ΔΙΑΤΜΗΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ
ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ

ΔΙΚΑΙΟ &
ΟΙΚΟΝΟΜΙΑ

MASTER IN LAW & ECONOMICS

EVANGELIA MITROPOULOU

ECONOMIC ANALYSIS AND BEHAVIORAL ECONOMICS OF PLEA BARGAINING

MASTER THESIS

(ΜΔΟ1836)

SUPERVISOR: PROF. ARISTIDES HATZIS

PIRAEUS, JUNE 2021

UNIVERSITY OF PIRAEUS
SCHOOL OF ECONOMICS, BUSINESS AND INTERNATIONAL STUDIES
INTERDEPARTMENTAL POSTGRADUATE PROGRAMME
“MASTER IN LAW AND ECONOMICS”

CERTIFICATION OF MASTER THESIS WRITING

I responsibly declare that the thesis for obtaining my Master's Degree "in Law and Economics" from the University of Piraeus, entitled “Economic Analysis and Behavioral Economics of Plea Bargaining” has been exclusively and entirely written by me. Neither has it been submitted or approved under any other postgraduate program or undergraduate degree in Greece or abroad, nor is it an academic or professional work or part of work.

I also responsibly declare that the sources I referred to in the preparation of this work are cited in their entirety, with full reference to the authors, the publishing house or the journal, including any sources that may have been used online. Violation of my aforementioned academic responsibility constitutes an essential reason for the revoking of my degree.

Evangelia Mitropoulou

07.06.2021

ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ
ΣΧΟΛΗ ΟΙΚΟΝΟΜΙΚΩΝ ΕΠΙΧΕΙΡΗΜΑΤΙΚΩΝ ΚΑΙ ΔΙΕΘΝΩΝ ΣΠΟΥΔΩΝ
ΔΙΑΤΜΗΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
«ΔΙΚΑΙΟ ΚΑΙ ΟΙΚΟΝΟΜΙΑ»

ΒΕΒΑΙΩΣΗ ΕΚΠΟΝΗΣΗΣ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Δηλώνω υπεύθυνα ότι η διπλωματική εργασία για τη λήψη του μεταπτυχιακού τίτλου σπουδών, του Πανεπιστημίου Πειραιώς, «Δίκαιο και Οικονομία» με τίτλο «Η Οικονομική Ανάλυση και τα Συμπεριφορικά Οικονομικά της Ποινικής Συνδιαλλαγής» έχει συγγραφεί από εμένα αποκλειστικά και στο σύνολό της. Δεν έχει υποβληθεί ούτε έχει εγκριθεί στο πλαίσιο κάποιου άλλου μεταπτυχιακού προγράμματος ή προπτυχιακού τίτλου σπουδών, στην Ελλάδα ή στο εξωτερικό, ούτε είναι εργασία ή τμήμα εργασίας ακαδημαϊκού ή επαγγελματικού χαρακτήρα.

Δηλώνω επίσης υπεύθυνα ότι οι πηγές στις οποίες ανέτρεξα για την εκπόνηση της συγκεκριμένης εργασίας, αναφέρονται στο σύνολό τους, κάνοντας πλήρη αναφορά στους συγγραφείς, τον εκδοτικό οίκο ή το περιοδικό, συμπεριλαμβανομένων και των πηγών που ενδεχομένως χρησιμοποιήθηκαν από το διαδίκτυο. Παράβαση της ανωτέρω ακαδημαϊκής μου ευθύνης αποτελεί ουσιώδη λόγο για την ανάκληση του πτυχίου μου.

Ευαγγελία Μητροπούλου

07.06.2021

Acknowledgements

I would like to express my very great appreciation to my Professor, Aristides Hatzis, for his patient guidance, valuable support, unparallel enthusiasm, enormous encouragement, meaningful feedback and the gift offering to me by accepting to be the supervisor of my thesis on my Master of Science.

I need to sincerely thank Professor Antonis Karampatzos, who -along with Professor Hatzis- a few years ago introduced me to the world of the Economic Analysis of Law and Behavioral Economics, a world that intrigues and surprises me on a daily basis. His exemplary teaching, incomparable writing and restless mentoring are to me boundless treasures.

I would also like to thank my brother, Thomas, for standing next to me every single day, insisting on never giving up from my dreams, teaching me that perfectionism in moderation can be an important ally and always providing me with constructive comments.

Furthermore, I feel the need to thank my parents, Anna and Ioannis, the people who blessed me with the greater gifts, the gifts to live, love, learn, feel, care, offer, help, support, volunteer, think, trust and be trusted, insist, be patient, set questions, set goals.

It is also significant to me to express my gratitude to Orestis, for his unconditional trust, love and time dedication as well as for having been the wellspring of my motivation, the source of my inspiration, the strength of my effort.

Last but not least, my very close friends, who tirelessly supported me throughout the whole period of making research, writing and mostly editing this paper, always had time to listen to me and encouraged me, deserve my kindest gratitude.

For the economic and social world is mysterious, and it sometimes changes quickly and in surprising fashion. Every time we peel away some of the mystery, deeper challenges rise to the surface.

Gary Becker, Nobel Prize Speech, 1992

Abstract

Plea bargaining has been linked to considerations closely examined in the light of the economics science. These considerations refer to the institution's economic efficiency. The first one -following the application of economic models- is the controversy on the institution's economic efficiency with regards to reaching the standards set by criminal law in order for its purposes to be served. The second one is the discussion over explaining the institution's economic efficiency through economic models taking human behavior's particular features into account. The former stands as a rational choice theory's concern raised almost in every attempt approaching the issue, while the latter moves the argumentation towards a conversation on social and cognitive psychology observations. The present thesis admits that over time plea bargaining has maintained its position as the most preferable way of criminal cases' disposition of in the United States, addresses the growing Economic Analysis and Behavioral Economics literature on plea bargaining, and attempts to answer how and to what extent heuristics and biases affect the bargainers' choice. It is shown that heuristics and biases induce the bargainers' deviate from the rational choice, either it is the plea or the trial.

Table of Contents

INTRODUCTION 8

PART I – PLEA BARGAINING AND ECONOMIC ANALYSIS OF LAW 10

I. Plea Bargaining in the Common Law 10

A. Common Law and Civil Law Systems 10

B. Adversarial and Inquisitorial Criminal Law Systems 10

C. Definition of Plea Bargaining- Parties Involved in Plea Bargaining 11

II. Economic Analysis of Law 18

A. Neoclassical Economics Theory 18

B. Human Decision-Making - Rational Choice Theory 19

C. Bounded Rationality Theory, Behavioral Economics and Game Theory ... 21

PART II – ECONOMIC ANALYSIS OF PLEA BARGAINING 25

I. Comparative Presentation and Critical Review of the Literature of the Economic Analysis of Plea Bargaining 25

II. General Remarks 68

PART III – BEHAVIORAL ECONOMICS AND GAME THEORY OF PLEA BARGAINING 70

I. Comparative Presentation and Critical Review of the Literature of the Behavioral Economics of Plea Bargaining 70

II. Applying not already applied Heuristics and Cognitive Biases to Plea Bargaining 87

III. Applying the Ultimatum Bargaining Game to Plea Bargaining 95

CONCLUSION 98

INTRODUCTION

The fact that jury waivers and guilty pleas may occasionally be rejected hardly implies that all defendants may be required to submit to a full-dress jury trial as a matter of course. Quite apart from the cruel impact of such a requirement upon those defendants who would greatly prefer not to contest their guilt, it is clear -as even the Government recognizes- that the automatic rejection of all guilty pleas would rob the criminal process of much of its flexibility.[1] In this context, *disposition of charges after plea discussions is not only an essential part of the process, but a highly desirable part for many reasons. It leads to prompt and largely final disposition of most criminal cases.*[2]

Obviously, the United States Supreme Court recognizes the benefits that the institution of plea bargaining reserves to the parties involved in the criminal procedure and the state in general. Nonetheless, at the same time that case law has embraced the institution's development, legal scholars and practitioners do not unanimously opt for either its approval or its disapproval. There are significant arguments expressed by both sides of commentators, who passionately defend their views and reject their opponents' claims.

