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**Impact of energy sectors in Greece product, employment and wages. An Input -
Output analysis.**

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Abstract

The main goal of thesis proposal is to evaluate the impact of energy sectors (coke-refined petroleum, electricity-gas) on the creation of gross domestic product, employment and wages for the Hellenic economy. The main quire that we try to answer is to find out the real effect-footprint of energy sectors on product, employment and wages creation for Hellenic economy.

We use as main empirical framework the Input-Output one as it has been presented by Leontief. Main tool for this framework is the input – output tables which describe totally the economic network. Country economic network describe by two sides-dimensions under this framework. Firstly, by the side of demand per economic sector which operates as a buyer for outputs of others sectors product in order to produce its product. Secondly by the side of supply per economic sector which operates as a purchaser in order to satisfy others sectors demand for its final product. The above mentioned double-dimensions analysis makes easy to investigate the core-basic relationships between economic sectors which built a national economy.

Especially for the need of present thesis has been used the hypothetical extraction method of Dietzenbacher and van der Linden (1997). This specific method based on extraction method, in other words the effect that will be produced by the extraction of a sector by the side of seller or by the side of purchaser. This analysis will present the total effect for national product, employment and wages after energy sectors extraction. Moreover, we will present top-10 sectors with largest incretion on national product, employment and wages after extraction of energy sectors. Additionally, we will calculate dependence of the results by imports in order to find out ability of Hellenic economy to be reproduced itself.

We use data for thesis by the official IO database of Input Output International Association (IOIA).

Keywords: Input Output analysis, product, wage, employment, energy sectors, hypothetical extraction method.

Thesis structure

This thesis consists of four (4) chapters, each chapter deals with a different subject related to the other chapters but is presented independently. The first three (3) chapters present theoretical, conceptual and methodological aspects and extensions of input-output analysis. While in the next one (1) the findings of the empirical research are presented as well as concluding comments on them. Through this structure we seek to approach the goal of the dissertation.

In the first chapter there is an initial presentation of the methodology of input-output tables, their structure as well as the systems of National accounts and their main characteristics. Furthermore, the relationship between input-output tables and the National Accounts system is presented, as well as the importance of input-output tables as an economic policy tool in many sub-areas of economic planning.

The model of analysis through input-output tables, its two different approaches through the model of demand and supply, the indicators of production, wages, employment, industry interconnection indices, the characterization as a leading industry or key industry and the classification methodology are presented in the second chapter. This makes it possible to present the methodological framework of the input-output analysis.

The third chapter presents the specific methodology on which the dissertation is based, that of the incomplete hypothetical posting of a branch. It also presents its methodological extension in the field of employment and wages as well as the definition of the respective sectoral interconnection indicators. Also, the data source of the study, the flow of calculations and the way they are presented.

The presentation of the calculations, the data and their initial commentary are presented in the next chapter 4, in this chapter we try to answer main queries of thesis and finally we present our closing remarks.

1. Input-Output tables

1.1. Tables and input-output analysis, brief historical overview

The first attempt (Livas 1994) to illustrate interdisciplinary interdependencies in the economy as a whole was made by the French physicist Francois Quesnay.

The first system of calculation (Baumol 2000) can be considered the work of "Tableau Economique " (Economic Table) published in 1758. His model distinguished three Economic areas:

- The productive class, which consists of the villagers and themselves landlords (landlords).
- The class of landowners, which consists of the nobles.
- The sterile class that covers mainly trade and crafts.

This model (Baumol 2000) used and portrayed in 1863 Marx letter to Engels As illustrated the interdisciplinary relations between the two economic sectors and published in the second volume of Das Kapital . The Marx formed the reproduction schemes consisting of two sectors, the means of production of means of production and the field of production of means of consumption II. He also formulated the equilibrium condition for a static economy (simple reproduction) and the equilibrium condition for a growing economy (extended reproduction). The input-output table, an associate process with the reproduction patterns, for economic circuit (Economides 2007).

A new comprehensive effort was made in 1874 by Walras in his work "Elements d'Economie Politique Pure " which through a system of equations for the simultaneous determination of all prices in the economy, makes the transition from the partial to the general equilibrium of the economy.

Leontief presented a suitably simplified system of general equilibrium, which can be used for empirical expansion of financial problems, input-output analysis, which is now one of the most common methods (Economides 2007). The work W. Leontief was what formed the basis for the output-output analysis

1.2 Structure of input-output tables

The basis for the study of the interdisciplinary interdependence of the branches of the economy are the output-input tables, like Table 1.2 one. These are dual input panels. In its rows the table appears as a producer (outflow) of product or service to satisfy the intermediate and final demand and in its columns the table appears as a user (input) of product or service to satisfy production. This makes it possible to record transactions between the sectors into which economic activity is divided. (Economides 2007).

Input-output tables include four quadrants, Table 1.2 (Livas, 1994). The 1st quarter of cross-sectoral transactions that reflects the flows of products - services produced and consumed (intermediate demand) within the production process. The rows of such a table describe the distribution of the output of a productive sector in the economy. The columns describe the

composition of the inputs required by a particular industry to produce its outputs. These cross-sectoral product transfers are the first part of the input-output table.

Table1.2: Table of inputs – outputs

INPUTS	PRIMARY SECTOR	SECONDARY SECTOR	TERTIARY SECTOR	PRIVATE PUBLIC CONSUMPTION	GROSS FIXED CAPITAL INVESTMENTS	DEPRECIATION	EXPORTS	TOTAL DEMAND
OUTPUTS								
PRIMARY SECTOR	FOURTH QUARTER: INTERMEDIATE DEMAND			2nd QUARTER: FINAL DEMAND				
SECONDARY SECTOR								
TERTIARY SECTOR								
STAFF WAGES	3rd QUARTER: INITIAL INPUTS			4th FINAL DEMAND QUARTERLY INQUARTERS				
TAXES-SUBSIDIES								
CAPITAL CONSUMPTION								
INTRODUCTIONS								
TOTAL PRODUCTION								

Source: Livas P. (1994). Input-Output Analysis.p.17-19

The 2nd quarter reflects the components of final demand and consists of private consumption, public consumption, fixed capital formation, stock changes and exports.

The 3rd quarter consists of the initial inputs to the productive process of each sector, these are salaries, wages, employer contributions, indirect taxes, subsidies, imports and constitute the added value of each sector of the economy

The 4th quadrant consists of the initial inputs and shows how they are distributed in the final demand of each sector. The collection and display of data for the above quadrant is particularly difficult and for this reason is usually empty resulting in incomplete mapping of the presentation of the economy as a whole through the system of inflows and outflows and the system of national accounts.

The design of the input-output table distinguishes the structure of the economy in endogenous and exogenous cross-sectoral transactions. Endogenous cross-sectoral transactions are recorded in the intermediate inputs section and exogenous in the initial inputs and final demand section.

1.3 System of national accounts a brief historical background

The creation of the System of National Accounts began in the early 1930s and to this day has undergone several modifications. Through this system it is possible, in the selected period of time, to present the main economic relations of a country. This system calculates the basic macroeconomic elements from which a country's economic course can emerge. (Galanou, 2006).

In 1952, Stone, the head of a United Nations team of experts, drafted an international standard for national accounts suitable for underdeveloped countries in line with that of the United Nations. In 1953 this system was approved under the name "System of National Accounts". This system underwent two revisions and in 1968 was renamed "A System of National Accounts".

In the EU the development was different it adapted the UN system to the needs of the EU member states and established the European System of Accounts (ELA-ESA1970). In 1979 the system was revised. In 1993 it was issued by the UN. the System of National Accounts (SEL-SNA) issued in 1993 and in 1995 a new revision was made. Also, in 1995 Eurostat published the European System of Accounts (ESA 1995). In the European Union, input-output tables are compiled from all Member States and published at regular intervals in Eurostat publications. In Greece, the tables are compiled by the Statistical Service in the section of National Accounts (Economides 2007).

1.4 Key features of the national accounts system

With the system of National Accounts, it is possible, as mentioned, in the selected period of time, to calculate the main economic relations of a country.

The System of National Accounts includes (Galanou 2006) the following:

- National Accounts are a method of depicting economic relations in a country.
- The bibliographic system is the method of recording the total transactions of the economy.
- Displays the total financial transactions in a specific country.
- It usually depicts financial relationships for a year, but can also be depicted every three, four or six months.

1.5 Relationship between national accounts and input-output tables

This section will present the relationship between National Accounts and the Input-Output Chart. The Input-Output Chart can be used to describe the economic relations in a country, (Economidis C., 2007). The Input-Output Table includes the macroeconomic data of the National Accounts and the transactions between the branches. The purpose of the National Accounts is the same as that of the Input-Output Table but it uses other techniques and the analysis is done at a higher level. It follows from the above that their relationship is important and that they are essentially related to each other. The National Accounts and the Input-Output Chart use

the bibliographic method. In the Tables the output of a branch is represented by its inputs and outputs. National Accounts use the cumulative sizes of the Input-Output Chart.

In the Input-Output Chart a part of the outputs of the sectors goes to the Final Demand, while in the National Accounts they are classified in the sectors, Business, Private, Public, and Abroad. These areas in the Input-Output Table are included in the Initial Inputs specifically in Value Added. Input-Output Tables contain much of the National Accounts information but National Accounts contain only a small portion of the Tables information. The Tables in some countries include a complete section of the National Accounts while in other countries they are limited to a smaller section due to training difficulties.

The empirical analysis in the National Accounts aims at calculating the macroeconomic variables that concern the whole economy, but some individual changes can significantly affect the whole economy. This dimension can be covered by the Input-Output Tables which include in the lines the Value added in the columns is the Final Demand and presents the whole economy and the parts of which it consists.

From the Input-Output Table, data for the flow of products and services as well as for the parts that constitute the production costs are obtained. Data on products and services in the production process as well as the process of income generation and employment are also obtained. The Input-Output Table also presents the transactions with foreign countries by product groups and by sector, while in the National Accounts these transactions are presented with one entry.

As mentioned, The System of outflows-inputs and the National accounts aim at the depiction of the economic activities of the country. Due to the differentiation described above (Livias 1994), the output-input system is a more detailed system for examining an economy through the separation of the whole economy into its branches, as will be presented below in both the input-output table and the system. equations of national accounts.

In particular: where **C** is the expenditure on private consumption, **I** is the expenditure on investment, **G** is the expenditure on public consumption, **E** is the export, **M** is the import, **L** is the expenditure on wages, **N** is the remaining initial input and Z_{ij} intermediate input - outflows.

We have the input-output Table 1.5 in the following format: (Economidis C., 2007)

Table 1. 5: Transaction table of the input-output model

INPUTS	1	2	3	FINAL REQUEST				TOTAL DEMAN D
OUTPUTS				C1	G1	I1	E1	Y1
1	Z11	Z12	Z13	C2	G2	I2	E2	Y2
2	Z21	Z22	Z23	C3	G3	I3	E3	Y3
3	Z31	Z32	Z33					
STAFF WAGES	L1	L2	L3	LC	LG	LI	LE	L

TAXES- SUBSIDIES- CAPITAL CONSUMPTION	N1	N2	N3	NC	NG	NI	NE	N
INTRODUCTION S	M1	M2	M3	MC	M G	MI	ME	M
TOTAL PRODUCTION	X1	X2	X3	C	G	I	E	X

Source: Economidis C. (2007). *Introduction in System and Input-Output Analysis*.p.31

$$\mathbf{Xi} = \sum_{j=1}^n \mathbf{z}_{ij} + (\mathbf{Ci} + \mathbf{Gi} + \mathbf{Ii} + \mathbf{Ei})$$

The sum of each line shows the outputs of the industry that are distinguished in intermediate consumption and final demand, so the total of each line shows the total product of the industry as follows (Economidis C., 2007):

$$\mathbf{Xi} = \sum_{j=1}^n \mathbf{z}_{ij} + (\mathbf{Ci} + \mathbf{Gi} + \mathbf{Ii} + \mathbf{Ei})$$

The sum of the items in each column shows the raw material supplies, the intermediate consumption and the initial inputs used in the production process by this sector. So, the sum of the columns is equal to the product of the industry as follows:

$$\mathbf{Xj} = \sum_{i=1}^n \mathbf{z}_{ij} + (\mathbf{Lj} + \mathbf{Nj} + \mathbf{Mj})$$

For the calculation (Economides 2007) of the national income and the gross national product, it is necessary to determine the value of the total final product (products available for consumption, exports, etc.). Thus, equalizing the two initial equations that resulted from the input-output table. We have, $\mathbf{X}_i = \mathbf{X}_j$ as shown by the input-output tables (Muller Blair 2009) then

$$\mathbf{L} + \mathbf{N} + \mathbf{M} = \mathbf{C} + \mathbf{I} + \mathbf{G} + \mathbf{E}$$

If the **M** inputs are moved to the left, we have:

$$\mathbf{L} + \mathbf{N} = \mathbf{C} + \mathbf{I} + \mathbf{G} + (\mathbf{E} - \mathbf{M})$$

and so, we have the national identity (Economides 2007) which on the left presents the G.D.P. with the method of value added and, on the right, the A.E.P. by the method of expenditure.

The left side represents the gross national income, i.e., the payments for the rates in the economy, and the right side represents the gross national product, i.e., the total expenditure for

consumer goods, investment, government expenditure and net exports. This proves the direct relationship between national accounts and input-output analysis.

1.6 Usability of input-output tables

The most important use of Input-Output Tables is financial planning (Galanou 2006). The Input-Output Chart is also used to display output, final demand income and more. It also depicts short-term elements such as the interconnections of sectors in terms of production, productivity, wages and employment, through these elements the picture of the structure of the economy can emerge. It also includes financial transactions with foreign countries. The Input-Output Chart can depict changes in the structure of an economy over a period of up to five years.

The compilation of Regional Input-Output Tables is also important. Input-Output Tables can also be used to analyze international relations through complex-Regional Input-Output Tables and international comparisons of interdisciplinary relationships. All of the above for the use of input-output tables are of particular value for financial analysis, as they cannot be deduced from the preparation of National Accounts.

Also, the use of inputs-outputs has been extended to the expansion of certain issues such as the compilation of energy tables, tables related to environmental pollution and social accounting tables, which mainly investigate employment issues.

2. A analysis through input-output tables (General methodological background)

2.1 An input-output analysis (supply and demand model)

The input-output table can be converted into a model of analysis (Skountzos,2007). This transformation takes place under two different considerations for the economic system and the corresponding inter-sectoral relations.

There are two alternative models of input-output table analysis:

- that of output-input demand (Leontief, 1936) and
- that of input-output supply (Ghosh, 1958).

In the Leontief input-output model the exogenous variable is the demand-driven model and the product produced depends on the production activity. While in the Ghosh input-output model the exogenous variable is the value-added (the initial inputs) (supply-driven model) and the product produced depends on the increase of the initial inputs. In both models, the cross-sectoral relationships of the economy are considered stable and through them the endogenous variables are calculated.

The input-output model distinguishes the structure of the economy in the endogenous inter-sectoral relations and in the exogenous inter-sectoral relations concerning the initial (primary) inputs and the final demand. In this way, the total effects, direct and indirect, from the changes in the exogenous variables to the gross output of each sector realized through the interdisciplinary relations are calculated.

2.1.1 Analysis of input-output tables through demand model.

Assumptions governing input-output analysis (Leontief, 1986) are the following:

- Only one method is used to produce a product group. Each industry produces only one main product.
- The sum of the individual productive results is the total result of production (assumption of cumulateness that excludes the existence of external economies).
- The inputs used by an industry depend only on the level of production of the industry.

Let's say that

Z_{ij} is the value of the product of class i used as an intermediate input from class j .

X_i is the total output of sector i .

Y_j is the final demand and $j = 1, 2, 3 \dots n$ are the economic activity branches of the model.

Therefore, if the total economy consists of n branches of economic activity and the cash flows between the branches are known we can define the Leontief table of transactions in the form of a system of equations as follows:

$$X_1 = Z_{11} + Z_{12} + Z_{13} + \dots + Z_{1n} + Y_1$$

$$X_2 = Z_{21} + Z_{22} + Z_{23} + \dots + Z_{2n} + Y_2$$

•
•
•

$$X_n = Z_{n1} + Z_{n2} + Z_{n3} + \dots + Z_{nn} + Y_n$$

Based on the above system the technological coefficients are defined as follows:

$$a_{ij} = z_{ij} / x_j.$$

Also $z_{ij} = a_{ij} x_j$. We replace each z_{ij} with $a_{ij} x_j$ in the above system

The calculation of the "technical coefficients of the Leontief matrix)", $A = [a_{ij}]$, is then performed.

$$a_{ij} = X_{ij} / X_j, \quad j = 1, 2, \dots, n$$

Where a_{ij} are the technological coefficients that indicate the amount of intermediate input required by each branch i to produce a unit product of category j

These factors reflect the technology structure of the economy under consideration. When the final demand for the product of industry j changes by one unit, while the final demand for the products of other industries remains unchanged, the industry will change its level of production by one unit, this change will have direct effects on the primary sector inputs, direct effects are called direct factors and are represented by the rates of primary inputs to the technology matrix.

Given the assumption of the stability of the technological factors of production, the system of equations (Muller and Blair 2009) can be written as follows:

$$\begin{aligned} X_1 &= \alpha_{11} X_1 + \alpha_{12} X_2 + \alpha_{1i} X_i + \dots + \alpha_{1n} X_n + Y_1 \\ X_2 &= \alpha_{21} X_1 + \alpha_{22} X_2 + \alpha_{2i} X_i + \dots + \alpha_{2n} X_n + Y_2 \\ &\cdot \\ &\cdot \\ X_n &= \alpha_{n1} X_1 + \alpha_{n2} X_2 + \alpha_{ni} X_i + \dots + \alpha_{nn} X_n + Y_n \end{aligned}$$

The above system of equations illustrates the relationship resulting from trade between industries with the total product of the industry. The total final product of each sector results from the total production of the other sectors, the intermediate inputs of the sector as well as the final demand, since the demand Y is considered exogenous in the system the above relations are written as follows:

$$\begin{aligned} X_1 - \alpha_{11} X_1 - \alpha_{12} X_2 - \alpha_{1i} X_i - \dots - \alpha_{1n} X_n &= Y_1 \\ X_2 - \alpha_{21} X_1 - \alpha_{22} X_2 - \alpha_{2i} X_i - \dots - \alpha_{2n} X_n &= Y_2 \\ &\cdot \\ X_n - \alpha_{n1} X_1 - \alpha_{n2} X_2 - \alpha_{ni} X_i - \dots - \alpha_{nn} X_n &= Y_n \end{aligned}$$

If we group the X_1 in the first equation the X_2 in the second and so on. then in the system it will have the form:

$$\begin{aligned} (1 - \alpha_{11}) X_1 - \alpha_{12} X_2 - \alpha_{1i} X_i - \dots - \alpha_{1n} X_n &= Y_1 \\ -\alpha_{21} X_1 + (1 - \alpha_{22}) X_2 - \alpha_{2i} X_i - \dots - \alpha_{2n} X_n &= Y_2 \\ &\cdot \\ -\alpha_{n1} X_1 - \alpha_{n2} X_2 - \alpha_{ni} X_i - \dots + (1 - \alpha_{nn}) X_n &= Y_n \end{aligned}$$

The corresponding procedure through matrix algebra is as follows:

The A matrix, dimensions $(n \times n)$, technical coefficients (or Leontief matrix)

$$A = \begin{pmatrix} a_{11} & \dots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \dots & a_{nn} \end{pmatrix}$$

The \mathbf{X} ($n \times 1$) vector of total output

$$\mathbf{X} = \begin{pmatrix} x_1 \\ x_2 \\ \cdot \\ x_n \end{pmatrix}$$

The \mathbf{Y} (1) vector of total final demand

$$\mathbf{Y} = \begin{pmatrix} Y_1 \\ Y_2 \\ \cdot \\ Y_n \end{pmatrix}$$

For each column j of the input-output table applies

$$X_j = \sum_{i=1}^n x_{ij} + Y_j$$

The original system can be written in the form of matrices as follows:

$$(\mathbf{I} - \mathbf{A}) \mathbf{X} = \mathbf{Y}$$

Where \mathbf{I} is the unit matrix ($n \times n$), the above relation is written as follows:

$$\mathbf{X} = (\mathbf{I} - \mathbf{A})^{-1} \mathbf{Y}$$

The inverse matrix is the matrix of total input factors and shows us the direct and indirect effects on sector i of an increase in final demand of sector j by one unit.

2.1.2. Analysis of input-output tables through supply model, (Ghosh, 1958).

The model concerning the supply model relates the level of gross output of the branches to the initial inputs, ie an increase of one unit of value in the initial inputs now has an impact on the gross output of the branches.

We denote by \mathbf{b}_{ij} the amount of output of division i available in division j for intermediate use per unit of output of division i .

The output coefficients remain unchanged with the scale of production. Based on the above system, the technological (output) coefficients are defined as follows:

It is calculated based on the "output coefficient" matrix, $\mathbf{B} = [\mathbf{b}_{ij}]$:

$$\mathbf{b}_{ij} = \mathbf{X}_{ij} / \mathbf{X}_j, j = 1, 2, \dots, n$$

$$\mathbf{B} = \begin{pmatrix} b_{11} & \dots & b_{1n} \\ \vdots & \ddots & \vdots \\ b_{n1} & \dots & b_{nn} \end{pmatrix}$$

The data of each series of matrix \mathbf{B} show the quantities per unit of production of the sector, which are available for intermediate use in the other sectors of the economy. Thus the coefficient \mathbf{b}_{ij} shows per unit of production of branch i the quantity available in branch j . (Skountzos, 2007)

According to the above, the value of the total production of a branch is equal to the sum of the value of the intermediate inputs and the fees paid to the primary factors of production (initial inputs).

$$\mathbf{X}_j = \sum_{i=1}^n \mathbf{x}_{ij} + \mathbf{V}_j$$

Since the value of the available quantity of \mathbf{X}_i of the sector i to intermediate and final use is equal to the value of the corresponding output \mathbf{X}_j have the following relationship,

The \mathbf{X} (1Xn) matrix of total production

$$\mathbf{X} = \left[x_1, x_2, \dots, x_n \right]$$

The \mathbf{V} ($1 \times n$) matrix with elements of the initial inputs of the branches

$$\mathbf{V} = \left[v_1, v_2, \dots, v_n \right]$$

The original system can be written in the form of matrices as follows:

$$\mathbf{X} = \mathbf{X}\mathbf{B} + \mathbf{V}$$

Where \mathbf{I} is the unit matrix ($n \times n$), the above relation is written as follows:

$$\mathbf{X} = \mathbf{V} (\mathbf{I} - \mathbf{B})^{-1}$$

The inverse matrix is the matrix of total output factors and shows us the direct and indirect effects on the output of all sectors of the economy created by the one-unit change in initial inputs to a particular sector.

2.2. Presentation of production, employment, wage multipliers through input-output analysis, basic approach

2.2.1 Production Multipliers.

2.2.1.1 By demand model.

The multiplier of production demand for an industry is defined as the total value of production in all sectors of the economy that is necessary in order to produce a unit of product of that sector for final use. (Skountzos 2007),

The output demand multiplier for a sector within the input-output demand model is calculated as the sum of the elements of the corresponding column of the corresponding matrix. If we denote Π_j the output demand multiplier of sector j , then this multiplier of sector j , Π_j , is calculated by the formula:

$$\Pi_j = \sum_{i=1}^n r_{ij}$$

where r_{ij} , are elements of the inverse matrix $(\mathbf{I}-\mathbf{A})^{-1}$.

2.2.1.2 By supply model.

The output multiplier of a sector shows the direct and indirect effects on the output of all sectors of the economy that result from a one-unit change in the initial inputs of that sector and are calculated as the sum of the matrix series $(\mathbf{I}-\mathbf{B})^{-1}$, corresponding to the industry. (Skountzos 2007),

If we denote by \mathbf{Pi} the supply multiplier of branch i then

$$\Pi_i = \sum_{j=1}^n b^*_{ij}$$

where b^*_{ij} are the elements of the inverse matrix $(\mathbf{I}-\mathbf{B})^{-1}$

2.2.2. Employment Multipliers.

2.2.2.1 By demand model.

The required amount of labor for each sector of the economy per unit of gross production is the direct employment rate.

Symbolizing:

l_j = direct employment rate of sector j .

L_j = amount of work employed in sector j .

X_j = gross production value of sector j .

The direct employment rate of sector j :

$$l_j = \frac{L_j}{X_j}$$

If the number of branches is n , the direct employment rates are given by the series vector:

$$\mathbf{L} = \left(\frac{L_1}{X_1} \frac{L_2}{X_2} \frac{L_3}{X_3} \right) = (l_1, l_2, \dots, l_n)$$

Employment multipliers are distinguished on the demand and on the supply. The multiplier of the demand of an industry shows the direct and indirect effects on total employment, which is created by the unit change in the final demand of the industry and is calculated as follows: (Skountzos 2007),

$$\text{where: } \mathbf{L} \mathbf{\Pi}_j = \sum_{i=1}^n \mathbf{K}_{ij}$$

$\mathbf{L} \mathbf{\Pi}_j$ = the employment demand multiplier of sector j .

k_{ij} = standard matrix element K .

The matrix K is calculated as follows:

$$K = L \text{ DIAGONIAL } (I - A)^{-1} = \begin{pmatrix} k_{11} & \dots & k_{1n} \\ \vdots & \ddots & \vdots \\ k_{n1} & \dots & k_{nn} \end{pmatrix}$$

where $L \text{ DIAGONIAL} = \begin{pmatrix} l_1 & \dots & 0 \\ \vdots & l_2 & \vdots \\ 0 & \dots & l_n \end{pmatrix}$

is the diagonal matrix with diagonal elements the direct employment rates.

The data in a column of matrix K show the direct and indirect effects on the employment of the sectors resulting from the one-unit change in the final product of the branch corresponding to the column.

2.2.2.2 By supply model.

The employment multiplier as program of the tender shows overall employment effects derived from one unit change in the initial input of an industry. The multiplier is based on input-output supply model is calculated as follows: (Skountzou 2007),

$$\text{where: } L \Pi_j = \sum_{j=1}^n k^*_{ij}$$

$L \Pi_i$ = employment supply multiplier of sector i .

k^*_{ij} = typical element of the matrix K^* .

The K^* matrix is calculated as follows:

$$K^* = (I - B) - 1 L \text{ DIAGONIAL} = \begin{pmatrix} k^*_{11} & \dots & k^*_{1n} \\ \vdots & \ddots & \vdots \\ k^*_{n1} & \dots & k^*_{nn} \end{pmatrix}$$

The matrix column K^* shows the direct and indirect effects on the employment of the sector that will be created by the one-unit change of the initial inputs in each of the n sectors of the economy.

2.2.3. Wages Multipliers.

2.2.3.1 By demand model.

The direct wage rate for each sector of the economy is the required wage value per unit of gross production (Skountzos 2007),

Symbolizing:

w_j = direct wage factor of sector j .

W_j = value of wages in sector j .

X_j = gross production value of sector j.

The direct wage factor of sector j is derived from the relation:

:

$$w_j = \frac{W_j}{X_j}$$

If the number of branches is n, the direct wage rates for the n branches are given by the series vector:

$$\mathbf{w} = \left(\frac{W_1}{X_1} \frac{W_2}{X_2} \frac{W_3}{X_3} \right) = (w_1 \ w_2 \ \dots \ w_n)$$

Wage multipliers are distinguished in terms of demand and supply. The wage multiplier for the demand of an industry shows the direct and indirect effects on the total remuneration of employees, resulting from a one-unit change in the final demand of the industry in question and is calculated as follows:

$$\text{where: } \mathbf{W} \Pi_j = \sum_{i=1}^n \mathbf{k}_{ij}$$

$\mathbf{W} \Pi_j$ = the wage demand multiplier of sector j.

\mathbf{k}_{ij} = standard matrix element K.

The matrix **K** is calculated as follows:

$$\mathbf{K} = \mathbf{W} \mathbf{DIAGONAL} (\mathbf{I} - \mathbf{A})^{-1} = \begin{pmatrix} k_{11} & \dots & k_{1n} \\ \vdots & \ddots & \vdots \\ k_{n1} & \dots & k_{nn} \end{pmatrix}$$

is the diagonal matrix with diagonal elements the direct wage rates.

The data in a column of the matrix K show the direct and indirect effects of the wages of the productive sectors resulting from the one-unit change in the final product of the branch corresponding to the column.

2.2.3.2 By supply model.

The wage multiplier in terms of supply shows the total effects of employees' wages derived from the one-unit change in initial inputs and is calculated as follows: (Skountzos 2007),

$$\text{where: } \mathbf{W} \Pi_i = \sum_{j=1}^n \mathbf{k}^*_{ij}$$

$\mathbf{W} \Pi_i = \pi$ multiplier of employment supply of sector i.

\mathbf{k}^*_{ij} = typical element of the matrix **K** *.

