha_{23}, \alpha_{25})$ are expected to be positive, $(\alpha_{13}, \alpha_{15}, \alpha_{16}, \alpha_{24}, \alpha_{26})$ are expected to be negative, and the rest are of uncertain algebraic nature. Moreover, subtracting (1') and (2') side by side, there results the equation for net trade credit.

$$(3') NC_t = \beta_1 + \beta_2R_t + \beta_3M_t + \beta_4LIQ_t + \beta_5RLIQ_t + \beta_6c_{1t} + \beta_7c_{2t} + \beta_8c_{3t} + \beta_9A_{t-1} + \beta_{10}L_{t-1} + \beta_{11}X_{3t} + V_{3t},$$

where $\beta_1 = a_{11} - a_{21}$, $\beta_2 = a_{12}$, $\beta_3 = a_{22}$, $\beta_4 = a_{13} - a_{23}$, $\beta_5 = a_{14} - a_{24}$,
 $\beta_6 = a_{15} - a_{25}$, $\beta_7 = a_{16}$, $\beta_8 = a_{26}$, $\beta_9 = a_{17} - a_{27}$, $\beta_{10} = a_{11} - a_{28}$,
and $\beta_{11} = a_{19} - a_{29}$.

These three equations constitute the experimental environment which will be used below for the analysis of the determinants of trade credit decisions.

Now before passing to the next section, I should like to make a few comments pertaining to : a) the channels of the proposed model through which the effects of monetary policy are transmitted to the stocks of receivables and payables, and b) the linkages of the firm's trade credit decisions to its export - import activities. Regarding the first issue, it should be observed that (1') and (2'), and hence (3'), provide several avenues via which the actions of monetary authorities can influence trade credit decisions. One such avenue is the interest rate which enters as part of the user cost of capital or, perhaps, independently. Another is the rate of bad customer debts which operates through the carrying cost of receivables, on the justification that, as monetary policy changes, the rate of business failures and the financial difficulties of debtors in general would tend to vary in the same direction. Last, but not least, notice that monetary policy has the potential to influence trade credit decisions indirectly through the variables R_t and M_t by causing the demand curves to shift in the desired direction.

As for the second issue, this arises basically because (1') and (2') do not account for the influences that the existence of import - export opportunities may have on the firm's trade credit decisions. To deal with this important aspect it would be necessary to be able to partition the main variables into domestic and foreign components. Unfortunately, however, the data set to the description of which I am about to turn is unable to support this sort of disaggregation. For this reason, only indirectly will I attempt below to investigate the implications of the openness of the Greek economy for the subject under consideration.

III. DATA, DEFINITIONS AND MEASUREMENT OF VARIABLES

The firm - specific information on which the empirical analysis of this paper is based consists of annual observations from 241 Greek corporations over the 1967 - 1972 time span. Of these corporations 192 belong to manufacturing and the rest are purely commercial outlets of wholesaling and retailing trade. With the exception of certain statistics pertaining to the latter group of firms, which were picked partly from publicly available sources, all microeconomic

data used were drawn from a pool of company reports that is maintained in the Bank of Greece for the purposes of the Currency Committee. In particular, the sample of manufacturing corporations was selected out of a total of 304 enterprises, on which the Bank of Greece has continuous information throughout the period under consideration, by applying the following criteria. First, given that the treatment afforded to the various business firms in taxation, bank credit, accessibility to the capital market etc, depends to some extent on their legal form of organization, in order to secure a set of enterprises running under homogeneous institutional conditions, it was decided to concentrate only on companies having the title of Societe Anonyme (S.A.) or that of Limited Liability (Ltd.).¹ This made for exclusion of 70 firms that operated as producers' cooperatives and unincorporated private businesses. Secondly, based on the existing plans according to which the 1967–1972 data will be extended for at least four more years, to avoid duplication of effort in the preparation of a consistent set of firm statistics for future research, it was thought useful at this point to direct attention solely to those corporations that had remained up to 1976 in the same branch of industry in which they had been classified in 1967. Doing this required the elimination of another 41 firms. Lastly, 1 enterprise had to be dropped because it was the only one from the industry «Products of Petroleum and Coal» and as such could not sustain the type of test to which the model has been subjected. In this way number of firms eligible for selection was reduced to 192.

Table 2 below depicts the sample of manufacturing firms stratified by industry and company size. In condensing the 18 two-digit Standard Industrial Classification (SIC) industries represented, the advantage sought was to arrive at a breakdown such that the composite industrial branches to emerge would have a number of firms sufficiently large to stand disaggregation across company size. On the other hand, in doing so the homogeneity of the resulting industries had to be preserved to the greatest possible extent. Balancing the one requirement against the other gave rise to the 11 cross-sections shown in the table. Thus, without violating the patterns that have been established in the literature for grouping two-digit manufacturing industries, these cross-sections contain numbers of firms

1. According to Coutsoumaris (1976), during the period from 1967 to 1972 an average of 1191 companies of S.A. and Ltd form operated in Greek manufacturing. These produced roughly 85% of the sector's output and owned about 90% of its total capital stock. Compared to the population of 1191 firms, the sample represented thus a little over 16%. But its share in total output produced, capital stock owned and employment provided must be substantially larger than this percentage, because it is biased towards the relatively large enterprises of the population.

Table 2. Classification of Sample Firms by Industry and Size

Cross-Sections	Industrial Branch	SIC Codes	Total Number	Criterion of Company Size : Gross Capital Stock of 1970		
				Small ¹ $\bar{K} < \frac{1}{2} \sigma_K$	Medium ^{2,3} $\frac{1}{2} \sigma_K < \bar{K} < \frac{3}{2} \sigma_K$	Large $\bar{K} > \frac{3}{2} \sigma_K$
1	Food	20	23	10	24 < 5 < 60	8
2	Beverages	21	10	3	35 < 4 < 73	3
3	Tobacco	22	11	5	17 < 2 < 50	4
4	Textiles	23	42	17	30 < 16 < 96	9
5	Clothing et Leather	24+29	9	4	14 < 3 < 24	2
6	Wood et Furniture	25+26	9	4	31 < 2 < 72	3
7	Paper et Printing	27+28	12	6	31 < 2 < 85	4
8	Rubber, Plastic, Chemicals	30+31	30	13	16 < 8 < 47	9
9.	Stone, Glass et Clay	33	12	6	81 < 4 < 296	2
10	Metals (Basic and Fabricated)	34+35	20	8	216 < 4 < 541	8
11	Machinery	36+37+38	14	5	513 < 5 < 865	4
			192	81	55	56

Notes : 1. \bar{K} and σ_K denote the arithmetic mean and standard deviation of the 1970 gross capital stock, respectively. Their values were estimated from the sample firms excluding those from each industry which had extremely low or high capital stocks.

2. The limits of the inequality are expressed in Drs. and rounded off to the nearest million.

3. In a few border-line cases our decision always was to include the companies concerned in the medium - size group.

whose segregation by size could be considered fairly representative of the prevailing structure of company sizes in the population.

Now with regard to the characterization of the firms in each industry as small, medium and large, this has been based on two rather specific postulates. The one of them is the adoption of gross capital stock as an accurate measure of company size. Presumably, had sales or total assets been used as the scaling factor, the size distribution of firms which is indicated in Table 2 might have been different. The other postulate is the identification as medium-sized of those enterprises whose gross capital stock in 1960 was such as to place them one-half standard deviation around the corresponding industry mean. Again, had another decision been made in this respect, the number of firms classified as small, medium and large might have been slightly different. Therefore, even though the estimates to be reported below give the impression that they would not be affected drastically, if the aforementioned criteria of firm size were supplanted by others, the sensitivity of certain of the conclusions to alternative scaling measures remains to be investigated.

Finally, in passing to the description of the variables entering into the estimations, a clarification should be added concerning the subsample of commercial companies. This is that : a) all firms selected are of S.A. or Ltd. form, and b) they have been partitioned into small, medium and large sizes on the basis of the same measures as the ones used for the respective classification of the manufacturing companies. Moreover, it may be of some interest to note that, in selecting these companies the effort has been to stay away from the commercial outlets which are reportedly owned by industrial firms, in order to avoid the difficulty of having to draw a line between the two.

At this stage it is desirable to catalog and explain briefly the nature of the variables employed in the empirical analysis. The list will also serve to define the symbols of those variables which have not been mentioned so far.

P_t — price index of output at t . The relevant data for its disaggregation across our 11 two-digit manufacturing industries were obtained from Oekonomou (1975).

m_t — price index of intermediate inputs at t , built with the help of detailed data from the National Statistical Service of Greece (1973).

A_t — receivables at t deflated by P_t . It includes all credit advances to customers on open account. (Current assets represented by discountable commercial paper or claims from non-commercial transactions have been excluded).

L_t — payables at t deflated by m_t . It includes all current liabilities accruing

from purchases of intermediate inputs. (Current liabilities due to the acquisition of structures and equipment have been excluded).

LA_t — payables abroad at t deflated by m_t . This variable comprises all credits received from foreign suppliers associated with purchases of raw and auxiliary materials. As such, it is of course a subtotal of L_t .

R_t — revenues from sales at t deflated by P_t .

M_t — purchases of intermediate inputs at t deflated by m_t . It is measured as the sum of costs of goods sold and changes in inventories.

c_{1t} — user cost of fixed capital at t . It is estimated by applying the definition $q(r^l + \delta \frac{\overset{\circ}{q}}{q})$, where q is the price of investment goods, r^l is the interest rate charged on long-term bank loans, δ is the rate of capital depreciation, and $\frac{\overset{\circ}{q}}{q}$ is a proxy for capital gains (losses). Concerning the price of structures and equipment, this is approximated by the implicit investment goods deflator contained in the National Accounts of Greece. The interest rate, on the other hand, is measured by the maximum rate plus commission that the Bank of Greece (1973) allowed during the sample period on long-term bank lending. Finally, the rate of capital depreciation is derived as the ratio of depreciation charges over the net capital stock in the previous period.

c_{2t} — carrying cost of receivables at t . This equals $\bar{r} + \mu - \frac{\overset{\circ}{p}}{p}$, with the new symbols \bar{r} and $\frac{\overset{\circ}{q}}{q}$ standing respectively for the cost of borrowed funds from all sources and capital gains (losses). As for the variables involved, these are constructed as follows: a) the cost of borrowed funds is obtained by taking interest outlays over the sum of debts to banks, Social Security and other insurance agencies, Internal Revenue Service, and the owners themselves; b) the cost component of trade credit μ is arrived at by dividing the amount of losses due to bad customer debts by the receivables outstanding in the same period, and c) the term for capital gains (losses) is the percentage change in the price of output P_t .

c_{3t} — carrying cost of payables at t . It is defined as $r^s - \frac{\overset{\circ}{m}}{m}$, with the new

2. Also relevant in this regard is Note 1 at the bottom of Table 2.

symbol r^s being a short-term interest rate. Specifically, the interest rate employed in the construction of this variable is the one mandated (in the form of a maximum ceiling plus commission) by the Bank of Greece for short term bank lending.

As for the term $\frac{\overset{\circ}{m}}{m}$, which indicates the capital gains (losses) that might result from variations in the price of intermediate inputs, this is approximated by the percentage changes in the price of imported raw and auxiliary material m_t .

LIQ_t — liquidity at t , defined as current assets over current liabilities (i. e. the well known working capital ratio). Current assets consist of cash., sight deposits in bank accounts, discountable commercial paper, receivables and other transferable and non-transferable short-term claims. In current liabilities I have included payables and short-term debts.

$RLIQ_t$ — relative liquidity at t . This variable is perhaps the most innovative concept in the empirical analysis and the expectation is that it will draw considerable attention on the part of the readers. For this reason it is explained below in some detail.

Definitionally $RLIQ_t$ is the ratio of liquidity LIQ over $WLIQ_t$, which is the LIQ_t s of a firm's customers weighted by the amount of sales made to each one of them. However, my data sources do not reveal the customers to whom the firms sell their products. Consequently, for the derivation of $WLIQ_t$, the following indirect approach was devised. At first it was assumed that each of the 11 industries shown in Table II sold its products to itself, the other industries of manufacturing and the rest of the economy in proportion to the coefficients of the 1970 input-output table. Then, multiplying each column of the 11×6 matrix of sales (i. e. 11 industries over 6 years) times an 11×11 matrix of input-output coefficients gave rise to

$$(A_{ij})_k, \quad \begin{array}{l} i = 1,2 \dots\dots 11 \\ j = 1,2 \dots\dots 11 \\ k = 1,2 \dots\dots 6 \end{array}$$

depicting the interindustry distribution of sales over the sample years. Next, combining the matrix B_{ij} of industry liquidities (LIQ_t) with $(A_{ij})_k$, produced the 11×6 matrix of weighted liquidities ($WLIQ_t$)

$$\Gamma_{ik} = \frac{\sum_{j=1}^{11} B_{ij} \cdot (A_{ij})_k}{\sum_{i=1}^{11} (A_{ij})_k}$$

The meaning of each element in this matrix should be clear. For example, the element Γ_{15} denotes the sales weighted liquidity of industry's 1 customers in the 5th year of the sample.

Finally, it should be noted that, when the estimations to be reported below take place using the time series data grouped by industrial cross-section and company size, the variable $RLIQ_t$ is derived by dividing the LIQ_t of each company group by the $WLIQ_t$ that corresponds to the industry to which it belongs. This practice implies that I have further assumed that small, medium and large companies sell their products in such proportions and to such customers as to render the latter's weighted liquidity exactly identical.

BCF_t = flow of bank credit to manufacturing industries at t deflated by P_t . This variable was derived by taking first differences of the series of outstanding bank credit to industry which is reported by the Bank of Greece (1973).

Moreover, aside from the variables described so far, several additional ones were tried on an experimental basis. To mention just a few, a number of regressions were performed where c_{2t} and c_{3t} had been redefined to exclude their components relating to capital gains (losses). Similarly, to check which is the proper criterion of liquidity for my sample, experiments were conducted with the alternative concepts of «net liquid assets» and the «liquidity ratio», as defined and measured by Coates (1967, pp. 126 – 127). Last, but not least, certain proxies from the list referred to by Jaffe (1971, p. 84) were employed to capture the influence on receivables and payables of credit rationing.

These attempts, however, did not appear to improve the specifications. For this reason the results on which I report next should be considered as the best I have been able to get.

IV. TESTS AND EMPIRICAL FINDINGS

The lay out of this section is planned as follows. Under the heading *Closed Economy Model* the model which was advanced above is employed to examine the relationship of trade credit to monetary policy in a traditional setting. This implies that attention is solely focused on the manufacturing segment of the sample. Then, in the *Open Economy Model*, the investigation attempts to bring to the forefront the realization that business firms in a small open economy utilize foreign suppliers credits to a significant extent, a practice that may give them enough flexibility to evade the effects of changes in domestic monetary policy. The next task undertaken is to trace the feedbacks that exist between credit

advances by wholesaling and retailing firms and the use these firms make of trade credits from manufacturing. A summary of the results is given in the sub-section *Sectoral Linkages of Trade Credit in Greece*. Lastly, in the concluding part *Tests of Sensitivity Analysis* some indications are presented as to the responsiveness of «accounts receivable», «accounts payable» and «net trade credit» to deliberate shifts in the exogenous variables.

Before turning to the main subject certain methodological remarks are in order. To begin with, it is noted that, unlike Nadiri (1969) and Van Nieuwkerk (1975) who used a supply of trade credit model to explain the determinants of both accounts receivable and accounts payable, the results to be presented here are based on the two distinct equations (1') and (2'). Consequently, the difficulties of identifiability which plague the aforementioned papers do not arise in the present case. On the other hand, concerning the type of estimator adopted, this is the Generalized Least Squares (GLS) one that Maddala (1971) and Maddala and Mount (1973) have proposed for pooling time-series of cross-sections. In this respect, it is mentioned that : a) in order to carry out some tests which required the utilization of intertemporal observations disaggregated by industry and company size, the particular estimator was extended to apply also to three dimensional data³, and b) the variance components which are utilized to get at the GLS estimates have been derived throughout from the residuals of Least Squares with Dummy Variables (LSDV). Finally, it is observed that the Two-Stage Least Squares (2SLS) results reported have been obtained by applying the basically single equation algorithm twice, with the values of the endogenous variables in the second round substituted for by their estimated values from the first round.

A. Closed Economy Model

The central question to be investigated here is this : Assuming that all trading takes place exclusively within the manufacturing sector, are there indications from the behaviour of industrial firms in Greece during the 1967-1972 period that mercantile credit transfers may be used to frustrate the intended effects of monetary measures? In principle, there are two approaches to this question. The first one, which would hold even in case that $A_t = L_t$, requires that we identify the link that may exist between monetary policy and trade credit periode. If this

3. The adaptation of the computer algorithm to perform three-way analysis-of-variance was carried out by Mr. D. Karambalis, of the Data Processing Department of the Bank of Greece. To him and to Professor T. Mount, of Cornell University, who provided me with the original computer program, I am very much in debt.

were possible and the trade credit periods expanded whenever monetary policy tightened, we would then be able to answer the question positively. Unfortunately, observations on the behaviour of trade credit periods over the cycle are not available, so that a direct test of this sort cannot be conducted.⁴ The second approach draws on the response of net trade credit to monetary policy changes, suggesting that, for the process of trade credit to be a potential frustrator of monetary policy, net trade credit from manufacturing to the other sectors of the economy would have to increase as monetary policy tightens up. Now a test based on this approach can be performed in two ways. The one is to estimate equation (3') in an attempt to see how net trade credit responds to changes in monetary instruments. Doing this, however, might tend to conceal the dynamics of the elementary processes that produce the observed behaviour of net trade credit. For this reason the other way is to estimate first equations (1') and (2') and then derive (3') from them by subtraction⁵. In what follows both methods will be applied.

Table 3 gives the determinants which were obtained for accounts receivable and accounts payable, abstracting from the disaggregation of sample firms by size. On observation, one is easily convinced that the results are good. Not only are most of the coefficient signs consistent with the established a priori expectations but also in their majority the coefficients are statistically significant at high levels of confidence and the equations explain a substantial percentage of the variation in the dependent variables. At the same time, most coefficients remain remarkably stable, as they change only slightly when the mix of the included variables varies. But let us look a little closer at the implications those estimates have for the question posed at the beginning.

From the first set of equations (denoted as 3.1) it turns out that A_t is related negatively to c_{1t} and c_{2t} and positively to BCF_t . This implies that, in as much as the intentions of monetary authorities are transmitted through changes in the interest rate (which is embedded in c_{1t} and c_{2t}) and/or the money supply (which is a determining force of BCF_t), accounts receivable react in the expected direction. For instance, other things remaining constant, a tightening of monetary policy

4. However, this difficulty does not, and has not in the past, precluded the search for indirect evidence. Because, if accounts receivable (accounts payable) respond to changes in sales (purchases) and, in addition, to other cyclically sensitive variables, this would be an indication that the underlying trade credit periods vary in certain direction. In particular, the studies by Eliasson (1969), Timmerman (1971) and Van Nieuwkerk (1975) are based solely on such indirect tests of gross trade credit.
5. Of course, by taking this approach, in essence, I will be performing primarily a gross trade credit test.

Table 3. GLS estimates of equations (1') and (2')
data aggregated over company - size groupings

Variables	1. Accounts Receivables (A_t)		2. Accounts Payable (L_t)	
	(1)	(2)	(3)	(4)
Constant	-0.020 (-0.22)	0.009 (0.12)	0.163 (1.65)	0.201 (2.91)
S_t	0.117 (8.14)	0.059 (2.86)	0.071 (2.86)	0.069 (2.42)
cl_t	-0.462 (-2.86)	-0.473 (-3.12)	-0.520 (-3.24)	-0.512 (-3.20)
c_{2t}	-0.549 (-3.03)	-0.484 (-2.85)	-0.536 (-2.97)	-0.531 (-2.95)
c_{3t}				
LlQ_t				
$RLlQ_t$	0.162 (2.85)	0.158 (3.25)		
BCF_t	0.080 (2.91)	0.064 (2.49)	0.047 (1.76)	0.043 (1.66)
A_{t-1}		0.419 (3.61)	0.349 (2.64)	0.371 (2.86)
L_{t-1}				
R^2	0.79	0.85	0.79	0.79
D.F.	49	48	48	49
			0.60	0.69
			0.276 (1.55)	0.187 (1.37)
			0.151 (1.08)	0.21 1.63
			0.077 (2.05)	0.074 (2.24)
			-0.439 (-1.88)	-0.475 (-1.93)
			0.326 (0.63)	0.780 (1.03)
			-0.407 (-2.35)	-0.308 (-2.02)
			0.237 (2.42)	0.171 (2.02)
			0.052 (1.53)	0.027 (0.88)
			0.503 (5.29)	0.514 (5.41)
			0.69	0.69
			48	48
			47	49

Notes: The figures below the parameter estimates are T-statistics. R_2 and D.F. stand for the unadjusted coefficient of determination and the degrees of freedom, respectively.

administered through a reduction in the money supply would tend to slow down trade credit advances because sooner or later the flow of bank credit would have to be curtailed. Should this happen, however, other things won't remain constant. More specifically, from the basic equation 3.1.2 one can speculate that shifts in BCF_t , most probably won't leave $RLIQ_t$ unaffected, at least not in the credit rationed financial environment of Greece. What will be the ultimate impact on accounts receivable of a change in money supply depends thus on the sum total of two effects, the *d i r e c t* effect $BCF_t \rightarrow A_t$, which is positive, and the *i n d i r e c t* effect $BCF_t \rightarrow RLIQ_t \rightarrow A_t$, whose directional influence is based on how BCF_t relates to $RLIQ_t$.

A way to illucidate this issue is to constraint the coefficient of $RLIQ_t$ in equation 3.1.2 to zero. If it then turns out that the coefficient of BCF_t shifts, the direction and strength of the shift would be indicative of the type of effect that the monetary policy transmits to accounts receivable through the liquidity position of the firm.⁶ Equation 3.1.4. gives the results of this experiment. As it may be observed, the exclusion of $RLIQ_t$ reduced the coefficient of BCF_t by 30%, something which signifies that between these two variables there is a rather weak inverse association. Thus, while in other countries the structure of interindustry trade flows and the patens of bank credit distribution may be such that this pro-cyclical liquidity effect is dominant, judging from its relative strength in Greece, our impression is that it would not result in an expansion of trade credit advances, if monetary policy were tightened. This view is further reenforced by the strong dampening influence that the user cost variables exercise and the possibility that they may stand also as parallel channels of the monetary policy's transmission mechanism.

In turning to the determinants of accounts payable, three aspects of the estimates presented in the right hand side of Table 3 should be noted. First, and foremost, is the puzzling role of $RLIQ_t$. Since this variable was constructed so as to reflect the firm's own liquidity relative to that of its customers, one would not have expected it to be a significant determinant of accounts payable, particularly in the presence of LIQ_t . Instead, its insertion into equation, say, 3.2.3 not only contributes to the explanatory power of the model but also improves the sharpness of the coefficient estimates for the other included variables. Subject to further confirmation, this finding is taken to indicate that, a firm which grants an increased amount of trade credit because its relative liquidity has improved is itself capable to demand and receive an augmented level of such credit. The

6. For a similar suggestion see Meltzer (1960).

second aspect to be noted is the lack of significance for c_{2t} and the reversal in the signs of c_{3t} and c_{1t} compared to the anticipated ones. A possible explanation may be that as measured c_{1t} is a better proxy of the user cost of payables than is of the user cost of capital, so that the former's influence overwhelms that of the latter's. Finally, it is mentioned that despite repeated attempts to introduce PCF_t , it proved impossible to do so in a clear cut way. The most successful, albeit not convincing, result in this respect is shown in equation 3.2.1.

Now, since BCF_t does not appear to influence L_t , it follows that whatever effects monetary policy exerts on accounts payable they must be indirect. According to the preferred equation 3.2.4. the prime channels through which such effects might be transmitted are c_{1t} , LIQ_t and $RLIQ_t$. If monetary policy became tight, the terms c_{1t} and LIQ_t would be expected to carry strong dampening influences while those of $RLIQ_t$ would be at most mildly expansionary. Therefore, on balance, the preponderant likelihood is that accounts payable in Greek manufacturing do not behave in a procyclical manner.

The analysis of the results up to this point has revealed little that would support an assertion to the effect that the gross stock of trade credit outstanding in a closed economy setting is a substitute for bank credit or money. In other words, I have found no evidence indicating that the trade credit periods would be prolonged in times of monetary stringency. Yet the possibility still exists that the inflationary agent in trade credit is not its outstanding stock but its net transfers of funds from liquid firms to firms that are being affected by tight money. To gain some insight into this matter, the following equation was derived by subtracting 3.2.4 from 3.1.2 :

$$(3) \quad NC_t = -0.208 + 0.059S_t - 0.077M_t - 0.008c_{1t} - 0.484c_{2t} + 0.398LIQ_t - 0.053RLIQ_t + 0.064BCF_t + 0.419A_{t-1} + 0.482L_{t-1}$$

Clearly, although nothing can be said about the significance of the various variables in determining the behavior of NC_t (since we have no t -values after the algebraic transformation), the indications are that restrictive monetary policies would not initiate a process whereby idle balances in the hands of certain enterprises were used as a substitute of bank credit. Rather, a tightening of money, either directly through BCF_t or indirectly through c_{1t} , c_{2t} , LIQ_t and $RLIQ_t$, would be expected to press NC_t downwards.

Moreover, the estimates of equation (3) which are given in Table 4 below give rise to a similar view. From 4.1 it emerges that net trade credit is insensitive to most of the variables through which the effects of changes in monetary po-

Table 4. GLS estimates of equation (3'); data aggregated over company-size groupings¹

Variables	Net trade credit (NC_t)				
	(1)	(2)	(3)	(4)	(5)
Constant	-0.150 (-1.18)	-0.143 (-1.25)	-0.111 (-0.99)	-0.007 (-0.10)	-0.093 (-0.92)
S_t	0.043 (0.95)	0.041 (0.95)	0.045 (1.04)	0.040 (0.91)	
M_t	-0.115 (-2.13)	-0.107 (-2.17)	-0.102 (-2.04)	-0.102 (-2.00)	-0.063 (-2.36)
c_{1s}	-0.001 (-0.01)				
c_{2t}	0.018 (0.10)				
c_{3t}	-0.764 (-1.99)	-0.783 (-2.06)	-0.815 (-2.10)	-0.981 (-2.69)	-0.879 (-2.41)
LIQ_t	0.145 (1.21)	0.144 (1.21)	0.129 (1.06)		0.159 (1.53)
$RLIQ_t$	0.028 (0.42)	0.026 (0.39)	0.000 (-0.011)		
BCF_t	0.035 (1.46)	0.035 (1.48)			0.035 (1.50)
A_{t-1}	0.496 (2.95)	0.507 (3.08)	0.529 (3.16)	0.558 (3.38)	0.606 (4.59)
L_{t-1}	-0.369 (-3.15)	-0.384 (-3.58)	-0.387 (-3.56)	-0.419 (-3.94)	-0.419 (-4.03)
R2	0.46	0.47	0.44	.43	0.46
D.F.	44	46	47	49	47

Notes: 1. See note at the bottom of Table 3

licy would be felt. In this respect, notice that the coefficients of c_{1t} , c_{2t} , LIQ_t and $RLIQ_t$ are not different than zero. On the other hand, the net trade credit variable NC_t is negatively related to c_{3t} and, probably, positively to BCF_t . Conse-

Table 5. GLS estimates of equations (1') and (2'); data disaggregated by cross-section and company size¹

Variables	1. Accounts Receivable (A _t)				2. Accounts Payable (L _t)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Constant	0.017 (0.69)	-0.001 (-0.68)	0.001 (0.09)	0.001 (1.29)	0.021 (1.61)	0.070 (-0.20)	0.003 (-0.13)	0.017 (-0.99)
S _t	0.143 (20.47)	0.031 (3.65)	0.032 (3.66)	0.030 (3.42)				
M _t					0.305 (13.21)	0.068 (4.06)	0.065 (3.97)	0.060 (3.81)
C _{1t}	-0.132 (-2.13)	-0.062 (-1.51)	-0.065 (-1.55)	-0.067 (-1.60)	-0.237 (-2.05)	-0.076 (-1.11)	-0.076 (-1.14)	
C _{2t}	-2.225 (-2.89)	-0.096 (-1.87)	-0.096 (-1.85)	-0.097 (-1.85)				
C _{3t}					0.408 (1.03)	0.174 (0.67)		
LIQ _t			0.026 (1.65)		-0.063 (-0.59)	-0.047 (-0.99)	-0.053 (-1.16)	-0.054 (-1.23)
RLIQ _t	0.024 (1.70)	0.017 (2.18)			-0.004 (-0.07)	0.025 (1.03)	0.029 (1.25)	0.031 (1.38)
BF _{t2}	0.076 (0.77)	0.022 (3.23)	0.022 (3.23)	0.022 (3.26)	0.011 (0.63)	0.026 (2.63)	0.026 (2.67)	0.026 (2.63)
A _{t-1}		0.886 (15.18)	0.881 (14.65)	0.895 (15.14)				
L _{t-1}						0.895 (20.91)	0.903 (21.73)	0.915 (22.45)
R2	0.74	0.92	0.91	0.90	0.53	0.88	0.88	0.89
D.F.	159	158	158	159	158	157	158	159

Notes: 1. See note at the bottom of Table 3.

2. This variable is measured as the ratio of changes in the indebtedness of the *ij* group of firms to banks over the flow of bank credit to the *j* industrial cross-section.

quently, whatever effects tight money might transmit via them would be counter-cyclical.

Before concluding this sub-section, one more aspect remains to be investigated. This is to see whether the inferences which were drawn above would be significantly affected, if the estimates were purged of the effects they contain owing to the aggregation over company – size groupings. To carry out this test, all equations of Table 3 were re-estimated using the stratification of companies by size which is shown in Table 2. The results obtained are displayed in Table 5. As the reader may verify for himself, although the t-values of the monetary policy related variables have generally declined (some of them more so than others), no sign reversals have taken place. Hence the main thrust of the evaluations arrived at before concerning the relationship between trade credit and monetary policy, continues to hold.⁷

At the same time, it is interesting to note that with the help of the preceding exercise considerable light can be thrown on the subsidiary question as to what the proper criterion on trade credit extension may be. This is made possible by the analysis-of-variance that the computer program performs on the residuals from running Least Squares with Dummy Variables (LSDV) on its way to computing the GLS estimates. Selecting 5.1.2 and 5.2.4 as the best specifications of the model, the following analysis-of-variance table is pertinent. A comparison

Table 6. Analysis-of-variance and F-statistics of the LSDV residuals corresponding to equations 5.1.2 and 5.2.4.

Dependent Variable	Effects	Mean Square	Estimated F-statistics	F-statistics from tables at $\alpha = 0.01$
Accounts Receivable (A_t)	Time-series	0.0025	1.14	$F_{4,148} = 3.44$
	Industry	0.0027	1.23	$F_{10,148} = 2.44$
	Company-size	0.0031	1.41	$F_{2,148} = 4.75$
	Error	0.0022		
Accounts payable (L_t)	Time-series	0.0125	2.78	$F_{4,148} = 3.44$
	Industry	0.0097	2.16	$F_{10,148} = 2.44$
	Company-size	0.0281	6.25	$F_{2,141} = 4.75$

7. This conjecture was even upheld when the estimations of Table 5 were repeated with a substantially different partitioning of firms into small, medium and large. Consequently, the results presented are fairly robust with regard to changes in the size definition of firms on the basis of their gross capital stock.

of the estimated F-statistics with the ones picked from the tables of the F-distribution at the 0.01 level of significance reveals that only one of the identified effects is statistically significant. This is the size of the firm in the accounts payable equation. The indications therefore are that, while in extending trade credit the only crucial firm characteristic is relative liquidity, in utilizing such credit the firm is also influenced by its own liquidity and size.⁸

From the tests performed so far the basic finding is that the behavior of trade credit in a close economy selling is unlikely to undermine the effectiveness with which monetary policy is applied. I have thus confirmed the evidence from the previous studies by Nadiri (1969) and Timmerman (24), but sharply contradicted that which has been provided by Meltzer (1960, 1963) and Brechling and Lipsey (1963). In addition, I have found that the important firm-specific characteristics for trade credit taking are firm-size, liquidity and relative liquidity while for trade credit giving the only one that matters is relative liquidity.

B. Open Economy Model

Even if trade credit behaved in a procyclical way, something that was found to be rather unlikely on the basis of Greek experience, in a close economy it would not be able to frustrate the effects of monetary policy for long. The reason being that, since after a while payment for goods sold would have to be made in cash, if the monetary squeeze is of adequate duration, the prolongation of trade credit periods and/or the transfers of net credits from liquid to illiquid firms would soon be checked. However, the same degree of trade credit control is less certain in an open economy, and particularly in one of the small developing type. The grounds for this are essentially two. First, in an open economy firms have access to foreign markets. *Whenever* therefore monetary policy makes local trade credit terms harder than abroad, firms have the flexibility to switch from domestic to foreign suppliers and thus attempt to evade its effects. Secondly, in an open economy which is also small the share of imported raw and auxiliary materials in total purchases of inputs is usually quite large; as a result, changes in monetary policy are bound to have only a limited influence on accounts payable since the latter depend to a significant extent on foreign credit conditions.⁹

The question to be examined here is this: is there evidence indicating that Greek manufacturing firms might use foreign suppliers' credits in order to thwart

8. Simultaneously, the finding that firm-size does affect the trade credit taking decision confirms the existence of credit rationing against small-sized firms in Greece.

9. Notice that the weak linkage found in Table 3, and to a lesser extent in Table 5, between L_1 and the various monetary policy indicators is consistent with this speculation.

the effects of deliberate changes in monetary policy? To obtain an answer, one approach that comes immediately to mind is to try and see whether trade credit from abroad (LA_t) is looked upon as a source of funds for financing accounts receivable (A_t). Apparently, if it is, Greek manufacturing firms could employ LA_t as a substitute for bank credit or money and thus nullify the effects of tight monetary policy.

In implementing this test I have concentrated only on 6 out of the 11 industrial cross-sections of Table 2. The elimination of 5 cross-sections¹⁰ was deemed advisable because not all their company groupings had accounts payable abroad during the sample period, and to have included them would have affected adversely the internal consistency of variable LA_t . Moreover, since in the event that LA_t is employed as a source of funds for financing A_t the decisions to give mercantile credit and to take such credit from domestic and foreign suppliers will be interrelated, a systems technique has been used for estimation.

Table 7 gives a representative sample of 2SLS estimates from this experiment. Directing attention to the main result of interest, notice that the coefficient of LA_t is statistically significant throughout. By implication, the evidence is that Greek manufacturers perceive of accounts payable abroad (LA_t) as an important channel for raising funds to finance receivables. If this finding is coupled now with the observation that the coefficients of c_{1t} , c_{2t} and BCF_t are also significantly different from zero, the incisive nature of the test can hardly be missed; because, irrespective of the mechanism through which the effects of a change in domestic monetary policy would be transmitted to receivables, i.e. irrespective of whether they would be transmitted through c_{1t} and c_{2t} or BCF_t , accounts payable abroad could be used as an avenue to evade their impact.

The last statement implies further that when the monetary brakes are applied firms should tend to switch from local to foreign suppliers. This, of course, will be possible only if, and to the extent that, LA_t can be substituted for domestic accounts payable (LD_t). To check on the likelihood of such a switching taking place in Greece, I have attempted to find out how, if at all, LD_t is related to LA_t . The following equation is a typical example of the 2SLS results that consistently turned up in the various runs.¹¹ As the negative and statistically significant

10. The excluded cross-sections are: Food, Beverages, Tobacco, Wood and Furniture, and Stone, Glass and Clay.

11. The instruments used in the first stage of AR_t and LD_t are the ones referred to at the bottom of Table 7.

$$(4) \quad LA_t = 0.022 + 0.050M_t - 0.520LD_t + 0.520A_t + 0.335LA_{t-1}$$

$$(0.22) \quad (1.66) \quad (-2.01) \quad (3.17) \quad (2.17)$$

$$R^2 = 0.54 \quad D.F. = 25$$

T a b l e 7 : 2SLS of Accounts Receivables in an Open Economy
Context ; Data aggregated over Company-size Groupings^{1,2}

Variables	Dependent Variables (A_t)				
	(1)	(2)	(3)	(4)	(5)
Constant	0.182 (1.16)	0.154 (0.99)	0.224 (1.46)	0.196 (1.32)	0.137 (0.91)
S_t	0.094 (2.19)	0.073 (2.12)	0.116 (3.19)	0.097 (4.98)	0.093 (4.64)
c_{1t}	-2.216 (-3.13)	-1.810 (3.68)	-2.276 (-3.19)	-1.940 (-4.11)	-1.97 (-4.02)
c_{2t}	-0.352 (-1.51)	-0.328 (-1.41)	-0.397 (-1.72)	-0.372 (-1.63)	
$RLIQ_t$	0.143 (2.32)	0.125 (2.16)	0.127 (2.11)	0.114 (2.00)	0.097 (1.67)
BCF_t	0.063 (2.65)	0.057 (2.52)	0.059 (2.49)	0.054 (2.42)	0.054 (2.33)
LA_t	0.525 (2.78)	0.508 (2.69)	0.464 (2.59)	0.457 (2.55)	0.578 (3.36)
LD_t	-0.258 (-0.77)		-0.205 (-0.61)		
A_{t-1}	0.152 (0.92)	0.131 (0.80)			
R^2	0.70	0.79	0.78	0.79	0.76
D.F.	21	22	23	22	24

Notes : 1. As endogenous are conceived the variables LA_t and LD_t .

2. The instruments which were utilized in the first stage of the estimation were : S_t , M_t , c_{1t} , c_{2t} , c_{3t} , LIQ_t , $RLIQ_t$, BCF_t , LA_{t-1} , LD_{t-1} and A_{t-1} .

coefficient of L_{Dt} signifies, domestic accounts payable stand as a substitute for accounts payable abroad. From this result one might be tempted to speculate that, in as much as the coefficient of L_{Dt} reflects an extra easing of foreign trade credit terms, the tightening of domestic credit may be rendered ineffectual. But such an inference has to be held in abeyance until the effect of domestic credit restraint on the level of accounts receivables and accounts payable (i.e. $LA_t + LD$) can be taken into consideration.

The conclusion then is that in a small open economy with no controls on the importation of raw and auxiliary materials the institution of trade credit may, in principle, afford entrepreneurs the potential to frustrate the policies pursued by monetary authorities. This conjecture is based on the finding that accounts payable abroad by Greek manufacturers constitute a source of funds for the financing of their receivables and, at the same time, are viewed as a substitute to domestic accounts payable. Given these important pieces of evidence, I am now ready to turn to the next stage of analysis.

C. Sectoral Linkages of Trade Credit in Greece

Coutsoumaris (1963), Halikias (1977) and other investigators of the financial structure of manufacturing corporations in Greece have found them to maintain abnormally high percentages of short-term claims in their total assets. The explanation for this has been sought in the presumption that the country's banking system tends to finance mercantile activities through manufacturing. Whatever the true reason may be, however, the implied strong trade-credit link between manufacturing and commerce has not been established quantitatively. Neither have the trade-credit policies of commercial firms been studied here or abroad to any significant extent.¹² The task undertaken in this sub-section is thus to look into these issues in some detail.

Table 8 provides a representative sample from the GLS estimates that resulted in the course of applying equations (1') and (2') to explain the trade-credit behavior of commercial firms. Looking first on the right-hand side of the table it is noteworthy to observe that, even when the lagged dependent variable is omitted, the explained part of the variance in total accounts payable (L_t) is quite large. Equations 8.2.2. and 8.2.4 show, for example, that two independent varia-

12. With the possible exception of the aspects which have been studied by Haberler (1942), Kiselgoff (1952) and Klein (1971), employing United States data.

Table 8. GLS estimates of equations (1') and (2) for commerce; data disaggregated by company-size groupings¹

Variables	1. Accounts Receivable (A_t)				2. Accounts Payable (L_t)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Constant	0.060 (0.58)	0.056 (0.83)	0.089 (0.59)		0.224 (2.18)	0.229 (2.78)	0.244 (2.37)	0.240 (2.91)
S_t	0.007 (0.27)		-0.008 (-0.22)					
M_t					0.101 (1.92)	0.137 (4.09)	0.106 (2.16)	0.141 (4.43)
c_{1t}			0.047 (0.84)	0.506 (0.94)				
c_{2t}			(0.033)					
LIQ_t			(0.17)	(0.48)				
RLI_t^2								
					-0.155 (-4.78)	-0.173 (-5.19)	-0.255 (-5.38)	-0.273 (-5.44)
BF_t^3	0.408 (3.03)	0.449 (3.47)	0.332 (2.08)	0.393 (2.75)				
A_{t-1}	0.612 (2.63)	0.700 (3.52)	0.506 (1.79)	0.625 (2.82)				
L_{t-1}					0.225 (1.60)		0.197 (1.56)	
R2	0.47 11	0.57 12	0.44 9	0.54 10	0.83 11	0.82 12	0.87 11	0.86 12
D.F.								

Notes: 1. See note at the bottom of Table 3.

2. This variable is constructed as the ratio of the liquidity for each group of commercial firms over the liquidity of all manufacturing firms at time t .

3. See note 2 at the bottom of Table 5.

bles explain over 80% of the variation in L_t . Also interesting is the consistency with which the two definitions of firm liquidity perform. Whether using the commercial firms' own liquidity (LIQ_t) or that relative to the liquidity of manufacturing firms (RLI_t), both variables have the expected sign and are statistically significant at the 5% one-tail test. Lastly, one feature that necessitates particular attention is the disproportional amount of accounts payable that commercial firms hold per unit of purchases vis-a-vis the amount of advances granted by manufacturing firms per unit of sales. Comparing equations 8.2.4 and 3.1.2, it turns out that, *ceteris paribus*, for an 1,000,000 drachmae of additional purchases the trade sector adds to its stock of accounts payable 141,000 drachmae, while for the same value of sales manufacturing needs to provide advances of only 59,000 drachmae.¹³ Consequently, to the extent manufacturing sells to commerce, the mercantile credit it advances over and above the amounts justified by the volume of sales to it, may be conceived as passing-on credit from the banking system to the trade sector.

That a strong trade credit link may exist between these two sectors is also indicated by the performance of RLI_t . In this respect notice that an increase (decrease) in the liquidity of manufacturing relative to that of trade would induce commercial firms to raise (reduce) the stock of accounts payable they hold per unit of purchases. Hence, when monetary policy changes take place their effects on the liquidity of manufacturing should spill immediately over to the trade sector and from there on to the final consumers in a countercyclical manner.

However, although the second half of the last sentence is considered a reasonable conjecture, it could not be established empirically. From the left-hand side of Table 8 it is clear that the estimates relating to the determinants of accounts receivable were not very successful. Even the sales variable, which turned out to be statistically significant in every single run in the case of manufacturing, performs badly. A possible explanation for this may be that the mixing up of wholesaling firms, which advance trade credit, with retailing firms, which in Greece sell primarily on cash, introduces serious errors of aggregation. Yet a search for the underlying true sources of the errors will have to wait until data on more commercial firms become available.

13. In terms of the elasticities at the mean values of the corresponding variables, a 10% increase in sales on the part of manufacturing would increase its stock of receivables by 4.28%, while the same percentage increase in purchases by commercial firms would raise their stock of payables by 11.52%.

D. Tests of Sensitivity Adalysis

The present sub-section brings the empirical investigation to a conclusion by providing certain comments on the responsiveness of «accounts receivable», «accounts payable» and «net trade credit» to a change in the monetary policy

Table 9. Selected elasticities estimated at the mean values of the corresponding variables.

Dependen Variables	Independent Variables			
	c_{1t}	c_{2t}	c_{3t}	BCF_t
A_t	-0.437	-0.094	-0.030	0.064
LA_t	-0.073	-0.016	0.084	0.011
LD_t	-0.600	-0.129	0.159	0.088
$Nc_t = A_t - (LA_t + LD_t)$	0.073	0.016	0.149	-0.009

indicators of the model. For this purpose the following table shows a set of elasticity estimates that have been obtained from the reduced form of a system consisting of the structural equations (7.4), (4) and

$$(5) \quad LD_t = 0.068 + 0.025M_t + 2.348c_{3t} - 0.154LIQ_t + 0.853A_t - 0.383LA_t - 0.221LD_{t-1} - 0.190LD_{t-2}$$

(0.75) (1.15) (3.26) (-2.25) (8.24) (-2.87)

$$R^2 = 0.84 \quad D.F. = 23$$

From the three first figures of the table's last column turns out that, ceteris paribus, a 10% reduction in the average flow of bank credit (BCF_t) to business firms will decrease the mean values of accounts receivable (A_t), accounts payable abroad (LA_t) and accounts payable to local suppliers (LD_t) by 0.64%, 0.11% and 0.88% respectively. Thus, although the responses of the particular trade credit components are in the desired direction, the ability of monetary authorities to influence them perceptibly with only minor changes in the availability of bank credit appears to be extremely limited. The same is also true with regard to policies that would work through c_{2t} and c_{3t} . For, as the two middle columns of the table show, the magnitudes of the relevant elasticities are close to zero.

By contrast to these findings, however, deliberate changes in the user cost of capital may induce quite noticeable effects on receivables and payables to domestic suppliers. In this respect, it should be noticed that a 10% increase in c_{1t} , ceteris

paribus, will decrease A_t and LD_t by the significant percentages of 4.37% and 6.00%, respectively. The observed asymmetry in the responses of A_t and LD_t to changes in c_{2t} and c_{3t} vis-à-vis c_{1t} confirms thus the crucial importance of accounting for credit rationing.

Still another comment of interest is this. In sub-section B above it was concluded that accounts payable abroad could be used as a potential frustrator of monetary policy. Now the elasticities which are given in the second row of Table 9 would seem to contradict the validity of this conjecture, because LA_t responds in a countercyclical manner. The contradiction though is more apparent than real. Because when the monetary policy becomes stringent the direct effect on LA_t is in fact expansionary. But in turn there follows a contractionary feedback effect on it which originates in the reduction of A_t .

Lastly, for the correct interpretation of the elasticities of net trade credit, it is important to know that the mean value of NC_t during the period under consideration was negative. In the light of this information it becomes clear that net trade credit was not an inflationary agent in Greece at the time. But this finding does not preclude the possibility that MC_t may be such an agent in other small open economies or even in Greece in some other period than the one considered.

V. CONCLUSIONS

This paper has advanced a model¹⁴ of trade credit and used it in conjunction with information from 241 firms of Greek manufacturing and trade over the 1967–1972 period to investigate the response of mercantile credit to monetary policy changes in the setting of a small open economy and to shed light on certain related issues which continue to remain unresolved. On the basis of the evidence derived from the various tests and conceptual experiments, the following conclusions may be suggested :

(a) In a closed economy the institution of trade credit does not appear to have the potential to frustrate monetary policy. Additionally, the same is true for those small open economies in which the direct expansionary effect on accounts payable abroad from a tightening of money is weaker than the contractionary feedback effect which is transmitted to it via the reduction of accounts receivable.

14. For some alternative approaches to the analysis of trade credit see McLeod (1964), Laffer (1970), Schiff and Lieber (1974) and Policano (1977).

(b) Given that (a) it is in small open economies where trade credit appears to afford firms the potential to evade or at least weaken the effectiveness of monetary policy measures, and (b) the «smallness» and «openness» of an economy are empirical questions, the testing environment chosen and the type of trade credit model adopted are of crucial importance for the consistency of the derived inferences. By implication, the seemingly conflicting results which have been reported in the literature of trade credit may reflect only certain inconsistencies in this respect.

(c) With the exception of the firm's relative liquidity position, none of the other firm-specific characteristics (i.e., liquidity, firm-size and industry structure) accounted for plays any role in extending trade credit. However, the decision for trade credit taking is influenced not only by liquidity and firm-size, something which would have been expected, but also by relative liquidity. The latter finding has been interpreted to imply that firms with a strong liquidity position relative to their customers are able to bring enough pressure on their suppliers so as to receive increasing amounts of trade credit from them.

(d) Mercantile credit constitutes an important linkage between manufacturing and trade in the sense that the former sector serves as a primary source of liquidity for the latter sector. Thus, the prevailing presumption that the banking system tends to finance commercial activities through manufacturing is given ample empirical support.

Lastly, and probably most importantly for the course of future analytical work in this area, the evidence uncovered here substantiates the usefulness of embedding into trade credit models the concepts of «credit rationing» and «openness» of the economy.

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FINANCIAL FORECASTS AND ACCOUNTING : AN ANALYSIS OF THE BASIC ISSUES

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In its attempt to better serve the economic community and in particular the users of financial statements, accounting has, throughout the years, adopted new or improved methods of financial accounting and reporting. In addition to that, accounting has also enlarged its scope of financial accounting and reporting by adding new areas in the sphere of its interest. While that enlargement of the scope has been beneficial to the investing public, recent years have, however, witnessed a significant increase in the demand for the publication of more and better accounting information.

With respect to how accounting can be expanded, the American Accounting Association has indicated that the "... accounting discipline could be expanded, either by absorbing additional measurement methods into the discipline or by broadening the concept of activities upon which it reports."¹

Several areas have been the focus of attention, and new ones are being considered. One area which has attracted considerable attention is the area of disclosure of corporate expectations through the publication of financial forecasts.

Many academicians, practitioners, and professional organizations advocate the publication of forecast data on the grounds that forecasts are useful in making investment decisions. There are, however, those who oppose

1. American Accounting Association, Committee to Prepare a Statement of Basic Accounting Theory, *A Statement of Basic Accounting Theory*, AAA, 1966, p. 64.

the publication of forecasts and present arguments which question the benefits of published forecasts.

The importance and complexity of the issues surrounding the publication of corporate forecasts are apparent in the Study Group on the Objectives of Financial Statements' cautious recommendation of the inclusion of forecasts in financial statements:

Forecasting is clearly an integral part of every economic decision.... Publication of explicit forecasts of enterprise activities may well fit the objectives of financial statements. They may make financial statements more comprehensive and useful; but, the uncertainty inherent in forecasting may diminish the usefulness of the information.²

The purpose of this study is to discuss the most important issues associated with the disclosure of management financial forecasts. The study consists of the following four parts:

1. Background.
2. Arguments for and against the publication of financial forecasts.
3. Authoritative bodies, professional organizations and financial forecasts.
4. Conclusions.³

BACKGROUND

According to Cooper, Dopuch, and Keller, a proposal to disclose forecasts was first introduced in the accounting literature in 1947 by Stuart A. Rice at the annual meeting of the American Institute of Certified Public Accountants. Dr. Rice, then Director of the Division of Statistical Standards, U.S. Bureau of the Budget, said:

2. American Institute of Certified Public Accountants, Report of the Study Group on the Objectives of Financial Statements, *Objectives of Financial Statements*. New York: AICPA, October 1973, p. 46.

3. The presentation here is based on the U.S.'s literature and experience, but the issue of financial forecasts concerns other developed countries too. See D. R. Carmichael, «Reporting on Forecasts: A U.K. Perspective,» *Journal of Accountancy*, January 1973, pp. 36-47, and Institute of Chartered Accountants in England and Wales, *Accountants' Report on Profit Forecasts*, Institute of Chartered Accountants in England and Wales, 1969, for details of the experience in Great Britain.

In the government it is the custom to publish budgets but not the final result of operations. In private accounting the custom is the reverse, I should like to see business firms undertake to publish their budgets as well as financial statements because (1) it will give valuable information to stockholders and enable them to judge the planning ability of their managers and (2) provide valuable information on business plans and business operations.... for economists and statisticians.⁴

More than a decade later, this idea started to attract further attention and a number of articles appeared in the accounting literature. Some examples are Nielsen,⁵ Bevis,⁶ Schattke,⁷ Birnberg and Dopuch,⁸ Solomon,⁹ Wilkinson and Doney,¹⁰ Ijiri,¹¹ Reiling and Burton,¹² and Burton.¹³

In 1960 Nielsen observed :

With the increased emphasis on prediction and planning with regard to business activity . . . , it is to be expected that the nature of future accounting needs to change if the accounting function is to survive as an important element of modern business Therefore, it is evident that the orientation of accounting will have to be more toward the fu-

4. As quoted in W. W. Cooper, N. Dopuch, and T. F. Keller, «Budgetary Disclosure and Other Suggestions for Improving Accounting Reports,» *Accounting Review*, October 1968, pp. 640-648.

5. Oswald Nielsen, «New Challenges in Accounting,» *Accounting Review*, October 1960, pp. 583-589.

6. Herman W. Bevis, «The CPA's Attest Function in Modern Society,» *Journal of Accountancy*, February 1962, pp. 28-35.

7. Rudy Schattke, «Expected Income-A Reporting Challenge,» *Accounting Review*, October 1962, pp. 670-676.

8. Jacob G. Birnberg and N. Dopuch, «A Conceptual Approach to the Framework for Disclosure,» *Journal of Accountancy*, February 1963, pp. 56-63.

9. Ezra Solomon, «Accounting in the Next Decade,» *Journal of Accountancy*, January 1965, pp. 22-26.

10. James R. Wilkinson and Lloyd D. Doney, «Extending Audit and Reporting Boundaries,» *Accounting Review*, October 1965, pp. 753-756.

11. Yuji Ijiri, «On Budgeting Principles and Budget-Auditing Standards,» *Accounting Review*, October 1968, pp. 662-667.

12. Henry B. Reiling and John C. Burton, «Financial Statements: Signposts As Well As Milestones,» *Harvard Business Review*, November-December 1972, pp. 45-54.

13. John C. Burton, «Forecasts: A Changing View from the Securities and Exchange Commission,» in P. Prakash and A. Rappaport (eds.), *Public Reporting of Corporate Financial Forecasts*, Commerce Clearing House, 1974, pp. 81-98.

ture events of business and only have reference to past events when such information is useful for either corrective action or for formulating still further plans for continued future actions.¹⁴

Birnberg and Dopuch proposed a new framework of disclosure which included a section on management's expectations. The authors' opinion on this point was expressed as follows :

In order to inform the external parties of what they anticipate the future to hold for the entity, management must provide the investor with information on three types of expectations.

1. Prospects for the economy.
2. Prospects for the industry and the enterprise as a member of that subset.
3. The specific expectations which underlie the major investments made in resources and the projects undertaken in attempting to achieve the enterprise's goals.¹⁵

Though there are those who favor publication of financial forecasts, there are those who question the benefits of published forecasts. In a rather provocative article, Kapnick of Arthur Andersen and Company came out strongly against publication.¹⁶ He believed that, while financial statements should help the investor in appraising the future, any interpretations of prospects are the responsibility of the investor.

Kapnick maintained, however, that much could be done to improve the financial information already being made available to investors and the public. He suggested that historical financial statements must be more meaningful, understandable, and relevant than they are now. In addition, management should provide the public with information concerning management's goals, assumptions, and factual knowledge about the future. This kind of information, however, is far different from management's publishing forecasts of sales, net income, and earnings per share for the next year.¹⁷ The suggested improvements "can be of substantial assistance to

14. Neilsen, pp. 584-585.

15. Birnberg and Dopuch, p. 58.

16. Harvey E. Kapnick, «Will Financial Forecasts Really Help Investors?» *Financial Executive*, August 1972, pp. 50-54.

17. *Ibid.*, p. 50-52.

the public investor in assessing the future and in his determination of the risks he is willing to assume with respect to a particular business enterprise." 18

Financial forecasts were frequently made available outside the firm. These forecasts were taken many forms, ranging from formally prepared and published earnings forecasts to (a) speeches to security analysts, (b) press releases, and (c) informing analysts that their forecasts are "in the ball park". For the most part, these types of forecasts had two elements in common: they were unregulated by the SEC and, except for publicly issued forecasts, they were discriminatory in that they were supplied by management to selected persons and not publicly disclosed.

In a study by the National Association of Accountants, it was disclosed that, of the companies surveyed, approximately 33 percent provided the public with an indication of profit forecasts. 19 However, the information was generally disseminated through press releases or at talks at analysts' society meetings rather than directly to stockholders. Approximately 40 percent did not disclose profit, but were willing to comment on whether an analyst's forecast was "in the ball park".

ARGUMENTS FOR AND AGAINST THE PUBLICATION OF FINANCIAL FORECASTS

The accounting and financial literature, reflecting the increasing concern and interest of the financial community, prompted the Securities and Exchange Commission in 1972 to reexamine its position of prohibiting the inclusion of projections and forecasts in documents filed with it. More specifically, the decision of the SEC to reconsider its historical position on forecasts was mainly based on the following factors: 20

1. There was an increasing recognition of the relevance of future-oriented data in investment decisions. It became apparent that securities were being traded primarily on the basis of expectations. While such expectations could be developed in part from the historical financial record of a firm, it became difficult to justify a position that information about the firm's future expectations should be denied to investors as a matter of policy.

18. *Ibid.*, p. 54.

19. For a summary of the study's findings, see Morton Backer, "Reporting Profit Expectations," *Management Accounting*, February 1972, pp. 33-37.

20. John C. Burton, pp. 84-86.

2. The process of forecasting had been better defined and the reliability level had been increased primarily through improvement in management sophistication in working with budgets and forecasts. The result was that a number of firms were ready to disclose their forecasts publicly.

3. There was increasing evidence of discriminatory disclosure of forecast data by corporate management.

In order to gather additional information relevant to a reassessment of its policies relating to disclosure of projected sales and earnings, the Commission held public hearings from November 20 to December 12, 1972. The hearings primarily addressed two questions: (1) Should forecasts be published under SEC supervision? and (2) If forecasts are to be published, should they be verified by an independent third party?

Testimony was given by many corporate executives, security analysts, investment bankers, certified public accountants, lawyers, and other interested parties. As to be expected with such controversial issues, there was a wide diversity of views. Testimony, however, concerning whether forecasts should be published under SEC supervision was overwhelmingly in favor of publication.

Edwards and Warren have reported the major arguments for and against the reporting of forecasts which surfaced in the SEC hearings.²¹ Since these arguments constitute a representative summary of the views presented in the accounting and financial literature, they are presented in Table 1.

Following these hearings, the SEC made an announcement in which it stated that it would permit companies under its jurisdiction to disclose forecasts, on a "voluntary" basis, when certain conditions are met. This announcement and subsequent ones made by the SEC are discussed later under the SEC's position.