However, despite the disputes the institution gives rise to, the criminal market reality seems to have decided its unanimous approval. To let the numbers speak, according to the United States Sentencing Commission, in 2019, from the total number of criminal defendants' convictions in all Circuits and Districts of the United States accounting for 76,538, the excessive number of 74,709 of them resulted from guilty pleas, which typically follow a plea bargain.[3] This means that in 2019, the guilty pleas in the United States have climbed up to the outrageous percentage of 97,6%, leaving trials sunk to the low percentage of 2,4%. Since such percentages have been reported over the years without exemption, it is plausible that the institution has drawn the attention of -among others-

[1] This argument supporting that plea bargaining constitutes an essential criminal procedure law's provision is first presented in the United States Supreme Court's decision in *United States v. Jackson,* 390 U.S. 570, 585 (1968), and then quoted in *Brady v. United States*, 397 U.S. 742, 747 (1970).

[2] This endorsement on plea bargaining is made in the United States Supreme Court's decision in the *Santobello v. New York*, 404 U.S. 257, 261 (1971).

[3] *See* "2019 Federal Sentencing Statistics," United States Sentencing Commission, last modified April 1, 2020, https://www.ussc.gov/research/data-reports/geography/2019-federal-sentencing-statistics. In the same website, the numbers of total convictions, those disposed of through plea and those disposed of through trial can be found for each Circuit and for each District in 2019.

those scholars interested in providing the academic community with practical answers to the various questions raised pursuant to the institution's huge impact and prevalence.

More precisely, the tremendous findings, arisen from the ideas attributed to Ronald Coase, Gary Becker, Guido Calabresi, Pietro Trimarchi and Richard Posner regarding the application of the developed by economic science theorems and tools in the legal science, inspired certain scholars to wonder the potential outcomes of such an application specifically in plea bargaining. These ideas' attaining important attention generated the literature on economic analysis of plea bargaining which gives birth to a plethora of debatable questions, reasonable doubts and concrete argumentation. Furthermore, since the theory adopted by the traditional economic analysis of law has been tremendously questioned for being far removed from reality due to the theoretical basis of its assumptions, the interested in it academic community had and still has to welcome the evolutions accordingly. To this extent, cognitive and social psychology's contribution has been welcomed and has paved the way for the behavioral economics. The influence of this development further generated the literature on behavioral economics of plea bargaining.

In Part I of the present paper, plea bargaining is defined, the parties involved in it are presented and the general context, in which this institution of the modern criminal justice system is examined and operates, is provided. Also, an outline of the traditional economic analysis of law theory (RCT Theory) is drawn, its successor theory, which brings up the economic actors' bounded rationality assumption, is referred to, its further successor, behavioral economics, which admit psychology's observations -on heuristics and biases- involvement with economic actors' decisions, is portrayed, and an overview of the game theory is given. In Part II of the paper, the analysis exclusively focuses on the way that the traditional law and economics observations apply to plea bargaining; it is discussed through summarizing, comparing, contrasting, assessing and criticizing the relevant literature. In Part III of the paper, the analysis follows the developments and moves to behavioral economics application to plea bargaining; again, such application is discussed through summarizing, comparing, contrasting, assessing and criticizing the relevant literature. Then, the analysis addresses the effects on the bargainers of heuristics and biases from a different perspective than the one mostly chosen in the existing literature. Last but not least, it is described how the game theory interferes with the plea bargaining institution.

PART I – PLEA BARGAINING AND ECONOMIC ANALYSIS OF LAW

I. Plea Bargaining in the Common Law

A. Common Law and Civil Law Systems

Common law system and civil law system are established as the two dominant legal systems[4] defining almost all countries national courts' jurisdiction and the process through which interpretation and enforcement of the law is conducted. The distinguishing feature of these systems is found on each one's own existence. The former derives mostly from case law, which functions as judicial precedent, while the later derives mostly from statutes. This controversial approach is related to historic reasons. In particular, most countries colonized by the English are governed by the common law system and most countries colonized by the French are governed by the civil law system.[5] So, since the United States were colonized by the English, who brought with them the common law system, it is governed by the common law system.[6] Actually, today, the system has been developed as an amalgam of judgements deriving from the courts of England and the United States.[7] Its derivation, from natural justice and reasoning, attributes to it a flexible and expansive character, which produce and enhance broad unwritten principles.

B. Adversarial and Inquisitorial Criminal Law Systems

Instead of the legal systems' distinction between the common and the civil, another distinction of them is also made; the distinction of them between the adversarial and the inquisitorial/non adversarial. The adversarial system applies to common law countries while the inquisitorial one applies to some civil law countries. The differences between the adversarial and the inquisitorial legal systems are various in terms of criminal and civil law, and basically their procedures. For the criminal law procedure, the adversarial

---

[4] In a minority group of countries, religious law system or pluralistic/mixed law system is established.

[5] Examples of countries colonized by the British and governed by common law system and examples of countries colonized by the French and governed by civil law system can be found on "Legal Systems," LII / Legal Information Institute, Cornell Law School, accessed November 2, 2020, https://www.law.cornell.edu/wex/legal_systems.

[6] All states, except Louisiana, which has civil law legal system, have common law legal system.

[7] Reviewing and understanding the English legal history sheds light to the birth, operation, dominance, definition and name of the common law system. *See* Daniel Hall, *Criminal Law and Procedure*, 6th Ed. (United States of America: Delmar Cengage Learning, 2011), 34-6.

system involves the existence of two opposing parties and a neutral one, who respectively correspond to the prosecutor, the defendant and the judge; the prosecutor and the defendant operate as competing parties, each of whose prepares his or her own case to be presented and advocated at trial while the judge participates whether requested by the parties or provided by law. On the contrary, the inquisitorial system acknowledges the judge as an inquisitor, who actively participates in the investigation of the case, assesses the collected evidence and sets inquiries to the parties involved at trial. Due to the drawbacks accompanying the adversarial system, practice has stressed the need for a different version of it to be implemented in the criminal procedure. This different version of the adversarial system, which is implemented in the United States, enhances the position of the role of the judge through pretrial activities supervision.[8]

C. Definition of Plea Bargaining- Parties Involved in Plea Bargaining

Plea bargaining constitutes an institution of the criminal procedure law that has been developed, established and incorporated in the common law system, while its respective application in civil law system has been followed by substantive restrictions, significant paradoxes as well as theoretical and practical obstacles. Focusing on such a discussion would exceed the intended purpose of the present paper. The paper examines plea bargaining as a common law institution of the criminal procedure. Further, because of the dimension that the institution has gained in the United States, the paper examines it as regulated and applied in this country. As a result, again for the purposes of this analysis, the criminal system, under which plea bargaining is implemented, is the adversarial one, as developed in the country, meaning, with the divergence from the model of a completely passive judge and his or her correspondence to a more strengthened pretrial supervisory role.