The \mathbf{K}^* matrix is calculated as follows:

$$\mathbf{K}^* = (\mathbf{I} - \mathbf{B})^{-1} \mathbf{W} \text{ DIAGONAL} = \begin{pmatrix} \mathbf{k}^*_{11} & \cdots & \mathbf{k}^*_{1n} \\ \vdots & \ddots & \vdots \\ \mathbf{k}^*_{n1} & \cdots & \mathbf{k}^*_{nn} \end{pmatrix}$$

The order of the matrix \mathbf{K}^* shows the direct and indirect effects on the wages of the branches, caused by the one-unit change of the initial inputs of the branch.

2.3 Indicators of sectors interfaces

2.3.1 General comments.

The output-output model makes it possible to empirically assess the inherent dynamics of the individual sectors of an economy. Within the model, it is possible to evaluate the importance of each sector based on the intensity of its cross-sectoral transactions, as well as the quantitative approximation of the effects of an external change in the system, production, income and employment. The empirical evaluation and analysis of the effects is done through the sectoral linkages indicators which are calculated based on the data of the inverse Leontief matrix $(\mathbf{I} - \mathbf{A})^{-1}$ on the demand side and the inverse Ghosh matrix $(\mathbf{I} - \mathbf{B})^{-1}$ on the supply side.

In the input-output analysis (Skountzos, 2007), the production of one sector exerts two types of effects on other sectors of the economy. If industry j increases its production, it will increase its demand for the products of the industries used in its production process. The term vertical production interconnection refers to the interconnection of an industry with the industries from which it receives its inputs.

The increased production of branch j also means that additional quantities of its production will be available to be used as inputs by others for their own production process. Thus there will be increased quantities offered by industry j (as a supplier) to industries that use in their production as intermediate input the product of industry j . The term horizontal interconnection indicates the type of interconnection between an industry and those industries to which its product is directed.

In order to calculate the indices of vertical and horizontal interconnections, the input-output model is used both from the demand side and from the supply side.

2.3.2 Sector's Interconnection Indicators-Overview.

The interface sectoral indicators can be classified

(Sanchez - Choliz, Julio and Duarte, Rosa 2003) (B. Andreosso - O' Callaghan and Guoqiang Yu e 2000) in four major categories as follows:

- Those calculated through the \mathbf{A} matrix of technical coefficients (or the Leontief matrix) and based on the matrix \mathbf{B} of the output coefficients,
- through the inverse of the above two matrices,
- through weighted indicators,

- through the hypothetical industry posting method.

The empirical investigation of the dynamics of each branch is traditionally done using the indicators of vertical and horizontal interconnection (backward and forward linkages) of Rasmussen (1957) and Hirschman (1958) or their variants. These indicators show the magnitude of structural interdependence as well as the extent to which the growth of one sector can contribute directly or indirectly to the growth of others.

But several tasks raised criticism of the way in which the indicators of Rasmussen and Hirschman intersectoral relationships (Jones, 1976), (Laumas, 1976). Using the concept of vertical integration, they have shown that although the Rasmussen and Hirschman indices can be used to analyze the relationship between final demand and gross product, they lead to erroneous conclusions about the overall supply of the economy as they do not take into account the relative size of each branch (Heimler, 1991). They also suggested that the evaluation be based on the total (direct and indirect) intermediate consumption required by each industry. Thus, according to Markakis (2013) in order to treat the economy as a "whole" the indicators of total interconnection were proposed (Laumas, 1976). The logic of the total interconnection indices is to construct a weighted average of the vertical and horizontal interconnection indices, with weighting factors (weights) the share of the branches in the final demand or the share of the branches in the primary inputs. Improving the methodological framework, Mattas & Shrestha proposed input-output elasticities to final demand as a measure of sectoral interconnections. When calculating elasticities, the relative size of each sector in relation to its share in final demand is taken into account. The evaluation of the vertical interconnection of the branches with the elasticities of Mattas and Shrestha (1991), is carried out in relation to the total supply of the economy. The Heimler index is calculated using the net intermediate consumption and the relative size of each sector to the total gross product of the economy.

Finally, Dietzenbacher & Van der Linden (1997 Sectoral and spatial linkages in the EC production structure) based on the empirical conclusions of Strassert (1968) and the hypothetical posting method of a branch proposed a sector interconnection index which is theoretically more consistent than those of Rasmussen and Hirschman while at the same time enables the distinction between horizontal and vertical interfaces, something that is not possible in the methodological approach of Strassert.

Initially, a simple industry posting technique was proposed by Strassert, where the industry is extracted from the input-output table and the final demand vector, and then industry interface indicators are calculated. The only difference is that the tables and vectors used have one branch less. The measure of the importance of the sector for the economy results from the difference of the interconnection index that is estimated by the detachment of the sector from the index that results from the participation of the sector.

Hypothetical industry posting is part of the methods of identifying the key sectors of an economy, as such are defined the sectors whose posting will have the highest impact. Through this method, an attempt is made to solve the problems of overestimation or underestimation of the importance of the industry, since in assessing the importance of an industry for the economy, its relative size must be taken into account. But the problem of asymmetry with classical interconnection indices remains. To overcome the problem of asymmetry, Dietzenbacher & van der Linden (1997) proposed a different methodology for hypothetical industry posting. This method solves the problem of asymmetry while at the same time gives a solution to the problem of separation of horizontal and vertical interfaces. Specifically, for the measurement of the vertical interfaces they propose the detachment of the intermediate inputs of the examined branch and for the measurement of the horizontal interconnections they propose the detachment of the intermediate outputs of the branch. The interconnections that are detached do not affect the production process, since it is assumed that they are covered by imports.

Later, Dietzenbacher & Lahr (2013 Expanding extractions) proposed the method of partial deletion of an industry. This is because the complete elimination of a sector from the economy cannot be a realistic scenario in applied studies of the real economy. The hypothesis of partial elimination can be widely used in cases where, for example, the effects of closing part of the production of a branch or the scenario of substitution of part of intermediate production from imported inputs are investigated and finally in cases of estimating the results of periods of economic crisis (Markakis 2013).

The summary of the alternative sectoral interconnection indices showed that the calculation of each of them is based on different methodological approaches. But this practically does not mean that one is superior to the others. Each indicator has specific advantages and disadvantages, the importance of which depends on the needs and priorities of each empirical application.

The size of the sectoral interconnection indicators depends on the degree of aggregation scheme of the model. Generally, a high degree of grouping leads to high indexes of industry interfaces.

The first recorded attempt to analyze inputs-outputs with the principles of hypothetical industry posting is presented in Dmitrieff's work published in 1898 and deals with Ricardo 's theory of value as analyzed by (Mariolis, Rodousaki, 2011)

Finally, in the Greek literature, as we have pointed out above, the calculation of the key sectors of the Greek economy is presented through the method of hypothetical detachment of a sector from the studies Rodousaki (2006), Rodousaki , (2007).

2.4. Leading Branches or key branches of production, wages, employment

The reason (Skountzos 2007) of calculating the indicators of vertical and horizontal production interfaces is to make the ranking of the sectors based on the possibility of promoting growth. The selection of leading branches or key branches is made by the branches with the largest interfaces.

Leading industries or key industries can be those industries whose interconnection ratios are greater than one unit. The main feature of these sectors is the effects they have on production, employment and wages, they are higher than the average effects of other sectors. Therefore, these sectors have the greatest potential for promoting growth.

The hierarchy and selection of key branches is done by examining the intensity of the interdisciplinary interfaces. The interdisciplinary connections are distinguished:

- Vertical production interfaces are used to indicate the type of interconnection of an industry with the industries from which it receives its inputs.
- Horizontal links measure the effect exerted between an industry and those industries to which its product is directed.

In the Greek literature and articles have been presented studies for the research of the "key sectors" in terms of interconnections in production, employment, and wages.

In addition to the so-called traditional methods of determination proposed by Rasmussen (1957) and Hirschman (1958) we have the application of newer methods such as hypothetical branch seconding as proposed by Strassert (1968). The studies of Rodousaki (2006), Rodousaki (2007) used the method of hypothetical industry posting. These works identify the interdisciplinary links to the "back" and "forward", as well as the leading sectors of the Greek economy for the years 1988 and 1998. The results of the measurements of this method showed a remarkable change in the structure of the financial system. , since, in addition to the expected rearrangements in the hierarchy of sectors according to their interconnections, there is both a tendency to differentiate the leading sectors and a decrease in their number. For this study, the symmetric input-output tables of the Greek economy for the years 1988 & 1998 were used.

The study of the research team of Professor Th. Skountzos (2007), under the auspices of the Academy of Athens, based on the input-output tables of the Greek economy for 2005 identified key sectors in product, employment and wages both nationally and in regional level. The article by Melachrinos (2017) also seeks to identify the key sectors for the Greek and German economy.

A similar study is that of Belegri-Roboli and Michailidis (2010). This study identifies the key sectors for Greece based on production, employment, and wages, for the period 1994-2007. The method used was the input-output analysis and the branches with the highest results in terms of vertical and horizontal interfaces were approached. For the sake of completeness, it was chosen to

use both the available domestic production tables and the total domestic production and import tables.

Also, Markaki's doctoral dissertation (2013) aimed at researching labor productivity and is now influenced by quantities based on the structural relationships found in an economy and in this study the method of input-output analysis was used. At the same time, the structure of production and employment of the economy were investigated. The research is done for the Greek economy, in the period 1995-2010.

Finally, there has been intense activity in our country, both in terms of articles and in terms of studies with the use of the Sraffaian multiplier to identify the leading sectors of the economy through the use of input-output tables.

Badas (2009) work with the methodology of estimation of the Sraffaian multiplier based on the symmetric input-output table (SIOT) of the German economy for the year 2002. The findings of this study showed its structure and interdependencies production system of the specific country as well as the sectors with the highest contribution to total production and employment.

The study of Mariolis , Soklis (2018) through the Sraffaian multiplier for the Greek economy using data from supply and use tables for the year 2010. This study mainly found that effective policy through demand expansion should be based on short-term service sectors, because the industrial sector is highly dependent on imports and proposes a long-term change in the sectoral structure of the Greek economy in favor of complex products.

2.5 Classification of industry interconnection indicators

To identify the key branches through the analysis of output inputs practically means to identify the vertical and horizontal branch interconnection indices that have values higher than one, through a normalization process (normalization). The values of the findings are normalized by setting their average equal to the unit.

The branches are divided based on the following four (4) classifications:

- Key sectors with values of strong horizontal and vertical interfaces > 1
- Branches with values of strong vertical interfaces > 1 and weak horizontal interfaces < 1 .
- Branches with values of weak vertical interfaces < 1 and strong horizontal interfaces > 1 .
- Branches with values of weak horizontal and vertical interfaces < 1 .

3. Methodological framework of study

3.1 Theoretical background

In the present study, three indices of cross-sectoral links of production, wages and employment are calculated, using the method of incomplete hypothetical industry posting (Dietzenbacher, and van der Linden 1997) (Rodousaki, 2007), their calculation is based on the model of demand through the matrix "technical rates (or Leontief matrix)" and based on the Ghosh supply "matrix of output factors" model.

Through the Non-complete Hypothetical Extraction Method we can calculate the indices of interdisciplinary vertical and horizontal interconnection (through the model of supply and demand, respectively) as well as the absolute magnitude of impact (impact-effect analysis), which arise from the posting of each sector, either as a consumer or as a producer, from the product of the national economy examined on a case-by-case basis.

The methodological background of the study is also extended to employment and wages. As mentioned, this is not the first time that the methodological background of incomplete hypothetical posting is used in the Greek literature Rodousaki, (2007). It should be noted that unlike the calculation of traditional sectoral interconnection indices, modern methods such as incomplete hypothetical posting require a large number of calculations.

3.1.1. Production Multiplier through the Demand Model.

The multiplier of production by demand side in method of incomplete hypothetical posting (Temurshoev 2004) for a sector j is defined as the total value of production that will be lost in all sectors of the economy that are necessary, directly and indirectly, to produce the product of branch j for final demand if this branch decides not to supply intermediate inputs from the other branches. This multiplier is called the "absolute vertical connection index". The calculation of this index results from the difference of the actual product that will be produced with sector j to supply intermediate inputs from all sectors of the economy, from the total product that will be produced with the assumption of zero supply from sector j intermediate inputs from all sectors. With all sectors of the economy active as suppliers in the production of sector j we have the Leontief \mathbf{A} matrix, and the «reverse of the Leontief matrix" $(\mathbf{I}-\mathbf{A})^{-1}$. The product of this with the vector of final demand \mathbf{Y} gives us the total product of the economy.

$$\mathbf{X} = (\mathbf{I}-\mathbf{A})^{-1}\mathbf{Y}$$

Assuming that branch j no longer supplies intermediate inputs from any branch of the economy, this will result in the zero of the corresponding column in branch j , resulting in a new Leontief \mathbf{A}^j matrix, and a new 'inverse matrix'. Leontief" $(\mathbf{I}-\mathbf{A}^j)^{-1}$ and will create a new reduced total product of the economy $\mathbf{X}^j = (\mathbf{I}-\mathbf{A}^j)^{-1}\mathbf{Y}$

The absolute vertical interconnection ratio $ABL_j^{DL} = \sum_{i=1}^n (X_i - X_{ij}^0)$ in this part of the analysis shows the output interface. (DL, Dirlzenbacher- Linden).

For formula $(X_i - X_{ij}^0)$ will identify top-10 strongest related sectors with energy sectors that we deal with.

Then, by dividing the absolute index of vertical interconnection by the total product of the branch j $BL_j^{DL} = ABL_j^{DL} / X_j$, the relative size of the branch and its dependence per unit of product produced is calculated.

Finally, in the effort for clearer findings, regarding the vertical interconnection indices in order to identify the key branches, the values of the findings are normalized by setting their average equal to the unit.

When $BL_j^{DL} > (<) 1$, the subtraction of the intermediate inputs received by sector j causes effects on the total output of the economy, which are higher (lower) than the average of the corresponding effects of all sectors. With this indicator you measure the dependence of inputs on the demand side.

Firstly, we will do above mentioned calculations with data by total input – output tables in order to estimate impact for economy totally.

Secondly, we will do above mentioned calculations with data by imports input – output tables in order to estimate impact of imports in economy.

3.1.2 Production multiplier through the supply model.

The supply multiplier (initial inputs) by the method of incomplete hypothetical posting for a sector i is defined as the total output value to be lost to all sectors of the economy using outflows of sector i , directly and indirectly, if that sector decides no longer supply intermediate outputs to other industries. This multiplier is called the "absolute horizontal connection indicator". The calculation of this ratio results from the difference between the actual product that will be produced with the output of sector i to all sectors of the economy as an output supplier, from the total product produced with the assumption of zero supply of output of category i in all its sectors. economy. With sector i active as an output supplier in the output of the other sectors of the economy we have an output matrix \mathbf{B} , and an 'inverse output matrix" $(\mathbf{I}-\mathbf{B})^{-1}$. The product of this with the vector of value added \mathbf{V} gives us the total product of the economy $\mathbf{X} = \mathbf{V} (\mathbf{I}-\mathbf{B})^{-1}$.

Then suppose that sector i no longer supplies intermediate outputs to any sector of the economy. This will result in the zeroing of the elements of the corresponding sequence of category i , resulting in a new output matrix $\mathbf{B} \mathbf{i}^0$, and a new "reverse output matrix" $(\mathbf{I}-\mathbf{B} \mathbf{i}^0)^{-1}$, this will create a new reduced total product of the economy $\mathbf{X} \mathbf{i}^0 = \mathbf{V} (\mathbf{I}-\mathbf{B} \mathbf{i}^0)^{-1}$

The absolute horizontal interconnection index is $AFL_i^{DL} = \sum_{j=1}^n (X_j - X_j i^0)$. Then by dividing the absolute index of horizontal interconnection with the total product of the branch i $FL_i^{DL} = AFL_i^{DL} / X_i$ the index of the relative size of the branch is obtained.

For formula $(X_i - X_j i^0)$ will identify top-10 strongest related sectors with energy sectors that we deal with.

Finally, in the effort for clearer findings on the horizontal interconnection indices in order to identify the key branches, the values of the findings are normalized by setting their average equal to the unit. Horizontal interconnection indices measure the dependence of the outputs on the supplier side.

When $FL_i^{DL} > (<) 1$, the subtraction of the intermediate outflows of sector i to the other sectors causes effects on the total output of the economy, which are higher (lower) than the average of the corresponding effects of all sectors. With this indicator you measure the dependence of the outputs on the supply side.

Firstly, we will do above mentioned calculations with data by total input – output tables in order to estimate impact for economy totally.

Secondly, we will do above mentioned calculations with data by imports input – output tables in order to estimate impact of imports in economy.

3.1.3 Wage multiplier.

Then we calculate the direct wage rates for all sectors of the economy $DIRECT W_i = W_i / TOTAL OUTPUT_i$ by performing a common approach with the above through the diagonal matrix of direct wage rates **W DIAGONIAL** We will calculate the dependence of the wage method developed by above that is, the posting of inputs in the production of one sector to other sectors and that of the posting of outputs of one sector to other sectors of the economy. The result produced above for the total product of the economy is converted into data for the total wages of the economy. Respectively, we have wage multipliers through the model of demand and supply.

3.1.4 Wage multiplier through demand model.

The wage demand multiplier (index of absolute vertical correlation) by the method of incomplete hypothetical posting for a sector j is defined as the total value of wages to be lost in all sectors of the economy and is necessary, directly and indirectly, to produce of the product of sector j for final demand, if that sector decides to no longer supply intermediate inputs from the other sectors. This multiplier is called the "absolute vertical wage index". The calculation of this indicator results from the difference between the wages required by sector j to obtain intermediate inputs from

all sectors of the economy, from the wage requirements with the assumption of zero supply of intermediate inputs from all sectors of the economy from sector j . With all sectors of the economy active as suppliers of inputs to the production of sector j we have a Leontief \mathbf{A} matrix, and a «Leontief inverse matrix" $(\mathbf{I}-\mathbf{A})^{-1}$. The product of this with the vector of final demand \mathbf{Y} and the diagonal matrix of direct wage rates \mathbf{W} **DIAGONAL** gives us the total wages of the economy $\mathbf{W}_j = (\mathbf{I}-\mathbf{A})^{-1} \mathbf{Y} \mathbf{W}$ **DIAGONAL**.

Next, let sector j no longer supply intermediate inputs from any sector of the economy. This will reset the data in the corresponding column of branch j , resulting in a new Leontief \mathbf{A}_{j^0} matrix, and a new "Leontief inverse" matrix $(\mathbf{I}-\mathbf{A}_{j^0})^{-1}$, this will create a new reduced total wages of the economy $\mathbf{W}_{j^0} = (\mathbf{I}-\mathbf{A}_{j^0})^{-1} \mathbf{Y} \mathbf{W}$ **DIAGONAL**.

The index of absolute vertical wage interconnection is $\mathbf{ABL}_{j^0} = \sum_{i=1}^n (\mathbf{W}_i - \mathbf{W}_{i,j^0})$. Then, by dividing the index of absolute vertical wage correlation with the total wages of the sector j $\mathbf{BL}_{j^0} = \mathbf{ABL}_{j^0} / \mathbf{W}_j$, the index of the relative size of the wages of the branch is calculated.

For formula $(\mathbf{X}_i - \mathbf{X}_{i,j^0})$ will identify top-10 strongest related sectors with energy sectors that we deal with.

Finally, in the effort for clearer findings on the vertical interconnection indices in order to identify the key branches, the values of the findings are normalized by setting their average equal to the unit.

When $\mathbf{BL}_{j^0} > (<) 1$, the secondment of the intermediate inputs received by sector j affects the overall wage requirements of the economy, which are higher (lower) than the average of the corresponding effects of all sectors and suggests the dependence of the demand of each sector on wages.

Firstly, we will do above mentioned calculations with data by total input – output tables in order to estimate impact for economy totally.

Secondly, we will do above mentioned calculations with data by imports input – output tables in order to estimate impact of imports in economy.

3.1.5 Wage multiplier through supply model.

The wage supply multiplier (absolute horizontal interconnection ratio) by the method of incomplete hypothetical posting for a sector i is defined as the total value of wages to be lost in all sectors of the economy using outflows of sector i , directly or indirectly, if the This sector decides not to supply intermediate outputs to the other sectors. This multiplier is called the "absolute horizontal wage link index". The calculation of this indicator results from the difference between the wages required by the outflows of sector i to all sectors of the economy as a supplier, from the corresponding wages required by the assumption of zero supply of outflows of sector i in all sectors

of the economy. With sector i active as an output supplier in the output of the other sectors of the economy we have an output matrix \mathbf{B} , and an "inverse output matrix" $(\mathbf{I}-\mathbf{B})^{-1}$.

The product of this with the vector of value added \mathbf{V} and the diagonal matrix of direct wage rates \mathbf{W} **DIAGONAL** gives us the total required wages of the economy $\mathbf{W}_i = \mathbf{V} \mathbf{W} \mathbf{DIAGONAL} (\mathbf{I}-\mathbf{B})^{-1}$.

Then suppose that sector i no longer supplies intermediate outputs to any sector of the economy. This will result in the zeroing of the elements of the corresponding series of branch i , resulting in a new output matrix \mathbf{B}_i^0 , and a new "reverse output matrix" $(\mathbf{I}-\mathbf{B}_i^0)^{-1}$, this will create new reduced total wage requirements of the economy $\mathbf{W}_i^0 = \mathbf{V} \mathbf{W} \mathbf{DIAGONAL} (\mathbf{I}-\mathbf{B}_i^0)^{-1}$.

The absolute horizontal wage interconnection index $\mathbf{AFL}_i^{\text{pr}} = \sum_{j=1}^n (\mathbf{W}_j - \mathbf{W}_j \mathbf{i}^0)$ in this part of the analysis performs the description of the production interconnection and its dependence on wages per unit of product produced.

For formula $(\mathbf{X}_i - \mathbf{X}_i \mathbf{j}^0)$ will identify top-10 strongest related sectors with energy sectors that we deal with.

Then by dividing the absolute index of horizontal wage interconnection with the required wages of the sector $\mathbf{FL}_i^{\text{pr}} = \mathbf{AFL}_i^{\text{pr}} / \mathbf{W}_i$ the index of the relative size of the wages of the branch is calculated.

Finally, in the effort for clearer findings, the values of the findings are normalized by setting their average equal to the unit.

When $\mathbf{FL}_i^{\text{pr}} > (<) 1$, the posting of output of sector j to all sectors of the economy causes effects on the total wage requirements of the economy, which are higher (lower) than the average of the corresponding effects of all sectors and indicates to us the dependence of the supply of each branch on the wages.

Firstly, we will do above mentioned calculations with data by total input – output tables in order to estimate impact for economy totally.

Secondly, we will do above mentioned calculations with data by imports input – output tables in order to estimate impact of imports in economy.

3.1.6 Employment multiplier.

Then we calculate the direct employment rates for all sectors of the economy $\mathbf{DIRECT L}_i = \mathbf{L}_i / \mathbf{TOTAL OUTPUT}_i$ making a common approach with the above. Through the diagonal matrix of direct employment rates \mathbf{L} **DIAGONAL** we will calculate the dependence of employment on the method developed above, ie that of posting inputs in the production of each sector and that of posting outputs of one sector to other sectors of the

economy. The calculation made above for the total product of the economy is converted into a calculation for the total required employment of the economy.

Respectively, we have the employment multipliers through the model of demand and supply.

3.1.6.1 Multiplier employment through demand.

The multiplier of employment demand (index of absolute vertical correlation) with the method of incomplete hypothetical posting for a sector j is defined as the total employment that will be lost in all sectors of the economy and is necessary directly and indirectly, to produce the product of branch j for final demand, if this branch decides not to supply intermediate inputs from the other branches. This multiplier is called the "absolute employment link index". The calculation of this indicator results from the difference in employment required with sector j to obtain intermediate inputs from all sectors of the economy from the required employment with the assumption of zero market intermediate inputs from all sectors of the economy from sector j . With all sectors of the economy active as suppliers of inputs to the production of sector j , we have a Leontief \mathbf{A} matrix and a "reverse Leontief matrix" $(\mathbf{I}-\mathbf{A})^{-1}$.

The product of this matrix with the vector of final demand \mathbf{Y} and the diagonal matrix of direct employment rates \mathbf{E} **DIAGONIAL** gives us the total employment of the economy $\mathbf{L}_j = (\mathbf{I}-\mathbf{A})^{-1} \mathbf{Y} \mathbf{L}$ **DIAGONIAL**

Next, let sector j no longer supply intermediate inputs from any sector of the economy. This will reset the data in the corresponding column of branch j , resulting in a new Leontief \mathbf{A}_{j^0} matrix, and a new "Leontief inverse" matrix $(\mathbf{I}-\mathbf{A}_{j^0})^{-1}$, this will create a new reduced total employment of the economy $\mathbf{E}_{j^0} = (\mathbf{I}-\mathbf{A}_{j^0})^{-1} \mathbf{Y} \mathbf{L}$ **DIAGONIAL**.

The index of absolute vertical employment interface is $\mathbf{ABL}_{j^{pr}} = \sum_{i=1}^n (\mathbf{L}_i - \mathbf{L}_{ij^0})$. Then by dividing the vertical employment interface index by the total employment of the sector $\mathbf{BL}_{j^{pr}} = \mathbf{ABL}_{j^{pr}} / \mathbf{L}_j$ the index is calculated of the relative size of employment in the sector.

For formula $(\mathbf{X}_i - \mathbf{X}_{ij^0})$ will identify top-10 strongest related sectors with energy sectors that we deal with.

Finally, in the effort for clearer findings on the vertical interconnection indices in order to identify the key branches, the values of the findings are normalized by setting their average equal to the unit.

When $\mathbf{BL}_{j^{pr}} > (<) 1$, the posting of intermediate inputs received by sector j affects the overall requirements of the economy for employment, which are higher (lower) than the average of the corresponding effects of all sectors and suggests the dependence of the demand of each sector on employment.

Firstly, we will do above mentioned calculations with data by total input – output tables in order to estimate impact for economy totally.

Secondly, we will do above mentioned calculations with data by imports input – output tables in order to estimate impact of imports in economy.

3.1.6.2 *Employment multiplier through supply.*

The employment supply multiplier (absolute horizontal interconnection ratio) using the incomplete posting method for a sector i is defined as the total number of jobs to be lost in all sectors of the economy using outflows in sector i , directly or indirectly, if the This sector decides not to supply intermediate outputs to the other sectors. This multiplier is called the "absolute horizontal employment link index". The calculation of this index is derived from the difference in employment required by the output of sector i to all sectors of the economy, as an output provider, of the corresponding employment required by the hypothesis. of zero supply of output of sector i in all sectors of the economy. With sector i active as an output supplier in the output of the other sectors of the economy we have an output matrix \mathbf{B} , and an "inverse output matrix" $(\mathbf{I}-\mathbf{B})^{-1}$.

The product of this with the vector of value added \mathbf{V} and the diagonal matrix of direct employment factors \mathbf{L} **DIAGONIAL** gives us the total required employment of the economy $\mathbf{E}_i = \mathbf{V} \mathbf{L} \mathbf{DIAGONIAL} (\mathbf{I}-\mathbf{B})^{-1}$. Then suppose that sector i no longer supplies intermediate outputs to any sector of the economy. This will result in the zeroing of the elements of the corresponding series of branch i , resulting in a new output matrix $\mathbf{B} \mathbf{i}^0$ and a new "reverse output matrix" $(\mathbf{I}-\mathbf{B} \mathbf{i}^0)^{-1}$, this will create new reduced total employment requirements of the economy $\mathbf{E}_i^0 = \mathbf{V} \mathbf{L} \mathbf{DIAGONIAL} (\mathbf{I}-\mathbf{B} \mathbf{i}^0)^{-1}$.

The index of absolute horizontal employment interface $\mathbf{AFL}_i^{DL} = (\sum_{j=1}^n \mathbf{L}_j - \mathbf{L}_j \mathbf{i}^0)$ in this part of the analysis performs the investigation of the production structure and its dependence on employment per unit of product produced.

For formula $(\mathbf{X}_i - \mathbf{X}_i \mathbf{j}^0)$ will identify top-10 strongest related sectors with energy sectors that we deal with.

Then by dividing the absolute index of horizontal employment interconnection with the required employment of the sector $\mathbf{FL}_i^{DL} = \mathbf{AFL}_i^{DL} / \mathbf{E}_i$, the index of the relative size of the employment of the sector is calculated.

Finally, in the effort for clearer findings, the values of the findings are normalized by setting their average equal to the unit.

When $\mathbf{FL}_i^{DL} > (<) 1$, the posting of output of sector j to all sectors of the economy causes effects on the total employment requirements of the economy, which are higher (lower) than the average of the corresponding effects of all sectors and indicates to us the dependence of the supply of each sector on employment.

Firstly, we will do above mentioned calculations with data by total input – output tables in order to estimate impact for economy totally.

Secondly, we will do above mentioned calculations with data by imports input – output tables in order to estimate impact of imports in economy.

3.3 Study data

For the calculations required in the present work, the total input-output tables were used. In order to identify impact of energy sectors in Hellenic economy totally thought product, wages and employment. Moreover, we use data by imports input-output tables in order to estimate part of dependence by imports for mainly thesis findings.