21. James D. Edwards and Carl S. Warren, «Management Forecasts: The SEC and Financial Executives,» MSU Business Topics, Winter 1974, pp. 51-55.

TABLE 1
ARGUMENTS FOR AND AGAINST THE PUBLISHING OF FORECASTS

For

Forecasting of future earnings is an essential part of the investment decision.

We must assume that investors can make informed investment decisions if they are given appropriate facts.

It is in the public's interest to have relevant information available.

The purpose of the Securities and Exchange Act of 1933 was to provide all information necessary to the exercise of an informed investment decision.

Forecasts appear regularly in the newspapers and we don't know what standards are used: when forecasts are wrong the public can't determine why.

Management is better qualified than an outside user of the data to create a complete forecast.

The SEC, by requiring and regulating forecasts, will improve the quality of information.

Appropriate SEC guidelines would reduce the number of deliberately misleading forecasts by establishing formal management accountability for such issuances.

If forecasting is required, a major inequity in the flow of information to investors will be corrected.

The basic philosophy should be to give everybody all the relevant information and let each make his own choice as to the investment merits of the investment opportunity and as to the significance of the information.

The statement of the assumptions which underlie a forecast is a good way of making available to investors an idea of the risks which they are taking.

Forecasts will assist in maintaining an orderly market.

Forecasting can be done under our present legal system.

A controlled and more orderly process of preparing projections and earnings forecasts will increase corporate responsibility and investor confidence.

The benefits derived by forecasting corporation earnings will be greater than the costs.

Publication of forecasts could eliminate the possible prejudicial practice of releasing earnings projections to analysts without simultaneous release to stockholders.

TABLE 1 (Continued)

Against

The liability of issuers of forecasts must be clarified and limited.

The present open-ended liability might cause management to hedge all projections, rendering them useless.

Average investors will give unwarranted credibility to a formal forecast. This would erode investor confidence in all financial data.

Management may tend to concentrate its efforts on making previous forecasts come true, that is, management would be under pressure to realize forecasts previously made.

Many companies don't prepare adequate documentation.

Forecasting is impossible for start-up companies.

Investment decisions are based on more than earnings numbers: the quality of earnings is important.

The current system is serving the investor well.

Management should not have to make forecasts—it is not trained to do so.

It would be unrealistic for companies to educate their shareholders as to the problems in forecasting.

Management cannot estimate earnings well enough to satisfy the man on the street.

For forecasts to have credibility they must be reviewed by an external third party and currently no such part is available. (CPA's do not have adequate forecasting audit standards).

Potential legal liability would force management to keep forecasts within judicially acceptable tolerances rather than what it believes is in the best interests of the company and shareholders.

We already have forecasts by those performing the investor functions.

The need for forecasts has not been demonstrated.

To forecast one year's earnings may well lull the investor into short-range comfort, he should be looking at a much longer period to evaluate his investment.

Attempts to establish an across-the-board criterion of reliability or standards of performance forecasting are impracticable.

You can't divide the attitude that a manager has as manager and his own investment position. Many chief executives have substantial stockholdings in their own company—they may be guided more by their stockholdings than by what may be good for the company.

Earnings projections have little value unless supported by a description of the under-

TABLE 1 (Continued)

lying assumptions, but disclosure of these assumptions could cause difficulties in sensitive matters. Disclosure of assumptions may: (1) divulge the corporate operating plan, (2) provide information which could restrict management's flexibility, (3) substantially increase internal operating costs, and (4) increase risk of antitrust litigations. (Disclosure of pertinent information by a company and its competitors could be considered equivalent to price fixing).

Misleading forecasts would be more of disadvantage to the market than no forecast at all.

Permission to use forecasts will give license to those who are unqualified or promotionally minded to abuse forecasting.

It is possible that issuance of forecasts will fuel the market speculative tendencies rather than contribute to sound investment.

Unless forecasts are continually updated, they will rapidly become outdated.

If forecasts are permitted, companies would only use them when it was to their best advantage.

Source: James Don Edwards and Carl S. Warren, «Management Forecasts: The SEC and Financial Executives,» MSU Business Topics, Winter 1974, p. 52.

AUTHORITATIVE BODIES, PROFESSIONAL ORGANIZATIONS AND FINANCIAL FORECASTS

The arguments for and against the publication of financial forecasts presented in the previous table offer a good illustration of the complexity surrounding the issue of financial forecasts.

This part of the study will discuss the positions taken by authoritative bodies and by the most important professional organizations on the issue of forecasts. In addition, it will analyze the contribution made by some of them in solving the many problems associated with that issue.

National Association of Accountants (NAA)

The position of the NAA was succinctly stated in December 1972 before the Securities and Exchange Commission.²² The Committee on Management Accounting Practices, speaking for the NAA, reiterated its position previously put forth to the Study Group on Objectives.

The NAA believed that forecasts were desirable and encouraged their discretionary use at the option of management when the likelihood of misleading the reader is not great. The Association felt that since forecasts and projections were prevalent, there would be little conceptual justification for not including forecast data in financial reports. However, before requiring forecasts to be mandatory, the NAA felt that more research was necessary in certain areas. Those areas were :

1. Should the forecast be for revenues, expenses, cash flow, earnings per share, etc.? To minimize problems, the forecast of any of the preceding should be in terms of "trends" and "ranges"

2. The disclosure of the underlying assumptions is desirable. However, a difficulty is the possibility of disclosing information to competitors about new product development, marketing and pricing strategies, etc.

3. A reasonable time period to be covered by the forecast must be con-

²² National Association of Accountants, «Statement to the Securities and Exchange Commission Regarding Forecasts,» in P. Prakash and A. Rappaport (eds.), *Public Reporting of Corporate Financial Forecasts*, Commerce Clearing House, 1974, pp. 265-268.

sidered. A longer period may be desirable, but the longer the period the greater the chance for inaccuracy. Criteria for developing an acceptable level of accuracy must be considered.

4. The frequency with which forecasts should be revised must also be considered. Frequent changes would be confusing, but changing circumstances would demand revision of the forecasts if they are to have any real value.²³

The NAA pointed out that presenting forecasts could create the tendency to take actions contrary to the best interest of the firm in order to meet the forecasts.²⁴

The forecasts should not be attested to by independent public accountants. The Association felt that attestation would be so limited, and the possibility of the user's misunderstanding so great, that attestation could lead to a greater loss of confidence than any offsetting increase in the reliability of forecasts.²⁵

The Financial Analysts Federation (FAF)

The FAF took a position in favor of the publication of financial forecasts. The Federation made an extensive study of corporate forecasts, their dissemination, and their utility for investment decisions. In addition, it developed a system of continuous forecasting by public companies which was presented at the Public Hearings of the Securities and Exchange Commission.²⁶ From its research, the FAF arrived at three premises on which the proposal for systematic forecasting by public companies is based. These premises are :

1. Forecasts by management are a useful element in investment analysis and decision making for all corporate investments but primarily for equity type investments. They are regarded as important information, though not the sole input to the process.

23. Ibid., p. 266.

24. Ibid., p. 267.

25. Ibid., p. 268.

26. William S. Gray III, "Proposal for Systematic Disclosure of Corporate Forecasts," *Financial Analysts Journal*, January-February 1973, pp. 64-71 and 85.

2. Forecast information in some form is voluntarily being made available by many companies. Arguments that companies cannot or should not make public forecasts are beside the point under these circumstances.
3. Dissemination of corporate forecasts is currently irregular and uneven. Fairness to all investors, actual and potential, requires more systematic disclosure by corporate management.²⁷

The proposal for a continuous forecasting system included the following elements :

1. Forecasting should be voluntary, not mandatory, at this time.
2. Once public forecasting has begun, forecast statements should be disclosed on a continuing basis.
3. Forecasts should be broadly disseminated on a regular basis.
4. The forecast period, for the present, should be the current and next fiscal year.
5. The forecast should be specific for sales, pretax earnings, net earnings and earnings per share.
6. Forecasts should be qualified by some expression of their tentative character.
7. Statement of assumptions on which the forecast is based.
8. Audit or certification of forecasts by independent experts should not be required.²⁸

In addition, the FAF, responding to a request from the SEC, sponsored a research project to examine the desirability and possible content of a formal system of forecast disclosure. The findings of the research project were presented at the Public Hearings of the SEC.²⁹

The project consisted of five separate studies :

1. A search of the published literature relating to corporate forecasting.

27. Ibid., p. 66-67.

28. Ibid., pp. 67-69.

29. Samuel S. Stewart, Jr. «Research Report on Corporate Forecasts,» *Financial Analysts Journal*, January-February 1973 pp. 77-85.

2. An examination of corporate forecasts published in the Wall Street Journal.

3. An examination of the accuracy of forecasts made by financial analysts.

4. A questionnaire survey of selected members of the FAF to determine their opinions as to the desirability of a normal forecasting requirement.

5. An in-depth, personal interview survey of a smaller sample of FAF members.³⁰

While some of the evidence gathered from the five studies was contradictory, six broadly supported conclusions emerged :

1. Many corporations currently generate forecasts. The accuracy of these forecasts is not impressive, particularly at turning points.

2. These forecasts are not widely available—that is, there is an uneven information flow. Some of the unevenness of the flow is due to differences in analytical skills. Formal publication of forecasts may alleviate, but probably will not solve, the problem of uneven information flow.

3. Formal publication of forecasts may create some problems. Perhaps potentially the most serious problem is that if investors place too much emphasis on short run results as revealed in quarterly or annual forecasts, the volatility and liquidity of the securities markets may be adversely affected...

4. The more detailed a forecast is, the more likely it is to be of service to investors and the less likely it is to create problems of misuse and misinterpretation. Particularly important components of a forecast are the underlying economic assumptions. There is wide agreement that a single EPS figure would be of no value and would also create the most potential for abuse. It is important that a formal forecasting system include provision for adequate distribution of the forecast information. Merely requiring that the forecast be filed with the SEC is probably insufficient.

5. The market, rather than the SEC, should serve as the "policing authority" for forecasting errors short of fraud. Forecasts should not be audited.

30. Ibid., p. 77.

6. While many feel philosophically opposed to a mandatory forecast, there is skepticism as to the effectiveness of permissive regulation. Should SEC adopt a permissive regulation, it should be prepared to move to required forecasting if permissive forecasting proves ineffective.³¹

The American Accounting Association (AAA)

The AAA Committee to Prepare a Statement of Basic Accounting Theory opposed the idea of the CPA reporting on management forecasts. The Committee acknowledged that external users of financial information use such information to make predictions and decisions. The Committee stated that "almost all external users of financial information reported by a profit-oriented firm are involved in efforts to predict the earnings of the firm for some future period."³²

However, the Committee felt that the independent accountant should report on past earnings only, and not project or report on management projections of future earnings. Lack of verifiability appears to be the main reason for the Committee's position. It specifically wrote:

Failure to observe the standard of verifiability to a minimum degree would place the accountant, in some cases, in the role of forecaster and would reduce the confidence of the user and thereby diminish the usefulness of accounting reports. We believe that a substantial level of verifiability is most important for externally reported accounting information.³³

In a more recent report, the Committee on Auditing Concepts concluded that the audit function should not be extended to reporting on forecasts.³⁴

American Institute of Certified Public Accountants (AICPA)

Before we proceed with the presentation of the AICPA's official position, we will discuss the views of the Study Group on the Objectives of

31. Ibid., p. 85.

32. AAA, *A Statement of Basic Accounting Theory*, p. 23.

33. Ibid., p. 27.

34. Committee on Basic Auditing Concepts, "Report: A Statement of Basic Auditing Concepts," *Accounting Review*, Supplement to Vol. XLVII, 1972, pp. 14-74.

Financial Statements which considered the issue of financial forecasts and it reached a number of conclusions.³⁵

In developing financial statement objectives, the Study Group was concerned with making information more useful, while preventing the introduction of inaccurate or unreliable data. This concern was great with respect to the publication of forecasts, whether contained in formal statements or in informal presentations of management's expectations. The Study Group accepted the notion that publication of forecasts might make financial statements more comprehensive and useful, but it pointed out that the uncertainty in forecasting could diminish the usefulness of the information.³⁶

The Study Group noted that forecasts are often communicated informally in speeches, press releases, and president's letters, and that several publicly held companies have published formal forecasts³⁷. The issue, however, was not "whether forecasts should be made, but whether they should be included in financial statements."³⁸

The Study Group did not feel that the accuracy of forecasts was the prime consideration, but rather the relative accuracy of users' predictions with and without forecasts. If estimates of the future are enhanced, then forecasts should be published. The Group stated that "an objective of financial statements is to provide information useful for the predictive process. Financial forecasts should be provided when they will enhance the reliability of users' predictions."³⁹

With respect to reporting forecasts or projections the Group recommended the following :

1. Forecasts should be presented with their major underlying assumptions, so that each user can evaluate them in the context of his own needs. However, these assumptions should not be presented in such detail that their disclosure would adversely affect the firm's competitive position.

2. Ranges might be presented to supplement single numbers. The use

35. AICPA, Objectives of Financial Statements.

36. Ibid., p. 46.

37. Fuqua Industries was the leader in this movement.

38. AICPA, Objectives of Financial Statements p. 46.

39. Ibid., p. 46.

of ranges would remind users that the forecast deals with estimates and should not be considered to be precise.

3. Forecasts should be updated and compared with actual accomplishments. The preparer should explain any significant differences between the original and revised forecasts and between forecasts and actual results.⁴⁰

The AICPA has taken a middle road position on the issue of management forecasts. While the Institute agreed with the SEC's objectives for "equitable dissemination" of forecast information, (the SEC's position is discussed later), it maintained that no action should be taken by the SEC before appropriate guidelines for the preparation, presentation and disclosure of forecasts have been established. Following the development of such guidelines, the Institute suggested that a trial period of permissive publication of forecasts would be appropriate. This trial period would provide the necessary experience to reach an informed decision on the desirability of publication.

In order to aid in the development of the necessary guidelines, the Institute has already issued two documents. The first document presents ten guidelines for preparing financial forecasts and developing forecasting systems.⁴¹ These guidelines are discussed below :

1. A forecast should be presented as the single most probable forecasted result. In addition, the most probable result should be supplemented by ranges or probabilistic statements in order to underscore the uncertain nature of all forecasts.

2. The forecast should be prepared applying the accounting principles expected to be used when the events and transactions envisioned in the forecast occur.

3. Financial forecasts should be prepared with appropriate care by qualified personnel.

4. Financial forecasts should be based on the best information, from whatever source, reasonably available at the time they are prepared.

40. Ibid., pp. 46-47.

41. American Institute of Certified Public Accountants, Management Advisory Service Division, Guidelines for Systems for the Preparation of Financial Forecasts, AICPA, 1975.

5. The preparation of a forecast should be based on information which reflects the plans of the firm.

6. The assumptions utilized in preparing a forecast should be reasonable and appropriate and should be suitably supported.

7. The relative effect of variations in major underlying assumptions should be determined.

8. The forecasting system should provide adequate documentation of the forecast and the related forecasting process.

9. The forecast should be compared regularly with the actual results.

10. The forecasts should be reviewed and approved by management at the appropriate levels.

The second document is a statement of position and provides guidance as to presentation and disclosure for those who choose to issue financial forecasts.⁴² The major provisions of the statement are discussed below :

The statement defines a forecast as an estimate of the most probable financial position, results of operations and changes in financial position for one or more future periods. Most probable means that the assumptions have been evaluated by management and that the forecast is based on management's judgment of the most likely set of conditions and its most likely course of action.

The statement recommends that the forecasts should preferably be presented in the format of the historical financial statements expected to be issued. However, at a minimum, a forecast should include presentation of sales or gross revenues, gross profit, provision for income taxes, net income, extraordinary or unusual items, disposal of a segment of a business, primary and fully diluted earnings per share, and significant anticipated changes in financial position.

The forecast should be prepared on a basis consistent with the generally

⁴² American Institute of Certified Public Accountants, Accounting Standards Division, Statement of Position on Presentation and Disclosure of Financial Forecasts, AICPA, 1975.

accepted accounting principles expected to be used for the historical financial statements, and this should be disclosed in the forecast.

The single most probable forecasted result should be disclosed. However, the tentative nature of this result can be emphasized by also presenting ranges for the key measures.

It is not considered feasible to disclose all assumptions, but disclosure should be made of all assumptions considered by management as the most significant, and of their rationale or basis. The relative impact of a variation in a assumption should be disclosed when it would significantly affect the forecasted result. The assumptions need not be presented in such a manner or in such detail as would adversely affect the competitive position of the enterprise. The assumptions should be clearly labeled, and there should be an introductory statement explaining that the assumptions disclosed are not an all-inclusive list, and that the forecast is based on circumstances and conditions existing at the time it was prepared.

The statement does not prescribe a fixed period to be covered in the forecast. Rather, the period is to be based on management's ability to forecast and the user's needs.

The financial forecasts should be presented separately or clearly segregated from the historical financial statements and should be clearly labeled as "financial forecast".

Forecasts should be updated as promptly as possible, but they need not be updated if they were issued on a "one-time" basis for a specific purpose, in which case that should have been disclosed in the forecast. Also, forecasts need not be updated if the issuance of actual data for the pertinent period is imminent. When material changes in a forecast can not be quantified, appropriate disclosure should be made. If management decides that a current forecast should no longer be used but it is not appropriate to issue an updated forecast, this decision and the reasons for it should be disclosed.

It should be emphasized, however, that neither document advocates nor discourages the publication of financial forecasts.

In addition to the above two documents, the Institute has recently published a guide for an accountant's review of a financial forecast.⁴³ The im-

43. American Institute of Certified Public Accountants, Auditing Standards Board, Guide for a Review of a Financial Forecast, AICPA, October 1980

portance of this document is apparent, since it is the first official guide dealing with the CPA's involvement with financial forecasts and the appropriate reporting by him on such forecasts. Although the guide, as it is noted in the guide, does not have the authority of a pronouncement by the Auditing Standards Board, AICPA members may be asked to justify departures from it if their work is challenged.

According to the guide, the objective of a review is to provide the independent accountant with a basis for reporting whether with respect to the forecast taken as a whole :

a) The forecast was properly prepared based on management's stated assumptions ;

b) The presentation conforms to the guidelines outlined in the **Statement of Position on Presentation and Disclosure of Financial Forecasts** ;

c) The underlying assumptions provide a reasonable basis for management's forecast. ⁴⁴

The guide indicates that in order to evaluate the preparation of the forecast, the accountant should perform procedures which will provide reasonable assurance of the following :

1. The forecast reflects the identified assumptions.
2. The computations made to translate the assumptions into forecasted amounts are mathematically accurate.
3. The assumptions are internally consistent.
4. Accounting principles used in the forecast are consistent with the generally accepted accounting principles... expected to be used in the historical financial statements covering the forecast period (s), and those used in the most recent historical financial statements, if any. ⁴⁵

The accountant should also perform procedures which he considers necessary in the circumstances to enable him to report on whether he believes the assumptions provide a reasonable basis for management's forecast. After performing these procedures :

44. Ibid., p. 5.

45. Ibid., p. 11.

...the accountant can conclude that the assumptions provide a reasonable basis for the forecast, if he concludes (1) that management has explicitly identified the factors expected to materially affect the operations of the entity during the forecast period and has developed appropriate assumptions with respect to such factors and (2) that the assumptions are suitably supported.⁴⁶

The guide recognizes that it is not feasible to list all assumptions, but it points out that the accountant should evaluate whether management's assumptions relate to all key factors upon which the financial results of the entity depend.⁴⁷

In evaluating whether the assumptions are suitably supported, the accountant should focus on assumptions which are :

1. Material to the forecasted amounts.
2. Especially sensitive to variations.
3. Deviations from historical trends.
4. Especially uncertain.⁴⁸

Finally, the guide, in addition to presenting illustrative review procedures to assist the accountant in planning reviews of financial forecasts,⁴⁹ discusses the types of the accountant's report on a review of a financial forecast.⁵⁰

Securities and Exchange Commission (SEC)

The result of the public hearings held by the SEC in 1972 was, as indicated earlier, a statement by the Commission that it would allow, on a "voluntary" basis, publication of earnings forecasts under federal securities laws⁵¹.

The Commission had always prohibited disclosure of earnings forecasts

46. Ibid., p. 8.

47. Ibid., p. 9.

48. Ibid., p. 10.

49. Ibid., pp. 15-20.

50. Ibid., pp. 21-27.

51. Securities and Exchange Commission, "Statement by the Commission on the Disclosure of Projections of Future Economic Performance," Securities Act of 1933, Release No. 5362 and Securities Exchange Act of 1934, Release No. 9984, SEC, Washington, D.C., February 2, 1973.

in financial statements filed with it on the grounds that publication in filings could lead to exaggerated expectations of company prospects and consequently would be detrimental to the investing public. However, on the basis of the information gathered at the hearings and on the basis of its experience in administering the securities laws, the Commission determined that changes in its policies would assist in the protection of investors and would be in the public interest. The Commission noted that forecasts were widespread in the market and were relied upon by investors and that investors did not have equal access to this material information.

The Commission identified management forecasts as information of significant importance to investors and indicated that such information should be available on an equitable basis to all investors. The Commission pointed out that it was taking the first steps toward integrating forecasts into the disclosure system and that it had made a number of determinations, which are discussed below :

1. Disclosure of projections (i.e., forecasts) in Commission filings should not be required except under the circumstances set forth in 7 and 8 below.

2. Companies that meet certain standards relating to their earnings histories and budgeting experience should be permitted to include forecasts in filings made with the Commission.

3. Forecasts so disclosed should meet certain standards, for example, the underlying assumptions should be set forth, the forecast should be of sales and earnings and be expressed as a reasonably definite figure, and forecasts should be for a reasonable period of time.

4. The forecast should be updated on a regular basis and whenever the company materially changes its forecast.

5. Any company that has filed a forecast should be allowed to cease filing a forecast if it discloses its decision and gives reasons for the change.

6. No statement of certification or verification of the forecasts by any third party should be permitted.

7. Any company that discloses forecasts outside of filings with the Commission, whether through financial media, financial analysts or otherwise, should be required to file such forecasts with the Commission.

8. Any company subject to the reporting requirements of the Exchange Act that discloses a forecast, whether in a Commission filing or not, should be required to include in its annual report to the Commission for the fiscal year during which the projection was made, a statement of the forecast made, the circumstances under which it was disclosed, and a comparison of the forecast with actual results.

9. The Commission should clearly define the situations under which a forecast would not be considered to be a misleading statement of a material fact.

10. The Commission should issue a release setting forth certain standards for the preparation and dissemination of forecasts by management, financial analysts, and other members of the financial community.

On April 28, 1975, the SEC announced its proposed rules for implementing its plan to intergrate projections into the disclosure system of the federal securities laws.⁵² A summary of the proposed rules follows :

1. The proposal defines a "projection" as a statement made by a company regarding material future revenues, sales, net income or earnings per share expressed as a specific amount, range of amounts or percentage variation of a specific amount, or a confirmation by a company of any such statement made by another person.

2. Possible liability to investors has been of concern to those who have been or will be associated with forecasts. The proposed safe harbor rules were designed to protect those companies that make a forecast in situations where there is a strong likelihood of a reasonable forecast. Escape from liability will not be dependent upon achieving the forecast but upon meeting several requirements at the time the forecast was made. These requirements are discussed below :

a) The company must have been subject to the Exchange Act for at least three years and have filed all required reports during the prior twelve months. In addition, the company must have prepared budgets for internal use for the last three years. Presumably, the preceding could provide some assurance that the company has had enough experience in reporting publicly

52. Securities and Exchange Commission, Securities Act of 1933, Release No. 5581 and Securities Exchange Act of 1934, Release No. 11374, SEC, Washington, D.C., April 28, 1975.

and in budgeting so that it has a reasonable basis for making public forecasts.

b) The forecast must have been prepared with reasonable care by qualified persons and reviewed and approved by management at the appropriate levels and must have a reasonable factual basis and represent management's good faith judgment.

c) The forecast must state at least sales or revenues, net income and fully diluted earnings per share ; it must express exact amounts, a reasonable variation from an exact amount or a reasonable range of estimates (a 10 percent variation or range not exceeding 10 percent from the midpoint is deemed reasonable) ; it must be limited to the current fiscal year, or if made after the second quarter, to the current fiscal year and up to an additional fiscal year.

d) The forecast must be identified as such and be accompanied by a statement disclosing the material assumptions underlying the forecast, cautioning that no assurance can be given that the forecast will be achieved, and indicating that the forecast is consistent with the accounting principles expected to be used by the company.

e) If the company states that the forecast has been reviewed by an outside party, a statement must be issued disclosing the degree of independence (or lack of independence) that the reviewer possessed and where the reviewer's report on forecast could be obtained. An otherwise independent accountant reviewing the forecast will not be deemed not independent with respect to financial statements of the company.

f) If the reviewer is not independent, the relationship between the company and the reviewer must be disclosed together with the amount of compensation involved as a result of such relationship.

g) If the reviewer furnishes a report to the company, that report must disclose the reviewer's independence and qualifications, the scope of the examination, and a statement that the reviewer is not giving assurance that the forecast will be achieved. In addition, there must be a statement that the forecast was based on assumptions made by the company and is consistent with the accounting principles expected to be used by the company, the assumptions underlying the forecasts are internally consistent, the procedures used by the company to arrive at the forecast are reasonable, and that the procedures have been applied in a consistent manner.

Note that the Commission reversed its stand with respect to the certification or verification of forecasts as stated in the February 1973 statement. In that statement the Commission, however, noted that it would reconsider its position if generally accepted principles or policies concerning such verification were developed. Apparently, the Commission felt that progress had been made toward developing such principles or policies.

3. The forecast must be filed on Form 8-K within ten days of the forecast event. The four events that would initiate the filing of Form 8-K would be the furnishing of a forecast to any individual, revising a forecast, furnishing forecasts to a government agency which has not afforded the forecasts non-public treatment, and determining to cease disclosing or revising forecasts.

4. The proposal requires that a company which made forecasts compare published forecasts and any revisions with actual results in subsequent annual report filed with the Commission on Form 10-K and explain differences of 10 percent or more. The company also must prepare a forecast for the 10-K covering at least the first six months of the subsequent year.

On April 23, 1976, the SEC, recognizing the important legal, disclosure policy, and technical issues raised by the commentators on the above proposals, decided to withdraw the various rule and form proposals relating to forecasts.⁵³ As can be gathered, these proposals would have established an elaborate disclosure system for companies choosing to make public projections.

The Commission, however, indicated that it would not object to including forecasts in filings. Companies can make a forecast without including it in a SEC filing, but the Commission urged them to avoid "selective disclosure"

Because of the diversity of views on the "importance and reliability" of forecasts, the Commission was neither encouraging nor discouraging the making and filing of forecasts. The Commission felt that the issue of forecasts might be among those appropriately considered by the Advisory Committee on Corporate Disclosure. Thus, the Commission wanted to wait for the Advisory Committee's report before it was to take any further steps.

53. Securities and Exchange Commission, Securities Act of 1933, Release No. 5699 and Securities Exchange Act of 1934, Release No. 12371, SEC, Washington, D.C., April 23, 1976.

In addition to permitting optional filing of forecasts, the Commission proposed new guidelines for the voluntary inclusion of forecasts in filings and pointed out that it would follow them until the final guidelines were issued. The proposed guidelines provide that a forecast filed with the SEC must be based on reasonable judgments made in good faith, must be in an appropriate format, and disclosures must be sufficient for a reader to understand the basis for the forecast and its limitations. The proposal would allow, but not require, review of the forecast by a third party.

The proposal does not include the "safe harbor" provisions of the 1975 proposal which were intended to limit legal liabilities for inaccurate forecasts. However, the Commission is of the view that reasonably based and adequately presented forecasts should not subject a company to liability under the federal securities laws, even if the forecasts prove to be in error.

On November 3, 1977, twenty-one months after its formation, the Securities and Exchange Commission Advisory Committee on Corporate Disclosure submitted its final report to the SEC.⁵⁴ This independent body was charged with assessing the effectiveness of the corporate disclosure system in the United States and making recommendations for improvements to the system.

Although the Committee concluded that the basics of the present system should be continued and that major change in the federal securities laws or their administration is not needed, it, however, made a number of recommendations for improvement on a wide range of issues affecting the financial disclosure system.

With respect to projections of future company economic performance, the Committee favored the publication of such projections. Specifically, the Committee pointed out that management forecasts of sales and earnings are of special interest to investors and financial analysts and recommended that the SEC encourage their publication.

The Committee observed that there exists a wide-spread, informal system for communicating information about management projections. While most companies have mixed emotions about discussing their projections, mainly because of credibility and liability reasons, there are some who

54. Report of the Advisory Committee on Corporate Disclosure to the Securities and Exchange Commission, Washington, D.C., Government Printing Office, 1977.

will, at least indirectly, convey their expectations to financial analysts. If the publication of projections becomes more widely accepted, communication among management, analysts and investors regarding management projections can be more direct. In addition, when companies formally publish projections they are likely to exercise greater care in preparing the information, and this would be a benefit to investors.

More specifically, the Committee recommended that the SEC issue a public statement encouraging public companies to disclose projections in their filings with the Commission. These disclosures should be subject only to the conditions that the projections be prepared on a reasonable basis, be disclosed in good faith, and be accompanied by an appropriate statement given recognition to the inherent uncertainty of the projections. The public statement should state the following :

1. Disclosure of major assumptions underlying projections, comparisons of previous projections with actual results, and management analysis of the variance should be encouraged but not required.

2. The items of information to be forecasted, the time period to be covered by the forecast, and the decision to discontinue forecasting should rest within the discretion of management.

3. Third party review of projections should be permitted but not required.

4. Projections previously issued that are still current at the time a registration statement is filed should be required to be included in the registration statement with appropriate updating if necessary.

To further encourage disclosure of projections, the Committee recommended that the Commission adopt a safe-harbor rule. The rule would provide protection from liabilities unless it is proven that the information was prepared without a reasonable basis or was disclosed other than in good faith.

In discussing the reasons why a voluntary projections disclosure program is more appropriate than a mandatory program, the Committee pointed out :

1. A mandatory system would necessitate the formulation of specific disclosure rules and regulations. The Committee is of the opinion that the Commission does not now have an appropriate basis for formula-

tion of such rules and regulations, and that a period of experimentation is warranted.

2. All public companies should not be required to sustain the expense and other burdens that may be associated with a program for the public disclosure of projections...

3. Public companies should not be compelled to expose themselves to the potential risks of liability and litigation for inaccurate projections.

4. Many companies would find it difficult, if not impossible, to prepare reasonable projections due to a lack of operating history, general economic factors or industry conditions.⁵⁵

In response to recommendations made by the Advisory Committee, the SEC issued revised guidelines on November 7, 1978 to encourage companies to issue financial forecasts.⁵⁶ The Commission pointed out that the comments it received on the 1976 proposed guidelines and the Advisory Committee are in agreement with the view that a voluntary projection program is more appropriate than a mandatory program. Accepting that view, the revised guidelines continue to reflect the Commission's position that disclosure of projections be permitted but not required. The guidelines provide that a forecast filed with the SEC must be based on a reasonable basis, be presented in an appropriate format, and disclose sufficient information for the reader to understand the basis for the forecast and its limitations.

The following paragraphs discuss the provisions of the above guidelines.

1. A company wishing to disclose a forecast does not have to meet any requirements pertaining to reporting history or experience in budgeting. The company is free to make a projection as long as it has a reasonable basis for such a projection.

2. Although no specific items are required to be projected, the Commission indicated that traditionally projections have been given for three items generally considered to be of primary interest to investors (sales or revenues, net income and earnings per share). These items usually are presented to-

55. *Ibid.*, p. D-16.

56. Securities and Exchange Commission, Securities Act of 1933, Release No. 5992 and Securities Exchange Act of 1934, Release No. 15305, SEC, Washington, D.C., November 7, 1978.

gether in order to avoid any misleading inferences that may arise when individual items reflect contradictory trends. The Commission, however, recognizes that there may be instances when a company should be given flexibility in determining whether other or additional financial items should also be presented.

3. The period to be covered by the forecast is left to the discretion of management. This option was given in recognition of the many factors that affect the forecasting ability of each company.

4. Projections can be presented as the most probable specific amount or the most reasonable range. However, it was pointed out that ranges should not be so wide as to make a forecast meaningless.

5. Disclosure of the most significant assumptions underlying the forecasts is encouraged but not required. While the Commission believes that disclosure of the underlying assumptions would help investors to better understand the basis for and the limitations of forecasts, it, nevertheless, decided not to require disclosure of the assumptions, in order to make projecting more attractive to companies, until there is more experience with projection disclosure.

6. Companies are not required to update their forecasts, but the Commission reminds companies of their responsibility to make full and prompt disclosure of material facts, both favorable and unfavorable, as they occur.

7. Companies are free to discontinue or resume making projections as long as they have a reasonable basis for such action.

8. Management should consider whether disclosure of the accuracy or inaccuracy of previous forecasts would provide investors with insights into the limitations of forecasts. Analysis of the variances between forecasted and actual results on a continuing basis may highlight for investors the risky areas of a company.

9. Third party review is permitted but not required. If a company decides to include an outside review in an SEC filing, there should also be disclosure of the reviewer's qualifications, the extent of the review, and the relationship between the reviewer and the company.

On the day that the above guidelines were published, the Commission published also a proposed safe-harbor rule for projections whether or not

included in Commission filings.⁵⁷ The purpose of that rule was to further encourage companies to issue forecasts by not subjecting them to liability solely because the forecasts did not materialize. Specifically, the proposed safe-harbor rule (Version "A") provided that :

A statement containing a projection of revenues, income (loss), earnings (loss) per share or other financial items shall be deemed not to be an untrue statement of a material fact, a statement false or misleading with respect to any material fact..., if such statement (1) was prepared with a reasonable basis and (2) was disclosed in good faith.

The above rule was to apply to statements made by or on behalf of a reporting company, other than a registered investment company, provided that the issuer had filed all the material required to be filed.

In addition to the above proposed rule (version "A"), the Commission was requesting comments on an alternative version of the "safe harbor" rule (Version "B") recommended by the Advisory Committee on Corporate Disclosure in its final report. The Advisory Committee's proposed rule stated that :

A statement of a management projection of future company economic performance or a statement of management plans and objectives of future company operations shall be deemed not to be an untrue statement of material fact ; a statement false or misleading with respect to any material fact..., unless such information: (1) was prepared without a reasonable basis ; or (2) was disclosed other than in good faith.

The two rules differ from each other in a number of points. The most important of these points are discussed below :

The proposed rule (Version "A") applies only to statements made by reporting companies, other than registered investment companies, whereas the Advisory Committee's rule is not so limited.

The proposed rule relates only to projections of revenues, income (loss), earnings (loss) per share or other financial items. The Advisory Committee's rule provides protection for a wider variety of forward looking information.

57. Securities and Exchange Commission, Securities Act of 1933, Release No. 5993 and Securities Exchange Act of 1934, Release No. 15306, SEC, Washington, D.C., November 7, 1978.

The Commission's proposed rule places the burden of proof on the defendant to prove that a forecast was prepared with a reasonable basis and was disclosed in a good faith. The Advisory Committee's rule casts the burden of proof on the plaintiff to establish that the projection did not have a reasonable basis or was not made in good faith.

After considering the comments it received on the above two alternative rules, the Commission adopted a final safe-harbor rule on June 25, 1979 to encourage the disclosure of projections and other forward looking information.⁵⁸

The provisions of that rule, which incorporates elements of both alternatives proposed for comments, are discussed below :

1. Statements containing or relating to a) projections of revenues, income (loss), earnings (loss) per share, capital expenditures, dividends, capital structure or other financial items, b) management's plans and objectives for future company operations, c) future economic performance included in management's discussion and analysis of the summary of earnings or quarterly income statements, and d) disclosed assumptions underlying or relating to these statements would be deemed not to be false or misleading under the federal securities laws unless it is shown that such statements were made or reaffirmed without a reasonable basis or were disclosed other than in good faith.

2. Statements made by or on behalf of an issuer or by an outside reviewer hired by the issuer are protected by the rule.

3. The safe-harbor rule applies to reporting companies, other than registered investment companies, provided that they have filed their most recent annual report on Form 10-K. Non-reporting companies that include forward-looking statements in registration statements filed under the Securities Act are protected by the rule.

4. The rule covers statements made in filings with the Commission or in annual reports to shareholders. Statements made outside of these documents are covered by the rule only if these statements are reaffirmed in a filed document or annual report made publicly available within a reasonable time after the making of such statements.

58. Securities and Exchange Commission, Securities Act of 1933, Release No 6084 and Securities Exchange Act of 1934. Release No. 45944, SEC, Washington, D.C., June 25, 1979.

CONCLUSIONS

This study discussed a number of issues surrounding the publication of management forecasts. The issue of disclosure of financial forecasts has been actively debated for almost a decade. This is an important issue that affects the entire financial community and the public in general.

The views expressed by a number of authoritative bodies and writers indicate that the benefits from formally issuing financial forecasts outweigh the cost of generating them. This, however, remains an open question until forecasts are attempted and a cost/benefit analysis is performed.

Companies, in general, are reluctant in formally issuing financial forecasts. To a degree, this reluctance is justifiable considering the problems involved, but it is important to realize that the problems could be resolved and a general acceptability of publishing financial forecasts could be achieved.

The three documents issued by the AICPA, and the SEC's guidelines and safe-harbor rule have given answers to a number of questions and it seems that the stage is set for expanded experimentation. The message that comes out of the SEC's guides and the safe-harbor rule is the desire of the Commission to give companies the necessary time and flexibility to meet the need for the publication of forecasts.

In particular, companies sensitive to the needs of the investing public and committed to the idea that all information should be available on an equitable basis to all investors should lead the way to a regular and even dissemination of corporate expectations. In this respect, these companies should have the support of the SEC and the accounting profession if they are to succeed. Unwillingness to meet the challenge would, in the long run, be against the best interest of the companies involved and the public in general. The call of the present time is for the disclosure of more relevant information for investment decisions. Undoubtedly, financial forecasts meet the criterion of relevance.

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ΑΙΤΙΟΠΑΘΟΓΕΝΕΙΑ ΤΟΥ ΣΥΓΓΕΝΟΥΣ ΕΞΑΡΘΡΗΜΑΤΟΣ ΤΟΥ ΙΣΧΙΟΥ

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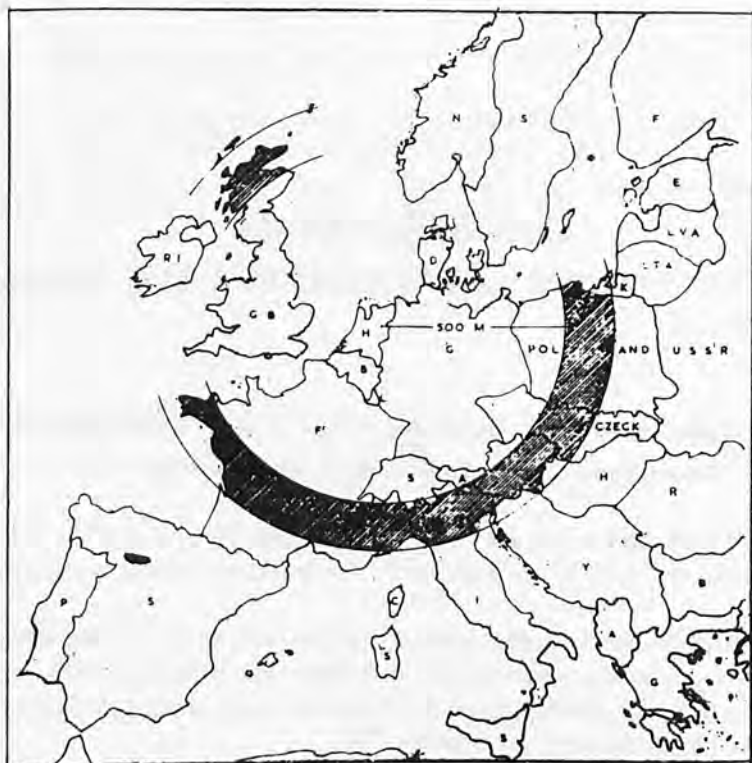
Ιατρική Σχολή Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης

Συγγενές εξάρθρωμα του ισχίου καλείται ή παθολογική κατάσταση κατά την οποία ή κεφαλή του ενός ή και άμφοτέρων των μηριαίων όστων είναι συγγενώς έξηρθρωμένα.

Η συχνότης έμφανίσεως της παθολογικής ταύτης καταστάσεως κυμαίνεται από 4 έως 11 % κατά τον τοκετόν, ενώ ή διαπίστωση υπάρξεως ενός χαλαρού ή «άπεξαρθρώσιμου» ισχίου άνέρχεται από 8 έως 20 %, κατά την εξέταση των νεογνών (Barlow 1968, Smaill 1968, Thieme 1968).

Η ύψηλή αυτή άναλογία εύρίσκεται εις σαφή δυσαρμονίαν με τα άποτελέσματα έτέρων παλαιότερων έρευνητών, όπως του Severin (1956), του Record και συν. (1958) και άλλων, οί όποιοί μόλις άναβιάζουν τό ποσοστόν της συχνότητος εις 1 %. Τούτο κατά τον Barlow (1962) όφείλεται εις τό ότι τά περιστατικά των όποιων τό ισχίον έχαρακτηρίσθη ως «χαλαρόν» κατά τον τοκετόν, καθώς και ένας μεγάλος αριθμός εκείνων των όποιων τό ισχίον έχαρακτηρίσθη έξηρθρωμένον συγγενώς άποκαθίστανται ίώμενα άυτομάτως έντός της πρώτης έβδομάδος της ζωής των. Κατά συνέπειαν ή διαφορά, κατά τον ίδιον έρευνητήν, εις την ποσοστιαίαν άναλογίαν μεταξύ των νεωτέρων και παλαιότερων έρευνητών, όφείλεται εις τό ότι οί νεότεροι άναφέρονται εις άρτιγέννητα γεωγνά ενώ οί δεύτεροι εις μεγαλύτεραν ηλικίαν. Ένας παράγων ό όποίος φαίνεται νά έχη σχέσιν με την συχνότητα έμφανίσεως της παθήσεως, είναι ή φυλή και τά έθιμα. Ούτω, ό Strange (1965) με βάση την ηύξημένην συχνότητα έμφανίσεως της παθήσεως εις ώρισμένας περιοχάς της Εύρώπης, διεπίστωσεν και άπεικόνισεν επί χάρτου, κυκλικήν ζώνην ίκανού και σταθερού πλάτους ή όποία καθορίζει και γεωγραφικώς τον ένδημικόν χαρακτήρα της παθήσεως (Εικών 1).

Ένας άλλος παράγων ό όποίος πρέπει νά τονισθί έξ άρχής είναι τό φύλον. Η σχέσις συχνότητος μεταξύ άρρένων και θηλέων κυμαίνεται από 1:4 έως 1:5



Εικόνα 1.— 'Επί Γεωγραφικού Χάρτου άπεικόνισης κυκλικής ζώνης σταθεροῦ πλάτους ἢ ὅποια καθορίζει καὶ γεωγραφικῶς τὸν ἐνδημικὸν χαρακτῆρα τοῦ Σ.Ε.Ι. (Strange 1965).

εἰς βάρος τῶν θηλέων, τὸ δὲ συχνότερον καὶ βαρύτερον προσβαλλόμενον ἰσχίον εἶναι τὸ ἀριστερόν (Shargard 1971).

Ἡ Αἰτιολογία καὶ ἡ Παθογένεια τῆς παθήσεως ἦσαν καὶ εἶναι συγκεχυμένοι καὶ σήμερον εἰσέτι, προφανῶς διότι οἱ παράγοντες, οἱ ὅποιοι συμμετέχουν εἰς τὴν δημιουργίαν τοῦ συγγενοῦς ἐξαρθρήματος τοῦ ἰσχίου εἶναι πολλαπλοὶ καὶ δὲν ἔχουν διευκρινισθῆ πλήρως.

Κατὰ τὴν ἀνασκόπησιν τῆς Ἑλληνικῆς καὶ Διεθνoῦς βιβλιογραφίας, διαπιστώσαμε τὴν ὑπαρξὴ διαφόρων αἰτίων, ἐν ἑκάστον τῶν ὁποίων κατὰ τοὺς διαφόρους συγγραφεῖς διαδραματίζει καὶ ἕναν κύριον γενεσιουργὸν ρόλον.

Πρὶν προχωρήσωμεν εἰς τὴν ἀναφορὰν τῶν διαφόρων αὐτῶν ἀπόψεων, εἶναι σκόπιμον νὰ ἀναφερθῶμεν εἰς τὴν διάπλασιν τῆς κατ' ἰσχίον διαρθρώσεως ὡς καὶ εἰς τὴν ἐνδεχομένην ἐπίδρασιν διαφόρων παραγόντων, ὡς λόγου χάριν τῶν «σκιρτημάτων» τοῦ ἔμβρυου, καθὼς καὶ τῶν ἀνατομικῶν ἐκεῖνων στοιχείων, τὰ ὅποια κατὰ τὴν ἔμβρυϊκὴν ζωὴν ἐξασφαλίζουν τὴν σταθερότητα τῆς κατ'

ισχίον άρθρωσης. Είναι χαρακτηριστικόν τὸ γεγονός, ὅτι ἡ συχνότερον προσβαλλομένη άρθρωσις κατὰ τὴν ἐμβρυϊκὴν ζωὴν, εἶναι ἡ κατ' ἰσχίον άρθρωσις ἢ ὅποια ἐπὶ τοῦ ἀνθρώπου εἶναι ἡ πλέον σταθερά.

Η ΔΙΑΠΛΑΣΙΣ ΤΗΣ ΚΑΤ' ΙΣΧΙΟΝ ΔΙΑΡΘΡΩΣΕΩΣ

Κατὰ τὸν Badgley (1949) αὕτη διαπλάσσεται ἐκ τοῦ μέσου βλαστικοῦ δέρματος. Κατὰ τὴν 6ην μὲ 7ην ἐμβρυϊκὴν ἐβδομάδα εἰς τὴν περιοχὴν τοῦ βλαστήματος, ὅπου πρόκειται μελλοντικῶς νὰ ἀναπτυχθῇ ἡ κατ' ἰσχίον άρθρωσις, παρατηρεῖται μείωσις τῆς πυκνότητος τῶν μεσεγγιματικῶν κυττάρων, τὰ ὅποια προοδευτικῶς δημιουργοῦν τοξοειδῆς ἔπαρμα ὑπὸ μορφήν ἰχθύος τόξου 65⁰ ἕως 75⁰. Μεταξὺ τῆς 7ης καὶ 8ης ἐμβρυϊκῆς ἐβδομάδος, ἄρχεται ἡ διάπλασις τοῦ στρογγύλου συνδέσμου, τοῦ ἀρθρικοῦ θυλάκου ὡς καὶ τῶν λοιπῶν συνδέσμων. Κατὰ τὴν 9ην ἐμβρυϊκὴν ἐβδομάδα διαπλάσσεται ἡ ἀρθρική κοιλότης, ἡ δὲ μηριαία κεφαλὴ καὶ ἡ κοτύλη ἐμφανίζονται ταυτοχρόνως, ὑπὸ τὴν ἐμβρυϊκὴν τῶν μορφῶν.

Ὁ Gordon (1961) κατόπιν παρατηρήσεων ἐπὶ τῆς διαπλάσεως τῶν κατ' ἰσχίον διαρθρώσεων ἐμβρύων ἡλικίας 10 ἐβδομάδων ἕως 6 μηνῶν, διεπίστωσεν, ὅτι ἡ κάλυψις τῆς μηριαίας κεφαλῆς τῆς κοτύλης κατὰ τὴν ἐμβρυϊκὴν ζωὴν δὲν εἶναι ἱκανοποιητικὴ (Εἰκῶν 2).

Ἡ ἀνάπτυξις τοῦ anteversión τοῦ μηριαίου ἀχένου, ὡς περιγράφεται ὑπὸ τοῦ Badgley (1949) κατὰ τὴν ἐμβρυϊκὴν περίοδον, ἐμφανίζει τὰς ἑξῆς διαφοροποιήσεις :

Ἀρχικῶς, καὶ ἐπὶ ἐμβρύου ἡλικίας 10 ἐβδομάδων, τοῦτο ἔχει τιμὴν 0⁰. Ἀκολουθῶς αὐξάνει προοδευτικῶς καὶ ταχέως ἀνερχόμενον εἰς 65⁰, ἐν συνεχείᾳ δὲ μειοῦται καὶ καταλήγει κατὰ τὴν γέννησιν εἰς τὰς 10⁰ περίπου.

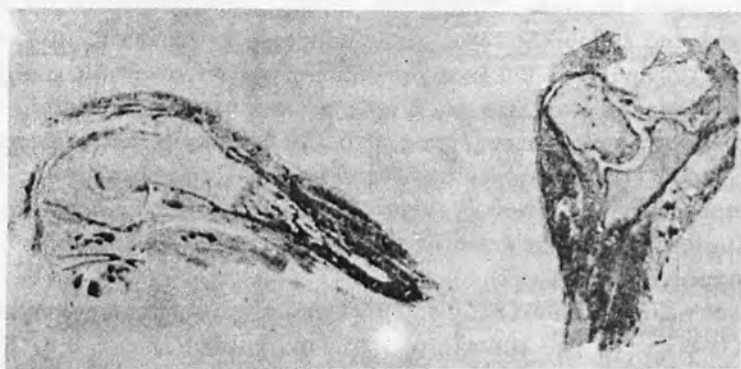
Ἡ διασφάλισις τῆς φυσιολογικῆς ἀναπτύξεως τῆς ἀρθρώσεως, ἐξασφαλίζεται ὑπὸ τοῦ ὑοειδοῦς συνδέσμου, ὁ ὅποιος ἔχει ἤδη διαπλασθῆ κατὰ τὴν 9ην μὲ 10ην ἐμβρυϊκὴν ἐβδομάδα. Ὁ σύνδεσμος τοῦτος, προσφύεται, εἰς τὴν προσθίαν κάτω λαγόνιον ἄκανθα καὶ εἰς τὴν μεσο τροχαντήριον γραμμὴν (Εἰκῶν 3).

Τὸ ἄνω τμήμα τοῦ συνδέσμου τοῦτου, ἐξασφαλίζει σταθερὰν αὐγκράτησιν τῆς ἀρθρώσεως, δταν τὰ ἰσχία εὐρίσκονται εἰς θέσιν κάμψεως, ἀπαγωγῆς καὶ ἔξω στροφῆς. Τὸ κάτω τμήμα τοῦτου ἀντιθέτως, συγκρατεῖ τὴν ἀρθρωσιν σταθερὰν στρέφων τὰ κάτω ἄκρα εἰς ἔσω στροφὴν, ὅταν ταῦτα εὐρίσκονται εἰς θέσιν ἐκτάσεως. Ὁ στρογγύλος σύνδεσμος δὲν διαδραματίζει συγκρατητικὸν ρόλον εἰς τὴν ἀρθρωσιν. Ἐπὶ ἐκτομῆς τῶν συνδέσμων καὶ τοῦ ἀρθρικοῦ θυλάκου, ἡ μηριαία κεφαλὴ ἀπεξαρθροῦται εὐκόλως, παρὰ τὴν ἀκεραιότητα τοῦ στρογγύλου συνδέσμου (Εἰκῶν 4).

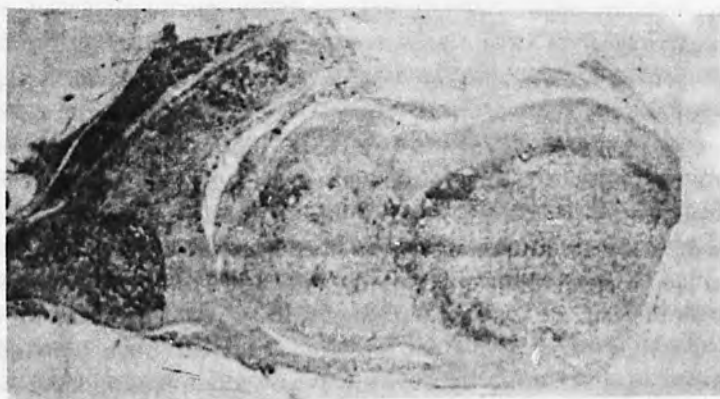
Πέραν τῶν ἀνατομικῶν παραγόντων, θεωροῦμεν σκόπιμον νὰ ἀναφερθῶμεν καὶ εἰς τοὺς δυναμικοὺς παράγοντες, οἱ ὅποιοι ὑπὸ μορφήν μυϊκῶν συσπάσεων



Α. Έμβρυο 1 - 2 εβδομάδων



Β. Έμβρυο 2 - 3 1/2 εβδομάδων



Γ. Έμβρυο 4 μηνών

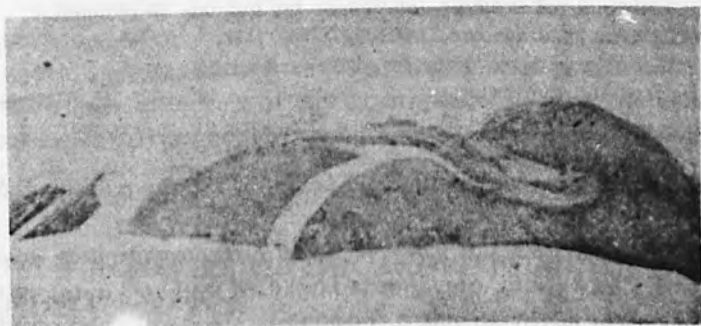
Εικών 2.— Στάδια της διαπλάσεως των κατ' ισχίον διαρθρώσεων εμβρύων ηλικίας 10 εβδομάδων έως 6 μηνών. Διαπιστώνεται, ότι η κάλυψις της μηριαίας κεφαλής υπό της κοτύλης δέν είναι ικανοποιητική κατά την ενδομήτριον ζωήν. (Gordon 1961).

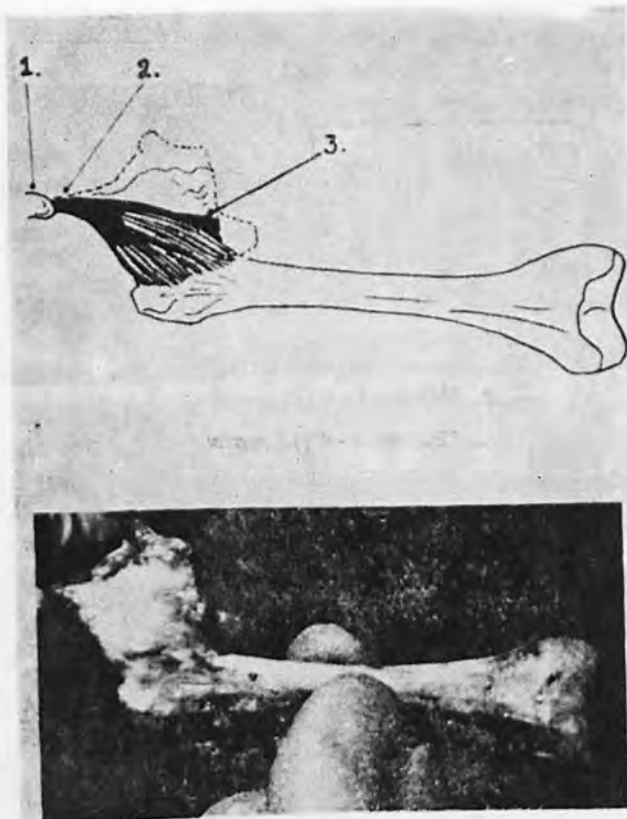


Δ. Έμβρυο 4 - 4 1/2 μηνών



Ε, ΣΤ. Έμβρυο 6 μηνών





Εικών 3 Α.— Σχηματική απεικόνισις τοῦ ἰοειδοῦς συνδέσμου ὁ ὅποιος διασφαλίζει τὴν φυσιολογικὴν ἀνάπτυξιν τῆς κατ' ἰσχίον ἀρθρώσεως (ἐπὶ ἐμβρύου 10 ἐβδομάδων).

(Β). Παρασκευάσμα τοῦ ἰοειδοῦς συνδέσμου ἐπὶ ἐμβρύου 10 ἐβδομάδων.

- 1 = Προσθία ἄνω λαγόνιος ἄκανθα
- 2 = Προσθία κάτω λαγόνιος ἄκανθα
- 3. = Ἰοειδῆς σύνδεσμος

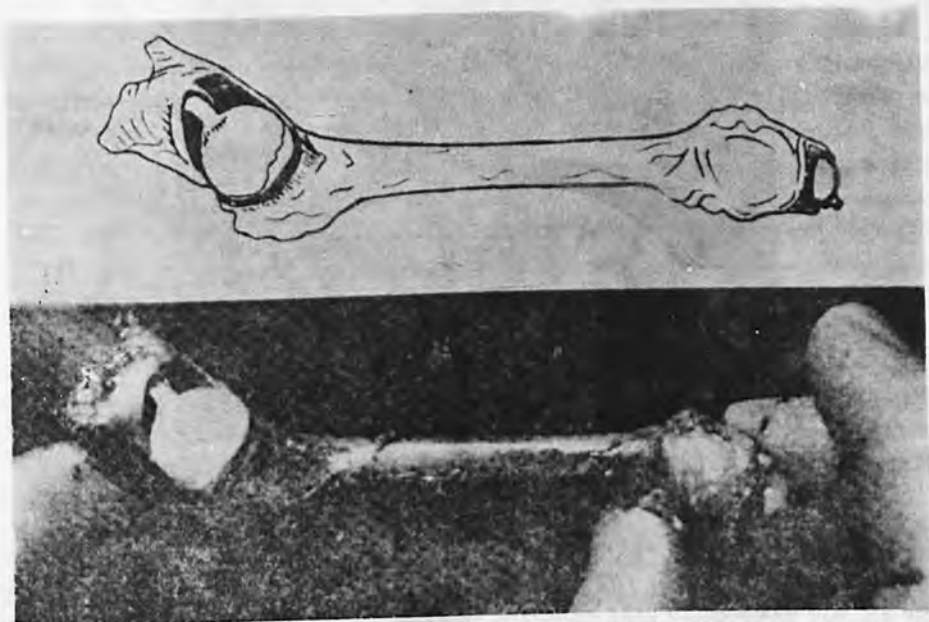
καὶ κινήσεων, πρέπει ἕως ἑναν βαθμὸν νὰ ἐπιδροῦν εἰς τὴν ὁμαλὴν ἀνάπτυξιν τῶν ἀρθρώσεων.