In general, plea bargaining constitutes the practice through which an agreement is made after negotiations between the prosecutors and the defendants regarding a criminal case, with an aim this case to be disposed of without trial. The said agreement provides appropriate reciprocal commitments by both prosecutors and defendants; the defendants commit to plead guilty and waive -among others- their rights to jury trial and to be proven

[8] *See* Daniel Hall, *Criminal Law and Procedure*, 6th Ed. (United States of America: Delmar Cengage Learning, 2011), 314, 326.

guilty beyond a reasonable doubt and their privileges against compulsory self-incrimination, while the prosecutors commit to recommend in front of the court a more lenient criminal treatment than the one they would, whether the defendants do not plead their guilt and opt for trial. The more lenient criminal treatment can mean that the prosecutor will: *a) not bring, or move to dismiss, other charges, b) recommend, or agree not to oppose the defendant's request, that a particular sentence or sentencing range is appropriate or that a particular provision of the sentencing guidelines, or policy statement, or sentencing factor does or does not apply, or c) agree that a specific sentence or sentencing range is the appropriate disposition of the case, or that a particular provision of the sentencing guidelines, or policy statement, or sentencing factor does or does not apply.*[9]

As far as the parties that are involved in plea bargaining are concerned, except for the prosecutors and the defendants, the defense attorneys and the judges hold a prominent position concerning its successful completion.

To begin with the prosecutors, they are public -contrary to the old establishment of private entities- and participate in various stages of the criminal procedure (decision to file charges, arraignment, preliminary hearings, pretrial conference, trial) serving the state's interest -also referred to as the public interest or the society's interest. In the arraignment stage -in which plea bargaining takes place- the prosecutors are granted with broad discretion to make the defendants offers, which will lead them to plead guilty and give up trial. It is exactly this broad discretion, which is sometimes referred to as absolute, that triggers many critics of the institution. Actually, taking into consideration that plea bargaining practice is justified based upon the great caseloads[10] prosecutors are conferred

---

[9] *See* "Fed. R. Crim. P. 11 – Pleas," Federal Rules of Criminal Procedure, Criminal Law, Justia, last modified April 1, 2018, https://www.justia.com/criminal/docs/frcrimp/rule11/.

[10] The excessive caseloads reality becomes more complicated owing to the limited resources reality including funds and staff. The resulting situation unavoidably guides prosecutors' tendency and preference to settle instead of going to trial. The United States Supreme Court points out this inclination of prosecutors to promote plea agreements as well as the interactive factors contributing to it in *Santobello v. New York*, 404 U.S. 257, 260 (1971). This specific holding constitutes an ideal example for indicating the problematic circumstances under which prosecutors are called to serve their role. It is characteristic that the decision holds that *this record represents another example of an unfortunate lapse in orderly prosecutorial procedures, in part, no doubt, because of the enormous increase in the workload of the often understaffed prosecutor's offices. The heavy workload may well explain these episodes, but it does not excuse them. The disposition of criminal charges by agreement between the prosecutor and the accused, sometimes loosely called "plea bargaining", is an essential component of the administration of justice. Properly administered, it is to be*

with in conjunction with the limited resources they have at their disposal, it is assumed that prosecutors promote this practice for as many as criminal cases disposition of possible.[11] Further, on these grounds, it is unavoidably implied that prosecutors take advantage of the discretion granted to them in order to deal with this disturbing situation, and consequently, through abusive leniency terms exercise all their influence so as to convince defendants to plea.

Regarding the defendants, they are natural persons against whom prosecutors have filed charges with the accusation of having committed one or more acts that are regarded to be criminal according to the law. They may be either guilty or innocent and they may plead to be guilty, not guilty or *nolo contendere*. The surprising thing is that their true state is not always reflected in their plea. This means, guilty defendants sometimes, or even most times, plead not guilty because their risk preference encourages them to accept the risk of a high sentence at trial instead of a lower sentence from a plea agreement due to the fact that the risk of a high sentence is discounted by the probability of acquittal. Nonetheless, innocent defendants may plead guilty because their risk aversion encourages them to accept a low sentence from a plea agreement, instead of chasing the probability of acquittal at trial due to the fact that this probability is accompanied by the risk of a higher sentence.

encouraged. If every criminal charge were subjected to a full-scale trial, the States and the Federal Government would need to multiply by many times the number of judges and court facilities.

[11] The assumption that prosecutors promote plea bargaining as the preferred way of cases' disposition of is verified or not depending on the role that the prosecutor plays. Albert Alschuler, referring to the possible roles of prosecutors, observes that they may be various. Depending on the one, each time, prosecutors choose to play, they are either more or less willing to dispose of cases through plea agreements as well as to propose more or less lenient sentencing. *See* Albert Alschuler, "The Prosecutor's Role in Plea Bargaining," *University of Chicago Law Review* 36, iss. 1 pt. 3 (1968): 52-3.

The defense attorneys, who may be private attorneys, or court-appointed, or public defenders,[12] represent the defendants in their negotiations[13] with the prosecutors. This representation, which is based on the constitutional right of defendants to have assistance of counsel[14], serves the goal of ensuring that defendants will understand the charges that have been filed against them, the terms of the offer made by prosecutors for the plea agreement, and maybe even the probability of conviction, or respectively acquittal at trial, following attorneys' expert knowledge of the law as well as experience. Especially in the arraignment stage, the defense attorneys act as the connecting links between prosecutors and defendants. That is, they negotiate with prosecutors on their clients' best interest, discuss with their clients and consult them on the most advantageous for them option, and then, announce to prosecutors whether their clients, i.e., the defendants, accept or not the proposed offer.[15] It cannot be ignored that the principal-agent relationship between defendants and defense attorneys -coupled with the fact that the attorneys' fees are not fixed and equal independently from their appointment, their expertise and

---

[12] The terms "court-appointed lawyers" and "public defenders" refer to the defense attorneys who are appointed and assigned respectively to represent criminal defendants who cannot afford private attorneys. Such appointment or assignment takes place based on the indigent criminal defendants' right to have the assistance of counsel. This right dates back in 1963, when the United States Supreme Court held in *Gideon v. Wainwright*, 372 U.S. 335, 335, that *the right of an indigent defendant in a criminal trial to have the assistance of counsel is a fundamental right essential to a fair trial, and petitioner's trial and conviction without the assistance of counsel violated the Fourteenth Amendment*. In an earlier ruling of the Court and more precisely, in *Betts v. Brady*, 316 U.S. 455, 462 (1942), it is discussed the petitioner's claim that under the due process clause, this Court is enforcing the rule that *in every case, whatever the circumstances, one charged with crime who is unable to obtain counsel must be furnished counsel by the State*.

[13] Richard Adelstein describes the negotiations *not as sustained and formal procedures*, but as *whispered and hurried conversations between prosecutor and defense counsel, and defense counsel and defendant, in the corridors of the courthouse on the day the defendant is scheduled to appear for trial*. See Richard Adelstein, "The Plea Bargain in Theory: A Behavioral Model of the Negotiated Guilty Plea," *Southern Economic Journal* 44, no. 3 (1978): 502. Nevertheless, it is argued that if plea bargaining negotiations take place sometime before the day the defendant appears for trial, then Adelstein's idea of time dependent choices for both parties lacks significance.