Tables which used refer to the year 2014. The data were extracted from the global Input-Output Database (WIOD) compiled by the International Input-Output Organization (IIOA) and in particular data were extracted from the national tables <http://www.wiod.org/home> with output-output (national IO tables) denominated in US \$. The Global Input-Output Database (WIOD) provides time series of global input-output tables for forty countries covering the period from 1995 to 2014. These tables have been constructed with a specific conceptual framework based on officially published input-output tables in conjunction with national accounts and international trade statistics. In addition, the Global Input-Output Database (WIOD) provides data on labor and capital inputs and industry-level pollution indicators that can be used in combination, broadening the scope of potential applications.

The data used for the research categorize the total economic activity through the input-output tables, in 35 productive sectors according to the revision 3 of the International Standard Industrial Classification (ISIC Rev. 3) <https://unstats.un.org/unsd/statcom/doc02/isic.pdf>, of the United Nations.

For the needs of the present study, data were drawn from the same database, Global Input-Output Database (WIOD), relating to 2014. The only peculiarity that was presented was that the data of 2014 are presented in tables of dimensions (56x56) according to the 4th revision of the International Standard Industrial Classification (ISIC Rev.4) International Standard Industrial Classification of All Economic Activities, revision 4, the United Nations organization. Thus, the dimension table (56x56) was converted according to the standard (ISIC Rev.4) into a dimension table (35x35) according to the standard (ISIC Rev.3) whose categorization we follow for the needs of the dissertation.

The branches-sectors of economic activity are usually grouped into three larger subgroups of primary production, secondary production or manufacturing-industry and tertiary production related to the provision of services. In the present study, for the purposes of calculations, presentation, examination and drawing conclusions, the branches were selected to be grouped into five (5) subgroups of branches (Lurweg, Maren, Westermeier, Andreas Working (2012), as follows:

A group of branches that includes inhomogeneous branches that cannot be included in any of the other groups of branches that have homogeneous characteristics.

This is a group of industries that includes:

- **AGRICULTURE - FISHERIES**
- **QUARRIES - MINES**
- **RECOVERED PROCESSED RAW MATERIALS**
- **ELECTRICITY, GAS, STEAM & HOT WATER**
- **CONSTRUCTION WORK**

Group of **internationally traded services**, which includes:

- **POST & TELECOMMUNICATIONS SERVICES**
- **FINANCIAL MEDIATION SERVICES**
- **MACHINERY & EQUIPMENT RENTAL & OTHER BUSINESS ACTIVITIES**
- **WHOLESALE & COMMERCIAL REPRESENTATIVE SERVICES**

Group of branches of **secondary production of non-durable goods, consumer goods** that includes the branches:

- **FOOD-DRINKS-TOBACCO**
- **TEXTILE PRODUCTS**
- **LEATHER GOODS - SHOES**
- **PULP, PAPER & PRINTS**
- **COAL, OIL & NUCLEAR ENERGY**
- **CHEMICAL PRODUCTS**
- **TIRES - PLASTICS**

Group of branches of **secondary production of durable goods** , which includes the branches:

- **WOOD - WOODEN PRODUCTS**
- **OTHER NON-METAL MINERALS**
- **BASIC METALS & PROCESSED METAL PRODUCTS**
- **MACHINERY**
- **ELECTRICAL & OPTICAL EQUIPMENT**
- **MOTOR VEHICLES, TRAILERS & SEMI-TRAILERS**

Group of **domestic marketable services** that includes the following sectors:

- **TRADE, MAINTENANCE & REPAIR SERVICES OF MOTOR VEHICLES & MOTORCYCLES**
- **RETAIL SERVICES, EXCLUDING MOTOR VEHICLES AND MOTORCYCLES**
- **HOTEL & RESTAURANT SERVICES**
- **LAND TRANSPORT AND PIPELINE SERVICES**
- **WATER TRANSPORT SERVICES**
- **AIR TRANSPORT SERVICES**
- **AUXILIARY & AUXILIARY TRANSPORT SERVICES**
- **REAL ESTATE SERVICES**
- **PUBLIC ADMINISTRATION & DEFENSE SERVICES & COMPULSORY SOCIAL SECURITY SERVICES**
- **EDUCATIONAL SERVICES**

- **HEALTH & SOCIAL SERVICES**
- **Other services**
- **HOUSEHOLDS EMPLOYING HOUSEHOLD STAFF**

In addition, employment data such as the number of employees per sector and the total remuneration of employees per sector were used for the implementation of the study.

3.4 Presentation of the study calculations

Based on the methodological framework of the input-output analysis presented in Chapter 2, tables *A, B, (I-A), (I-B), (I-A)⁻¹, (I-B)⁻¹* are produced. *L DIAGONIAL, W DIAGONIAL* were created.

Having completed the above steps performed the calculation of basic study data using the method of incomplete hypothetical posting industry Dietzenbacher, E. and J. A. van der Linden (1997), also presented above. Through the method, we essentially measure the respective industry interconnection indices and the impact (impact effect-volume) that is presented in total on production, employment and wages, in the following two cases for energy sectors:

- If the demand of one sector for intermediate inflows of products & services of the other sectors is zero, measuring this effect in absolute terms but also the relative interconnection with corresponding indicators
- If the supply of one sector for intermediate outflows of products & services to the other sectors is zero, measuring this effect in absolute terms but also the relative interconnection with corresponding indicators. The above process is repeated for employment and wages respectively.

With the same approach we did calculation with imports input – output table in order to find out import impact to the main thesis quarries.

3.5 Presentation of study findings

For each energy sector, that we deal with, we follow the below presentation:

First of all, we present some key numeric for energy sectors which are pure data (without process or calculation) by Input Output tables.

After, we will present the absolute vertical-horizontal interconnection ratio (which mentioned in chapter 3) in this part of the analysis shows the output interface. (DL, Dietzenbacher- Linden) by total input – output table data, for product, wages and employment.

Also, we calculate and present the absolute vertical-horizontal impact volumes for product, wages and employment, by total and imports Input Output tables. Finally for formula $(X_i - X_{ij}^0)$ (which mentioned in chapter 3) will identify top-10 strongest related sectors with

energy sector that we deal with and calculate its dependence by imports. For upper mentioned presentation tree maps and histograms were used.

Above mentioned process will repeat as a presentation for product, wage and employment by demand and supply side, for the two examined energy sectors, coke-refined petroleum and electricity-gas.

4. Main findings of study

4.1 Basic Numeric

By total and imports input-output tables data for Greece in 2014 we could notice some main numeric about coke-refined petroleum and electricity-gas sectors, especially:

- coke-refined petroleum offers almost 23 billion \$ as total sectoral output to whole Hellenic economy.
- in order to produce this output coke- refined petroleum consumes 19 billion \$ inputs by other sectors and itself.
- 12 billion \$ inputs by other sectors and itself are imported, almost 65 %.
- coke-refined petroleum offers 4.4 billion \$ as final product to other sectors for their productive process.

- 3 thousand persons are engaged with sector and 288 million \$ are their labor compensation.
- electricity-gas offers almost 9.4 billion \$ as total sectoral output to whole Hellenic economy.
- in order to produce this output electricity-gas consumes 4.8 billion \$ inputs by other sectors and itself.
- 1 billion \$ inputs by other sectors and itself are imported, almost 20 %.
- electricity-gas offers 5.4 billion \$ as final product to other sectors for their productive process.
- 27 thousand persons are engaged with sector and 1 billion \$ are their labor compensation.

4.2 Absolute vertical-horizontal interconnection ratio-volume

According to theoretical framework that has been presented in charter 3 and under its calculation process we could present the following finding for examined sectors coke-refined petroleum and electricity-gas.

- Assuming that sector coke-refined petroleum no longer supplies intermediate inputs from any sector of the economy, this will produce above following results:
 1. Total product of whole Hellenic economy will reduce per 34 billion \$, 13 billion \$ of them are related to imports (almost 38%), the relative index $BL_{\text{coke-refined petroleum}^{DL}} > 1 = 1.69$, this means that coke-refined petroleum sector has strong dependence of inputs by the demand side.
 2. Total wages of whole Hellenic economy will reduce per 10.4 billion \$, 4.2 billion \$ of them are related to imports (almost 40%), the relative index $BL_{\text{coke-refined petroleum}^{DL}} > 1 = 6.30$, this means that coke-refined petroleum sector has strong dependence of the demand of each sector on wages.
 3. Total employment of whole Hellenic economy will reduce per 289 thousand employees, 88 thousand employees of them are related to imports (almost 30 %), the relative index $BL_{\text{coke-refined petroleum}^{DL}} > 1 = 17.22$, this means that coke-refined petroleum sector has strong dependence of the demand of each sector on employment.
- Assuming that sector coke-refined petroleum no longer supplies intermediate outputs to any sector of the economy, this will produce above following results:
 1. Total product of whole Hellenic economy will reduce per 7 billion \$, 3.3 billion \$ of them are related to imports (almost 47 %), the relative index $FL_{\text{coke-refined petroleum}^{DL}} < 1 = 0.25$, this means that coke-refined petroleum sector has weak dependence of outputs by the supply side.
 2. Total wages of whole Hellenic economy will reduce per 1.5 billion \$, 720 million \$ of them are related to imports (almost 47 %), the relative index $FL_{\text{coke-refined petroleum}^{DL}} >$

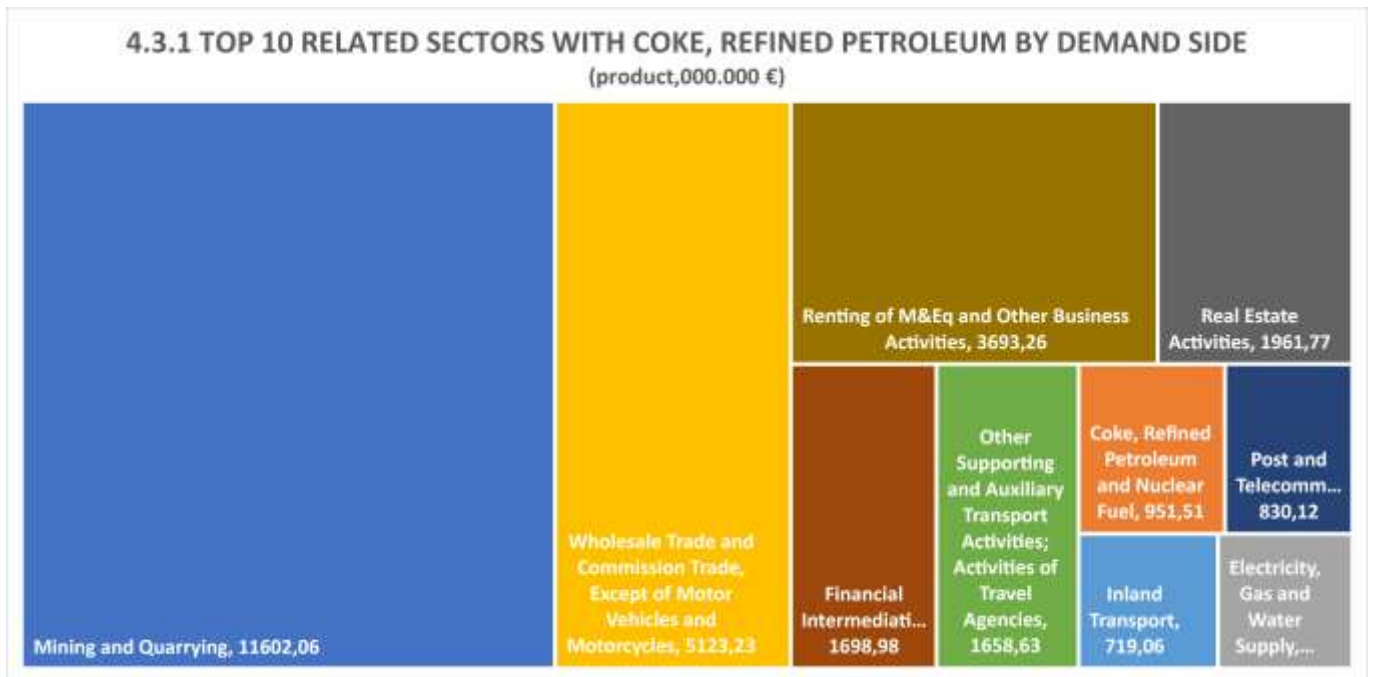
$1 = 1.16$, this means that coke-refined petroleum sector has strong dependence of the supply of each sector on wages.

3. Total employment of whole Hellenic economy will reduce per 76 thousand employees, 38 thousand employees of them are related to imports (almost 50 %), the relative index $FL_{\text{coke-refined petroleum}}^{DL} > 1 = 5.69$, this means that coke-refined petroleum sector has strong dependence of the supply of each sector on employment.
- Assuming that sector electricity-gas no longer supplies intermediate inputs from any sector of the economy, this will produce above following results:
 1. Total product of whole Hellenic economy will reduce per 7 billion \$, 1.2 billion \$ of them are related to imports (almost 17 %), the relative index $BL_{\text{electricity-gas}}^{DL} < 1 = 0.85$, this means that electricity-gas sector has weak dependence of inputs by the demand side.
 2. Total wages of whole Hellenic economy will reduce per 1.7 billion \$, 300 million \$ of them are related to imports (almost 17 %), the relative index $BL_{\text{electricity-gas}}^{DL} < 1 = 0.27$, this means that electricity-gas sector has weak dependence of the demand of each sector on wages.
 3. Total employment of whole Hellenic economy will reduce per 52 thousand employees, 7 thousand employees of them are related to imports (almost 13 %), the relative index $BL_{\text{electricity-gas}}^{DL} < 1 = 0.34$, this means that electricity-gas sector has weak dependence of the demand of each sector on employment.

 - Assuming that sector electricity-gas no longer supplies intermediate outputs to any sector of the economy, this will produce above following results:
 1. Total product of whole Hellenic economy will reduce per 8.4 billion \$, 575 million \$ of them are related to imports (almost 7 %), the relative index $FL_{\text{electricity-gas}}^{DL} < 1 = 0.75$, this means that electricity-gas sector has weak dependence of outputs by the supply side.
 2. Total wages of whole Hellenic economy will reduce per 1.8 billion \$, 107 million \$ of them are related to imports (almost 6 %), the relative index $FL_{\text{electricity-gas}}^{DL} < 1 = 0.35$, this means that electricity-gas sector has weak dependence of the supply of each sector on wages.
 3. Total employment of whole Hellenic economy will reduce per 75 thousand employees, 4 thousand employees of them are related to imports (almost 5 %), the relative index $FL_{\text{electricity-gas}}^{DL} < 1 = 0.61$, this means that electricity-gas sector has weak dependence of the supply of each sector on employment.

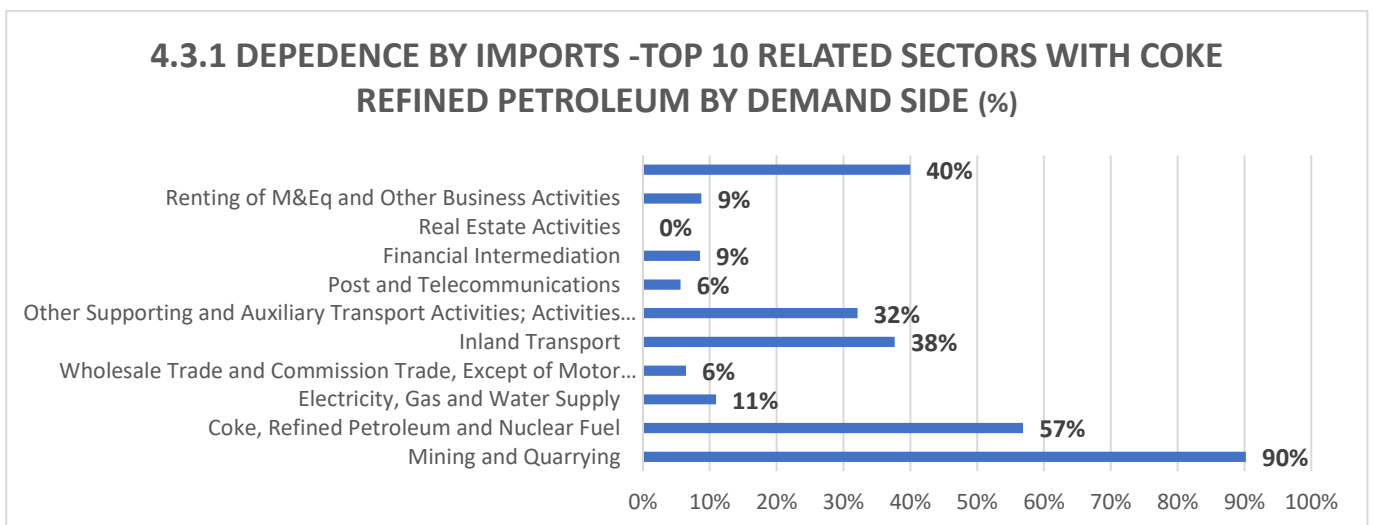
4.3 Coke and petroleum sector

4.3.1 Product, demand side



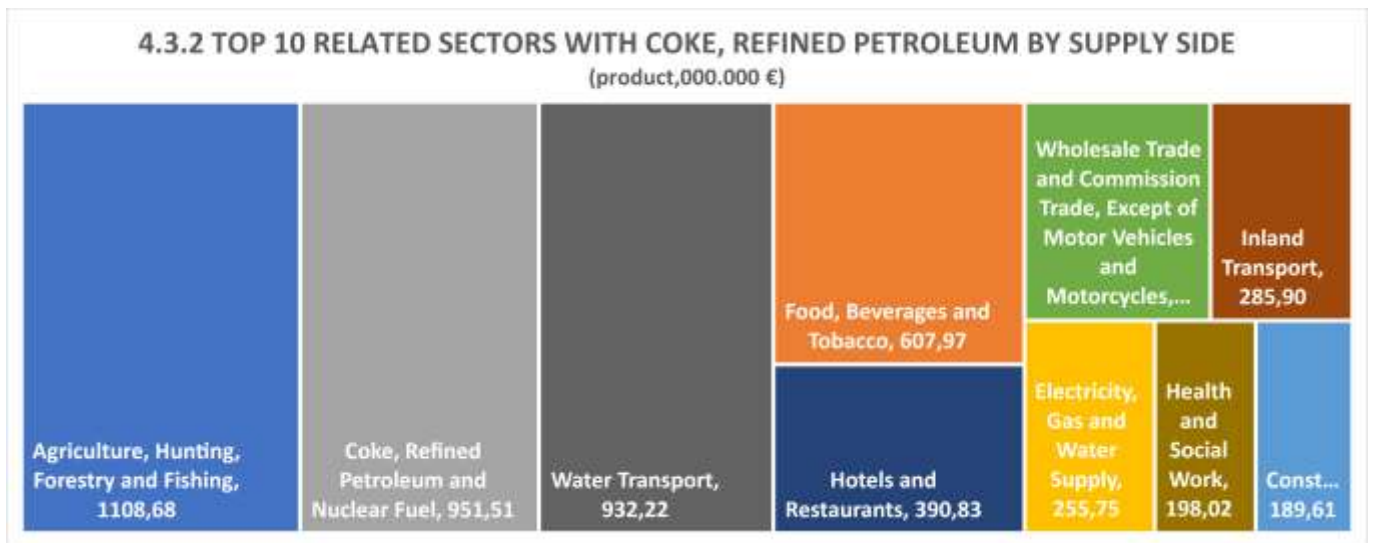
Source: author calculations

By 4.3.1 tree map we spot top 10 sectors that contribute, as a purchaser or examined sector as a buyer, to produce coke and refined petroleum final product, in terms of product creation-footprint for whole economy. Normally we find mining and quarrying, wholesale trade and machineries renting in top -3 positions. Sector of coke and refined petroleum self-consume almost 1 billion \$ for its product in order to produce. Some of these sectors present huge dependence by imports, like machinery renting, inland transport, other supporting and auxiliary transport activities up to 40%, but sector of mining and quarrying dependence by import climb to 90 % which looks normally by crude oil imports and its price in national market,4.3.1 bar-chart.



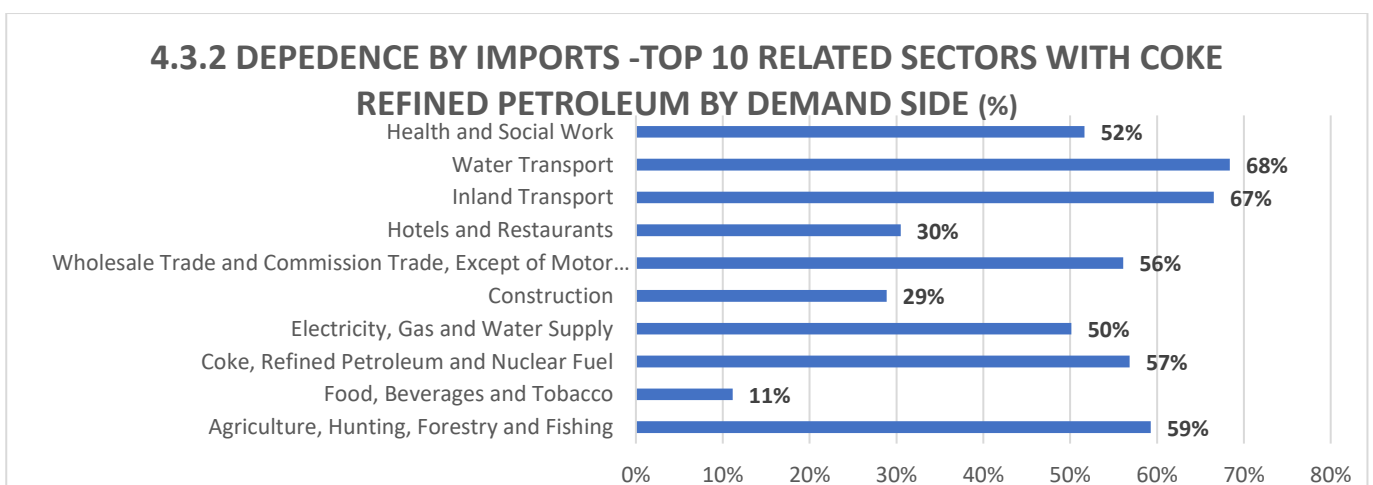
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4.3.2 Product, supply side



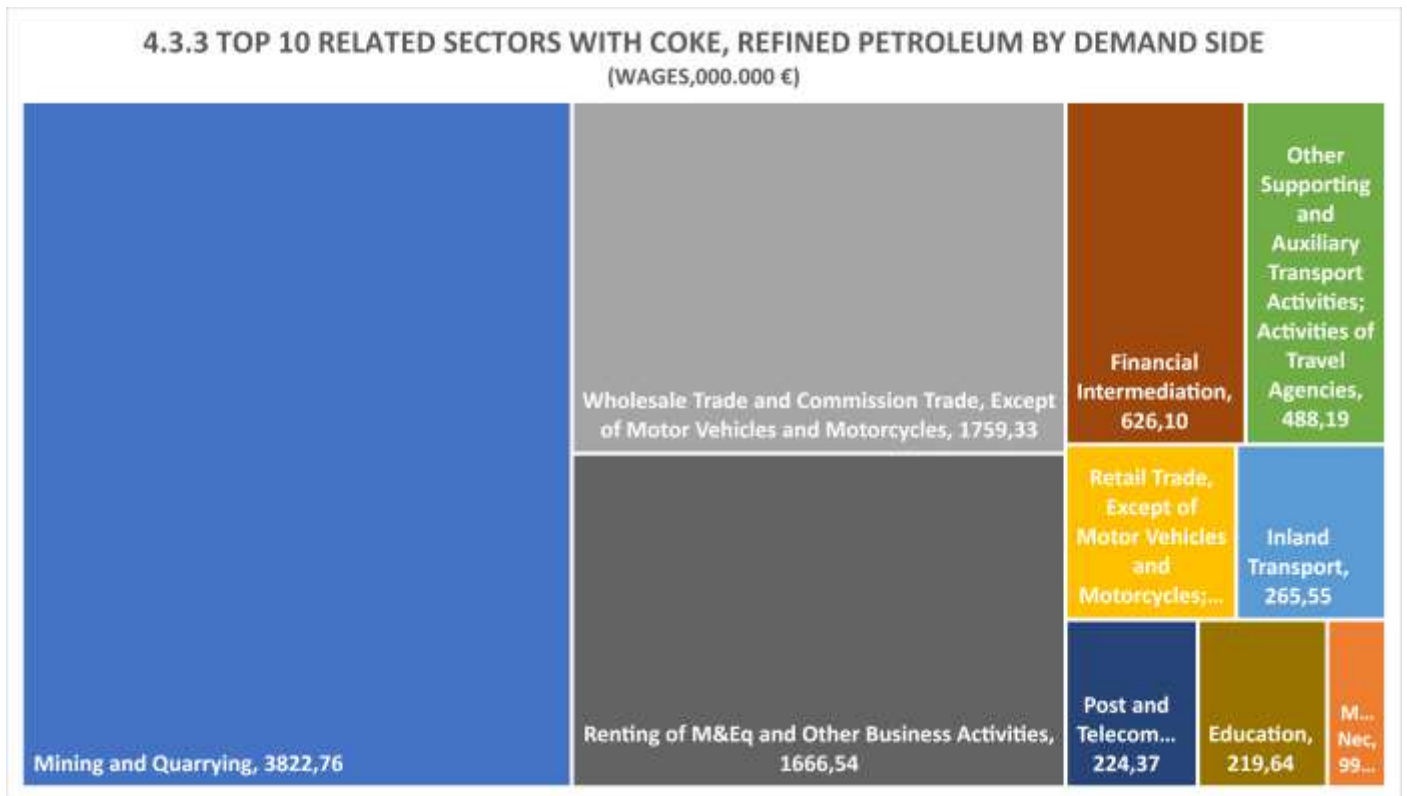
Source: author calculations

By 4.3.2 tree map we we spot top 10 sectors that contribute, as a buyer or examined sector as a purchaser, in coke and refined petroleum final consumption, in terms of product creation-footprint for whole economy. Normally we find agriculture, water and inland transport, hospitality services (hotels and restaurants) wholesale trade, machineries renting and food-beverages and tobacco industrial sector. Sector of coke and refined petroleum self-consume almost 1 billion \$ for its product in order to produce, as we underline in previous (upper) section. Most of these sectors present huge dependence by imports, like water transport, inland transport, health and social work (hospitals), wholesale trade, electricity and gas, and agriculture which move in area between 50%-70%. Sectors like food, beverages and tobacco, construction and hospitality present lower up to 30%,4.3.2 bar-chart.