Κατὰ τὸν Hooker (1952) αἱ κινήσεις αὗται διέπονται ἐκ μιᾶς συγκεκριμένης διαδοχικότητος. Ἐὰν καὶ δι' οἰονδήποτε λόγον, αἱ κινήσεις αὗται τροποποιηθοῦν ἢ ἐξ ἀρχῆς δὲν εἶναι κανονικαί, εἰς ὅ,τι ἀφορᾷ τὸ εἶδος καὶ τὴν ἑκτασίαν των, τότε ἡ διαφοροποίησις αὕτη προδιαθέτει ἢ καὶ ὀδηγεῖ εἰσέτι εἰς παραμορφώσεις ἢ ἐπισημαίνει τὴν ὑπαρξιν ἐτέρων βλαβῶν.

Ἡ ἔναρξις τῶν κινήσεων τούτων χρονικῶς, τοποθετεῖται μεταξὺ τῆς 9ης καὶ 12ης ἐμβρυϊκῆς ἐβδομάδος, διαπιστοῦται δὲ ὑπὸ μορφήν «σκιρτημάτων» τοῦ ἐμ-

βρύου. Κατά τὰς ἐν λόγῳ κινήσεις, ἐκτείνεται ἀρχικῶς ἡ ὀσφυϊκὴ μοῖρα τῆς σπονδυλικῆς στήλης, ἀκολουθῶς δὲ καὶ μὲ τὴν ἀνάπτυξιν τοῦ ἐμβρύου, διαπιστοῦνται καὶ ἐκτάσεις τῶν ἄνω καὶ κάτω ἄκρων.

Ἀπὸ τῆς 12ης ἐμβρυϊκῆς ἐβδομάδος τὰ ἄκρα κινουῦνται ἀνεξαρτήτως τὸ ἐν



Εἰκὼν 4.— Σχηματικὸ καὶ ἀνατομικὸ παρασκευάσμα τῆς κατ' ἰσχίον ἀρθρώσεως, εἰς τὸ ὁποῖον ἐγένετο διατομὴ τῶν συνδέσμων καὶ τοῦ ἀρθρικοῦ θυλάκου.

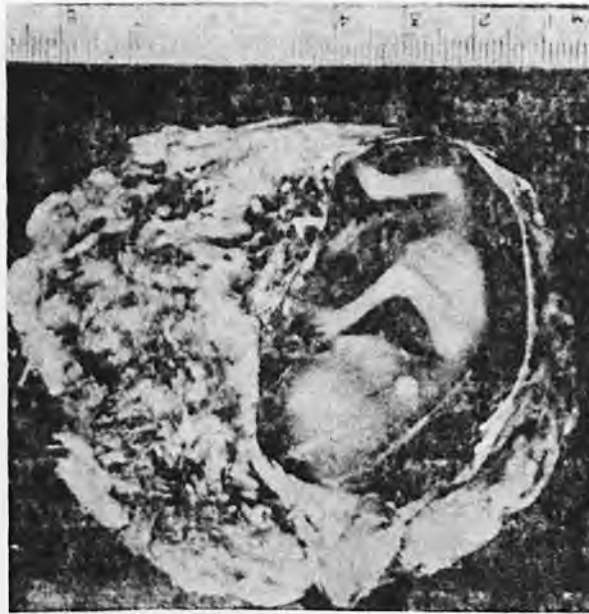
Ἡ μηριαία κεφαλὴ ἀπεξαρθεύεται εὐκόλως, παρὰ τὴν ἀκεραιότητα τοῦ στρογγύλου συνδέσμου.

τοῦ ἐτέρου, καμπτόμενα καὶ ἐκτεινόμενα (Εἰκὼν 5). Μετὰ τῆς ἀναπτύξεως τοῦ ἐμβρύου, αἱ κινήσεις γίνονται ἐντονώτεραι καὶ ἀνεξάρτητοι μεταξύ των. Πρόκειται περὶ ἀντανεκλαστικῶν κινήσεων αἱ ὁποῖαι ἐπηρεάζονται ἀπὸ τὴν ἐπίδρασιν τῆς βαρύτητος καὶ ἔνεκα τούτου κυρίως τροποιοῦνται ὅταν διαφοροποιηθῇ ἡ θέσις τοῦ ἐμβρύου ἐντὸς τῆς μήτρας.

ΠΑΡΑΓΟΝΤΕΣ ΕΠΙΔΡΩΝΤΕΣ ΕΙΣ ΤΗΝ ΔΗΜΙΟΥΡΓΙΑΝ ΤΟΥ ΣΥΓΓΕΝΟΥΣ ΕΞΑΡΘΗΜΑΤΟΣ ΙΣΧΙΟΥ

1) Κληρονομικότης

Εἶναι γεγονός ἀναμφισβήτητον, ὅτι ἡ κληρονομικότης διαδραματίζει ρόλον



Εικών 5.— Έμβρυο 12 εβδομάδων.

Τά άκρα κινούνται ανεξαρτήτως τὸ ἓν τοῦ ἑτέρου, καμπτόμενα καὶ ἔκτεινόμενα.

εἰς τὴν δημιουργίαν τῆς παθήσεως. Εἶναι γνώστον, ὅτι τὰ θήλεα τέκνα πασχουσῶν μητέρων, ἐμφανίζουν τὴν πάθησιν εἰς δεκαπλασίαν συχνότητα ἀπὸ τὴν γνωστήν εἰς τὸν πληθυσμὸν μιᾶς περιοχῆς συχνότητα τοῦ συγγενοῦς ἑξαρθρήματος τοῦ Ισχιῦ. (Muller & Seddon 1963). Σκόπιμον προσέτι εἶναι νὰ τονισθῆ τὸ γεγονός, ὅτι ἡ κληρονομικότης δὲν ἀκολουθεῖ τοὺς νόμους τοῦ Mendel (Strange 1965). Ἐπὶ μονωογενῶν διδύμων, ἡ πιθανότης ἐμφανίσεως τῆς παθήσεως εἰς ἀμφοτέρα, ἀνέρχεται εἰς ποσοστὸν 4 %, ἐνῶ ἐπὶ διωογενῶν εἰς 3 % (Sharrard 1971).

Ἡ Wynne καὶ Davies (1970), ἐμελέτησαν τὴν ἐλαστικότητα τῶν ἀρθρώσεων, τόσον τῶν πασχόντων, ὅσον καὶ τῶν μελῶν τῆς ἰδίας οἰκογενείας καὶ διεπίστωσαν, ὅτι ἡ ἐλαστικότης τῶν ἀρθρώσεων τῶν ἀτόμων τούτων εἶναι ἰδιαιτέρως ἠϋξημένη, κληρονομουμένη δὲ ἀποτελεῖ οὐσιώδη παράγοντα εἰς τὴν δημιουργίαν τῆς παθήσεως. Τὸ ἠϋξημένον ἐπίσης ποσοστὸν ἐμφανίσεως τῆς παθήσεως εἰς ὠρισμένας γεωγραφικὰς περιοχάς, τονίζει καὶ πάλιν τὸν ρόλον τοῦ κληρονομικοῦ παύοντα εἰς τὴν αἰτιολογίαν καὶ παθογένειαν τῆς παθήσεως.

2) Τοξικοὶ παράγοντες

Ὁ Gill (1948) διετυπώσε τὴν ἄποψιν, ὅτι τοξικοὶ παράγοντες ἐπιδρῶν εἰς τὸ ἔμβρυον καὶ προκαλοῦν διαφόρους συγγενεῖς ἀνωμαλίας, ὡς λόγου χάριν ἡ θαλιδομίδη κατὰ τὸ παρελθὸν ἢ λοιμῶδεις παθήσεις τῆς ἐγκύου.

3) Μηχανικοί παράγοντες

Μηχανικοί παράγοντες προσέτι διαδραματίζουν ηύξημένον ρόλον εις τήν δημιουργίαν τής παθήσεως. 'Ο πλέον θερμός ύποστηρικτής τής θεωρίας ταύτης ύπήρξε ό Denis Brown (1948) ό όποίος ήρμήνευσε τήν δημιουργίαν τής παθήσεως κατά τόν έξής μηχανισμόν : 'Όταν ή θέσις του έμβρύου έντός τής μήτρας είναι ή γονατομετωπιαία (γεφυρική), αί άσκούμεναι πιέσεις επί τών γονάτων μεταβιάζονται εις τās κατ' ίσχιόν διαρθρώσεις, με άποτέλεσμα τήν δημιουργίαν, σүн τή παρόδω του χρόνου, έξαρθήματος. Τό γεγονός τής ανατάξεως του έξαρθήματος κατ' άντίθετον μηχανισμόν από εκείνον τής γενέσεώς του, ίσχυροποίησε τήν πεποιθήσιν του έρευνητου, διά τό όρθόν τής θεωρίας του. 'Η άποψις αύτη, δίδει τήν έντύπωσιν τραυματικού έξαρθήματος, τό όποιον δύναται νά συμβή κατά τήν διάρκειαν του τοκετου κατά τόν Strange (1965) και ίδια κατά τήν διάρκειαν του έξελκυσμου επί ίσχιακής προβολής, ύτε ό μαιεύτηρ έλκει ίσχυρώς τό έμβρυον εκ τών ποδών.

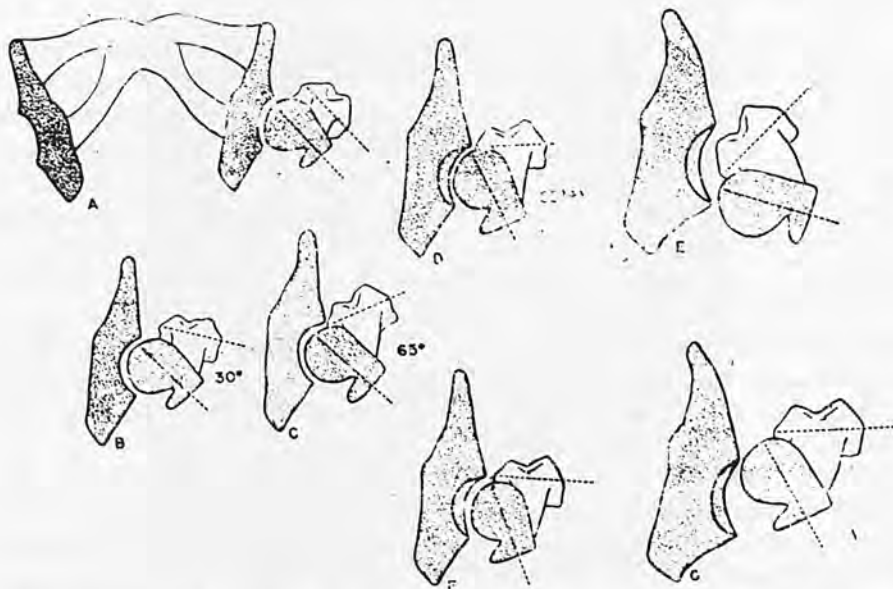
Λόγω τής ίσχυροτάτης έλξεως, δυνατόν νά δημιουργηθή τραυματικόν έξάρθρημα ή και έπιφυσιολύσεις. Είναι άναμφισβήτητον βεβαίως τό γεγονός, ότι ή ίσχιακή προβολή διαδραματίζει ρόλον εις τήν δημιουργίαν του έξαρθήματος. Τούτο έπιβεβαιούται και εκ του γεγονότος, ότι ή συχνότης έμφανίσεως τής παθήσεως επί νεογνών γεννηθέντων δι' ίσχιακής προβολής, είναι δεκάκις μεγαλύτερον τών ύπολοίπων, τών γεννηθέντων με κεφαλικήν προβολήν.

Εις τό πλαίσιον τής μηχανικής θεωρίας έντάσσεται μία παλαιά έδιαφέρουσα άποψις, ή όποία διετυπώθη ύπό του Stager (1943). Ούτος ύπεστήριξε, ότι κατά τήν 9ην έμβρυϊκήν εβδομάδα, κατά τήν όποίαν διαπλάσσεται ή άρθρική κοιλότης, είναι δυνατόν νά προηγηθή χρονικώς ή έναρξις τών μυϊκών συσπάσεων (σκιρτημάτων) τής δημιουργίας τής άρθρικής κοιλότητος. 'Ως εκ τούτου είναι δυνατόν νά άλλοιωθούν αί σχέσεις εις τήν ύπό διάπλασιν άρθρωσιν, με άποτέλεσμα τήν δημιουργίαν έξαρθήματος.

Τέλος, τά εύρήματα εκ διαφόρων ήλικιών έμβρύων νεκροτομηθέντων ύπό του Bagdley (1949) επέτρεψαν τήν διατύπωσιν ύπ' αύτου έτέρας έρμηνείας του φαινομένου. Ούτος διεπίστωσε ότι τό anteversión του μηριαίου αυχένος έχει μηδενικήν τιμήν επί έμβρύων ήλικίας 10 εβδομάδων. 'Ακολούθως, μετά τής αναπτύξεως του έμβρύου, άνέρχεται εις 65° έν συνεχεία δε φθίνει ώστε, κατά τόν τοκετόν νά κυμαίνεται περι τās 100° επί τής φυσιολογικής κατ' ίσχιόν άρθρώσεως (Εικών 6). 'Εάν ή ηύξημένη τιμή του anteversión παραμένει, τότε εύνοείται ή δημιουργία έξαρθήματος τής κατ' ίσχιόν άρθρώσεως.

4) Δυσπλασία κοτύλης

'Η δυσπλασία τής κοτύλης ως αίτιον δημιουργίας έξαρθήματος διε-



Εικών 6 — Σχηματική παράσταση δεικνύουσα τὰς μεταβολὰς τοῦ anteversion τοῦ μηριαίου αὐχένου μετὰ τῆς ἀναπτύξεως τοῦ ἐμβρύου.

Ἐπί παραμονῆς ἠδὲ μὲν τιμῆς τοῦ anteversion, εὐνοεῖται ἡ δημιουργία ἐξarthρώματος τῆς κατ' ἰσχίον ἀρθρώσεως (Bagdley 1949).

τυπωθῆ ἀρχικῶς ὑπὸ τοῦ Putti (1932) καὶ εὗρεν κατὰ καιροὺς ὑποστηρικτὰς. Ὁ Hass (1951) ὑπεστήριξεν, ὅτι ἡ ὑποπλαστικὴ κοτύλη δύναται νὰ ὀδηγήσῃ εἰς δημιουργίαν ἐξarthρώματος. Τίθεται ὁμῶς τὸ ἐρώτημα, πῶς εἶναι δυνατόν νὰ διαπιστωθῆ ἐὰν πράγματι μία κοτύλη εἶναι ὑποπλαστικὴ (ἀβαθῆς), διὰ τῆς ἀκτινολογικῆς καὶ μόνον μελέτης τοῦ νεογνοῦ. Καὶ τοῦτο, ὡς γνωστόν, διότι δὲν διαγράφεται ἀκτινολογικῶς τὸ χόνδρινον τμῆμα τῆς κοτύλης τὸ ὁποῖον διαπιστοῦται ἀρκετὰ διάφορο κατὰ τὴν ἐγχείρησιν. Εἶναι σκόπιμον νὰ ἀναφερθῶμεν καὶ πάλιν εἰς τὰ ἀποτελέσματα τῆς μελέτης τοῦ Gordon (1961) ἐπὶ ἐμβρύων διαφόρων ἡλικιών, ὁ ὁποῖος διεπίστωσεν, ὅτι ἡ κάλυψις τῆς μηριαίας κεφαλῆς ὑπὸ τῆς κοτύλης κατὰ τὴν ἐμβρυϊκὴν περίοδον δὲν εἶναι ἱκανοποιητικὴ.

5) Μία ἑτέρα ἐνδιαφέρουσα ἀποψις εἶναι ἐκείνη τῶν Von Rosen καὶ Lars Andren (1952) ἡ ὁποία καὶ ἐδημιούργησεν νέας προοπτικὰς διὰ τὴν ἐρμηνείαν τῆς αἰτιολογίας καὶ παθογένειας τῆς παθήσεως. Ὑπ' αὐτῶν διεπιστώθη ἡ ὑπαρξίς ὑπερμέτρου ἐλαστικότητος τῶν ἀρθρώσεων τῶν νεογνῶν, εἰς τὰ ὅποια διεπιστοῦτο ἡ ὑπαρξίς συγγενοῦς ἐξarthρώματος. Τὴν ὑπερελαστικότητα δὲ ταύτην, ἐπέτυχον ἐμμέσως νὰ ἀποδείξουν καὶ ἀκτινολογικῶς, ἐπὶ τῆς ἡβικῆς συμφύσεως

τῶν νεογνῶν, ἐπὶ τῶν ὁποίων διὰ χειρισμῶν διεπίστωσαν ὅτι τὸ εὐρος ταύτης ἐπὶ τῶν πασχόντων, καθίσταται διπλάσιον ἀπὸ τὸ ἀνάλογον εὐρος ἐπὶ μὴ πασχόντων (τὰ ὁποῖα ἐχρησιμοποιοῦν ὡς μάρτυρες). Κατὰ τοὺς ἰδίους ἐρευνητὰς ἡ δρᾶσις τῶν οἰστρογόνων ὁρμονῶν εἶναι ὑπεύθυνος διὰ τὴν δημιουργίαν ὑπεμέτρου ἐλαστικότητος τῶν ἀρθρώσεων καὶ τοῦτο λόγῳ δράσεως τῶν ὁρμονῶν ἐπὶ τῶν συνδέσμων καὶ τοῦ ἀρθρικοῦ θυλάκου. Ἡ «χάλασις» αὕτη τῶν ἀρθρώσεων καὶ ἰδία τῆς λεκάνης, ἡ ὁποία συμβαίνει κατὰ τὴν τελευταίαν περίοδον τῆς ἐγκυμοσύνης, προορίζεται διὰ τὴν διευκόλυνσιν τοῦ τοκετοῦ, ἐνῶ παραλλήλως τὰ οἰστρογόνα ἐπιδροῦν καὶ ἐπὶ τοῦ κυήματος.

Ὁ Borgline (1963) ἐμελέτησεν τὰς τιμὰς τῶν οἰστρογόνων (οἰστριόλης καὶ οἰστραδιόλης 17) εἰς τὰ οὖρα τῶν πασχόντων νεογνῶν, κατὰ τὴν διάρκειαν τῶν τριῶν πρώτων ἡμερῶν τῆς ζωῆς των καὶ διεπίστωσαν, ὅτι ἡ τιμὴ των εἶναι τουλάχιστον τριπλασία ἐκείνης τῶν μὴ πασχόντων, γεγονός τὸ ὁποῖον δὲν διεπιστώθη ὑπὸ τοῦ Thieme καὶ τῶν συνεργατῶν του (1968).

Ὁ Barlow (1963) μελετῶντας τὴν συχνότητα τῆς παθήσεως ἐπὶ τῶν πρώτων νεογνῶν, διεπίστωσεν, ὅτι ἡ σχέσις συχνότητος μεταξὺ ἀρρένων καὶ θηλέων, κατέρχεται ἀπὸ 1/5 εἰς 1/1 περίπου, γεγονός τὸ ὁποῖον ἐνισχύει τὴν ὁρμονικὴν θεωρίαν. Ἀντιθέτως δὲν διεπιστώθη διαφορὰ συχνότητος τῆς παθήσεως μεταξὺ νεογνῶν τὰ ὁποῖα ἐγεννήθησαν φυσιολογικῶς καὶ ἐκείνων μετὰ καισαρικὴν τομήν.

ΣΥΜΠΕΡΑΣΜΑΤΑ

Μνημονεύοντας ὅλας τὰς προαναφερθείσας ἀποψεις, δὲν εἶναι εὐκόλον νὰ λεχθῆ, ὅτι διευκολύνεται τοιουτοτρόπως ἡ αἰτιολογία καὶ παθογένεια τῆς παθήσεως. Ἐν τούτοις, ὁ συνδυασμὸς τῶν διαφορῶν τούτων ἀπόψεων ἐντὸς τῶν ὁρίων τοῦ ἐπιτρεπτοῦ, μᾶς ἐπιτρέπει τὴν ἐξαγωγήν συμπερασμάτων.

Ἀρχικῶς, θὰ πρέπει νὰ δεχθῶμεν ὅτι, εἰς ἓν ποσοστὸν τῶν περιπτώσεων, ὁ αἰτιολογικὸς παράγων εἶναι ἡ κληρονομικότης καὶ ἐνταῦθα πρόκειται διὰ μίαν μορφήν τερατογενέσεως. Ἡ ἀποψις αὕτη ὑπεστηρίχθη ἀρχικῶς ὑπὸ τοῦ Putti (1932) καὶ ἐν συνεχείᾳ ὑπὸ πλήθους ἐτέρων ἐρευνητῶν ὡς τοῦ Strange (1965), Sharrard (1965), Sharrard (1971), Orropoff (1979) κ.ἄ.

Ὀικογενὴς προσέτι χαρακτήρ τῆς ὑπερελαστικότητος τῶν ἀρθρώσεων τῶν πασχόντων ἐκ συγγενοῦς ἐξάρθρηματος τοῦ ἰσχίου ὡς καὶ τῶν μελῶν τῆς ἰδίας οἰκογενείας θὰ πρέπει νὰ διαδραματίζει κάποιον ρόλον. Εἶναι σκόπιμον νὰ ὑπενθυμίσωμεν, ὅτι ἡ ὑπερελαστικότης τῶν ἀρθρώσεων ἐξ αἰτίας τῆς ἐπιδράσεως τῶν ὁρμονῶν, ἀποτελεῖ ἰδιαιτέραν κατάστασιν τῆς προαναφερθείσης, ἀπροσκοπεῖ δὲ εἰς τὴν διευκόλυνσιν τοῦ τοκετοῦ καὶ εἶναι περιορισμένης χρονικῶς διαρκείας. Δὲν πρέπει νὰ παραλειφθῆ τὸ γεγονός ὅτι ἡ ἰσχιακὴ προβολὴ τοῦ ἐμβρύου δημιουργεῖ συνθήκας ἱκανὰς νὰ δημιουργήσουν ἐξάρθρημα κατὰ τὴν στιγμὴν τοῦ ἐξελκυ-

σμοῦ ἢ καὶ ἐνωρίτερον τούτου, ἴδια ὅταν συνυπάρχει ὁ ὁρμονικὸς παράγων ἢ ἡ οἰκογενὴς ὑπερελαστικότης τῶν ἀρθρώσεων, καὶ κατὰ συνέπειαν, ἡ ἀρθρωσις εἶναι ἤδη χαλαρὰ καὶ ἀπεξαρθρώσιμος. Εἰς τὴν φάσιν ταύτην ὑπείσέρχεται καὶ ἀνατομικὸς παράγων, ὡς ἡ συγγενὴς βράχυνσις τοῦ λαγονοψοῖτου μῦος καὶ τοῦ ὑοειδοῦς συνδέσμου, οἱ ὅποιοι ἐξεκλύουν τὴν μηριαίαν κεφαλὴν ἐὰν εὑρεθῶν ὑπὸ τάσιν, ὡς συμβαίνει κατὰ τὴν στιγμὴν τῆς ἐκτάσεως τῶν σκελῶν (Stanislavovich, 1964).

Εἶναι δὲ ὁ ὑοειδῆς σύνδεσμος καὶ ὁ λαγονοψοῖτης μῦς βραχεῖς, διότι ἐπὶ γονατομετωπιαίας θέσεως τοῦ ἐμβρύου, τὸ μῆκος ἀμφοτέρων εἶναι μειωμένον λόγῳ ἀνόδου τόσον τῆς καταφύσεως τοῦ λαγονοψοῖτου, ὅσον καὶ τοῦ συνδέσμου, ἔνεκα τοῦ ὅτι ὁ ἐλάσσων ἵροχαντῆρ εὐρίσκεται εἰς τὸ ὕψος τῆς κοτύλης καὶ ὄχι ὑπ' αὐτήν. Ἐν τούτοις καὶ παρὰ τὰς προαναφερθεῖσας ἀπόψεις καὶ ἐρμηνεῖες, θὰ ἀναρωτηθῆ τις διατι [ἢ ἀναλογία πασχόντων ἀρρένων πρὸς θήλεα εἶναι 1:5 εἰς βάρος τῶν θηλέων ἢ διατι εἰς τὰ πρόωρα ἢ ἀναλογία αὕτη διαφοροποιεῖται. Μήπως τὰ οἰστρογόνα εἶναι ἠῦξημένα εἰς τὰ θήλεα ἔμβρυα λόγῳ δράσεως ὁρμονῶν τῆς ὑποφύσεως, αἱ ὅποια διεγείρουν καὶ τὰς ὠοθήκας τοῦ ἐμβρύου ;

Ἡ μήπως ὁ ρυθμὸς ἀποικοδομήσεως τῶν οἰστρογόνων εἰς τὸ ἥπαρ τοῦ νεογνοῦ εἶναι διάφορος εἰς τὰ δύο φύλα ;

Μήπως αἱ ἀνδρογόνοι ὁρμόνοι ἀνταγωνίζονται ἐπὶ τῶν ἀρθρώσεων, τὰ οἰστρογόνα ; Καὶ ἐὰν πράγματι τὰ οἰστρογόνα εἶναι ἠῦξημένα εἰς τὰ θήλεα, διατι ἡ πάθησις δὲν ἐμφανίζεται εἰς ὅλα ;

Διότι εἶναι γεγονὸς ὅτι τὸ συγγενὲς ἐξάρθρωμα τοῦ ἰσχίου δὲν ἐμφανίζεται μόνον εἰς τὰ νεογνά τὰ ὅποια ἐγεννήθησαν μὲ ἰσχιακὴν προβολήν, ἀλλ' ἀπλῶς ἢ συχνότης εἰς αὐτὰ εἶναι ἠῦξημένη.

Ἀκόμη δημιουργεῖται τὸ ἐρώτημα διατι τὸ anteversion εἰς μερικὰς περιπτώσεις, παραμένει ὑψηλὸν ἕως τοῦ τοκετοῦ, μὲ [ἀποτέλεσμα τὴν δημιουργίαν ἐξαρθρώματος ; Ἡ ἄλλοτε γιὰτι δημιουργεῖται συγγενὲς ἐξάρθρωμα τοῦ ἰσχίου, ἐνῶ δὲν ὑφίσταται παθολογικὸν anteversion ;

Ὁ ἀριθμὸς τῶν ἀπόψεων, τὰς ὁποίας ἐμνημονεύσαμεν ὡς καὶ τὸ πλῆθος τῶν ἐρωτημάτων τὰ ὅποια παραμένουν ἀναπάντητα, μᾶς ἐπιτρέπουν νὰ εἴπωμεν ὅτι ἡ αἰτιοπαθογένεια τῆς παθήσεως ἐν πολλοῖς, παραμένει εἰσέτι ἀδιευκρίνιστος.

Οἱ παράγοντες λοιπόν, οἱ ὅποιοι μετὰ βεβαιότητος διαδραματίζουν ρόλον εἰς τὴν δημιουργίαν τῆς παθήσεως κατὰ τὸν Meckibbing (1970), τὸν Onofri (1979) καὶ πολλοὺς ἄλλους ἐρευνητὰς, εἶναι ἡ ἀνελαστικότης τῆς ἀρθρώσεως, ὁ συγγενὴς βραχὺς λαγονοψοῖτης μῦς καὶ τὸ ἠῦξημένον anteversion τῆς μηριαίας κεφαλῆς ἢ καὶ τῆς κοτύλης, ὁ συνδυασμὸς τῶν ὁποίων διαδραματίζει ἀποφασιστικὸν ρόλον εἰς τὴν δημιουργίαν τοῦ ἐξαρθρώματος.

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THE MISSING PARTS OF THE WALRASIAN LAW OF GENERAL EQUILIBRIUM *

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INTRODUCTION :

Is there anything new to be said about the Walrasian System?

Ever since the works of Paul Samuelson,¹ Kenneth J. Arrow and Gerard Debreu,² Lionel McKenzie³ and others including forerunners like Sir John Hicks⁴, Nicholas Kaldor,⁵ Ragnar Frisch⁶ and A. Wald,⁷ in what is called now the

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1. Paul Samuelson, *The Foundations of Economic Analysis* Harvard University Press, Cambridge (1947) Fourth Printing 1955.
2. Kenneth Arrow & Gerard Debreu, *Existence of Equilibrium for a Competitive Economy* *Econometrica* 22 (1954)
3. Lionel McKenzie, *On the Existence of General Equilibrium for a Competitive Market* *Econometrica* 27 (1959)
4. John R. Hicks *Value and Capital*
An Inquiry into some Fundamental Principles of Economic Theory (1939) Second edition (1946) reprinted in 1957. Oxford At the Clarendon Press
5. Nicholas Kaldor, *A Classificatory Note on the Determinateness of Equilibrium* *Review of Economic Studies*, vol. I No. 2, Febr. 1934.
6. Ragnar Frisch, *On the Notion of Equilibrium and Disequilibrium*, *The Review of Economic Studies* vol. III No 2 Febr. 1936
7. Abraham Wald, *Über Einige Gleichungssysteme der Mathematischen Ökonomie* *Zeitschrift für Nationalökonomie* No. 7. 1936

«Formalist Revolution in Economics»⁸ revived Leon Walras' law of general equilibrium, the Walrasian model has usually been equated simply with a system of pure competition. The greatest credit for the revival of Walras' work probably should be given to Joseph Schumpeter who evaluated Walras as the greatest of all economists and his performance as a sort of «Magna Charta» for the exact science of economics⁹.

No other author, to my knowledge, has raised the question that pure competition as a force cannot work efficiently in a vacuum (an abstract model based on formal assumptions not related in any way to reality) to attain an equilibrium position and, by itself, maintain equilibrium prices. The same problem exists for natural sciences whenever, for instance, the force of gravitation is assumed alone without an adequate space-time framework.

All those economists who assume the Walrasian model to be equal to a system of pure competition and nothing else, are being trapped into thinking that a force as such can ever act in an orderly manner in a vacuum. In both nature and society, a force, however, can act orderly and create a stable equilibrium (stability-from-within), if it is correlated with, or embedded in, a suitable framework (in nature given; in human societies constructed) which has a very strong natural parameter in the form of a constant (axis, magnitude, institution, value) consistent with the force in question. This may be called the Universal Law of the Natural Parameter which holds together systems under conditions of stable equilibrium. A keen observer can envision how the Universal Law of the Natural Parameter may be the key for the methodological unification of all sciences¹⁰).

Leon Walras was intuitively aware of this universal law even though he did not formulate it precisely. But when he developed his law of general equilibrium,

8. Benjamin Ward, *What's Wrong with Economics?*
Basic Books, Inc. New York. 1972

9. Joseph Schumpeter, *History of Economic Analysis*
Edit. by Elizabeth Boody - Schumpeter
Oxford University Press, N.Y. (1954) 2 - nd print. 1955 p. 968

10. Anghel N. Rugina, *The Problem of Value - Judgments in Science and a Positive Solution.*
Max Weber and Ludwig Wittgenstein Revisited.
Paper presented at the International Atlantic Economic Conference in Salzburg, Austria, on
May 14, 1979.

he specifically indicated as prerequisites not only perfectly free markets (pure competition) but also the requirement that all prices be expressed in terms of the «numeraire» (or a monetary unit = a certain quantity of a selected standard commodity) which is a constant magnitude serving as the axis of the system. This is the natural parameter of the numeraire (NaPa).

Lacking an explicit definition of the law of the natural parameter, Walras left out the equivalent of the space-time relationship. He omitted an adequate institutional framework where the force of competition can act from 0 (zero)-inertia --to 100 per cent intensity. Specifically he did not include in his model government, modern banks and other financial institutions, organized stock-, exchange- and commodity markets. His excuse was that they do not belong to pure theory but rather to applied theory or «Economie Politique Appliquée.» This is a poor and inconsistent excuse. First, as already mentioned, a given force like competition cannot work efficiently unless it is in a suitable environment consistent with the law of the natural parameter of the numeraire (NaPaNu) and other conditions of stable equilibrium. Second, what real meaning has «applied theory» on modern banks, for instance, if we do not have a pure theory on banks, under both equilibrium and disequilibrium conditions? Consequently, if we speak of «applied science» in a particular field, we must first have a pure theory for that field. Walras; assumption that institutions are outside of pure science is, therefore, untenable.

Even within that part of theory which Walras completed there are portions, such as the theory of profit, which require reexamination and correction.

The purpose of this paper is to undertake the investigation necessary to uncover the missing parts and to prove that they can be integrated with the original formulation of the law of general equilibrium. In this way it is hoped to show the path to follow to achieve a truly general law of stable equilibrium in pure economics.

There was earlier criticism of the internal structure of Walras' model but more of mathematical details, such as the use of constant coefficients of production or the lack of dynamic elements in the system. Such criticism cannot be answered effectively until we know precisely how far or when the model in question is static and when or how far it is dynamic.

This paper is unique in that we shall examine the Walrasian system with the help of a new research program characterized by a simultaneous equilibrium v.s. disequilibrium approach in order to see conceptually (leaving

the mathematical translation as an extra accomplishment) what important pieces are missing or do not fit this celebrated law and its underlying model. Then an attempt will be made to reformulate the Walrasian law so that it may be called truly general.

The guiding thought is that the application of the new research program discloses a methodological similarity between social and natural sciences. This is consistent with Walras' philosophy of science. It was his ambition to discover that economic theory was constructed on the same foundation as the theory of physical sciences. For this purpose he thought that the use of mathematics was indispensable. After he finished the presentation of his system, he wrote :

«Very few of us are capable of reading Newton's *Philosophiae Naturalis Principia Mathematica* or Laplace's *Mécanique Céleste* ; and yet, on the word of competent scientists, we all accept the current description of the universe of astronomical phenomena based on the principle of universal gravitation. Why should the description of the universe of economic phenomena based on the principle of free competition not be accepted in the same way? There is no reason why the proof of the system, once established, may not be taken for granted, nor why the assertions involved may not be used in the study of questions of applied practical economics.»¹¹).

The questions which has intrigued this author is that 100 years having passed since Walras (like Newton) formulated his unique law to explain the universe of economic phenomena, why has this law not yet been accepted, even though during this time so much work has been done by so many illustrious economists on the same subject ? Something must be wrong and indeed is. The methodology used by Walras and those who followed him, critics included, is incomplete. It will become clear when the new research program is applied that the Walrasian law is like a table with one or two legs : it can never stand by itself, even though, as far as he went, Walras' system with some corrections is consistent with conditions of stable equilibrium. An important lesson must be learned by the economics profession : an economist's reasoning should be conducted basically in economic concepts

11. Leon Walras, *Elements of Pure Economics*

Or the Theory of Social Wealth

Transl. by William Jaffe and published by the Amer. Economic Assoc. and the Royal Economic Society. Richard D. Irwin. Inc. Homewood, Illinois, 1954 p. 428

(which have not only form but also content) exactly as a mathematician's reasoning must develop along the line of mathematical concepts. Otherwise the distinction between the various fields of knowledge is lost and we also are lost. This does not mean that cooperation between mathematics and economics or other sciences is not desirable. It simply expresses the fact that primary concepts in economics and other social sciences are non-mathematical in character and therefore it depends upon the nature of the problem whether mathematical treatment is necessary or possible.

It may well be that, «in the last analysis», as Schumpeter remarked, «Walras' system is perhaps nothing but a huge research program»¹²⁾ which has delivered an unfinished product deserving further study and completion.

I. A NEW RESEARCH PROGRAM AND AN ORIENTATION TABLE FOR ECONOMICS

The new research program stems from the Walrasian system taken as a limiting case – the regime of pure competition with all its adequate milieu – and runs through all possible mixed systems defined in terms of imperfect competition and or imperfect monopoly or monopolistic competition of various degrees, until it reaches the other limiting case – the regime of pure monopoly, again with all its suitable milieu.

It consists of few interrelated theorems which lead to the development of an Orientation Table for Economics and all other social sciences. With the help of this table we can clearly identify the unique location and character of the Walrasian system vis-à-vis all other possible systems. The same table shows how complicated the relationship is between static and dynamic analysis, outside of the area referred to as «comparative statics». It indicates further in what respect the Walrasian system is static and in what respect it is dynamic.

No less important for Walrasian economics is the clarification of the issue of how far a position of unstable equilibrium is to a position of stable equilibrium. The table answers this question. The murky subject of minor (weak and strong) vs. major (weak and strong) disequilibria (two oceans of disequilibria moving in opposite directions) is clarified by consulting the table. In fact, through the table

12. Joseph Schumpeter, *op. cit.* p. 1026

the entire science of economics appears in a new light because the table provides a logical frame for any theoretical work (which has some truth) indicating where and how far it is valid.

In addition, the new research program can be extended not only to the other branches of social science but also to natural sciences. In this way a path is revealed for the methodological unification of all sciences.

A. Here are the component parts :

1. Axiom 1: The Universal Hypothesis of Duality

It is assumed that the physical universe in which we live, as well as human societies, are composed of stable (equilibrium) and unstable (disequilibrium) elements, forces, behavior and values.

Without this hypothesis we cannot completely explain and understand stability and disturbances in nature, or progress, crises and revolutions in human societies. It is so close to reality, a sort of self-evident truth, that we can consider it an axiom which needs no further proof.

2. Corollary: The Simultaneous Equilibrium vs. Disequilibrium Approach

Any concept and any explanation (theory) consequently can be envisioned at least in two versions in micro-analysis: one in a framework which satisfies the conditions of stable equilibrium and another in a framework where the conditions of equilibrium are negated (disequilibrium).

3. Axiom 2: The Universal Law of the Natural Parameter

Theorem : Any system composed of individual parts, both in the physical universe and human societies, in order to reach and maintain a position of stable equilibrium (stability - from-within) must have a very strong (at the limit 100 per cent) natural parameter which, in conjunction with a suitable force and consistent framework, holds the whole system together.

The natural parameter appears as a real, more or less perfect axis, magnitude, institution or value which changes not at all or very little over a long span of time. The planet earth has a definite axis which does not change daily and deviations from

this axis are nominal and finite. For the physical universe at the macro-level, the SUN is the natural parameter and the suitable force is the law of gravitation. It was Newton who discovered and formulated the law of gravitation, but he did not make use of the concept of the natural parameter which actually determines the framework (space-time relationship) where a force may act, partially or to the maximum. Thus he did not see that the universal hypothesis of duality changes the picture of the real world by introducing exceptions to the law of gravitation as well as to the other known classical laws. Einstein noticed these exceptions and developed the concept and theory of relativity which, in reality, does not negate but complements Newton's theory.

For a national economy, it was Leon Walras (1834 – 1910) who formulated the law of general equilibrium and proved theoretically that stable equilibrium was possible only when two basic conditions are satisfied :

- (1) the assumption of a chain of free markets where monopoly forces are reduced to zero at the limit (pure competition), and
- (2) that all prices without exception are expressed only in terms of the numeraire or 100 percent – backed currency.

Even though Walras did not explicitly name the concept of the natural parameter, his numeraire nevertheless is a constant magnitude (an axis at the center of the system) which, in conjunction with a suitable force (competition), helps to attain and maintain a position of stable equilibrium (With minimal deviations exactly as in the physical universe the constant position of the SUN and the axis of the earth together with the force of gravitation assure stability according to Newton's law.

4. Corollary 1 of the NaPa: The Law of Consistency

The law of consistency says : No force in any system – in nature or human societies – can act in such a way to produce stable equilibrium (or stability – from – within) without the existence of a suitable milieu or an adequate framework consistent with the NaPa and the force in question.

The extraordinary beauty and miracle of the physical universe in which we live, the mother nature that we sometimes abuse, lies in the fact that a very strong natural parameter (as a guess, 90 percent or above) and a pure force (gravitation) were established in the act of creation and have not changed significantly over millions of years. There are changes in nature, some of them violent, which show

that the proportion between stable and unstable elements and forces is not fixed. Nevertheless, the physical universe recovers quickly whatever is lost in terms of matter or energy during violent changes or turbulations. Consequently, the overall framework possesses consistency between the natural parameter, the major equilibrium force (gravitation) and the rest of the universe.

When we go to the economic and social universe of the Walrasian system, it is this point of consistency in the institutional framework which is missing. Indeed, he identified clearly the natural parameter of the numeraire and the suitable force of pure competition and showed the manner in which they work, but he did so without being aware that there was a third basic element – a consistent institutional framework – which is indispensable for the attainment and maintenance of stable general equilibrium. The institutional framework here is considered as a theoretical problem to be dealt with in ideal types (Weber). Walras did not have the tools necessary to include this topic in his law of general equilibrium. Therefore he placed it outside of pure theory in the domain of «applied theory» and did not realize the consequences.

5. Corollary 2 of the NaPa: The Compensatory Law or the Natural Law of Full Employment

The Compensatory Law says: The aggregate volume of investment, income and employment in a system of stable equilibrium can never shrink by itself but rather will either increase or remain the same, depending upon the existing conditions and wishes of the people.

Indeed, in a system of stable equilibrium with a 100 percent numeraire – currency and all forms of credit – money also of the numeraire type, that is 100 percent-backed, there is a compensatory flow of real investment, income and employment, running back and forth from the non – monetary to the monetary sector and vice – versa, which thus secures the realization and maintenance of full employment.^{12a)} The dream of Lord Keynes never became a total reality because his model of reasoning (based on conditions of disequilibrium) lacked this compensatory law and the other conditions of stable equilibrium.

12a. Anghel N. Rugina, *American Capitalism at a Crossroads! Where Do We Go From Here?* Exposition Press, N.Y. 1976 p. 58 – 59

The compensatory law certainly also exists in nature, and thus the entropy law has limited application, specifically only to unstable elements. The Lavoisier law of the conservation of matter is likewise correct, but according to the universal hypothesis of duality, not in its absolute form but rather restricted to the stable elements in nature.

*
* *

With the help of the new research program we can identify theoretically the institutional framework which is suitable to the Walrasian system and which then has to be included in the law of general equilibrium.

B. Application to Economics

1. Two Bipolar Forces in Economic Life

Using the equilibrium vs. disequilibrium approach, instead of treating each separately as in the past, we can easily align the two well-known bipolar forces which can govern the economic life of a country: Pure competition as an equilibrium force and pure monopoly as a disequilibrium force.

Both competition and monopoly in real life may take varied forms but all are derived theoretically from their pure form.

2. The General Possibility Theorem

Given the dual nature of economic reality in its pure form, there is an unlimited number of possible combinations or systems which, for study purposes, can be reduced to seven basic models.

3. An Orientation Table of Economics

A systematic application of the general possibility theorem leads to the development of a methodological map of all possible systems which can be reduced to seven basic models. A sample of an Orientation Table for Economics follows:

Co = pure competition ECO = economic system Nu = numeraire
Mo = pure monopoly MON = monetary system anti-Nu = anti-numeraire

Model No 1:

ECO 100 Co+ MON 100 Nu+a perfect institutional framework. This is the Walrasian system at the limit, a 100% stable economic system. It may be called the «Economics of Certainty, and this is what Walras had assumed theoretically before considering the real world. This may be identified also as a «Flexible Static System» open to change and usable in «Comparative Statics».

Model No 2:

ECO 95 Co+ 5 Mo +MON 95 Nu+5 anti-Nu+an adequate institutional framework.

This incorporates a less perfect version of the Walrasian system but of course is more realistic in view of the universal hypothesis of duality. In a rather crude form it approximates the economic model in classical economics as envisioned by Adam Smith with the theory of the natural price and the «invisible hand». In practice this is not a second stage but rather a first best possible because it can be improved probably up to the limit of ECO 98+MON 98. This is the last possibility in the application of the Walrasian system to the real world. One may identify this model as a «System of Normal Dynamics». With such a strong natural parameter (95–98%), monopoly cannot develop and survive (as Adam Smith intuitively saw). Business fluctuations would be reduced to simple and finite adjustments with no possibility for the business cycle phenomenon, as known in modern times.

Here we enter the territory of weak minor disequilibria. Further down we are faced with models representing «Systems of Abnormal Dynamics» and we are in the domain of «Economics of Relativity».

Model No. 3:

ECO 65 Co+ 35 Mo+MON 65 Nu+35 anti-Nu+a similar institutional framework.

This is a mixed economy type A where equilibrium forces prevail but the natural parameter of the numeraire is not strong enough to impede the development of monopoly and cumulative fluctuations which characterize the phenomenon of the business cycle.

England, during the second half of the 19th century, at certain dates probably reached this stage. Otherwise modern capitalism in terms of stability and social equity never passed the line of 65 Nu.

Here is the area of strong minor disequilibria.

Model No. 4 :

ECO 50 Co+ 50 Mo+MON 50 Nu+50 anti-Nu+a similar institutional framework.

This is a mixed economy type B where equilibrium and disequilibrium forces are of equal intensity. Consequently this represents the model of an organically static system. It looks like equilibrium but it is not a stable one. It is an unstable equilibrium and perhaps better called «stable disequilibrium». Keynes called it «equilibrium with unemployment» and Ricardo envisioned it as a stationary state of the capitalist system in stagnation. This is an «Inflexible, Frozen Static System» which is not open to change.

Here is the area of weak major disequilibria.

Model No. 5 :

ECO 35 Co+ 65 Mo+MON 35 Nu+65 anti-Nu+a similar institutional framework.

This is a mixed economy type C where disequilibrium forces prevail. Such a weak system with a thin natural parameter is exposed to wild fluctuations in all directions and the business cycle phenomenon becomes unmanageable in the sense that contradictions among the principal goals (f.i., price stability and full employment) appear as inevitable and incurable. This model may approximate the capi-

talistic system during the great depression of the 1930's. This is when Keynes noticed the inconsistency between domestic stability with full employment and the balance of payments in equilibrium. Further along the situation deteriorates to the point where inflation and unemployment may increase at the same time (Stagflation). At that point any government policies are doomed to failure.

This is the territory of strong major disequilibria.

Model No. 6 :

ECO 5 Co + 95 Mo + MON 5 Nu + 95 anti - Nu + a similar institutional framework.

The mixed economy type C under the repeated storms of major disequilibria collapsed and is replaced by a government planned and controlled economy where the means of production are either in collective ownership (Socialism - Communism) or directly controlled by the government through organized monopolies (Fascism).

Model No. 7 :

ECO 100 Mo + MON 100 anti - Nu + an adequate institutional framework.

This is the limiting case of pure monopoly, not owned by private business but by the government. The State monopolist has absolute powers. This is a theoretical model of 100 per cent disequilibrium hidden by the absolute powers of the State. The solution to any problem here is indeterminate and therefore this may be called the «Economics of Complete Uncertainty» in the full sense of the term. The universal hypothesis of duality negates the possibility of having such a system realized at the limit. Experiments with communism and fascism in this century confirms this conclusion.

II. THE WALRASIAN LAW OF GENERAL EQUILIBRIUM AND ITS MISSING PARTS

The theory of general equilibrium in Walras is composed of four consecutive parts (according to Schumpeter) like four stories in a building. These four parts are :

1. The law of the establishment and variation of equilibrium prices for commodities in general exchanged in the market or simply the theory of the exchange of products ;
2. the same law as «1», for services of the factors of production ;
3. the theory of capital formation and the prices of capital goods, and
4. the theory of money.

1. The Theory of the Exchange of Products

The first law is described by Walras thusly :

«Given several commodities, which are exchanged for one another through the medium of numeraire, for the market to be in a state of equilibrium or for the price of each and every commodity in terms of the numeraire to be stationary, it is necessary and sufficient that at these prices the effective demand for each commodity equal its effective offer. When this equality is absent, the attainment of equilibrium prices requires a rise in the prices of those commodities the effective demand for which is greater than the effective offer, and a fall in the prices of those commodities the effective offer of which is greater than the effective demand»¹³⁾

The formation of equilibrium prices is explained by a process of groping (« tâtonnement ») where buying and selling is first practiced nominally with tickets at different changeable prices until finally an equilibrium price is reached as described above.

13. Leon Walras, op. cit. p. 172

- (1) A system of free markets where monopoly forces are reduced to zero at the limit or pure competition ;
- (2) All prices for products and services are expressed only in terms of a numeraire ;
- (3) The effective demand is equal to the effective supply ;
- (4) There is the greatest possible satisfaction of consumers' wants or maximum of utility ;
- (5) For each product and service there is only one price in the market ; and
- (6) The selling price for each product is equal to the cost of the services used for its production.

To this list we should add :

- (7) A consistent (equilibrium) institutional framework to support the realization of the state of general equilibrium.

3. The Theory of Capital Formation and Capital Goods

As to the analysis of the market for capital goods, Walras reached similar results as in the other markets, of course under the same assumptions, He wrote :

«Then for the market for capital goods to be in equilibrium, or for the prices of all new capital goods in terms of numeraire to be stationary, it is necessary and sufficient : (1) that at selling prices equal to the ratio of net incomes to the current rate of net income, the effective demand for these new capital goods be equal in terms of numeraire to their effective supply ; and (2) that the selling prices and the costs of production of the new capital goods be equal.»¹⁶⁾

The theory of capital formation in the Walrasian system has to be restricted only to voluntary savings, or in Walras' words : «the positive difference between the excess of income over consumption and the amount necessary to cover the depreciation and insurance of capital goods proper.»¹⁷⁾ In view of condition (7) this

16. Leon Walras, *ibid* p. 294

17 » » *ibid* p. 274

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has to be included specifically as a requirement for the state of equilibrium :

(8) Capital formation = voluntary savings.

It has serious implications related to the modern banking system and the organization of credit, of which Walras was not quite aware. The state of equilibrium therefore requires further that :

(9) Banks should not be permitted to monetize credit in the form of bank notes, bank deposits or in any other form because this would introduce an anti-numeraire or disequilibrium element alien to the system.

(10) Credit used in the economy must be real in the sense that it is always fully covered by a commodity or by an equal sum of money.

Therefore it is limited to the volume of real income in the economy. In other words, real credit is not monetized.

Walras does not touch upon the subject of reforming the modern banking system. «The capitalist», he wrote, «accumulates his savings in money and lends this money to the entrepreneur who, at the expiration of the loan, repays the money. This operation is known as credit.»¹⁸) The concept of real credit is evident here. This quotation presents, however, another requirement for the state of equilibrium :

(11) The volume of new investment = the amount of voluntary savings, which is consistent with conditions (8), (9) and (10).

Another important issue which Walras did not completely clarify is the requirement that :

12) The money market (short term loans) must be clearly separated from the capital market (long term loans).

Walras did not explicitly separate the two markets, even though from his text it is clear that the first deals with the liquidity – function and the second with the investment – function. In the desired cash balance, he included both «cash or savings.»¹⁹) He also did not specifically require that in a system of stable equilibrium all forms of money must be of the numeraire type or 100 percent backed. Only under such a requirement is another condition of the state of equilibrium fulfilled :

18. Leon Walras, *ibid* p. 270

19. » » *ibid* p. 321

(13) Money (numeraire) capital = real capital (in form of capital goods).

Lacking (12) and (13), Walras was faced with problems in the theory of the rate of interest. He wrote :

«Thus the rate of interest, which is the ratio of net profit to the price of securities, manifests itself, to be sure, in the market for numeraire capital, that is to say in the banking system, though actually it is determined in the capital goods market, that is to say in the stock exchange, as a rate of netincome which is the common ratio of the net price of services to the price of landed capital, personal capital as well as capital proper. It is clearly seen now that the key to the whole theory of capital is to be found in thus eliminating capital loans in the form of numeraire so that attention is directed exclusively to the lending of capital in kind.»²⁰)

Using (12) and (13) there is no need to introduce a non-realistic assumption that capital loans were eliminated (when actually they were not!). In a modern economy like that with which Walras was concerned, we cannot use the assumption of «lending capital in kind» since that belongs to a primitive economy.

If requirements (12) and (13) are fulfilled, there is no problem in constructing the curves for effective demand for liquidity and the supply of immediately available cash balances in order to determine the equilibrium rate of interest in the money market. It is also possible to draw the curves for the effective demand for new investment (production of capital goods) and the available supply of capital (voluntary savings) in order to determine the equilibrium rate of interest in the capital markets.

Even though Walras did not use these additional specifications, nevertheless since his system was constructed to be 100 percent consistent, he managed to complete his analysis of capital formation and the production of capital goods, with results that could be integrated with his previous conclusions in the theory of exchange and production of consumer goods. In his own words :

«Capital formation in a market ruled by free competition is an operation by which the excess of income over consumption can be transformed into such types and quantities of new capital goods proper as are best suited to yield the greatest possible satisfaction of wants both to the individual creators of savings and to the whole body of consumers of the services of the new capi-

20. Leon Walras, op. cit. p. 290

tal goods, within limits defined by the condition that the depreciation and insurance of capital goods proper be covered at the expense of consumers of the capital – serviesc and not at the expense of the owners of the capital goods.»²¹⁾

From this quotation we can see that the investment in the production of new capital goods is equal to the «excess of income over consumption» or voluntary savings and that there is no other way to finance new investments. This satisfies all the requirements from (8) to (13).

4. The Theory of Entrepreneurship and Normal Profits

When discussing the production of consumer and capital goods, we cannot ignore the services of the entrepreneur (or manager) designated by Walras eas the «fourth person, entirely distinct» from the landowner, worker and capitalist (saver) «whose role is to lease land from the landowner, hire personal faculties from the labourer, and borrow capital from the capitalist, in order to combine the three productive services in agriculture, industry or trade.»²²⁾ In continuation he wrote: «From the scientific point of view, we must keep these roles separate and avoid both the error of the English economists who identify the entrepreneur with the capitalist and the error of a certain number of French economists who look upon the entrepreneur as a worker charged with the special task of managing the firm»²³⁾

There is no more explicit way to identify entrepreneurship as a fourth factor of production. And if there is a market for the services of the other factors (land, labor and capital), then to this we must also add a market for managerial or entrepreneurial services. The assumption that in a system of stable equilibrium profit = zero is not only confusing but is unrealistic and logically and economically unjustified.

The responsibility for this widespread confusion, in fact a negation of a legitimate normal income (profit) for the entrepreneur, rests entirely with Walras who wrote :

«Thus, in a state of equilibrium in production, entrepreneurs make neither

21. Leon Walras, op. cit. p. 305

22. » » op. cit. p. 222

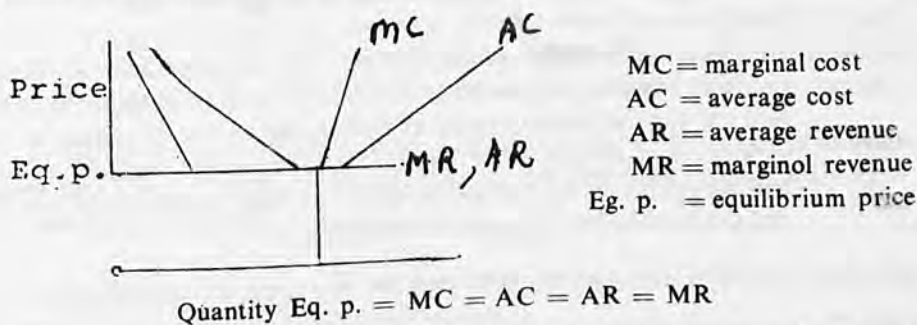
23. » » ibid cit, p. 224

In fairness and also as a requirement of the economic process in a modern economy, the entrepreneur deserves to have his own legitimate income, determined by the same principle of free competition, which can be properly named «normal profit» in the same way as we have normal (equilibrium) wages, rent and interest. Thus a new condition for the state of equilibrium can be stated :

- (14) In a system of stable equilibrium, prices = the lowest cost of production when a normal profit for the entrepreneur is included.

The normal rate of profit, under equilibrium conditions, is equal to the marginal profit nor loss ('les entrepreneurs ne font ni bénéfice ni perte). They make their living not as entrepreneurs, but as landowners, labourers or capitalists in their own or other business.»²⁴⁾ utility or the marginal productivity of the factor, exactly as in the case of the other three factors. Consequently, the condition that profit = zero, under equilibrium conditions must be dropped.

Among the living economists, to my knowledge, Mrs. Joan Robinson has defined normal profits very adequately as «that level of profits at which there is no tendency for new firms to enter the trade, or for old firms to disappear out of it.»²⁵⁾ These are equilibrium profits. For an individual firm in equilibrium she added further : «The total receipts of the firm are then exactly equal to the total costs including normal profits.»²⁶⁾ She even provided a diagram of a firm under equilibrium conditions, which is different from diagrams in other textbooks.²⁷⁾



In other textbooks the Eq.p. line is above the least cost (the bottom of AC curve)

24. Leon Walras, op. cit. p. 225

25. Joan Robinson, The Economics of Imperfect Competition (1933)
 MacMillan & Co. Ltd London, 7th reprint, 1948 p. 92

26. » » op. cit. p. 94

27. » » op. cit. p. 96

because profits are not included and this is a sort of anomaly in the study of general stable equilibrium. Very definitely, the theory of a normal profit is an important missing factor in the Walrasian system of general equilibrium.

There is another subject which also may easily create confusion in the theory of profits under conditions of equilibrium. It is true that Walras did not define entrepreneurship as did Schumpeter in terms of innovations²⁸) explicitly, but he does allow new capital formation and growth when population is increasing. The entrepreneur could not do justice to such a goal unless he uses new, more efficient methods of production or a new combination of available resources and this is what «innovation» in modern business means.

In brief, whenever there is a deficit in the available supply (f.i., in the case of increasing population), even in a system of stable equilibrium, the effective demand will appear relatively higher and therefore a rise in prices is inevitable. In this way the entrepreneur receives a signal that output has to be expanded and an immediate reward in the form of a small percentage of a «profit – differential» is provided by the existing market conditions. This profit – differential is a legitimate income which, however, does not remain with the entrepreneur since under equilibrium conditions the available resources are already committed. Consequently, to have more capital for an expansion of output he has to pay a higher rate of interest ; to hire more labor he has to offer higher wages ; and to use more raw materials he has to bid a higher price for raw materials (or a higher rent). All these changes lead to a new economic rearrangement where the profit – differential is shared by the other factors in the form of interest, wages and rent.

It is this profit – differential which Walras had in mind when he wrote :
«...free competition consists, on the one hand, in allowing entrepreneurs to expand output in case of profits and to restrict output in case of loss ; and on the other hand, in allowing land – owners, workers and capitalists, as well as entrepreneurs, freedom to buy or sell services and products by bidding against one another.»²⁹)

We must therefore add another condition for the state of equilibrium :

(15) In a system of stable equilibrium in action (in real life) a small percentage

28. Joseph Schumpeter, *Theory der Wirtschaflichen Entwicklung* (1912) English Transl. *Theory of Economic Development* 1934

29. Leon Walras, *op. cit.* p. 255

of a profit – , wages – , rent – and interest – differential must be allowed as an incentive and reward to produce more whenever necessary.