[14] This right is provided in the Sixth Amendment, named "*Right to Speedy Trial by Jury, Witnesses, Counsel*", of the Constitution for the United States. *See* "Sixth Amendment - Right to Speedy Trial by Jury, Witnesses, Counsel," Interactive Constitution, National Constitution Center, accessed November 2, 2020, https://constitutioncenter.org/interactive-constitution/amendment/amendment-vi. For an overview, *see* "Assistance of Counsel," LII / Legal Information Institute, Cornell University Law School, accessed November 2, 2020, https://www.law.cornell.edu/constitution-conan/amendment-6/assistance-of-counsel.

[15] The obligatory participation of attorneys in the context of defendants' consultancy is referred to United States Supreme Court decision in *Santobello v. New York*, 404 U.S. 257, 265 (1971), according to which, *after Powell v. Alabama, 287 U. S. 45, the Court held that a state defendant was entitled to a lawyer's assistance in choosing whether to plead guilty*.

experience are not equivalent and their incentives may contradict defendants' interests- may call into question the proper service of the described goal.

As for the judges -or generally referred to as the court-, they maintain a crucial role in plea bargaining since they either participate in the negotiations[16] or have the final say on the realization or not of the agreement reached between prosecutors and defendants, with the contribution of defense attorneys. After a plea agreement has been reached, it is examined by judges in a different stage whether the plea has been given properly and in accordance with the conditions provided by law and case law as well as whether there is appropriate factual basis for the plea to be justified. In other words, after the conclusion of the plea agreement, the court is granted with the discretion either to accept it or to reject it. Before accepting a plea, judges address defendants in open court, so as the former to a) inform the latter on the rights granted to them as well as those they are about to waive, following the acceptance by the court of the plea agreement, b) ensure that the plea is voluntary, knowing and understanding[17] and did not result from any form of duress/coercion such as threats, force and/or irrelevant promises, and c) ascertain that the plea is based upon sufficient facts.

The typical and substantial conditions needed to be fulfilled before the agreement's acceptance by the court as well as the whole procedure of plea bargaining are in detail provided, first of all, in Rule 11, named "*Pleas*", of the Federal Rules of Criminal Procedure.[18]

---

[16] Although the participation of judges is discouraged, limited or even prohibited in the negotiations, in practice, sometimes, not only does it occur, but it also enhances the efficiency and fairness of the plea bargaining. *See* Thomas McCoy and Michael Mirra, "Plea Bargaining as Due Process in Determining Guilt," *Stanford Law Review* 32, no. 5 (1980): 897-98. Also, *see* Alafair Burke, "Prosecutorial Passion, Cognitive Bias, and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 207.

[17] *See Scott v. United States*, 419 F. 2d 264, 274 (D.C. Cir. 1969).

[18] For the text of the Rule 11 of the Federal Rules of Criminal Procedure, *see* "Fed. R. Crim. P. 11 – Pleas," Federal Rules of Criminal Procedure, Criminal Law, Justia, last modified April 1, 2018, https://www.justia.com/criminal/docs/frcrimp/rule11/. It is noted that the usefulness and significance of this particular rule is referred to in the case law. For instance, in the United States Supreme Court's decisions in *McCarthy v. United States*, 394 U.S. 459, 464, 465, 467, 472 (1969) and in *Boykin v. Alabama*, 395 U.S. 238, 247 (1969). Also, in *Shelton v. United States*, 242 F.2d 101, 112 (5th Cir. 1957), it is clarified that "*the present motion would be obviously without foundation, and probably would not have been made, if the district court had complied with the mandate of Rule 11, F. R. Crim. Proc., not to accept the plea of guilty without first determining that the plea is made voluntarily with understanding of the nature of the charge*". An objection to Rule 11 is expressed in *Scott v. United States*, 419 F.2d 264, 276, 280 (D.C. Cir. 1969). It is argued that the discretion of the prosecutors to promise defendants definite sentences operates as a factor rendering the guilty plea a compulsory and involuntary act.

Secondly, as it will be indicated in various points of the present analysis, fundamental provisions related to defendants' rights and the plea bargaining institution's operation are found in the Amendments of the United States Constitution. In addition to them, numerous holdings of the United States Supreme Court, which -as explained above- constitute judicial precedent, have established a more and more concrete framework guaranteeing the service of the previously mentioned goals. One of the main issues that has occupied these holdings is the significance of the voluntary and knowing character of the plea.[19] The reason is that coerced or unfairly induced guilty pleas deem the practice unconstitutional and threaten founding principles; this way, the practice is led to abolition and the repercussions of such an outcome are brought up.

Within the abovementioned context, there are two criteria based on which plea bargaining practice is classified in categories. According to the criterion of the distribution of the sentencing power between the prosecutor and the judge, plea bargaining is separated into prosecutorial and judicial.[20] When the sentencing power is exercised by the

---

[19] Indicatively, in *United States v. Jackson*, 390 U.S. 570, 583 (1968), it is held that *It is no answer to urge, as does the Government, that federal trial judges may be relied upon to reject coerced pleas of guilty and involuntary waivers of jury trial. For the evil in the federal statute is not that it necessarily coerces guilty pleas and jury waivers, but simply that it needlessly encourages them. A procedure need not be inherently coercive in order that it be held to impose an impermissible burden upon the assertion of a constitutional right. Thus, the fact that the Federal Kidnaping Act tends to discourage defendants from insisting upon their innocence and demanding trial by jury hardly implies that every defendant who enters a guilty plea to a charge under the Act does so involuntarily. The power to reject coerced guilty pleas and involuntary jury waivers might alleviate, but it cannot totally eliminate, the constitutional infirmity in the capital punishment provision of the Federal Kidnaping Act.* Then, in *Boykin v. Alabama*, 395 U.S. 238, 244 (1969), the Court mentions in footnote 5 that *if a defendant's guilty plea is not equally voluntary and knowing, it has been obtained in violation of due process and is therefore void. Moreover, because a guilty plea is an admission of all the elements of a formal criminal charge, it cannot be truly voluntary unless the defendant possesses an understanding of the law in relation to the facts*. Further, in *Brady v. United States*, 397 U.S. 742, 750 (1970) the Court holds "*that the statute caused the plea in this sense does not necessarily prove that the plea was coerced and invalid as an involuntary act*". To end up to it, the Court recalls part of its aforementioned holding in *United States v. Jackson* 390 U.S. 570, 583 (1968). Also, in *Santobello v. New York*, 404 U.S. 257, 265-66 (1971), it is held that *while plea bargaining is not per se unconstitutional, North Carolina v. Alford, 400 U. S. 25, 400 U. S. 37-38, Shelton v. United States, 242 F.2d 101, aff'd, en banc, 246 F.2d 571 (CA5 1957), a guilty plea is rendered voidable by threatening physical harm, Waley v. Johnston, supra, threatening to use false testimony, ibid., threatening to bring additional prosecutions, Machibroda v. United States, supra, or by failing to inform a defendant of his right of counsel, Walker v. Johnston, supra. Under these circumstances, it is clear that a guilty plea must be vacated*. This particular example is of great importance because it incorporates quotations of other important decisions on the same issue.