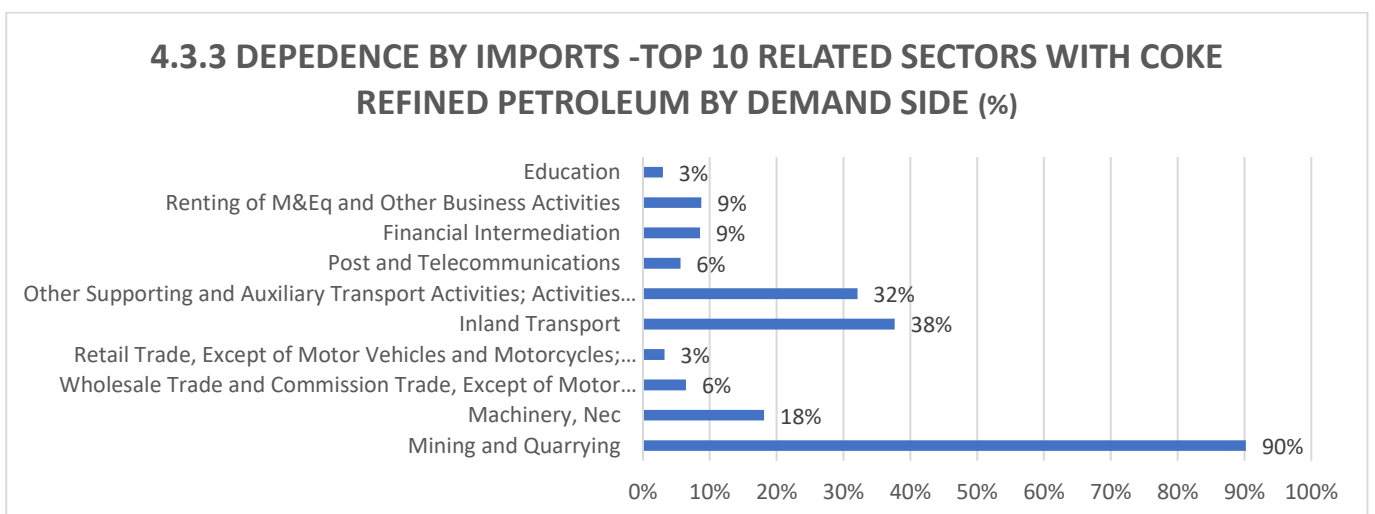
Source: author calculations

4.3.3 Wages, demand side



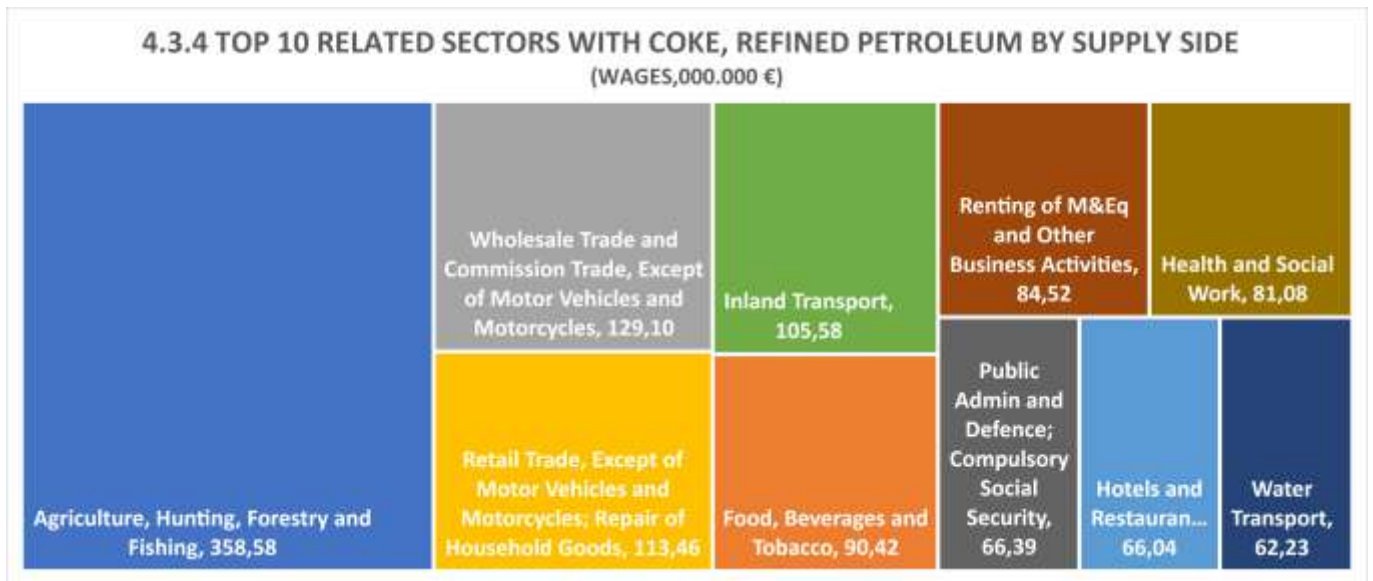
Source: author calculations

By 4.3.3 tree map we spot top 10 sectors that contribute, as a purchaser or examined sector as a buyer, to produce coke and refined petroleum as a final product, especially its footprint in wages creation for whole economy. Normally we find mining and quarrying, wholesale trade and machineries renting in top -3 positions. Most of these sectors present low dependence by imports, but machinery renting, inland transport, other supporting and auxiliary transport activities present dependence in area between 20%-40%. Finally, sector of mining and quarrying dependence by imports climb to 90 %,4.3.3 bar-chart.



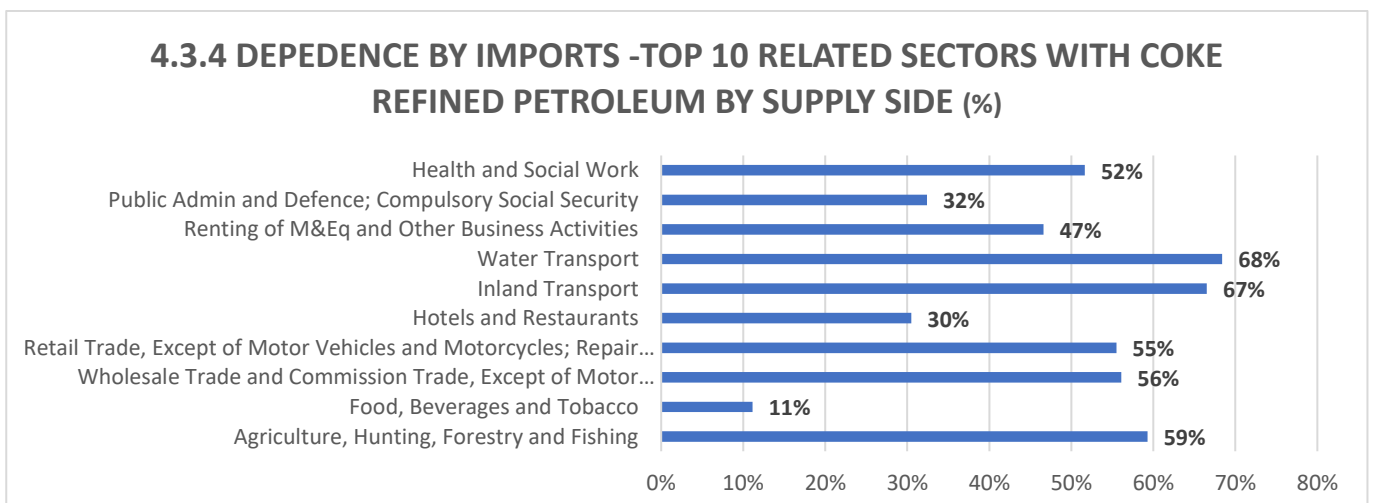
Source: author calculations

4.3.4 Wages, supply side



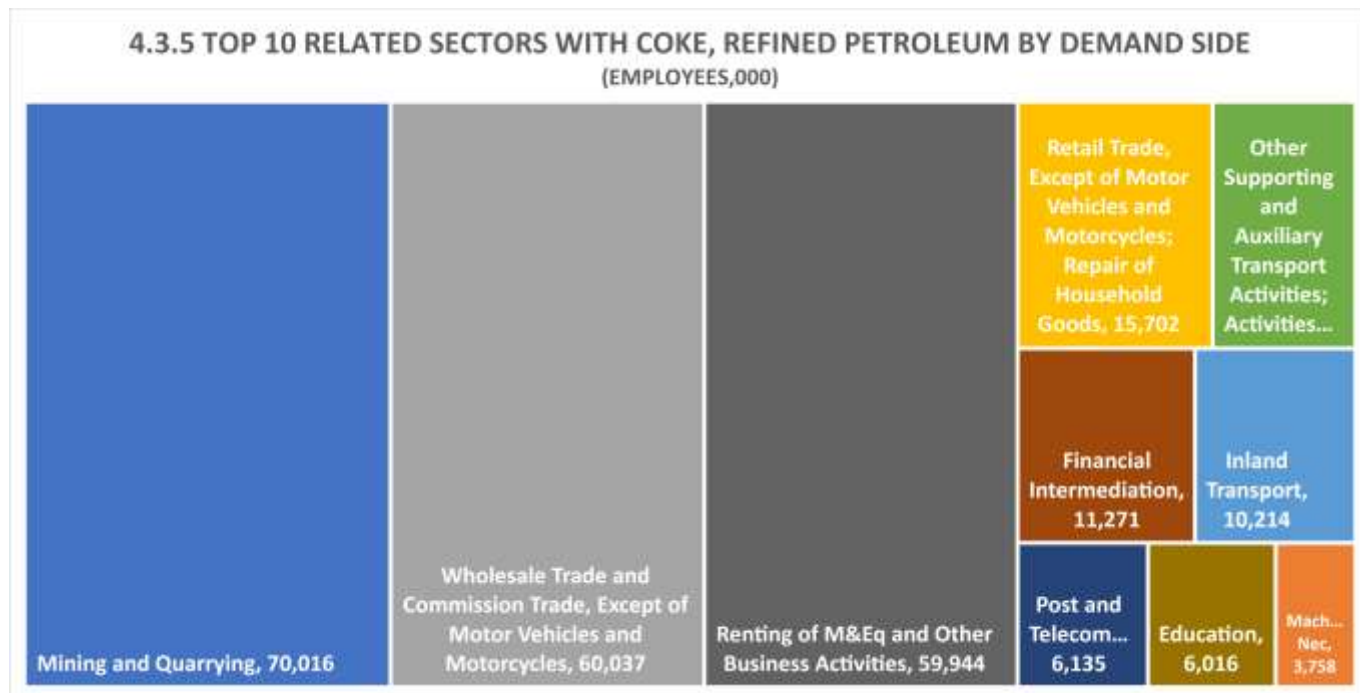
Source: author calculations

By 4.3.4 tree map we spot top 10 sectors that contribute, as a buyer or examined sector as a purchaser, in coke and refined petroleum final consumption, in terms of wages creation-footprint for whole economy. Normally we find agriculture, water and inland transport, hospitality services (hotel and restaurants) wholesale-retail trade, machineries renting, food-beverages and tobacco industrial sector, public administration and health-social work services. Most of these sectors present huge dependence by imports, like water transport, inland transport, health and social work (hospitals), wholesale trade, electricity and gas, and agriculture which move in area between 50%-70%. Sectors like public administration and hospitality present lower dependence by imports up to 30%. Finally, food-beverages and tobacco sector present too low dependence by imports up to 11%, 4.3.4 bar-chart.



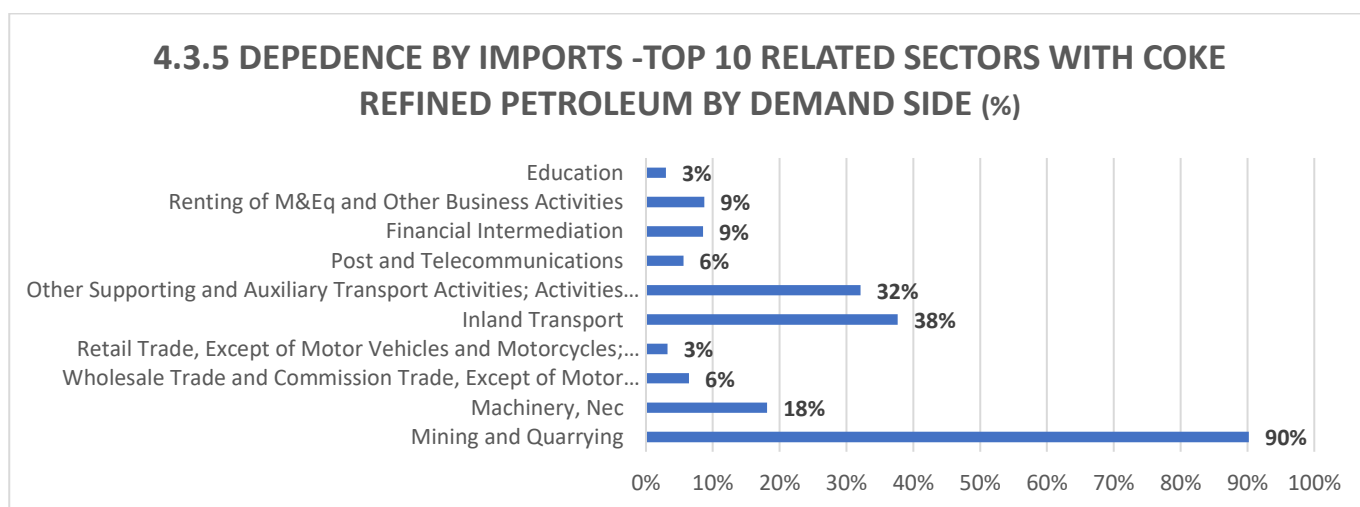
Source: author calculations

4.3.5 Employment, demand side



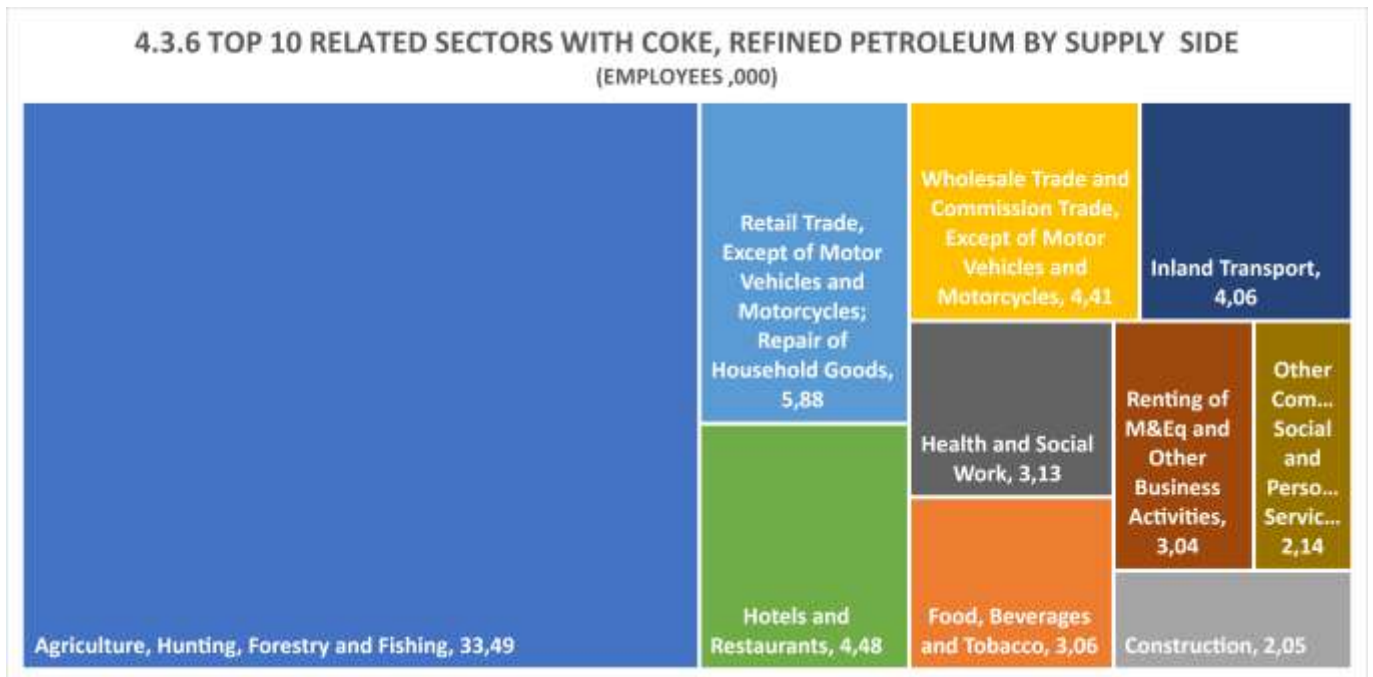
Source: author calculations

By 4.3.5 tree map we spot top 10 sectors that contribute, as a purchaser or examined sector as a buyer, to produce coke and refined petroleum as a final product, especially its footprint in employment creation for whole economy. Normally we find mining and quarrying, wholesale trade and machineries renting in top -3 positions. Most of these sectors present low dependence by imports, but machinery renting, inland transport, other supporting and auxiliary transport activities present dependence in area between 20%-40%. Finally, sector of mining and quarrying dependence by imports climb to 90 %,4.3.5 bar-chart.



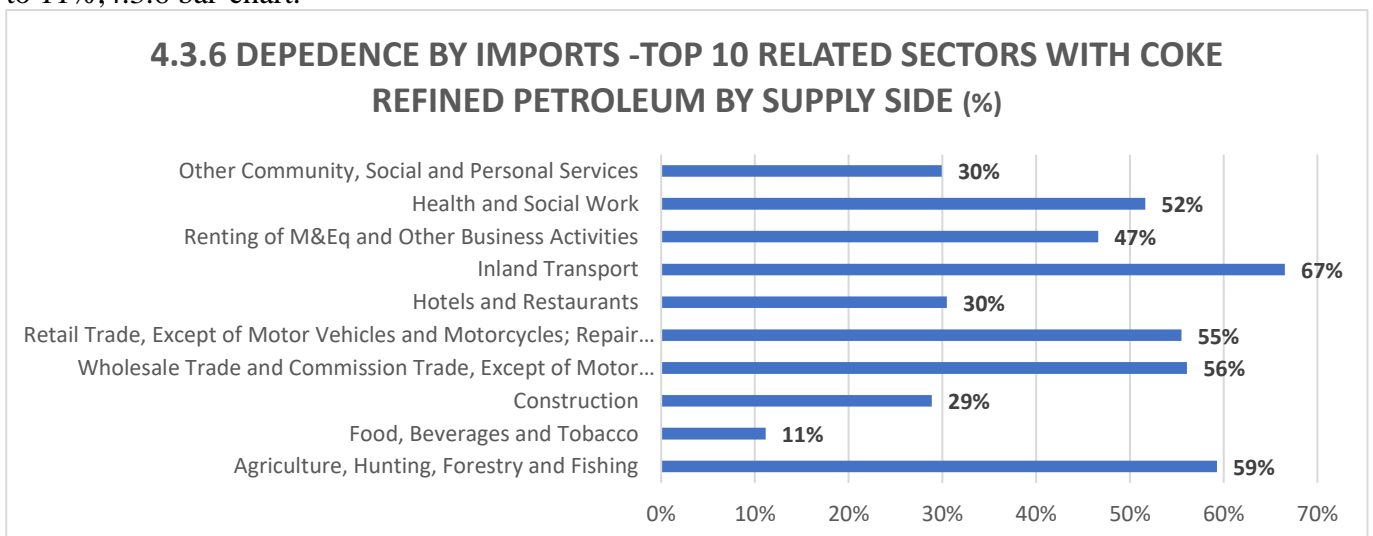
Source: author calculations

4.3.6 Employment, supply side



Source: author calculations

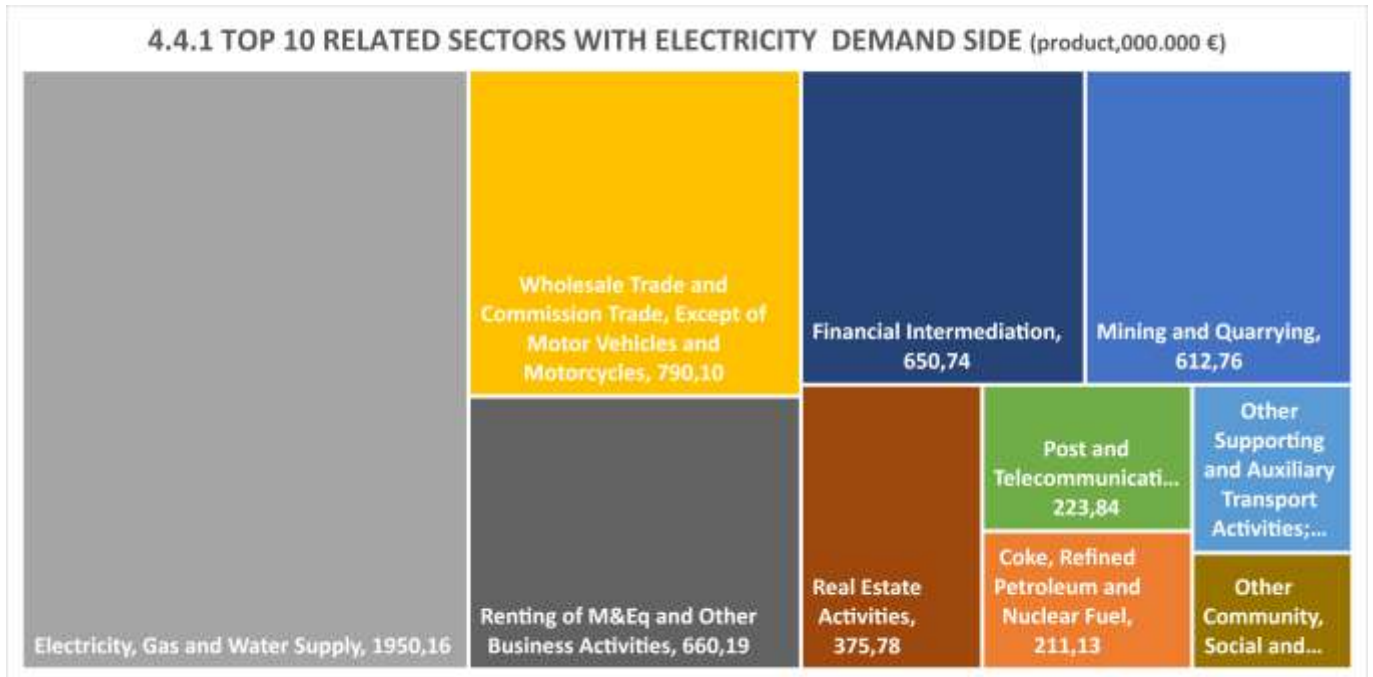
By 4.3.6 tree map we spot top 10 sectors that contribute, as a buyer or examined sector as a purchaser, in coke and refined petroleum final consumption, in terms of employment creation-footprint for whole economy. Normally we find agriculture, water and inland transport, hospitality services (hotel and restaurants) wholesale-retail trade, machineries renting, food-beverages and tobacco industrial sector, public administration and health-social work services. Most of these sectors present huge dependence by imports, like water transport, inland transport, health and social work (hospitals), wholesale trade, electricity and gas, and agriculture which move in area between 50%-70%. Sectors like public administration and hospitality present lower dependence by imports up to 30%. Finally, food-beverages and tobacco sector present too low dependence by imports up to 11%, 4.3.6 bar-chart.



Source: author calculations

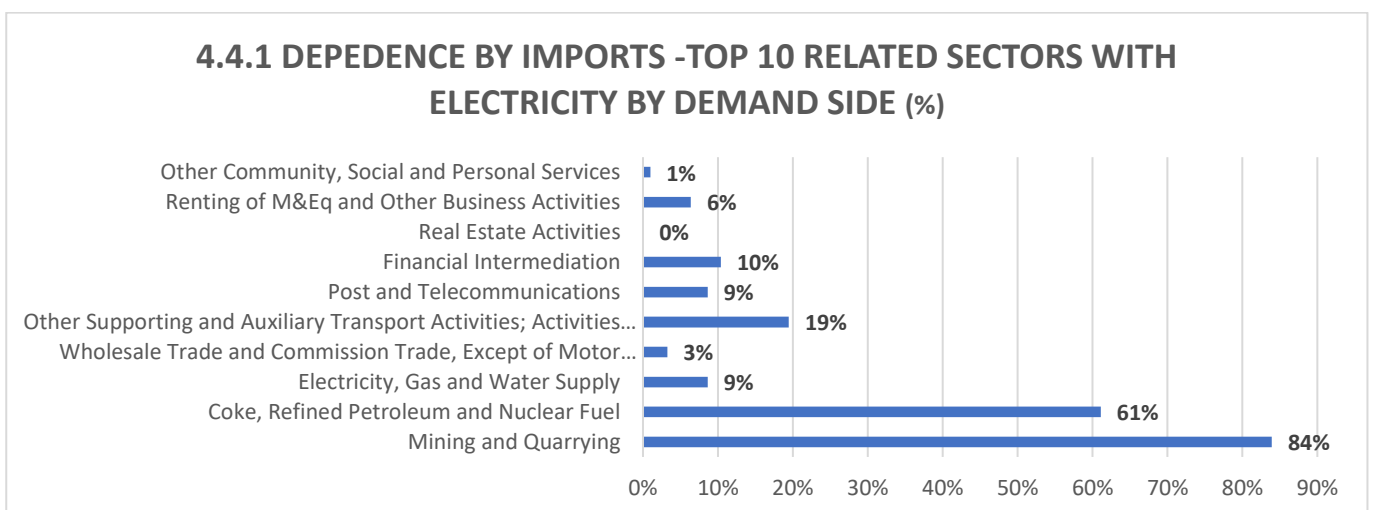
4.4 Electricity and gas sector

4.4.1 Product, demand side



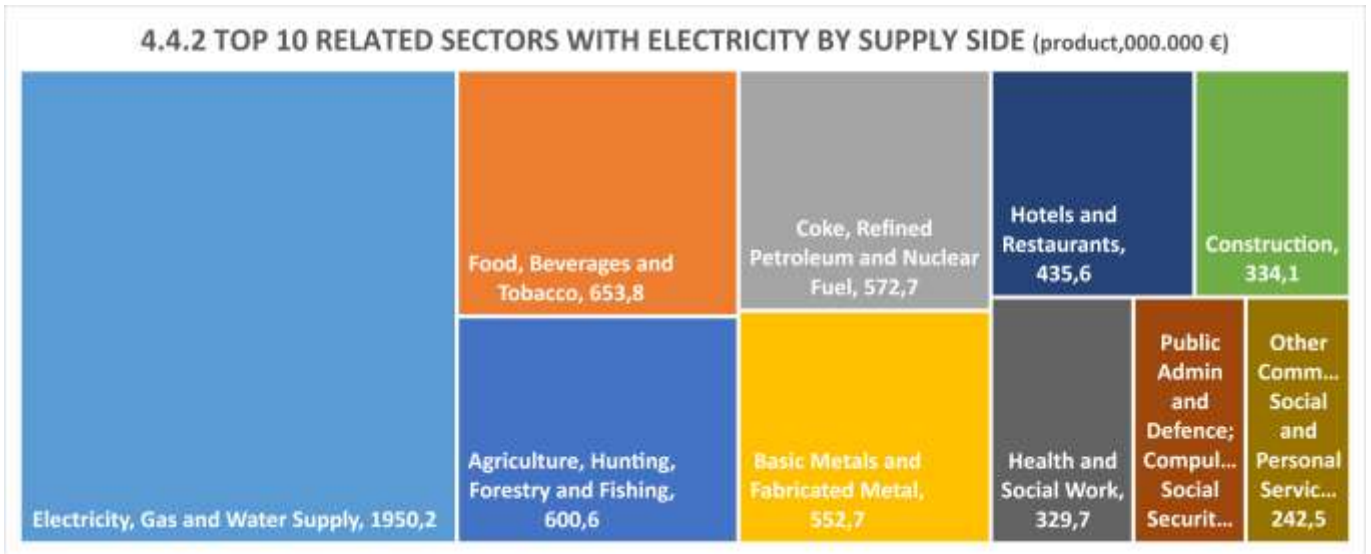
Source: author calculations

By 4.4.1 tree map we spot top 10 sectors that contribute, as a purchaser or examined sector as a buyer, to produce electricity, gas and water supply final product, in terms of product creation-footprint for whole economy. Normally we find mining and quarrying, wholesale trade, machineries renting, financial intermediation and mining and quarrying (due to coke consumption) in top -6 positions. Sector of electricity, gas and water supply self-consume almost 2 billion \$ for its product in order to produce. Most of these sectors present too low dependence by imports, but sector of mining and quarrying dependence by import climbs to 84 % and sector of coke, refined petroleum and nuclear fuel climbs to 61%.,4.4.1 bar-chart.