It is true that when production and prices are in a stationary state, the profit – differential is and must be = zero but not the normal (equilibrium) profit. This must be positive and at the same level of marginal utility (rareté) and productivity as exists for the other factors used. When, for some reason, the expansion of output has been unsuccessful, then the profit – differential becomes negative and represents a decline in the normal profit.

The profit – differential must not be confused with what is called in literature «pure profit» as a compensation for additional risk which cannot be calculated (Frank H. Knight)³⁰ as is the case in the capitalist system when a significant disequilibrium prevails. In the Walrasian system uncertainty and risk are reduced to a minimum (in fact to zero at the limit), and therefore there is no legitimate reason for the existence of «pure profit».

5. The Theory of Natural vs. Artificial (Pure) Speculation

One other subject on which Walras is not quite clear is the issue of speculation. The process of groping («tâtonnement») by which he explained the development of equilibrium prices in practice is based on arbitrage or speculation. In his «Etudes d'Economie Politique Appliquée» he has a whole chapter on «La Bourse,» where speculation and arbitrage are described in much detail but only from the institutional point of view.³¹ No proper theoretical analysis is provided since he thought that this subject belonged to applied and not to pure economics.

Walras did not see – as Sir Nicholas Kaldor later did –³² a clear distinction between two different kinds of transactions on the organized stock – , exchange – and commodity – markets :

30. Frank H. Knight, Risk, Uncertainty and Profit (1921)
The London School of Economics and Political Science. Series of Reprints No. 16
Eighth Impression 1957 p. 46 – 47

31. Leon Walras, Etudes d'Economie Politique Appliquée
Théorie de la Production de la Richesse Sociale Lausanne, F. Rouge et Cie, Second edition, 1936 pp. 401 – 445

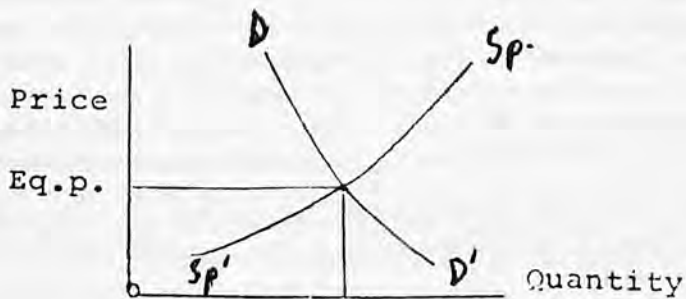
32. Nicholas Kaldor, Speculation and Economic Stability
The Review of Economic Studies vol. VII, No. 1, Oct. 1939

- (a) Natural, real transactions where the object of business is an actual transfer of ownership (stock, foreign exchange or commodities), and
- (b) artificial, nominal transactions where the object of business is a wager that future prices of the items in question will rise (bullish speculators) or decline (bearish speculators).

A very important argument can be raised as to the consequences of the two different types of transactions. Of course, in both there is an element of speculation but in the first case the speculation is limited and covered whereas in the second case it is unlimited and not fully covered.

In the first type of transaction, speculation is natural (real) in the sense that the seller has possession (direct or by order) of the respective item and the buyer acquires ownership of the full value of the item by use of his own savings or borrowed funds. Both are therefore 100 percent covered and the speculation in question (the purpose of gaining a normal profit) is limited to the available supply of the item (on the seller's side) and to the existing supply of funds or circulation - capital (on the buyer's side).

We can easily construct the curves representing the effective demand and available supply for this type of normal or natural speculation. These are the normal Marshallian curves which indicate the equilibrium price for the respective item.



With the second type of transaction the situation is entirely different. The speculation is artificial (nominal) or pure in the sense that it is unlimited and very little, and sometimes not at all, covered. The seller does not own the items in which he wants to speculate and the buyer is not interested in actually acquiring those items. The seller is willing to sell now at a certain price since he hopes that on liquidation day when he purchases to offset his sale the price will be lower and, in this way, he will reap a profit without ever seeing the object which was traded fictitiously. The buyer is not interested in acquiring the item in question. He is willing to buy now at a certain price with the hope that on the liquidation day when

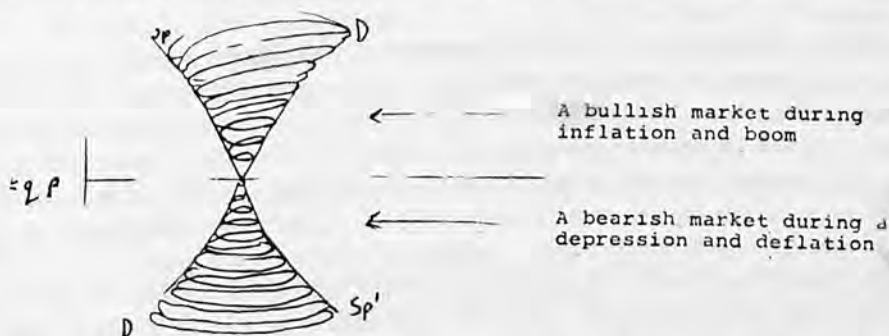
he sells to offset his purchase, the price will be higher and thus he will be the one to reap the profit, again without ever seeing the item traded fictitiously. The purchaser is the bullish speculator and the seller is the bearish.

The result:

If the bulls are stronger than the bears, then the prices for the respective items will go up and vice versa when the bears are stronger, regardless of real conditions in the economy. In real life we see this often; this is when professionals in the market cannot explain why the market moved in a certain direction.

In a bullish market the prices go up and up because the speculative demand increases due to the premium of an extra profit. In this case the demand curve for pure speculation has a positive slope and is forward rising. This is a typical disequilibrium demand curve which we find also during a prolonged inflation and a boom. The supply curve of pure speculation has a negative slope and is backward bending. Indeed, in a bullish market the expectation of an extra profit for a bear diminishes as prices increase, and he may decide meanwhile to change positions. This is a typical disequilibrium supply curve of pure speculation which again we can trace during an inflation.

The opposite happens in a bearish market or during a depression with deflation. We can express the pure speculation through the following diagram:



Pure speculation, therefore, as distinguished from normal, natural speculation, is harmful to the economy as a whole because it produces cumulative price fluctuations in conjunction with other elements of disequilibrium. During the recent grains embargo for sales to the Soviet Union announced by President Carter, farmers requested the Commodity Futures Trading Commission to halt grain trading as being harmful, and the Commission sided with the farmers, but only for two days. The Chairman of the Commission had only this to say: «The market users wanted the market closed. Only the traders and the exchanges wanted the market to stay

open ...» as if this was the whole story. (The Boston Globe, January 11, 1980)

The science of modern economics has not yet recognized the curves necessary to express «pure speculation» even though Marshall, who coined the term «normal» demand and supply curves, in a footnote pointed out that nominal transactions done by speculators «to corner the market» can not be included in that concept.³³⁾

Walras did not see the distinction and the consequences of the existence of the two entirely different types of transactions in a modern economy. He reasoned as if all speculations were natural in the sense of being limited to the «excesses (in numeraire) of income over consumption» which are savings. He saw the role of the speculator as one whose «business is to classify capital»,³⁴⁾ which again falls in the same category. The conclusion is another condition for a state of general equilibrium :

- (16) In a system of stable equilibrium, transactions on the organized stock-, exchange- and commodity- markets have to be restricted to normal, natural or fully covered operations. Nominal transactions or pure speculations must be prohibited by law, since they represent alien or disequilibrium elements in the system.

6. The Theory of Money

Walras developed his law of general equilibrium under the assumption of what may be called a «numeraire - economy» but, according to his own statements the numeraire was not yet declared money. Only in Lesson 29 is money introduced in the form of numeraire - currency (full value gold or silver coins), following the same economic process as for all other commodities. He did not face any difficulty because the equations of circulation and money were consistent with the law of general equilibrium presented before. All that was still needed was one paragraph saying that the law of general equilibrium requires that all forms of money in circulation must be of the numeraire - currency type or 100 percent covered and freely convertible. Then a chapter on the nature and functioning of numeraire - currency within a domestic economy and on foreign exchange markets would have been sufficient to complete his theory of general equilibrium. Only one issue would have still presented a problem - the business of government, the public sector of the economy.

Walras, unfortunately, fell into a trap. In Lesson 30 he leaves the domain

33. Alfred Marshall, Principles of Economics (1890)
8th edition. The Macmillan Co. N.Y. 1952

34. Leon Walras. Elements, p. 310

of pure theory and desires also to be a «realist», or, in his own words, «to pass from the theoretical solution which is reached in the market.» For this purpose he introduced money which «is neither a commodity nor anything that can serve as the numeraire,»³⁵⁾ in other words, inconvertible paper money (or anti-numeraire) without realizing that by doing this he departed from the proper domain of his system of stable equilibrium (Models No. 1 and No. 2 on our Orientation Table).

When he further developed his equations he reached the conclusion that «the equation of monetary circulation, when money is not a commodity, comes very close, in reality, to falling outside the system of equations of (general) economic equilibrium.»³⁶⁾ Instead of being alarmed by this result and attempting to discover the error, he continued to apply pure mathematical reasoning and develop a money market and a theory of desired cash-balances with conventional «rarétés» (marginal utilities) on the questionable belief that what counts is the «service of money» and not its background.

Walras was wrong conceptually in reaching such a conclusion even though mathematically one may not be able to find the error since the equations in question can have mathematical (in form) but not economic (in content) consistency. Indeed this is the case in the argument raised here. Inconvertible paper money as well as not fully covered bank notes and bank deposits, both in their nature and functioning, represent an anti-numeraire or a disequilibrium type of money.³⁷⁾ The service of money is entirely different (good or bad) depending whether money is numeraire or anti-numeraire. Numeraire-currency in any form has inherent stability in a system of free markets, whereas any form of anti-numeraire-currency has inherent instability in the same system. This is what Walras did not clearly perceive. If he had, he would have then rejected the introduction of inconvertible paper money or any form of credit money as being inconsistent with a system of general equilibrium.

Walras minimized the problem but Schumpeter noticed that there were difficulties in passing from «numeraire-economy» to «money-economy» (where credit-money and paper money was mixed with numeraire-currency) and that «the question of stability (and of the presence of a tendency in the system to realize the equilibrium values of its elements) is now much more difficult to answer than it was before»³⁸⁾ But even Schumpeter did not put his finger on the real cause

35. Leon Walras, *op. cit.* p. 325

36. » » *op. cit.* p. 327

37. Anghel Rugina, *American Capitalism*, p. 205, 216, 228 and 261

38. Joseph Schumpeter, *op. cit.* p. 1025

for the difficulties, namely the introduction of anti-numeraire forms of money in the Walrasian system. Walras, however, immediately sensed the true reason for those difficulties, which he did not face mathematically but only intuitively. He clearly pointed out that a service which is «an immaterial thing can not be used as money. The only thing that can be used is a final product or a raw material. In fact, it seems that nature has conspired to bestow all the attributes of money, homogeneity, great scarcity, divisibility and immutability upon two precious metals, gold and silver, which are final products and raw materials at one and the same time.»³⁹⁾

What is inconvertible paper money or credit-money, in the form of not fully covered bank notes and bank deposits, but an immaterial thing based on political power or the sheer confidence of the public? A few pages later Walras even more emphatically stressed the qualities of unnumeraire-currency. «What is most remarkable in the case of a commodity which serves both as money and as numeraire, is the manner in which all prices rise and fall in terms of A (numeraire) in response to an increase or decrease in the rareté or value of this commodity in its monetary use when there is a decrease or increase in its quantity.»⁴⁰⁾

After all of these quotations the ever recurring question is: Why did Walras not state explicitly that in a system of general equilibrium there is no place, either in theory or in practice, for any anti-numeraire form of money in circulation? The most plausible explanation for this failure by such a great thinker as Walras appears to be the fact that first, he did not have the law of the natural parameter or the numeraire and its corollary, and second, he was not fully aware of the distinction between numeraire (equilibrium) and anti-numeraire (disequilibrium) forms of money and even less aware of the consequence of this distinction.

It is true that Walras later in his life changed some of his monetary views but he did not change the two deficiencies just mentioned. In a proposal presented at the International Monetary Conference for the continuation of the Latin Monetary Union (1884), for instance, he abandoned his previous favorable attitude to bimetallism and instead recommended a system of gold-money and silver as a regulating bullion.⁴¹⁾ In a subsequent study: *Theorie de la Monnaie* (1886), Walras reiterated his proposal of gold-money with silver as regulating bullion and stressed «the prohibition of any issue of bank notes in which I recapitulate today the theory of circulation.»⁴²⁾

39. Leon Walras, *Elements*, p. 329

40. » » *op. cit.* p. 333

41. » » *Etudes d'Economie Politique Appliquée* p. 19

42. » » *op. cit.* p. 73

In conclusion the following statement must be added explicitly to the previous list :

In conclusion the following statement must be added explicitly to the previous list :

- (17) In a system of general equilibrium all forms of money in circulation must be of the numeraire – currency type. At the same time all forms of anti – numeraire money must be prohibited by law.

7. The Theory of Foreign Exchange Markets

Foreign exchange rates appear as a ratio of foreign money expressed in terms of domestic currency or vice – versa depending upon the custom of quotation (continental vs. British technique). Much credit is used in international transactions, but as long as this credit is fully backed by a commodity, a service like shipping or a certain amount of numeraire – currency, the credit in question is real and non-monetized. Therefore such fully covered credit is limited and consistent with the law of general equilibrium. Bills of exchange are issued and traded along with these transactions. As long as such bills of exchange are issued and traded under the above conditions, freely convertible in numeraire and not monetized by banks, they do not constitute a problem because they represent an equilibrium type of circulation media.

We can therefore identify another condition of the state of general equilibrium :

- (18) Given (a) that foreign exchange is fully backed and freely convertible in numeraire – currency or any numeraire type of money ;
- (b) that it is traded freely in open markets where monopoly is excluded and pure competition prevails ; and
- (c) that numeraire – currency itself is freely imported and exported, then the state of equilibrium will be marked by the fact that the effective demand for foreign exchange is equal to the available supply of foreign exchange. This is the equilibrium exchange rate and is at par with the official rate.

Consequently, the normal Marshallian demand and supply curves will also be applicable to the foreign exchange markets.

Should the state of equilibrium be disturbed then, according to Walras, arbitrage (natural speculation) in bills of exchange will restore it. Of course, in addition to this, the well – known mechanism of foreign exchange itself, the gold or numeraire

re import and export points, the rate of interest and the level of prices will complete the adjustment process.

Under conditions of stable equilibrium, a large number of international transactions are settled through the use of bills of exchange. Therefore only a small quantity of gold or silver (as numeraire) need move from one country to another to reestablish equilibrium whenever it is disturbed. Walras is absolutely right when he concludes :

«Thus the world market for bills of exchange serves as a vast clearing house where the transactions of all countries are liquidated by the mere payment of differences. And this result is obtained purely and simply by the automatic operation of the mechanism of free competition. The law of supply and demand regulates all these exchanges of commodities just as the law of Universal gravitation regulates the movements of all celestial bodies. Thus the system of the economic universe reveals itself, at last, in all its grandeur and complexity : a system at once vast and simple, which, for sheer beauty, resembles the astronomic universe.»⁴³).

8. The Theory of the Business of Government (Public Sector)

The classical tradition, as inherited from Adam Smith and other thinkers, was that government is a consumptive institution and therefore the analytical apparatus of the principle of free competition cannot be applied to an explanation of how public income (taxation) and expenditures are determined or should be determined. It seems that Walras shared this classical tradition, even though not explicitly. In any case he left the public sector out of his law of general equilibrium. There may have another stronger reason, namely, in his plan for the nationalization of land with the government as an administrator of rent where he assumed land to carry a surplus value in all progressive societies. Land was supposed to be purchased by the government and then rented to individuals and corporations.⁴⁴)

In this way, he thought, two principal problems could be resolved. First, by creating conditions of equality in the social milieu, the individual may develop his unequal God-given talents and desires so that the social ideal of justice would be accomplished. Second, when he recommended that the government be the admi-

43. Leon Walras, *Elements*, p. 374

44. » » *Etudes d'Economie Sociale*
Theorie de la Repartition de la Richesse Sociale 2nd edition, 1936.
Lausanne, F. Rouge & Cie p. vi

nistrator of land and receive all rents, he believed that this should be the unique source of public income and all taxation could be abolished. Walras especially opposed a personal income tax. In view of the negative results under the collectivization of agriculture in different socialist countries in this century, Walras could have a second thought on this issue even though, to be fair, his proposal is different from the socialist experiment. The point here is that government is not a good administrator, and by nationalizing land – a principal factor of production – more problems may be created than resolved.

Let us go back and see how he justifies his position from the theoretical point of view of pure economics :

«Our proof implies a fundamental distinction between individual wants i.e. private utility which the individual is capable of estimating, and social wants or public utility which is estimated in an entirely different way. Therefore, the principle of free competition, which is applicable to the production of things for private demand, is not applicable to the production of things where public interest is involved.»⁴⁵⁾

This is a widespread view even today, a hundred years after Walras expressed these thoughts. A critical examination of the issue may prove that there is more truth in the opposite view of an organic interdependence between the public and the private sectors even though each one may retain its own particularities. Indeed, more analytical work in the study of government and government finance, by the application of the new research program of equilibrium vs. disequilibrium approach, could provide support for a new view that government, under conditions of stable equilibrium is actually a fifth factor whose services are indispensable for a complete and successful economic process in a modern economy as are the other four factors, each with its own peculiarities.

Let us examine this issue more carefully. First, there is an effective demand for and an effective supply of public services for which a price is to be paid – taxation. Consequently there is a market for public services whose production and distribution requires the cooperation of the other four factors. Second, there is free competition (assumed in democratic countries) among the political parties which want to be in charge and administer public services exactly as there is competition among the entrepreneurs who want to be in charge of and manage private corporations. Third, the resources are limited in both the private and public sector and therefore in both we are faced with the problem of making a choice among

45. Leon Walras, Elements, p. 257

different uses of the available resources (again competition). Fourth, we strive toward the same goal of maximum utility : individual utility in the private sector and social utility in the public sector. Fifth, we want the highest possible degree of efficiency in the use of available resources in both sectors, that is to produce and distribute services (private and public) at a price or taxation equal to the lowest cost of production.

If you consider all of these things, it appears that the principle of competition and other rules of efficiency are not out of order in the public sector as Walras assumed. Consequently, since no modern economy can exist or function normally without the existence of an adequate form of government, we may conclude that under conditions of stable equilibrium government must be considered as a fifth factor of production with a legitimate right to have its own revenue measured and evaluated by the same principle of marginal utility (marginal productivity) as for the other four factors.

There is a problem of social equity which must be resolved in both theory and practice. It is the quest for «just taxation.» The same problem also exists for the private sector – namely, the requirement for «just prices» of both finished products and services. The solution therefore is not to separate the private from the public sector and leave the latter outside of pure science, as Walras wanted, but rather to investigate rigorously under what precise conditions prices charged by private business and prices (taxes) charged by government are truly equilibrium prices and taxes. In other words, we need a theory and a model of an equilibrium form of government and government finances, which then can be attached to the scheme of the Walrasian law of general equilibrium making it complete and truly general.

We cannot pursue this important subject further here, but it must be remembered that a number of economists during the last part of the 19th century and the first two decades of this century have diligently worked on this issue and reached valuable results. Unfortunately, these results were later abandoned due to the strong influence of Keynes's and Marx's works which run in the opposite direction – the study of disequilibrium conditions. Pantaleoni (1857–1924) was probably the first who, as far back as 1883, attempted to prove that the laws of value, specifically the criterion of marginal utility used by Walras and Jevons, also had application to the evaluation of public expenditures.⁴⁶ An entire Italian

46. M. Pantaleoni, *Contributo alla Teoria del Riparto delle Spese Pubbliche* (1883) quoted in Antonio de Viti de Marco, *Principia di Economia Finanziaria* (1833) *Preziosi* di Luigi Einaudi. Edizioni Scientifiche Einaudi, 1953 p. 18.

school which dealt with the same subject of public finance based on the same principle developed at the turn of the century. In particular, Antonio de Viti de Marco (1858–1943) and Luigi Einaudi distinguished themselves in the same attempt to prove that the laws of value in pure economics are applicable also in the domain of public finance. Erik Lindahl⁴⁷ and Knut Wicksell⁴⁸) from the Scandinavian school as well as Emil Sax⁴⁹) from the Vienna School have made important contributions to the understanding of the problem of «just taxation» and the optimum level of public expenditures.

We can therefore conclude that in a system of stable equilibrium, government can be considered as the fifth factor of production under the following conditions :

- (19) No public expenditure can be undertaken without a prior adequate public income derived from taxes or borrowing. In other words, first income then expenditure. This rule can be linked to the private sector under the same equilibrium conditions — first capital formation (voluntary savings) then investment.

This may be called the principle of budgetary stability.

- (20) No taxation should be imposed upon the people without a prior direct consultation and the consent of the majority through a referendum on a regional basis (like Switzerland).

This may be called the principle of social equity and democracy in public finance.

- (21) The state of general equilibrium can be expressed then by the formula :

$$\frac{\text{The marginal utility of \$ 1.00 spent for public services}}{\text{the marginal utility of \$ 1.00 spent for private goods}} =$$

It means that at the limit both private and public goods are equally productive in the sense of equally valuable, as they should be in a free, just and stable society and economy. This would correspond to conditions with an equilibrium level of taxation and an optimum level of public expenditures combined with an equilibrium level of prices for private goods. Then people would not object to paying taxes.

47. Erik Lindahl, *Die Gerechtigkeit der Besteuerung. Eine Analyse der Steuerprinzipien auf Grundlage der Grenznutzentheorie.* 1919

48. Knut Wicksell, *Finanztheoretische Untersuchungen.* 1896

49. Emile Sax, *Grundlegung der Theoretischen Staatswirtschaft* 1887

The principle of maximum utility and efficiency will then govern both sectors and not the least important, the ethical principle of justice of equity will be fulfilled.

Walras ever came close to the realization that if the proof was given that one and the same principle of marginal utility and/or marginal productivity determined the production of both private and public goods and also the distribution of all major sources of income (rent, wages, interest, profit and taxes), then this ipso facto would achieve justice of equity or of equitable shares. Of course, this refers to a model of ideal conditions. If we want to have such conditions in the future, this requires resolving the problem of social inequities inherited from the past through a reasonable social reform before we introduce conditions of stable equilibrium.

Unfortunately Walras had a very narrow concept of science equated with pure theory and nothing else. Consequently ethics for him was a subject outside of science. After he succeeded in putting the theory of exchange, production and capital formation under the same roof, proving to be «a great master of universal interdependence,» as Schumpeter called him,⁵⁰⁾ he wrote :

«Are these conditions of maximum utility just? That is for the ethical theory of the distribution of social wealth to say ; only then can the economic theory of the production of social wealth boldly proceed to work out in detail the application of the principle of free competition to agriculture, industry, commerce, banking and speculation.»⁵¹⁾

Even though he frequently uses the term «justice of equity» and mentions the trinity, «Truth, Utility and Equity,» as making a «perfect social science,»⁵²⁾ nevertheless in application he splits the concept into «justice of equity» for the private sector and «justice of equality» for the public sector, without realizing that in this way a logical inconsistency is inevitably created in the system. He did this with the honest belief that a reconciliation (accommodation) between absolute individualism (Liberalism of the laissez-faire type) and absolute collectivism (Socialism - Communism) was possible by following this road. But such a solution is a doctrinaire compromise, very debatable in science — then and perhaps even more today. Schumpeter, who otherwise gives Walras full credit for his unique performance in pure economics, on this issue remarked on «his questionable philosophies about social justice, his land-nationalization scheme and other things

50. Joseph Schumpeter, op. cit. p. 1025

51. Leon Walras, Elements, p. 306

52. » » Etudes d'Economie Sociale, p. 31

that have nothing to do with his superb achievement in pure theory. They have nothing to do with superb achievement' in pure theory. They have cost him the goodwill of many a competent critic, and must, I imagine, try the patience of many of his readers.»⁵³).

In short, there seems to be enough evidence of the possibility of uniting the private and the public sectors under the common roof of pure economics. It is not by way of submitting the private sector unconditionally to the power of government but rather in recognizing an organic interdependence among all parts of a modern society and economy. The task of science then is to provide a consistent link which will unite the two sectors without creating problems of dependence, all of which is possible in a generalequilibrium scheme. Walras did not have the adequate methodological tools to discover the link and therefore he left the two sectors separate.

The new research program can provide such a consistent link by identifying the stable forces, elements, behavior and values vs. the unstable ones in human societies, economy and government. In this way a new condition emerges :

(22) It appears both logical and realistic that in a law of general stable equilibrium, we must include only stable elements, forces, behavior and values. Otherwise a qualification is needed and the solution to a given problem is no longer determinate in the complete sense of the term.

9. The Concept of «Pure» Competition Often Misinterpreted

The concept of pure competition often is confusing, especially when the prefix «perfect» is added. Walras used both terms interchangeably as if there were no difference between them. Later, however, other economists insisted that the two terms must be differentiated. Edward H. Chamberlin, for instance, interpreted pure competition as requiring (a) a relatively large number of buyers and sellers ; (b) a perfectly homogeneous product ; and (c) not being alloyed with monopoly elements. As to the meaning of «perfect» competition, he added more requirements, like the «absence of friction» and «perfect knowledge of the future and the consequent absence of uncertainty.»⁵⁴ All these requirements were interpreted, not only by Chamberlin but by many other economists, as leading to the conclusion

53. Joseph Schumpeter, op. cit. p. 827 – 28

54. Edward Chamberlin, *The Theory of Monopolistic Competition* (1933) A Re – Orientation of the Theorie of Value, Harvard University Press, Cambridge, 1962 8th ed. p. 6, 16

that pure competition actually is impossible, an abstraction that never existed and never could exist.

Unfortunately there is a misinterpretation in the above presentation which requires clarification. In the first place, competition in theory is, of course, an «abstraction from reality» like any other concept but, as Boulding stressed, «without these abstractions . . . we cannot hope to understand reality.»⁵⁵⁾

The law of NaPaNu and its corollary can help clarify this argument. In general when a force like competition is isolated analytically from opposing forces, it is always pure by definition ; this is what Walras had in mind. «Perfect», on the other hand, does not relate to competition per se but rather to the institutional framework where competition is supposed to work, a framework which indeed must be perfectly consistent with NaPaNu and the force in question. Only under such a framework as delineated in Model No. 1 on our Orientation Table can competition be pure and perfect in theory, and in Model No. 2 in theory and practice.

In conjunction with the same issue, the problem of natural monopolies is often raised as proof against the possibility of having pure competition in practice. The answer to this is simple. In a system of general stable equilibrium, natural monopolies must and can be neutralized completely by a law of social and economic justice requiring such monopolies, as well as other businesses, to sell their product or service in question at an equilibrium price, equal to the lowest cost of production, wherein a normal rate of profit and a small percentage for incentive to innovation and growth are included.⁵⁶⁾ Summing up, pure competition in action does not need to destroy itself through mergers and monopolies if we provide an adequate institutional framework.

It is a pity that during the 19th century when the doctrine of liberalism was put into practice (without a suitable milieu having been prepared) and again during this century, competition was given free reign to act wildly in an institutional framework full of inherited inconsistencies and contradictions. Moreover, this state of affairs has been defended and perpetuated under the false image of an archaic concept of economic freedom which has frustrated any sense of social equity, and under the illusion that the law of supply and demand can by itself successfully resolve problems created by hidden contradictions in the system.

55. Kenneth Boulding, *Beyond Economics*
Essays on Society, Religion and Ethics
University of Michigan Press, 1968 p. 98

56. Anghel Rugina, *American Capitalism*, p. 10, 90

From this we can draw another condition for a state of general equilibrium:

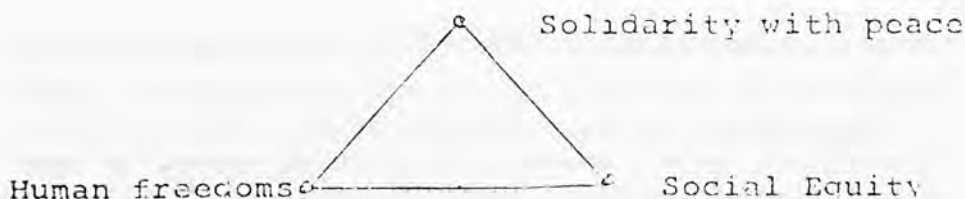
- (23) Competition in action is, as Walras noticed, «a self-driven and self-regulating mechanism»⁵⁷) throughout the whole economic system, but he failed, to add: only when it is anchored into an institutional framework consistent with NaPaNu. Furthermore, all other opposing forces must be eliminated or neutralized to the point where they are no longer an impediment in the normal functioning of the system.

Finally, the concept of competition has another dimension that escaped Walras because of his narrow, one may say puritanic, view of science which he equated to pure theory and nothing else. In a broader perspective, that is looking at society as a whole, competition appears as one aspect of a larger principle, namely, that of human freedoms (social, economic, political, cultural) which runs through all social science, economics included. Competition is indeed a branch of the tree of human freedoms. The central weakness in the economic thinking of the 18th and 19th century was the fact that the thinkers of that time (influenced by the French and American Revolutions) concentrated on only one factor — human freedoms as the basis of a free, democratic society and economy, and gravely neglected the other two principal pillars—social equity and human solidarity with peace. Thus the liberal experiment of that time ended with half success: progress and failure.

The 20th century thinking tormented by two world wars of destruction, by the Great Depression of the 1930's and the Russian Revolution, shifted toward more social justice, not of equity but more of equality, thus introducing new inconsistent elements in the already weakened institutional framework, all at the expense of individual freedoms. Following this road, the result cannot be called a success because we are approaching a crisis of large dimensions characterized by an open conflict between the ideal of human freedoms and that of social equity. We are no more satisfied with present conditions than we would be to return to the past. To turn the wheels of history in the right direction, we need to learn the right lesson from past as well as from our present experiences.

The new research program provides a methodological tool with which to judge and interpret competition as well as any other present and past institution, practice, behavior or value in human societies, with a view toward the ideal conditions of stable general equilibrium. This instrument can be shown as a triangle expressing the interdependence of three basic principles which form a logical entity:

57. Leon Walras, *Elements*, p. 305



If competition is a part or an aspect of human freedoms, then certainly according to this standard it has a natural limit in respecting the other two basic principles. Thus a new condition for a state of general equilibrium arises :

(24) Competition in theory and practice is naturally limited by two other cardinal principles which together harmoniously unite society, economy and government : Social Equity and Solidarity with Peace. This is the true image of fair, workable, balanced (equilibrium) competition. Equilibrium prices, as defined earlier in this paper, satisfy this requirement.

All three principles are interrelated and consistent with each other. Thus they form a logical entity. Each one determines simultaneously a natural limit to the other two. To be able to enjoy the fruits of a new, better social order of tomorrow constructed in accordance with conditions of general stable equilibrium, we need to learn how to live and think in terms of an equilibrium (balanced) concept of competition, human freedoms in general, social equity, human solidarity, and peace. Whatever does not satisfy all three basic principles of the triangle, contains characteristics and problems of disequilibrium.

From these observations we can determine a new condition for a state of general equilibrium, which is purely methodological :

(25) A theory of general equilibrium in a particular field like economics must be structured in such a way as to remain open to an organic link with similar theories in related fields. This is particularly true for all branches of the social sciences.

Of course, we have to understand that a general theory can be constructed only within the limits of a given system and not for all possible systems, the latter case belonging to the Impossibility Theorem.⁵⁸⁾

58. Anghel Rugina, *American Capitalism*, p. 36 - 37, 226 - 228

This line of investigation into the basic patterns of a state of stable general equilibrium could be continued and probably new conditions unearthed. For the purpose of this paper, however, what has been done to this point seems to be sufficient to reach a conclusion about the nature and improvement of the Walrasian law of general equilibrium. There is one important question for an independent study, which was omitted for lack of space: «Is the Walrasian system static, dynamic, or both?»

III. THE WALRASIAN LAW COMPLETED AND REFORMULATED

1. Review of what Walras Overlooked

In reviewing the previous discussion of the missing parts and correction of the Walrasian law, we can identify the following major points:

1. Walras correctly saw the necessity of the «numeraire» as a constant magnitude (natural parameter) of a system of stable equilibrium but he did not perceive nor formulate the law of the NaPaNu.
2. Walras did not see, either theoretically or practically, that a force like pure competition cannot act in a vacuum so as to produce and maintain a position of stable equilibrium. He was not aware that fundamentally his system required an adequate institutional framework consistent with the NaPaNu and the force of competition. In other words, he missed formulating the law of consistency.
3. Walras overlooked the compensatory law of real investment, income and employment between the monetary and non-monetary sectors in a system of stable equilibrium. This law is indispensable in order to see how stability – from –within is maintained in practice and how the goal of full employment without government intervention can be achieved.
4. Walras did not consider the universal hypothesis of duality in the physical and socio-economic universe. Thus he was not sufficiently aware of the difference between what may be called «ideal reality» (real life as manifested under conditions of stable equilibrium) and «actual reality,» which in his time was a mixture of equilibrium and disequilibrium conditions, perhaps not as bad as today but still disequilibrium. This goes back to the fact that he did not envision clearly the difference between nature and human societies, specifically that the natural parameter and the adequate framework in the physical universe

are given, whereas in human society, economy and government both have to be discovered, constructed with, and maintained through the best possible means. Walras underestimated the complexity of problems posed by the real world in order for his system of stable equilibrium to be realized in practice.

5. Walras was not aware of the important distinction between numeraire as an equilibrium and anti-numeraire as a disequilibrium form of money. He thus neglected to point out explicitly that a state of general equilibrium requires a 100 percent numeraire-currency system and all anti-numeraire forms of money should be banished by law.

6. Walras did not have an adequate nor complete view regarding the relationship between money – and capital – and capital – markets. Even though he distinguished the liquidity – function vs. the investment – function, nevertheless he did not complete the reasoning leading to the formulation of two sets of interest rates, namely, one for the money-market (short term loans) and the other for the capital market (long term loans). He mingled savings with cash balances.

7. Walras failed to develop an adequate theory of entrepreneurship and normal profits, even though he described the function in question very well. He did not see the difference between normal profits and profit-differentials, the latter having the task to innovate and increase output whenever necessary. His assumption that under conditions of equilibrium, profits equal zero is not only confusing but also not justified once the function of entrepreneurship has been identified as different from the task of the other factors.

8. Walras was not aware that the greatest impediment for the realization of a system of stable equilibrium in his time was modern banking, which then as today represented an immense factory of monetized credit, i.e., of manufacturing and pouring into circulation anti-numeraire or a disequilibrium form of money.

9. Walras also was unaware that in an organized stock-, exchange-, and commodity market two entirely different kinds of transactions take place daily. Natural transactions represent real buying and selling where speculation is limited and always fully covered. This is consistent with conditions of stable equilibrium. The other kind of transactions is just nominal and consists of a wager that the future prices may go up (bullish speculators) or down (bearish speculators). In this case speculation is unlimited and not fully covered. This, however, is inconsistent with equilibrium conditions. Walras considered that all transactions were natural and therefore no problem of disequilibrium existed on the organized stock-, exchange- and commodity markets («La Bourse» in French).

10. Walras did not have an adequate solution to unite the theory of the private sector with the theory of the public sector even though logically this was required by a truly general law of equilibrium. He kept the two sectors separate so that his law of general equilibrium actually pertains only to the private sector of the economy.
11. As a result of 10, in a way Walras was forced to split the concept of social justice in two – justice of equity for the private sector and justice of equality for the public sector. He did not realize that by so doing an anomaly was created in his system of stable equilibrium.
12. Walras did not perceive that competition in itself was just an economic aspect of the larger principle of human freedoms (social, economic, political) which, in conjunction with two other basic principles (social equity and human solidarity with peace) can unite all social sciences by creating a consistent social universe where the Walrasian system with new additions and corrections can be perfectly integrated.

The application of the new research program was instrumental in unravelling the missing parts and realizing that the law of general equilibrium, both in theory and action, is much more complicated than envisioned by Walras. Nonetheless, when next we will put all the pieces together, it will become evident that the constructed whole fits in very well with the foundation provided by Walras. That is why Walras' contribution is so great and Schumpeter was so right in his evaluation.

2. The Walrasian Law Completed and Reformulated

The Walrasian law in its complete form follows. Given :

- (1) a system of free markets ruled by competition alone ;
- (2) that all prices for products and services of the factors and implicitly all incomes including foreign exchange are expressed in terms of a numeraire – currency which serves as the natural parameter of the system ; and
- (3) that the law of consistency and the compensatory law are satisfied by a joint complex of an institutional framework especially tailored to support (1) and (2) to the maximum ;

then we have fulfilled the first line of conditions for a state of general equilibrium which is characterized by :

- (4) The effective demand is equal to the effective supply ;
- (5) For each product and service there is one price in the market ;
- (6) The greatest possible satisfaction of consumers' wants or maximum utility to both consumers and producers is achieved ; and
- (7) The selling price for each product and service is equal to the marginal utility, marginal cost, marginal revenue, average cost.

The complex institutional framework capable of supporting the realization and maintenance of stable equilibrium at the point of full employment, requires a second line of conditions as follows :

- (8) Capital formation = voluntary savings, which means there is no «forced saving» in the system due to the inflationary effect or other means ; in other words, the prevailing rule is : First Saving then Investment ;
- (9) Banks are converted into intermediary institutions between «savers» and «investors» and by law are prohibited to monetize credit in the form of bank notes, bank deposits or any other form ; all other financial institutions (private or public) must conduct their business under this same rule.
- (10) Credit in the economy is free and real but not monetized ; its natural limit is determined by the aggregate volume of real income ;
- (11) The aggregate of new investments = the aggregate of voluntary savings ;
- (12) The money market is separate from the capital markets and each one has its own interest rate, one for liquidity, the other for investment ;
- (13) Money (numeraire) capital = real capital (in form of capital goods expressed in terms of numeraire) ; in general, any form of money – income (rent, wages, interest, profit and taxes) = real income ;
- (14) The function of entrepreneurship is recognized as a fourth factor of production with its own income – normal profit, which is to be added to the other cost elements.

The equilibrium price therefore - the least average cost where normal Profits are included ;

- (15) A small percentage of a profit - differential is allowed over and above the

normal profit as an incentive for innovation and as a reward for producing more, whenever necessary ;

(16) Traders in the organized stock , exchange – and commodity markets are required by law to limit their business to real transactions, that is, outstanding buying and selling always fully covered. Nominal transactions or pure speculation (formal betting on future prices) is prohibited by law as being harmful to society and economy as a whole ;

(17) The Central Bank of the country is entrusted to create and put into circulation only numeraire – type of currency ; all forms of anti – numeraire money issued by the Central Bank or government are prohibited by law ;

(18) The business on the foreign exchange market follows similar patterns :

— foreign exchange is fully backed and freely convertible in a numeraire – currency ;

— foreign exchange is traded in open markets where pure competition prevails and monopoly is excluded ,

— free import and export of numeraire – currency : then

— the effective demand for foreign exchange will tend to be = the effective supply of foreign exchange, and

— the foreign exchange rate will be = the official parity ;

(19) Government business and its finances are conducted according to the rule : First income and then expenditure. It means that no public expenditure can be undertaken without a prior adequate public income derived from taxes or borrowing. This is the principle of budgetary stability.

(20) No taxation is imposed upon the people without a direct consultation and the consent of the majority through a referendum on a regional basis. This is the principle of social equity and democracy in taxation.

(21) The state of equilibrium in public finance is reached when :

The marginal utility of \$ 1.00 spent in the private sector = the marginal utility of \$ 1.00 spent in the public sector ;

(22) A careful inspection of all major institutions and practices in the system confirms that all are consistent with the three basic principles of the triangle : Human Freedoms, Social Justice of Equity, and Human Solidarity with Peace ;

- (23) All inconsistent elements and practices are eliminated or neutralized to the point where they are no longer an impediment in the normal functioning of the system ;
- (24) In a law of social and economic justice it is made clear that fair competition as a part of human freedoms has natural limits with respect for the other two basic principles of social equity and human solidarity with peace.
- (25) Finally, a law of general equilibrium in a given study like economics must have, from the methodological point of view, a kind of built-in open bridge that, when necessary, can be linked to a similar theory in related fields.

When all these 18 requirements of a consistent institutional framework plus the initial seven are fulfilled, we can say that it is possible to attain and maintain a state of general stable equilibrium, both in theory and practice. Without such an explicit assumption – a vast complex of institutional machinery – the Walrasian system and the law of general equilibrium will remain an imaginary, unfinished product of the mind, a vision without a chance ever to be realized in practice.

Above all, the time of Walras is not over but coming. There seems to be a cyclical movement in the history of modern economic thought. The 17th and the first half of the 18th centuries were dominated by thinking in terms of disequilibrium conditions, at the centre being the mercantilist doctrine. During the second half of the 18th and the 19th centuries a shift took place in the direction of thinking in terms of equilibrium conditions and this was the classical school. In the first half of this century, attention appears to have been concentrated more on conditions of disequilibrium. Indeed the main contribution of Lord Keynes and his disciples was to establish a more perfect study of «Economics of Disequilibrium» or «Economics of Uncertainty & Relativity», even though this goal was always clearly stated.

We now stand on the threshold of a new era in economic thinking and hear of «New Times and New Economists». The position of the new economists, all in the 30's and early 40's, so far is critical of prevailing economics and hints at possible new roads of analysis, without having brought out yet a specifically defined method of analysis. But according to the above mentioned cyclical movement in the history of modern economic thought, next in line is a phase of thinking in terms of a model of more perfect equilibrium conditions, which we desperately need now more than ever. This may be called the «Economics of Stable Equilibrium» or the «Economics of Certainty», which this author has advanced for more than twenty five years. And that is also what Walras stood for all his life.

STRUCTURAL ASPECTS OF CAPITAL FORMATION: A CROSS-COUNTRY ANALYSIS DURING EARLY 1960's

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1. Introduction

This paper¹ deals with some structural aspects of capital formation and stresses the role of capital and its demand pattern during the course of economic development, especially during the transition to sustained growth.

To trace the pattern of capital goods demand is necessary before any investigation in imports of capital goods is taken up, since the structural aspects are those could give an explanation to the balance of payments problems in countries at different stages of economic development, and since the whole issue shifts from the problem of capital formation to the foreign trade problem. Thus the following analysis is intended to set forth only those elements which will cast light on the demand for capital goods and its subsequent problem of imported component of capital accumulation.² We proceed with an analysis of structural aspects of capital formation, a statistical cross-section exercise on capital formation proportions and ca-

1. This is a part of my Ph. D. Thesis, written in 1966 - 68, when I was at the Economics Dept., Bristol University.

2. See S. A. Sarantides, Foreign Trade Aspects of Capital Formation, Reprint from "SPOUDAI", 1975, Graduate School of Industrial Studies, Piraeus-Greece.

pital-output ratios, and conclude with some considerations of trade-development relations dominated by the comparative advantage doctrine.

2. Capital formation and transition to sustained growth

To reach a certain critical level of per capita income in a definite time horizon, a certain quantum of investment should take place. The procedure of this necessary bulk of investment may be either of a «bit-by-bit» type or of an «overall» type. Some economists speak of a necessary «shock» to happen in the economy and which is a mixture of economic, social and political factors.

The first procedure which suggests small injections of investment will probably cause a waste of financial means, spreading them over a long span of time without any dynamic power, and leaving the economy in the same position. Our thesis, far from being involved in the balanced/unbalanced-growth discussion, dictates a considerable minimum amount of investment in order for the system to be capable of elevating itself to a desired level. From that level onward the system feeds itself and growth becomes easier.

Rosenstein-Rodan¹ in two celebrated articles exposed his «big-push» theory according to which «launching a country into self-sustaining growth is a little like getting an aeroplane off the ground. There is a critical growth speed which must be passed before the craft can be airborne». A minimum quantum of investment is a necessary, though not sufficient, condition of success.

In the economic literature of growth and development, capital formation has been the classical strategic variable which most of the scholars on the subject have been dealing with (Nurkse, Rosenstein-Rodan, Harrod, Domar, Lewis, Rostow etc.). But growth economists usually overemphasize the role of capital in the development process and reaction from several sides came to oppose this over-emphasis given to capital. Among the latter are A. Cairncross, S. H. Frankel, J. H. Alder, et al. Colin Clark² in a short article

1. R. N. Rosenstein-Rodan, «Problems of Industrialisation of Eastern and Southern Europe», *Economic Journal*, June-Sept., 1943, and «Notes on the Theory of the 'Big Push'», in H. S. Ellis, (ed.), *Economic Development for Latin America*, New York 1961.

2. C. Clark, «The fundamental Problems of Economic Growth», *Weltwirtschaftliches Archiv*. Band 94, 1965.

argues that the use of some concepts in economic theory, like the capital-output ratio, is not more soundness and productivity rests on a variety of human and material factors.

Capital is not considered, of course, the *deus ex machina* in solving the problems of backwardness, but it is the most important among the «key factors» in the development process. Recent studies on production movements show that capital and labour alone do not make the entire increase in output and growth. Other factors, coined as «residual factors» of economic growth, apart from capital, labour and natural resources, contribute to output and growth¹. M. Abramovitz found that almost the entire increase in net product for capita in U.S.A., since 1800, was associated with rise in something other (residual) than the input of physical capital and services of labour². In answering the question, if education accelerates economic growth, D. C. McClelland found that: (1) countries investing more heavily in education have tended to develop more rapidly; (2) the return on higher education investments may be as high as 21 per cent; and (3) adequate educational grants for underdeveloped countries to set for rapid economic development are 20 students in secondary school and two students in higher education for every 1,000 inhabitants in the country³. Some Swedish economists found also that investment expenditure only in education can increase national income without any other investment.

Nevertheless, investment in construction, machinery and transport equipment was the only means for the most developed or semi-developed countries in their developmental course to reach a reputation in industrialisation. In Japan, for instance, after the Meiji Restoration (1868), the Japanese Government, and the private enterprise after 1880, embarked on an active industrialisation with high capital formation out of national product⁴. The Government regulations strongly encouraged investment and reduced consumption. According to Professor Kuznets' data the proportion

1. Organization for Economic Cooperation and Development, *The Residual Factor and Economic Growth*, Paris, 1964. See also T. W. Schultz, *The Economic Value of Education*, New York, 1963.

2. M. Brown, *On the Theory of Measurement of Technological Change*, Cambridge 1966.

3. David O. McClelland, «Does Education Accelerate Economic Growth», in *Economic Development and Cultural Change*, Vol. XIV, No. 3, April, 1966.

4. See H. Rosovsky, «Japanese Capital Formation: The Role of the Public Sector», *The Journal of Economic History*, Sept., 1959, pp. 350-73.

of G.D.C.P. to G.D.P. (based on current price totals) rose from 10.8 per cent in 1897-1916 to 17.0 per cent in 1922-40 and 28.1 per cent in 1952-58¹.

A big push, including «education push», is badly necessary for the economy to make a jump up to an appropriate income level after which things become easier. Speaking in economic terms, the key variable for such a movement in the system should not be other than capital formation. Not only this. The injection at the beginning must be massive and well-planned, granted that the time horizon is a definite one. This is a logical emanation of the urgent nature of the developmental problems and it is supported by many economists, though H. S. Ellis² opposes the idea of a massive injection of capital as a precondition of growth. Thus we have to agree till now that the main «key-factor» is capital and that a well-planned and significant minimum quantum of capital formation is indispensable for countries in the lowest income bracket which want to break out of the vicious circle of poverty. Precisely this is what calls for heavy tasks and causes a host of problems in designing economic development.

Sketching out the implications of capital formation we add the following:

1) Capital formation presupposes an abstinence from consumption. This implies that productive factors should be released from the consumption sector and be dedicated to the capital goods sector. Production of investment goods involves time which is usually much longer than the time needed for production of consumption goods. This is the classical two sector model and presupposes two elements: (a) a saving decision, that is, abstinence from consuming a portion equal to the desired amount of investment goods and (b) a «waiting» for the construction of these goods in the capital sector of the economy. The more capital goods we want and the longer the «waiting», the more abstinence it requires. Thus, for a country in the first stage of development the completion time of constructing a certain stock of capital will depend on the above two aspects.

The above model was followed by the advanced countries when they first initiated their development, and the classical theory, product of that era and the then experience, was correct in their case.

1. S. Kuznets, *Quantitative Aspects of Economic Growth: VI Long term trends in Capital Formation*, Economic Development and Cultural Change, Vol. IX, Part II, No. 4, July 1961, Table 3.

2. H. S. Ellis, «Accelerated Investment as a Force of Economic Development», *Quarterly Journal of Economics*, November, 1958.

Today, underdeveloped countries are confronted with both problems of savings and of «waiting». Moreover, population pressures make the development problem more difficult. Absistence at a very low consumption level is impossible. «Waiting» is an irony. Underdeveloped countries want to spur their development and to narrow the gap between them and the advanced countries. External relations make it possible for the economy to overcome, on the one hand, the savings constraint through foreign grants and loans, and on the other hand, the time constraint through importing the necessary investment goods and equipment. In this way the classical closed model becomes an open one involving foreign trade. Without any or without a sufficient capital sector in the economy, opening up trade makes possible capital formation in a shorter time than otherwise. Thus capital formation involves imports of capital goods.

We shall call the above aspects the structural aspects of capital formation.

2) Next to the structural aspects of real capital formation the foreign trade aspects lie. From the underdeveloped countries' point of view, it is generally correct to assume that no or insufficient capital sector exists in the economy and these countries have to import all or part of their capital goods which are necessary for their development. From the developed countries point of view as well, opening up trade facilitates capital formation by allowing the specialisation in a few or a line of capital goods and exchanging these for other capital goods imported from other countries. Thus the structural problem reduces to a trade problem in a different degree. Whilst, however, this shift of the problem creates balance of payments difficulties in underdeveloped countries, in advanced countries it creates specialisation in capital goods production, and it pushes the overall transformation curve upwards to the right. The present-day advanced countries did not have the same problem during their early stages of development as the underdeveloped countries have nowadays. The slowly growing and/or small export earnings coming from agricultural commodities in poor countries cannot suffice to finance both consumption goods imports and large scale capital goods imports at the same time. In free countries the demonstration effect on consumption is very strong, but at the same time the real needs in consumption goods are very heavy, taking into consideration the low living standards. Planners are faced with the conflict between consumption goods imports and capital goods imports. Granted the foreign exchange constraint, the foreign exchange limit problem emerges, threatening economic development and putting a ceiling in the rate of growth of G.N.P. In under-

developed countries capital formation and demonstration effect problems boil down to a foreign exchange problem through the import content of both investment and consumption.

3) Another problem which emanates from the above discussion and is of much concern to planners, is that of the criteria for allocating capital and other resources in such a way as to achieve desired outcomes. Planners should be aware of the repercussions of overall investment plans or special investment projects on the balance of payments.

4) Allowing for a given proportion of domestic savings to total capital formation, the difference between actual savings and the desired level of investment will be financed by external resources. The finance problem is of paramount importance in development plans and it poses a large problem for international agencies and institutions. The finance problem can be seen from two points of view:

- (a) as a problem of financing the difference between savings and investment in which case the «savings gap» determines the inflow of external capital, and
- (b) as a problem of financing the difference between current foreign exchange receipts and payments, in which case the so-called «trade gap» is the determining factor of capital inflow.

In making projections the «two gap» approach is used to determine capital inflow and aid requirements. The bigger of the two gaps usually determines the capital inflow. If the «savings gap» is larger, then actual imports will be greater than required by projected growth; if the «trade gap» is larger, then actual saving will be less than potential savings, the two gaps being equal ex-post.

3. Structural aspects of capital formation: Demand for Capital and Interindustry Flows

We discussed two separate functions in the capital formation. First, abstinence from consumption; second, the construction of capital goods, or the execution of investment. The first can be identified as the supply of capital funds, and the second as the demand for capital.

The demand for capital depends on a host of factors among which are the following: (a) population increases; (b) additional capital permits

the introduction of roundabout methods and a widening of the production structure; (c) technical progress is allowed to take place by additional capital; and (d) the introduction of innovational and inventions is accompanied by a «multiplier effect» in the sense that many things should be changed or additional activities should be created to accomodate it. Moreover, according to the traditional «cycle theory», the demand for capital is the most sensitive variable to different phases of economic cycle. This sensitivity expresses itself through the «acceleration principle» according to which an increase in demand brings about a multifold increase in demand for investment goods; and, conversely, a decrease in demand for consumption goods brings about a multifold decrease in demand for investment goods. Thus fluctuations in capital goods production are bigger than in the consumption goods sector. Generally, increasing per capital income leads to higher levels of demand for consumption and this in turn leads to an additional demand for investment goods.

In underdeveloped countries, a strong demand for capital is apparent nowadays because of developmental requirements which stem from their desire and aspirations to close the income gap which exists between them and the rich countries. The need for capital is even stronger in these countries since they realise that they can import innovation and investment goods from abroad speeding up, in doing so, their development rate.

In developmental planning, planners start by fixing targets of growth and assessing the resources requirements which are: natural resources, manpower, and capital goods. In the estimation of capital requirements, planners use different methods and approaches.

A neoclassical approach to the problem is usually based on the concept of a production function of the Cobb-Douglas type, like

$$Y = f(K, L)$$

where Y is the net output, K stands for capital, and L for labour.

Aggregating this function first over all firms in an industry and then over all industries we obtain a theory from which we can derive the allocation of the primary factors to different uses and the distribution of the share of the national product between the owners of the factors¹. From this type of

1. R. Stone and Alan Brown, *A Programme for Growth, I. A Computable Model of Economic Growth*, Cambridge, 1962, p. 81.

function we can estimate capital requirements, but we are not able to see the interflow relations between sectors of the economy and the impact one each other.

Another familiar approach to assessing capital requirements in development programmes is the incremental capital output ratio (I.C.O.R.) based either on historical or cross-section data, or on standardised technical prescriptions¹.

Suppose we know approximately the value of a capital-output ratio, then the required capital will be as in the following equation:

$$I = k\bar{r}Y \quad (1)$$

where I stands for investment or increase in capital stock (ΔK),

k stands for the capital-output ratio,

\bar{r} stands for the target rate of growth,

and Y stands for national product.

The above expression (1) can be written as

$$\bar{r} = \frac{I/Y}{k} = \frac{a}{k} \quad (2)$$

where a is the capital formation proportion.

Expression (2) tells us that the growth rate of G.D.P. depends on the capital formation proportion and on the capital-output ratio. If we fix a target rate of growth and a constant capital output-ratio (I.C.O.R.), then it is obvious that the policy parameter will be the investment ratio. If we hold a as constant then the policy parameter will be the I.C.O.R. Usually the later is more difficult to manipulate by government policies, for it is a purely technical concept, and therefore we take it from historical data (ex-post), or we have to postulate it. If we fix a growth rate of G.D.P. and an investment ratio, we get the required I.C.O.R. (k), which may differ from the technically optimal one². In the case in which the growth rate of G.D.P. is given and the investment-to-G.D.P. ratio is fixed, planning policy would influence

1. The I.C.O.R. may be considered as a special form of productin function.

2. As technically optimal I.C.O.R. can be considered the one which corresponds to optimal technological conditions of the operation of a capital equipment.

the direction of technological advance in order to make (k) approach the technically optimal value. This is to say that economic planning should plan projects with I.C.O.R. as low as possible to permit a higher rate of growth; however, the task is difficult in this case because there are often not many alternatives for investment projects and we are compelled to adopt the existing technology. Comparing, of course, I.C.O.Rs. in the agricultural sector on the one hand and in the manufacturing sector on the other hand, it may be, according to H. Singer¹, higher in the latter than in the former; however, agriculture is not a substitute, or an alternative choice, for manufacturing since underdeveloped countries suffer from lack of industrialisation and they are not therefore going to invest in agriculture simply because of lower I.C.O.Rs.

The problem is associated with the notion of «capital-using» and «capital-saving» techniques. Trying to lower the I.C.O.R. by using «labour-using» techniques, the productivity of labour may drop because of scarce capital. Relevant to mention here is K. Kurihara's² paradox according to which «an attempt to economise on capital relatively to labour could result in an increase in the amount of capital required to produce a given output, because if we identify labour-using techniques as techniques with low I.C.O.Rs. and we accept the more labour-using techniques reduce the net outcome, then low I.C.O.Rs. give low rate of growth, or, tantamount to it, with a given output we require more investment». Evidently, this paradox stems from the fact that substitution of one factor for another cannot be pushed very far, and the complementarity of capital and labour is a strong feature of many production processes.

In this case assuming constant factor inputs, factor intensity is clear-cut; one process may be capital-intensive, another may be labour-intensive along the whole sale of production regardless of the levels of production. We shall return to the foregoing concepts later because of the paramount importance they possess for the capital formation problem and hence for its trade implications.

As was said earlier, direct calculations of capital requirements from an aggregate production function of Cobb—Douglas type or from capital out-

1. H. Singer, *The Mechanics of Economic Development*, Indian Economic Review, Aug., 1952.

2. K. Kurihara, *The Keynesian Theory of Economic Development*, London, 1959, pp. 94-95.

put ratios of the different sectors and of the overall economy, do not give the entire network of inter-relationships between the sectors, nor do they give the indirect effects of an amount of investment in a sector on the others, and in this sense they are of a partial equilibrium nature. Even in a general equilibrium approach, the traditional theory is dealing with the optimum point of a production possibility curve, given productive factors, without considering the interindustry flows. However, production of commodity X requires inputs of commodity Y apart from inputs of primary factors like capital and labour. Thus producing more of commodity X (which may be a capital good) does not imply necessarily withdrawal of commodity Y (which may be a capital good as well) as the conventional transformation curve shows. Each economic system has a complicated internal structure and its performance is determined by the mutual relations of the different components from which it consists of and various factors operating under the surface.

The most useful technique, provided that the data are available, would be an «input-output» construction which would tell us the investment requirements of each sector and the intermediate uses and investment deliveries of each sector to the others. Thus, fixing a target level for consumption we can determine the investment interdependence of the sectors simultaneously and in a general equilibrium approach. We exemplify this idea in terms of the following input-output construction.