[20] *See* Thomas McCoy and Michael Mirra, "Plea Bargaining as Due Process in Determining Guilt," *Stanford Law Review* 32, no. 5 (1980): 896-98.

prosecutor, while the judge maintains the power to approve or disregard the agreement reached between the prosecutor and the defendant, plea bargaining occurs in its prosecutorial form. Conversely, when the sentencing power is exercised by the judge, while the prosecutor maintains the power to negotiate with the defendant, plea bargaining occurs in its judicial form. Both forms may cause to the defendant uncertainty regarding the sentencing differential's extent. Also, according to the criterion of the type of leniency offered to the defendants, plea bargaining is separated into charge bargaining, count bargaining and sentence bargaining. When the prosecutors reduce the charges initially filed against the defendants, the bargaining is of charge type. When the prosecutors dismiss one or more of the multiple charges initially filed against the defendants, the bargaining is of count type. When the prosecutors suggest lower sentencing because of the expected plea compared to the one they would if this plea is not made, the bargaining is of sentence type. The first two types apply to cases in which the accused crimes are punished with mandatory sentences while the third applies to the cases that are not. The present analysis mostly refers to prosecutorial bargaining of sentence type.

Last but not least, attempting to address the most important benefits and drawbacks arising from the plea bargaining institution, the most practical of them prevail. As for the benefits, it is undeniably that plea bargaining offers mutuality of advantage.[21] That is, through plea agreements prosecutors in charge provide defendants with lenient sentencing promise while defendants generate for prosecutors, and subsequently the state, resources savings resulting from waiving their rights to a full criminal trial[22]. It stands

[21] The term "mutuality of advantage" was first used by the United States Supreme Court decision in *Brady v. United States*, 397 U.S. 742, 752 (1970).

[22] Then, Thomas McCoy and Michael Mirra argue that defendants accepting the prosecutors' offers except for waiving their right to trial, they also waive their right to refuse to incriminate themselves. *See* Thomas McCoy and Michael Mirra, "Plea Bargaining as Due Process in Determining Guilt," *Stanford Law Review* 32, no. 5 (1980): 887-889, 901-4. The right to refuse to incriminate oneself, namely, *nor shall be compelled in any criminal case to be a witness against himself*, is provided in the in the Fifth Amendment, named "*Rights of Persons*", of the Constitution for the United States. *See* "Fifth Amendment - Grand Jury, Double Jeopardy, Self-Incrimination, Due Process, Takings," Interactive Constitution, National Constitution Center, accessed November 2, 2020, https://constitutioncenter.org/interactive-constitution/amendment/amendment-v. This right waiving because of defendants accepting pleas has been also admitted by the United States Supreme Court in *Brady v. United States* 397 U.S. 742, 748 (1970). The decision expressly admits that *Central to the plea and the foundation for entering judgment against the defendant is the defendant's admission in open court that he committed the act charged in the indictment. He thus stands as a witness against himself, and he is shielded by the Fifth Amendment from being compelled to do so.*

crucial that plea bargaining's capacity to ensure advantages to both sides involved in the plea agreement has been claimed to be attractive towards the efficiency evaluation of plea bargaining and thus the attempt to approach it within the economic analysis of law context.[23]

However, regarding the practical disadvantages related to plea bargaining, they are found in the results of over-punishment and under-punishment which may follow the acceptance of the plea agreement by the court.[24] Over-punishment constitutes an excessive burden both for the state and the defendants. For the state, it is an excessive burden provided that defendants serve prison sentences; since the sentences are longer than those expected, more resources than those expected are required. For defendants, it is an excessive burden regardless of the sentences' type; since the sentences are harsher than provided by law, defendants are punished in breach of the legal safeguards of the current criminal law system. Under-punishment has negative effects on the state. The state fails to serve the goals set by the criminal law since, for example, potential criminals are encouraged to commit crimes they would not if under-punishment did not occur (failure of the deterrence goal of the criminal law to be served).

II. Economic Analysis of Law

A. Neoclassical Economics Theory

Neoclassical economics theory is regarded to be a broad theory encompassing fundamental assumptions and observations leading and governing the way our economy functions from around 1900 to today. Its dominance is unambiguously correlated with the fact that it is acknowledged to incorporate commonly appreciated conclusions deriving from Keynesian economic theory, Chicago School of Economics and monetarism.

[23] *See* Richard Adelstein, "Economics of Plea Bargaining," *Division II Faculty Publications* 94, (2007): 1-2.

[24] Over-punishment occurs in the case in which the prosecutor offers a deal that is worse than the probable trial outcome and the defendants accepts it while under-punishment occurs in the case in which the prosecutor offers a deal that is better than the probable trial outcome. *See* Rebecca Hollander-Blumoff, "Social Psychology, Information Processing, and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 168.

Generally addressing the theory's assumptions and observations,[25] first and foremost, neoclassical economics argues that products and services production and provision respectively, pricing and consumption are driven by the determinant powers of supply and demand. On these grounds, the theory assumes that supply and demand manage to efficiently allocate available resources.

More precisely, when referring to pricing, neoclassical economics contradicts classical economics central approach according to which products and services pricing is entirely dependent on their cost of production and provision accordingly and this cost's distribution. In particular, neoclassical economics holds that products and services pricing is relied upon consumers' perception concerning each specific product's and service's value. Within this context, people viewed as economic actors are assumed to develop personal assessments regarding available in the market products and services and based on them to choose those which maximize their satisfaction. This assumption is summed up to the point that people make those choices which maximize their utility[26]; that is to say, they make rational choices.

B. Human Decision-Making - Rational Choice Theory

It becomes obvious that neoclassical economics theory involves a theory targeting towards and concurrently allowing the economic approach of human decision-making. The said approach, which coincides with the definition of economics science subject, and whose foundation is attributed to Gary Becker, constitutes the Rational Choice Theory (hereinafter RCT).

In particular, according to RCT, the economic actor, namely homo oeconomicus,: a) has a personal, fixed, consistent, transitive and complete preference system, b) behaves subject to his or her self-interest, self-love and selfish incentives, ignoring any volitional weaknesses or emotions or possible altruistic incentives, which, even in cases they may appear, have selfish motives due to satisfying his or her need for glory, posthumous reputation and social recognition, c) takes into consideration, processes and properly uses any

---

[25] For an overview of more assumptions and observations of the neoclassical economics theory, *see* Mark Blaug, *Economic Theory in Retrospect*, 5th Ed. (Cambridge: Cambridge University Press, 1997).

[26] Any kind of benefit, personal interest and/or satisfaction stemming from goals achievement, which any economic actor aims to maximize, in economic terms, is called utility.

available information, evaluates and chooses the most efficient means for the achievement of the set goals and in the end, opts for those acts that will allow his or her personal utility maximization,[27] d) decides marginally, in every moment of his or her life, after taking into account the marginal cost and the marginal utility of every possible act, and e) is subject to constraints of different kinds, which reduce the possible alternatives; these constraints include time constraints, lack of information leading to risk or uncertainty conditions, natural/physical constraints, resources constraints, legal rules imposing constraints, social rules imposing constraints and personal constraints[28].

In brief, economics and RCT adopt the hypothesis that the economic actor is a rational maximizer of his or her utility; that is, someone who -considering his or her personal preferences- acts with the most efficient means towards the satisfaction of his or her goals under various constraints condition. It is this exact assumption of economic actor's rational utility maximization behavior which justifies RCT's conclusion that under the circumstance of being aware of the economic actor's goals, his or her behavior may be predicted and further interpreted.[29]

Owing to admitting that the economic actor's behavior is predictable, when this economics theory applies to the law, it gives rise to the economic analysis of the law. By viewing established legal rules as constraints faced by the economic actor, it becomes possible to predict the behavior of the people subject to legal rules. The prediction of the behavior of people subject to legal rules operates as an economic efficiency evaluation of the legal rules. That is, RCT's application in legal rules enables an evaluation of legal rules in terms of economic efficiency. Consequently, applying RCT and attempting to predict parties involved behavior allows an economic efficiency evaluation of plea bargaining criminal law's institution based on a cost-benefit analysis.