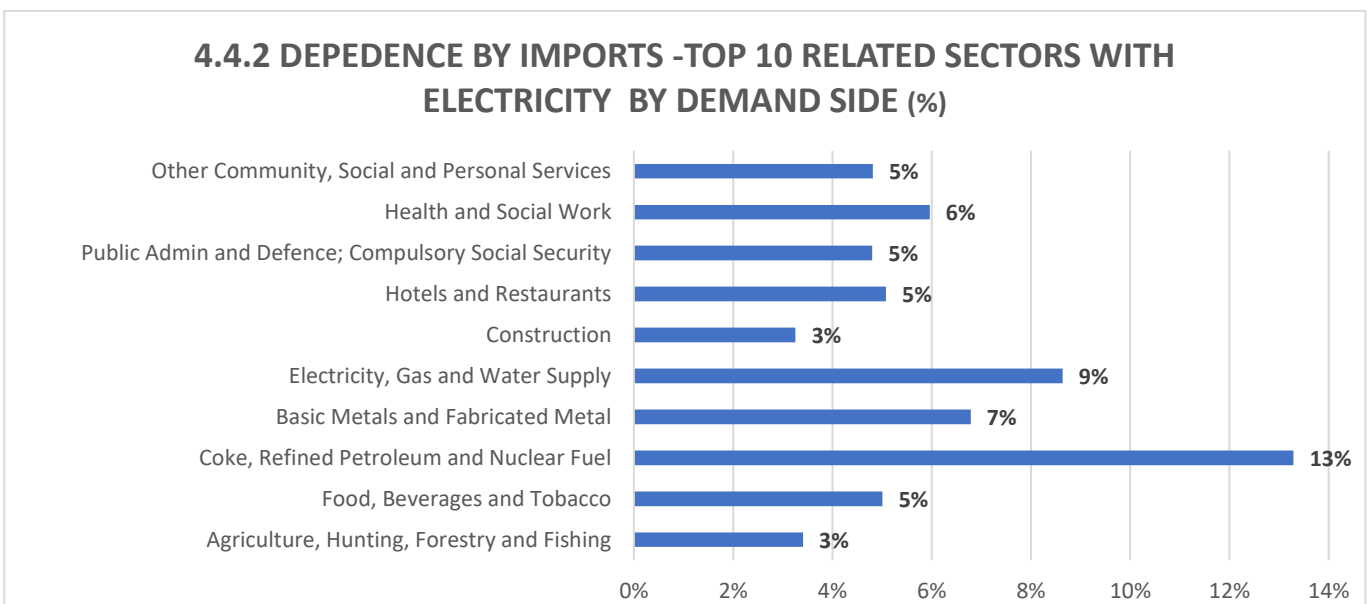
Source: author calculations

4.4.2 Product, supply side



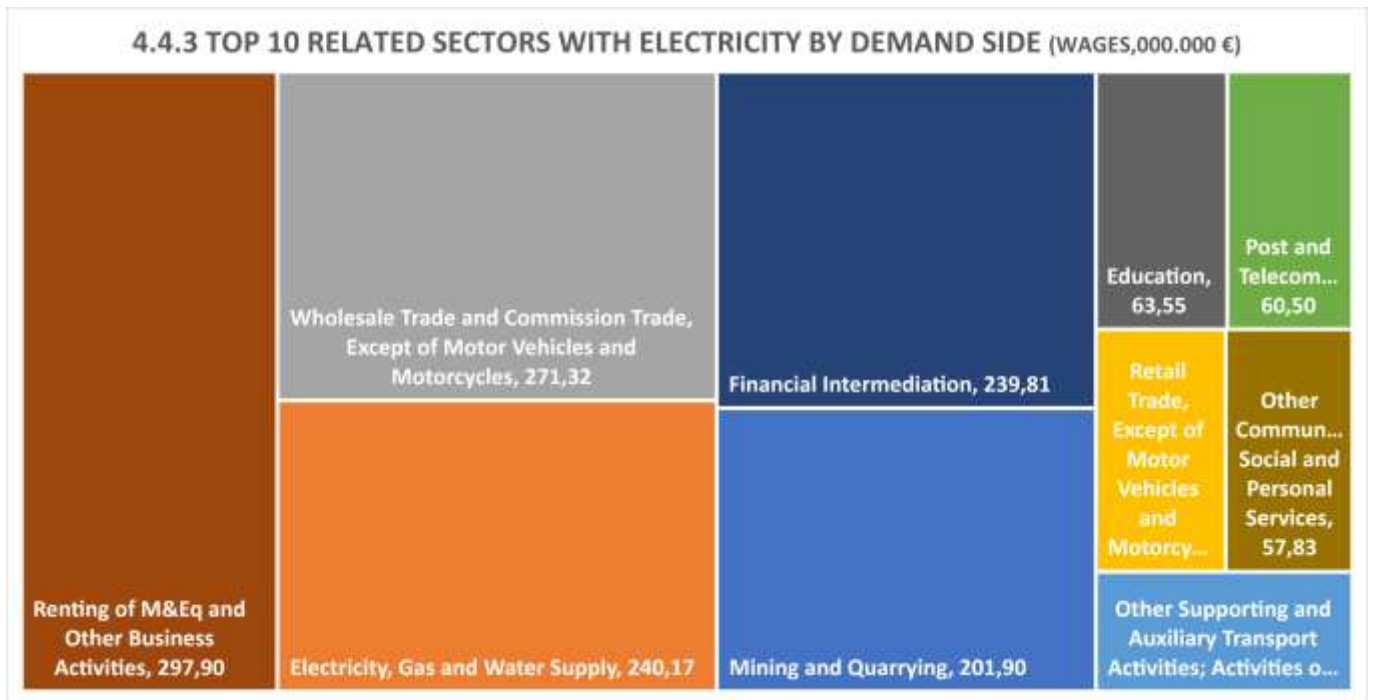
Source: author calculations

By 4.4.2 tree map we spot top 10 sectors that contribute, as a buyer or examined sector as a purchaser, in electricity, gas and water supply final consumption, in terms of product creation-footprint for whole economy. Normally we find agriculture, construction, hospitality services (hotels and restaurants), public administration, health and social work, and industrial sector like food-beverages and tobacco, basic metal and fabricated metals and coke, refined petroleum. Sector of electricity, gas and water supply self-consume or self-purchase almost 2 billion \$ for its product in order to produce, as we underline in previous (upper) section. All of these sectors present low dependence by imports which move in area between 3%-10%. Only sector of coke, refined petroleum presents a little higher dependence by imports of 13%, 4.4.2 bar-chart.



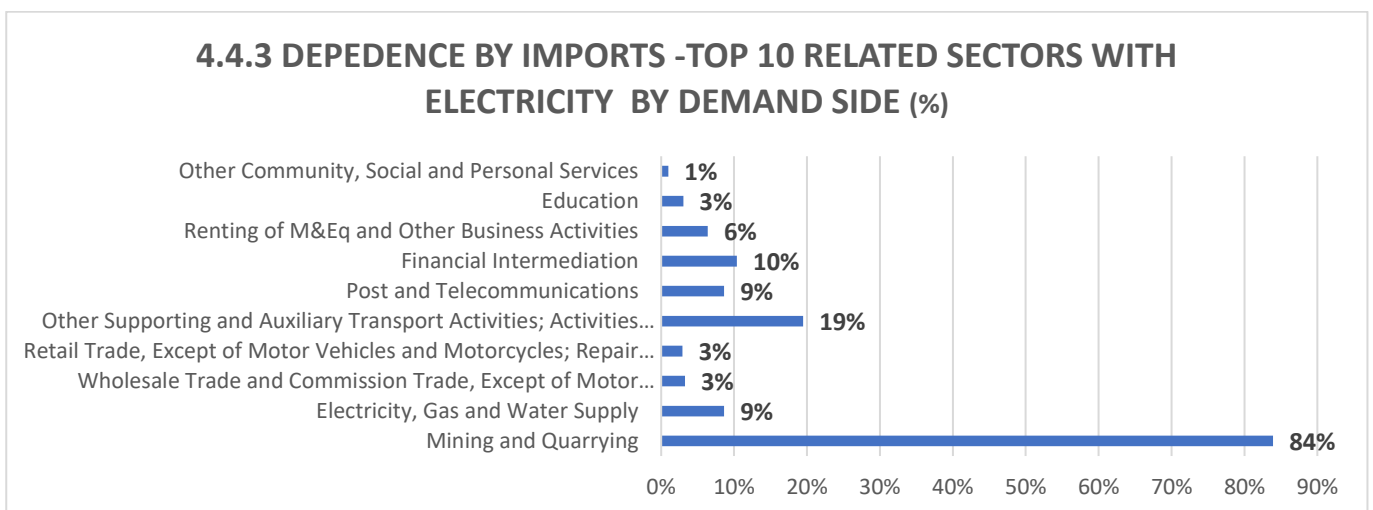
Source: author calculations

4.4.3 Wages, demand side



Source: author calculations

By 4.4.3 tree map we spot top 10 sectors that contribute, as a purchaser or examined sector as a buyer, to produce electricity and gas as a final product, especially its footprint in wages creation for whole economy. Normally we find mining and quarrying, wholesale trade, financial intermediation, machineries renting and other services in top positions. Sector of electricity, gas and water supply self-consume or self-purchase almost 240 million \$ for its product in order to produce, in terms of wages. Most of these sectors present too low dependence by imports up to 10%. Other supporting and auxiliary transport activities presents dependence 19% by imports and sector of mining and quarrying dependence by imports climb extremely high to 84%, 4.4.3 bar chart.



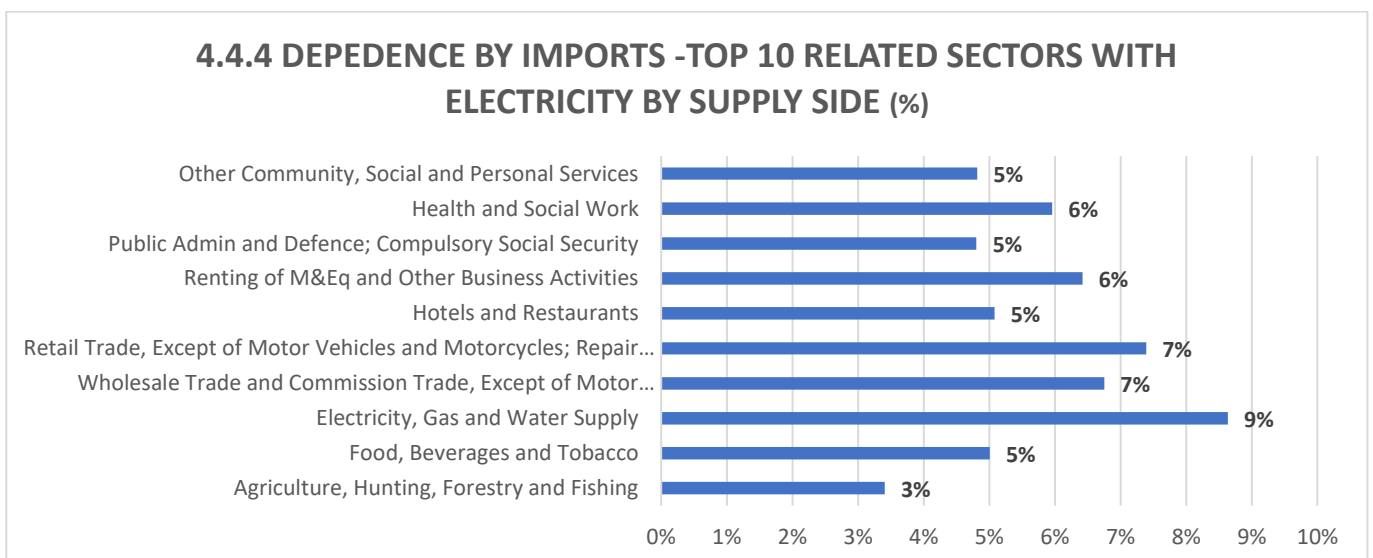
Source: author calculations

4.4.4 Wages, supply side



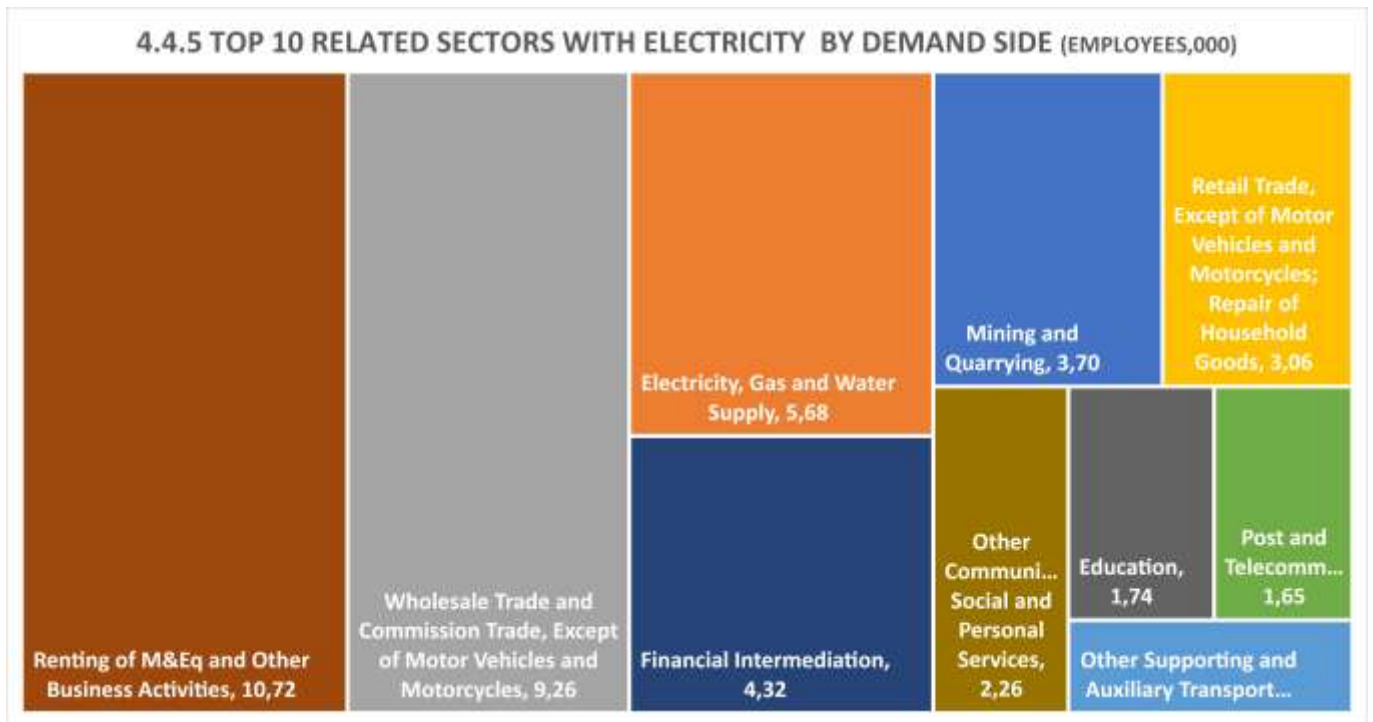
Source: author calculations

By 4.4.4 tree map we spot top 10 sectors that contribute, as a buyer or examined sector as a purchaser, in electricity, gas and water supply final consumption, in terms of wages creation-footprint for whole economy. Normally we find agriculture, retail-wholesale trade, machinery renting, hospitality services (hotel and restaurants), public administration, health and social work, and industrial sector like food-beverages and tobacco. Sector of electricity, gas and water supply self-consume or self-purchase almost 240 million \$ for its product in order to produce in terms of wages, as we underline in previous (upper) section. All of these sectors present low dependence by imports which move in area between 3%-9% ,4.4.4 bar-chart.



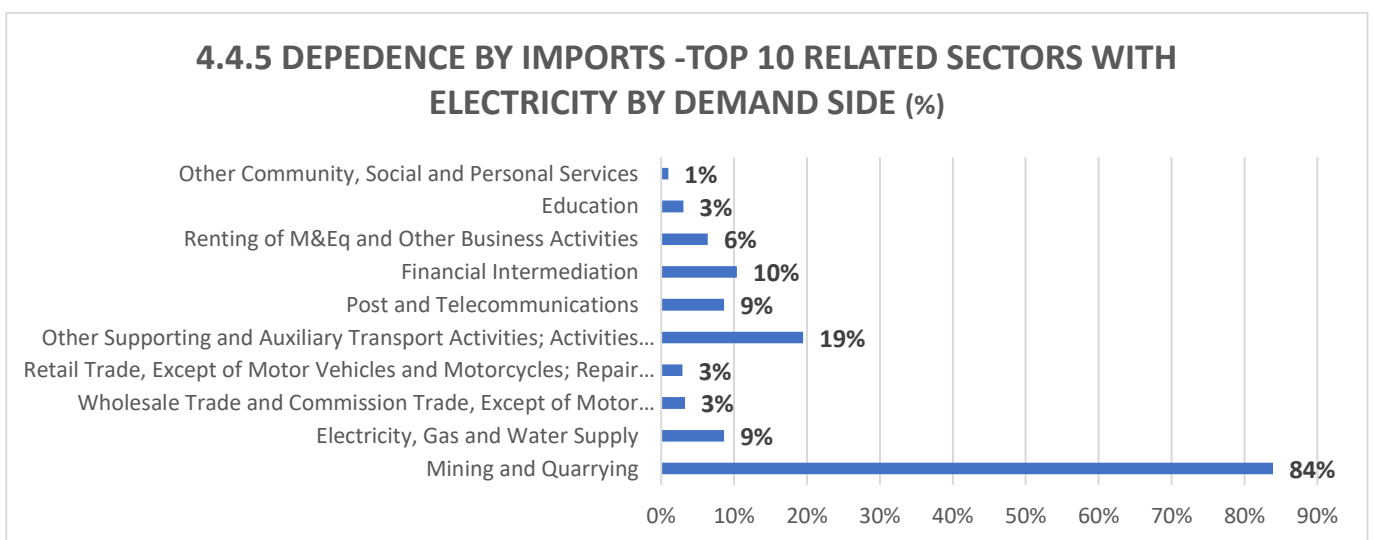
Source: author calculations

4.4.5 Employment, demand side



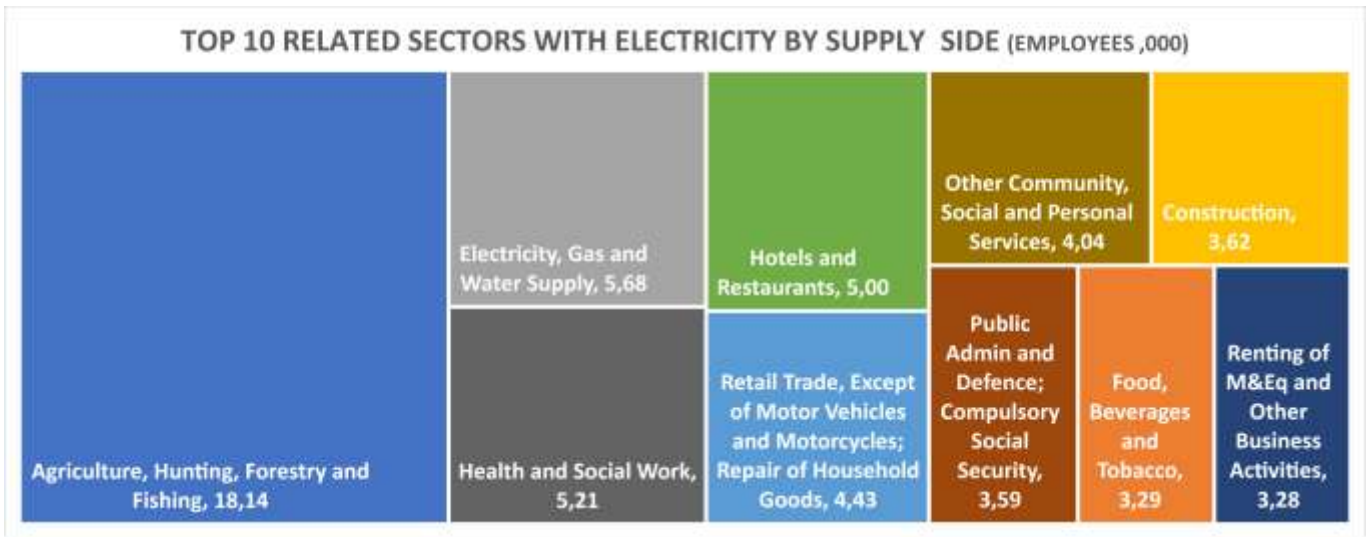
Source: author calculations

By 4.4.5 tree map we spot top 10 sectors that contribute, as a purchaser or examined sector as a buyer, to produce electricity and gas as a final product, especially its footprint in employment creation for whole economy. Normally we find machinery renting, wholesale-retail trade, mining and quarrying, financial intermediation and other services in top positions. Sector of electricity, gas and water supply self-consume or self-purchase almost 5.6 thousand employees for its product in order to produce, in terms of employment. Most of these sectors present too low dependence by imports up to 10%. Other supporting and auxiliary transport activities presents dependence 19% by imports and sector of mining and quarrying dependence by imports climb extremely high to 84 %,4.4.5 bar-chart.



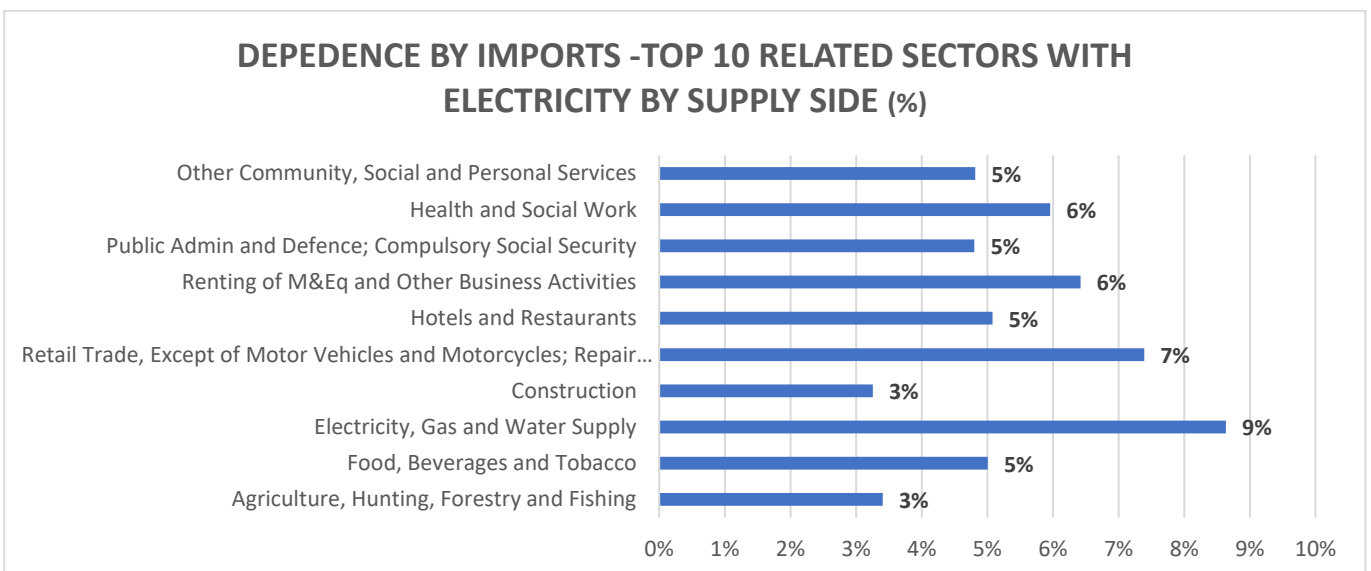
Source: author calculations

4.4.6 Employment, supply side



Source: author calculations

By 4.4.6 tree map we spot top 10 sectors that contribute, as a buyer or examined sector as a purchaser, in electricity, gas and water supply final consumption, in terms of employment creation-footprint for whole economy. Normally we find agriculture, retail trade, machinery renting, hospitality services (hotel and restaurants), public administration, health and social work, and industrial sector like food-beverages and tobacco, construction and other services. Sector of electricity, gas and water supply self-consume or self-purchase almost 5.6 thousand for its product in order to produce in terms of employment, as we underline in previous (upper) section. All of these sectors present too low dependence by imports which move in area between 3%-9% ,4.4.6 bar-chart.



Source: author calculations

Closing Remarks

Coke and refined petroleum sector have strong impact on Hellenic economy, under our IO analysis, because almost all relatives' indexes have volumes up to unit (1). Especially, on national product by demand side (34 billion \$ of national product will lose if coke and refined petroleum sector stops to use inputs by Hellenic economy other sectors). Corresponding, on wages by demand side (10.4 billion \$ of wages will lose if coke and refined petroleum sector stops to use inputs by Hellenic economy others sectors) and by supply side (1.5 billion \$ of wages will lose if coke and refined petroleum sector stops to purchase its outputs to Hellenic economy others sectors), on employment demand side (289 thousands employees will lose them jobs if coke and refined petroleum sector stops to use inputs by Hellenic economy other sectors) and by supply side (88 thousands employees will lose them jobs if coke and refined petroleum sector stops to purchase its outputs to Hellenic economy others sectors). At the same time look to have a strong relation to imports which is between 40%-50%. Upper findings look normally because of dependence of Hellenic economy by crude oil imports.

About product, by demand side coke and refined petroleum seem to have strong relation by mining process which looks normally and other main services like wholesale trade and machinery renting, by supply side coke and refined petroleum seem to have strong relation by agriculture, water and inland transport and food beverages and tobacco industry. Most of these sectors which appear high dependence with coke and refined petroleum sector have high dependence by imports.

About wages and employment, by demand side coke and refined petroleum seem to have strong relation by mining process which looks normally and other main services like wholesale trade and machinery renting, by supply side coke and refined petroleum seem to have strong relation by agriculture, water and inland transport, retail and wholesale trade and food beverages and tobacco industry. Most of these sectors which appear high dependence with coke and refined petroleum sector, by supply side, have high dependence by imports. On the other hand, most of these sectors which appear high dependence with coke and refined petroleum sector, by demand side, have low dependence by imports, expect mining due to crude oil imports.

Electricity and gas sector have weaker impact on Hellenic economy than coke and refined petroleum sector, under our IO analysis, because almost all relatives' indexes have volumes down to unit (1). Especially, on national product by demand side (7 billion \$ of national product will lose if electricity and gas sector stop to use inputs by Hellenic economy other sectors) and by supply side (8.4 billion \$ of national product will lose if electricity and gas sector stops to purchase its outputs to Hellenic economy others sectors). Corresponding, on wages by demand side (1.7 billion \$ of wages will lose if electricity and gas sector stops to use inputs by Hellenic economy other sectors) and by supply side (1.8 billion \$ of wage will lose if electricity and gas sector stops to purchase its outputs to Hellenic economy others sectors), on employment demand side (52 thousands employees will lose them jobs if electricity and gas sector stops to use input by Hellenic economy other sectors) and by supply side (75 thousands employees will lose them jobs if electricity and gas sector stops to purchase its outputs to Hellenic economy others sectors). At the same time look to have a weak relation to imports which is between 5%-17%. Upper findings look normally because of dependence of Hellenic economy by domestic coke which is the main used fuel in electricity generation for examined time period, 2014.

About product, by demand side electricity and gas seem to have strong relation by its self-consumption which looks normally and other main services like wholesale trade and machinery

renting, by supply side electricity and gas seem to have strong relation by its self-consumption, agriculture, basic metals and fabricated metal industry, food beverages and tobacco industry and public administration services. Most of these sectors which appear high dependence with electricity and gas sector have low dependence by imports, except coke and refined petroleum and mining sectors which to have high dependence by imports.

About wages and employment, by demand side electricity and gas seem to have strong relation by mining process which looks normally and other main services like wholesale trade and machinery renting, by supply side electricity and gas seem to have strong relation by agriculture, public administration services, retail and wholesale trade, hotels and restaurants and food beverages and tobacco industry. Most of these sectors which appear high dependence with electricity and gas sector, by supply side, have low dependence by imports, except mining sector. On the other hand, most of these sectors which appear high dependence with electricity and gas sector, by demand side, have low dependence by imports.

Present study is a primary approach of energy sector impact -footprint (quantitative analysis) on Hellenic economy according Input Output theoretical framework. Moreover, I-O analysis could be used in order to calculate others parameters relative to energy sectors like emissions.