Table 1 shows the input-output relationships of the economy. Part I shows the deliveries of intermediate goods and services from one industry, or activity, to another. The rows show what industry i sells to industry j , and the column show what industry j receives from industry i plus the value added.

Part II shows the interindustry deliveries of investment goods or goods identified as capital goods. The rows show investment goods allocated to industry j by industry i , and the columns show investment goods received by j from industry i . Investment goods are a part of the final product of different activities.

Part III shows the vector of final product for consumption.

Part IV shows the total output of each activity.

The rows of the table satisfy the accounting identity

$$Q_i = \sum_j Q_{ij} + \sum_j I_{ij} + C_i, \quad i, j = 1, 2, 3, \dots \quad (1a)$$

which implies that the sum of the amount of intermediate deliveries of industry i to other industries plus the amount of intermediate deliveries of industry i to other industries plus the amount of investment goods sold by industry i to other industries plus the amount of consumption goods sold to the final consumer equals the total output of industry i .

From Part I, which is a transactions matrix between industries, we get the input coefficient

$$a_{ij} = \frac{Q_{ij}}{Q_j}, \quad \sum_i a_{ij} < 1 \quad (2b)$$

which implies the amount of output of industry i which must be used up per unit of output of industry j .

The accounting identity (1a) becomes

$$Q_i = \sum_j a_{ij} Q_j + \sum_j I_{ij} + C_i \quad (3)$$

By summing up the columns of Part I of the table we get

$$\sum_i Q_{ij} + Y^j = Q^j \text{ and} \quad (4)$$

$$Y^j = Q^j - \sum_i Q_{ij} \quad (5)$$

By summing up the columns of Part II we get

$$\sum_i I_{ij} = I^j \quad (6)$$

and summing up the rows we get

$$\sum_j I_{ij} = I_i \quad (7)$$

For the total investment in the economy we have

$$\sum_j \sum_i I_{ij} = I = \sum_j I^j = \sum_i I_i \quad (8)$$

Table 1
Interindustry Relationships

Industries	I				II				III Consumption of final products	IV Total Output		
	1	2	3	...	n	1	2	3			...	n
1	Q_{11}	Q_{12}	Q_{13}	...	Q_{1n}	I_{11}	I_{12}	I_{13}	...	I_{1n}	C_1	Q_1
2	Q_{21}	Q_{22}	Q_{23}	...	Q_{2n}	I_{21}	I_{22}	I_{23}	...	I_{2n}	C_2	Q_2
3	Q_{31}	Q_{32}	Q_{33}	...	Q_{3n}	I_{31}	I_{32}	I_{33}	...	I_{3n}	C_3	Q_3
...
n	Q_{n1}	Q_{n2}	Q_{n3}	...	Q_{nn}	I_{n1}	I_{n2}	I_{n3}	...	I_{nn}	C_n	Q_n
Interindustry total	$\sum_i \sum_j Q_{ij}$					$I^{(1)}$	$I^{(2)}$	$I^{(3)}$...	$I^{(n)}$	C	Q
Value added	$Y^{(1)}$	$Y^{(2)}$	$Y^{(3)}$...	$Y^{(n)}$							
Total output	$Q^{(1)}$	$Q^{(2)}$	$Q^{(3)}$...	$Q^{(n)}$							

Now the interdependence table for the whole economy could be presented in the equation

$$\sum_i \sum_j Q_{ij} + \sum_i \sum_j I_{ij} + \sum_i C_i = \sum_i Q_i, \quad (9)$$

or

$$\sum_i \sum_j Q_{ij} + I + C = Q \quad (10)$$

In order for an industry to increase its output next year by ΔQ_j , the capital stock must increase by a certain amount, $\sum_i I_{ij}$, in which case we have

$$\frac{\sum_i I_{ij}}{\Delta Q_j} = k_j, \text{ and } \sum_i I_{ij} = k_j \Delta Q_j, \quad (11)$$

where k_j is the sectoral incremental capital-output ratio which tells us about the amount of investment to be installed in industry j for a per unit increase in output. For the whole economy the incremental capital-output ratio (I.C.O.R.) is $\sum_j k_j = k$, and

$$\sum_i I_i = \sum_j k_j \sum_j \Delta Q_j, \text{ or} \quad (12)$$

$$I = k \Delta Q \quad (13)$$

As in the case of the transactions matrix we established constant input coefficients in the same way we may establish capital-input coefficients. Thus we can speak of a transaction coefficients matrix, and of a capital coefficients matrix as well.

From (2b) we get for the whole economy $\sum_i \sum_j a_{ij} Q_j$, and let us substitute it by AQ , where A is the constant input coefficients' matrix.

If we denote the capital input coefficients' matrix by K then the total amount of investment required to increase output by ΔQ next year will be

$$I = K \Delta Q \quad (14)$$

The flow equation of the whole system will be

$$Q = AQ + K \Delta Q + C \quad (15)$$

and its solution is

$$Q = (I - A - K \Delta)^{-1}C \quad (16)$$

In the above described model we have a high degree of disaggregation in the I.C.O.Rs. and the presentation of a capital input-output matrix was made on purpose to show the benefits of the technique in planning investment in underdeveloped countries. An input-output model is superior to an aggregate estimation based on capital-output ratios in development plans as those of United Nations in Latin American Countries (U.N./E.C.F.L.A., *An Introduction to the Technique of Programming*) and in some case studies¹.

Equation (14) is exactly equation $V = K \Delta q$ in the Stone-Brown model, where K denotes the matrix of capital input-output coefficients, Δq the excess of next year's output over this year's output, and V the additional investment to be undertaken this year².

The proportion of investment in industry j to the total investment in the economy is

$$\lambda_j = \frac{I_j}{I} \quad (17)$$

and the proportions of all industries must sum up to 1.

$$\sum_j \lambda_j = 1 \quad 0 \leq \lambda_j \leq 1 \quad (18)$$

1. Professor A. Papandreou in his «A strategy of Greek Economic Development», Athens, 1962, estimated gross fixed capital requirements for each sector using sectoral incremental capital-output ratios derived from National Accounts Statistics since data on inter-sectoral relationships were lacking in Greece. He gives the following equation:

$$I_j(t) = k_j \Delta Y_{Dj}(t+1)$$

where $I_j(t)$ stands for sectoral investment in year t , k_j stands for I.C.O.R. and $\Delta Y_{Dj}(t+1)$ stands for increase in net income next year. (See his *Mathematical Appendix*, op. cit., p. 115).

2. R. Stone and Alan Brown, op. cit., p. 74.

From (17) we have

$$I_i = I \lambda_j \quad (19)$$

and for the entire economy

$$\sum_j \lambda_j I = I \quad (20)$$

Equation (13) becomes

$$\Delta Q = \sum_j \lambda_j I/k \quad \text{or} \quad (21)$$

$$\Delta Q = \sum_j \lambda_j I k^{-1} \quad (22)$$

which is the expected increase in output from investment in the various industries (or sectors) of the economy and depending on the sectoral efficiencies ($\sum_j \lambda_j k^{-1}$), summing up to the overall efficiency of the economy (k^{-1}) which is the reciprocal of the I.C.O.R.

Now, putting equation (13) or (22) in a simple form we get the familiar Harrod-Domar model

$$\Delta Q = I \sigma \quad (\text{Domar}) \quad (23)$$

(where ΔQ is the increase in the output capacity and σ is the overall productivity of investment),

$$\text{or} \quad \frac{\Delta Q}{Q} = \frac{I}{Q} \cdot \frac{1}{k} \quad (\text{Harrod}) \quad (24)$$

(where Q is net income and k is the capital-output ratio).

In this way we have been able to derive a Harrod-Domar model from a table describing the interindustry relationships and to show that the overall efficiency, or inversely the overall I.C.O.R. of the economy, depends upon the sectoral ones. The implication of this is that to maximise output capacity in a Domaresque way or to maximise income in a Harrodian way we must allocate investment in industries and sectors which have the highest

productivity or the lowest I.C.O.Rs. But since the analysis is not of partial but of general equilibrium, we are not to ignore sectors or industries with low efficiency, because each sector must provide a minimum level of output for consumption. The necessary condition for the operation of the system is the consistency of the interindustry relationships.

Thus the whole problem might be reduced to a linear programming model in which

$$\sigma = \sum_j \lambda_j k_j^{-1} = \max. \quad (25)$$

subject to a constraint condition

$$\sum_j C_j \geq \sum_i C_i^m \geq 0 \quad (26)$$

where C_i^m is the minimum level of consumption to be secured.

From the flow equation (15) we have

$$Q - AQ = I + C = Y \quad (27)$$

and by replacing C by C^m , we get the inequality

$$Y \geq I + C^m \quad \text{or} \quad (28)$$

$$Y - C^m \geq I \quad (28a)$$

The difference between $(Y - C^m)$ and $(I = Y - C)$ is allocated to the most efficient industries.

In the above model we did not take into account the foreign sector of the economy. Nonetheless we can say that in the above formulation exports could be shown as a column vector among the autonomous demands, and imports as a row, with other non-produced inputs.

In a long-term planning model, it may be of interest to make behavioural assumptions concerning imports and set a trend value for exports. Such a treatment of foreign sectors is given in the Stone-Brown model for the British economy¹. In an input-output table for the Israeli economy, imports were transferred as negative items to the autonomous sector among exports and final demand².

1. *Op. cit.*, Part VI.

2. W. Leontief, *Input-Output Economics*, 1966, p. 52.

4. Capital formation proportions: Cross-section analysis in comparison with long-run data.

Identifying demand for investment with the gross capital formation proportions to G.N.P., we can trace the pattern of demand by examining capital formation proportions at different levels of per capita income. In this respect, we shall make a statistical analysis of gross domestic capital formation to G.N.P., or what we may call investment rates or ratios, in relation to per capita income as an index of economic development.

We can set a priori notions about the investment ratios at different levels of per capita income in that these ratios increase as income increases. Thus a priori we might expect a positive association between these two variables. Increasing per capita income permits increases in savings and more financing ability emerges. Moreover, increasing per capita income constitutes a promising indicator for inducement to invest and makes things easier for economic transformation. If we accept a constant I.C.O.R., then higher rates of G.N.P. growth can be achieved only by higher investment rates; or to put it another way, with rising I.C.O.Rs., or decreasing capital efficiency, a high rate of growth may be maintained only by high investment ratios.

Now, the question is: does the historical evidence agree with the above a priori notion? Does the capital formation proportion continuously increase with per capita income or does it stop at some point? What is the range of investment ratio which stems from the historical evidence?

For our statistical exercise we took the ratio of G.D.C.F. to G.N.P. as found in national accounts statistics of the countries for which data are available.

Table 2 shows the number of countries arranged in each cell as to income class and the investment ratio. An average for each income class is given both for a sample of 58 and for 47 countries. In the latter case the number of countries was reduced to reconcile with Table 3, which shows the gross savings ratios for the same number of countries. The data relate to an average of years 1963-64.

The findings of the analysis and discussion on them are as follows:

- (1) The cross-country analysis shows that investment ratios increase with increases in per capita income. A correlation coefficient of .60 (adjusted for degrees of freedom), a determination coefficient of 42%

Table 2
Investment Ratios in relation to per capita income, Average 1963 /64 Fifty-Eight Countries

Investment Ratios (%)	Income classes (\$)						Total
	0-149	150-249	250-449	450-649	650-1149	1150-above	
6-10	1						1
11-15	5	3	4	1			13
16-20	5	5	4	2	2	3	21
24-25		1	3	1	3	5	13
26-30				1	3	5	9
31-35							0
36-40				1			1
	11	9	11	6	8	13	58 countries
Arithmetic Mean	14.8	16.9	17.5	23.0	23.6	23.7	
	15.4	16.0	18.0	23.0	23.0	23.7	47 countries

Source: Statistical Appendix.

or 36 % (adjusted), and an F-test for correlation significance show that there is a significant association between these two variables. (Table 4).

- (2) The range of capital formation proportions in relation to different stages of economic development for the specified period is between 15 % and 24 % on average.
- (3) The most eminent characteristic of the cross-country capital formation averages is that they are clustered approximately into two groups: the first group consists of the averages in the first three income classes, and the second group consists of the averages in the rest of the income classes. The capital formation proportions in the first three stages of development (or income classes) range from 15 % to 17.5 %, then it jumps to 23 % in the fourth stage, and it remains more or less constant from then on.

The above-mentioned fact lends itself to a number of interesting comments and possible explanations:

- a) The level of capital formation in the first stages of economic development should be expected to be low because of lack of savings. Even in the case that external resources might be used, the possibilities for high investment ratios are limited because of limited absorptive capacity in under-developed countries. However, albeit the low level of investment ratios in the first stages of development, there exists a variation in them in relation to income, the range being from 15% to 17.5%. We should expect variations in investment ratios in relation to per capita income, thanks to investment requirements in infrastructure and other indispensable amenities. The same distinct pattern of low investment proportions is observed in savings ratios. As can be seen from Table 3 the savings ratios are very low in the first three income classes too.

Table 3
Gross Savings Ratios in relation to per capita income, Average 1963/64, Forty-Seven Countries

Savings Ratios (%)	Income Classes (\$)						Total
	0-149	150-249	250-449	450-649	650-1149	1150-above	
6-10	1	1	3		1		6
11-15	3	3	2	2			10
16-20	3	1	4	2	1	3	14
21-25				1	4	6	11
26-30					1	4	5
31-35							0
36-40				1			1
	7	5	9	6	7	13	47
							countries
Arithmetic Mean	14.4	13.0	13.5	20.5	20.9	23.4	

Source : Statistical Appendix.

- (b) The last three income classes of our arbitrary classification show a distinctly high level of both investment and savings ratios; the in-

crease occurs between the third and the fourth income class. In these advanced stages of development the investment ratios just maintain their proportion in G.N.P. Possible explanations and remarks to this phenomenon might be the following:

- (i) The general framework of infrastructure and overhead capital is established and the economy is well-equipped with machinery and plants.
- (ii) In advanced stages of development there are items of expenditure which are not statistically included in the Gross Capital Formation as stem from national accounts, such as land improvements by farmers, expenditure on high education and research, and generally investment in human capital which is considered as current expenditure, as it escapes measurement.

Table 4
(a) Investment Ratios (\bar{Y}) tabulated as a function of per capita Income (X)

X	\bar{Y}	$\frac{\sigma}{\bar{y}}$	N (countries)
0-149	14.8 %	1.02	11
150-249	16.9	1.11	9
250-449	17.5	1.25	11
450-649	23.0	3.65	6
650-1149	23.6	1.47	8
1150-above	23.7	1.11	13
Total average	19.7	0.75	58

(b) Analysis of Variance

Source	Sum of squares	degr. of freedom	Variance
Total	1877	57	32.9
Among cells	783	5	157.0
Within cells	1094	52	21.0

$$F = 7.5$$

$$(n_1 = 5, n_2 = 52, F_{.05} = 2.39, F_{.01} = 3.39)$$

$$R^2 = 0.42, \bar{R}^2 = .36, R = .65, \bar{R} = .60.$$

Most of the items of this sort are considered a luxury in underdeveloped countries; but since they are of a significant magnitude in advanced countries their exclusion from G.D.C.F. gives a bias to constancy in G.D.C.F. proportions.

- (iii) Technical progress and innovation might make possible increases in income with very small additions to the existing stock of capital; and a significant part of capital formation proportions tends to be replacement investment.
- (iv) Income inequality becomes less in the upper income classes. As soon as income reaches a high level, its distribution, which is related with saving propensity and hence with investment propensity, becomes more equal and saving propensity is not subject to significant variations thereafter.
- (v) The population increases do not exercise as big an influence as in countries at lower stages of development because they are very slight.
- (vi) Another reason may be the fact that the highly advanced countries lend or grant aid abroad with the consequence that domestic capital formation tends to be stable or lower than the nation's savings ratio. In this case the amount of savings lent abroad is included in the capital formation (G.D.C.F.) account with a minus sign and the opposite happens in borrowing countries.

In order to give a good explanation about the pattern of capital formation proportions, we require an explanation of the distribution of incomes by size, the financial mechanism for mobilizing savings, the relations with the network of foreign trade and capital movements, etc. Among all of them let us look at the relation between the patterns of investment and the savings ratios as shown in Table 5.

The pattern of savings is more or less the same as the pattern of investment proportions, which implies that investment proportions to G.N.P. are determined by the savings patterns.

By inspection of Table 5 we see that: (1) the savings proportion in the first income class is higher than in the subsequent two classes. Although the values shown are averages for grouped countries, the same thing can be

Table 5

Savings Ratios, Investment Ratios and Differences, 1963/64, Forty Seven Countries

Income Classe (1) \$	Growth Rates (2) *	Savings Ratios (3)	Investment Ratios (4)	Differences (3) - (4)
0-149	4.8 %	14.4 %	15.4 %	-1.0
150-249	4.6	13.0	16.0	-3.0
250-449	5.6	13.5	18.0	-4.5
450-649	6.7	20.5	23.0	-2.5
650-1149	5.2	20.9	23.0	-2.1
1150-above	4.9	23.4	23.7	-0.3

Source : Tables 2, 3, and Statistical Appendix.

*Average annual geometric rates of real GDP Growth (1960-64) for 50 countries.

observed for individual countries when the economy is primitive and the hoarding propensity is very strong. (2) The difference between savings and investment proportions in the first income class is insignificant and we might expect even savings surpluses in some individual countries. A number of reasons may explain this fact among which are: the absorptive capacity is very low in these countries; the savings potential may be high as the proportion of population out of which savings come may be the same as in advanced countries, but there is absence of entrepreneurship and presence of a «feudal» system leaving us with the paradox of investment rates falling short of savings potential. It is well known that the phenomenon of hoarding and piling-up of durable goods (carpets, for instance) and precious stones is practised in some Asiatic countries. Another reason is the non-existence of financial institutions or organised markets to assemble and channel savings resources into productive activities. (3) The savings-investment gap is bigger in the second and third income class than in the others, and it is the biggest in the third income class. The fact implies that countries in the third income class have a satisfactory investment performance thanks to an increasing absorptive capacity which they possess as emerging countries. The proportion of current account deficit to G.D.P. and the proportion of G.D.C.F. financed by external resources are both high in these countries. As is seen from table 5 the elevation of capital formation proportion occurs between the third and the fourth income level. (4) The averages of savings

rates are distinctly grouped into two groups. The first group consists of the first three income classes, and the second group consists of the rest of the income classes. The savings propensity is kept low unless the country reaches a certain level of per capita income. As soon as that level of income is reached, the pattern of savings changes, leaving a much higher saving proportion out of income. For each drift from one income class to another takes time, the whole pattern of savings proportions from the lowest to the highest class might be taken to resemble a long-run saving function, or inversely a long-run consumption function; and in our case, as the data show, the consumption function is non-linear and nonproportional throughout its range, from the lowest income class to the highest one.

It is out of the scope of this paper to deal with the above problem which is of the most debated in macroeconomic theory (Kuznets, Smithies, Duesenberry, Friedman, Modigliani, Brumberg et al). However, in this context and in relation to the existence of two different groups of countries in international income distribution (heterogeneity), we should stress the fact that countries are separated into two groups and in each group there is a saving proportion which is more or less stable. Thus there are two different patterns of savings and hence, two different saving or consumption functions, each of which is approximately proportional. Thus we can accept Kuznets' constancy of consumption proportions in U.S.A. in part only, that is to say, not for the whole range from the lowest income to the highest one, but for each group separately.

Professor Kuznets, investigating the share of consumption in gross product in a cross-section comparison for the years 1950-59, found that the higher the per capita income the lower the share of private consumption (or the higher the share of private savings) in either G.N.P. or total domestic uses. Since the post-war cross-section pattern for countries at different levels of economic development may not be typical of that in the past, he brings historical evidence for all countries. In 6 countries (U.K., Germany Italy, Norway, Sweden and Canada) the share of household expenditure in G.N.P. declines; in the remaining 5 countries, for which there was no separation between household and government data, U.S.A. and Argentina experienced a roughly constant share in the long run and Denmark, Japan and Australia a declining share¹.

1. S. Kuznets, «Quantitative Aspects . . . VII. The Share and Structure of Consumption» Economic Development and Cultural Change, Vol. X, No. 2, Part II, June, 1962, pp. 5, 20-21.

Let us return to capital formation proportions. Insofar as we can generalise from the cross-section view to a longitudinal model, we may say the following :

- (1) The long-term capital formation proportions may lie between 15 % and 25 %. Of course, the cross-country data are means for groups of countries in each income class and thus averaging gives a *grosso modo* uniformity to the data, which does not exist for individual countries in the long-run period.
- (2) As per capita income rises we should expect capital formation proportions to rise
- (3) If we assume that countries which are in the first income classes are at the same stage of development that present-day advanced countries were over a century ago, we shall conclude that low - income countries will reach capital formation proportions of over 21 % value in an over-hundred-years period. However, we are not inclined to support this inference nowadays for a number of reasons : foreign aid, development plans supported and financed by leading rich nations, government intervention and participation in investment plans, acceleration in capital formation by importing capital goods, etc., etc., are some of these.
- (4) We are not inclined, either, to infer a single overall investment function from the cross-section data. On the contrary, we shall assume two separate investment functions : one for the first three income classes and one for the second three income classes. The former is non-proportional because the capital formation proportion in per cent is increasing, though slightly, as income increases, but the latter is proportional, because the proportion is kept constant. Combining both groups of income classes in one scale we see a drift of the investment curve upward, and the separation is between the third and the fourth income class. Thus, advanced countries seem to reside on the second floor. Immediately a further question arises (see Tables 2, 5 and figure 1). Why is the capital formation proportion more or less constant in the second group and does not rise as income increases ? Once the switch is in progress, why should it be halted ? Is it not self-financing ? And if not then why is it not ¹ ? Some explanation to this question was already given above.

1. A. K. Cairncross, *Factors in economic development*, Unwin University Books, 1965, Chapter 7.

We shall mention here, in addition to what was foregoing, that S. Kuznets¹ finds the proportion of resources devoted to increasing the capital stock that forms the material basis of the highly productive economic civilisation of advanced countries to be surprisingly low. He suggests two answers: (a) technical progress consists not only of inventions which need heavy capital requirements but also of a stream of relatively cheap changes whose cumulative effect is a drastic reduction in inputs leading to increase in output. Technological progress thus permits output to increase without additions to the stock of capital goods; and (b) the essential investments are largely in human beings and many categories are now treated under «flow of goods» to ultimate consumer which should be included under «capital». Capital itself helps labour to increase its productivity but there are many other factors which increase labour's productivity. Thus if all these are included in the capital formation item, the discrepancy between poor and rich countries' proportions would be larger than is observed. As a consequence of this fact, high proportions of consumption and their maintenance are associated with increases in the part of consumption goods which is functionally similar to capital formation².

Apart from the inference we made as to long-term trend of capital formation proportions from our cross-section data for the specified 1960's period, it would be worth while to outline Kuznets' findings from his historical data for 12 advanced countries³. Kuznets' data are averages—and this reduces variability in long-term trends—for two overlapping long periods. The first period extends from the mid-19th century to World War I, and the second begins toward the end of the 19th century extending to the years after World War II. Both periods exclude world war quinquennia from the average if the proportions are distinctly different from these in peacetime.

- (1) Germany, Canada, Australia, and the United States have high capital formation proportions and they have enjoyed a high rate of income growth.
- (2) Countries with low proportions have divergent growth rates. Japan has a high, and the United Kingdom and Italy have a low growth rate.

1. S. Kuznets, *Economic Growth and Structure*, London, 1966, pp. 34-35.

2. S. Kuznets, *op. cit.*, p. 36.

3. S. Kuznets, «Quantitative Aspects of the Economic Growth of Nations: VI. Long Term Trends in Capital Formation Proportions», *Economic Development and Cultural Change*, Vol. IX, Part II, No. 4, July, 1961.

- (3) National capital formation proportions fall into two groups—high and low.
- (4) There is a significant long-term rise in capital formation proportions in ten out of the 12 countries.
- (5) The long-term rise in capital formation proportions came rather resently.

The above sketchy historical evidence is more or less in agreement with our cross-section data as the analysis has so far shown.

5. The Capital- Output Ratios and Economic Growth.

5.1. Use of and restrictions to capital-output ratio

In Section 4 we referred to the concept of capital-output coefficient in estimating capital requirements in underdeveloped countries. This concept can be explicitly used in a straightforward way or implicitly it can be derived from a capital input-output table for the whole economy as it was shown in the fore-mentioned section.

The incremental capital-output ratio—we shall always mean gross domestic capital formation to G.N.P. ratio—is a simple and useful tool for planning purposes, but at the same time it is of a complex nature because of the interwoven functional relations of capital formation, growth rates of G.N.P., and technology. In order to probe further into the capital requirements of development plans and to assess their impact on foreign trade (as manifested in the form of capital goods imports and international capital flows and aid) we have to outline the interrelationship of capital formation, growth rates and I.C.O.R's.

The idea of I.C.O.R. stems mainly from growth theory and though it is expressed in the simple formula

$$r = \frac{\alpha}{k}$$

(where r = rate of growth of G.N.P., α = capital formation proportion and k = I.C.O.R.), it is surrounded with many difficulties and ambiguities. In advanced countries new investment creates new capacity, and income demand is necessary to support full employment in a Domar sense, and hence the left hand part of the above formula is crucial in this respect. In underdeveloped countries capital cumulation is indispensable to generate income

above the subsistence level and growth rate becomes a target in development plans; hence the right hand part of the above formula being the crucial determinant.

Planners should be aware of the I.C.O.R's pattern over time and at different stages of economic development in order to be able to assess realistically overall capital requirements in their plans. The implications of assessing or choosing I.C.O.R's is very important from the point of view of factor-intensity in the development process. The factor intensity as influenced by chosen methods and techniques has repercussions on trade. The overall I.C.O.R. in a country depends on many factors and it is subject to a number of restrictions. Some of them are the following :

- (a) The sectoral composition of investment. As shown in Section 4 the overall I.C.O.R. is the weighted average of sectoral I.C.O.R's ($= \sum_j k^{(j)}$); hence the investment policy should aim at minimizing the overall I.C.O.R. or maximizing the overall efficiency

$$(\sum_j k^{(j)-1})^{1,2}$$

- (b) The differences in the gestation period and the speed with which new capital assets are efficiently utilised in productive process.

1. W. B. Reddaway («The Development of the Indian Economy») has offered a summary of what needs clarification about a marginal capital-output ratio for a sector and he divided output and investment for a section into various components giving a detailed sectoral capital-output ratio. (pp. 207-8).

2. S. Kuznets' findings about the sectoral capital-output ratios could be summarised as follows :

- (a) Capital-output ratios in agriculture are higher than in manufacturing. H. Singer gives a higher capital-output ratio for industry than for agriculture («The mechanics of economic development», Indian Economic Review, August, 1952).
- (b) The sectoral capital-output ratios for dwellings, transportation and communication or the total public utilities are among the highest.
- (c) The decline in the share of agriculture and the rise in the share of manufacturing in the process of growth should have made for a declining overall capital-output ratio in the economy; while the rise in the share of transportation and communication and residential construction should have made for a rise in the capital-output ratio. The net outcome of these shifts will depend thus on the inter-sectoral shifts. (See his «Long-term Trends in Capital Formation Proportions», Table 15, pp. 46-47).

- (c) The differences in life spans and the time of estimating I.C.O.R's for specified capital assets. To depict the whole idea let us take two activities, A and B, in which two plants are installed in period 1 of a value of £ 100 and £ 150, respectively. The output are £ 100 for activity A and £ 125 for activity B.

According to the usual capital-output-ratio approach, activity B has a higher capital output ratio, e.g. it is more capital intensive

because $k_A = \frac{100}{100} = 1$, $k_B = \frac{150}{125} = 1.2$, and $k_B > k_A$. However, if

we assume that the life span of capital assets in A is 3 years and in B 5 years, and the annual output is the same as in the first year, then in activity A the capital «is consumed» in a three years period yielding a total output of £ 300, and in activity B in five years' time yielding a total output of £ 625. Consequently, the capital output

ratios are $k_A = \frac{100}{300} = .33$, $k_B = \frac{150}{625} = .24$, that is, activity A

has a higher capital output ratio, or it is more capital intensive than activity B. Thus, calculating capital output ratios throughout the life period of capital assets, we get a different value to that one which we get dividing investment made in a specified period by total output in the same period.

- (d) The rates of depreciation in old assets and differences in the magnitude of the replacement component of capital formation. The more the replacement component of capital the more capital is needed to increase income by a certain amount. Assuming constant capital formation proportions, the I.C.O.R's will be higher in this case than in the other. We expect high replacement components in advanced countries and hence higher I.C.O.R's than in developing countries. Since technical progress is introduced through new investments, and it happens to be fast, then old assets should disappear faster than their physical life-time permits hence the replacement component and the I.C.O.R's. is likely to be high.
- (e) The use of different techniques in saving (or using intensively) capital or labour.
- (f) The prices of productive factors. Long-run variations in factor prices are inducive to more or less use of cheaper factors.
- (g) The degree of capacity utilisation and former indivisibilities in capital assets.

- (h) The changing pattern of demand. Shifts in demand from «capital-intensive» goods to «labour intensive» goods lower the capital output ratio through the corresponding production.
- (i) If other factors unrelated to capital are conducive to variation in output, then the I.C.O.R. lacks its prime meaning¹.
- (j) The increase in output brought forth after an increment in capital employed cannot be attributed to capital only, because of a simultaneous increase in labour employed with the new capital which usually occurs.
- (k) The traditional concept of the capital-output ratio is not independent of other variables in the economic system as it is assumed traditionally in the simple formula. Therefore, applying an overall I.C.O.R. to economic planning we have to specify conditions under which such a ratio is observed or it is to occur. As it is been already said, the I.C.O.R. as a policy parameter is very difficult to deal with since there is not much choice on factor substitution and on production techniques.

5.2., Capital-output ratios in the course of economic growth

A priori notion or historical evidence about the I.C.O.R. in the course of economic growth is indispensable for planners in assessing capital requirements. Opinions in the matter are divided.

H. Leibenstein² accepts a declining I.C.O.R. as economic development proceeds, but he does not consider it to be conclusive. He distinguishes factors that are conducive to increasing from factors that are conducive to diminishing ratios. Among the former are: (a) the tendency to substitute capital for labour when the wage rate rises as economic growth proceeds; (b) the more durable the capital assets, the higher the capital-output ratio; however the relation is not so simple, though there are reasons to believe that durability is greater in earlier than in later stages of economic development because of needs in construction; and (c) assuming fixed factor

1. Harvey Leibenstein, *op. cit.*, p. 177.

2. Harvey Leibenstein, *op. cit.*, Chapter 11.

coefficients in production, the I.C.O.R. will be larger in low-income countries than in high-income ones, because the labour component in the total cost will be cheap and the capital component dearer and hence greater.

Among the factors contributing toward declining I.C.O.R's are :

- (a) increases in the capacity and the size of the labour force;
- (b) increased ability of the economy to overcome capital indivisibilities;
- (c) a shift in the demand towards services that require little capital per unit of output; and
- (d) expenditure on «non-capital» investment, which adds to output without increases in capital stock incurring.

E.C.A.F.E.¹ claims that the I.C.O.R. is fairly stable over longer periods at a level of 3 to 4.

G. M. Meier concluding his critique on the capital-output literature says «that the marginal capital output-ratio is unlikely to be constant over time».²

V. V. Bhatt³ supports the thesis that capital output ratios are rising because of the substitution of labour for capital that occurs when labour becomes expensive in the course of economic growth.

Colin Clark⁴ maintains that the capital-output ratio declines as development proceeds owing to a shift in the productive structure from primary to tertiary production where, he thinks, capital output ratios are low.

R. Bicanic⁵ suggests that the capital output ratio undergoes three stages during the process of economic growth. Starting from a low level in the first stage of economic growth, the capital output ratio rises considerably

1. E.C.A.F.E., *Programming Techniques for Economic Development*, Bangkok, 1960, pp. 8-13.

2. C. Meier, *Leading Issues in Development Economics*, Oxford University Press, 1964 (paperback), p. 104.

3. V. V. Bhatt, «Capital-Output Ratios of Certain Industries: A comparative study of certain countries», *Review of Economic Studies*, August, 1954, pp. 309-320.

4. Colin Clark, *Conditions of Economic Progress*.

5. R. Bicanic, «The Threshold of Economic Growth», *KYKLOS*, Vol. XV, 1962, pp. 7-28.

in the second stage, and stabilises its position at a low level in the third stage.

H. J. Bruton¹ considers capital-output ratios to be constant, and he gives four factors explaining the stability: (a) the behaviour through time of the interest rate; (b) the nature of technological innovations; (c) the nature of the production function with respect to returns to scale; and (d) the nature of changes in the composition of output. Factors (a) and (c) contribute toward increasing the capital output ratio, and factors (b) and (d) are counteracting forces which keep the balance supporting Bruton's hypothesis of constancy in the capital output ratio in the long run.

J. Tinbergen made a distinction between national and international industries and hence he attached different values of capital-output ratios to them. In national industries, whose products cannot be traded, the value of the capital-output ratio ranges from high to low. In international industries, whose products are traded, the value resides in the middle portion of the range. This means that developing countries do not have many possibilities of selecting low capital-output ratio industries so as to develop «cheaply», because national industries (with low ratios) cannot be expanded beyond national demand, and national industries with high ratios have to be expanded as a result of industrialisation to the extent of the home market; there only remains a restricted choice in the middle range².

So much about theorizing and hypothesizing about capital-output ratios. Let us now deal with Kuznets' ³ findings on incremental capital-output ratios. In his international comparison for the post-war years 1951-57, Kuznets found that the incremental gross domestic capital-output ratio ranged from 7.3 to 2.6. The I.C.O.R. was higher for high-income countries than for low-income countries, with the exception of the medium-income countries whose I.C.O.R. was the lowest (2.6).

Our attempt at estimating ex-post incremental gross domestic capital-output ratios from cross-section investment ratios and total growth rates of G.N.P. for the early years in the 1960's gave Table 6.

1. H. Bruton, «Growth Models and Underdeveloped Economies» in Agarwala and Singh, *The Economics of Underdevelopment*, 1963 p. 223.

2. J. Tinbergen, «International, national, regional, and local industries», in *Trade, Growth and Balance of Payments, Essays in honour of G. Haberler*, 1965, pp. 119-20.

3. S. Kuznets, op. cit., and his «V. Capital Formation: International comparison», in *Economic Development and Cultural Change*, Vol. VIII, No. 4, Part II, July, 1960.

Table 6

International Comparison of I.C.O.R.'s for 50 countries in relation to per capita income

Income Class \$	Investment Ratios (1963-64)	Average Growth Rates of GNP (1960-64)	I.C.O.R.
-149	15.4 %	4.8 %	3.2
149-249	16.0	4.6	3.4
150-449	18.0	5.6	3.2
450-649	23.0	6.7	3.4
650-1149	23.0	5.25	4.4
1150-above	23.7	4.9	4.9

Source : Statistical Appendix.

Attaching only a relative meaning and value to the I.C.O.R.'s above, because they are averages for each income class and the periods for investment ratios and those for growth rates do not coincide, we conclude that the I.C.O.R. increases as per capita income rises with the exception of the medium-income classes. The I.C.O.R. rises from the first to the second stage then it falls to the value of the first stage and rises again in the fourth stage, but not over the value of the second stage; after that it distinctly rises to higher levels.

The results of Table 6 are more or less in agreement with Kuznets' findings, although the range between the highest and the lowest value is narrower. They are in sharp contrast with Clark's and Bicanic's suggestions, leaving alone other suggestions as not conclusive enough to be taken into account¹.

The inference from the cross-section evidence to the long-run aspects is always subject to certain restrictions and qualifications. In this case we shall make the following remarks: (a) the findings are identified and held

1. H. Chenery and A. M. Strout, (pp. 685-6, footnote 11) referring to the relation between capital and output write: «Intercountry analyses suggest that there is a reduction in the capital-output ratio at higher growth rates but little relation to per capita income». (See their «Foreign Assistance and Economic Development», A.E.R., Vol. LVI, No. 4, Part I, September, 1966).

for the period specified and which is short; (b) the values are averages for each class and this may give a reduction to the differences between countries as it were; (c) the long-term capital-output ratio for some individual countries may be more stable than the short-term capital output ratio; (d) statistical differences among countries in estimates of G.D.F.C. give variations in the capital-output ratios; (e) investment made under the same conditions in different countries have different «multiplier effects» on income and hence different capital-output ratios, etc.

Insofar as we can generalise from the cross-section data we should expect rising I.C.O.R.'s in the most advanced stages of economic development, or a rise in the long-term trend. In this respect Kuznets' findings for the long period are in agreement with the cross-section findings.

The following remarks might be considered as an attempt at explaining the stage-by-stage or the time behaviour of the observed I.C.O.R.'s:

- (a) We should expect the actual I.C.O.R. to be low in the lowest income class for some reasons: (i) the existing capital stock and the annual investment are very low at this stage; (ii) the annual output is attributed to natural resources and to labour and much less to capital; and (iii) because we can identify the lowest income class with the beginning of a capital-output ratio trend curve, the average capital-output ratio might be equal to the marginal one.
- (b) In the second stage, as shown in Table 6, the I.C.O.R. rises due to some heavy investments in construction such as roads, transportation facilities, dwelling houses, etc., which are necessary for the transition from the primitive stage to a more tolerable one.
- (c) In the third stage the I.C.O.R. undergoes a reduction. During that stage growth rates are high because of the realised rises in productivities of labour and in agriculture, which outweigh the increasing effect on the capital-output ratios coming from higher capital formation proportions.
- (d) In the fourth income class the I.C.O.R. is still low, though a little higher than the I.C.O.R. of the second class. Economies in that stage of development witness the highest growth rate of G.N.P. and a considerable rise in the capital accumulation (see Table 6). These two components of the capital-output ratio balance each other leaving the value of the capital-output ratio more or less the same as in the former stages.

- (c) The last two income classes witness higher I.C.O.R's and this might be due to several reasons: (i) the changing pattern of demand affects the capital-output ratio as we saw in the foregoing; (ii) the fact that the capital output ratios tend to rise might be explained, *inter alia*, as a symptom of the rising income in the sense that rising income generates more savings and savings are inevitably equal to investment which being redundant are not so profitable; (iii) lending capital abroad makes the domestic investment ratio lower and this affects the capital-output ratio which would be even greater in advanced countries if domestic savings were all absorbed at home; in this case domestic capacity keeps pace with decreasing income demand; (iv) the factors contributing toward declining and rising capital-output ratios mentioned in the foregoing pages are relevant here as well.

All in all we would see a paradox in that technological progress occurring in advanced countries ought to push the capital-output ratio downwards but as a matter of historical fact it did not.

In early growth models «technical progress» was treated as neutral and this «neutrality» was supported by assuming the capital-output ratio to be constant. Technical progress is assumed to be neutral in two senses: (a) in a Harrod¹ sense that assumed constant interest rate does not disturb the capital-output ratio; and (b) in a Hicks² sense that for given inputs of the two factors (labour and capital) the marginal product of labour increases in the same proportion as the marginal product of capital.

Since the historical evidence shows that the capital-output ratio rises rather than remains constant in the long run, or in the most advanced stages of economic development, we should conclude that technical progress was not neutral in either sense. In the Harrod case technical progress affects the capital-output ratio through a downward trend in the rate of interest which leads to an upward tendency in the capital-output ratio. In the Hicks case it would be more pragmatic to accept that the labour cost gets more in the advanced stages of economic growth and hence a labour-saving technique would be effected.

1. R. Harrod, *Towards a dynamic Economics*, London, 1948.

2. J. R. Hicks, *The Theory of Wages*, London, 1963.

Therefore, one would accept a non-neutral technical progress, of a capital «deepening» nature and of a labour-saving character.

5.3. On S. Kuznets' «adjusted» incremental capital-output ratios

Kuznets¹ has found the I.C.O.R's to range among countries from 2.9 to 9.6 in the mid-nineteenth century to World War I period; and in the period from the end of the nineteenth through twentieth century—though the I.C.O.R's were converging—the range was still wide, from 4.3 to 7.3. In order to eliminate the wide range he devised another ratio called the «ratio of capital formation proportions to rate of growth of product per worker», which excludes the effect of differing additions to labour on total output².

He thought that the wide range was due to differing additions to labour in the 12 countries of his sample, and he calculated the capital-output ratio, which excludes the contribution of labour to output, as follows: «We computed rates of growth per year in the labour force ...; and dividing the rate of growth of total product (expressed as a relative) by the rate of growth of labour force (expressed as a relative) we obtained the rate of growth in product per worker (i.e. per member of the labour force). We then divided the capital formation proportions by the rate of growth of product per worker to get the incremental ratios of capital per worker to output per worker³.

1. S. Kuznets, op. cit., Table 5.

2. Ibid., Section IV, pp. 27-33.

3. S. Kuznets, op. cit., p. 27. Kuznets' formula is:

$$\frac{\frac{C_0/O_0}{O_1/L_1 - O_0/L_0}}{O_0/L_0}$$

where C_0 stands for capital formation at time 0, and O_0, O_1 stands for output in periods 0 and 1 respectively.

L_0, L_1 stand for labour force in periods 0 and 1 respectively. (See overleaf).

Thus the I.C.O.R. per worker reflects more clearly the effect of capital additions alone. The important element accounting for the difference between the «unadjusted» I.C.O.R. and the «adjusted» one is the rate of growth of labour force and hence «the greater the rate of growth of the labour force, the larger the incremental capital formation per worker to output per worker ratio will be than the incremental capital formation to total output ratios», and «the smaller the rate of growth of the labour force the closer the two I.C.O.R.'s will be»¹.

After the adjustment he made, the results were not better; on the contrary, a wider range in the I.C.O.R.'s among countries was created. For this fact Kuznets admitted that besides the allowance for labour additions there is some «residual» factor which may be due to differing and changing supplies of natural resources, quality of labour force and a variety of other factors².

If we put Kuznets' definition of the «ratio of capital formation proportions to the rate of growth per worker» in our notation we get the following formula which we shall call «adjusted» I.C.O.R. :

$$\frac{\frac{I/Y}{1 + \frac{\Delta Y}{Y}}}{1 + \frac{\Delta L}{L}} = k \text{ adj.} \quad (1)$$

By simple manipulations we get

$$\frac{C_0/L_0}{O_1/I_1 - O_0/L_0}$$

where the numerator is the absolute increment in capital per worker and the denominator is the absolute increment in output per worker (p. 28).

The above «adjusted» ratio is identical to the «unadjusted» one only if there is no change in the labour force in which case it takes the form:

$$\frac{C_0}{O_1 - O_0}$$

2. Ibid., pp. 27-28.

1. S. Kuznets, op. cit., pp. 27-28.

where I/Y stands for the investment ratio

$1 + \frac{\Delta Y}{Y}$ stands for relative rate of growth of total product

$1 + \frac{\Delta L}{L}$ stands for relative rate of growth in labour force.

$$1 + \frac{\Delta Y}{Y}$$

The part $\frac{\Delta Y}{Y}$ in (1) may be considered as a «deflated» index of growth

$$1 + \frac{\Delta L}{L}$$

rate of product with labour as a deflator. But is there such a simple relationship between output or G.N.P., and labour as it exists when deflating values in 1910 terms by current prices?

An index of G.N.P. in money terms can be deflated by a price index because we know that relationships such as $Y = QP$ exist, where $Y =$ value in money terms, $Q =$ quantum and $P =$ prices. In the case of growth rates of G.N.P., nevertheless, we do not believe that such a simple relationship exists between them and the «deflator», the labour force in this case.

Kuznets admits a number of other factors to contribute to output which should be taken into account, but because of scanty, if at all available, data a further analysis is impossible; moreover, «nor are we sure that the familiar concept of a production function, or that the simple equations so prevalent in the literature, can be meaningful in analysis of long-term trends»¹.

However, Kuznets, in spite of his inclination shown in the above quotation, uses a production of function which is but formula 1. Put (1) in absolute terms, and we get

$$\frac{I}{\frac{\Delta Y}{\Delta L}} = k \text{ adj.} \quad (2)$$

and from (2) we have

$$\Delta Y = I k^{-1} \Delta L \quad (3)$$

Equation (3) is simply a production function derived from the I.C.O.R. «adjusted» formula by simple manipulation.

1. S. Kuznets, op. cit., pp. 27-28.

The same production function can be derived from the simple and traditional capital-output ratio

$$k = \frac{\frac{I}{Y}}{\frac{\Delta Y}{Y}} = \frac{I}{\Delta Y} \quad (4)$$

and

$$\Delta Y = I k^{-1} \quad (5)$$

Inserting $(\Delta L)^0 = 1$ into (5) we get

$$\Delta Y = I k^{-1} (\Delta L)^0 \quad (6)$$

As shown from (3) and (6), these are two extremes from the point of view of the labour exponent; in (3) the exponent of labour is 1, and in (6) it is 0. Thus Kuznets used a production function with an exponent to labour equal to unity, which is hardly to be found. In familiar econometric studies the labour exponent is about 2/3, and consequently a labour exponent of unity is unlikely.

6. Capital Formation, Technology and Comparative Advantage

The demand for capital goods, as identified with the capital formation proportions, increases more than the increases in income, and from a certain level of economic development it increases proportionally with income. The proportionality during the last stages manifests itself in the constancy observed in the capital formation proportions dealt with in Section. 4. The fact that demand for capital goods is positively associated with per capita income cannot lend itself to the belief that annual rates of G.N.P. growth are higher in countries with high capital formation proportions as might be indicated by the formula.

$$r = \frac{a}{k}$$

because it depends on the value of k as well. As has been shown, the capital-output ratio is increasing in the course of economic growth except for some phase at medium stages, which implies that the rates of growth of G.N.P. or per capita income are higher in the medium-income classes than in the lower or upper income classes, as Figure 3 shows.

A number of reasons were suggested to explain the pattern of capital formation proportions and capital-output ratios in the preceding sections. Technical progress was found to be rather non-neutral and capital-using biased. The tendency or capital-intensive techniques and methods does not exist only in advanced

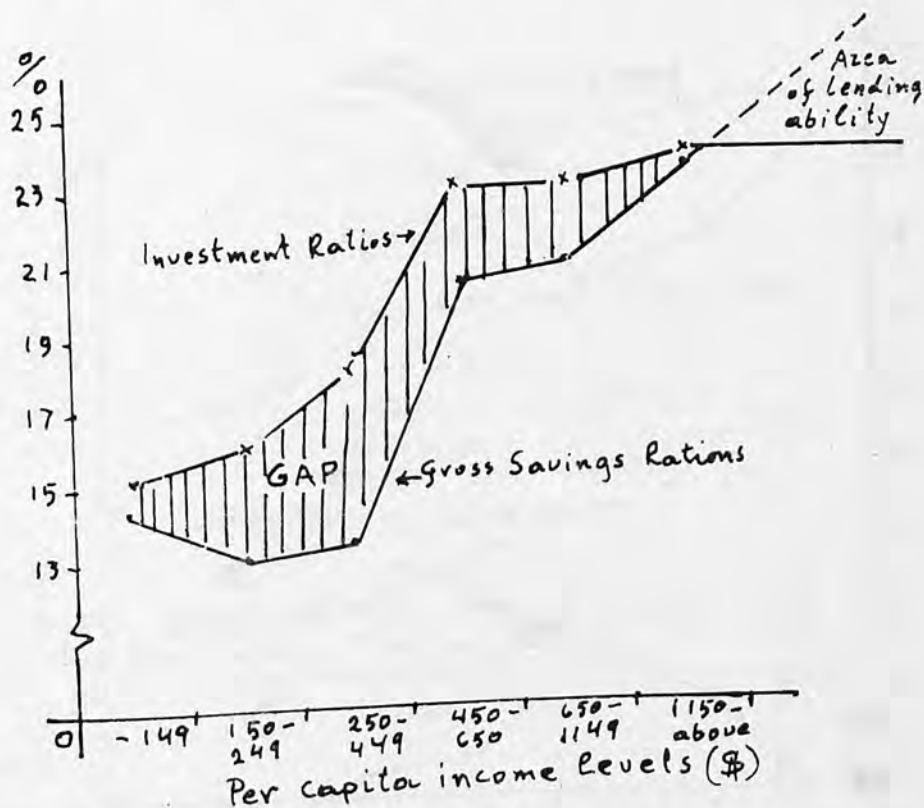


Fig. 1. Savings-Investment gap.

stages of development to-day, but also in earlier stages. An iron and steel plant or a petrochemical complex will be as modern in a developing country as in an advanced country and modern machinery will be used as the technical requirements and the method of production want it.

A higher capital-labour ratio implies more income to capital than to labour, and since savings come from «capitalists» rather than out of «wage-earners», the savings potential will be greater. (This is the Galenson-Leibenstein criterion of investment). Hence, more investment will be possible and more employment in the

long run. Let us exemplify this idea: A sum of, say, \$1,000 is invested in hand looms in the cottage cotton industry providing employment for, say, thirty-five people. There will be no margin for reinvestment, and after a long period say 20 years, the number of jobs will still be the same. Suppose, on the other hand, the

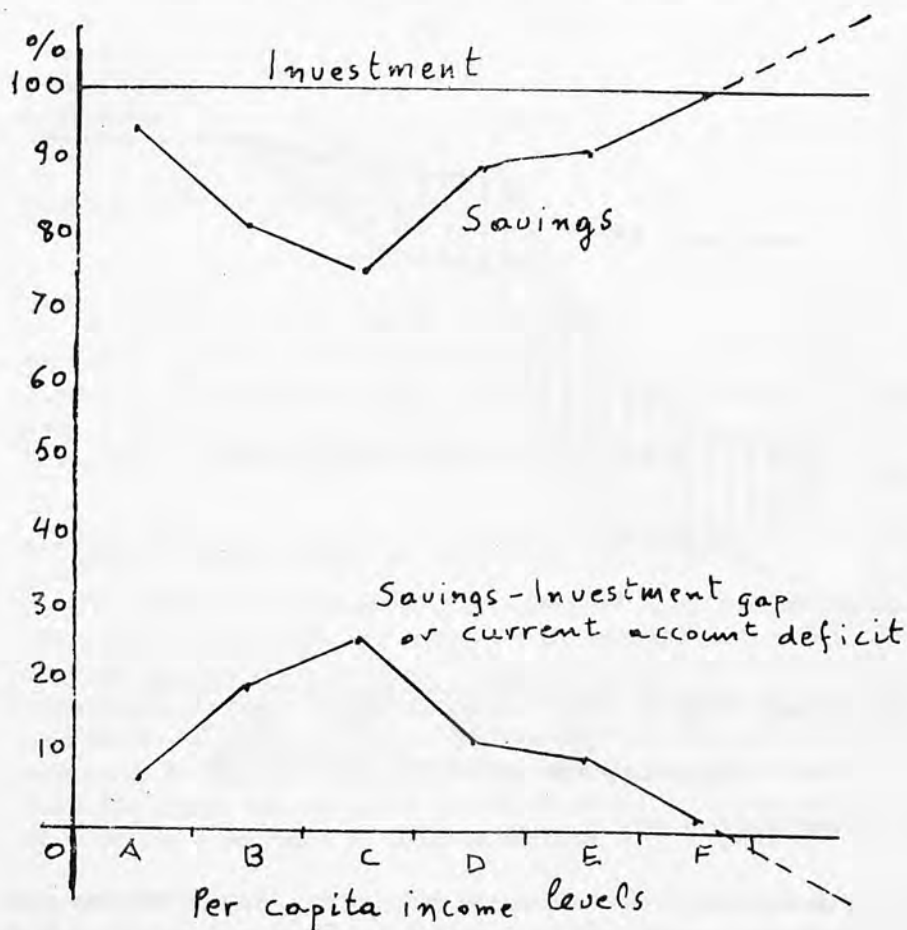


Fig. 2. Savings and savings-investment gap as % of G.D.C.F.

Source: Table 5.

same amount is invested in a large-scale modern mill and it provides employment for, say five people only, thanks to reinvestment of a proportion of income gene-

rated, the employment will increase continuously and it will become much larger after twenty years than in the first case.

More capital and modern techniques provide the opportunities for developing countries to create entrepreneurship, skilled labour and managerial abilities.

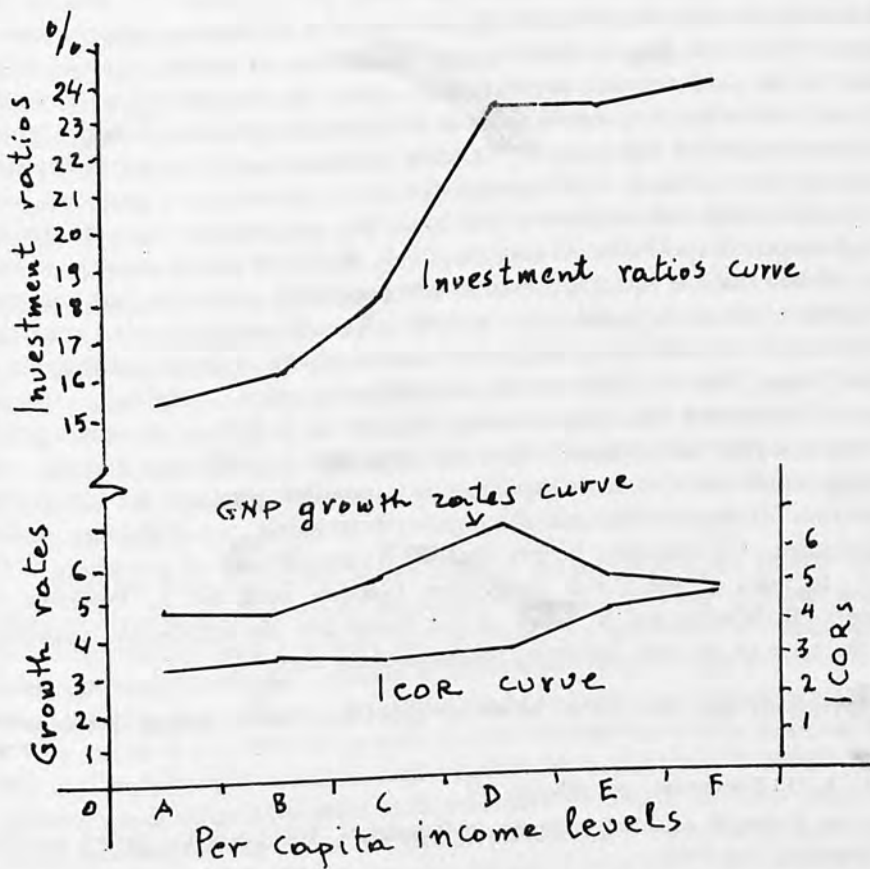


Fig. 3. Investment ratios, GNP grow rates and capital -output ratios in relation to per capita income levels.

Source : Table 6.

Assuming that the rate of substitution between capital and labour is larger in developing countries than in advanced ones, and the factor prices are the same in both developing and advanced countries, the former will use capital-intensive

technology, and if factor prices are different, the developing countries are still using the same amount of capital but with more labour. We cannot, however, say so easily in which countries labour is relatively cheap, provided that the labour productivity is lower in underdeveloped countries and capital can be borrowed from abroad on reasonable loan terms or even to participate in enterprise established by foreign capitalists. Nor can we say easily, as Hirschman did¹, that the rate of substitution between capital and labour is larger in developing countries than in advanced countries. This is because: (a) the portion of skilled or semi-skilled labour in the total working population is small in underdeveloped countries and can be absorbed very soon as output increases thus imposing a skilled labour constraint on growth just as saving or trade constraints are imposed; (b) as mentioned earlier technical requirements for most projects are just the same in both developed and underdeveloped countries; and (c) wage rates do not fall enough to permit profitable substitution. V. V. Bhatt² in an intercountry comparison showed that the equipment used for the production in textiles, iron and steel, and cement industries is the same in both advanced and developing countries. H. Chenery³, as well, found substantial comparability of input coefficients of U.S.A., Japan, Italy and Norway. W. Leontief points out «... the fact ... that the choice of alternative technologies hardly exists»⁴. R. S. Eckaus, moreover points out the case that businessmen believe that they face a production function with constant coefficients, i. e. no substitution is possible, whatever the actual characteristics of the function and the degree of technical substitutability. Indian businessmen, for example, believe that the American way of producing is the best⁵. In tests of the C.F.S. production function made by K. J. Arrow, H. Chenery, B. Minhas and R. Solow, it was found that the substitution parameter was the same in nineteen countries investigated by them⁶.

Inventions and innovations in earlier times were well exploited in the count-

1. A. O. Hirschman, *op. cit.*, p. 151.

2. V. V. Bhatt, «Capital Intensity in Industries», *Bulletin of the Oxford Institute of Statistics*, May 1956.

3. H. Chenery and T. Watanabe, «International Comparison of the Structure of Production», *Econometrica*, October, 1958, p. 504.

4. *Ibid.*, p. 51.

5. R. S. Eckaus, «The Factor Proportions Problem in Underdeveloped Areas», in A. N. Agarwala and S. P. Singh, *The Economics of Underdevelopment*, Oxford University Press (paperback), 1963, p. 353.

6. K. J. Arrow, et al., «Capital-Labor Substitution and Economic Efficiency», *The Review of Economics and Statistics*, August, 1961, p. 234.

ries where they were first originated and it took a good deal of time to diffuse over other countries. Thus the comparative advantage for a group of countries was working well in this sense. Nowadays inventions are diffused to other countries as quick as lightning and this is important for its implications.

The suggestion made by C.P. Kindleberger that underdeveloped areas, such as Italy, are characterised by «structural disequilibrium at the actor level» is quite true. Complementarity is more important in economic activity than substitutability of productive factors. The redundancy of a factor cannot be eliminated by intensive use of others. Underdeveloped countries are haunted by inappropriate factor endowments, lack of special complementary factors and limited opportunities for technical substitution of factors. The attempt to eliminate unemployment or to use more labour in densely populated areas in which capital is scarce might lead to inappropriate production methods, production of products of bad quality or out of vogue, inflationary pressures and balance of payments difficulties. Redundant labour can only be employed by additional capital and if other complementary factors exist. Labour will cooperate with machines and tools. The more labour in excess the more capital goods are necessary, and the more the demand for capital goods the more the imports will be. Therefore the factor-proportions problem is very important in economic development since it imposes constraints on growth and it appears to shift finally to an import constraint.