The meaning of the term "efficiency" is not identical to all scholars addressing the economic analysis of plea bargaining. In the present analysis, efficiency is considered as the

---

[27] *See* Antonis Karampatzos, *Private Autonomy and Consumer Protection, A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 15-16.

[28] *See* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 17-21.

[29] *See* Aristides Hatzis, "Everything you always wanted to know about the economics of marriage and divorce (but you were afraid to ask)," in *Essays in Honor of Pinelopi Agallopoulou* (Athens: Ant. N. Sakkoulas Publications, 2011), 1524.

achievement of the goal, in each occasion set, in order to be served, at the lowest possible cost following the optimal allocation of scarce resources. Within criminal law, whose goals are vengeance, deterrence, compensation and rehabilitation, its procedure as a whole and its institutions as a part are efficient when -through the resources' allocation- they accomplish to serve these goals at the lowest possible cost. Consequently, plea bargaining is efficient provided that it allocates resources in a way it accomplishes to serve criminal law's goals at the lowest possible cost.

C. Bounded Rationality Theory, Behavioral Economics and Game Theory

It took many years until the RCT and further the neoclassical economics were questioned. It is in 1955 that Herbert Simon developed a theory challenging RCT's unrealistic assumption that the economic actor is a rational actor.[30] The launched theory, namely Bounded Rationality Theory, holds that the economic actor constitutes a human being, whose nature is inherently linked to constraints. So, the homo oeconomicus assumed by the RCT cannot exist. That is, when making decisions, the economic actor has a sharply limited capacity to acquire as well as assess all the information relevant to the given situation, plus his or her time constraints. Such an approach is apparently closer to a down-to-earth overview of the decision-making process compared to the rational maximization one.

Except for its realistic nature, the bounded rationality theory is regarded as a significant contributor to the development of the ground-breaking concept of Behavioral Economics. Extending the bounded rationality theory, Amos Tversky and Daniel Kahneman,[31]

[30] *See* Herbert Simon, "A Behavioral Model of Rational Choice," *The Quarterly Journal of Economics* 69, no. 1 (1955): 99-118.

[31] *See* Amos Tversky and Daniel Kahneman, "Judgment under Uncertainty: Heuristics and Biases," *Science* 185, iss. 4157 (1974): 1124-31. Also, *see* Amos Tversky and Daniel Kahneman, "Rational Choice and the Framing of Decisions," *The Journal of Business* 59, no. 4 pt. 2 (1986): S251-78.

Richard Thaler,[32] George Akerlof,[33] Cass Sunstein,[34] Kenneth Arrow[35] and others gave rise to an even updated consideration of the economic actor's behavior, namely Behavioral Economics. Behavioral economics is a mix of economics and psychology -social and cognitive- which questions the economic actor's rationality, when making a decision, on the grounds of errors in information processing because of heuristics and/or biases; that is, heuristics and biases lead to errors in information processing and further to irrational decisions. According to the dual process theory in psychology, people process information in one of two ways, either through mental shortcuts, quickly and automatically, or through careful effortful review of relevant information.[36] The mental shortcuts, which is the usual way of information processing, include heuristics and lead to biases/errors. As for biases, they can be further distinguished based on the root of their cause in those which prevent people from serving their interests and those which prevent people from properly evaluating a situation. The former are volitional weaknesses and the latter are cognitive biases.[37] Based on them, it turns out that the economic actor sometimes does act irrationally. More precisely, this consideration concludes that the economic actor a)

[32] *See* Richard Thaler, "Toward a Positive Theory of Consumer Choice," *Journal of Economic Behavior and Organization* 1, iss. 1, (1980): 39-60. Also, *see* Richard Thaler, "The Psychology and Economics Conference Handbook: Comments on Simon, on Einhorn and Hogarth, and on Tversky and Kahneman," *The Journal of Business* 59, no. 4 part 2 (1986): S279-84.

[33] *See* George Akerlof, "The Market for "Lemons": Quality Uncertainty and the Market Mechanism," *The Quarterly Journal of Economics* 84, no. 3 (1970): 488-500. Also, *see* George Akerlof and William Dickens, "The Economic Consequences of Cognitive Dissonance," *The American Economic Review* 72, no. 3 (1982): 307-19.

[34] *See* Cass Sunstein, "Behavioral Analysis of Law," *The University of Chicago Law Review* 64, no. 4 (1997): 1175-95. Also, *see* Cass Sunstein, "Behavioral Law and Economics: A Progress Report," *American Law and Economics Review* 1/2, no. 1 (1999): 115-57.

[35] *See* Kenneth Arrow, "Risk Perception in Psychology and Economics," *Economic Inquiry* 20, iss. 1 (1982): 1-9. Also, *see* Kenneth Arrow, "Rationality of Self and Others in an Economic System," *The Journal of Business* 59, no. 4 part 2 (1986): S385-99.

[36] *See* Rebecca Hollander-Blumoff, "Social Psychology, Information Processing, and Plea Bargaining." *Marquette Law Review* 91, no. 1 (2007): 170-71. Also *see* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 80-4.

[37] At this point, it should be clarified that certain biases/errors can sometimes be the product of a volitional impairment while some other times be the product of a cognitive impairment. That is, for instance, when over-discounting -a deviation to be afterwards addressed- is a product of bounded willpower, it is a volitional weakness; on the other hand, when over-discounting is a product of a cognitive trait, it is a cognitive bias. The reason why no paper from the mentioned ones refers to "volitional weaknesses" under this wording is that the term has been recently adopted in order to contribute to the more systematic approach and presentation of the growing list of deviations from rational behavior, generally regarded as biases/errors.

is only boundedly rational, b) displays bounded self-control/willpower, as well as c) acts with bounded self-interest,[38] since he or she is influenced by positive or negative instincts and intuitions.[39]

That is, the bounded rationality concept should be differentiated from behavioral economics since the former sets a narrower framework for the constraints faced by the economic actor compared to the latter. More precisely, the former strictly refers to feasibility constraints while the latter sets a broad framework for constraints including various biases.

On these grounds, the central point to be attributed to behavioral economics is that the questionable consideration of the economic actor's catholic rationality leads to the admittance of quasi-rationality, which is currently regarded as the natural behavior. This is why the deviations from rational behavior are proven systematic (neither random or occasional) and, to this end, to a significant degree, predictable.[40]

Such reasoning ends up to the conclusion that the RCT of neoclassical economics assuming the model of homo oeconomicus has been called into question as it is of utopian nature. Nevertheless, at the same time, it stands as the starting point for the development and establishment of the heuristics and biases detection, observation, prediction and address. In other words, since such deviations from rationality can be detected and predicted, law establishes rules that take them into account and can better direct the

[38] *See* Christine Jolls, Cass Sunstein, and Richard Thaler, "A Behavioral Approach to Law and Economics," *Stanford Law Review* 50, (1998): 1476-9. Also, *see* Antonis Karampatzos, *Private Autonomy and Consumer Protection*, *A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 27-29.