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Appendixes

I. Table I-O GREECE TOTAL 2014, A, B, (A-I)⁻¹, (B-I)⁻¹, W DIAGONAL, L DIAGONAL, (A-I)⁻¹W, (B-I)⁻¹W, (A-I)⁻¹L, (B-I)⁻¹L

GREECE I-O TABLE TOTAL 2014 (million US\$)																																					TOTAL OUTPUT		
		AB	C	1519	1719	19	20	2102	23	24	25	26	2708	29	3003	3405	3627	E	F	30	31	32	H	40	61	62	63	64	J	70	7104	L	M	N	O	P	Final consumption	TOTAL OUTPUT	
		e1	e2	e3	e4	e5	e6	e7	e8	e9	e10	e11	e12	e13	e14	e15	e16	e17	e18	e19	e20	e21	e22	e23	e24	e25	e26	e27	e28	e29	e30	e31	e32	e33	e34	e35			
Agriculture, Hunting, Forestry and Fishing	e1	3,247	3	3,947	6	2	8	1	2	4	5	1	1	0	0	19	17	2	0	1	1	1,117	0	1	0	0	0	0	0	1	3	0	16	21	0	0	7,745	16,175	
Mining and Quarrying	e2	27	14	19	1	0	1	2	11,437	24	3	134	34	5	2	1	2	499	92	1	12	6	11	10	29	5	1	4	1	4	6	3	1	7	3	0	-10,794	1,607	
Food, Beverages and Tobacco	e3	211	4	705	25	8	12	33	225	54	48	25	44	27	21	15	31	35	16	4	27	15	2,381	14	49	7	7	16	9	1	25	21	4	139	68	0	16,611	20,938	
Textiles and Textile Products	e4	21	1	48	84	28	2	8	30	9	10	4	8	5	3	3	14	5	5	5	34	16	21	36	110	15	7	27	27	0	18	7	1	15	11	0	1,495	2,134	
Leather, Leather and Footwear	e5	7	0	16	28	9	1	3	10	3	3	1	3	2	1	1	5	2	2	2	11	5	7	12	37	5	2	9	9	0	6	3	0	5	4	0	1	214	
Wood and Products of Wood and Cork	e6	8	1	33	2	1	54	3	9	8	3	2	3	3	2	2	40	7	462	0	1	1	108	1	3	0	0	7	0	0	1	6	0	5	4	0	-272	508	
Pulp, Paper, Printing and Publishing	e7	14	3	143	8	3	7	354	29	23	29	8	9	6	7	6	8	30	43	6	67	32	389	61	532	32	18	42	72	1	157	8	2	9	142	0	106	2,406	
Coal, Refined Petroleum and Nuclear Fuel	e8	820	11	171	13	4	8	20	692	103	42	26	33	21	12	9	22	171	63	21	256	119	145	240	808	125	29	88	7	2	106	46	4	133	47	0	18,655	23,079	
Chemicals and Chemical Products	e9	517	5	226	42	14	8	59	250	363	493	23	46	59	26	10	49	33	43	5	46	23	244	38	131	19	8	29	10	42	41	25	10	330	15	0	988	4,256	
Rubber and Plastics	e10	38	1	77	9	3	3	13	49	18	33	7	11	18	10	13	17	9	124	25	281	130	27	250	865	77	62	90	2	18	106	28	1	10	24	0	-188	2,262	
Other Non-Metallic Mineral	e11	5	3	45	3	1	2	4	71	11	9	70	9	6	11	4	7	6	1,593	1	5	3	91	3	7	1	1	5	1	10	4	2	0	112	2	0	209	2,319	
Basic Metals and Fabricated Metal	e12	8	6	142	6	2	4	16	138	29	22	18	1,833	911	346	165	239	19	437	2	10	6	23	6	15	3	2	6	6	1	9	10	2	8	8	0	1,368	5,844	
Machinery, Nec	e13	24	35	170	11	4	12	14	60	33	39	20	95	182	48	27	86	69	1,564	2	12	7	116	12	27	4	4	8	10	1	20	58	2	12	42	0	897	3,727	
Electrical and Optical Equipment	e14	75	3	132	12	4	5	16	66	27	20	25	43	25	149	24	123	60	71	16	152	71	124	160	475	75	47	130	6	0	82	121	20	82	38	0	-359	2,120	
Transport Equipment	e15	63	18	132	9	3	4	13	46	31	17	17	34	39	26	79	78	33	162	2	17	9	100	88	41	7	9	15	3	1	33	44	15	18	33	0	598	1,834	
Manufacturing, Nec, Recycling	e16	84	12	119	13	4	10	11	83	36	20	12	26	53	17	17	91	38	467	38	187	142	287	73	113	59	58	169	7	68	162	184	15	314	70	0	6,398		
Electricity, Gas and Water Supply	e17	402	21	346	49	16	16	75	226	88	101	104	354	50	30	17	139	1,904	49	19	95	70	183	56	52	26	24	93	66	7	108	180	28	258	151	0	3,951	9,353	
Construction	e18	23	7	43	3	1	2	4	99	10	6	5	7	4	3	2	6	27	47	8	99	65	1,147	463	147	10	36	30	112	1,196	55	97	45	172	361	0	10,549	14,889	
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles	e19	45	6	23	3	1	1	4	3	7	4	6	4	5	2	2	8	4	30	23	140	62	19	34	64	25	11	36	15	6	85	13	1	10	28	0	4,603	5,331	
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	e20	448	62	4,903	372	124	199	512	3,958	757	686	419	750	434	355	252	473	592	255	14	150	80	612	70	389	58	82	160	60	9	80	125	10	575	87	0	4,475	22,589	
Retail Trade, Except of Motor Vehicles and Motorcycles	e21	708	4	212	17	6	9	24	181	122	31	18	34	21	16	11	22	42	317	8	179	89	1,210	128	548	77	238	398	81	2	115	914	54	857	124	0	6,799	13,616	
Hotels and Restaurants	e22	18	4	41	6	2	2	5	9	31	8	5	7	9	10	9	17	8	11	6	28	20	44	22	27	7	13	57	90	9	212	31	3	52	1,112	0	24,258	26,194	
Ward Transport	e23	38	17	51	6	2	2	5	264	26	8	9	9	8	6	5	12	17	39	106	966	351	11	23	388	186	34	79	7	1	280	371	13	20	233	0	4,127	7,738	
Water Transport	e24	28	2	18	3	1	1	2	5	14	3	2	3	4	4	4	8	5	12	11	110	40	39	18	55	22	6	21	9	0	36	25	4	23	69	0	16,448	17,055	
Air Transport	e25	0	0	26	4	1	1	3	6	19	5	4	4	6	6	5	10	4	6	19	164	62	10	3	64	31	3	24	9	0	97	78	0	2	251	0	2,551	3,475	
Other Supporting and Auxiliary Transport Activities, Activities of Intermediaries	e26	39	76	490	48	16	16	39	294	122	38	75	39	54	22	26	81	28	70	519	2,349	1,213	79	50	1,743	563	3	232	5	4	683	16	1	4	16	0	-4,512	4,542	
Retail, Telecommunications	e27	42	29	279	31	10	12	31	134	85	39	26	38	34	29	23	78	114	57	103	613	378	471	144	292	154	108	497	482	14	665	339	81	96	250	0	7,719	13,498	
Financial Intermediation	e28	600	51	556	74	25	24	101	599	171	95	77	116	120	114	54	130	475	360	125	994	501	472	149	220	188	65	329	862	534	656	783	31	73	568	0	3,701	13,989	
Rent, Real Estate Activities	e29	15	24	122	29	10	5	27	4	34	24	19	14	13	8	10	65	40	121	705	2,468	2,019	257	760	1,331	276	952	2,328	1,254	6	2,035	297	17	85	178	0	23,829	39,381	
Renting of Motor and Other Business Activities	e30	85	318	1,075	80	27	20	80	232	432	98	95	153	214	115	79	291	311	1,747	138	623	486	1,124	952	322	178	186	865	763	104	2,344	742	369	274	436	0	4,260	19,616	
Public Administration and Defence, Compulsory Social Security	e31	2	1	7	1	0	0	1	30	6	1	2	1	1	0	2	8	4	21	7	32	20	8	4	21	7	4	16	12	2	20	6	2	5	6	0	26,362	26,402	
Education	e32	0	38	1	0	0	0	0	20	0	0	0	0	0	0	0	0	0	67	1	1	4	2	2	1	2	1	1	4	7	0	21	73	14	108	30	0	13,479	13,676
Health and Social Work	e33	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	1	0	2	31	0	3	754	0	127	40	0	12,510	13,481	
Other Community, Social and Personal Services	e34	14	2	58	6	2	2	7	28	17	8	12	15	9	11	5	13	93	57	18	84	67	283	41	51	39	38	176	287	1	176	146	16	162	1,120	0	10,885	13,900	
Private Households with Employed Persons	e35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	712	712	
Output at basic prices		16,175	1,607	20,938	2,134	214	508	2,406	23,079	4,256	2,262	2,319	5,844	3,727	2,120	1,834	6,398	9,353	14,889	5,331	22,589	13,616	26,194	7,738	###	3,475	4,542	13,498	13,989	39,381	19,616	26,402	13,876	13,481	13,900	712			
Labour compensation (million \$)		5,232	530	3,114	637	1	85	551	287	682	276	566	601	872	304	585	1,460	1,152	2,923	1,612	7,757	8,752	4,426	2,898	1,138	328	1,337	3,648	5,155	170	8,852	14,661	10,595	5,520	5,924	747			
Number of persons engaged (thousands)		489	10	105	27	0	13	19	3	21	14	17	17	33	10	19	52	27	161	69	265	454	301	130	27	6	31	100	93	7	338	364	290	213	232	49			

A GREECE TOTAL 2014																																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
1	0,2008	0,0016	0,1885	0,0029	0,0097	0,0152	0,0006	0,0001	0,0009	0,0022	0,0005	0,0002	0,0003	0,0002	0,0002	0,0030	0,0018	0,0001	0,0000	0,0001	0,0000	0,00426	0,0000	0,0001	0,0000	0,0000	0,0000	0,0001	0,0001	0,0000	0,0001	0,0002	0,0001	0,0000	0,0000	0,0000	0,0000	
2	0,0016	0,0089	0,0009	0,0005	0,0017	0,0012	0,0009	0,0056	0,0056	0,0012	0,0059	0,0015	0,0009	0,0007	0,0004	0,0053	0,0062	0,0003	0,0005	0,0004	0,0004	0,0013	0,0017	0,0014	0,0003	0,0003	0,0001	0,0003	0,0001	0,0000	0,0001	0,0000	0,0005	0,0002	0,0000	0,0000		
3	0,0131	0,0028	0,0037	0,0118	0,0093	0,00234	0,00137	0,00097	0,00126	0,00212	0,00108	0,00076	0,00071	0,00100	0,00083	0,00048	0,00038	0,00011	0,00008	0,00012	0,00011	0,00909	0,00019	0,00029	0,00020	0,00015	0,00012	0,00007	0,00013	0,00008	0,00003	0,000103	0,00003	0,000103	0,000049	0,000000	0,000000	
4	0,0013	0,0004	0,0023	0,00395	0,00311	0,00034	0,00032	0,00013	0,00022	0,00045	0,00017	0,00013	0,00014	0,00016	0,00015	0,00022	0,00005	0,00003	0,00010	0,00015	0,00012	0,00008	0,00046	0,00065	0,00043	0,00016	0,00020	0,00019	0,00009	0,00003	0,00001	0,00011	0,00008	0,00000	0,00000	0,00000	0,00000	
5	0,0004	0,0001	0,0008	0,00132	0,00437	0,00011	0,00004	0,00007	0,00015	0,00006	0,00004	0,00005	0,00005	0,00005	0,00007	0,00002	0,00001	0,00003	0,00005	0,00004	0,00003	0,00015	0,00022	0,00014	0,00005	0,00007	0,00006	0,00000	0,00003	0,00001	0,00000	0,00004	0,00003	0,00003	0,00003	0,00000	0,00000	0,00000
6	0,0005	0,0005	0,0016	0,0008	0,0028	0,0061	0,0011	0,0004	0,0018	0,0015	0,0009	0,0005	0,0009	0,0009	0,0013	0,0063	0,0007	0,00310	0,00000	0,00001	0,00000	0,00041	0,00001	0,00002	0,00001	0,00001	0,00005	0,00000	0,00001	0,00002	0,00000	0,00004	0,00003	0,00004	0,00003	0,00000	0,00000	0,00000
7	0,0008	0,0017	0,0068	0,0037	0,00124	0,00138	0,00472	0,0012	0,00055	0,00129	0,00034	0,00015	0,00016	0,00034	0,00032	0,00013	0,00032	0,00029	0,00012	0,00030	0,00023	0,00148	0,00079	0,00312	0,00092	0,00041	0,00031	0,00052	0,00000	0,00080	0,00003	0,00001	0,00007	0,000102	0,00000	0,00000	0,00000	
8	0,0507	0,0067	0,0082	0,0061	0,00203	0,00157	0,00085	0,00300	0,00241	0,00184	0,00114	0,00057	0,00057	0,00051	0,00035	0,00183	0,00042	0,00040	0,00114	0,00087	0,00055	0,00314	0,00474	0,00361	0,00064	0,00065	0,00005	0,00001	0,00054	0,00018	0,00003	0,000099	0,00033	0,00000	0,00000	0,00000	0,00000	
9	0,0319	0,0029	0,0108	0,00197	0,00655	0,00160	0,00245	0,00108	0,00853	0,00181	0,00100	0,00078	0,00159	0,00125	0,00053	0,00077	0,00035	0,00029	0,00010	0,00021	0,00017	0,00093	0,00049	0,00077	0,00056	0,00018	0,00021	0,00007	0,00011	0,00021	0,00011	0,00007	0,000245	0,00011	0,00000	0,00000	0,00000	
0	0,0023	0,0009	0,0037	0,0043	0,00143	0,00069	0,00054	0,00021	0,00043	0,00144	0,00030	0,00019	0,00048	0,00046	0,00072	0,00027	0,00010	0,00083	0,00047	0,00125	0,00096	0,00010	0,00323	0,00507	0,00223	0,00135	0,00067	0,00002	0,00004	0,00054	0,00011	0,00000	0,00008	0,00018	0,00000	0,00000	0,00000	
1	0,0003	0,0021	0,0022	0,0015	0,00049	0,00030	0,00018	0,00031	0,00027	0,00038	0,00301	0,00016	0,00015	0,00052	0,00021	0,00011	0,00007	0,00070	0,00002	0,00002	0,00035	0,00004	0,00004	0,00004	0,00003	0,00003	0,00001	0,00003	0,00002	0,00001	0,00000	0,000083	0,00002	0,00000	0,00000	0,00000	0,00000	
2	0,0002	0,0005	0,0003	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
3	0,0015	0,0021	0,0081	0,0052	0,00171	0,00234	0,00057	0,00026	0,00078	0,00173	0,00086	0,00163	0,00487	0,00228	0,00149	0,00135	0,00074	0,00050	0,00003	0,00005	0,00005	0,00044	0,00016	0,00011	0,00009	0,00006	0,00007	0,00000	0,00010	0,00022	0,00001	0,00009	0,00030	0,00000	0,00000	0,00000	0,00000	0,00000
4	0,0047	0,0022	0,0063	0,0054	0,00179	0,00099	0,00067	0,00029	0,00062	0,00090	0,00108	0,00073	0,00068	0,00703	0,00128	0,00193	0,00064	0,00048	0,00029	0,00067	0,00052	0,00047	0,00207	0,00279	0,00215	0,00104	0,00096	0,00004	0,00000	0,00042	0,00046	0,00014	0,00061	0,00028	0,00000	0,00000	0,00000	
5	0,0039	0,0011	0,0063	0,0045	0,00148	0,00079	0,00053	0,00020	0,00073	0,00076	0,00074	0,00058	0,00106	0,00124	0,00430	0,00122	0,00035	0,00109	0,00004	0,00008	0,00007	0,00038	0,00107	0,00024	0,00019	0,00020	0,00011	0,00002	0,00000	0,00017	0,00017	0,00011	0,00013	0,00023	0,00000	0,00000	0,00000	
6	0,0052	0,0077	0,0057	0,0061	0,00203	0,00197	0,00045	0,00036	0,00085	0,00090	0,00052	0,00044	0,00143	0,00081	0,00091	0,00143	0,00041	0,00314	0,00071	0,00083	0,00104	0,00109	0,00094	0,00066	0,00171	0,00128	0,00125	0,00005	0,00017	0,00083	0,00068	0,00011	0,00233	0,00050	0,00000	0,00000	0,00000	0,00000
7	0,0249	0,00130	0,00165	0,00229	0,00760	0,00307	0,00311	0,00098	0,00208	0,00445	0,00449	0,00605	0,00133	0,00141	0,00094	0,00217	0,00036	0,00033	0,00036	0,00042	0,00051	0,00070	0,00072	0,00030	0,00076	0,00052	0,00069	0,00047	0,00002	0,00055	0,00068	0,00020	0,00191	0,00109	0,00000	0,00000	0,00000	0,00000
8	0,0014	0,0004	0,0020	0,0015	0,00051	0,00035	0,00018	0,00043	0,00023	0,00026	0,00020	0,00012	0,00011	0,00016	0,00013	0,00010	0,00029	0,00032	0,00015	0,00044	0,00048	0,00438	0,00598	0,00086	0,00028	0,00078	0,00022	0,00080	0,00304	0,00028	0,00037	0,00033	0,00127	0,00259	0,00000	0,00000	0,00000	0,00000
9	0,0028	0,0038	0,0011	0,0012	0,00041	0,00025	0,00015	0,00001	0,00016	0,00019	0,00026	0,00007	0,00014	0,00013	0,00012	0,00004	0,00020	0,00043	0,00062	0,00045	0,00007	0,00044	0,00038	0,00072	0,00023	0,00026	0,00011	0,00001	0,00004	0,00005	0,00000	0,00007	0,00020	0,00000	0,00000	0,00000	0,00000	0,00000
0	0,00277	0,00387	0,00342	0,00744	0,00796	0,00919	0,00126	0,00715	0,00779	0,00035	0,00809	0,00283	0,00165	0,00672	0,00376	0,00739	0,00633	0,00171	0,00026	0,00066	0,00059	0,00234	0,00091	0,00228	0,00167	0,00181	0,00119	0,00043	0,00002	0,00041	0,00047	0,00007	0,000427	0,00063	0,00000	0,00000	0,00000	
1	0,00438	0,00023	0,00101	0,00080	0,00266	0,00177	0,00098	0,00078	0,00288	0,00137	0,00080	0,00059	0,00055	0,00077	0,00062	0,00035	0,00044	0,00213	0,00014	0,00079	0,00065	0,00046	0,00165	0,00321	0,00222	0,00524	0,00295	0,00058	0,00000	0,00059	0,000346	0,00039	0,000635	0,00089	0,00000	0,00000	0,00000	
2	0,0011	0,0025	0,0020	0,0027	0,00089	0,00032	0,00019	0,00004	0,00073	0,00033	0,00024	0,00011	0,00024	0,00049	0,00047	0,00026	0,00009	0,00007	0,00011	0,00013	0,00015	0,00017	0,00029	0,00016	0,00021	0,00029	0,00042	0,00064	0,00002	0,000108	0,00012	0,00002	0,00039	0,00080	0,00000	0,00000	0,00000	
3	0,00336	0,00109	0,0025	0,0028	0,00092	0,00037	0,00023	0,00114	0,00062	0,00033	0,00037	0,00015	0,00021	0,00029	0,00018	0,00018	0,00026	0,00199	0,00428	0,00258	0,0004	0,00029	0,00227	0,00535	0,00074	0,00059	0,00005	0,00000	0,000142	0,000141	0,00009	0,00015	0,000168	0,00000	0,00000	0,00000	0,00000	
4	0,0017	0,0012	0,0009	0,0012	0,00040	0,00014	0,00009	0,00002	0,00033	0,00015	0,00010	0,00005	0,00011	0,00021	0,00020	0,00013	0,00005	0,00008	0,00021	0,00049	0,00029	0,00015	0,00023	0,00032	0,00064	0,00013	0,00006	0,00000	0,00018	0,00010	0,00003	0,00017	0,00050	0,00000	0,00000	0,00000	0,00000	
5	0,0000	0,0002	0,0013	0,0017	0,00057	0,00020	0,00013	0,00003	0,00044	0,00021	0,00015	0,00007	0,00016	0,00030	0,00030	0,00015	0,00004	0,00004	0,00035	0,00072	0,00045	0,00004	0,00004	0,00037	0,00088	0,00006	0,00017	0,00007	0,00000	0,00049	0,00029	0,00000	0,00001	0,000180	0,00000	0,00000	0,00000	
6	0,0024	0,0047	0,00234	0,00224	0,00746	0,00306	0,00163	0,00127	0,00287	0,00169	0,00323	0,00067	0,00145	0,00104	0,00144	0,00127	0,00030	0,00047	0,00093	0,00040	0,00089	0,00030	0,00068	0,00022	0,000619	0,00006	0,000172	0,00003	0,00001	0,000348	0,00006	0,00000	0,00003	0,00012	0,00000	0,00000	0,00000	
7	0,0026	0,00180	0,00133	0,00144	0,00479	0,00228	0,00130	0,00058	0,00200	0,00173	0,00114	0,00064	0,00092	0,00139	0,00128	0,00121	0,00122	0,00038	0,00193	0,00272	0,00277	0,00180	0,00186	0,00171	0,00444	0,00238	0,00368											

21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,6 428 114 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,1 689 625 09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,3 693 041 94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0 667 513 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0 944 535 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,2 943 315 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,2 702 913 39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,3 685 182 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,0 04 31 77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,4 512 390 03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,5 553 106 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,7 635 961 51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,4 094 378 86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,4 261 837 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,0 495 243 42						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	35									

17	0,047	0,025	0,039	0,040	0,132	0,061	0,056	0,031	0,040	0,078	0,068	0,119	0,055	0,049	0,031	0,039	1,263	0,028	0,009	0,012	0,012	0,021	0,020	0,018	0,022	0,012	0,014	0,010	0,001	0,013	0,012	0,003	0,031	0,022	0,000
18	0,007	0,011	0,010	0,008	0,028	0,016	0,010	0,015	0,012	0,014	0,010	0,008	0,008	0,010	0,008	0,005	0,009	1,010	0,010	0,015	0,015	0,049	0,068	0,019	0,017	0,018	0,012	0,014	0,031	0,012	0,008	0,004	0,017	0,037	0,000
19	0,005	0,006	0,005	0,004	0,013	0,008	0,005	0,005	0,005	0,007	0,006	0,004	0,004	0,004	0,003	0,002	0,005	1,005	0,008	0,006	0,003	0,007	0,006	0,010	0,004	0,004	0,002	0,000	0,006	0,001	0,000	0,002	0,004	0,000	
20	0,078	0,065	0,289	0,223	0,741	0,504	0,292	0,232	0,236	0,408	0,226	0,227	0,207	0,254	0,194	0,113	0,107	0,105	0,017	1,032	0,027	0,079	0,058	0,089	0,067	0,040	0,032	0,015	0,004	0,024	0,016	0,004	0,071	0,034	0,000
21	0,062	0,012	0,033	0,019	0,063	0,039	0,023	0,021	0,044	0,037	0,019	0,018	0,018	0,021	0,016	0,011	0,012	0,032	0,010	1,019	0,016	0,058	0,026	0,047	0,041	0,058	0,036	0,010	0,001	0,014	0,040	0,005	0,070	0,021	0,000
22	0,004	0,007	0,006	0,006	0,021	0,009	0,006	0,006	0,013	0,010	0,006	0,005	0,007	0,010	0,008	0,005	0,005	0,006	0,003	0,004	0,004	0,006	0,007	0,005	0,008	0,006	0,008	0,010	0,001	0,015	0,003	0,001	0,007	0,090	0,000
23	0,013	0,020	0,021	0,016	0,054	0,032	0,019	0,032	0,024	0,029	0,018	0,016	0,016	0,019	0,015	0,010	0,011	0,013	0,023	0,048	0,031	0,009	1,011	0,033	0,064	0,013	0,011	0,004	0,001	0,020	0,017	0,002	0,009	0,024	0,000
24	0,003	0,003	0,004	0,003	0,011	0,005	0,003	0,003	0,006	0,006	0,003	0,003	0,003	0,005	0,004	0,003	0,002	0,003	0,003	0,006	0,004	0,003	0,004	0,005	0,008	0,002	0,002	0,001	0,000	0,003	0,002	0,000	0,003	0,006	0,000
25	0,002	0,003	0,005	0,005	0,016	0,008	0,005	0,004	0,008	0,008	0,005	0,004	0,005	0,007	0,006	0,003	0,003	0,003	0,004	0,009	0,006	0,003	0,003	0,006	1,011	0,002	0,003	0,002	0,000	0,007	0,004	0,000	0,002	0,021	0,000
26	0,026	0,069	0,068	0,058	0,192	0,105	0,061	0,075	0,074	0,084	0,071	0,044	0,051	0,052	0,046	0,033	0,026	0,037	0,005	0,117	0,101	0,027	0,029	0,027	0,087	1,016	0,031	0,008	0,002	0,049	0,010	0,003	0,020	0,017	0,000
27	0,017	0,037	0,036	0,033	0,111	0,059	0,037	0,038	0,046	0,053	0,032	0,028	0,031	0,039	0,031	0,025	0,030	0,025	0,029	0,041	0,040	0,033	0,035	0,035	0,067	0,034	1,048	0,044	0,002	0,048	0,020	0,008	0,018	0,033	0,000
28	0,071	0,058	0,072	0,066	0,221	0,108	0,085	0,077	0,081	0,102	0,068	0,062	0,072	0,099	0,060	0,043	0,088	0,061	0,037	0,064	0,055	0,045	0,048	0,043	0,088	0,033	0,043	0,077	0,017	0,054	0,041	0,005	0,024	0,065	0,000
29	0,042	0,081	0,086	0,078	0,260	0,133	0,089	0,089	0,096	0,120	0,079	0,064	0,069	0,080	0,063	0,051	0,051	0,067	0,076	0,168	0,199	0,056	0,048	0,046	0,075	0,045	0,013	0,019	0,005	0,053	0,036	0,009	0,042	0,050	0,000
30	0,045	0,254	0,104	0,080	0,267	0,116	0,087	0,167	0,170	0,135	0,099	0,083	0,116	0,116	0,087	0,078	0,089	0,180	0,050	0,064	0,068	0,086	0,079	0,068	0,012	0,069	0,095	0,079	0,010	1,159	0,047	0,034	0,049	0,070	0,000
31	0,001	0,002	0,001	0,001	0,004	0,002	0,001	0,003	0,003	0,002	0,001	0,001	0,001	0,001	0,001	0,001	0,002	0,001	0,002	0,002	0,002	0,001	0,001	0,002	0,003	0,001	0,002	0,001	0,000	0,002	0,001	0,000	0,001	0,001	0,000
32	0,002	0,025	0,001	0,001	0,003	0,002	0,001	0,013	0,006	0,003	0,003	0,002	0,001	0,001	0,001	0,001	0,011	0,001	0,000	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,000	0,002	0,003	0,001	0,009	0,003	0,000

15	0,066	0,012	0,120	0,008	0,003	0,004	0,012	0,138	0,026	0,017	0,014	0,037	0,033	0,021	1,048	0,053	0,036	0,136	0,005	0,037	0,019	0,005	0,062	0,058	0,011	0,009	0,020	0,009	0,013	0,037	0,040	0,011	0,025	0,038	0,000
16	0,028	0,004	0,048	0,004	0,001	0,003	0,005	0,056	0,012	0,008	0,005	0,012	0,014	0,006	0,005	1,019	0,015	0,094	0,009	0,049	0,033	0,074	0,021	0,038	0,014	0,012	0,036	0,008	0,019	0,041	0,041	0,004	0,059	0,024	0,000
17	0,081	0,004	0,088	0,009	0,003	0,003	0,014	0,077	0,018	0,019	0,017	0,075	0,022	0,011	0,006	0,027	1,263	0,045	0,005	0,029	0,018	0,059	0,017	0,032	0,008	0,006	0,021	0,014	0,006	0,027	0,035	0,005	0,045	0,033	0,000
18	0,007	0,001	0,015	0,001	0,000	0,001	0,002	0,024	0,003	0,002	0,002	0,003	0,002	0,001	0,001	0,002	0,006	1,010	0,004	0,023	0,014	0,086	0,035	0,021	0,004	0,006	0,011	0,013	0,082	0,015	0,013	0,004	0,015	0,035	0,000
19	0,015	0,002	0,020	0,002	0,001	0,001	0,002	0,023	0,004	0,003	0,002	0,004	0,003	0,002	0,001	0,003	0,004	1,005	0,033	0,015	0,014	0,009	0,019	0,006	0,003	0,010	0,005	0,003	0,022	0,007	0,001	0,006	0,010	0,000	
20	0,056	0,005	0,268	0,021	0,007	0,011	0,031	0,237	0,045	0,041	0,023	0,059	0,034	0,024	0,016	0,032	0,044	0,069	0,004	1,032	0,016	0,091	0,020	0,067	0,010	0,008	0,019	0,009	0,008	0,021	0,019	0,002	0,042	0,021	0,000
21	0,074	0,001	0,051	0,003	0,001	0,001	0,004	0,036	0,014	0,006	0,003	0,008	0,005	0,003	0,002	0,005	0,009	0,035	0,004	0,032	1,016	0,012	0,015	0,058	0,010	0,019	0,036	0,011	0,004	0,020	0,077	0,005	0,070	0,021	0,000
22	0,002	0,000	0,005	0,001	0,000	0,000	0,001	0,005	0,002	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,002	0,003	0,001	0,004	0,002	1,006	0,002	0,003	0,001	0,001	0,004	0,006	0,001	0,011	0,003	0,000	0,004	0,047	0,000
23	0,027	0,004	0,056	0,004	0,001	0,002	0,006	0,097	0,013	0,008	0,006	0,012	0,008	0,005	0,004	0,008	0,013	0,026	0,016	0,141	0,054	0,030	1,011	0,072	0,029	0,008	0,020	0,007	0,003	0,050	0,060	0,003	0,015	0,043	0,000
24	0,003	0,000	0,004	0,000	0,000	0,000	0,000	0,004	0,001	0,001	0,000	0,001	0,001	0,001	0,000	0,001	0,001	0,002	0,001	0,008	0,003	0,005	0,002	0,001	0,002	0,001	0,000	0,000	0,003	0,002	0,000	0,002	0,005	0,000	0,000
25	0,008	0,001	0,029	0,003	0,001	0,001	0,003	0,025	0,010	0,005	0,003	0,007	0,005	0,004	0,003	0,006	0,007	0,015	0,007	0,056	0,023	0,019	0,006	0,029	1,011	0,003	0,013	0,008	0,002	0,038	0,029	0,001	0,007	0,084	0,000
26	0,091	0,024	0,314	0,027	0,009	0,012	0,033	0,381	0,069	0,042	0,036	0,057	0,042	0,024	0,019	0,047	0,054	0,121	0,124	0,584	0,302	0,155	0,049	0,479	0,143	1,016	0,092	0,024	0,015	0,211	0,058	0,008	0,060	0,052	0,000
27	0,020	0,004	0,056	0,005	0,002	0,002	0,007	0,064	0,015	0,009	0,006	0,012	0,009	0,006	0,004	0,012	0,021	0,027	0,011	0,068	0,040	0,064	0,020	0,044	0,017	0,011	1,048	0,046	0,006	0,070	0,040	0,008	0,018	0,033	0,000
28	0,082	0,007	0,107	0,010	0,003	0,004	0,015	0,127	0,025	0,017	0,011	0,026	0,019	0,015	0,008	0,019	0,059	0,065	0,014	0,104	0,054	0,085	0,026	0,053	0,022	0,011	0,042	1,077	0,048	0,075	0,077	0,005	0,023	0,064	0,000
29	0,017	0,003	0,046	0,004	0,001	0,002	0,005	0,052	0,010	0,007	0,005	0,009	0,007	0,004	0,003	0,008	0,012	0,025	0,024	0,096	0,069	0,037	0,029	0,063	0,015	0,028	0,073	0,042	1,005	0,076	0,024	0,003	0,014	0,018	0,000
30	0,037	0,021	0,111	0,009	0,003	0,003	0,011	0,196	0,037	0,016	0,012	0,025	0,022	0,013	0,008	0,025	0,043	0,137	0,014	0,074	0,047	0,015	0,059	0,020	0,016	0,065	0,056	0,020	1,159	0,064	0,024	0,034	0,050	0,000	