What has been mentioned so far leads to the conclusion that capital requirements in the course of economic development are of a pressing character and since a large part of them are to be met by importing machinery and equipment, a foreign-exchange constraint is likely to be imposed. True, in the above-mentioned example the import content of investment in hand looms and complementary tools is very small, if any, but the import-content of investment in a modern mill is very high. In advanced countries such a constraint is not likely to appear because machinery and other equipment is domestically produced; the only thing which capital accumulation leads to is the specialization in the production of capital goods and hence an exchange of goods between advanced countries. The import-content of investment may be high specially in small advanced countries, but it is financed by corresponding exports.

Can the foreign-exchange constraint imposed by the tendency of developing countries to adopt new techniques and imitate new processes be relaxed or softened? In a sense it could be if the comparative advantage doctrine were to be applied to a world-wide extent in its real dynamic meaning. Traditional classical theory does not provide an acceptable answer to the problem unless it is modified, extended or interpreted in a dynamic meaning. Long ago the theory was occupied

by questions of what commodities should be traded, what would be the gain from trade, and recently, what would be the impact of the industrialisation of underdeveloped countries on the trade of the rich countries. The theory, as traditionally exposed, failed to recognise the possibility of changes in comparative advantage structure and consider changes in factor supplies, technical progress and the transformative effects of capital accumulation. Thus many of the «constants» in traditional theory must be transformed into variables¹.

Classical economics assumed a given and unchanged technology and the initial exposition of the theory of comparative advantage was based on this assumption, partly for reasons of simplicity of the theoretical analysis and partly because of the interests of the countries where it was developed. In its static and narrow interpretation the comparative advantage is based on the initial natural endowment of the economy neglecting the effects and repercussions of capital movements and of technological innovation. An agricultural country should specialise in agricultural production once for ever, a country poor in natural resources should specialise in tourism, if natural beauties exist, or in exporting labourers, and so on. But the story does not end there. We can see the inconsistency in the static and narrow interpretation of the rigid doctrine in the case of some rich countries which found themselves in a difficult position because they were sticking to productions and activities that should have been abandoned long ago. H. Frankel tried to analyse the possibilities and need for a new international division of labour².

We cannot accept a static and narrow interpretation of the theory based on the assumptions of a «given state of arts» and given natural endowment of the economy. Capital-goods imports, capital movements, economic and technical aid, and diffusion of technological progress are all conducive to a continuous modification of the factor supply in all countries, and hence comparative advantage will always be modified and altered. This is the dynamic process in our progressive world, and such a dynamic meaning should be attached to the comparative advantage doctrine which being applied will push the welfare curve beyond its pre-

1. G. M. Meier, rather an adherent of classical theory, recognises that classical theory needs amendment and extension to deal with phenomena of change which are mostly relevant to problems in developing countries. He presents such an extension in a model describing the changing pattern of comparative costs, production and consumption in the course of economic development, drawing rather heavily on Hicks and Harry Johnson. (See his 'International Trade and Development', New York and Evanston, 1963; especially Chapters 1 and 2).

2. H. Frankel, «Industrialisation in underdeveloped countries and the possibilities of a new international division of labour», *Economic Journal*, 1943.

sent-day limits. Countries with poor natural endowment may pretty well produce and export manufactured goods instead of exporting labourers, or agricultural countries may produce and export manufactures which in a new structure of comparative advantages should cease to be produced and exported by advanced countries¹.

Transistors are an American invention but now the specialists are the Japanese². «Christmas trees» are a christian custom but thousands of them are produced and exported by Japan. Denmark was an agricultural country with poor sub-ground endowment (minerals), but she witnessed a shift from agriculture to manufacturing long ago, producing manufactures goods (machines, etc.) by importing the necessary raw materials. Thus the answer to the question about the foreign exchange constraint can be given in terms of a dynamic and real interpretation of the comparative advantage doctrine.

7. Summary

In the preceding analysis we stress the inescapable need for a large quantum of capital accumulation to take place in a short time horizon as a necessary condition in order for a country to reach a certain level of income after which an acceleration phase starts which enables her to narrow the income gap. Trade plays an important role in the process of capital accumulation. Under autarchy the domestic capacity and resources of a country cannot produce the desired rate of growth, and if it can, it will take much longer. Trade facilitates the whole process by activating and supplementing the national economy through imported capital, skills and technology.

In the foregoing analysis a priori notion that demand for capital goods is positively associated with per capita income is verified by a cross-country statistical analysis and it is in accordance with the historical evidence.

A two-groups of countries model is assumed relying on the investment ratios pattern. The first group, consisting of the three first income classes, gives

1. Folke Hilgerdt, (*Industrialisation and Foreign Trade*, League of Nations, 1945) attempted to give a negative answer to the question of whether industrialisation of underdeveloped countries reduces industrial exports from advanced countries. The same question was taken up for investigation after about twenty years by A. Maizels in a vast and excellent study (*Industrial Growth and World Trade*, Cambridge, 1963) and the answer was more or less the same.

2. C. P. Kindleberger, *Foreign Trade and the National Economy*, Yale Paperbound, 1962, Chap. 6.

a non-proportional function, and the second group, consisting of the other three income classes, gives a more or less proportional investment function. An explanation of the investment pattern was attempted by the pattern of savings ratios and by qualitative considerations.

A gross estimate of capital-output ratios by cross-country data showed that, with the exception of the third stage or income class, the capital-output ratio is increasing as per capita income increases and this is in agreement, *mutatis mutandis*, with Kuznets' long-run period data. Moreover, high rates of growth are associated with low capital-output ratios.

Another issue of the preceding analysis is the acceptance of the idea that technology does not vary much among countries; this implies that the range of substitution between productive factors in developing countries is narrow. This is an important issue to establish an additional condition for trade to be a growth constraint.

Lastly, it was stressed that the comparative advantage of each country participating in world trade could vary and be modified over time as the capital accumulation continues. As capital accumulation proceeds and technological progress is diffused over developing countries «the state of arts» is not fixed and the structure of comparative costs changes.

STATISTICAL APPENDIX

Investment and Savings Ratios, Nations' Current Accounts De ficit Ratios, Proportions of GDCF financed by External Resources, Annual Rates of Growth of GDP, Implicit Capital Output Ratios, per Capita Incomes, and Population Average 1963/64

Countries	Per capita Income (\$)		Ratio of Investment to GNP (%)		Ratio of Savings to GNP (%)		Ratio of Current A/C to GNP (%)		Ratio of Current A/C Deficit to GDCF (%)		Rates of Total Growth %		I.C.O.R's		Population (million)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1. Sudan	67	15									6.9	2.17		12.8	
2. Viet-Nam Rep.	73	9	8	1	11						2.9	3.40		15.3	
3. Uganda	75	12									3.3	3.63		7.2	
4. Burma	80	18	19	-1	-5						4.0	4.50		23.7	
5. Kenya	88	12												8.8	
6. Thailand	113	20									5.5	3.64		28.8	
7. Taiwan	122	19	20	-1	-6						7.1	2.67		41.7	
8. Philippines	127	15	18	-3							4.1	3.65		30.2	
9. Korea, Rep. of	134	17	15	2	13						6.2	2.74		26.9	
10. Ceylin	138	13	11	2	16						2.2	5.90		10.6	
11. Bolivia	143	16	11	5	30						4.9	3.27		3.6	
12. U.A.R.	154	20	15	5	23									28.0	
13. Iran	176	14		-4							3.4	4.11		22.2	
14. Ecuador	187	17	14	3	16						4.0	4.25		4.7	
15. Honduras	195	15	12	3	17						4.0	3.75		2.1	
16. Tunisia	198	22									5.2	4.23		4.5	
17. Jordan	204	14	7	7	51						4.0	3.50		1.8	
18. Ghana	207	18												7.3	
19. Malaysia	236	19	16	3	14						6.1	3.11		7.6	
20. Zambia	236	16									3.4	4.70		3.5	
21. Costa-Rica	266	16	11	5	28									1.3	

(continued)

Countries	Per capita Income (\$)	Ratio of Investment to GNP (%)	Ratio of Savings to GNP (%)	Ratio of Current A/C to GNP (%)	Ratio of Current A/C Deficit to GDGF (%)	Rates of		Population (million)
						Total Growth (%)	I.C.O.R.'s	
	1	2	3	4	5	6	7	8
22. Colombia	268	11	7	4	35	4.4	2.50	16.9
23. Mauritius	270	17						0.7
24. Guatemala	283	11	8	3	24	6.1	1.80	4.1
25. Turkey	290	13				4.6	2.82	30.2
26. British Guiana	291	20	18	2	10			0.6
27. Malta + Goso	372	23	17	6	28			0.3
28. Barbados	386	21	10	11	54	5.2	4.04	0.2
29. Portugal	387	18	17	1	8	6.1	2.95	9.0
30. Greece	412	23	19	4	17	8.5	2.70	8.5
31. Chile	446	13	11	2	17	3.5	3.71	8.2
32. Panama	465	19	15	4	22	7.9	2.40	1.2
33. Spain	504	25	24	1	4			31.1
34. Jamaica	510	19	18	1	6	4.0	4.75	1.7
35. Uruguay	558	14	12	2	13	0.2	—	2.6
36. Trinidad-Tobago	608	30	20	10	32	10.6	2.83	0.9
37. Japan	640	38	37	1	3	10.8	3.52	95.9
38. Cyprus	655	28				2.6	10.77	0.6
39. S. Africa	666	21	22	-1	-3	5.9	3.55	17.0
40. Veezuela	716	20	25	-5	-23	5.0	4.00	8.2
41. Ireland	729	20	17	3	15	4.2	4.76	2.8
42. Puerto-Rico	895	27	10	17	63	8.4	3.21	2.5
43. Finland	897	29	27	2	5	5.3	5.47	4.5
44. Austria	966	25	25	—	0	4.1	6.10	7.2
45. Italy	995	23	23	—	0	5.7	4.03	50.6
46. Netherland	1321	27	26	1	0	4.6	5.86	12.0
47. Belgium	1374	20	20	—	0	5.2	3.84	9.3

(continued)

Countries	Per capita Income (\$)	Ratio of Investment to GNP (%)	Ratio of Savings to GNP (%)	Ratio of Current A/C to GNP (%)	Ratio of Current A/C Deficit to GDPCF (%)	Rates of Total Growth (%)	ICOR's	Population (million)
	1	2	3	4	5	6	7	8
48. France	1498	22	21	1	5	5.4	4.07	47.8
49. Denmark	1557	22	21	1	5	4.9	4.49	4.7
50. United Kingdom	1607	18	18	—	2	3.4	5.29	53.8
51. Germany F.R.	1648	27	27	—	1	4.9	5.51	55.4
52. Australia	1718	29	25	2	8	4.7	5.74	10.9
53. Norway	1743	22	27	2	8	5.4	5.37	3.7
54. Sweden	1941	24	24	—	1	5.3	4.53	7.6
55. Switzerland	1976	30	27	3	11	5.5	5.45	5.8
56. Canada	2011	23	22	1	5	5.1	4.50	18.9
57. N. Zealand	2046	24	23	1	5	4.1	5.85	2.5
58. U.S.A.	2853	17	18	-1	-4	4.3	3.95	189.4

Notes and Sources to Appendix Table

- Column 1 : Per capita income for 1963, taken from United Nations, Yearbook of National Accounts Statistics 1965, New York, 1966.
- Column 2 : Ratio of Gross Domestic Capital Formation (GDCP) at current market prices to Gross National Product (GNP) at current market prices for 1963/64 (average).
For the following countries the average period was: 1962/63 : Burma, Sudan, Thailand, Iran, Honduras, Jordan, Colombia, Costa-Rica, Trinidad & Tobago, Uruguay.
1961/1963 : British Guiana.
1960/61 : United Arab Republic (U.A.R.).
For Uganda and U.A.R. we have GDP at factor cost. The above-mentioned periods are referred to column 3, 4 and 5, as well.
- Column 3 : Percentage ratio of Gross Savings to GNP at current market prices. «Gross savings» is identical to the national accounting concept of «Savings» plus the amount of depreciation (=Provisions for the consumption of fixed capital).
- Column 4 : Percentage ratio of deficit of the nation on current external account to GNP at current market Prices. Minus signs (—) denote surplus on current account, and this means that gross savings are more than gross domestic capital formation.
- Column 5 : Proportion of Gross Capital Formation at current market prices financed by external resources measured by deficit on current external account.
- Source for Columns 2, 3, 4 and 5 : United Nations, Yearbook of National Accounts Statistics, 1965, New York 1966 (National Tables No. 1, 3, and sometimes 8).
- Column 6 : Average annual geometric rates of growth of real Gross Domestic Product at market prices, 1960-64, except for some countries shown as follows :
1960-62 : Sudan.
1960-63 : Viet-Nam, Burma, Thailand, Taiwan, Iran, Honduras, Malaysia, Colombia, Portugal, N. Zealand.
1961-63 : Jordan.
Current prices : Barbados, Jordan.
Source : U. N. National A/c Statistics, Table 4A.
- Column 7 : Ex-post Capital-Output Ratios arrived at by dividing investment rates (Column 2) by rates of Growth of GDP (Column 6). The periods for investment rates and growth rates of GDP do not coincide, but we made the assumption that investment rates for individual countries are held constant in such a short period, like 1960-64.
- Column 8 : Population in million 1963, mid-year estimates, taken from U.N. Monthly Bulletin of Statistics, Sept. 1963, May 1966 and Demographic Yearbook, 1964.

ΚΟΙΝΩΝΙΚΟΙ ΠΡΟΒΛΗΜΑΤΙΣΜΟΙ ΚΑΙ Η ΑΝΩΤΑΤΗ ΠΑΙΔΕΙΑ ΣΤΟ MANAGEMENT

ΒΑΣΙΛΗ Ν. ΣΑΡΣΕΝΤΗ

Καθηγητή Ανωτάτης Βιομηχανικής Σχολής Πειραιώς

Το κεντρικό θέμα της μελέτης αυτής αφορά στο ρόλο που καλούνται να διαδραματίσουν τα εκπαιδευτικά ιδρύματα, για την ανάπτυξη του management κάτω από μια σειρά προβληματισμών, που εκφράζουν τις εξελικτικές τάσεις συμπεριφοράς στο κοινωνικό και εργαστηριακό περιβάλλον. Χρησιμοποιώ τον γενικό όρο «management», επειδή ακριβώς οι απόψεις που διατυπώνονται αφορούν σε ένα ευρύ φάσμα εννοιών και δραστηριοτήτων των οικονομικών μονάδων, που διεθνώς αποδίδεται πληρέστερα με τους όρους «management» και «manager».

Θα αρχίσω από μια πολύ σύντομη αναφορά σε σειρά φαινομένων συμπεριφοράς στο κοινωνικό και εργαστηριακό περιβάλλον, για να διατυπώσω στη συνέχεια απόψεις, που είναι άμεσα συνδεδεμένες με την εκπαίδευση στον κλάδο του management, επειδή τα φαινόμενα αυτά επηρεάζουν, αλλά και καθορίζουν, τα κοινωνικά πλαίσια της Παιδείας.

ΓΕΝΙΚΑ ΦΑΙΝΟΜΕΝΑ ΣΥΜΠΕΡΙΦΟΡΑΣ ΣΤΟ ΚΟΙΝΩΝΙΚΟ ΠΕΡΙΒΑΛΛΟΝ

Θα ήταν σκόπιμο να διατυπώσουμε αρχικά ορισμένες απόψεις σχετικά με τις συνθήκες ή και τάσεις που χαρακτηρίζουν το γενικό οικονομικό και κοινωνικό περιβάλλον στο οποίο καλείται να αναπτυχθεί και να εξελιχθεί η Ανωτάτη Παιδεία. Τις απόψεις δε αυτές θα παρουσιάσουμε μάλλον επιγραμματικά με σκοπό να τονίσουμε ορισμένα, κατά επιλογή, φαινόμενα.

Η εκπαίδευση εξάλλου, όπως εξετάζεται στη συγκεκριμένη παρουσίαση, αναφέρεται βασικά στην προπτυχιακή και την μεταπτυχιακή παιδεία που παρέχεται από Πανεπιστημιακές Σχολές Διοικήσεως Επιχειρήσεων.

Την τελευταία 15ετία πολλές κοινωνίες (όπως η ελληνική) μεταπήδησαν με σχετικά ταχύτερο ρυθμό σε πολύ υψηλότερα εισοδηματικά επίπεδα και διαμόρφωσαν νέες καταναλωτικές συνήθειες, ενώ ταυτόχρονα αντέχουν στην πολυτέλεια των κοινωνικών αμφισβητήσεων και παρουσιάζουν το φαινόμενο της έντονης απορροφητικότητας διαφόρων ιδεολογιών, που άλλοτε προάγουν και άλλοτε αντιστρατεύονται την ομαλή τους εξέλιξη.

Είναι όμως γεγονός, ότι η εντατικοποίηση των κοινωνικών αμφισβητήσεων συντελεί στην ανάπτυξη ενός αναρχισμού στη νοοτροπία, ή μιας αδιαφορίας στην κοινωνική συμπεριφορά.

Αλλά, κατά τη γνώμη μου, δεν είναι κυρίως η αμφισβήτηση των θεσμών και αξιών του παρελθόντος που οριοθετεί ένα σύνολο ποιοτικών κυρίως προβλημάτων, για την εξέλιξη των οικονομιών και την ομαλή άσκηση και ανάπτυξη του management.

Η αμφισβήτηση μπορεί (και αυτό δεν είναι ασυνήθιστο) να περιέχει ένα δημιουργικό στοιχείο αλλαγής, οπότε το πρόβλημα μετατίθεται στην κριτική της πορείας και του ρυθμού της οποιασδήποτε αλλαγής. Η συνεπαγόμενη αδιαφορία όμως, όταν παίρνει ευρύτερες διαστάσεις και ο ευδαιμονισμός της συνειδήσεως, συνδυαζόμενα με την ατομικιστική θεώρηση της ζωής, αποτελούν μια πολύ επικίνδυνη μορφή άρνησης και ένα φοβερό ανασχετικό παράγοντα σε κάθε προσπάθεια αναπτύξεως οικονομικής, κοινωνικής ή εκπαιδευτικής.

Μέσα σε ένα κλίμα αμφισβητήσεων, αδιαφορίας και προσαρμογών, είναι φυσικό ορισμένες κοινωνικές αξίες και θεσμοί να μεταβάλλονται θετικά ή και να κακοποιούνται σύμφωνα με προκαθορισμένους στόχους και με δογματική τακτική. Είναι συνεπώς φυσικό και ο χώρος της Ανωτάτης Παιδείας να υπόκειται κατά προέκταση σε ανάλογες επιδράσεις.

Ίσως όμως και ο (κατά κάποια καθιερωμένη άποψη) παραλογισμός στην οικονομική και κοινωνική συμπεριφορά, έχει διαμορφώσει μια δική του λογική, που δεν θα πρέπει να παραβλέπουμε.

Πολλές φορές το κοινωνικά και πολιτικά αναγκαίο δεν είναι και οικονομικά απαραίτητα λογικό, ενώ επιχειρησιακά μπορεί να έχει το χαρακτήρα του σκόπιμου.

Ισως πρέπει να παραδεχτούμε, ότι ο homo-economicus δεν μπορεί να αποτελεί πια λογική παραδοχή στη διαδικασία σχεδιασμού και δεν είναι καθοριστικός στην επιχειρηματική σκέψη.

Οπωσδήποτε όμως δεν πρέπει να παραγνωρίζουμε ένα θετικό και χαρακτηριστικό στοιχείο συμπεριφοράς στις σύγχρονες κοινωνίες. Πιστεύω, ότι σε μεγάλη έκταση, ο τρόπος της ζωής μας έχει σχετικά ξεπεράσει τις ποσοτικές διαστάσεις. Έτσι η ποιοτική αναζήτηση στον τρόπο ζωής παίρνει ταχύτερο ρυθμό και εκδηλώνεται έντονα, με φυσικό επακόλουθο τον ταυτόχρονο αγώνα διατήρησης ταχυρρυθμών ποσοτικών εξελίξεων.

Συνεπώς οι ποσοτικοί και ποιοτικοί στόχοι στην ανθρώπινη συμπεριφορά εκδηλώνονται σαν συμπληρωματικές διαδικασίες και η διατήρηση της ισορροπίας τους πρέπει να αποτελεί ένα από τα προβλήματα του management στο χώρο της εργασίας και ένα κατευθυντήριο προσανατολισμό της εκπαίδευσης.

Οπωσδήποτε η μέτρηση των θέσεων και των τάσεων συμπεριφοράς στο κοινωνικό περιβάλλον είναι πολύ δύσκολη διαδικασία από την οποία, πολλές φορές, δε λείπει το στοιχείο της υποκειμενικότητας.

Πολλοί φορείς μιλούν για τα ανθρώπινα δικαιώματα, για την προστασία του οικολογικού περιβάλλοντος, για την κοινωνική ισότητα και την ελευθερία του ατόμου και αντιδρούν σε νόμιμες πράξεις ή ενέργειες. Πρόβλημα όμως δεν αποτελεί το γεγονός, ότι πολλοί μιλούν περί αυτών των δικαιωμάτων ή και πολλών άλλων. Το θέμα εντοπίζεται κυρίως στον τρόπο που ένα πραγματικό (ή κατά επίφαση) δικαίωμα γίνεται αντικείμενο βιαιών διεκδικήσεων και, αν η καθιέρωσή του είναι χρονικά και από τα πράγματα δυνατή ή και αν ακόμα ο τρόπος της άσκησής του ανταποκρίνεται στο περιεχόμενο και το σκοπό του δικαιώματος ή είναι καταχρηστικός.

Σαν μια ενδεικτική περίπτωση διεκδικήσεως ποιοτικού χαρακτήρα θα ήθελα να αναφέρω το δικαίωμα συμμετοχής στη διαδικασία λήψεως αποφάσεων. Πρόκειται για ένα σχετικά καθιερωμένο, σε ορισμένες περιπτώσεις, δικαίωμα, ή εν πάσει περιπτώσει για μια μορφή δικαιώματος που προβάλλεται έντονα και στο επίπεδο της ΕΟΚ.

Χωρίς να προτίθεμαι να βάλω κάτω από οποιαδήποτε αμφισβήτηση την καθιέρωση αυτού του δικαιώματος, θα ήθελα να ρωτήσω : «μήπως απარიθμήσαμε ποτέ τους τρόπους ασκήσεως ή το περιεχόμενο του δικαιώματος συμμετοχής στη διοίκηση, όπως το αντιλαμβάνονται οι διάφοροι εκφραστές του ; Μήπως μπόρεσε ποτέ κανείς να διατυπώσει την έκταση και το περιεχόμενο της ευθύνης που θα πρέπει ίσως να συνεπάγεται το δικαίωμα συμμετοχής στη λήψη αποφά-

σεων ; » Είναι προφανές, ότι η συμμετοχή σε μίαν απόφαση αποτελεί πράξη που καταλήγει σε αποτέλεσμα και μπορεί στη συνέχεια να επηρεάζει τη ζωή κάποιου ή κάποιων προσώπων. Και όμως δεν ξέρω αν μαζί με τη διατύπωση του περιεχομένου του δικαιώματος δίνεται και το περιεχόμενο της συνυφασμένης ευθύνης ή πρόκειται περί δικαιώματος χωρίς αντίστοιχη ευθύνη. Αν όμως ισχύει η τελευταία περίπτωση, δεν καταλαβαίνω πώς μπορούμε να διατυπώνουμε θέσεις που πάσχουν από σοβαρή ατέλεια όπως αυτή, εκτός και αν πρόκειται για μια διαδικασία εντυπώσεων. Αυτές όμως οι ατελείς διαδικασίες εντυπώσεων έχουν ένα τέλειο αποτέλεσμα : «μορφοποιούν ένα ατελές δικαίωμα και δημιουργούν συγκρούσεις που οδηγούν σε αδυναμίες λειτουργικότητας των θεσμών, σε αμφισβητήσεις και σε άλλες καταστάσεις των οποίων δεν νομίζω ότι θα διεκδικούσε κανείς την πατρότητα».

ΕΠΙΣΚΟΠΗΣΗ ΤΩΝ ΠΡΟΒΛΗΜΑΤΩΝ ΣΥΜΠΕΡΙΦΟΡΑΣ ΣΤΟΝ ΕΡΓΑΣΤΗΡΙΑΚΟ ΧΩΡΟ

Η σύντομη αναφορά στο κοινωνικό περιβάλλον έγινε με σκοπό να τονίσουμε στη συνέχεια, ότι φυσική προέκταση αυτών των φαινομένων είναι το εργασιακό περιβάλλον, το οποίον ειδικότερα, σαν θέση και σαν προοπτική, απασχολεί το σχεδιασμό της εκπαίδευσης στο management.

Για να αποφύγω τις μακρυλογίες θα περιοριστώ επιλεκτικά σε δύο κύρια σημεία, που είναι (μεταξύ και άλλων) χαρακτηριστικά των αναγκαίων προσαρμογών συμπεριφοράς και νοοτροπίας στο management και προσδιορίζουν στόχους νέων προσανατολισμών -στην εκπαίδευση.

Το ένα είναι ο χειρισμός και η αξιοποίηση του ανθρώπινου παράγοντα και το άλλο η κοινωνική συμπεριφορά και ευθύνη της επιχειρήσεως.

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Είναι γεγονός, ότι οι ποιοτικές επιδιώξεις του ανθρώπου εντείνουν το δικαιο αίτημα σεβασμού της προσωπικότητας που πολλές φορές θα πρέπει να προηγείται της δικαιολογημένης ή αναγκαίας ή και σκόπιμης προσοχής ομαδοποιημένων διεκδικήσεων. Ο σεβασμός της προσωπικότητας θα πρέπει να εκφράζει ένα συνεχή, ένα καθιερωμένο τρόπο συμπεριφοράς, σε αντίθεση με τη συμπεριφορά προς ομαδοποιημένες θέσεις, που από τη φύση τους έχουν περιπτωσιακό χαρακτήρα.

Αν η προηγούμενη θεώρηση είναι ορθή, τότε θα είναι επίσης ορθή η άποψη ότι το management δεν είναι τεχνική και η μέθοδος μελέτης του δεν μπορεί να περιοριστεί στα πρότυπα της ποσοτικής αναλύσεως, αφού η ανθρώπινη συμπεριφορά δεν μπορεί να ενταχθεί σε μια μαθηματική εξίσωση.

Θα πρέπει ίσως να γίνει ευρύτερη συνείδηση η ακόλουθη θέση που προκύπτει σαν συνέπεια της προηγούμενης.

Η παροχή εξουσίας στη διοικητική ιεραρχία ακολουθεί μεν μια νομότυπη διαδικασία, αλλά η αποτελεσματική άσκησή της, κερδίζεται από αυτόν που καλείται να την εφαρμόσει. Έτσι μόνο η δύναμη της εξουσίας περιβάλλεται από ένα ηθικό στοιχείο, που είναι προϊόν αποδοχής και αναγνώρισης.

Εξάλλου σε ένα περιβάλλον που θα θέλαμε να αναγνωρίσουμε την υπεύθυνη, αλλά ελεύθερη συνείδηση και σκέψη είναι φανερό, ότι η υλοποίηση οποιωνδήποτε στόχων του management προϋποθέτει την παραδοχή τους από εκείνους, οι οποίοι καλούνται να τους υλοποιήσουν.

Είναι γεγονός ότι σε πολλές περιπτώσεις η ανθρωπιστική συμπεριφορά εκλαμβάνεται σαν διοικητική αδυναμία και η βιαιότητα χαρακτηρίζεται σαν δημιουργικός δυναμισμός. Χαρακτηρισμοί αυτής της μορφής είναι ίσως φυσικοί.

Δύσκολα όμως θα μπορούσα να δεχθώ ότι ανάλογες απόψεις ανταποκρίνονται στις τάσεις των ποιοτικών επιδιώξεων και προσδοκιών στον εργασιακό χώρο, ούτε νομίζω ότι ερμηνεύουν ή χαράσσουν την εξελικτική πορεία των προβληματισμών του σύγχρονου management.

Οι θέσεις αυτές όμως του σεβασμού της προσωπικότητας, της αναπτύξεως και αξιοποιήσεως του ανθρώπινου δυναμικού και της καλλιεργείας συνειδήσεως ευθύνης και συνέπειας, εντάσσονται μεταξύ των στόχων αναπτύξεως του management, τόσο στο χώρο της Ανωτάτης Παιδείας, όσο και στο χώρο της επαγγελματικής εκπαίδευσως.

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Ας έλθουμε όμως στο δεύτερο σημείο αναφοράς και συγκεκριμένα στις σχέσεις του management με το κοινωνικό-εξωεπιχειρησιακό περιβάλλον.

Το θέμα αυτό είναι ευρύτερα γνωστό με το γενικό όρο «κοινωνική ευθύνη» ή «ευθύνη κοινωνικής συμπεριφοράς» ενός οικονομικού οργανισμού. Το εννοιολογικό περιεχόμενο αυτού του όρου έχει τελευταία (ορθά) διευρυνθεί, ώστε

να επεκτείνεται σε τομείς ειρήνης, που στο παρελθόν εθεωρούντο σαν αντικείμενο ενδιαφέροντος της πολιτείας ή και κανενός.

Η κοινωνική ευθύνη της επιχειρήσεως δεν εξετάζεται πλέον περιορισμένα σαν ευθύνη προς τους μετόχους, το προσωπικό και την πελατεία, αλλά διευρύνεται για να καλύψει οπωσδήποτε την ευθύνη της επιχειρήσεως απέναντι στον καταναλωτή, στη δημόσια υγεία, στην πολιτιστική ανάπτυξη και αναμφισβήτητα στην Παιδεία.

Οι στόχοι συνεπώς της σύγχρονης επιχειρήσεως πρέπει να είναι πολυδιάστατοι, και να εντάσσονται σε δυο μεγάλες κατηγορίες, στους ενδοεπιχειρησιακούς στόχους, που καταλήγουν στη μεγιστοποίηση του αποτελέσματος και την ανάπτυξη των συνθηκών και όρων εργασίας και στους εξωεπιχειρησιακούς στόχους ή τους στόχους κοινωνικού χαρακτήρα, που συμβάλλουν στην αύξηση της κοινωνικής ευημερίας.

Η αναγκαία συνύπαρξη των στόχων αυτών σημαίνει, ότι μακροχρόνια η μονόπλευρη πολιτική μεγιστοποίησης του οικονομικού αποτελέσματος και η ποσοτική προσέγγιση στη διαδικασία λήψεως αποφάσεων δεν είναι δυγατόν να αντέξει στις κοινωνικές αντιδράσεις, που απαιτούν συμμετοχή του management στους προβληματισμούς κοινωνικού χαρακτήρα, ακόμα και αν οι προβληματισμοί αυτοί αναφέρονται σε πολιτιστικές ή και πολιτικές εκδηλώσεις.

Η πολιτική του να επαναπαύονται οι Διοικήσεις των επιχειρήσεων και οργανισμών μόνο στις δάφνες ενός αποτελέσματος, που εκφράζεται από μια σειρά λογιστικών αριθμών, είναι οπωσδήποτε ατελής. Τις περιπτώσεις αυτές θα τις χαρακτηρίζα σαν φαινόμενα μονόπλευρου επιχειρηματικού ευδαιμονισμού, που αναμφισβήτητα δε λείπουν ή και αποτελούν πλειοψηφία όχι μόνο σε επιχειρηματικούς φορείς, αλλά ακόμη και στη Διοίκηση των δημοσίων οργανισμών και υπηρεσιών. Στην τελευταία περίπτωση μάλιστα το φαινόμενο γίνεται επικίνδυνο αν αναλογιστούμε, ότι η μέτρηση της αποτελεσματικότητας κρίνεται πολλές φορές με την νομότυπη πληρότητα και το πλήθος των εγγράφων.

Είναι βέβαια επόμενο να υποστηριχθεί δίκαια, ότι η διεύρυνση και ένταση της κοινωνικής ευθύνης εδραιώνει αντίστοιχες απαιτήσεις της επιχειρήσεως από το κοινωνικό σύνολο και το Κράτος. Σκοπός μας όμως δεν είναι να εντοπίσουμε την έκταση της ευθύνης και το περιεχόμενο του συνεπαγόμενου δικαιώματος. Πρόθεσή μας είναι αντίθετα να τονίσουμε το γεγονός και την ανάγκη εδραίωσης κοινωνικής συνειδήσεως, τόσο στους διοικούντας όσο και στους διοικουμένους.

Σχολιάζοντας το ρόλο και το έργο «τί πρέπει να κάνει» ο σύγχρονος manager, στο συνέδριο του European Foundation for Management (EFMD) 1980 υποστηρίχθηκε η άποψη, ότι ο σύγχρονος manager πρέπει «να κάνει τα πάντα».

Προσωπικά δεν θα υιοθετούσα την ίδια άποψη, αλλά με κάποιο δισταγμό θα διατύπωνα την ακόλουθη σκέψη, όσον αφορά στο περιεχόμενο, αλλά και τη φύση του έργου ενός manager.

Δεν είμαι βέβαιος αν το αντικείμενο της εργασίας ενός σύγχρονου manager (μικρής ή μεγάλης μονάδος) πρέπει ή όχι να διαφέρει από ό,τι ίσχυε στο παρελθόν. Το βέβαιο είναι ότι το πνεύμα, ο τρόπος, η φιλοσοφία, πίσω από κάθε δραστηριότητα του σύγχρονου manager πρέπει να ανταποκρίνεται στις συνθήκες και τις τάσεις του κοινωνικού και εργασιακού περιβάλλοντος, αν δεν θέλει να έρχεται μετά, αλλά να προηγείται από τα προβλήματα.

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Αναψηλαφίζοντας τις προηγούμενες παρατηρήσεις και ιδιαίτερα εκείνες που αναπτύχθηκαν στα συνέδρια του EFMD θα έλεγα, ότι ο manager του σήμερα δεν αρκεί να είναι ένας καλός τεχνοκράτης. Και ένας αριθμός ακόμα, πίσω από το ποσοτικό στοιχείο που εκφράζει έχει ποιοτικές προεκτάσεις και υπόκειται σε ερμηνεία που είναι απαραίτητη για τη διερεύνηση ποσοτικών, αλλά και ποιοτικών φαινομένων.

Είναι επίσης προφανές ότι ένας manager εκτός από τη δημιουργική σκέψη, την ορθολογική αφοσίωση στο καθήκον και την ευπρεπή παρουσία, πρέπει να έχει προσόντα προσαρμοστικότητας και ευελιξίας στην αντιμετώπιση των προβλημάτων δεδομένου, ότι τίποτε δεν είναι στατικό σε ένα εξελικτικά μεταβαλλόμενο περιβάλλον.

Συμπερασματικά θα έλεγα, ότι σαν ένα ευρύτερο πλαίσιο στόχων της Ανωτάτης Παιδείας στο management θα μπορούσαμε να ορίσουμε μεταξύ άλλων και την ανάπτυξη συνειδήσεως κοινωνικής ευθύνης, τα στοιχεία που προσδιορίζουν το έργο και την προσωπικότητα του manager, και την πολυπλοκότητα των στόχων της επιχειρήσεως.

ΠΑΡΑΤΗΡΗΣΕΙΣ ΚΑΙ ΠΡΟΒΛΗΜΑΤΙΣΜΟΙ ΓΙΑ ΤΗΝ ΠΑΙΔΕΙΑ ΣΤΟΝ ΤΟΜΕΑ ΤΟΥ MANAGEMENT

Έχοντας σαν βάση εκκινήσεως, αλλά και σαν πλαίσιο αναφοράς το σύνολο των σκέψεων που εκτέθηκαν, νομίζω ότι μπορούμε να χαράξουμε γενικές σκέψεις που θα πρέπει (κατά τη γνώμη μου τουλάχιστον) να χαρακτηρίζουν τις κατευθύνσεις, την πολιτική και την μέθοδο εκπαίδευσης στον τομέα του management.

Πρωταρχικά όμως θα πρέπει να τονίσουμε την ανάγκη αναπτύξεως της παιδείας στο management, η οποία γίνεται προφανής αν σκεφθεί κανείς τα εξής τρία, από τα πολλά ίσως, κριτήρια της γενικότερης σημασίας του θέματος.

- α) Το management εκφράζει απλά τη διαδικασία σχεδιασμού, κατευθύνσεως, συντονισμού και ελέγχου δραστηριοτήτων και μέσων, για την υλοποίηση στόχων που βελτιώνουν την αποτελεσματικότητα κάθε μορφής ανθρώπινης δραστηριότητας και συντελούν στην αύξηση του εθνικού προϊόντος.
- β) Ο ορθός σχεδιασμός, η επιτυχής ιεράρχηση στόχων, και η συστηματική και απρόσκοπτη υλοποίησή τους, σε όλα τα επίπεδα του management, αποτελούν βασικές προϋποθέσεις προόδου.
- γ) Η αύξηση της συμμετοχής στο σχηματισμό του ΑΕΠ – GNP της μεταποιήσεως και των υπηρεσιών, όπου το καλό και αποτελεσματικό management είναι αποφασιστικής σημασίας, έχει γίνει καθοριστική του επιπέδου οικονομικής αναπτύξεως των λαών.

Επειδή το θέμα εξετάζει το management σε ένα περιβάλλον μεταβαλλόμενων αξιών, και τις συνεπαγόμενες προεκτάσεις στην παιδεία, είναι φανερό ότι παρέλκει η αναφορά σε σκέψεις σχετικές με το περιεχόμενο των ειδικών γνώσεων ή ακόμα και σε λεπτομερειακά θέματα οργανωτικής διαρθρώσεως των Σχολών Ανωτάτης Εκπαιδεύσεως.

Νομίζω ότι, γενικά, η κατάτμηση της προπτυχιακής εκπαίδευσως (η μεγάλη εξειδίκευση) περιορίζει την αποτελεσματικότητα της επιστημονικής υποδομής του εκπαιδευόμενου. Η ικανότητα και το δυναμικό γενικότερης εποπτείας των θεμάτων, ανταποκρίνεται στην πολυπλοκότητα των στόχων της επιχειρήσεως και στους σύγχρονους πολύπλευρους προβληματισμούς.

Η άποψη αυτή βέβαια δεν αποκλείει μια κάποια προπτυχιακή εξειδίκευση σε περιορισμένα όμως πλαίσια. Άλλωστε είναι γνωστό, ότι οι τομείς όπου θα αναπτύξει πρωτοβουλίες και θα αναδειχθεί ένας manager δεν είναι ποτέ, από τα πράγματα, προκαθορισμένοι και σταθεροί.

Αντίθετα η μεταπτυχιακή εξειδίκευση φαίνεται μάλλον σκόπιμη, άσχετα αν πρόκειται για μετεκπαίδευση με αυστηρά επιστημονικό χαρακτήρα ή για επαγγελματική καθαρά μετεκπαίδευση.

Η επαγγελματική εκπαίδευση μέσα στις επιχειρήσεις νομίζω ότι είναι ορθό, εκτός από αυστηρά επαγγελματικούς στόχους, να καλύπτει σε κάποια έκταση, και ορισμένα επιστημονικά πεδία.

Επίσης θεωρώ αναγκαίο, ότι ο σπουδαστής πρέπει να αποκτά μια περιορισμένη, αλλά συστηματική και ελεγχόμενη από τη Σχολή επαφή με την πραγματικότητα κατά τη διάρκεια των προπτυχιακών του ακόμα σπουδών.

Τούτο σημαίνει απασχόληση σε συγκεκριμένη οικονομική μονάδα αλλά και σε συγκεκριμένο (καθορισμένο ίσως από τη Σχολή σύμφωνα με το αντικείμενο της εκπαίδευσως) τομέα. Η πραγματοποίηση ενός τέτοιου στόχου σημαίνει συνεργασία των Α.Ε.Ι. με τους οικονομικούς οργανισμούς και ιδίως τις επιχειρήσεις. Δεδομένης της αναγκαιότητας μιας τέτοιας συνεργασίας θα έλεγα, ότι η Πολιτεία θα έπρεπε να ενισχύσει αυτή τη συνεργασία.

Οι σχολές σε προπτυχιακό επίπεδο πρέπει να δημιουργούν την επιστημονική υποδομή και να χαράσσουν την προσωπικότητα ενός μελλοντικού manager.

Η δημιουργία επιστημονικής υποδομής σημαίνει, ότι η εκπαίδευση πρέπει να καλύπτει (δηλαδή να αναπτύσσει και να παρακολουθεί) ξέχωρα δύο βασικούς τομείς από κάθε ένα γνωστικό πεδίο. Ο ένας τομέας είναι ο καθαρά θεωρητικός, που καλύπτει το ποιοτικό και φιλοσοφικό στοιχείο της εκπαίδευσως και ο άλλος είναι ο τομέας των μεθόδων που μπορεί να έχει και εργαστηριακό χαρακτήρα.

Η τεχνική και η μεθοδολογία μας οδηγούν σε ένα «κανάλι» ή μας καθορίζουν ένα «πλαίσιο» σκέψης για να εντοπίσουμε διεξόδους σε ένα ποσοτικό πρόβλημα. Η θεωρητική όμως ανάλυση ολοκληρώνει τη σκέψη και τονίζει την αντιδογματική προσέγγιση και συμπεριφορά του επιστήμονα.

Η ανάπτυξη της προσωπικότητας και η δημιουργία κοινωνικής συνειδήσεως στο νέο, είναι μια διαδικασία που οπωσδήποτε δεν θα την επιτύχουμε με μόνο την τελειοποίηση των γνώσεων σε ποσοτικό επίπεδο.

Η γενική επιστημονική όμως ικανότητα, η επαγγελματική αυτοπεποίθηση, η πρόθεση συνεργατικότητας, η απελευθερωμένη από προκαταλήψεις συνείδηση και η αναλυτική σκέψη, μαζί με άλλα στοιχεία, αποτελούν προσδιοριστικούς παράγοντες της προσωπικότητας, παράγοντες που πιστεύω ότι μπορεί να αναπτύξει η Ανωτάτη Παιδεία. Η επιστημονική λογική εξάλλου δεν κατευθύνεται από το αυστηρό ποσοτικό στοιχείο συμπεριφοράς, αφού δεν αποξενώνεται από τη φιλοσοφία και τον άνθρωπο.

Ένα άλλο θέμα που τονίζει το ποιοτικό στοιχείο της εκπαίδευσως, είναι η δημιουργία συνειδήσεως ευθύνης και παραγωγικότητας. Η ανάπτυξη και εδραίωση αυτής της συνειδήσεως ανταποκρίνεται στη γενική αρχή, ότι το θέμα της

επαγγελματικής ευθύνης και της παραγωγικότητας δεν είναι μόνο προσωπική ή επιχειρησιακή υπόθεση. Είναι υπόθεση που αφορά οπωσδήποτε το κοινωνικό σύνολο.

Η σύγχυση μεταξύ παραγωγής, παραγωγικότητας και διανομής του εισοδήματος ή θα πρέπει να είναι εσκεμμένη διαστρέβλωση ή να προδίδει ατελή γνώση.

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Θα κλείσω το θέμα με μια σειρά παρατηρήσεων ανακεφαλαιωτικών που αναφέρονται σε γενικές θέσεις σχετικές με την εκπαίδευση στο management.

Η εκπαίδευση στις Σχολές Διοικήσεως Επιχειρήσεων οσονδήποτε θεωρητική και αν είναι δεν μπορεί να παραμένει εξωπραγματική.

Η παιδεία προγραμματίζεται σε συνάρτηση με ένα συγκεκριμένο γεωοικονομικό και πολιτικοκοινωνικό περιβάλλον, στο οποίο θα αναπτυχθεί και θα δραστηριοποιηθεί το αυριανό στέλεχος. Συνεπώς είναι αναγκαία συνθήκη αυτοί που υπηρετούν την παιδεία και διδάσκουν, να μην μετατρέπονται με το χρόνο σε επιστημονικούς κοσμοκαλόγηρους, αλλά να συμμετέχουν στην αντιμετώπιση των οικονομικών και κοινωνικών προβληματισμών, ώστε να μην αναπτύσσουν εξωκοινωνική αντίληψη της επιστήμης και της ζωής.

Δεδομένου ότι οι επιχειρησιακοί στόχοι είναι πολύπλευροι και εκφράζονται σαν ποιοτικές και ποσοτικές επιδιώξεις είναι προφανές, ότι η εκπαίδευση οσονδήποτε εξειδικευμένη και αν είναι δεν μπορεί ή δεν πρέπει να είναι μονόπλευρη και αυστηρά τεχνοκρατική.

Η παιδεία αναπτύσσεται μέσα στα πλαίσια, αλλά και ταυτόχρονα συμβάλλει στην ανάπτυξη, ενός κοινωνικοπολιτικού και οικονομικού περιβάλλοντος. Είναι συνεπώς, σε κάποια έκταση, φυσικό και η παιδεία να υφίσταται τους κραδασμούς αυτού του περιβάλλοντος. Η άμεση ή έμμεση όμως ένταξη της εκπαίδευσής σε δογματικές θέσεις νομίζω, ότι είναι τουλάχιστον λανθασμένη διότι συνεπάγεται τη διάβρωση της ελεύθερης επιστημονικής σκέψης.

Οι σχολές Διοικήσεως Επιχειρήσεων δεν είναι εργοστάσια «προκατασκευασμένων «managers». Οι managers αναπτύσσονται και αναδεικνύονται (μέσα στο χώρο της εργασίας) με συνεχή εκπαίδευση τόσο εμπειρική όσο και προγραμματισμένη.

Στις αίθουσες της Πανεπιστημιακής διδασκαλίας, τόσο στο προπτυχιακό (bachelor's), όσο και στο μεταπτυχιακό (graduate) επίπεδο, δεν είναι δυνατόν

να διδάσκεται κάθε συγκεκριμένη εργασία και ο ρόλος που θα κληθεί ο σημερινός σπουδαστής να ασκήσει στο μέλλον.

Η πανεπιστημιακή εκπαίδευση πρέπει να εδραιώνει ορισμένες επιστημονικές γνώσεις και μεθόδους, να αναπτύσσει τρόπους σκέψης και να διαμορφώνει δυναμικούς και δημιουργικούς δέκτες της επαγγελματικής εμπειρίας και των προβλημάτων του management. Έτσι η προπτυχιακή εκπαίδευση δημιουργεί μια ευρύτερη επιστημονική υποδομή συνδυαζόμενη με επαρκή επαγγελματική κατάρτιση.

Το επίπεδο και η ποιότητα των επιστημονικών γνώσεων στους διάφορους τομείς του management, η αναλυτική προσέγγιση του τρόπου σκέψης και η δημιουργία επαρκούς επαγγελματικής υποδομής, αποτελούν τους πρώτους βασικούς στόχους εκπαίδευσως στο management.

Η ανάπτυξη όμως της προσωπικότητας και των απαραίτητων ποιοτικών προσόντων ενός καλού manager (συνέπεια, κοινωνική συνείδηση, υπευθυνότητα, ικανότητα αποφάσεως, συνεργατικότητα, διαπραγματευτική ικανότητα, δημιουργική σκέψη, κ.λ.) θα πρέπει να είναι συνεπακόλουθο του τρόπου εκπαίδευσως και διδασκαλίας, και να αποτελούν το άλλο σκέλος των στόχων της εκπαίδευσως. Έτσι, η συμμετοχή του σπουδαστή σε συζήτηση, η θεωρητική διδασκαλία, η μέθοδος της περιπτωσιακής αναλύσεως και η άσκηση, αποτελούν νομίζω μεθόδους και διαδικασίες που πρέπει και μπορούν να συνδυάζονται.

Η μεταπτυχιακή (graduate) εκπαίδευση στο management θα πρέπει οπωσδήποτε να προχωρεί σε περισσότερη (συγκριτικά με την προπτυχιακή) εξειδίκευση, να δίνει έμφαση στην ανάλυση και την έρευνα, και να αναπτύσσει την ικανότητα, τόσο της καινοτομίας στη σκέψη (innovative thinking), όσο και της ορθής αποφάσεως. Ταυτόχρονα όμως η μεταπτυχιακή εκπαίδευση στο management δεν πρέπει να καταλήγει στη δημιουργία επιστημόνων που να μπορούν να επεξεργάζονται μόνο αριθμούς και να κατασκευάζουν μοντέλα. Αυτή η άποψη προκύπτει σαν αναγκαία συνέπεια της παραδοχής, ότι η μεταπτυχιακή εκπαίδευση δεν πρέπει να δημιουργεί αντικοινωνικές προσωπικότητες με ατομικιστική συμπεριφορά.

Η αναγκαιότητα συνεργασίας μεταξύ των Σχολών Management και των επιχειρήσεων τόσο στον τομέα της ενημέρωσης των σπουδαστών, όσο και στον τομέα της αποκτήσεως εμπειρίας έχει νομίζω γίνει πλέον πρόδηλη.

Η περιοδική επικοινωνία και ανταλλαγή απόψεων των Σχολών μεταξύ τους και μεταξύ Σχολών και Επιχειρήσεων για τις εξελίξεις στο επαγγελματικό και

επιστημονικό management σε εθνικό, αλλά και σε διεθνές επίπεδο, είναι νομίζω αναγκαία.

Πιστεύω ότι καθοριστικό στοιχείο αναπτύξεως και προόδου κάθε Σχολής management είναι ο βαθμός προσαρμοστικότητας που έχει για εκσυγχρονισμό και βελτιώσεις τόσο στον επιστημονικό τομέα όσο και στο θεσμικό πλαίσιο. Είναι όμως προφανές, ότι όλα αυτά προϋποθέτουν οικονομική ευχέρεια και ελαστικότητα προϋπολογισμών που πολλές φορές αποτελούν ανασταλτικούς παράγοντες της παιδείας γενικά.

Τέλος θα πρέπει να παρατηρήσουμε, ότι δεν είναι δυνατόν οι επί μέρους Σχολές management να ταυτίζουν τις μεθόδους, το περιεχόμενο σπουδών και τους επί μέρους εκπαιδευτικούς προσανατολισμούς που υιοθετούν, με ένα προκαθορισμένο πρότυπο. Κάθε Σχολή μπορεί και θα πρέπει, να έχει μια δική της προσέγγιση στα θέματα, ώστε να αναπτύσσεται και μια άμιλλα η οποία θα οδηγήσει σε ένα τελικό επίσης στόχο «η επιστημονική εκπαίδευση στο management να υπερκαλύπτει τις ανάγκες του σήμερα και ν' αποτελεί τον αρχιτέκτονα των εξελίξεων του μέλλοντος».

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THE ECONOMIC THOUGHT OF JOSEPH PRIESTLEY¹

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It might seem unlikely that Joseph Priestley, a discoverer of oxygen, persistent propagator of unitarianism and notorious victim of the Church and King riot of 1791, had anything whatever to do with economics. It is indeed true that he never wrote any specific book or even article on economic subjects. However, *An Essay on a Course of Liberal Education for Civil and Active Life* (London, 1765) which he wrote while he was teaching at the Warrington Academy and 'A Syllabus of a Course of Lectures on the Study of History' attached to it deserve notice, because there is something included in them that can be regarded as an expression of his economic opinion and also because there are some elements in that opinion which remind us of mercantilist, as well as other, ideas.

Over twenty years after then, Priestley published the reprinted version of the main body of *An Essay* bound in one volume together with the newly written *Lectures on History, and General Policy* (Birmingham, 1788), making the title of the latter represent the whole volume. The reason for doing so, he says, was that he was requested by his former students of whom he had a 'tutor in the languages and belles lettres in that academy' (Le c. v.).² This

1. This paper is based on my article 'Koten-keizaigaku to J. Priestley' (Classical Political Economy and Joseph Priestley) written in Japanese and inserted in *Keizai-Kenkyu* (The Economic Review), vol. 30, no. 3, Tokyo, July 1979.

2. This is the abbreviation of *Lectures on History, and General Policy*, p. v, and in the same way hereafter.

implies in fact that what had once been no more than an attached syllabus was now developed into an independent form of Lectures. He says on the one hand that owing to the space of time that elapsed he cannot even distinguish his own composition from the extracts he made out of the works of others, though he believes most of the observations to be originally his. But on the other hand he writes that he has 'enlarged this course since the syllabus was first printed, with many valuable articles, collected from works which have been published since, especially Dr. Smith on the Wealth of Nations and Stuart's (sic) Principles of Political Economy' and that he wishes that 'by the illustration of some general principles in such works as these' he might be able to «excite in youth a desire to become better acquainted with them» (i b., vii).

This may suggest some problems. First, the mere fact that the items only enumerated in the «Syllabus» is now dilated in a descriptive form does not necessarily warrant that the original implication of each item is now reproduced as it really was. For instance, if, as will be shown later, there is an item of the balance of trade in the «Syllabus» and if the same subject is dealt with in a negative way in the Lectures, it does not follow that the implication of the item in the former was also a negative one. It could have been so, but it could have been a positive one just as well. In other words, there being no intermediate that lies between the «Syllabus» and the Lectures, it is not clear whether the latter is a faithful enlargement of the former or whether the time that passed between them caused a substantial change in the author's economic thought. Secondly, the names of Smith and Steuart are simply mentioned with no particular comments. Indeed it is now evident that he did read both of them, but it is not evident if he saw them in a contrastive way. Needless to say, although there is no passage in a contrastive way. Needless to say, although there is no passage in the Wealth of Nations to contradict Steuart, implicit criticism permeates the book.

Furthermore, in one of his letters, referring to the book he was then writing, i. e. the Wealth of Nations, Smith disclosed his plan: «Without once mentioning it [Steuart's] book, I flatter myself, that every false principle in it, will meet with a clear and distinct confutation in mine.³

Apparently there is no key given to these problems. The only approach possible, then, is to compare an Essay or its attached «Syllabus» with its counterparts to be found in the Lectures. First on the former. It says that the

3. Adam Smith to William Pulteney, 3 September 1772. *The Correspondence of Adam Smith*, ed. E. C. Mossner and I. S. Ross, Oxford, 1977, p. 164.

existing higher education is only designed for the «learned profession» where a course of studies is not provided for «the intelligent and useful citizen» who are to fill the «principal stations of active life». A new course should be prepared so that this fatal defect may be properly removed. The subjects to be taught there will be universal history and English history, present constitution and laws of England, with some preliminary knowledge of French, practical mathematics and, if possible, algebra and geometry, (E s., 1, 11 – 19).⁴ It will be different from the course in the existing universities where the stress has been laid on cannon law, logic and metaphysics. And the lectures will be delivered in English and not in Latin (i b., 24 – 26). «Commerce», that is to say, economics will also be taught, because it is believed to be an indispensable subject to the young men who will enter an «active life».

In this last connection, Priestley presupposes an objection that «a turn for speculation unfits men for business», and answers that a merchant would no more «do less business, or to worse purpose, for having acquired a fondness for such writer, as Sir Josiah Child, Gee, Postlethwait (s i c), Tucker, c., and for being qualified to read them with understanding and judgement» than «a commander would be the worse soldier for studying books written on the art of war» (i b., 19). These figures, except for Child, may be said to be his contemporaries and the reputation of Child himself was still alive to his days. Consequently such a reference to them might suggest that he was to some extent acquainted with the economic thought of his time and at the same time that his economic conception was somehow bound to mercantilism. How will this be backed by the «Syllabus»?

It is of no use here to trace all the items of it. To pick up those which appear to concern economic subjects will suffice. The Roman numerals in brackets stand for lecture numbers :

- 1 (vI) Of coins and medals. Their origin and use in history. The principal information we receive from them. . . . Ancient and modern coins compared. . . .
- 2 (XV) Of the methods of estimating the riches and power of ancient and remote nations. Sources of mistake on this subject. Change in the standard of coin. Upon what the price of commodities depends. . . . Of the proportion between silver, gold, and brass in ancient times. Of the change in Roman coins. Of the proportion of money to commodities in diffe-

4. The abbreviation of *An Essay on a Course of Liberal Education for Civil and Active Life*, pp. 1, 11 – 19, and in the same way hereafter.

rent periods of the Grecian and Roman history. Of the interest of money in Greece and at Rome.

- 3 (XVI) Of the English coins. Saxon and Norman coins compared. When gold and copper began to be coined by our kings. A table of all the changes in the value of English coins. Proportion between gold and silver in different periods of our history. Proportion between coin and commodities in different periods of our history. Proportion between coin and commodities in different periods of our history. A table of all the changes of the Frenchcoin from the time of Charlemaigne (s i c). A general idea of the proportion it has, at different times, borne to commodities in France. Of the different rates of interest in Europe in different periods. The number and riches of a people to be considered in computing the proportional quantities of money they raise.
- 4 (XXXVII) The most important periods in the history of commerce pointed out. Everything worthy of attention in history which contributes to make a nation happy, populous, or secure. Government an essential article. Nature and objects of civil government, simple or complex...
- 5 (XLIV) The expences (s i c) of government. How moderate taxes operate. Exorbitant taxes. Taxes upon possessions or consumptions. Their different advantages and disadvantages. A poll-tax, in what circumstances most tolerable. By whom a tax upon consumptions should be paid. Taxes upon exports. Farmers of taxes. National debts.
- 6 (XLVIII) ... Necessity of an attention to agriculture. How best encouraged. Bounties. Public granaries. Mutual influences of agriculture and commerce. Circumstances attending the imperfection of agriculture. Imperfect state of it in England a few centuries ago.
- 7 (XLIX) In what manner arts and manufactures increase the power of a state. Importance of encouraging labour. Vast advantage of manufactures, particularly to England. The society for the encouragement of arts, manufactures and commerce. The connection between science and the arts. On what circumstances a taste for science depends. The consequences of interruptions in science. The usual decline of arts after they have been brought pretty near perfection. Why science is so apt to decline.
- 8 (L) The advantage of commerce to the state. Its effects upon the minds of men. Active and passive commerce. What is the most advantageous

kind of commerce. Of fisheries. The importance of unwrought materials. The gain of merchants and of the country compared. Balance (sic) of trade. Influence of commerce on the value of land. And vice versa. Interfering of the legislature in commerce. The Navigation-Act. Restrictions of commerce. Companies. Alienation of land. Loss of commerce by persecution.