[39] For a characteristic example on this issue, *see* Georgios Dellis, *Demos and Agora: An economic analysis of Public Law* (Athens: Eurasia Publications, 2018), 58. Dellis explains that from one viewpoint, the economic actor, influenced by the negative intuition of xenophobia, may choose not to shop from the store with the cheapest products because the employees are immigrants; and from another viewpoint, the economic actor, influenced by the positive intuition of altruism, may choose to vote for the political party, which promises the increase in taxes applying in his or her occupation, since he or she regards this measure as beneficial for the country's economy.

[40] *See* Thomas Ulen, "The Importance of Behavioral Law," in *The Oxford Handbook of Behavioral Evonomics and the Law*, ed. Eyal Zamir and Doron Teichman (New York: Oxford University Press, 2014), 93. Also *see* Antonis Karampatzos, *Private Autonomy and Consumer Protection*, *A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 27-30.

economic actors' behavior towards realizing social goals and enhancing their own well-being.

To this extent, behavioral economic analysis of law's assumptions and conclusions are applied to plea bargaining, and not only do they strengthen the institution's efficiency evaluation outcome, but they also allow the extraction of additional remarks regarding its necessity.

Even before the extensive development and application of behavioral economics, towards the broad tendency of indulging into and maybe evolving the utopian assumption of picturing the economic actor as a purely self-interested maximizer of his or her personal utility, the contribution of game theory was important. Pioneered in the 1950s by the mathematician John Nash[41], game theory perceives the economic actor as a rational decisionmaker, who is not cut off from other actors, but does interact with them; he or she is heteronomous,[42] not autonomous, and within this context develops and pursues strategies. Every situation in which an economic actor decides under the circumstance of anticipating at least one another actor's behavior is considered a game.[43] This means that for a game to exist, at least two players need to interact.

It is profound that game theory has become very attractive for different scientific fields due to the fact that it applies to them and is capable of enriching their observations. Among these fields, game theory is applied to the economics, legal science, economic analysis of law[44] and psychology, and as a consequence, it may also be applied to plea bargaining and the special examination of it from an economic and psychological perspective.

---

[41] On a Nobel Seminar held in 1994, the work of John Nash on Game Theory was presented by various academics and Nash himself. *See* "The Work of John Nash in Game Theory," John F. Nash Jr. Prize Seminar, The Nobel Prize, accessed November 2, 2020, https://www.nobelprize.org/prizes/economic-sciences/1994/nash/lecture/.

[42] *See* Georgios Dellis, *Demos and Agora: An economic analysis of Public Law* (Athens: Eurasia Publications, 2018), 56-57.

[43] *See* "Game Theory," Stanford Encyclopedia of Philosophy, last modified May 8, 2019, https://plato.stanford.edu/entries/game-theory/.

[44] *See* Robert Cooter, Stephen Marks, and Robert Mnookin Robert, "Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior," *The Journal of Legal Studies* 11, no. 2 (1982): 225-51.

PART II – ECONOMIC ANALYSIS OF PLEA BARGAINING

I. Comparative Presentation and Critical Review of the Literature of the Economic Analysis of Plea Bargaining[45]

The literature on the economic analysis of plea bargaining dates back in 1971, when **William Landes** publishes his essay on the topic of the economic analysis of the courts.[46] He presents a theoretical model with a utilitarian approach, which stands as the baseline for the justification of prosecutors' and defendants' decision between settling and going to trial. His model relies on two central assumptions; the first is that both parties aim to maximize their expected utility and the second that they are subject to resources constraints[47]. Regarding prosecutors, they aim to maximize the expected number of convictions weighted by their respective sentences, which maximize the community's profit. Regarding defendants, they aim to maximize the expected utility of their endowments in either the state of conviction or the state of non-conviction. Both parties intend to satisfy their goals in the context of criminal cases' disposition of by either settlement or trial; settlement leads either to guilty plea or charges dismissal. In general, the parties' decisions to settle or go to trial are made based on the factors of the probability of conviction at trial, their available resources, the trial and settlement costs, their attitudes towards risk[48] and the severity of the crime (related to its subsequent sentence, if convicted).

---

[45] It is noted that this subsection proceeds in chronological order based on publication date.

[46] *See* William Landes, "An Economic Analysis of the Courts," *The Journal of Law and Economics* 14, iss. 1 (1971): 64-107.

[47] The issue of determining the optimal way by which prosecutors allocate their resources so as to confront the problem of resources restraints is discussed through a variant of Landes model, which is presented by Brian Forst and Kathleen Brosi. *See* Brian Forst and Kathleen Brosi, "A Theoretical and Empirical Analysis of the Prosecutor," *The Journal of Legal Studies* 6, no. 1 (1977) 177-91.

[48] The term "risk" refers to the future events for which there is adequate information for prediction. Depending on their attitudes towards risk, economic actors can be risk averse, risk lovers, or risk neutral. Whether they are afraid of the risk's occurrence to a greater extent than justified by the possibilities and overestimate it, they are risk averse. Whether they consider the occurrence of the risk quite impossible and underestimate it, they are risk lovers. Whether they would be indifferent towards risk's occurrence, they would be risk neutral. Risk neutral actors constitute a hypothetical model which is crucial for the RCT. *See* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 25-8. Also, it is noted that for determining value, utility and efficiency, risk attitudes and their effect on them is considered necessary. *See* Richard Posner, *Economic Analysis of Law*, (New York: Publications Wolters Kluwer, Law & Business 3rd ed., 1986), 11-5. For an overview of risk attitudes, various examples of their interrelation with gains and losses as well as gains and losses framing, *see* Amos Tversky, and Daniel Kahneman, "Choices,

On these grounds, the model leads to some observations, the most important of which are that a) lower the probability of conviction at trial is, lower the sentence offered by the prosecutors tends; b) a settlement is more likely when the defendants are accused of crimes that are expected to be punished with light sentences; c) in cases in which both parties agree on the probability of conviction at trial, a settlement may take place, if the defendants are risk averse or risk neutral; if the defendants are risk lovers, then both the settlement and the trial are possible outcomes; d) in cases in which the prosecutors' assessment on the probability of conviction is lower than the defendants', a settlement may take place, if the defendants are risk averse or risk neutral; if the defendants are risk lovers both the settlement and the trial are possible outcomes, with the settlement being the most likely; e) in cases in which the prosecutors' assessment on the probability of conviction is higher than the defendants', a trial may take place regardless of the defendants' risk attitudes; under this preposition, a trial is more likely when the defendants are accused of crimes that are expected to be punished with harsh sentences.

The final choice between settlement and trial depends on both parties' goals satisfaction. Landes' model insists on the fact that if both parties agree on the probability of conviction at trial, they may settle in order to avoid the trial's increased cost compared to the transaction costs[49] of a settlement and the uncertain trial outcome. Consequently, the

---

Values and Frames," *American Psychologist* 39, no. 4 (1984): 341-50 and Richard Birke, "Reconciling loss aversion and guilty pleas," *Utah Law Review* 1999, no. 1 (1999): 210-16.