26	0,0 00 2	0,0 00 5	0,0 00 5	0,0 00 4	0,0 01 3	0,0 00 7	0,0 00 4	0,0 00 5	0,0 00 5	0,0 00 6	0,0 00 5	0,0 00 3	0,0 00 4	0,0 00 4	0,0 00 3	0,0 00 2	0,0 00 2	0,0 00 3	0,0 00 7	0,0 00 8	0,0 00 7	0,0 00 2	0,0 00 2	0,0 00 9	0,0 01 3	0,0 07 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 3	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 0			
27	0,0 00 1	0,0 00 3	0,0 00 3	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 3	0,0 00 3	0,0 00 3	0,0 00 4	0,0 00 2	0,0 00 2	0,0 00 3	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 3	0,0 00 5	0,0 00 3	0,0 07 7	0,0 00 3	0,0 00 0	0,0 00 4	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 0				
28	0,0 00 5	0,0 00 4	0,0 00 5	0,0 00 4	0,0 01 5	0,0 00 7	0,0 00 6	0,0 00 5	0,0 00 5	0,0 00 7	0,0 00 5	0,0 00 4	0,0 00 5	0,0 00 7	0,0 00 4	0,0 00 3	0,0 00 6	0,0 00 4	0,0 00 4	0,0 00 3	0,0 00 3	0,0 00 3	0,0 00 6	0,0 00 2	0,0 00 3	0,0 00 1	0,0 00 1	0,0 00 4	0,0 00 3	0,0 00 0	0,0 00 2	0,0 00 4	0,0 00 3	0,0 00 0	0,0 00 2	0,0 00 4	0,0 00 0		
29	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0		
30	0,0 00 7	0,0 04 1	0,0 01 7	0,0 01 3	0,0 04 3	0,0 01 9	0,0 01 4	0,0 02 7	0,0 02 8	0,0 02 2	0,0 01 6	0,0 01 3	0,0 01 9	0,0 01 9	0,0 01 4	0,0 01 3	0,0 01 4	0,0 01 9	0,0 01 8	0,0 01 0	0,0 01 1	0,0 01 4	0,0 01 9	0,0 01 1	0,0 01 8	0,0 01 1	0,0 01 5	0,0 01 3	0,0 00 2	0,0 00 8	0,0 00 8	0,0 00 5	0,0 00 8	0,0 00 8	0,0 00 5	0,0 00 8	0,0 00 1	0,0 00 0	
31	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 13	0,0 00 8	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0		
32	0,0 00 0	0,0 00 5	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 3	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 20	0,0 00 9	0,0 00 2	0,0 00 1	0,0 00 9	0,0 00 2	0,0 00 1	0,0 00 0		
33	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 5	0,0 00 0	0,0 00 0	0,0 00 16	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0		
34	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 2	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 3	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 3	0,0 00 2	0,0 00 0		
35	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 68	0,0 00 1
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35				

(I-B) ⁻¹ L GREECE TOTAL 2014																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
1	0,0 38 0	0,0 00 0	0,0 01 6	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 4	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0
2	0,0 12 5	0,0 06 1	0,0 01 3	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 2	0,0 01 0	0,0 00 4	0,0 00 2	0,0 00 8	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 4	0,0 01 2	0,0 00 2	0,0 00 7	0,0 00 4	0,0 00 0	0,0 00 6	0,0 00 5	0,0 00 1	0,0 00 4	0,0 00 1	0,0 00 0	0,0 00 3	0,0 00 8	0,0 00 1	0,0 00 5	0,0 00 1	0,0 00 5	0,0 00 0	0,0 00 0	

30	0,0119	0,0069	0,0164	0,0026	0,0000	0,0005	0,0024	0,0024	0,0059	0,0019	0,0029	0,0025	0,0052	0,0018	0,0026	0,0058	0,0052	0,0029	0,0041	0,0025	0,0030	0,0019	0,0026	0,0030	0,0041	0,0017	0,0020	0,0000	0,5230	0,03518	0,01329	0,0213	0,0000				
31	0,0002	0,0000	0,0002	0,0000	0,0000	0,0000	0,0000	0,0000	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0001	0,0001	0,0006	0,0006	0,0001	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,5550	0,0000	0,0000	0,0000	0,0000				
32	0,0006	0,0009	0,0003	0,0000	0,0000	0,0000	0,0000	0,0000	0,0003	0,0003	0,0001	0,0001	0,0000	0,0000	0,0001	0,0009	0,0002	0,0001	0,0004	0,0004	0,0003	0,0002	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0001	0,0303	0,76403	0,00303	0,0001	0,0000			
33	0,0001	0,0000	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0001	0,0000	0,0000	0,0310	0,0000	0,4130	0,0001	0,0000			
34	0,0001	0,0000	0,0002	0,0000	0,0000	0,0001	0,0004	0,0002	0,0006	0,0003	0,0005	0,0004	0,0006	0,0003	0,0004	0,0007	0,0005	0,0003	0,0008	0,0001	0,0002	0,0002	0,0003	0,0007	0,0005	0,0002	0,0008	0,0007	0,0000	0,0004	0,0009	0,0009	0,0005	0,0005	0,0006	0,0008	0,0000
35	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	1,0495
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		

II. Table I-O GREECE IMPORTS 2014,A,B,(A-I)⁻¹,(B-I)⁻¹,W DIAGONIAL,L DIAGONIAL,(A-I)⁻¹W,(B-I)⁻¹W,(A-I)⁻¹L,(B-I)⁻¹L

GREECE I-O TABLE IMPORTS 2014		AB	C	1918	1718	19	20	2102	23	24	25	26	2728	29	3003	3405	3837	E	F	50	51	52	H	60	61	62	63	64	J	70	7174	L	M	N	O	P	TOTAL OUTPUT	
(million US\$)		c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14	c15	c16	c17	c18	c19	c20	c21	c22	c23	c24	c25	c26	c27	c28	c29	c30	c31	c32	c33	c34	c35	Final consumption	TOTAL OUTPUT
Agriculture, Hunting, Forestry and Fishing	c1	441	2	528	1	0	7	0	1	1	1	0	0	0	0	3	7	2	0	1	1	137	0	1	0	0	0	0	0	1	1	0	2	2	0	15.033	16.175	
Mining and Quarrying	c2	26	13	7	0	0	0	10.375	20	1	121	30	4	1	1	1	1	452	83	1	9	4	5	8	26	4	1	3	0	0	4	2	0	5	2	0	-9.605	1.607
Food, Beverages and Tobacco	c3	57	0	112	2	1	0	1	9	6	7	0	1	1	1	0	1	1	2	1	3	2	617	1	5	1	0	1	1	1	4	5	1	32	16	0	20.045	20.938
Textiles and Textile Products	c4	11	0	6	46	15	0	2	2	2	3	0	1	1	0	0	6	0	1	3	17	8	10	19	56	8	4	14	15	0	9	4	1	7	6	0	1.856	2.134
Leather, Leather and Foot wear	c5	4	0	2	15	5	0	1	1	1	1	0	0	0	0	0	2	0	0	1	6	3	3	6	19	3	1	5	5	0	3	1	0	2	2	0	1	94
Wood and Products of Wood and Cork	c6	3	0	10	1	0	21	1	3	3	1	1	1	1	1	1	15	2	179	0	1	1	42	1	2	0	0	3	0	0	1	3	0	3	2	0	205	508
Pulp, Paper, Paper, Printing and Publishing	c7	5	0	17	2	1	4	242	1	4	14	2	1	1	3	0	1	1	3	4	46	21	27	39	379	22	13	22	47	1	33	3	1	3	27	0	1.415	2.406
Coal, Refined Petroleum and Nuclear Fuel	c8	631	7	40	3	1	2	6	475	67	22	13	12	9	3	3	8	122	46	16	195	90	105	187	620	96	21	65	4	2	80	36	3	96	35	0	19.957	23.079
Chemicals and Chemical Products	c9	367	2	89	25	8	3	34	154	250	343	11	22	36	14	3	27	17	29	3	28	13	168	25	87	13	4	17	5	30	25	19	6	256	9	0	2.114	4.256
Rubber and Plastics	c10	13	0	12	2	1	1	4	15	5	11	1	2	5	3	4	4	2	39	9	103	48	9	92	320	29	22	33	1	7	39	10	0	3	9	0	1.405	2.262
Other Non-Metallic Mineral	c11	2	1	3	0	0	0	45	2	2	18	2	1	3	1	1	2	419	0	1	0	24	1	3	0	0	1	0	3	1	1	0	29	1	0	1.752	2.319	
Basic Metals and Fabricated Metal	c12	4	1	43	1	0	1	5	109	10	7	7	848	414	158	75	116	6	118	0	2	1	4	2	4	1	0	1	2	0	2	1	4	2	0	3.893	5.844	
Machinery, Nec	c13	3	10	30	2	1	3	2	10	7	9	4	20	47	12	6	20	17	429	0	4	2	31	4	11	1	1	2	2	0	5	15	0	5	11	0	3.000	3.727
Electrical and Optical Equipment	c14	2	1	52	6	2	2	8	21	12	10	16	29	15	109	11	53	37	39	11	110	51	63	108	349	55	30	96	3	0	56	67	12	65	18	0	601	2.120
Transport Equipment	c15	2	13	65	5	2	2	7	15	18	9	10	23	26	18	60	31	17	100	1	11	5	59	64	31	5	2	9	1	1	21	7	8	13	16	0	1.157	1.834
Manufacturing, Nec; Recycling	c16	5	1	4	1	0	0	1	29	7	2	1	3	4	2	1	14	5	15	13	62	47	90	22	37	21	17	56	1	23	54	83	3	179	27	0	5.567	6.398
Electricity, Gas and Water Supply	c17	17	2	30	4	1	1	7	59	8	9	10	32	5	3	2	9	167	6	2	11	8	19	6	8	3	3	10	4	2	11	12	2	18	11	0	8.850	9.353
Construction	c18	1	1	1	0	0	0	0	67	1	0	1	1	0	0	1	0	4	13	1	6	4	57	23	9	1	2	2	6	58	4	5	2	9	18	0	14.592	14.889
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles	c19	5	0	4	1	0	0	1	3	2	2	0	2	1	1	1	1	1	6	1	6	3	5	3	11	2	1	2	1	0	3	2	0	5	1	0	5.256	5.331
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	c20	56	3	46	5	2	1	10	305	18	17	8	20	13	11	5	11	22	56	8	48	25	70	23	87	16	5	19	5	4	25	19	3	58	11	0	21.550	22.589
Retail Trade, Except of Motor Vehicles and Motorcycles	c21	10	1	13	2	1	0	3	7	4	3	1	4	3	2	1	3	2	12	5	24	12	15	5	29	7	1	6	2	1	10	4	1	9	3	0	13.411	13.616
Hotels and Restaurants	c22	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	26.188	26.194
Inland Transport	c23	9	3	18	2	1	1	2	248	6	3	5	4	3	2	1	4	12	10	17	96	44	8	4	65	22	2	10	1	0	29	15	1	5	10	0	7.076	7.738
Water Transport	c24	2	1	4	1	0	0	0	1	2	1	1	1	1	1	1	2	1	2	3	19	8	2	1	10	4	0	2	1	0	6	0	0	0	8	0	16.969	17.055
Air Transport	c25	0	0	7	1	0	0	1	2	5	1	1	1	2	2	1	3	1	2	5	43	16	3	0	18	8	0	5	1	0	24	19	0	0	63	0	3.238	3.475
Other Supporting and Auxiliary Transport Activities; Activities of Transport Intermediaries	c26	24	47	306	30	10	10	25	184	76	24	47	25	34	14	16	51	17	43	323	1.460	753	46	31	1.085	350	0	141	0	0	422	6	0	1	8	0	-1.066	4.542
Post and Telecommunications	c27	3	5	43	4	1	1	3	3	16	4	3	4	4	4	3	9	16	15	15	76	55	57	26	42	22	18	83	78	1	98	70	39	21	46	0	12.608	13.498
Financial Intermediation	c28	80	8	83	12	4	4	15	83	26	15	12	18	18	18	9	20	63	39	12	83	49	62	22	11	16	8	39	84	70	82	104	5	10	77	0	12.727	13.989
Real Estate Activities	c29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39.376	39.381
Renting of M&Eq and Other Business Activities	c30	10	26	72	5	2	1	5	142	43	6	6	8	11	7	5	17	32	131	8	35	25	56	28	20	10	9	44	36	6	152	48	25	21	34	0	18.532	19.616
Public Admin and Defence; Compulsory Social Security	c31	1	1	7	1	0	0	1	30	3	1	1	2	1	0	0	1	7	3	6	26	15	7	3	18	6	2	8	1	2	12	2	1	4	2	0	26.228	26.402
Education	c32	0	1	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	1	0	1	1	0	0	1	0	0	1	0	3	2	1	4	2	0	13.849	13.876
Health and Social Work	c33	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	1	0	0	0	0	1	15	0	4	1	0	13.449	13.481
Other Community, Social and Personal Services	c34	0	0	3	0	0	0	0	1	1	0	1	1	0	0	0	1	1	5	1	4	3	5	1	3	1	1	5	1	0	5	3	0	10	4	0	13.838	13.900
Private Households with Employed Persons	c35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	712	712
Output at basic prices		16.175	1.607	20.938	2.134	94	508	2.406	23.079	4.256	2.262	2.319	5.844	3.727	2.120	1.834	6.398	9.353	14.889	5.331	22.589	13.616	26.194	7.738	#####	3.475	4.542	13.498	13.989	39.381	19.616	26.402	13.876	13.481	13.900	712		
Labour compensation (million \$)		5.232	530	3.114	637	1	85	551	287	682	276	566	601	872	304	585	1.460	1.152	2.923	1.612	7.757	8.752	4.426	2.858	1.138	328	1.337	3.648	5.155	170	8.852	14.661	10.595	5.520	5.924	747		
Number of persons engaged (thousands)		489	10	105	27	0	13	19	3																													

A GREECE IMPORTS 2014

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35					
1	0,0 27 3	0,0 01 0	0,0 25 2	0,0 00 4	0,0 03 4	0,0 13 0	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 5	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 5	0,0 00 8	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 05 2	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 0						
2	0,0 01 6	0,0 07 9	0,0 00 3	0,0 00 1	0,0 00 7	0,0 00 3	0,0 00 4	0,4 49 6	0,0 04 8	0,0 00 5	0,0 52 2	0,0 05 1	0,0 01 1	0,0 00 5	0,0 00 3	0,0 00 2	0,0 00 3	0,0 05 6	0,0 00 2	0,0 00 4	0,0 00 3	0,0 01 2	0,0 01 5	0,0 01 2	0,0 00 2	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 4	0,0 00 1	0,0 00 0						
3	0,0 03 5	0,0 00 1	0,0 05 4	0,0 00 8	0,0 05 8	0,0 00 2	0,0 00 5	0,0 00 4	0,0 01 4	0,0 03 0	0,0 00 2	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 1	0,0 23 6	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 0						
4	0,0 00 7	0,0 00 0	0,0 00 3	0,0 21 4	0,1 62 7	0,0 00 2	0,0 01 0	0,0 00 1	0,0 00 5	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 2	0,0 00 2	0,0 00 9	0,0 00 0	0,0 00 1	0,0 00 5	0,0 00 7	0,0 00 6	0,0 00 4	0,0 02 4	0,0 03 4	0,0 02 3	0,0 00 2	0,0 01 8	0,0 01 0	0,0 00 0	0,0 01 0	0,0 00 0	0,0 00 5	0,0 00 2	0,0 00 1	0,0 00 5	0,0 00 4	0,0 00 0			
5	0,0 00 2	0,0 00 0	0,0 00 1	0,0 07 1	0,0 54 2	0,0 00 1	0,0 00 3	0,0 00 0	0,0 00 2	0,0 00 5	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 8	0,0 01 1	0,0 00 7	0,0 00 3	0,0 00 3	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0			
6	0,0 00 2	0,0 00 2	0,0 00 5	0,0 00 2	0,0 01 8	0,0 40 9	0,0 00 4	0,0 00 1	0,0 00 6	0,0 00 4	0,0 00 3	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 4	0,0 00 4	0,0 00 3	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 0			
7	0,0 00 3	0,0 00 1	0,0 00 8	0,0 01 0	0,0 07 6	0,0 07 4	0,1 00 7	0,0 00 0	0,0 00 9	0,0 06 3	0,0 00 7	0,0 00 2	0,0 00 2	0,0 01 3	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 8	0,0 00 0	0,0 02 6	0,0 01 0	0,0 05 1	0,0 22 2	0,0 06 5	0,0 02 8	0,0 01 3	0,0 03 7	0,0 00 0	0,0 01 7	0,0 00 1	0,0 00 1	0,0 00 4	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 9	0,0 00 0	
8	0,0 39 0	0,0 04 4	0,0 01 9	0,0 01 5	0,0 11 5	0,0 04 7	0,0 02 7	0,0 20 6	0,0 15 8	0,0 09 8	0,0 05 5	0,0 02 1	0,0 02 3	0,0 01 3	0,0 01 4	0,0 00 3	0,0 00 4	0,0 00 1	0,0 00 0	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 3	0,0 04 7	0,0 27 7	0,0 04 8	0,0 00 3	0,0 00 0	0,0 00 0	0,0 00 0	0,0 04 1	0,0 01 4	0,0 00 2	0,0 00 1	0,0 00 4	0,0 07 2	0,0 02 5	0,0 00 0		
9	0,0 22 7	0,0 01 4	0,0 04 2	0,0 11 5	0,0 87 5	0,0 05 5	0,0 14 3	0,0 06 7	0,0 58 6	0,0 51 6	0,0 04 7	0,0 03 8	0,0 09 7	0,0 06 5	0,0 01 7	0,0 04 2	0,0 01 8	0,0 01 9	0,0 00 5	0,0 01 2	0,0 01 0	0,0 06 4	0,0 03 2	0,0 05 1	0,0 03 7	0,0 00 9	0,0 01 3	0,0 00 4	0,0 00 8	0,0 00 3	0,0 01 7	0,0 00 4	0,0 00 3	0,0 01 7	0,0 00 5	0,0 00 0	0,0 00 6	0,0 00 0		
10	0,0 00 8	0,0 00 2	0,0 00 6	0,0 01 0	0,0 07 2	0,0 01 2	0,0 01 8	0,0 00 6	0,0 01 2	0,0 04 8	0,0 00 5	0,0 00 4	0,0 01 5	0,0 00 3	0,0 00 2	0,0 00 6	0,0 00 2	0,0 00 6	0,0 00 7	0,0 00 6	0,0 00 5	0,0 00 3	0,0 00 9	0,0 00 2	0,0 00 9	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 6	0,0 00 0	0,0 00 0		
11	0,0 00 2	0,0 00 4	0,0 00 1	0,0 00 6	0,0 04 5	0,0 01 4	0,0 02 2	0,0 04 7	0,0 02 4	0,0 03 2	0,0 03 0	0,1 45 0	0,1 10 9	0,0 74 5	0,0 40 8	0,0 18 1	0,0 00 7	0,0 00 9	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 2	0,0 00 3	0,0 00 4	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 1	0,0 00 1	0,0 00 0	
12	0,0 00 3	0,0 05 9	0,0 01 4	0,0 00 8	0,0 05 9	0,0 05 2	0,0 00 4	0,0 00 7	0,0 00 4	0,0 01 7	0,0 04 0	0,0 03 4	0,0 12 5	0,0 05 6	0,0 03 5	0,0 03 1	0,0 01 8	0,0 00 8	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 5	0,0 00 6	0,0 00 4	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 3	0,0 00 6	0,0 00 0	0,0 00 3	0,0 00 6	0,0 00 0	0,0 00 4	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
13	0,0 00 4	0,0 00 4	0,0 00 5	0,0 00 8	0,0 05 9	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
14	0,0 00 1	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
15	0,0 00 5	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
16	0,0 00 6	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
17	0,0 00 7	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
18	0,0 00 8	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
19	0,0 00 9	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
20	0,0 00 0	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01 0	0,0 00 6	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 7	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 5	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0
21	0,0 00 0	0,0 00 4	0,0 00 3	0,0 00 8	0,0 05 7	0,0 05 3	0,0 00 4	0,0 00 9	0,0 00 8	0,0 04 4	0,0 01 9	0,0 03 9	0,0 12 0	0,0 05 6	0,0 03 3	0,0 01																								

(I-A)⁻¹ GREECE IMPORTS 2014

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
1	1,0 28 2	0,0 01 0	0,0 26 1	0,0 00 5	0,0 04 0	0,0 14 0	0,0 00 2	0,0 00 5	0,0 00 4	0,0 00 7	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 5	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 1	0,0 00 1	0,0 06 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 0			
2	0,0 20 7	1,0 10 3	0,0 02 0	0,0 01 3	0,0 09 9	0,0 03 3	0,0 02 4	0,4 64 4	0,0 13 3	0,0 07 6	0,0 56 2	0,0 07 5	0,0 03 2	0,0 02 2	0,0 01 6	0,0 01 2	0,0 56 0	0,0 09 0	0,0 01 9	0,0 04 8	0,0 03 7	0,0 02 5	0,0 12 6	0,0 19 1	0,0 14 8	0,0 02 5	0,0 02 7	0,0 00 2	0,0 00 1	0,0 00 3	0,0 02 8	0,0 00 1	0,0 04 2	0,0 01 5	0,0 00 0		
3	0,0 03 7	0,0 00 2	1,0 05 5	0,0 00 9	0,0 06 6	0,0 00 3	0,0 00 6	0,0 00 5	0,0 01 5	0,0 03 3	0,0 00 2	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 7	0,0 00 3	0,0 00 4	0,0 00 4	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 4	0,0 00 2	0,0 02 1	0,0 00 4	0,0 00 2	
4	0,0 00 8	0,0 00 1	0,0 00 4	1,0 23 2	0,1 76 4	0,0 00 3	0,0 01 3	0,0 00 2	0,0 00 7	0,0 01 3	0,0 00 3	0,0 00 4	0,0 00 3	0,0 00 3	0,0 01 3	0,0 00 3	0,0 01 0	0,0 00 1	0,0 00 2	0,0 00 6	0,0 00 9	0,0 00 7	0,0 02 5	0,0 03 7	0,0 02 6	0,0 00 9	0,0 01 2	0,0 00 0	0,0 00 6	0,0 00 2	0,0 00 1	0,0 00 6	0,0 00 2	0,0 00 1	0,0 00 6	0,0 00 5	
5	0,0 00 3	0,0 00 0	0,0 00 7	0,0 58 8	1,0 00 1	0,0 00 4	0,0 00 1	0,0 00 2	0,0 00 6	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 2	0,0 00 2	0,0 00 9	0,0 01 2	0,0 00 9	0,0 00 3	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 2	0,0 00 2		
6	0,0 00 2	0,0 00 2	0,0 00 5	0,0 00 3	0,0 02 2	1,0 42 7	0,0 00 5	0,0 00 3	0,0 00 7	0,0 00 6	0,0 00 3	0,0 00 2	0,0 00 4	0,0 00 4	0,0 02 5	0,0 00 5	0,0 00 3	0,0 00 6	0,0 00 0	0,0 00 1	0,0 00 1	0,0 01 7	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 3	0,0 00 0	0,0 00 4	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 3	0,0 00 2	0,0 00 0	0,0 00 0	
7	0,0 00 5	0,0 00 3	0,0 01 0	0,0 01 4	0,0 10 3	0,0 08 7	1,1 12 1	0,0 00 4	0,0 01 3	0,0 07 3	0,0 01 0	0,0 00 3	0,0 00 4	0,0 00 6	0,0 00 3	0,0 00 3	0,0 00 2	0,0 00 5	0,0 00 3	0,0 00 3	0,0 00 2	0,0 00 5	0,0 01 2	0,0 05 2	0,0 25 7	0,0 07 1	0,0 03 7	0,0 00 0	0,0 00 0	0,0 02 0	0,0 00 2	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 3	0,0 00 2	
8	0,0 41 6	0,0 05 0	0,0 03 3	0,0 02 2	0,0 16 6	0,0 06 0	0,0 03 6	1,0 24 0	0,0 17 7	0,0 13 2	0,0 06 4	0,0 02 9	0,0 03 2	0,0 02 1	0,0 01 9	0,0 00 7	0,0 00 0	0,0 00 8	0,0 03 6	0,0 01 6	0,0 00 4	0,0 09 7	0,0 07 4	0,0 25 2	0,0 38 3	0,0 29 5	0,0 05 0	0,0 05 2	0,0 00 4	0,0 00 1	0,0 00 6	0,0 04 5	0,0 00 3	0,0 01 8	0,0 00 8	0,0 07 8	0,0 02 0
9	0,0 25 4	0,0 01 8	0,0 05 4	0,0 13 6	0,1 03 1	0,0 07 1	0,0 17 5	1,0 08 4	0,1 62 9	0,0 62 5	0,0 05 5	0,0 11 0	0,0 08 4	0,0 02 2	0,0 04 7	0,0 03 9	0,0 02 3	0,0 00 1	0,0 01 5	0,0 02 9	0,0 01 3	0,0 07 9	0,0 05 3	0,0 09 9	0,0 06 2	0,0 02 0	0,0 00 0	0,0 00 6	0,0 00 9	0,0 01 9	0,0 00 9	0,0 00 5	0,0 00 5	0,0 20 5	0,0 01 5	0,0 00 0	
10	0,0 00 9	0,0 00 4	0,0 00 8	0,0 01 2	0,0 09 1	0,0 01 5	0,0 02 2	0,0 01 4	0,0 01 2	1,0 05 3	0,0 00 7	0,0 00 6	0,0 01 4	0,0 01 4	0,0 02 3	0,0 00 4	0,0 00 3	0,0 00 8	0,0 02 8	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 3	0,0 00 2	0,0 00 1	0,0 00 6	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 4	0,0 00 3	0,0 00 0	0,0 00 3	0,0 00 7	0,0 00 0
11	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 4	0,0 00 7	0,0 00 4	0,0 00 9	0,0 00 4	0,0 00 4	0,0 00 4	0,0 00 4	0,0 00 3	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0
12	0,0 00 8	0,0 00 9	0,0 01 1	0,0 03 4	0,0 10 4	0,0 03 2	0,0 03 7	0,0 06 9	0,0 04 0	0,0 05 7	0,0 04 9	0,0 04 0	0,0 04 0	0,0 04 3	0,0 04 5	0,0 00 7	0,0 01 8	0,0 00 4	0,0 00 9	0,0 00 7	0,0 00 9	0,0 00 9	0,0 00 5	0,0 02 0	0,0 03 4	0,0 02 9	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 6	0,0 00 5	0,0 00 2	0,0 00 4	0,0 00 2	0,0 00 4	0,0 00 6	0,0 00 0
13	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 3	0,0 07 2	0,0 05 7	0,0 01 3	0,0 00 4	0,0 01 9	0,0 03 6	0,0 02 5	0,0 00 8	0,0 00 2	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 5	0,0 00 4	0,0 00 8	0,0 00 9	0,0 00 6	0,0 00 3	0,0 00 8	0,0 00 2	0,0 00 8	0,0 00 1	0,0 00 8	0,0 00 3	0,0 00 0	0,0 00 4	0,0 00 8	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 4	0,0 00 9	0,0 00 8
14	0,0 00 5	0,0 00 8	0,0 00 4	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
15	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
16	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
17	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
18	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
19	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
20	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 4	0,0 00 2	0,0 00 5	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 8	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 8	0,0 00 2	0,0 00 9	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 9	0,0 00 3	0,0 00 1	0,0 00 6	0,0 00 8
21	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 3	0,0 00 8																																

3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	0,0	
4	0	1	1	1	1	2	2	1	2	2	2	2	1	2	1	1	1	3	2	2	2	2	2	4	2	3	1	0	2	1	0	7	3	0	0	
3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	

(I-B) ⁻¹ GREECE IMPORTS 2014																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
1	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
2	0,2	1,0	0,0	0,0	0,0	0,0	0,0	6,6	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,3	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
3	0,0	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
4	0,0	0,0	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
5	0,0	0,0	0,0	0,1	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
6	0,0	0,0	0,0	0,0	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
7	0,0	0,0	0,0	0,0	0,0	0,1	1,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
9	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
0	0,8	0,3	0,0	0,1	0,4	0,3	0,3	0,8	0,9	0,6	0,3	0,5	0,8	0,5	0,0	0,2	0,3	0,6	0,5	0,6	0,6	0,0	0,5	0,6	0,9	0,1	0,4	0,6	0,1	0,8	0,2	0,0	0,2	0,5	0,0	