- 9 (LI) Use of colonies to a commercial state. Difference between ancient and modern colonies. The entire subserviency of a colony to the mother country. The situation of Ireland. Unreasonable jealousy of it. . . . Uniformity of weights and measures. Maxims with respect to money. Of the nature of exchange. In what cases a great quantity of money is useful or hurtful to a state, and how the increase of it operates to produce an improved state of a society.
- 10 (LII) Of the interest of money : How its rise or fall is influenced by the state of commerce. Of paper-money. Paper-credit. State of the North American colonies in this respect. The fluctuating nature of commerce exemplified as a motive to attend to and improve our commerce. Benefits which have arisen from unsuccessful attempts to extend commerce.
- 11 (LIII) The consequences of a fluctuating state of society deduced. What kinds of luxury are hurtful. How far the country in which luxury prevails is hereby rendered incapable of self-defence or the contrary. . . .
- 12 (LV) . . . Of the populousness of nations. The influence of good laws and government. Easy naturalization. What use of land will enable the people to subsist in the greatest numbers upon it. Circumstances by which to judge of the populousness of ancient nations. How trade and commerce make a nation populous. Equal division of lands. When machines to facilitate labour are useful, and when hurtful.
- 13 (LVI) Grazing formerly destructive to populousness in England. Inclosures when hurtful, and when useful. Necessity of industry. Of frugality. A taste for expensive living how hurtful to Rome in the Augustan age, and to us at present. Reasons of the populousness of China. . . . The populousness of ancient and modern nations compared. Methods of easily computing the numbers of people in a country.

First, as far as it is possible to presume from the mere enumeration of items,

there are elements which make us believe that economy is subject to history, economic items being simply touched upon as a historical information. And there is nothing amiss about this, because the «Syllabus» itself is after all for the «lectures on the study of History». The items of 1(VI) to 4 (XXXVII) are mostly of this kind. Secondly, on the other hand, there are elements which make us suppose that though related to history, some general theories or policies are tried to be induced. The items of 5 (XLIV) and 6 (XLVIII) belong to this kind and those of 7 (XLIX) to 12 (LV) are of such an economic character that they make us even doubt their connection with the lectures on history. And in 13 (LVI) history prevails once again and the economic items seem to assume the appearance of a mere historical information.

Related to the second elements, there are items, as mentioned above, which remind us of mercantilism. In 8 (L), for example, the items from «the advantage of commerce to a state» via «on fisheries» up to «ballance of trade» belong to this category. Fishery on the sea used so often to be compared by mercantilist writers to mining on the land and claimed to be worth greatest encouragement. The items such as «the importation of unwrought materials» and «ballance of trade» seem even more directly to concern the basic ideas of mercantilism, and they are responded by such items as «in what manner art and manufactures increase the power of a state», «importance of encouraging labour», and «vast advantage of manufactures, particularly to England» in 7 (XLIX). «Use of colonies to a commercial state» in 9 (LI) must be of the same nature and «importance of our American colonies» looks even to be in contradiction to his own attitude towards America to be taken some ten years later. «The populousness of ancient and modern nations compared» and «methods of easily computing the numbers of people in a country» in 13 (LVI) would in themselves show that Priestley shared the common interest of those days culminating in the Hume – Wallace controversy, which had taken place some ten years before, but they are at the same time in parallel with «how trade and commerce make a nation populous» of 12 (LV) or «everything worthy of attention in history which contributes to make [making] a nation happy, populous, or secure» of 4 (XXXVII), of which two items the former clearly sees trade and commerce as contributing to the increase of population and latter regards more explicitly still the greater population as a blessing, both notions of population pointing to the essential themes of mercantilist writers. «Esay naturalization» of 12 (LV) would not only remind us of a chapter of Sir Josiah Child's book⁵ in particular but, if read in the context of the same lecture number, would also be associated with the mercantilist theme on population in general.

5. A New Discourse of Trade, London, 1693, pp. 122 – 7.

On the other hand, however, there are items which may not easily be assumed whether to point to mercantilism or non-mercantilism such as «in what cases a great quantity of money is useful or hurtful to a state» of 9 (LI) or «interfering of the legislature in commerce» of 8 (L). Other parts of the book taken into consideration, this doubt might loom larger. «The Introductory Address to the Course of Lectures on the History of England» which is compiled into *An Essay* together with «An Essay»—the main body of the book with the same title and the part to be reprinted in the *Lectures*—puts stress upon «the security, the commerce, the power» on the one hand and yet warns on the other hand «not to forget . . . that we are citizens of the world». A similar contrast of views are seen between the preface to «A Syllabus of a Course of Lectures on the Constitution and Laws of England» and «Remarks on a proposed Code of Education», both of which are also compiled in the volume, i.e. *An Essay*. In the former Priestley assumes that «the great object of all civil policy» is «to make us happy, and consequently populous at home, then . . . to make us formidable abroad» (i b., 100 and by so doing suggests, or at least make us believe to suggest, mercantilist views on population and state, whereas in the latter he denies the state the right to intervene in education and thereby proposes «unbounded liberty» in that respect (i b., 148). He says : «I should object to the interference of the legislature in this business of education, as prejudicial to the proper design of education, and also to the great ends of civil societies» (i b., 142) which were «to produce the greatest sum of happiness in the community» (I b., 152).

For him freedom of education is the proof against despotism of all sorts. He advocates it for the same reason as when he defends complete freedom of conscience and denounces the system of national church. He says : «It is evident to common understanding, that the true spirit and maxims of a mixed government [of regal, aristocratical, and democratical power] can no otherwise be continued, than by every man's educating his children in his own way ; and that if any part provided for the education of the whole, that part would soon gain the ascendancy in the whole ; and, if it were capable of it, would become the whole» (i b., 207).

The freedom of education, then, is one with other kinds of civil liberty such as the freedom of opinion, press and the like. According to Priestley, laws restraining the freedom of press are already more than requisite. Were they to extend a little further, there would be no room left to «a Newton in the natural world, or a Locke, a Hutcheson, a Clarke, or a Hartley in the moral» (i b., 175–6). It is widely perceived «that reason and authority are two things, and that they have generally been opposed to one another. . . . If the opinions and principles in question, be evidently subversive of all the religion and all civil society, they must

be evidently false, and easy to refute ; so that there can be no danger of their spreading ; and the patrons of them may safely be suffered to maintain them in the most open manner they chuse» (i b., 189 – 90). In fact, the complete freedom of opinion is useful as well as necessary for «the interest of truth».

How could such obvious liberalism and utilitarianism be connected with the apparent mercantilism as seen above? Of course it may not be impossible for a liberalist in political and social matters to be a mercantilist in economic subjects. But whether it should be the case with Priestley of the times of *AN ESSAY* cannot be decided, because the means for judgement is lacking. How with it, then be with the *LECTURES*?

Lecture numbers of the *LECTURES* are not necessary parallel with those of the «Syllabus». The former ends at LXVIII, whereas the latter at LXIII, and it is only up to XXXVI that both are completely, and their items are nearly, in accordance with each other. As we have seen, there are items which were added when the the *LECTURES* was written and there are also items which are completely in parallel relation to each other in spite of the difference in the lecture numbers they belong to.

Out of them the first of the above-mentioned two elements, i. e. that which can be classified as economic, and yet should rather be regarded as historical, items may here be left out, because of what intent and nature they must originally have been can neither be ascertained by the titles of the corresponding items in the *LECTURES* nor even by the content of each lecture. For example, among the items of the kind in the «Syllabus» there are ones that may well be presumed to be of theoretical nature such as «upon what the price of commodities depends» of 2 (XV), which, however, turn out not to be so. In fact the corresponding part of the *LECTURES* under the same title merely concerns the changes in the monetary standard as a preliminary passage for the description of the changes that took place in Greek and Roman ages, and as such deals with no theoretical problems.

Thus, we may safely confine our interest here to the above-said second elements, especially in those parts which remind us of mercantilism and which refer to Smith and Steuart. Let us first examine the parts of the *LECTURES* that correspond to some items of 8 (L) in the «Syllabus» which, as we have seen, appeared to point to mercantilism. Meaning foreign trade by commerce, Priestley says : «We may conclude universally, that commerce never fails to make a people

wealthy, populous, and powerful» (L e c., 389). Here, too, the phrase wealthy, populous, and powerful has a tint of mercantilism. The sentence itself sounds as though all foreign trade were beneficial, but he says : «that commerce only can be gainful to a nation which promotes industry, so as to enable the people to live in affluence without exhausting their revenues. The most gainful commerce to a state, therefore, is of all others, that in which we export our own manufactures made from home materials». For the same reason fishery is recommended. «In this view, also fisheries are peculiarly valuable ; as, by means of them, it requires nothing but labour to enable us to open a very gainful market. Fisheries also promote navigation, so as to employ a great number of seamen» (l o c. c i t.). This passage also substantiates the presumption that has been made above on fishery. Furthermore, the author continues : «Next to the exportation of home manufactures, and fisheries, the importation of unwrought materials for manufactures is valuable to a nation. It is better than the importation of money. Because the manufacture of those foreign materials employs many of our hands at home, and the goods that are made from them are sure to bring in, at the least, much more than the price of the raw materials» (i b., 390). Needless to say, this is mercantilism and nothing else, only that the discouragement of the importation of manufactured goods is not remarked here.

The fact that it is left unremarked may have something to do with his attitude towards the balance of trade or protectionism, the attitude which is to be uncovered immediately afterwards. As to the balance of trade, it is indeed comprised in the L e c t u r e s as one of the items as it was in the «Syllabus». But in corresponding part of the text, the phrase as such is not used. Let us see, then, what is in effect said there without using the phrase :

Though exportation makes a nation rich, we are not to judge the quantity of riches which a nation gains by trade from exportation only, but the importation must also be considered. If these exactly balance one another, nothing can be said to be gained or lost, just as a person is not the richer for selling a quantity of goods, if he buy to the same amount. Nay, though the exportation be lessened, if the importation be lessened more than in proportion, it proves an increase of gainful trade, notwithstanding the decrease of exportation. This, however, is estimating the value of commerce by the mere increase of money. But a nation may flourish by internal commerce only, and what is e x t e r n a l commerce between two nations not united in government, would be i n t e r n a l, if they should come under the same government. In every fair bargain the buyer and the seller are equally gainers, whether money be accumulated by either of the parties, or not (i b., 390 – 91).

The implication is quite opaque. The first half appears to show that it is written evidently under the influence of the mercantilist way of thought, whereas the second half would seem to point to the opposite direction.

On the other hand, what is said on protectionism in the *Lectures* is too clear to leave room for doubt. Referring to the restrictions of foreign trade, Priestley concludes that «by aiming at great immediate advantage, they have cut off the very springs of all future advantage». Thus he cites the relevant part of the *Wealth of Nations* and criticizes Colbert who, «in order to render provisions cheap to all inhabitants of towns, and thereby to encourage manufactures and commerce, . . . prohibited the exportation of corn» (i b., 393).

His attitude towards the bounty is very much the same. About the bounty also, there is an item in the *Lectures* corresponding to that in the «Syllabus». In the text it is first said that when a nation has no motive to raise more corn than is sufficient for their own consumption, a bad harvest was necessarily followed by a famine but it has ceased to be the case since the bounty began to be granted for the exportation of corn, and that since then the price of corn has fallen in spite of the increase in the quantity of money. And then almost unexpectedly it is said: «They [bounties] may be useful for a time. But if any commodity cannot be raised, or exported, without a bounty, it should be considered whether more is not given in the bounty than is gained by raising, or exporting, the commodity» (i b. 366). This unexpected turnover would make an assumption possible that a change of opinion has taken place on the part of the author during the space of time between the «Syllabus» and the *Lectures*, and that it has been caused by his reading the *Wealth of Nations* during that intermediate period. In other words, at the time of the «Syllabus» he was bound of the balance of trade thinking, whereas at the time of the *Lectures* he is freed from it. Just in the like way, he believed the bounty to be beneficial in the «Syllabus» whereas in the *Lectures* he denied the thought, though unlike the case of the balance of trade, he nowhere cites the *Wealth of Nations* in this case. At least his denunciation of the bounty cannot but remind us of Adam Smith's. As is known only too well, Smith regarded the bounty as forcing some part of the industry of a country «not only into a channel that is least advantageous, but into one is actually disadvantageous», and so into «the trade which cannot be carried on but by means of a bounty»⁶ and made this one of the essentials of his criticism of mercantilism. The above quotation from Priestley, though not quite

6. Adam Smith, *The Wealth of Nations*, London, 1766, ed. E. Cannan, London, 1904/, 3rd ed., 1922, vol. II, pp. 7. 17.

clear in its implication, would seem to point to this argument of Smith's. Smith expressly writes that the fall of corn price is not due to the increase of corn production enabled by the bounty but to some other causes. Priestley is not as precise in this point too.

The bounty does not reappear as an item but it is once again referred to in another place :

In the whole property of the nation was in the hand of one person, he would never export any thing that could not find a gainful market. though the merchant, therefore, who exports goods with a bounty may gain by such a trade, the nation evidently cannot. In order to favour any particular manufacture, or the importation of the same must be prohibited. But in both cases it is evident that the consumer is sacrificed to that of the raiser of the produce, or the manufacturer. But these are few, and the consumers many (i b., 374 - 6).

Here again, *The Wealth of Nations* is not mentioned, but the assumption that the bounty sacrifices the interest of consumers to that of manufacturers may be said to be an inheritance from Smith who maintains that in both the restraint on the importation of foreign commodities and the bounty on the exportation of national goods the interest of the consumer is «evidently sacrificed to that of the producer» and that «consumption is the sole end and purpose of all production and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer». ⁷

On the other hand, under the same item there is a passage that gives an example of strange mixture of ideas in this book : «Innumerable facts in the history exhibit, in the strongest light, the vast advantage accruing to a people from manufactures», so that it is necessary to make «a provision of a fund of labour for the use of the state». And «since the labour which is bestowed on arts and manufactures only contributes to the greater convenience and ornament of life, it may be spared in the case of exigence, and converted, in variety of ways, to the service of the state». The importance of labour taken into account, «it would be better to have mines, which require much labour to extract the metal from the ore, than to find the precious metal formed by nature to our hands' (i b., 378 - 9). Such an idea of «a fund of labour» or an analogy of «mines» is doubtless a heritage from mercantilist writers instead of from Adam Smith.

7. I b i d., vol. II, p. 159.

A similar case may also be found in the stress laid on commerce under the item of «mutual influences of agriculture and commerce». Following Postlethwayt, Priestley thinks that what is hurtful to trade is also destructive of agriculture and consequently that «the interests of both land and trade are best promoted by cultivating such things as commerce points out to be most beneficial» (i b., 367). As we have already seen, the name of Postlethwayt was familiar to Priestley at the time of the «Syllabus». In this respect, therefore, it may be that what he writes in the *Lectures* under that item is by and large the same as what he had in mind under the same item at the time of the «Syllabus». At any rate the treatment made here in the *Lectures* of trade and commerce is surely belonging to the pre-Smithian stage.

As to his views on colonies, because there intervenes the independence of American colonies between the «Syllabus» and the War of Independence, it would be difficult to trace the text of the *Lectures*, and because he argued for the defence of the colonies before the breaking out of the War of Independence, it would appear not to be of much sense to trace the text of the *Lectures* written under the item which corresponds to that of the «Syllabus». It is true that there is a passage touching the loss of the American colonies caused by the War (i b., 403). But to the passages preceding it he puts a footnote stating that they were written long before the War and that the state of things written there have undergone a great change, and the content itself seems to endorse the statement. If so, the description would let us assume what his standpoint on the matter was at the time of the «Syllabus», which must have been reproduced in the *Lectures*. Anyway, making use of the calculation made by «the sagacious Sir Josiah Child»,⁸ he writes: «It is easy to conceive how vastly profitable those our plantations are to us in every view, whether by setting on work such immense numbers of our manufacturers and artificers of all kinds, or by finding employment for our sailors, ship-builders, and all the trades depending thereon» (i b., 401 - 2). This, together with the views expressed in the sentence that «a great means of the amazing increase of shipping and commerce is our foreign colonies» (i b., 400), is nothing other than an inheritance of a traditionally mercantilist conception.

But it is also undeniable that there is an element in his views on colonies that foretells those of his later days, because he says that »the English are justly charged with setting the example of several wrong steps with regard to colonies and

8. *A New Discourse of Trade*, p. 208.

that «a mother – country may injure itself by an extreme jealousy of its colonies» (i b., 402). He mentions Ireland in particular and claims that the preventing of the importation of the goods from Ireland, which is «much the same as a colony», in order to protect the goods of the home country is a «short sighted policy» which «arises from mistaking the nature of trade» (l o c. c i t.).

It has thus become fairly clear that mercantilist elements presumed to have characterized Priestley's economic thinking at the time of the «Syllabus» have somehow been handed down to the Lectures, that they coexist in the book with the new elements of classical political economy, and that though some of those new elements were already latent in the «Syllabus» itself, they are mostly caused by the Wealth of Nations. In the Lectures some new items are added to between the items corresponding to the last one of 6 (XLVIII) and to the first of 7 (XLIX) of the «Syllabus» and on the text of these new items Smith casts his shadow directly. The added items are: «the progress of improvement in society», «division of labour», great uses of the most common arts', 'encouragement of arts, etc. by government', 'securities necessary to manufactures, etc', 'apprenticeships', and 'servitude'. There Priestley first says that 'the only original source of wealth, and every other advantage is labour' and continues: 'By this [labour] men are enabled to get from the earth, or the sea, their provisions, materials for their cloathing (sic) and habitations, and their comfortable subsistence in all other respects. By this they make themselves tools and engines, which shorten labour, and divide it, so as to enable a few to make sufficient provision for a great number' (i b., 369). The first of the above two quotations and the former half of the second may be considered to be parallel to the wellknown formula of the Wealth of Nations that wealth consists of 'al the necessaries and conveniences of life' which are the produce of labour, and the latter half to the essence of the passage on the division of labour that is immediately to follow.

The Lectures then divides men into four classes: labourers, holders of land or money, traders and servants. Labourers consist of farmers and manufactures. It is only they who add to the wealth of the nation and so it is only their work that is really productive. Servants comprise magistrates, teachers, religious or secular, physicians, lawyers, actors, etc. Apart from the proprietors of land and money, what is stated here is practically the same as Smith's distinction between two kinds of labour, i.e. productive and unproductive,⁹ only that the word

9. The Wealth of Nations, ed. Cannan, vol. I, pp. 313–4.

servant is of a wider sense and that whether traders belong to productive or unproductive labourers is not clear. Priestley does not relate this argument to the theory of capital accumulation as Smith did but he says properly enough that 'as the product of labour . . . will in time of peace accumulate, the class of unproductive labourers, or servants of all kinds, will increase ; because the labour of a few will be able to support them' (ib., 370).

When individuals are left to themselves, he says, they generally tend to be provident and 'will daily better their circumstances' but the government does not do so:

Of all the classes of men above-mentioned, the governors are, in general, and of necessity must be, the most ignorant of their own business, because it is exceedingly complex, and requires more knowledge and ability than they are possessed of. The waste of public wealth by them is by far the most considerable. By the foolish wars they involve nations, and the endless taxes they impose upon them, governors are pulling down that individuals are building up (i b., 371 - 2).

The relevant part of *The Wealth of Nations* is not necessarily to the effect that the government is ignorant of its business because it is too complex, but the Smithian assumption on the government can be said to be somehow shared. Priestley does cite explicitly the passage of the *Wealth of Nations* relating to the theory of capital accumulation¹⁰ that it is impertinent and presumptuous for the government to intervene in the economy of private people and that governors are themselves the greatest spendthrifts.

To the division of labour Priestley assigns only a few lines of the *Lectures*. Already at the time of the 'Syllabus' he referred to it, and mentioned its benefit which arises 'when a man's faculties are wholly employed upon one single object' (E s., 19 - 20). But the reference was only made as an introduction, as it were, to the argument on the education of those who were to proceed to the trade where the division of labour was not applicable. Therefore a proper discussion of the division of labour is only made in this part of the *Lectures* where Smith's observation of it by means of the illustration of a pin manufacturer is briefly outlined (L e c., 372).

10. *Ibid.*, vol. I, p. 328.

'Encouragement of arts, etc. by government' is the above-mentioned part where reference to the bounties is made in order to advocate the interest of consumers. The contention that any manufacture which is not able to stand without government's protection is not worth supporting is virtually the same as Smith's.¹¹

Smith's influence is also evident in the text of the items 'apprenticeships' and 'servitude'. Although the name of Smith is not mentioned, the lines including the sentence that 'the law relating to apprenticeships in this country is an impediment to the improvement of the arts' (i b., 376) is doubtless a brief reproduction of Smith's contention, only that the assumption that apprenticeships, as well as guilds, are the violation of the 'most sacred and inviolable' natural freedom¹² is missing. Priestley considers slavery to be most inhumane and can also be a cause of war. He quotes Smith's statement almost literally that from the experience of all ages and nations it appears that «the work done by freemen comes cheaper in the end than that performed by slaves», and that it is the case with American cities 'where the wages of common labour are so very high'¹³ (i b., 377 - 8).

How, then, is it about the shadow of Steuart? As far as the frequency of reference or quotation is concerned, Steuart comes first as compared with Smith. In fact the former appears nearly twice as often as the latter. And yet in most cases, his *Principles* is made use of as the source of historical information about money, credit, taxes, etc. on the continent generally and in France particularly. There are, however, some cases in which Priestley's reference to Steuart goes further than that. For instance, referring to him with regard to the argument on taxes, Priestley objects to his statement that 'the best possible tax' is the one levied on the sale of every commodity.¹⁴ The reason for the objection is that it would be 'a check on the transferring of property, which, in a commercial state, ought to be made as easy as possible' and that 'if the wealth and strength of a nation depend chiefly upon its manufactures, it is impolitic to subject them to any tax' (i b., 503). This latter quotation has no doubt a tint of mercantilism. If so, here he may be said to be criticizing the mercantilist Steuart from the mercantilist point of view.

11. *Ibid.*, vol. II, pp. 159 - 60.

12. *Ibid.*, vol. I, pp. 120 - 44.

13. *Ibid.*, vol. I, pp. 82 - 3, 364.

14. James Steuart, *The Principles of Political Economy*, London, 1767, vol. II, p. 593.

Another example of his reference to Stuart's *Principles* not merely as a source of historical information is concerned with the theory of price. It is a part of the argument which Stuart develops in criticism of David Hume on the relation of the quantity of circulating money to prices, while concerning himself with the 'standard prices' of provisions or 'articles of the first necessity' as he puts them.¹⁵ Repeating Stuart nearly literally, he says :

As the price of things cannot rise where there is no desire to purchase, so let that desire be ever so great, the price cannot exceed what those who want can afford to pay. The price of the necessaries of life, therefore, as Mr. Stuart says, must depend upon the faculties of the buyer, that is, of the lowest class of the people. In the greatest famine, even bread can never rise above that price (i b., 404).

He pays no attention to the difference between the theories of Smith and of Stuart on the prices of commodities. It appears as though the comparison of Smith's economics with Stuart's were out of his interest. Is this only too natural owing to the co-existence of old and new elements in his thought at large?

But there are cases where Smith and Stuart are contrasted with each other, of which an example is the theory of public loan. 'National debts', which was in 5 (XLIV) of the 'Syllabus' only one of the times is now in the *Lectures* so enlarged as to make practically an independent lecture number. There, following Stuart,¹⁶ Priestley traces the 'origin and progress' of national debts (ib., 509 – 10). But as soon as he leaves their history, he says :

Some have represented the national debt as having the same operation with the addition of so much capital stock to the nation, encouraging the industry of it, etc. But whatever money is issued in the form of paper by the government, it is first deposited in the form of cash by the individual. The man who pays the tax gives up so much of his property, so that it ceases to be productive to him, and it is generally expended by government in army and expences, revenue of officers, gratuities, etc. which yield no return. . . . The money, no doubt, is employed, and thereby industry encouraged ; but it is only that kind of industry which raises the price of cosumable goods. If any man, or any nation, should give all their property in this manner, they would certainly be impover-

15. *Ibid.*, vol. I, pp. 396 – 7.

16. *Ibid.*, vol. II, pp. 353, 377, 462.

ished, though those to whom money was transferred would be gainers (i b., 511 - 2).

Although there is no Smithian distinction between capital as maintaining productive labour and revenue as supporting unproductive labour¹⁷, virtually the same conception is implied. In nearly the same tone as Smith's, he remarks that the public loan is not any additional capital.¹⁸ And this is exactly the opposite assertion to Stuart's who affirms that the public loan creates new demands by giving vent to the stagnant money and thereby plays a constructive part for the development of commercial society. Thus¹⁹, following Stuart in the explanation of the history of the formation of public loans, i. e. making use of Stuart, here too, as a source of factual information, Priestley denies him as to the economic significance as such of public loans. It may be said that here the influence of the *Wealth of Nations* on the *Lectures* is most evidently and symbolically shown²⁰.

17. *The Wealth of Nations*, ed. Cannan, vol. I, pp. 315-6.

18. *Ibid.*, vol. II, pp. 409-11.

19. Stuart, *The Principles*, vol. II, pp. 451-2.

20. Another opportunity for Priestley to contrast Smith with Stuart on the same level would have been on luxury. About the economic implication of luxury, he only says that 'wants of this kind i. e. the mere taste for ornament, more than all our other wants, promote industry, and are a most effectual means of circulating wealth'. Otherwise his interest in luxury lies mainly in the moral or physical effect of it (*Lec.*, 418), or in the tax on luxurious commodities (i b., 507).

THE PROBLEM OF PROGRESS IN ECONOMIC SCIENCE

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The purpose of this paper is to examine scientific economic enterprise from the point of view of theory choice and methods. Essentially I shall argue that progress in economics is not solely a matter of discovering «better» theories within the context of the existing methodology, but rather, the failure of economic science to live up to expectations is the consequence of ignoring some fundamental methodological issues. In particular, economists have not often practiced what they have preached as positivists, and in cases where they have, the philosophy has not been applicable. In other words, the rational basis for scientific economic enterprise becomes questionable if one looks at the relationship between practice and philosophy.

Scientific Enterprise : The Natural and Social Sciences

Scientific enterprise is often assumed to be one of the most rational of all human enterprises. Given certain ends, the most appropriate means for achieving those ends are chosen. In science the means are the procedures used for scientific analysis and the rationalization of these procedures falls in the realm of methodology or philosophy of science. Although scientific enterprise possesses a philosophical basis, it does not follow that all scientists are methodologists or philosophers of science. In practice one finds that most working scientists regard the philosophy of science with an attitude which varies from indifference to one of a complete waste of time.

This attitude towards the philosophical basis for their activities is understandable ; working scientists are interested in the subject of investigation, rather than in the nature of their own activities. Also, as scientists they are interested

in definitive results and philosophical discourse is hardly ever definitive. In other words, the procedures used by scientists may have a rational basis, but its articulation is not a matter of concern for the working scientist. Instead successive generations of scientists simply have accepted such procedures as a traditional part of their training¹.

Hence we are led to a distinction between scientific enterprise as rational activity as opposed to traditional activity. It seems that scientists as «receivers» of an implied philosophical doctrine fall into the latter category: they do what simply because they were taught to do things according to the conventions of their disciplines². Given such an environment, if a theory «fails», according to some conventional criterion in a particular discipline, the problem is one of finding a «better» theory. In the natural sciences, progress has been characterized by such a process of finding «better» theories. The methodology of science has remained in tact.

Philosophers of science have attempted to rationalize such procedures, and by characterizing them have attached labels to them, such as «positivism». In the natural sciences the working scientist need not be concerned with the speculations of philosophers. What matters is that what he does produces results, according to some criterion. And the progress in the natural sciences certainly has been such that their procedures hardly need defending. This is not to say that the natural sciences have not been without «crises» in theory, but that such «crises» were not, in general, such as to undermine the epistemological foundations of those sciences.

In we turn to the social sciences, say economics, we find the situation altogether different. To begin, methodological disputes have raged among the practitioners of the science. The critics of classical economics, such as Comte, Marx, and the German historical economists, as well as the critics of neoclassical economics, such as the American Institutionalists, were not content to attack the theories, but also the methodology of those schools³. This situation exists today

1. The procedures of science will be discussed in detail below. What is important is that the methodology of sciences is hardly ever a formal explicit part of a scientist's training, but instead, is reflected in the procedures of analysis, and therefore implicit.

2. There is little wrong with this circumstance for once principles are established it would be redundant to rationalize them.

3. For a detailed discussion of the methodological review of these writers see: Vincent J. Tascio, *Pareto's Methodological Approach to Economics* (Chapel Hill: The University of North Carolina Press, 1968), pp. 15-29.

among some of the critics of orthodox economics, although to a much lesser extent. Nevertheless, by the turn of this century, the methodological debates had virtually ended and, in economics, the procedures of the natural sciences, particularly those of the physical sciences, held sway. To the extent that methodological differences have existed among writers such as Machlup, Hutchinson, Friedman and Samuelson, in recent years, they have been differences within the context of the dominant philosophy in all sciences, positivism, which currently prevails in economics⁴.

In general, the attitude of economists regarding «crises» in economic theory has been the same as their counterparts in the physical sciences, a matter of finding a «better» theory. And so it was with the so-called Keynesian revolution, it being a revolution in theory not methodology.

What is important is the consensus among economists that if theory «fails» there is something wrong with the theory, rather than with the methodology. Yet, progress in economics, and the social sciences in general, has been much slower than that of the natural sciences, even though adherence is to the same philosophy as in the natural sciences. This slow progress in the social sciences has been attributed to such factors as the complexity of the subject matter, interdependence, changing «background conditions», and so on. Such factors raise the possibility that the problem of progress and its solution may not lie in theory alone, but in the social scientists' methodological approach to the study of human society.

The philosophy of positivism derived from practice in the physical sciences and was adopted by economists (and, later, other social scientists) as their own, because of the impressive results achieved in the physical sciences. Although the «demonstration effect» was sufficient grounds to adopt the methodology of the physical sciences early in the development of economics as a science, the question now arises as to whether or not experience has proven it to be the correct choice. Two possibilities are presented to us. First, that practice in economics has conformed to philosophy, i.e., economists have practiced what they have preached. Secondly, practice has not conformed to philosophy. In the first case, if progress

4. The protean word «Positivism» requires some definition. Without assigning too strict a definition to the term, I mean the philosophy of positive empirical science, which prescribes certain procedures in order to «objectify» subjective experience, which accepts the efficacy of atomism as a source of knowledge, and reflects the influence of the Cartesian subject-object dichotomy. Within the broad context of positive empirical science, there are sub-groups such as the logical positivists, the operationalists, etc., which emphasize one point of view or another, and whose views are not generally shared by all working scientists.

has been slow, it may be that the philosophy does not apply to the social sciences and therefore the efficacy of practice is problematic. In the second case it may be that the philosophy cannot be applied to the social sciences, and therefore it is irrelevant⁵. In the natural sciences there is a strong argument for rejecting the second case based on experience. In the social sciences, as I shall argue below, it turns out that the selection process by which theories are accepted/rejected differs from that of the natural sciences, even though the social sciences nominally subscribe to the same standards or selection as the natural sciences.

The above distinction may be posed in another way. In the natural sciences, for the reasons given above, there is no need to raise the distinction between practice and philosophy, indeed the latter is not a matter of concern and can be ignored (except by philosophers of science). Philosophy has attempted to conform to the practice. In economics, practice has attempted to conform to the philosophy of positivism.

Theory Choice Economics

Theory choice in economics serves as an example of a case of practice not conforming to philosophy. The issue of theory choice, the selection process by which theories are accepted and rejected, is central to positivism, for a salient feature of positivism has been the articulation of rules, tests, procedures, etc. for objectifying «subject» experience. In other words, an important goal of positivism is to eliminate the subjective element in theory choice.

In a recent paper, Bruce Caldwell and I examined various criteria used for theory choice by positive empirical science. With respect to the empirical criterion of predictive adequacy, several aspects, such as initial conditions, general laws and change and other problems were examined. We concluded, in part :

For theory choice on empirical grounds to be workable in any discipline, general laws must be present, initial conditions should be relatively few in number and easily checkable, and data must be trustworthy and complete. There are numerous instances in economics in which such requirements are not satisfied⁶.

5. In reality one expects to find examples of both since cases are not so clear cut.

6. Vincent J. Tarascio and Bruce Caldwell, «Theory Choice in Economics : Practice and Philosophy,» *Journal of Economic Issues*, Vol. XIII, No 4 (Dec. 1979), pp. 983 – 1005.

We then went on to examine nonempirical criteria for theory choice such as logical consistency, elegance, extensibility, generality, multiple connectedness, heuristic value, and simplicity. Our concern was whether or not theory choice could be based on nonempirical grounds. We concluded :

The implications of this discussion of nonempirical criteria to theory choice are as disheartening as the earlier discussion of predictive adequacy ; it seems that these criteria can only be used for the justification or rationalization of theories, rather than for the choice from among competing theories.

Yet in spite of these obstacles, theory choice does take place in economics. The problem is that it seldom follows the canons of positive empirical science. We then went on to examine the nature of selection process as it is practiced, rather than its philosophy. We argued that «while incorporating elements from both the standard (positivistic) and growth of knowledge (Kuhn, Lakatos, Feyerabend, Toulmin) traditions regarding theory choice, it differs from both in emphasizing the distinction between objective existence of a contribution and its subjective acceptance as a point of a body of knowledge ...» Upon completion of our examination of various stages of the selection process we concluded :

Most important, however, is that the criteria for «rejecting» such theories are not those which have emerged in positivist philosophy of science, that is, disconfirmation, falsification, and so forth, either at the formal stage of evaluation, or the postpublication stage of objective existence. Both parts of the selection process involve primarily subjective factors of an interpretive nature. Indeed, the objective factors are relatively unimportant in the first stage and irrelevant in the second.

What has been discussed thus far serves as an example of where economic practice generally cannot and has not conformed to the tenets of positive empirical philosophy, regarding the central issue of theory choice. Therefore the history of economics as a science has not been patterned after the physical sciences on this issue.

Although theory choice in economics has not followed the example of the physical sciences, the framework of economic analysis has developed along the

lines of rational mechanics, implying that the procedures of the physical sciences are appropriate for the investigation of human behavior. This development reflects the influence of «naturalism» on scientific economic thought, which deserves further consideration.

The «Naturalistic» View of Economic Science

During the 1960's the distinction between the methodology of the social sciences and that of the natural sciences was debated among philosophers of science. Those who took the position that there was no logical basis for the distinction between the two were called «naturalists», and those who argued that the nature of the subject matter of the two types of science was such that they required different methodologies became identified as «phenomenologists»⁷. The point of view which argues that the subject matter of the social sciences is such that the study of human society requires its own methodology, different from that of the physical sciences, is quite familiar to economists and goes back at least to the German Idealistic tradition and those who came under its influence, such as the German Historical School and Marx. Later, the American Institutionalists, some of whom were also influenced by Idealistic philosophy, reflected a similar point of view. In any event, although orthodox economics has had its methodological critics during its development, the «naturalistic» view has remained dominant and is reflected in the current state of economics. This naturalistic orientation is identified with and indeed is an integral part of positivism.

Recently I reexamined this issue. In particular, I traced the influence of «naturalism» on economics, and how such theories have neglected the problem of uncertainty and change⁸. The tradition of economics has been an outgrowth of utilitarian philosophy and can be characterized as having been atomistic, rationalistic and materialistic. The first and third characteristics have a bearing on scope, the second on the methodology.

The rationalistic character of the tradition of economics is reflected in the concept of «economic man,» the assumed rational behavior of economic agents. I have argued that the concept of «economic man» was nothing other than a

7. For a collection of works dealing with both points of view see: Maurice Natanson, ed., *Philosophy of the Social Sciences* (New York: Random House, 1963)

8. Vincent J. Tarascio, «Theories of Behavior and Public Policy», *S p o u d a i*, Vol. 27, No. 2. (1977), pp. 279 - 290.

conceptualization of the observer's own thought process (reason) extended to the actor⁹. The appeal of «economic man» is that it fits very well the static equilibrium framework of economic analysis borrowed from mechanics¹⁰. Even the so called economic dynamics are special cases of statics and are mechanical in nature. The result is that economics is ill suited to deal with the problem of change a characteristic of human societies which is historical rather than mechanical in nature¹¹. Change involving social phenomena lends historical uniqueness and concrete individuality to social phenomena which are often absent in the natural sciences. Consequently, the methods used in the natural sciences, although appropriate for them, are not adequate for social science analysis. In contrast to the dynamic mechanical approach, the historical approach considers each stage in the process of change as unique and possessing a concrete individuality.

To the extent that the mechanistic models in economics are applicable, they are applicable to situations where changing «background conditions» are absent. One such case is with studies relating to the past, since the past is «dead» and «frozen» in time. It is questionable as to whether or not such models are even appropriate for the analysis of the present, since what we know of think we know about the present is based on historical data, because of the lag involved in gathering «current» information. In a changing environment the present often turns out to be an extrapolation of the recent past. On the matter of forecasting the future, what will be, it turns out, also, that such models merely extrapolate the past.

The German historical school, recognizing the historical character of human society, i.e. its historical uniqueness and concrete individuality at each state in the process of change attempted to substitute the procedures of history for those of the physical sciences. Nevertheless, the results were equally unimpressive regarding what is and what will be. At least, the Germans recognized the historical character of human society and attempted to develop an appropriate methodology. On the other hand, economists continue to believe that the problem of change can be broached by «better» theories, more timely data, etc., and view the problem as one which can be resolved within the context of current (naturalistic) methodology. Yet this optimism has little basis in experience, because of the failure of the natural sciences to deal with this problem successfully when confronted

9. *Ibid.*, pp. 282-283.

10. *Ibid.*

11. For more on the historical nature of change see: *Ibid.*, pp. 284-285.

with it¹². Paradoxically, the methods of the natural sciences when applied to economic phenomena, are more suitable for the study of an unchanging past and therefore economic science is essentially most useful as economic history¹³.

Thus far I have reviewed two methodological issues in economics— theory choice and methods — which are fundamental from the point of view of science. I have argued that theory choice in practice does not follow the tenets of positive empirical science. A lack of correspondence between practice and philosophy points to the problems encountered in attempting to apply to a social science a philosophy which had its origins in the natural sciences. The existence of this lack of correspondence should tell us something about the applicability of positive empirical science to economics. Yet the problem has been swept under the rug.

The second issue relates to the efficacy of natural science methods for the social sciences. I have argued that in this case the view among economists has been that there is no logical distinction between social and natural phenomena, and that the methods of the natural sciences are appropriate for the study of human society. This view corresponds to the «naturalistic» orientations of some philosophers of science, which have come under attack. In any event, in the natural sciences, unchanging «background conditions» are characteristic, so that dynamic – mechanistic theories are adequate. In the social sciences, historical change is characteristic and the tendency of economists to deal with historical change within the context of natural science methods has caused economics to be essentially a science of the past.

Pareto on Scope

During the turn of the century, Pareto, the positivist, insisted that theory

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12. An example in the natural sciences is the mutation of virus which produce «new strains». Here the record for predicting «new strains» has been poor and a source of surprises as the economic world has been a source of surprises for economists. For more on these distinctions see: *Ibid.*, pp. 284 – 285.
 13. Even as economic history, the record is dubious. Take, for example, the controversy surrounding the causes of the Great Depression and the conflicting views of Friedman and Schwartz, Temin, and Kindleberger, to mention a few. Cf. Friedman and Schwartz, *Monetary History of the United States 1869 – 1960* (Princeton: Princeton University Press, 1963); Peter Temin, *Did Monetary Forces Cause the Great Depression* (New York: W.W. Norton 1976); Charles P. Kindleberger, *The World in Depression 1929-1939* (Berkeley: University of California Press, 1973). The problem is essentially one of scope, differences in scope causing differences in perceived causal relationships.

choice in economics could follow along the lines of positive empirical science. This assertion was based on continuous examples from the physical sciences. Nevertheless, he too encountered the problem of change, but he insisted that the problem of changing background conditions could be resolved by expanding the scope of economics to include such background conditions as part of theory. Hence he was led to sociology, which for him represented a synthesis of all social phenomena, economic, political, religious, psychological, etc.

What is remarkable, Pareto recognized the historical nature of social change, and his sociology is essentially an interpretation of history. But Pareto would not accept the German conception of historical uniqueness and concrete individuality as the basis for historical research. Instead he argued that although institutions, values, etc. undergo continuous change over time, human personalities and propensities do not. Therefore the «constants» which seem to be lacking in history were merely the consequence of incomplete theory. In his research Pareto thought that he had discovered the means to reduce historical change to a special case of dynamic-mechanics, through wider scope (sociology) and a higher level of abstraction (theory of residues). As a result he was willing to concede any distinction to history and science.

On the matter of theory choice, Pareto did not go beyond his positivist contemporaries in his assertions that practice could follow philosophy, which amounted to little. But on the matter of change, Pareto¹⁴ raised a new wrinkle: namely that the apparent problem of historical change was the consequence of incomplete synthesis, which could be broached through broader scope of analysis. With respect to the problem of historical change Pareto went beyond mere assertion, he devoted approximately 15 years to his theory of society which culminated in the *Tra t t a t o*, consisting of over one million words.

So Pareto offered the economics profession a solution to the problem of historical change with his sociology. Unfortunately, Pareto went one way and the profession went another way, with its traditional emphasis on narrow scope. Since Pareto's theory was not subjected to the tests of positive empirical science, which he himself had claimed as possible, it is not possible to know if his approach

14. Vilferdo Pareto, *Tra t t a t o di sociologia generale*. 4 vols. (Firenze: Barbera, 1916). Translated into English as: *The Mind and Society*, translated and edited by Arthur Livingston, 4 vols. (New York: Harcourt, Brace and Company, 1935). See: Vol. I, Chapter I.

to the problem was correct¹⁵. Instead all that can be said is that he left us with an intriguing possibility. Pareto remained a positivist to the very end. And over half a century later, these two fundamental problems, theory choice and historical change, remain with us.

Conclusion

In view of the above, one might ask : In what sense is economic science a rational enterprise? The issues discussed certainly do not come as any surprise to practicing economists, yet the prevailing view seems to be that the solutions to these problems lie in corrective improvements within the content of naturalistic methodology. The prevailing philosophy of science in economics is not and never has been a product of practice in the social sciences, as was the case in the natural sciences. Instead it was transplanted into economics, and later the other social sciences, because of a demonstration effect : the impressive progress of the natural sciences. Therefore acceptance was a consequence of belief rather than experience. One can excuse the early positivists, such as Pareto, since they were influenced by their environment and it seemed to them that, as Comte had argued earlier, there was only one Science to be applied to all phenomena both social and natural. What is remarkable is that this belief has persisted so long, in spite of the fact that progress in the social sciences has failed to keep up with that of the natural sciences, or even to live up to expectations.

The solution to the problem of progress in the social sciences, if one exists, has been an elusive one. Certainly, the solutions offered by the early critics of orthodox methodology turned out to be equally unimpressive in practice. Nevertheless, the currently uneasy complacency among practioners that somehow «better» theories within the context of the prevailing methodology will somehow lead to greater progress in our sciences will likely result in further disappointments.

15. Here again is an example of a scientific work whose acceptance or rejection did not follow the procedures of positive empirical science. Indeed even where parts of the sociology, namely particular theories were accepted or rejected by the social sciences, influencing factors were largely subjective. For more in this subject see : Vincent J. Tarascio, «La Sociologie de Pareto aux Etats – Unis, «Recherches Sociologiques No 2 (May 1975), pp. 261 – 274.

CO-OPERATIVE ENTERPRISE A WELFARE ANALYSIS FOR THE CASE OF GOVERNMENT SUPPORT

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How do Farmer Cooperatives Tend To Be Structured? Analyse the Welfare Effects of This Structure and Consider the Case for and Against Government Support of Farmer Cooperatives.

In the first part of this essay I describe the overall structure of the two main types of farmer cooperative. The reason for doing this is to illustrate why one type may behave differently from the other, and also to show if and why they may behave differently from a privately managed firm.

In the second part I describe the welfare effects that economic theory predicts each type will produce under different market conditions, comparing the cooperatives with a privately managed firm. I also discuss whether public policy should be aimed at supporting cooperative organisations. To do this I will assume that the main aim of Government policy is to maximise the total welfare of society, subject to the budget constraint. Therefore Government policy will be applied in cases where firms display a potential for a Pareto improvement. A potential for a Pareto improvement exists in cases where the welfare of one or more members of society can be improved without causing a disbenefit to any other member of that society.

1. INTRODUCTION

Conventional Neo-Classical economic theory still focuses almost exclusively

upon the profit maximising ideal type firm, despite a large body of literature that points to alternative maximising behaviour in the firm, e.g. output, quality, managerial utility etc. A farmer cooperative is typical of a possible non-profit maximising enterprise, and this is due to the way in which these forms are structured. However, there are alternative structural forms that the cooperative may take and therefore their maximising behaviour must be expected to vary. There are two principal forms of farmer cooperative, the first and most common in the U.K., is what is known as a service cooperative, which arranges the buying and/or selling of raw materials and output for its members. The arguments generally put forward in support of this type are 1) increased efficiency in purchasing and marketing 2) increased income, especially for low income farmers 3) anti monopoly action. The second and more interesting form is that of a production cooperative. This embraces the whole production process of one or more agricultural products, and the members act according to the instructions of the production manager.

2) THE STRUCTURE OF FARMER COOPERATIVES

i) Service Cooperatives

Each member has an equal right to vote and no discrimination is made according to amount of patronage or size of share holding. To become a member one share must be bought, although more than one share may be held in most cases, the dividend on shares is derived from the cooperative surplus although usually dividends are very low. However Service cooperatives tend not to require large amounts of capital and therefore share capital need not be large. In circumstances where a larger capital size is required (this may occur with a fruit cooperative, where the packing of members fruit is undertaken by the cooperative) then attempts must be made to increase dividends to encourage more share holding among members, unless capital can be raised elsewhere, although in the U.K. small enterprises often face problems when trying to borrow capital. No non-member may hold shares and no one may become a member unless he is in a position to use the services that the cooperative provides. All members have an equal right to stand for election onto the board of directors. Concerning the actual production process each member is quite independent and is entitled to grow whatever quantity of a product that he wishes, and he makes all decisions concerning the method of production. The profit of the cooperative is distributed between members according to the quantity that each member either bought from or sold to the cooperative, and any surplus is distributed between share holders.

ii) Production Cooperatives

The structure of production cooperatives is more complicated due to their larger scope, and because the structure will change according to the type of production being undertaken, e.g. livestock or arable. Here I will concentrate upon arable production.

Each member has to buy a share in the cooperative which is usually a nominal amount, and also he will have to contribute a specific amount of capital, which in the case of small farms unable to raise capital may be deducted from future returns to that farmer. Normally shares are only transferable by a farmer to his successor in the business and cannot be transferred to outsiders. At any time the members may be required to contribute a further sum of capital if the Board of Directors agree this is necessary. Each farmer must commit a certain acreage to the cooperative each year and must give several years notice if he intends to withdraw his membership. However in the case of a farmer who dies an exception must be made so that the property can be sold if necessary. Usually any surplus that members have contributed will not be returned to them but will be used to the benefit of the organisation in the future and therefore members may not receive the benefits in proportion to the amount they have contributed. This naturally has implications for the size of investment made, since members may prefer to invest in their own farms rather than ploughing their available resources into the cooperative. A disincentive may also exist in that farmers may feel that investing in the cooperative instead of their own farms will reduce their ability to exist independently. However if the cooperative is dissolved any surplus should be distributed according to the size of members' contributions over about seven preceding years. All the members have the opportunity to become directors.

The division of costs and profits is far more complicated in a production cooperative. The general manager decides which farms will plant which variety of a crop and also at what specific time the crop will be planted, this is done in order to spread the harvest period over a manageable length of time. He also decides what fertilisers and pesticides etc. the farmer will use on the crop. Therefore each farmer faces different costs in production. The output will also vary according to the variety planted, when it was planted, the type of land under cultivation etc. As a result farmers must be compensated for any extra cost they incur. The cooperative's net surplus will then be distributed according to the size of acreage that each farmer contributed and not according to the level of output from individual farms.

2. THE WELFARE EFFECTS OF SERVICE COOPERATIVES OPERATING UNDER DIFFERENT MARKET SITUATIONS

Members of a cooperative will have different objectives concerning output and therefore labour and capital levels than a firm run by a private individual. Members of a cooperative will wish to minimise average cost so that the surplus over cost is at its greatest and this they then divide between them. Since the amount of patronage each individual can give to the cooperative is limited and the premium on shares is very minimal in most cases they will not be concerned with operating at the most efficient level, but at the level that minimises average costs, which may involve restricting the size of membership. Conversely a private entrepreneur, according to most traditional economic theory is solely concerned with maximisation of profit.

In order to illustrate the welfare effects that these different management policies may have upon society it is necessary under monopoly conditions to consider «purchasing» and «Marketing» service cooperatives separately, since they will operate differently. These two types of service cooperative will be compared with a similar firm operating for private profit.

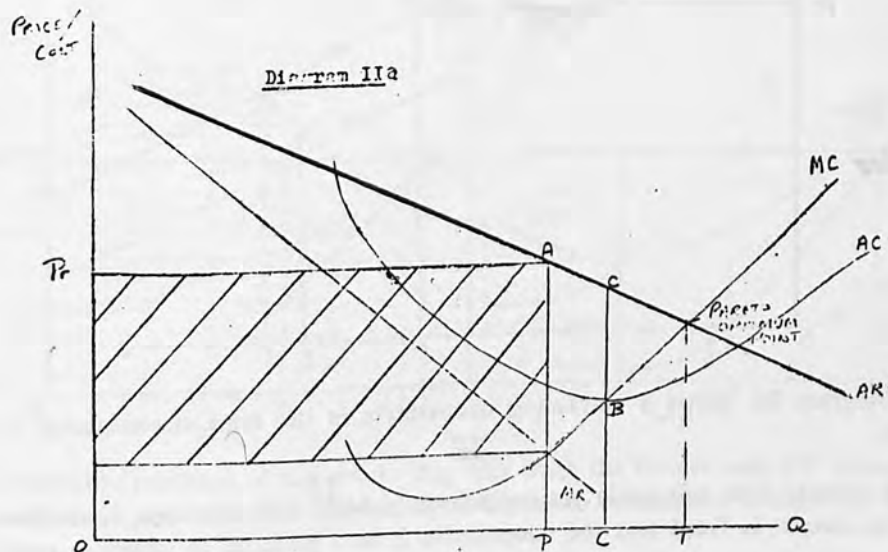
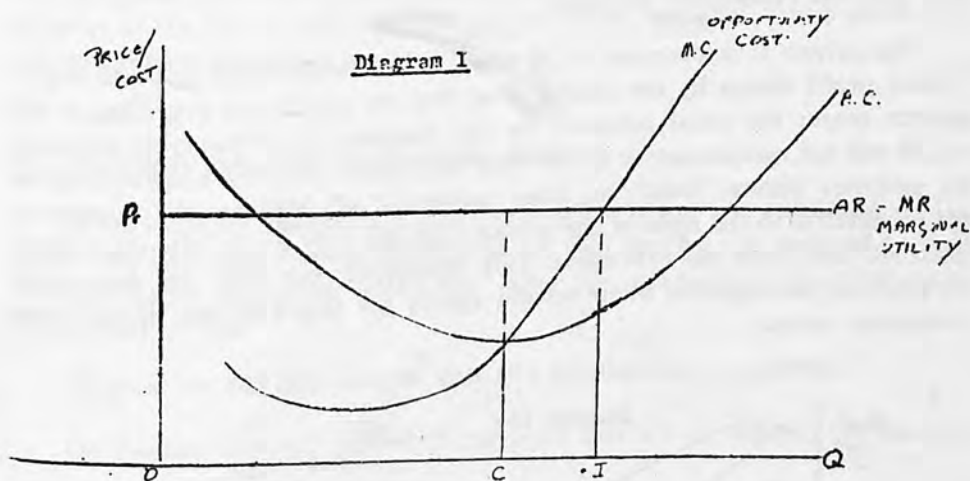
There are many variations in type of market situation within which a cooperative may find itself, and I will only deal here with four distinctive and rather extreme possibilities. These are : - i) Pure competition in buying and selling, ii) Monopolistic selling and competitive buying, iii) competitive selling and monopsonistic purchase, iv) Monopolistic selling and monopsonistic buying.

i) Pure Competition In Buying And Selling

Diagram I illustrates a service cooperative and a comparable private firm operating in pure competition. As mentioned above the service cooperative will tend to operate at minimum average cost (AC) at the point B on the diagram, so as to maximise returns to its members. However it can be seen that output is reduced, which may mean that the cooperative will refuse potential new members. The private firm operates at point C on the AC curve, and since the surplus accruing to the firms is the difference between the average revenue (AR) and the AC curves it can be seen that the cooperative has a larger surplus per unit of output than the private firm, (B-AEC-D). Therefore so long as both firms are making an economic profit the most advantageous level for the cooperative is to the left of the maximum profit level.

In order to evaluate the welfare implications of these management policies it is necessary to assume that the AR curve is the market equivalent in terms of

money of the marginal utility of the product purchased by consumers in the society. Also we must assume that the marginal cost (MC) curve represents the opportunity cost of using the same resources elsewhere. It follows from this that maximum economic welfare is where $AR = MC$, since this means that the utility received by consumers from the last unit produced is just equal to the cost of



producing it. Therefore it can be seen that a service cooperative operating under perfect competition will tend to reduce the total economic welfare of a society, whereas a comparable private firm will maximise it.

ii) Monopolistic Sale And Competitive Purchase

Diagram IIa illustrates a purchasing cooperative operating under monopolistic sale and competitive purchase.

The private firm operates at OP where MC intersects MR and with supernormal profit shown by the shaded area. But the purchasing organisation will operate nearer the social optimum on this diagram by producing at minimum AC. It will not restrict output to OP since this means charging a higher price to its members without benefiting from minimum AC. However the position of the cooperative to the right of the private firm will only be the case where minimum AC lies above the MR curve. This relationship can only be determined by empirical investigation where we can specify the slopes of each of the above mentioned curves.

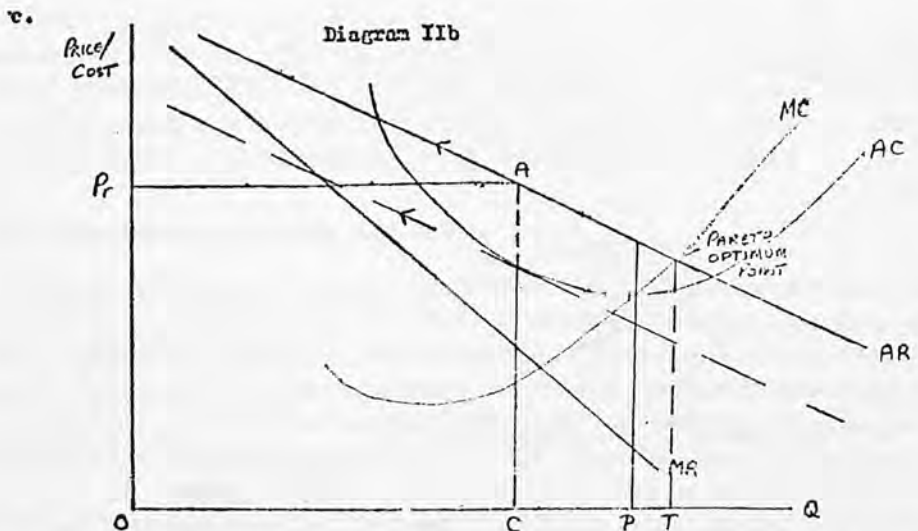


Diagram IIb shows a marketing cooperative in the same circumstances as above.

A private firm will again set output where $MR=MC$. However since these farmers output is fixed and the cooperative is in a position to influence price,

the members are concerned to get the highest price for their available output, above what they sold it to the cooperative for, which was the competitive price. Therefore the cooperative will sell where there exists the largest difference between AC and AR, which in the diagram is to the left of the private firm. Again however the position of the cooperative to the left or the right of the private firm depends upon the geometry of each curve on the diagram and empirical work is required to estimate this.

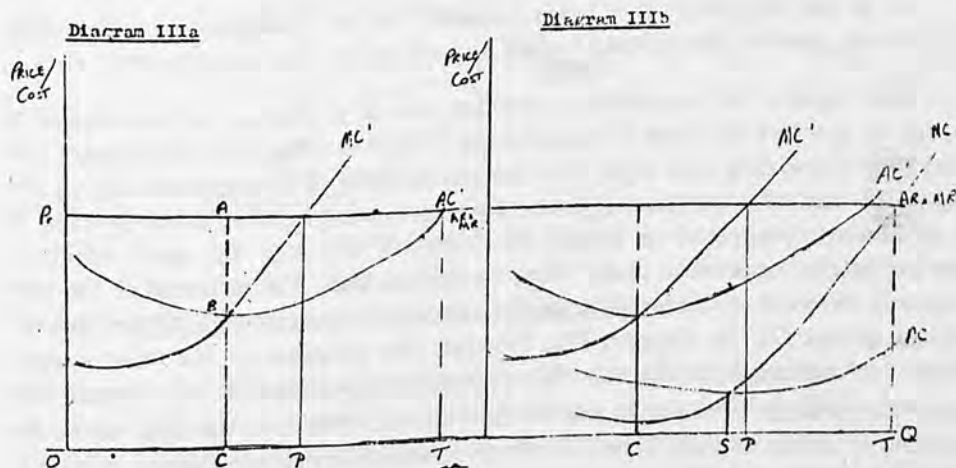
Therefore under the conditions assumed in this section neither type of firm operates at the Pareto optimum level of output and economic theory alone cannot tell us which will operate nearer to it.

iii) Competitive Sale And Monopsonistic Purchase.

In the following analysis it is possible to show inputs and outputs along the same scale since only farmers supplies or his own product are assumed to have been purchased monopsonistically and these are measured in the same units e.g. bushels or tons.

Diagram IIIa and IIIb show the ease of a purchasing cooperative.

On diagram IIIa AC' represents the price that a firm will pay for the mo-



monopsonistic purchase of the goods they buy from the farmer and AR shows the competitive price at which they sell these inputs to consumers. It does not inclu-

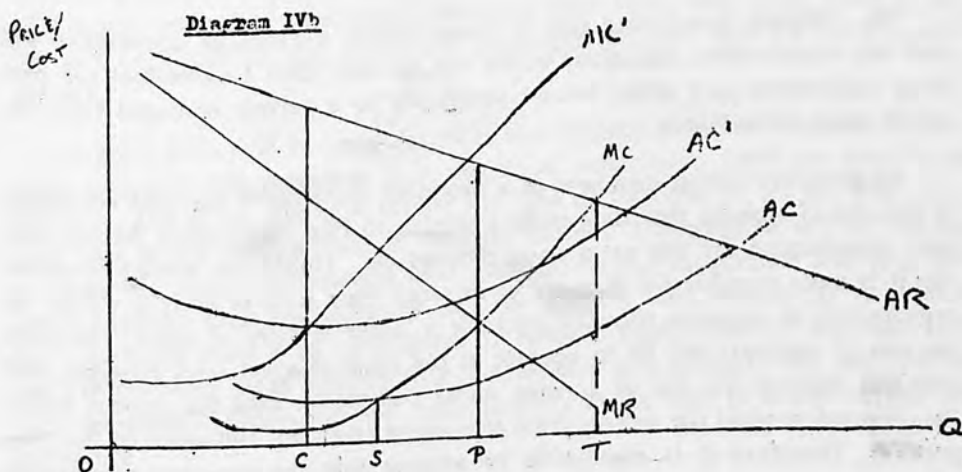
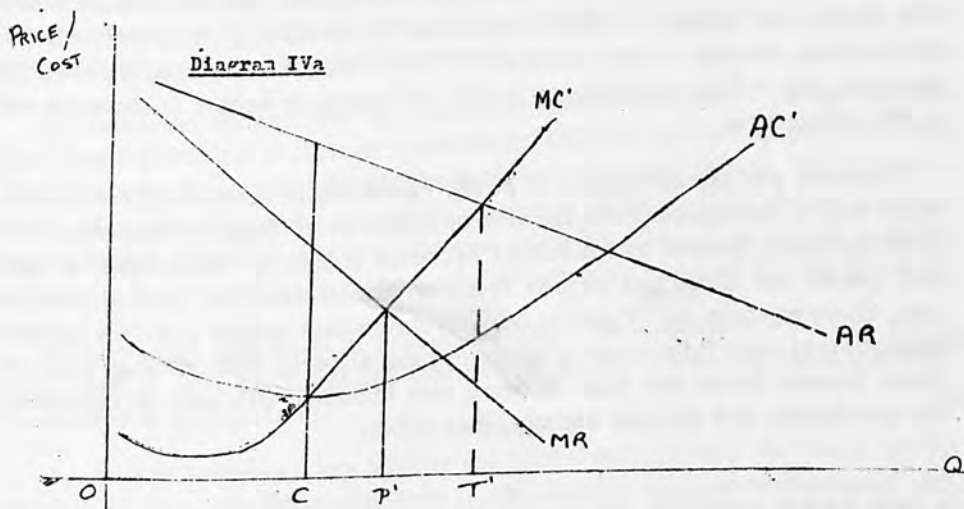
de the competitive purchase of other inputs they require and this is given in diagram IIb. In diagram IIIa the cooperative produces at minimum AC' so as to reduce cost but maximise the surplus to patrons which is $A-B$. The private firm will produce at $O-S$ where $MA' = MR$. However when the effect of the competitive purchase of other inputs is taken into account (represented by AC and MC on diagram IIIb) which will have the effect of shifting the position of both types of firm to the right, but remaining to the left of point T which is the Pareto optimal level under perfect competition. The cooperative will now produce somewhere to the right of C but to the left of S , and the private firm will produce somewhere to the right of I and to the left of T . This leaves the private firm under monopsonistic purchase and competitive sale nearer to the Pareto optimum than the purchasing cooperative.

The case of a marketing cooperative under these conditions is very similar to that above except that upward sloping cost curves for the farmers output must be considered. Under these circumstances it is found that a rationally managed cooperative will operate further from the optimum welfare point than a private firm. However this case is indeterminate and will depend upon the relative slope of the cost curve of the product to be marketed compared with the cost of other inputs.

v) The Case of Monopolistic Sale And Monopolistic Purchase

As in the case above it is again assumed that the monopoly elements apply only to the product that is being bought and sold and not to other inputs.

Here again I will concentrate upon the case of a purchasing cooperative in order to describe the type of analysis used. This is illustrated in diagram IVa and IVb. These diagrams show that the introduction of monopolistic selling has made the case of a purchasing cooperative also indeterminate as in the case of a marketing cooperative in section III. Naturally this has the same effect on the marketing cooperative under these conditions also. The influence of the monopsony elements continues to make the cooperative operate further from the optimum output OT' in diagram IVa. However the influence of the other competitively priced inputs in diagram IVb may operate in either direction depending upon the position of the cost and revenue curves. Therefore the implications for social welfare are in both types of service cooperative indeterminate.



3. CONCLUSIONS ON SERVICE COOPERATIVES.

It can be observed that in all cases except for pure competition and a purchasing organisation operating under conditions of competitive selling and monopsonistic buying, the welfare effects are indeterminate and can only be discovered through empirical testing. However it must be stated that in several situations the private firm appears to be more likely to operate nearer the social optimum.

But this whole analysis rests upon the assumption that cooperative managers actually act rationally and are aware that be operating at minimum AC they will maximise returns to their members. If this is not the case then we must assume that they will act to maximise profits and therefore behave in the same way as the private firm.

However concerning the use of Public money, there is certainly no criterion within welfare economics (given the lack of empirical testing, and assuming that firms operating nearest to the Pareto optimum should be encouraged) to support special tax allowances or any form of subsidisation for service cooperatives. However there are of course other criterion that may be used, for example attempting to raise farm incomes to remove the disparity that exists in most societies between urban and rural incomes, also increased efficiency in marketing and purchasing and possible antimonopoly effects.

4. WELFARE EFFECTS OF PRODUCTION COOPERATIVES

The different structuring that is found within a producer cooperative will alter the organisations behaviour within the market. Here I agree that the producer cooperative may infact behave identically to a private managed firm under all market conditions.

As explained above, members of a producer cooperative are paid according to the size of acreage that they make available to fthe cooperative, having first been remunerated for any extra costs incurred etc. Unlike the service cooperative it is quite possible for farmers to increase their level of activity within the organisation by agreeing to make available a larger number of acres. Therefore the aim of members will be to operate at the most efficient level possible, and they will increase the size of acreage under cultivation until the returns within the cooperative equal the returns from alternative crops not cultivated by the cooperative. Therefore it is reasonable to assume that the producer cooperative will produce as near the social optimum, under all market conditions as a private firm.

If this is the case then there are grounds uponwhich it is possible to support the subsidisation and/or tax relief for producer cooperatives. These are :

i) To encourage those operating below the Pareto optimum to move closer to it.

ii) As mentioned in the section on the structure of producer cooperatives

they may suffer from a disincentive to invest, and if this is the case then the need for Government assistance becomes more acute than for private firms, so as to compensate for a lack of internal investment.

iii) Increased incomes for low income farmers, this is also relevant for service cooperatives, but it must be remembered that low income farmers are often unable to join cooperatives despite the benefits they would receive. This is due to a lack of capital, the need for which is greater in producer than service cooperatives and also, often to a lower educational level. Therefore Government assistance both in the form of finance and advice is especially required for this category.

iv) Increased efficiency in production since the cooperative usually grows such crops as peas which require enormous amounts of working capital, beyond the reach of an average farm.

v) Anti-monopoly action against the firms that process the crops. In the example of peas, the processing firm in the absence of cooperatives would rent land from farmers or grow the peas on a contract basis, providing all the specific capital equipment themselves. However these firms tend to be small in number and are therefore in a position to restrict output and raise the price to consumers.

A point that must be remembered is that in order to act at the most efficient level, members will require a high degree of supervision from the production manager. This is because each farmer will have an incentive to act selfishly, knowing that he will share equally in the final surplus. Therefore he will be tempted to make his most unproductive land available to the cooperative and may not spend adequate time preparing the land for planting, also he may fail to protect the crop from pests such as pigeons or rabbits. Supervision of individual farmers is probably more difficult than for workers in a normal firm, due both to their geographic separation and since farmers might tend to resent outside interference.

It must be noted that all points made in this section are primarily speculative and I have not referred to any published work or empirical evidence.

5) CONCLUSION

Due to the lack of empirical knowledge any conclusions drawn must be tentative and theoretical. Welfare economic analysis appears to indicate that service cooperatives will operate further from the Pareto optimum than a compa-

able private firm in most cases, and therefore given that this is the only criterion used in assessing the aim of public policy they would seemingly not have a case for receiving help. It is also possible that financial help would encourage them to move further away from the Pareto optimum since the minimum average cost would no longer occur at a lower output.

However production cooperatives appear to have a good case for receiving public support since they might not behave differently to a private firm and also offer more substantial arguments in favour of support that are outside the scope of welfare economics.

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ΠΑΝΕΠΙΣΤΗΜΙΑ ΚΑΙ ΟΥΤΟΠΙΑ

ΙΑΣΟΝΑ Α. ΧΑΤΖΗΔΙΝΑ

Καθηγήτῃ Ανωτάτης Βιομηχανικῆς Σχολῆς Πειραιῶς

Ο Μάριος Γεωργιάδης, με την σοφία της πείρας και της φρονιμάδας του, διαισθάνετο πάντοτε την διείσδυση της ουτοπίας μέσα στον Πανεπιστημιακό χώρο.

Θα ήταν ουτοπία να προσπαθῆσω να δώσω έναν ορισμό της ουτοπίας ἢ να επιλέξω έναν από τους γνωστούς ὀρισμούς και ἀκόμη περισσότερο να αιτιολογήσω την επιλογή αυτή.

Μια πρώτη δυσχέρεια προκύπτει ἀπὸ το γεγονός ὅτι ὁ ὀρος ουτοπία χρησιμοποιεῖται με μία ιδεολογικῆς σκοπιμότητας φόρτιση που εἶναι ἄλλοτε ἀρνητικῆ (π.χ. ουτοπικός σοσιαλισμός ἀντιπαρατιθέμενος στον επιστημονικό) και ἄλλοτε θετικῆ (π.χ. ουτοπία προοδευτικῆς φύσεως ἀντιπαρατιθέμενη στην ιδεολογία της «ἀρχουσας τάξης»).

Μια δεύτερη δυσχέρεια παρουσιάζεται ἀν δοθῆ στη ἔννοια της ουτοπίας. ἡ μικρότερη ἔνταση και περιεκτικότητα, ὥστε να ἔχει την μεγαλύτερη ἔκταση ἢ το ἀντίθετο, ὁπότε θα πρέπει να διαχωρισθῆ ἀπὸ το ἀντικείμενο της «κοινωνιολογίας της ἐλπίδας», τους μύθους (ἀρχαίους και σύγχρονους) και το φαινόμενο της επιστημονικῆς φαντασίας (το τόσο σημαντικό και μαζικό στη σημερινή εποχή).

Ἀρκοῦμαι λοιπὸν να ἐπισημάνω τα κύρια χαρακτηριστικά που συναντάμε στις ουτοπίες, ὅπως τα υπογραμμίζει με τόση ποίηση ὁ G. Larouge.

Ο χώρος της ουτοπίας εἶναι κλειστός, δηλαδή νησί, πόλις συνήθως περιτειχισμένη, οροπέδιο ἢ κοιλάδα περικλεισμένη ἀπὸ βουνά, μοναστήρι, πύργος κλπ.

Ο χρόνος της ουτοπίας εἶναι ἀόριστος, ἀφού ἡ ἱστορία ἔχει σταματήσει γι' αυτήν.

Στη ουτοπία κυριαρχεί μια ιδέα ή μια αρετή, που είναι συνήθως η ισότητα η οποία πραγματώνεται απόλυτα, γεωμετρικά.

Όμως ουτοπία προκύπτει και όταν πλείονες ιδέες ή αρετές πραγματώνονται όλες απόλυτα γεωμετρικά, χωρίς να τεθεί θέμα της ενδεχόμενης αντινομίας τους, του διαλεκτικού ξεπεράσμάτος τους ή της μεταξύ τους συμβιβαστικότητας.

Όταν χρησιμοποιώ τον όρο ουτοπία για τα Πανεπιστήμια δεν σημαίνει ότι είμαι ιδιαίτερα κριτικός γι' αυτά. Οι ουτοπίες του Ιουλίου Βερν είναι ίσως λιγώτερο ουτοπικές από μερικούς προλόγους ισχυόντων Συνταγμάτων ή αρχών που έκδηλα τα θεμελιώνουν (π.χ. ελευθερία, ισότητα, αδελφосύνη, δικαιοσύνη, δικαίωμα στη επιτυχία κλπ.).

Μερικοί παρατηρούν ότι στην ΕΣΣΔ οι ουτοπιστές είναι στην εξουσία για να πραγματώσουν μια ουτοπία.

Συστήματα και θεσμοί, κλασσικά διδασκόμενοι στο Συνταγματικό Δίκαιο, στη πολιτική πράξι αποδεικνύονται ουτοπίες (π.χ. ή διάκρισι της νομοθετικής από την εκτελεστική εξουσία σ' ένα κοινοβουλευτικό καθεστώς με ένα πλειοψηφούν κόμμα).

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Το Πανεπιστήμιο είναι θεσμός και ουτοπία. Όμως σε τρεις ιστορικές στιγμές τα δύο αυτά χαρακτηριστικά συνέπεσαν.

Στις (φιλοσοφικές) σχολές της αρχαίας Πόλεως με την ατομικο-κοινωνική λειτουργικότητα, που δύσκολα συναντάμε σήμερα. Στα πρώτα μεσαιωνικά Πανεπιστήμια που βασίσθηκαν πάνω σε καλογερίστικο μοντέλο και στο Πανεπιστήμιο των μεγάλων Αγριμιών (Fauves) δηλ. των μεγάλων ατομικιστών καθηγητών.

Αυτό το τελευταίο μοντέλο «της κοινωνίας των σοφών» προερχόμενο από τα μεσαιωνικά Πανεπιστήμια αποτελεί ουτοπία, όπως η Ατλαντίδα του Βάκωνα, που ασκεί έλξι και στη εποχή του ατομικισμού και ακόμη και σήμερα.

Η μεσαιωνική πανεπιστημιακή κοινότητα, που ήταν μηητικής φύσεως, συνιστούσε μια ουτοπία πραγματωμένη, αφού σ' αυτήν συνυπήρχε ο πνευματικός πλούτος και η υλική ένδεια.

Είναι μια στιγμή πληρότητας, ευτυχίας για το Πανεπιστήμιο, που οφείλεται στη χρησιμοποίηση ενός δοκιμασμένου μοντέλου πραγματωμένης ουτοπίας.

των μοναχών. Όλοι συμμετέχουν στις οικοκυρικές εργασίες, ενώ οι φτωχοί σπουδαστές προσφέρουν την χειρωνακτική τους εργασία.

Όταν οι δάσκαλοι είναι στη φυλακή τους συγχωρείται το γεγονός ότι δεν διδάσκουν. Τα μαθήματα αρχίζουν αμέσως μετά την πρωινή έγερση, που δίνεται στις 4 το πρωί. Η αγαμία είναι καθεστώς και υπάρχει δυσμείνεια ακόμη και για τους περίπατους.

Το Πανεπιστήμιο του Μεσαίωνα ήταν ένα είδος Τάγματος, το οποίο στην αρχή τουλάχιστον συντηρούσε τα πλούτη του παρελθόντος. Αλλά σ' αυτό «αυτοί που προσεύχονται» συμμετέχουν στη άσκησι της κυριαρχίας. Η λιτότητα όμως είναι φυσιολογικό χαρακτηριστικό της λειτουργίας της κυριαρχίας (μέσα στα πλαίσια της τριμερούς διακρίσεως των λειτουργιών που συναντάμε στους μύθους, στην εποποιία των ινδοευρωπαϊών και στο πλατωνικό μοντέλο).

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Ήδη ενδιαφέρον παρουσιάζει, υπό το πρίσμα της ενδεχόμενης ουτοπίας, η ανάλυσι των εξής τριών κλασσικών αντιλήψεων για το Πανεπιστήμιο. «Το Πανεπιστήμιο για την επιστήμη» της γερμανο-γαλλικής αντιλήψεως, «Το Πανεπιστήμιο για τους σπουδαστές» της Βρετανικής-αντιλήψεως και τέλος «Το Πανεπιστήμιο για την Κοινωνία».

Η γερμανο-γαλλική αντίληψη προερχόμενη από το αρχικό μεσαιωνικό μοντέλο, ενέχει μια θρησκευτικότητα που λογίζεται ή γίνεται αισθητή σαν συμμετοχή στη λειτουργία της κυριαρχίας. Δίδει εξαισίες και σπάνιες συγκινήσεις και προϋποθέτει ένα σύστημα μαθήσεως και ανόδου ή εισδοχής ενδοσυλλογικής από τον ανώτερο κύκλο.

Όμως σε μια εμπορική κοινωνία, όπως την σημερινή, τα μέλη του δεν μπορούν να μετέχουν στη λειτουργία της κυριαρχίας: Ιδιαίτερα στο τόπο μας που απουσιάζει η αριστοκρατικο/μοναρχική παράδοση και κατισχύει η πλουτοκοινοβουλευτική κοινωνία. Σε μια τέτοια κοινωνία οι Καθηγητές οφείλουν ν' αποκτήσουν πλούτο ή πολιτική εξουσία, αλλιώς δεν είναι τίποτε. Διατηρούν όμως μια αντικειμενική χρησιμότητα, γιατί συναριθμούνται στην ομάδα των λίγων εναρέτων που κρατούν ορθία μια μη ενάρετη κοινωνία.

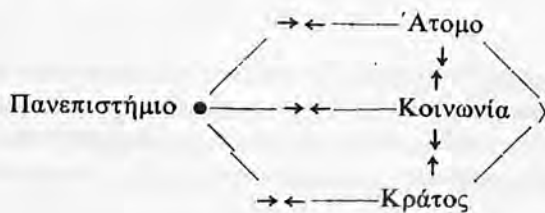
Η βρετανική αντίληψη, που δεν έχει ακόμη κλονισθεί, παρέχει ένα αίσθημα ασφάλειας στον σπουδαστή. Το ψυχολογικό όμως αυτό διασφαλιστικό του χο-

ρηγείται στα πλαίσια μιας εκπαίδευσης, που θα απολήξει στην είσοδο σε μια κοινωνία ανταγωνιστική. Το τελευταίο είναι εκείνο που δίδει ένα χρωματισμό ουτοπίας σ' αυτή την προστατευτική φωλιά.

Το Πανεπιστήμιο για την κοινωνία εμφανίζεται με δύο μορφές.

Στη πρώτη το μοντέλλο του έχει σκοπό να επιβάλει μια ορθοδοξία. Στη κατηγορία αυτή διακρίνουμε το Πανεπιστήμιο του Ναπολέοντειου και μετα-Ναπολέοντειου καθεστώτος και τα Πανεπιστήμια των χωρών, στις οποίες το κομμουνιστικό κόμμα ασκεί την εξουσία. Σ' αυτές το Πανεπιστήμιο είναι ένα σημείο του γραφειοκρατικού μηχανισμού της πολιτικής εξουσίας και μια πλατφόρμα από την οποία εκπέμπεται και ακτινοβολεί η βούλησι της κοινωνίας.

Στη δεύτερη μορφή το μοντέλο του συμπίπτει με το Πανεπιστήμιο της Βιομηχανικής (καπιταλιστικής) κοινωνίας, όπως ακριβώς εμφανίζεται στα περισσότερα Πανεπιστήμια των ΗΠΑ. Σ' αυτό, που είναι συχνά κοινωνικοποιημένο με την είσοδο στη διακυβέρνηση του και άλλων δυνάμεων εκτός της Καθηγητικής εξουσίας, ισχύουν πολλά χαρακτηριστικά της ελεύθερης επιχείρησης, τα οποία διαφοροποιούμενα ποιοτικά είναι μεταξύ τους αλληλοανταγωνιστικά. Γενικά στη πραγματικότητα το Πανεπιστήμιο είναι δυνατό να έχει αλληλοεπίδραση ή να αντιπαρατάσσεται στο άτομο, την κοινωνία, το κράτος σύμφωνα με το επόμενο γράφημα.



Το οποίο γίνεται περίπλοκο όταν ληφθούν υπόψη οι ανταγωνισμοί μεταξύ των Πανεπιστημίων και οι σχέσεις Πανεπιστημίου με ένα έκαστο από τα «ενδιάμεσα σώματα» της κοινωνίας (π.χ. συντεχνίες, συνδικάτα, κόμματα).

Αυτοί οι ανταγωνιστικοί μηχανισμοί έρχονται σε αντινομία με την τεχνική των campus και των Πανεπιστημιούπολεων, που συνιστούν ένα κλειστό κόσμο αρκετά παραδεισιακό ώστε να κάνει την φοιτητική περίοδο ένα intermezzo στη ζωή. Γιατί βγαίνοντας από εκεί πτυχιούχος θα συναντήσει την κρίσι της κατοικίας και την ασχήμια των βιομηχανικών πόλεων.

* *

Η ουτοπία της πανεπιστημιακής ελευθερίας είναι αυταπόδεικτη αφού ο Καθηγητής εξαρτάται από τους σπουδαστές του οικονομικά (όταν αμοιβεται από αυτούς, όπως στον Μεσαίωνα) και ηθικά (όταν αισθάνεται την ψυχολογική ανάγκη ενός μεγάλου ακροατήριου). Εξαρτάται από το Διοικητικό Συμβούλιο του Πανεπιστήμιου, την Κρατική εξουσία, τα κόμματα και τα κομματικοποιημένα συνδικάτα.

Μια ουτοπία πραγματοποιμένη ανεξαρτησίας ίσως υπήρξε (είναι) ο θεσμός της Έδρας που, με την φεουδαρχική της ελευθερίας, επέτρεπε (επιτρέπει) την εκδήλωση «αιρετικών» στοχασμών και ήταν (είναι) ένα αναντικατάστατο οχυρό για τις πολιτικού περιεχομένου διδασκαλίες.

Αλλά και ο σπουδαστής εξαρτάται από την βαθμολογία των δασκάλων του εξεταστών.

Έτσι ουτοπία μερικώς πραγματοποιμένη υπήρξε (είναι) η «ουδετερότητα» του εξεταστή Καθηγητή ως προς το περιεχόμενο του λόγου του εξεταζόμενου. Μια ισχυρή αυθυποβολή και αυτοδιαμόρφωση του Καθηγητικού και αστικού κατεστημένου ως προς το σημείο αυτό υπήρξε (είναι) αποτελεσματική.

Τέλος η ουτοπία της πανεπιστημιακής ελευθερίας συμπληρώνεται με τις σχέσεις των μεταξύ των σπουδαστών και Καθηγητών βαθμίδων. Πρόκειται για βαθμίδες που εντάσσονται συνήθως σε μια οικογενειακή σχέση με τον Καθηγητή που πλησιάζει άλλοτε στον πόλο κυριαρχίας και καταπίεσεως και άλλοτε στον πόλο προστασίας.

Η αρχή της «ουδετερότητας» του Καθηγητή λειτούργησε αρκετά ικανοποιητικά και σ' αυτή την περίπτωση, αν και συχνά ο βοηθός είναι μαθητής-οπαδός που (επι)φέρει προσωπικές παραλλαγές στη θεωρία του Καθηγητή-δασκάλου του.

*

Η ουτοπία της πανεπιστημιακής αυτονομίας, όποιος και αν είναι ο διακηρυσσόμενος βαθμός της, εξηγείται από την εξάρτησή από τις κρατικές χορηγίες και τους ελέγχους του προϋπολογισμού και δαπανών από τα αρμόδια υπουργεία και το ελεγκτικό συνέδριο.

Ιδιαίτερα στον τόπο μας η αυτονομία αυτή αναιρείται και από τον ρόλο των κομμάτων στην διακυβέρνηση των Πανεπιστημίων.

Αλλά και η θρυλούμενη κοινωνικοποίηση των Πανεπιστημίων είναι μια ουτοπία επιστροφής στη μεσαιωνική πανεπιστημιακή κοινότητα. Γιατί σε μια κοινωνία ατομιστική, όπου μόνες δυνάμεις είναι οι οικονομικές ή σε μια πολιτική κοινωνία κομματοκρατούμενη, όπου κοινωνικοποίηση του Πανεπιστημίου δεν μπορεί να σημαίνει παρά βασιλεία των κομμάτων, η έννοια της μεσαιωνικής πανεπιστημιακής κοινότητας είναι αδύνατη.

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Η ουτοπία της Βουλευσιαρχίας, εκδηλώνεται συχνά με τις ριζικές και ολικές ρυθμίσεις. Ο Ακαδημαϊκός και Ομότιμος Καθηγητής της Σχολής κ. Γρηγόριος Κασιμάτης, που τόσο καλά κατέχει τα Πανεπιστημιακά, επαίρεται ότι υπήρξε ένας Υπουργός Παιδείας που δεν έκανε «Κασιμάτειο» μεταρρύθμιση.

Πραγματικά για λόγους προσωπικούς άλλοτε ή για λόγους δογματικούς σήμερα, υπουργοί και κυβερνήσεις επισείουν ή/και πραγματοποιούν μεταρρυθμίσεις.

Αλλά όπως παρατηρούν οι Γάλλοι η «θνησιμότητα» των Υπουργών Παιδείας είναι διπλάσια από εκείνη των άλλων Υπουργών, αφού διατηρούνται στις θέσεις τους τον μισό χρόνο από ότι οι άλλοι.

Σήμερα το παραγόμενο προϊόν «πλήρους κύκλου» της εκπαίδευσης δηλ. ο εκπαιδευόμενος, χρειάζεται δύο περίπου δεκαετίες για να παραχθεί, ενώ το εργαλείο επεξεργασίας αυτού του προϊόντος δηλ. ο Καθηγητής, χρειάζεται ακόμη δυο περίπου δεκαετίες για να κατασκευασθεί.

Έτσι ενόψει πραγματικής ή εικαζόμενης αλλαγής των συνθηκών, οι αποφασίζοντες πολιτικοί κάνουν μεταρρυθμίσεις που είναι πρόσφορες ή απρόσφορες. Στην περίπτωση που η αλλαγή συνθηκών δεν είναι πραγματική ή η μεταρρύθμιση είναι απρόσφορη τα κακά αποτελέσματα θα εκδηλωθούν πλήρως μετά από δεκαετίες.

Στο σημείο αυτό πρέπει να τονισθεί ότι πολύς κόσμος ενδιαφέρεται για τα της Ανωτάτης Παιδείας και για τις μεταρρυθμίσεις για εντελώς διαφορετικούς λόγους. Έτσι η αντιπολίτευση για να ρίξει την κυβέρνηση και η κυβέρνηση για να εκτονώσει την αντιπολίτευση, συνάπτουν σιωπηρά μια συμφωνία για την

κατανομή της εξουσίας, ώστε η πολιτική και κεντρική γραφειοκρατική εξουσία ν' ανήκει στην Κυβέρνησι και η αυτοδιοικούμενη και μάλιστα η Πανεπιστημιακή στην αντιπολίτευσι.

Όλα αυτά εξηγούν πόσο δυσκολοστάθμητες και δυσκολοπραγματοποιήτες είναι οι μεταρρυθμίσεις στην Παιδεία και πόσο δύσκολο να εκτιμηθούν τα αποτελέσματά τους.

Η γαλλική επανάστασι κατήργησε τα Πανεπιστήμια σαν ανώφελα, αφού αυτό που χρειάζονταν ήταν μόνο η αρετή. Όμως όσο πιο ριζικές είναι οι μεταβολές που γίνονται σύμφωνα με ένα δόγμα, τόσο πιο παροδικές αποδεικνύονται και τόσο πιο γρήγορα είναι η αντι-ουτοπική επάνοδος στο ρεαλισμό. Έτσι η επάνοδος, στη περίοδο αυτή, άρχισε φυσικά από την ιατρική εκπαίδευση.

Παρόμοια στη Κίνα της πολιτιστικής επαναστάσεως, οι σπουδαστές της ιατρικής είχαν βάλει πάνω από το κρεβάτι τους το σλόγκαν. «Ένας καλός κόκκινος γιατρός είναι πρώτα από όλα ένας καλός κόκκινος». Φαίνεται όμως ότι η εκπαιδευτική επίδρασι του σλόγκαν αυτού δεν ήταν τόσο ικανοποιητική, γιατί στη συνέχεια τροποποιήθηκε ως εξής: «Ένας καλός κόκκινος γιατρός είναι πρώτα από όλα ένας καλός γιατρός».

Παράδειγμα πρόσφατων σχετικά μεταρρυθμίσεων στη Γαλλία, που υπήρξαν αρκετά ριζικές, είναι η εισαγωγή του πολυκλαδικού (διακλαδικού) και της κατάργησης (ολικής και μερικής) της από καθέδρας διδασκαλίας, μέτρα που με έλκουν προσωπικά το πρώτο από μία (δια)στροφή του μυαλού και το δεύτερο από ρητορική νωχέλεια. Όμως γρήγορα διαπιστώθηκε ότι οι ανάγκες της αγοράς και ιδίως η επιθυμία των σπουδαστών οδηγεί το πολυκλαδικό να περιορίζεται συχνά σε πρωτότυπη μετονομασία μερικών παραδοσιακών (κεφαλαίων) μαθημάτων και η από καθέδρας διδασκαλία να ξαναγίνεται βασική.

Η τελευταία πρόσφατη εκπαιδευτική κολοσιαία ουτοπία εκδηλώθηκε στη Κίνα, όπου δεν υπάρχουν πια φυλακές αλλά μόνο εκπαιδευτήρια (όπως ονομάσθηκαν οι παλιές φυλακές και τα στρατόπεδα συγκεντρώσεως).

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Η ουτοπία της ισότητας στα Πανεπιστήμια είναι η κατ' εξοχή ισχύουσα ουτοπία και μάλιστα στο τόπο μας.

Η ελληνική κοινωνική συνείδησι έχει αποδεχθεί σήμερα, το δικαίωμα

κάθε Έλληνα στο πτυχίο και όπως πιστεύω προσεχώς ολόκληρες κατηγορίες πανεπιστημιακού πληθυσμού θα επωφεληθούν ολόσωμες του δικαιώματος και της διδακτορικής διατριβής.

Ο Λάο - Τσέ, που αυτοκτόνησε στη Μαοϊκή Κίνα, περιγράφει στην πολιτεία των Γάτων, που συνάντησε στη σελήνη, ότι οι τελειόφοιτοι σπουδαστές απέκτησαν το δικαίωμα να αναδεικνύονται όλοι πρώτοι και αριστούχοι στο πτυχίο. Η τεχνική ήταν απλούστατη δεδομένου ότι τους αφήναν τα πτυχία και ο καθένας τους συμπλήρωνε το δικό του. Το δικαίωμα αυτό επεκτάθηκε στη συνέχεια στη μέση και στη δημοτική εκπαίδευση. Έτσι οι Καθηγητές και Δημοδιδάσκαλοι ήταν πια άχρηστοι και έπαψαν να πληρώνονται. Η γνωστή όμως μονομανία τους να συνεχίσουν να διδάσκουν ενόχλησε τους σπουδαστές, γιατί διατάραξε την ησυχία και ανία τους, με αποτέλεσμα οι τελευταίοι να τους προηλακίσουν ή/και να τους βασανίσουν.

Ένας μεγάλος δάσκαλός μου, στη Φιλοσοφία, στο μάθημά του συχνά πέραγε από την μια επιστήμη στην άλλη και από την μια ομάδα συγγραφέων (που άθελά του μνημόνευε) σε μια άλλη. Όταν τα μάτια των ακροατών του έδειχναν άγνοια περισσότερη από την φυσιολογική, συνήθιζε να λέγει «αφού δεν τα ξέρετε αυτά, πρέπει να πάρω το καπέλο μου και να φύγω». Όταν ένας φοιτητής είπε κάποτε σε Καθηγητή του «Σκέπτομαι κύριε Καθηγητά ότι...» έλαβε την απάντηση «Μη χρησιμοποιείτε ποτέ τον όρο σκέπτομαι με ευχέρια. Γιατί η σκέψι χρειάζεται πρώτα μέθοδο, μετά βούλησι και προπαντός απαιτεί οργανικό υπόβαθρο».

Χωρίς κακοβουλία, στο τόπο μας, όπου το μεγάλο ποσοστό του ακροατηρίου στερείται και του ελάχιστου εκείνου υπόβαθρου γενικών γνώσεων και δυνατοτήτων που απαιτεί το διανοητικό παιχνίδι, είναι δύσκολο ηθικά να επιλέξει κανείς άλλο από το να αποδεχθεί το δικαίωμα όλων στο πτυχίο.

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Η ουτοπία της αξιοκρατίας στα Πανεπιστήμια, έχει και αυτή έντονο βαθμό. Γιατί η αυστηρή εφαρμογή αξιοκρατικών συστημάτων τόσο στο επίπεδο των σπουδαστών, όσο και στο επίπεδο του διδακτικού προσωπικού για εξέλιξη, είναι αδύνατη και εκρηκτική ιδιαίτερα σε πολιτείες δημοκρατικές και εξισωτικές στο χώρο των ιδεών.

Οι πολιτικοκοινωνικές πιέσεις των πολλών είναι ακατανίκητες, ανθρώπινες και φυσικές.

Ο Μ. Young στη «Αξιοκρατία στο έτος 2001» περιγράφει πως βρέθηκε ένα αντικειμενικό σύστημα μετρήσεως της ευφυΐας (με τα ενδεχόμενα διορθωτικά αποτελέσματα της εκπαιδευτικής προσπάθειας) για όλες τις βαθμίδες της ιεραρχίας και της εκπαίδευσής και πως τα αποτελέσματά του ελαμβάνοντο μόνο σύμφωνα με την αξιοκρατική αρχή.

Όπως ήταν επόμενο, το σύστημα αυτό εξαφανίστηκε από μία επανάσταση των μη αξίων, που ήταν φυσικά και οι πολλοί Τέλος στο επίπεδο της διακυβέρνησης των Πανεπιστημίων και πριν από τις μεταρρυθμίσεις, το σύστημα δεν ήταν καθαρά αξιοκρατικό. Υπήρχε το αριστοκρατικό σώμα των τακτικών Καθηγητών και η δημοκρατική επιλογή της Συγκλήτου, των Κοσμητόρων, των Πρυτάνων και των λοιπών αρχών από τους Καθηγητές.

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Η ουτοπία της δημοκρατίας στα Πανεπιστήμια στα θέματα εκλογής των Πανεπιστημιακών αρχών, οφείλεται στο γεγονός ότι δεν καθιερώθηκε ένα σύστημα αμιγώς δημοκρατικό. Στο οποίο η ψήφος κάθε διδάσκοντος και κάθε σπουδαστή ίναι ισοδύναμες και όλοι εκλέξιμοι σε όλα. Έγινε απλώς δεκτό οι αντιπρόσωποι των σπουδαστών θα ψηφίζουν επιλέγοντας τον ένα ή τον άλλο Καθηγητή. Με αποτέλεσμα στη πράξι η ισχύς ορισμένων κομμάτων στη σπουδαστική εκπροσώπηση, να οδηγεί τελικά στο να μην είτα εκλόγιμοι ορισμένοι ή και πολλοί Καθηγητές αποκλειστικά βάσει ιδεολογικών κριτηρίων.

Στο ευαίσθητο τομέα της αξιολόγησής των επιστημονικών απόψεων, ρίχθηκε η ιδέα να ψηφίζεται από τους σπουδαστές στο τέλος των εισηγήσεων του Καθηγητή ποια είναι η ορθή άποψη.

Μολονότι η πρότασι αυτή εντάσσεται αρμονικά στη ουτοπία της Δημοκρατίας στα Πανεπιστήμια, αρκετά «προβοκατόρικα» πρέπει να τονισθεί ότι η Δημοκρατία δεν έχει καμμία θέση στη Επιστήμη.

Τι θα έκαναν αυτοί που προτείνουν αυτή τη θέση, όταν σε προσφιλές τους πρόσωπο θα εκδηλωνόταν ο καρκίνος. Θα ακολουθούσαν την γνώμη της πλειοψηφίας της συνελεύσεως της πολυκατοικίας τους ή θα πήγαιναν στον καλύτερο ειδικό ;

Βέβαια τα πράγματα είναι λιγότερο απλά, γιατί υπεισέρχεται στην επιστημονική αξιολόγησι η έννοια της (επι)κρατούσας στην επιστήμη θεωρίας, στη

οποία μετράει η ποιότητα της γνώμης των κορυφαίων περισσότερο από εκείνης των υπόλοιπων.

Ακόμη γιατί πλάϊ στην κατισχύουσα άποψη πρέπει να αναφέρονται και οι υπόλοιπες, πράγμα που σημαίνει ότι η ύπαρξη επικρατούσης άποψως δεν επιφέρει το νομικό – πολιτικό αποτέλεσμα που συνεπάγεται η ύπαρξη πλειοψηφίας στη δημοκρατία.

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Άφησα τελευταία την ουτοπία του ουδέτερου ή αντικειμενικού Πανεπιστήμιου γιατί όλες οι αντικειμενικές συγκρούσεις μεταξύ δικαιωμάτων συναντιώνταν και μέσα στο Πανεπιστήμιο.

Όλες οι προηγούμενες περιπτώσεις έδειξαν ότι οτιδήποτε επιλέξουμε και φαντασθούμε ότι θα πραγματοποιηθεί στο Πανεπιστήμιο είναι Ουτοπία. Όπως επίσης ουτοπία είναι να συμβούν όλες ή ορισμένες από τις προηγούμενες ουτοπίες συγχρόνως.

Τότε ακριβώς εμφανίζεται η υπερ-ουτοπία, η ουτοπία του να γίνουν όλα και ολοκληρωτικά, εδώ και τώρα.

Η ουτοπία αυτή εκφράζεται όχι μόνο στον Φουριέ ή στο Μάιο 1968, αλλά και στις διακηρύξεις κομμάτων, υπουργών παιδείας, κυβερνήσεων, φοιτητικών συνδικάτων και κινήσεων.

Έτσι με μηνύματά τους προτείνουν Πανεπιστήμια που θα εξασφαλίζουν συγχρόνως : Επαγγελματική εκπαίδευση και γενική κουλτούρα. Απόκτηση γνώσεων και δημιουργία έρευνας. Διαμόρφωση χαρακτήρα και ηθικής.

Ισότητα και ποιότητα. Αξιοκρατία και Δημοκρατία ...

Η όλη ανάλυση απέδειξε ότι το Πανεπιστήμιο είναι ένας χώρος προνομιακός για την ουτοπία, αφού διαθέτει τα ιδιότυπα χαρακτηριστικά της.

Οι Καθηγητές, διανοούμενοι στη πιο «καθαρή» τους μορφή, είναι και σήμερα μέτοχοι μιας «θρησκευτικομοναχικής» αντίληψως της επιστήμης και της ζωής τους, που τους συντηρεί και τους θερμαίνει, παρότι έχουν χάσει την «σειρά» τους.

Οι σπουδαστές είναι έφηβοι, που ζουν μια περίοδο εκτός της διαδικασίας

παραγωγής και συμβάλουν με την παραμονή τους στο Πανεπιστήμιο να συγκρατείται η πίεση στην αγορά εργασίας.

Τελικά όμως καταλήγουν στην ζωή όσο και αν τους καθυστερήσουν οι εξετάσεις, οι μη ουτοπικές ηδονές και οι ηδονές των ουτοπιών της φοιτητικής ζωής.

THORSTEIN VEBLÉN AND HIS INSTITUTIONAL ECONOMICS

LAZAROS HOUMANIDIS

The Piraeus School of Industrial Studies.

Contrary to the hedonistic conception of the Austrian and Losanna Schools appeared the Institutional School, led by Thorstein Veblen¹ and his followers, John Rogers Commons, W. C. Mitchell, G. C. Means, N. W. Stewart, S. H. Slichter, W. F. Ogburn, A. B. Wolfe, W. E. Atkins, J. Dorfman, W. H. Hamilton, C. Tugwel.

The Institutional School² through the institutional economics formulated by it revised the economic tradition in America, which was an extension of the European Schools, and attempted to combine theoretical concepts with reality. New techniques, and organizational spirit created this purely American School.

1. W. Jaffé: *Les théories économiques et sociales de Th. Veblen*, Paris, 1924. J. Dorfman: *Thorstein Veblen and his America*, New York, 1939. W. C. Mitchell: *What Veblen Thought*, New York, 1956. J. Hobson: *Thorstein Veblen, 1937*—L. E. Hill: *An analysis of the History and Methodology of Institutional Economics in «International Congress of Economic History and History of Economic Theories» in Piraeus, 1975.*
2. W. H. Hamilton: *The institutional approach to economic history*, in «*The American Economic Review*», March, 1919, Vol. IX. Jenny Griziotti—Kretschmann: *La Teoria Generale de Valore nell' Economica*, in «*Giornale degli Economisti*», Vol. XVI, 1938. A. Gruchy: *Modern Economic Thought*, New York, 1947. G. Pirou: *Les Nouveaux Courants de la Théorie Économique aux Etats Units*, Vol. I—II, Paris, 1947. A. Fanfani: *Il Neovolontarismo Statunitense*, Milano, 1946. J. Dorfman: *The Economic Mind in American Civilization*, Vol. III Chap VIII (1949) and Vol. 4, Chap XIII (1959). *The Institutional School in «Encyclopedia of Social Sciences»*, Vol. V. M. Burns: *Institutionalism and Orthodox Economics in «The American Economic Review»*, XXI p. 80 ff. L. Th. Houtanidis: *John Rogers Commons e zoe kai to ergo tou*, in «*Archeion Ekonomikon kai Koïnonikon Epistimon*», Vol. IV. Athens, 1963.

The institutionalists use mainly the sociological and statistical method, in opposition to the preceding individualistic Schools, which adopted the abstract method supplanting the facts and turned their endeavors toward the conceptual and a priori construction of an ideal and perfect world instead of the real and imperfect one. The institutionalists accepted induction and through statistics examined quantitative changes of economic phenomena in place and time, but they avoided the simple recording of those to follow their chronological and economical structure as the historiographic working groups of the Historical School had done. The institutionalists based themselves on human psychology, which changes according to the era and the various countries. Thus these writers overthrew the universal laws of the classicists, since, according to them, the economic phenomena are included within the social and legal institutions, which are always changing and which always reflect the time and the place within which they are formed.³ Thus ownership and competition are examined as various types of ownership and various types of competition.

According to these economists the economy is not governed by eternal and unchangeable laws, as the classicists and generally the adherents of liberalism proclaimed. There are no laws which obligatorily guide the society to peace, order and social justice. The institutionalists placed themselves opposite the naturalists and while via the social factor and the social values they accepted the supra-individual influence on economic function, at the same time they believed that this was created not by laws of natural order but by those people through the institutions shaped by them, which in their evolution propel the society and the economy toward progress and indeed through the intervention of the state toward the avoidance of bad and non-adaptive institutions and social progress.⁴

The institutionalists also examined the lack of economic equilibrium since reality cannot be reconciled with the existence of economic equilibrium, and distinguished, as for example, the Frenchman Francois Simiand, fluctuations of long, middle or short cyclical duration. In general if the classicists and the following individualistic schools (Austrian School, Mathematical School, Neo-classical School) were based on rational and individualistic factors, the institutionalists examined economic phenomena from the viewpoint of group and non rational factors. Thus,

3. G. Pirou : *Les Nouveaux Courants*, Vol. I, p. 13, Thus they called it the Neo-Historical School. E. James maintains that the School was more occupied with statistics than with history (E. James : *Histoire de la Pensée Économique au xx^e siècle*, Paris 1955, Vol II, p 112 - 113).

4. Concerning the Voluntarism of the Institutionalists see K. Polanyi : *The Great Transformation*, 1944.

for *Homo Oeconomicus* the institutionalists substituted *Homo Organizer*⁵ who moved not within an imaginary world but with a real world, in which is taken into account the importance of fashion, propaganda, tradition and habits.⁶

In brief, the basic conceptions of the Institutional School are as follows : a) all economic research must be based on the behavior of the groups and not the price mechanism, and human behavior is continually changing. b) economic generalizations are relative to place and time, while the morals, customs and laws are ways of organization of economic life, c) motives of great importance which influence man cannot be measured and d) the adaptations in economic life must not be examined as setting off from a static equilibrium ; these are only stable under existing institutions.⁷

Thus the law of supply and demand on the basis of the individualistic and abstract view of full competition is set aside so that a new institutional and real economic morphology will arise.

The group of sociologists which made up the Institutional School, based, as we saw, the dynamic of their economic psychology on the supra-individual factor, the institutions⁸ which influence the economic behavior of individuals. The influence of the philosophers William James⁹ and John Dewey¹⁰ contributed to this.

The supporters of the old subjective psychology John Locke¹¹ and George Berkeley¹² viewed the mind as the passive producer of ideas, which make up the world of reality and which reflect on it and which is a simple mechanism for their depiction.

5 A. Fanfani : *Il Neovolontatismo statunitense*, p. 2

6. G. Pirou : *op cit*, p. 17.

7. L. Haney : *History of Economic Thought*, New York 1951 p. 719 - 720.

8 Gruchy following A.B. Wolfe maintains that the first one to use the term «institutional» was Max. S. Hardman (A Gruchy : *op. cit.* p. 2). However, J. Dorfman believes (*op cit.* Vol IV, p. 353) that it was W. Hamilton (1916). L. Harter maintains that the term «institutional», was first introduced by W. Hamilton at the Conference of the «American Economic Association», in 1918, (L. Harter : *John Rogers Commons, His Assault on Laissez Faire*, Oregon, 1962, p. 243).

9. W. James : *Pragmatism*, 1907, Greek trans, by K. Papalexandrou : «O Pragmatismos», Athens 1925.

10. J. Dewey : *Reconstruction of Philosophy*, 1920, and *Experience and Nature* 1927.

11. J. Locke : *Essay Concerning Human Understanding*, 1660.

12. G. Berkeley : *Principles of Human Knowledge*, 1710.

Philosophical pragmatism¹³ came into conflict with this static and mechanical view of psychic life and confronted it with the dynamic one under a continual current of impressions and ideas, shaped by the mind. Our concepts and knowledge, according to philosophical pragmatism, lead us to empirical life through our intellect, based on experience, for the correct judgment of the usefulness of things for life (James). Intellect and concepts are the instruments for the mastery of reality from the spiritual and practical side (Dewey). Thus the mind, for the now social psychology, constitutes the active factor of the activity of man and indeed of his social action.¹⁴ In this sociological psychology the behavior of man is included.

The institutionalists, continually under the influence of philosophical pragmatism, accepted the mind as an active factor, maintaining a creative relationship between the mind and the exterior world.¹⁵ Based on group behavior, they examined economic behavior believing this to be moved by the instincts, which were shaped by conditions brought into being by the influence of the social environment.

The leader of the School, Thorstein Veblen, son of a Norwegian immigrant, was born in 1857 in Wisconsin and grew up in Minnesota. At Carleton College (1880), where he studied, he had John Bates Clark as instructor. Veblen wrote his basic work at Johns Hopkins University and Yale where he received his doctorate. (1884). He also worked at the Universities of Cornell and Chicago. At the age of 39–43 he was an assistant while his former classmates had already become full professors, heads of departments and Presidents of Universities. This delay in his academic career was contributed to by the character of Veblen and the manner in which he confronted his instructing role and his position as a professor. Despite the fact that he published eleven books, he never became a full professor and many of these books were published at his own expense. Besides Chicago, Veblen also taught at Stanford, Missouri and the New School for Social Research moving from university to university because of his poor instruction and his indifference to his students.

In 1981 he worked for a while for the Food and Drug Administration in Washington D.C. publishing, «The Dial.» Fortunately for Veblen, a former student helped

13. The American Philosopher Charles S. Pierce first used the term, «pragmatism».

14. R. Faris : *American Sociology* in «*Twentieth Century Sociology*», New York, p. 538ff. B. Watson : *Behaviorism*, 1924.

15. J.R. Commons : *Insitutional Economics*, The University of Wisconsin Press, Madison 1959 Vol. I p. 150–152, Vol II p p. 646–647, 654–655.

him monetarily in the last years of his life when he foresaw the great world-wide crisis. He died in 1929.

Veblen, influenced by the new wind that blew in America during the last quarter of the 19th century, in philosophy as well as in science, turned from the static and the mechanical view of economy to the dynamic and social view of it. Thus the neo-classical thought in America (John Bates Clark, T.N. Carver, H. J. Davenport, F.W. Taussig) exercised a harsh criticism of the institutional concepts of Veblen, whose work was influenced by Charles Pierce, W. James, J. Dewey, P. Ely, S.N. Patten Baldwin, G. Stanley Hall and Charles H. Cooley.

Veblen published the following main works: *The Theory of the Leisure Class* (1899), *The Instinct of Workmanship and the State of the Industrial Arts* (1914), *The Vested Interest and the State of the Industrial Arts* (1919), *The Engineers and Price System* (1921), *Absentee Ownership and Business Enterprise in Recent Times* (1923).

Veblen argued that: «The life of man in society, just like the life of other species, is to struggle for existence, and therefore it is a process of selective adaptation. The evolution of social structure has been a process of natural selection of institutions. The progress which has been and is being made in human institutions and in human character may be set down, broadly, to a natural selection of the fittest habits of thought and to a process of forced adaptation of individuals to an environment which has progressively changed with the growth of the community and with the changing conditions under which men have lived.»¹⁶ Institutions, according to him, are not only themselves the result of a selective and adaptive process which shapes the prevailing or dominant types of spiritual attitude and aptitudes; they are at the same time special methods of life and of human relations, and are therefore in their turn efficient factors of selection. The development of these institutions is the development of society.¹⁷

The institutions are essentially the prevailing morals and habits plus respect and distinction to the special relationships and functions of the individual as well as of the society. However, these institutions, though in force today, may not correspond to the situation existing today. Thus the duel between conservatism and progress is called forth, which is due to the conflict between the institutions in force and the needs for new ones corresponding to the existing conditions of spiritual and material life. The society, however, is finally changed, developed and adapted ac-

16. T. Veblen: *Theory of Leisure Class*, ed. London, 1957, p. 188ff.

17. T. Veblen: *Ibid.*

according to the changes in the habits, the morals and the expectations of the various classes of society.¹⁸ And social evolution is precisely this spiritual adaptation of individuals to the conditions of today which are a product of yesterday. Thus the economic doctrine must harmonize the internal relations with the external ones, that is, with the total environment within which these relationships are formed.

Thus arises the significance of economic institutions, which unite the procedure of the life of the community with the material environment within which this is developed. The methods, however, which these institutions produce in the community toward its evolution, are not independent of those of the past, because the older institutions survive in the newer ones. But as the population increases and the new needs appear and human knowledge and ability broadens these methods cannot correspond to the created conditions. So the need arises for a change in the existing institutions and the creation of new ones, adapted to the new reality. And since these institutions relate to the environment, within which the individual and in general, the society develops, first of all we must take the economic institutions into account. These govern the modern industrial society and we must give the greatest importance to them¹⁹.

Thus the Institutional ideas of Veblen came face to face with the Marxist materialistic conception of social evolution²⁰.

Thorstein Veblen, follows John Dewey, according to whom the struggle in society is endless; he maintained that we have in society continual competition and conflict of interests, which, however, do not refer to a class struggle but to various social levels, i.e., workers and employers, producers and consumers, lenders and borrowers, small merchants and large ones etc. This conflict of interests between the various social levels can become intensified to a excessive degree, but they never reach the stage of overthrowing the social equilibrium. Because, despite the

18. T. Veblen : p. 191.

19. T. Veblen : p. 195.

20. Veblen base his ideas on a fundamental principle : dichotomy, as Professor Hill maintains. Veblen used this dichotomy to distinguish between good and bad or between creation, construction, productive propensities (instincts) and destructive exploitation, wasteful propensities (instincts). «The Veblenian dichotomy - Hill says - was probably a synthesis of Sigmund Freud's concepts of the life and death instincts with the dialectical method that had been developed by Hegel and Marx. On the foundation of this dichotomy Veblen built his theory of human behavior which was both pragmatic and evolutionary (L. E. Hill : op. cit. p. 155).

opposition of interests, there is a mutually dependent relationship between the various social levels on behalf of the general interest of the preservation of the social equilibrium for the benefit of all²¹ Thus the various social levels avoid destroying each other, afraid of producing a crack in the social structure, which if it collapses will bring about the destruction and the decline of the whole. Also, while Marx dialectically reached what was for him the highest degree of social organization, communism, Thorstein Veblen believed that the competition waged between the various social levels led to various beneficial reforms, each of which are expressed through the institutions in force toward the benefit of the social whole.

The institutionalists, supporting the principle of social control, stood face to face with the individualistic school of economy, whose main point of interest was the behavior of «homo oeconomicus - economic man», who is their ideal type, moved on the basis of egotistical motives between pleasure and pain, within a perfect competition, for the achievement of his greatest interest. Such a utilitarian philosophy and such an abstract conception of an individual who acts within hypothetical perfect competition, without any obligation, without any influence of supra-individual factors, constituted for these sociologists a groundless, and in addition, anti - social view.

The institutional voluntarism, however, not only rejected every shade of naturalism, but also would have nothing to do with the old voluntarism, celebrating instead the human personality, on behalf of which it wanted to construct its society.

According to Veblen, the needs of man are best satisfied when technique and science, wearing down the resistance of nature, are drawn into his service. This however, is one picture of man ; the second is when we take him as a historical product and therefore as a social being and we examine what influence the institutions have on him and the behavior of ones like him. Thinking like this, the institutionalists maintained that there was a necessity for control so that society could be protected from the domination of the weak by the strong. They accepted that this control did not refer only to the activity of the State but also to the influence on the behavior of people exercised by religion, traditions, the associations of production, consumption, etc.

For Veblen, until this period, economists worked based on a hedonistic psycho-

21. The Institutionalists and especially Commons, in their solidarity perception were influenced by the solidaritism of Léon Bourgeois (See International Organization of Social Polcies in «The American Labor Legislation Review», 1914, Vol IV, pp. 186 - 202).

logy and a static perception concerning the internal and immutable laws of the economy and social life in general. The ideal type, «economic man», reckoning pleasure and pain, who had no past or future, but was turning about one and only one hub, obeying his egotistical instincts like a puppet was, according to them, an unsupported abstract hypothesis, because it results in a metaphysical and ideal conception, which removes us from the world of reality. Because individual behavior does not have any meaning, belonging as it does to the microcosm and only in the society with its valid institutions which springs from reason and are expressed through the instincts can meaning be found. Social life, through its variety and biological and social relations, is reality; it is the cause for the change in institutions which in their turn change each instinct of man and determine his way of life and development.

Thus, in their economic behavior, men are influenced by supra-individual factors, which evolve in the historical course and change from one historical stage to the next. These stages according to Veblen, are: primitiveness, wars, professional labor and machinism. This last stage is divided into two: the industrial and the financial-monopolistic. During the industrial stage free competition hatches the disadvantages, which appear during the stage of financial monopolistic economy.

For Veblen the world of reality, as this is shaped through the continually evolving institutions, is semi-monopolistic or monopolistic in character and which is this economic life and not the partial phenomena of it. Profits owe their realization to this semi-monopolistic or monopolistic situation of the market by means of a series of sales and purchases, not prices realized by perfect competition.

In addition, Veblen, believes that goodwill is the greatest individual differential advantage, in relation to the firm, the confidence of exchanges, the enjoyment of special privileges, etc. This advantage is a surplus income of these individuals over others, who accept this because it is institutionally acceptable; here arises the harmonization of the interests of individuals, either as willing buyers or as willing sellers.

Because of the strength of monopolistic and financial capital, Veblen objected to the monopolies, as well as uncontrolled competition, which fatally led to the monopoly of the market, with its catastrophic results. He observed that the entrepreneur did not move in harmony with the interests of society, because his aim was to become rich and to monopolize the market for his own benefit, since his profit would be larger, as the more he dominated the market, that much more favorable would be the pre-conditions of the exploitation of consumption appear to him and that much more favorable would the conditions of the exploi-

tation of labor appear to him, so that with the expansion of finance capital he would distinguish in the development a continually developing economic instability.²²

In this stage of social development, the economy takes the form of the monopoly and its domination in the market, breeding egotism, greed for profit and social differentiation. The only way to turn people away from this road is with the reform of the system, through the application of social control and the regulation of the boundaries of business enterprise.

Because, according to Veblen, the entrepreneur avoids the largest production, afraid that this may exceed the limits of the largest profit; it is in his interest to lower the working wage even if by the least amount, so that his total percentage of profit will be larger, without this becoming immediately perceptible, since the lowering of the worker's wage is done per capita. But when the wages rise, the worker again finds himself in his former position, because as the entrepreneur raises the wages, he puts a burden on consumption to which the worker is joined. The exploitation by the entrepreneur especially stands out when we examine the economic cycle, where we see that during the rising of the cycle the businessmen speculate at the expense of the worker, whose wages do not follow the rise in prices, while during the fall in prices the exploitation continues, with the discharge of workers, lock out, the lowering of wages and the like.²³

For the worker there is another opposite mentality, «...because the standard of living of any class, so far as concerns the element of conspicuous waste, is commonly as high as the earning capacity of the class will permit - with a constant tendency to go higher. The effect upon the serious activities of men is therefore to direct them with great singleness of purpose, to the largest possible acquisition of wealth and to discountenance work that brings no pecuniary gain»²⁴.

Veblen, as most institutional economists, tried to solve practical problems. His methodology was inductive not deductive. On the other hand we must not forget that «institutionalism was born in the chaos of the transition from a rural cooperative agrarianism to an urban monopolistic industrialism»²⁵. Veblen's method involved «the application of inductive logic to empirical observations that were drawn from History»²⁶, while «his criticism was brilliant and incessive»²⁷ and this criticism was exercised against monopolistic industrialism.

According to the above ideas, expressed by Veblen and his school, a system was

22, 23 T. Veblen : *The Theory of Business Enterprise*, 1984 p. 16ff.

24. T. Veblen : p. 112.

25. L. E. Hill : *op. cit.* p. 155.

26, 27. L. E. Hill : p. 156.

of reforms was proposed based upon a social control in order to be limited the individualism which cause the social conflicts and social differentiation. For this reason Veblen was accused by marxists as fascist and by conservatives as very radical but Veblen, as Sismondi, is Veblen. He opened a new road, his own road, which impacted also the economic policy of the USA and especially the New Deal (1933 - 1935) of Franklin Roosevelt.²⁸

28. Some adherents of the school have not agreed with the New Deal policy as H. G. Moulton and his collaborators of Brooking Institutions (G. Pirou : Les Nouveaux Courants de la Théorie Economique aux Etats - Unis, Paris 1947, Vol. II, p. 150 - . L. Frank : L'Expérience Roosevelt et le milieu social Americain, Paris 1937).

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