26	0,0 01 0	0,0 09 0	0,0 04 5	0,0 04 7	0,0 35 7	0,0 06 2	0,0 03 7	0,0 07 0	0,0 06 1	0,0 04 5	0,0 06 7	0,0 01 7	0,0 03 2	0,0 02 5	0,0 03 0	0,0 02 6	0,0 01 2	0,0 01 5	0,0 18 0	0,0 19 3	0,0 16 5	0,0 00 8	0,0 01 7	0,0 19 5	0,0 30 3	0,2 94 5	0,0 03 3	0,0 00 1	0,0 00 0	0,0 06 6	0,0 00 2	0,0 00 0	0,0 00 4	0,0 00 4	0,0 00 4	0,0 00 0							
27	0,0 00 1	0,0 01 0	0,0 00 6	0,0 00 6	0,0 04 4	0,0 00 6	0,0 00 5	0,0 00 6	0,0 01 2	0,0 00 7	0,0 00 5	0,0 00 2	0,0 00 4	0,0 00 6	0,0 00 4	0,0 00 6	0,0 00 4	0,0 00 6	0,0 01 9	0,0 01 0	0,0 00 2	0,0 01 6	0,0 01 0	0,0 01 8	0,0 01 9	0,2 72 0	0,0 01 5	0,0 00 0	0,0 01 4	0,0 00 7	0,0 00 8	0,0 00 5	0,0 00 8	0,0 00 5	0,0 00 9	0,0 00 0							
28	0,0 02 1	0,0 02 0	0,0 01 6	0,0 02 3	0,0 17 3	0,0 03 0	0,0 02 7	0,0 02 4	0,0 02 5	0,0 03 0	0,0 02 2	0,0 01 4	0,0 02 1	0,0 03 5	0,0 02 0	0,0 01 3	0,0 02 7	0,0 01 2	0,0 00 9	0,0 01 5	0,0 01 5	0,0 01 0	0,0 01 3	0,0 00 6	0,0 02 8	0,0 00 8	0,3 70 8	0,0 00 7	0,0 01 6	0,0 01 5	0,0 00 2	0,0 00 4	0,0 00 7	0,0 00 4	0,0 00 1	0,0 00 2	0,0 00 4	0,0 00 1					
29	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 04 3	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0					
30	0,0 00 7	0,0 07 6	0,0 01 7	0,0 01 3	0,0 09 5	0,0 01 2	0,0 01 3	0,0 06 5	0,0 05 1	0,0 02 1	0,0 01 8	0,0 01 9	0,0 01 6	0,0 01 7	0,0 01 3	0,0 01 3	0,0 02 1	0,0 04 2	0,0 00 8	0,0 01 9	0,0 01 0	0,0 01 0	0,0 02 0	0,0 01 7	0,0 01 0	0,0 01 6	0,0 01 2	0,0 01 1	0,0 01 9	0,4 54 9	0,0 00 9	0,0 00 8	0,0 00 9	0,0 00 9	0,0 00 2	0,0 00 9	0,0 00 9	0,0 01 2	0,0 00 0				
31	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 2	0,0 01 5	0,0 00 3	0,0 00 2	0,0 00 9	0,0 00 4	0,0 00 3	0,0 00 4	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 5	0,0 00 2	0,0 00 6	0,0 00 7	0,0 00 6	0,0 00 2	0,0 00 7	0,0 01 1	0,0 00 2	0,0 00 3	0,0 00 1	0,0 00 0	0,0 00 4	0,0 00 4	0,0 00 0	0,0 00 5	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 0				
32	0,0 00 0	0,0 00 6	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 3	0,0 00 6	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0			
33	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0		
34	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 5	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	
35	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	1,0 00 49
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35								

(I-B)⁻¹ W GREECE IMPORTS 2014

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1	0,3 32 5	0,0 00 0	0,0 05 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 01 6	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	
2	0,0 67 4	0,3 32 9	0,0 03 9	0,0 00 5	0,0 00 0	0,0 00 2	0,0 00 8	0,0 00 1	0,0 00 7	0,0 00 3	0,0 00 8	0,0 00 9	0,0 00 9	0,0 00 4	0,0 00 6	0,0 00 1	0,0 00 1	0,0 00 4	0,0 00 9	0,0 00 3	0,0 00 4	0,0 00 8	0,0 00 4	0,0 00 5	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0
3	0,0 00 9	0,0 00 0	0,1 49 5	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 6	0,0 00 3	0,0 00 0	0,0 00 0	
4	0,0 01 9	0,0 00 0	0,0 00 5	0,3 05 2	0,0 00 1	0,0 00 0	0,0 00 3	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 1	0,0 00 7	0,0 00 0	0,0 00 2	0,0 00 5	0,0 00 3	0,0 00 9	0,0 00 0	0,0 00 6	0,0 00 4	0,0 00 5	0,0 00 0	0,0 00 8	0,0 00 0	0,0 00 3	0,0 00 3	0,0 00 3	0,0 00 6	0,0 00 4	0,0 00 0	
5	0,0 14 6	0,0 00 2	0,0 04 1	0,0 52 6	0,0 15 0	0,0 00 1	0,0 02 5	0,0 00 2	0,0 01 7	0,0 01 6	0,0 00 7	0,0 00 3	0,0 00 3	0,0 00 7	0,0 00 3	0,0 00 2	0,0 00 6	0,0 00 6	0,0 00 2	0,0 00 6	0,0 00 3	0,0 00 2	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 8	0,0 00 8	0,0 00 3	0,0 00 0	0,0 00 4	0,0 00 0	
6	0,0 02 4	0,0 00 2	0,0 03 4	0,0 00 4	0,0 00 0	0,1 74 6	0,0 00 6	0,0 00 2	0,0 00 9	0,0 00 3	0,0 00 3	0,0 00 7	0,0 00 0	0,0 00 2	0,0 00 6	0,0 00 3	0,0 00 7	0,0 00 6	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 15	0,0 00 00	0,0 00 00	0,0 00 00	0,0 00 00	0,0 00 01	0,0 00 00	0,0 00 00	0,0 00 01	0,0 00 03	0,0 00 00	0,0 00 03	0,0 00 02	0,0 00 00
7	0,0 01 1	0,0 00 1	0,0 01 4	0,0 00 4	0,0 00 0	0,0 00 3	0,2 54 6	0,0 00 0	0,0 00 4	0,0 00 8	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 7	0,0 00 5	0,0 00 3	0,0 00 2	0,0 00 8	0,0 00 4	0,0 00 0	0,0 00 9	0,0 00 1	0,0 00 7	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 5	0,0 00 1	0,0 00 4	0,0 00 8	0,0 00 5	0,0 00 0	
8	0,0 09 4	0,0 00 1	0,0 00 4	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 1	0,0 12 8	0,0 00 5	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 0	0,0 00 1	0,0 00 7	0,0 00 5	0,0 00 3	0,0 00 2	0,0 00 8	0,0 00 9	0,0 00 1	0,0 00 9	0,0 00 4	0,0 00 3	0,0 00 8	0,0 00 1	0,0 00 0	0,0 00 7	0,0 00 0	0,0 00 1	0,0 00 9	0,0 00 7	0,0 00 0	
9	0,0 31 2	0,0 00 2	0,0 04 0	0,0 02 0	0,0 00 0	0,0 00 1	0,0 02 3	0,0 00 6	0,1 70 4	0,0 00 5	0,0 00 7	0,0 00 7	0,0 00 3	0,0 00 6	0,0 00 4	0,0 00 7	0,0 00 6	0,0 00 2	0,0 00 4	0,0 00 5	0,0 00 0	0,0 00 6	0,0 00 5	0,0 00 6	0,0 00 7	0,0 00 7	0,0 00 0	0,0 00 0	0,0 00 2	0,0 00 3	0,0 00 6	0,0 00 3	0,0 00 6	0,0 00 0	
1 0	0,0 02 2	0,0 00 1	0,0 01 0	0,0 00 3	0,0 00 0	0,0 00 1	0,0 00 5	0,0 00 1	0,0 00 5	0,1 22 5	0,0 00 2	0,0 00 2	0,0 00 6	0,0 00 2	0,0 00 6	0,0 00 5	0,0 00 2	0,0 00 6	0,0 00 5	0,0 00 4	0,0 00 1	0,0 00 8	0,0 00 3	0,0 00 8	0,0 00 3	0,0 00 0	0,0 00 2	0,0 00 2	0,0 00 0	0,0 00 6	0,0 00 7	0,0 00 1	0,0 00 8	0,0 00 9	0,0 00 0
1 1	0,0 00 5	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 3	0,0 00 2	0,0 00 1	0,2 45 9	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 2	0,0 00 8	0,0 00 3	0,0 00 3	0,0 00 9	0,0 00 4	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 0	0,0 00 0	0,0 00 3	0,0 00 1	0,0 00 4	0,0 00 2	0,0 00 0
1 2	0,0 00 7	0,0 00 2	0,0 01 7	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 3	0,0 00 3	0,0 00 5	0,0 00 3	0,0 00 5	0,1 20 3	0,0 00 8	0,0 00 9	0,0 00 7	0,0 00 3	0,0 00 0	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 7	0,0 00 2	0,0 00 6	0,0 00 1	0,0 00 2	0,0 00 6	0,0 00 0	0,0 00 9	0,0 00 3	0,0 00 3	0,0 00 3	0,0 00 3	0,0 00 6	0,0 00 0	
1 3	0,0 00 6	0,0 00 9	0,0 01 3	0,0 00 2	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 3	0,0 00 4	0,0 00 3	0,0 00 4	0,0 00 7	0,2 37 0	0,0 00 5	0,0 00 6	0,0 00 3	0,0 00 7	0,0 00 2	0,0 00 1	0,0 00 6	0,0 00 6	0,0 00 6	0,0 00 7	0,0 00 3	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 0	0,0 00 9	0,0 00 5	0,0 00 1	0,0 00 8	0,0 00 4	0,0 00 0	
1 4	0,0 00 9	0,0 00 2	0,0 04 3	0,0 01 0	0,0 00 0	0,0 00 2	0,0 00 1	0,0 00 3	0,0 00 1	0,0 00 7	0,0 00 1	0,0 00 8	0,0 00 2	0,1 51 3	0,0 00 0	0,0 00 2	0,0 00 4	0,0 00 7	0,0 00 1	0,0 00 5	0,0 00 9	0,0 00 8	0,0 00 4	0,0 00 1	0,0 00 5	0,0 00 3	0,0 00 8	0,0 00 0	0,0 00 2	0,0 00 7	0,0 00 0	0,0 00 0	0,0 00 14	0,0 00 04	0,0 00 05
1 5	0,0 01 5	0,0 02 5	0,0 05 7	0,0 00 9	0,0 00 0	0,0 00 2	0,0 00 0	0,0 00 8	0,0 00 9	0,0 00 8	0,0 00 6	0,0 00 8	0,3 29 6	0,0 00 9	0,0 00 2	0,0 00 6	0,0 00 1	0,0 00 3	0,0 00 2	0,0 00 9	0,0 00 2	0,0 00 1	0,0 00 6	0,0 00 4	0,0 00 5	0,0 00 8	0,0 00 0	0,0 00 8	0,0 00 6	0,0 00 9	0,0 00 6	0,0 00 9	0,0 00 2	0,0 00 0	
1 6	0,0 00 6	0,0 00 1	0,0 00 2	0,0 00 1	0,0 00 0	0,0 00 0	0,0 00 1	0,0 00 2	0,0 00 2	0,0 00 1	0,0 00 1	0,0 00 1	0,0 00 2	0,0 00 0	0,0 00 1	0,2 28 8	0,0 00 1	0,0 00 5	0,0 00 7	0,0 00 7	0,0 00 2	0,0 00 4	0,0 00 3	0,0 00 5	0,0 00 3	0,0 00 8	0,0 00 0	0,0 00 0	0,0 00 04	0,0 00 07	0,0 00 00	0,0 00 11	0,0 00 01	0,0 00 00	

17	0,0007	0,0001	0,0005	0,0002	0,0000	0,0002	0,0001	0,0002	0,0001	0,0003	0,0004	0,0002	0,0001	0,0001	0,0003	0,1004	0,0002	0,0005	0,0007	0,0004	0,0003	0,0001	0,0001	0,0003	0,0002	0,0006	0,0008	0,0002	0,0009	0,0005	0,0000
18	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
19	0,0003	0,0000	0,0001	0,0000	0,0000	0,0000	0,0001	0,0000	0,0001	0,0000	0,0000	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
20	0,0000	0,0000	0,0003	0,0001	0,0000	0,0001	0,0002	0,0002	0,0001	0,0001	0,0001	0,0002	0,0001	0,0001	0,0001	0,0001	0,0005	0,0001	0,0003	0,0008	0,0006	0,0005	0,0003	0,0001	0,0003	0,0001	0,0006	0,0005	0,0001	0,0001	0,0002
21	0,0003	0,0000	0,0001	0,0000	0,0000	0,0000	0,0001	0,0000	0,0001	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
22	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
23	0,0008	0,0001	0,0004	0,0001	0,0000	0,0000	0,0001	0,0004	0,0002	0,0001	0,0002	0,0001	0,0001	0,0000	0,0001	0,0002	0,0004	0,0007	0,0005	0,0008	0,0002	0,0007	0,0003	0,0001	0,0004	0,0000	0,0001	0,0008	0,0002	0,0001	0,0004
24	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
25	0,0001	0,0000	0,0003	0,0001	0,0000	0,0000	0,0001	0,0000	0,0003	0,0001	0,0001	0,0001	0,0001	0,0001	0,0002	0,0001	0,0002	0,0004	0,0003	0,0000	0,0002	0,0001	0,0004	0,0007	0,0004	0,0002	0,0000	0,0002	0,0002	0,0000	0,0001
26	0,0004	0,0006	0,0006	0,0002	0,0000	0,0004	0,0005	0,0005	0,0001	0,0009	0,0008	0,0008	0,0001	0,0006	0,0003	0,0008	0,0001	0,0003	0,0007	0,0002	0,0003	0,0008	0,0006	0,0004	0,0005	0,0000	0,0004	0,0009	0,0003	0,0007	0,0009
27	0,0002	0,0001	0,0005	0,0001	0,0000	0,0000	0,0001	0,0000	0,0002	0,0001	0,0001	0,0000	0,0001	0,0000	0,0001	0,0002	0,0002	0,0003	0,0004	0,0002	0,0009	0,0008	0,0003	0,0002	0,0004	0,0000	0,0004	0,0000	0,0003	0,0007	0,0005
28	0,0002	0,0001	0,0002	0,0000	0,0000	0,0001	0,0003	0,0001	0,0003	0,0002	0,0002	0,0002	0,0004	0,0002	0,0002	0,0004	0,0006	0,0007	0,0003	0,0005	0,0009	0,0007	0,0001	0,0001	0,0002	0,0008	0,0008	0,0000	0,0003	0,0004	0,0000
29	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
30	0,0004	0,0005	0,0006	0,0001	0,0000	0,0001	0,0002	0,0004	0,0001	0,0001	0,0001	0,0002	0,0001	0,0001	0,0002	0,0003	0,0004	0,0001	0,0008	0,0000	0,0006	0,0006	0,0001	0,0001	0,0001	0,0007	0,0009	0,0004	0,0001	0,0006	0,0000
31	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
32	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	
33	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	

3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	0,0
4	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	26	00
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	1	0	0	0	1	0	0	2	1	0	3	3	3	0	0
3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	
5	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	49	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	

III. Thesis findings coke and refined petroleum

Coke, Refined Petroleum 2014 (total input output table)	Product losses by demand side (million \$)	Product losses by supply side (million \$)	Employment losses by demand side (thousand jobs)	Employment losses by supply side (thousand jobs)	Wages losses by demand side (million \$)	Wages losses by supply side (million \$)
Agriculture, Hunting, Forestry and Fishing	119,27	1.108,68	3,60	33,49	38,58	358,58
Mining and Quarrying	11.602,06	19,50	70,02	0,12	3.822,76	6,42
Food, Beverages and Tobacco	334,39	607,97	1,68	3,06	49,73	90,42
Textiles and Textile Products	71,11	29,70	0,92	0,38	21,21	8,86
Leather, Leather and Footwear	23,70	9,90	0,01	0,00	0,15	0,06
Wood and Products of Wood and Cork	36,43	16,28	0,92	0,41	6,10	2,73
Pulp, Paper, Paper , Printing and Publishing	165,70	45,30	1,28	0,35	37,94	10,37
Coke, Refined Petroleum and Nuclear Fuel	951,51	951,51	0,12	0,12	11,85	11,85
Chemicals and Chemical Products	441,95	148,18	2,23	0,75	70,86	23,76
Rubber and Plastics	225,63	82,01	1,35	0,49	27,50	10,00
Other Non-Metallic Mineral	147,86	46,11	1,07	0,33	36,08	11,25
Basic Metals and Fabricated Metal	567,62	97,50	1,61	0,28	58,33	10,02
Machinery, Nec	426,74	58,02	3,76	0,51	99,83	13,57
Electrical and Optical Equipment	241,48	33,80	1,12	0,16	34,63	4,85
Transport Equipment	241,83	22,84	2,57	0,24	77,11	7,28
Manufacturing, Nec; Recycling	341,00	56,72	2,75	0,46	77,83	12,95
Electricity, Gas and Water Supply	693,72	255,75	2,02	0,74	85,43	31,50
Construction	337,36	189,61	3,65	2,05	66,22	37,22
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	116,15	38,71	1,50	0,50	35,12	11,71
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	5.123,23	375,95	60,04	4,41	1.759,33	129,10
Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	470,96	176,51	15,70	5,88	302,74	113,46
Hotels and Restaurants	134,45	390,83	1,54	4,48	22,72	66,04
Inland Transport	719,06	285,90	10,21	4,06	265,55	105,58
Water Transport	66,43	932,22	0,10	1,45	4,43	62,23
Air Transport	82,12	154,60	0,14	0,25	7,76	14,60
Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	1.658,63	45,39	11,49	0,31	488,19	13,36
Post and Telecommunications	830,12	134,71	6,14	1,00	224,37	36,41
Financial Intermediation	1.698,98	36,32	11,27	0,24	626,10	13,38
Real Estate Activities	1.961,77	23,53	0,35	0,00	8,47	0,10
Renting of M&Eq and Other Business Activities	3.693,26	187,30	59,94	3,04	1.666,54	84,52
Public Admin and Defence; Compulsory Social Security	58,75	119,55	0,81	1,65	32,62	66,39
Education	287,64	12,60	6,02	0,26	219,64	9,62
Health and Social Work	9,26	198,02	0,15	3,13	3,79	81,08
Other Community, Social and Personal Services	196,03	128,49	3,27	2,14	83,54	54,76
Private Households with Employed Persons	0,00	0,00	0,00	0,00	0,00	0,00
TOTAL	34.076,19	7.020,02	289,33	76,76	10.373,09	1.514,03

Coke, Refined Petroleum 2014 (imports input output table)	Product losses by demand side (million \$)	Product losses by supply side (million \$)	Employment losses by demand side (thousand jobs)	Employment losses by supply side (thousand jobs)	Wages losses by demand side (million \$)	Wages losses by supply side (million \$)
Agriculture, Hunting, Forestry and Fishing	12,37	657,20	0,37	19,85	4,00	212,56
Mining and Quarrying	10.467,36	7,84	63,17	0,05	3.448,89	2,58
Food, Beverages and Tobacco	10,68	67,70	0,05	0,34	1,59	10,07
Textiles and Textile Products	4,27	4,55	0,06	0,06	1,27	1,36
Leather, Leather and Footwear	1,42	1,52	0,00	0,00	0,02	0,02
Wood and Products of Wood and Cork	6,14	2,98	0,15	0,08	1,03	0,50
Pulp, Paper, Paper , Printing and Publishing	8,51	8,49	0,07	0,07	1,95	1,94
Coke, Refined Petroleum and Nuclear Fuel	541,06	541,06	0,07	0,07	6,74	6,74
Chemicals and Chemical Products	189,55	73,49	0,96	0,37	30,39	11,78
Rubber and Plastics	26,10	29,06	0,16	0,17	3,18	3,54
Other Non-Metallic Mineral	53,28	14,42	0,39	0,10	13,00	3,52
Basic Metals and Fabricated Metal	154,46	16,35	0,44	0,05	15,87	1,68
Machinery, Nec	77,38	11,50	0,68	0,10	18,10	2,69
Electrical and Optical Equipment	42,16	4,30	0,19	0,02	6,05	0,62
Transport Equipment	112,00	3,34	1,19	0,04	35,71	1,07
Manufacturing, Nec; Recycling	39,15	10,62	0,32	0,09	8,94	2,42
Electricity, Gas and Water Supply	75,69	128,25	0,22	0,37	9,32	15,79
Construction	73,41	54,77	0,79	0,59	14,41	10,75
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	5,27	18,96	0,07	0,24	1,59	5,73
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	329,79	210,91	3,86	2,47	113,25	72,43
Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	15,19	97,96	0,51	3,27	9,76	62,97
Hotels and Restaurants	0,32	119,17	0,00	1,37	0,05	20,14
Inland Transport	270,98	190,22	3,85	2,70	100,07	70,25
Water Transport	7,47	637,64	0,01	0,99	0,50	42,56
Air Transport	5,05	100,13	0,01	0,16	0,48	9,46
Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	532,28	22,11	3,69	0,15	156,67	6,51
Post and Telecommunications	46,45	68,58	0,34	0,51	12,56	18,54
Financial Intermediation	144,92	5,10	0,96	0,03	53,40	1,88
Real Estate Activities	0,56	2,84	0,00	0,00	0,00	0,01
Renting of M&Eq and Other Business Activities	323,27	87,30	5,25	1,42	145,87	39,40
Public Admin and Defence; Compulsory Social Security	37,94	38,73	0,52	0,53	21,07	21,51
Education	8,54	3,40	0,18	0,07	6,52	2,60
Health and Social Work	1,18	102,27	0,02	1,62	0,48	41,87
Other Community, Social and Personal Services	2,27	38,47	0,04	0,64	0,97	16,40
Private Households with Employed Persons	0,00	0,00	0,00	0,00	0,00	0,00
TOTAL	13.626,47	3.381,23	88,58	38,60	4.243,72	721,87

IV. Thesis findings electricity and gas

Electricity and gas 2014 (total input output table)	Product losses by demand side (million \$)	Product losses by supply side (million \$)	Employment losses by demand side (thousand jobs)	Employment losses by supply side (thousand jobs)	Wages losses by demand side (million \$)	Wages losses by supply side (million \$)
Agriculture, Hunting, Forestry and Fishing	39,06	600,57	1,18	18,14	12,63	194,24
Mining and Quarrying	612,76	31,42	3,70	0,19	201,90	10,35
Food, Beverages and Tobacco	55,14	653,82	0,28	3,29	8,20	97,24
Textiles and Textile Products	12,32	66,87	0,16	0,86	3,68	19,95
Leather, Leather and Footwear	4,11	22,29	0,00	0,01	0,03	0,14
Wood and Products of Wood and Cork	11,96	24,40	0,30	0,62	2,00	4,09
Pulp, Paper, Paper , Printing and Publishing	58,54	107,06	0,45	0,83	13,40	24,51
Coke, Refined Petroleum and Nuclear Fuel	211,13	572,68	0,03	0,07	2,63	7,13
Chemicals and Chemical Products	65,83	134,00	0,33	0,68	10,55	21,49
Rubber and Plastics	37,20	139,33	0,22	0,83	4,53	16,98
Other Non-Metallic Mineral	18,67	125,61	0,14	0,91	4,56	30,65
Basic Metals and Fabricated Metal	110,84	552,67	0,31	1,57	11,39	56,79
Machinery, Nec	106,19	161,84	0,94	1,43	24,84	37,86
Electrical and Optical Equipment	90,20	82,27	0,42	0,38	12,94	11,80
Transport Equipment	52,89	44,88	0,56	0,48	16,87	14,31
Manufacturing, Nec; Recycling	73,87	196,96	0,59	1,59	16,86	44,95
Electricity, Gas and Water Supply	1.950,16	1.950,16	5,68	5,68	240,17	240,17
Construction	67,31	334,05	0,73	3,62	13,21	65,57
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	17,96	37,24	0,23	0,48	5,43	11,26
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	790,10	215,48	9,26	2,53	271,32	74,00
Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	91,79	132,83	3,06	4,43	59,00	85,39
Hotels and Restaurants	37,24	435,59	0,43	5,00	6,29	73,60
Inland Transport	80,98	124,37	1,15	1,77	29,91	45,93
Water Transport	14,00	237,77	0,02	0,37	0,93	15,87
Air Transport	18,87	60,25	0,03	0,10	1,78	5,69
Other Supporting and Auxillary Transport Activities; Activities of Travel Agencies	195,60	44,80	1,36	0,31	57,57	13,19
Post and Telecommunications	223,84	152,73	1,65	1,13	60,50	41,28
Financial Intermediation	650,74	106,69	4,32	0,71	239,81	39,32
Real Estate Activities	375,78	45,45	0,07	0,01	1,62	0,20
Renting of M&Eq and Other Business Activities	660,19	201,86	10,72	3,28	297,90	91,09
Public Admin and Defence; Compulsory Social Security	12,20	260,54	0,17	3,59	6,77	144,68
Education	83,23	37,71	1,74	0,79	63,55	28,79
Health and Social Work	2,78	329,66	0,04	5,21	1,14	134,98
Other Community, Social and Personal Services	135,68	242,48	2,26	4,04	57,83	103,34
Private Households with Employed Persons	0,00	0,00	0,00	0,00	0,00	0,00
TOTAL	6.969,18	8.466,34	52,52	74,88	1.761,77	1.806,83

Electricity and gas 2014 (total input output table)	Product losses by demand side (million \$)	Product losses by supply side (million \$)	Employment losses by demand side (thousand jobs)	Employment losses by supply side (thousand jobs)	Wages losses by demand side (million \$)	Wages losses by supply side (million \$)
Agriculture, Hunting, Forestry and Fishing	7,82	20,47	0,24	0,62	2,53	6,62
Mining and Quarrying	514,23	1,98	3,10	0,01	169,43	0,65
Food, Beverages and Tobacco	1,08	32,75	0,01	0,16	0,16	4,87
Textiles and Textile Products	0,53	4,80	0,01	0,06	0,16	1,43
Leather, Leather and Footwear	0,18	1,60	0,00	0,00	0,00	0,02
Wood and Products of Wood and Cork	2,78	1,49	0,07	0,04	0,47	0,25
Pulp, Paper, Paper , Printing and Publishing	2,19	7,59	0,02	0,06	0,50	1,74
Coke, Refined Petroleum and Nuclear Fuel	128,97	76,11	0,02	0,01	1,61	0,95
Chemicals and Chemical Products	20,99	9,16	0,11	0,05	3,37	1,47
Rubber and Plastics	2,91	10,04	0,02	0,06	0,35	1,22
Other Non-Metallic Mineral	3,00	10,05	0,02	0,07	0,73	2,45
Basic Metals and Fabricated Metal	16,15	37,50	0,05	0,11	1,66	3,85
Machinery, Nec	21,22	7,74	0,19	0,07	4,96	1,81
Electrical and Optical Equipment	41,23	4,63	0,19	0,02	5,91	0,66
Transport Equipment	22,99	2,29	0,24	0,02	7,33	0,73
Manufacturing, Nec; Recycling	6,30	10,53	0,05	0,08	1,44	2,40
Electricity, Gas and Water Supply	168,45	168,45	0,49	0,49	20,75	20,75
Construction	5,05	10,87	0,05	0,12	0,99	2,13
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	1,17	2,72	0,02	0,04	0,36	0,82
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	25,74	14,55	0,30	0,17	8,84	5,00
Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2,69	9,82	0,09	0,33	1,73	6,31
Hotels and Restaurants	0,07	22,12	0,00	0,25	0,01	3,74
Inland Transport	15,17	8,01	0,22	0,11	5,60	2,96
Water Transport	1,30	15,54	0,00	0,02	0,09	1,04
Air Transport	1,42	4,53	0,00	0,01	0,13	0,43
Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	38,06	3,19	0,26	0,02	11,20	0,94
Post and Telecommunications	19,32	11,53	0,14	0,09	5,22	3,12
Financial Intermediation	67,61	3,99	0,45	0,03	24,92	1,47
Real Estate Activities	0,12	2,00	0,00	0,00	0,00	0,01
Renting of M&Eq and Other Business Activities	42,16	12,96	0,68	0,21	19,02	5,85
Public Admin and Defence; Compulsory Social Security	8,01	12,52	0,11	0,17	4,45	6,95
Education	2,53	2,09	0,05	0,04	1,93	1,60
Health and Social Work	0,22	19,65	0,00	0,31	0,09	8,05
Other Community, Social and Personal Services	1,33	11,68	0,02	0,19	0,56	4,98
Private Households with Employed Persons	0,00	0,00	0,00	0,00	0,00	0,00
TOTAL	1.192,97	574,94	7,22	4,05	306,51	107,26

V. Absolute Vertical – Horizontal Interconnection Ratios

	absolute vertical interconnection ratio ABL product	absolute horizontal interconnection ratio AFL product	absolute vertical interconnection ratio ABL wage	absolute horizontal interconnection ratio AFL wage	absolute vertical interconnection ratio ABL employment	absolute horizontal interconnection ratio AFL employment
coke and refined petroleum	1,69	0,25	6,30	1,16	17,22	5,69
electricity and gas	0,85	0,75	0,27	0,35	0,34	0,61