[49] The meaning of transaction costs should be approached both *stricto* and *lato sensu. Stricto sensu*, the transaction costs constitute the expenses incurred by each transaction. *Lato sensu*, the transaction costs constitute the expenses incurred by each act. Such expenses may include endogenous and/or exogenous ones. Focusing on the *stricto sensu* meaning, it is central for our analysis since it is regarded as one of the impediments to the effective allocation of resources. Being the first to discover and clarify this particular feature of transaction costs, the economist Ronald Coase developed, in 1937, the transaction cost theory of the firm and, in 1960, the Coase theorem, on transaction costs, externalities and property rights. According to his theorem, in the absence of transaction costs and regardless of the initial distribution of any property right assigned to an individual under the legal provisions, the right will be allocated efficiently between the parties. Nonetheless, due to the fact that transaction costs exist in real economy, the law and the courts can assign the property rights in a way that an efficient allocation is made. Referring to transaction costs, it is clarified that Coase focuses on the endogenous costs to any transaction and classifies them in three categories: search costs, bargaining/negotiation costs, enforcement costs. Since Coase's approach combines law and economics, he is claimed to have established the Chicago School of Economics as well as to be the inspirer of Law and Economics. *See* Ronald Coase, "The Nature of the Firm," *Economica* 4, iss. 16 (1937): 386-405. Also, *see* Ronald Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (1960): 1-44. Then, *see* Aristides Hatzis, "Law as a Tool to Decrease Transaction Costs, Coase Theorem and the Economic Analysis of Law," in *The Role of Justice in Exercising Business Activity*, ed. Poli Kalampouka-Giannopoulou (Athens: Nomiki Vivliothiki Publications, 2012), 31-59. Further, *see* Georgios Dellis, *Demos and Agora: An*

settlement will not be reached if the defendants' and prosecutors' assessment on the probability of conviction at trial differs, and more specifically, if the prosecutors' assessment on the probability of conviction is higher than the defendants' or if the defendants are risk lovers.

Moreover, the operation of the bail system in combination with the court delay are examined as determinants of the parties' decision between settling and going to trial. For instance, the defendants who are not released on bail are more likely to settle than the defendants who are released on bail, provided that there is court delay, because of the increased costs arising from such delay for the former compared to the latter.

To enhance the validity of his theoretical model, Landes accompanies it with an empirical analysis proving the particular variables which determine the parties' demand for trial and settlement as well as their assessment of the probability of defendants' conviction at trial.

Setting Landes model, predictions and conclusions as his starting point, **William Rhodes**, in 1976, presents his analysis on the economics of criminal courts[50] claiming as his main goal to expand the work that has already been done by his predecessor, who has been interested in the application of the economics' tools on crime and crime prevention. To that extent, he suggests a revised model which proves that a) an increase in prosecutors' resources would increase the number of trials,[51] b) an increase in defendants' trial costs would increase the number of cases prosecuted and further the guilty pleas,[52] provided

economic analysis of Public Law (Athens: Eurasia Publications, 2018), 74-6, 106-10. In general, transaction costs are central for our analysis since they constitute a factor that can either facilitate or impede plea bargaining. For instance, focusing on the moral transaction costs which are bear by prosecutors, Richard Adelstein argues that the causing of coerced confessions by the prosecutors would be an indicator that the coerced confessions have low moral transaction costs. *See* Richard Adelstein, "The Negotiated Guilty Plea: A Framework for Analysis," *New York University Law Review* 53, no. 4 (1978): 807.

[50] *See* William Rhodes, "The Economics of Criminal Courts: A Theoretical and Empirical Investigation," *Journal of Legal Studies* 5, no. 2 (1976): 311-40.

[51] Rhodes reaches this conclusion through two entirely different ways. More specifically, he observes that an increase in prosecutors' budget would increase the number of prosecutions which would increase the number of trials, while, at the same time, an increase in prosecutors' budget would decrease the concessions offered to defendants in exchange for guilty pleas, which would increase the fraction of defendants willing to exercise their right to full trial which is identified with increase in the number of trials.

[52] Through this conclusion, Rhodes states that whether the trial costs rise for the defendants, they are more likely to opt for a plea. Later, Easterbrook comes to the same conclusion while concurrently makes a step forward. Exclusively referring to the financial trial costs for the defendants, Easterbrook observes that a

that the defendants' settlement costs remain unchanged and prosecutors' resources stand limited, c) an increase in defendants' trial costs would increase the number of cases prosecuted without being predictable if the prosecutors' sentence concessions would increase or decrease and d) consequently, there is important interdependence[53] between defendants' resources and the severity of the sentences which the defendants are willing to accept. As for the concessions that the prosecutors are willing to offer as a form of leniency when aiming to a guilty plea, Rhodes model offers no evidence; however, he assumes that they will tend to decrease their concessions as defendants are less willing to go to trial.

Contemplating these interpretations, it is clear that Rhodes agrees with Landes on the observation that the variables of the trial costs for defendants and the number of guilty pleas are corelated. More specifically, Rhodes suggests that these variables are analogous since the increase of the former results in the concurrent increase of the latter. At the same time, he adds to the ongoing discussion by ending up to the abovementioned additional remarks. Furthermore, with an aim to support his theoretical baseline, Rhodes develops the disposition hypothesis and the sentencing hypothesis, which he tests through empirical data collected from United States District Courts and Minnesota District Courts. His aim is served since his hypotheses are verified through the statistical results, while he takes this opportunity to discuss the court delay variable[54], which has already been discussed by Landes.

Then, in 1978, **David Weimer** questions whether Landes economic model can predict individual cases decisions of prosecutors and defendants.[55] He explains that the

rise in them will not have an impact on the attitude of indigent defendants towards the guilty pleas. Thus, indigent defendants, who do not pay for their representation, are not expected to be more likely to opt for a plea because of trial costs rising. *See* Frank Easterbrook, "Criminal Procedure as a Market System," *Journal of Legal Studies* 12, no. 2 (1983): 332.

[53] For further understanding of the indicated relationship, *see Table 1: Expected correlations between dispositions and legal resources* in William Rhodes, "The Economics of Criminal Courts: A Theoretical and Empirical Investigation," *Journal of Legal Studies* 5, no. 2 (1976): 318.

[54] The court delay variable is also pointed out by Clatch, in 2017, as an indisputable key factor in the defendants' decision-making. *See* Lauren Clatch, "Shining a Light on the Shadow-Of-Trial Model: A Bridge between Discounting and Plea Bargaining," *Minnesota Law Review* 102, no. 5 (2017): 963-5.

[55] *See* David Weimer, "Plea bargaining and the decision to go to trial: The application of a rational choice model," *Policy Science* 10, iss. 1 (1978): 1-24.

importance of addressing this issue is proven by the fact that such a prediction can facilitate prosecution management. More precisely, referring to prosecution management, Weimer observes that the implementation of either the vertical prosecution system or the horizontal prosecution system is accompanied with noticeable advantages and disadvantages. Vertical prosecution system, which means that each case is handled by the same prosecutor in all different stages of prosecution, is efficient for cases whose disposition of is reached following a trial, while horizontal prosecution system, which means that each case is handled by different prosecutors in different stages of prosecution, is efficient for cases whose disposition of is reached without trial. That is to say, if the same prosecutor handles a case from the stage of filing charges to the stage of trial's decision, he or she has a deepened knowledge of facts, proofs, weaknesses and does not need to invest time in getting familiarized with them as he or she has to do when he or she is appointed to handle less stages or even one stage of prosecution.

Taking these remarks into consideration, it becomes obvious that Weimer acknowledges the significant findings of Landes' economic model, while he expands its initial application in criminal cases' optimal disposition of based on a derivational rational choice framework. To this end, presenting his model, he indicates additional variables and identifies differentiations, which are required to be taken into account -such as organizational considerations- when examining the decisions of the parties involved in plea bargaining. To empirically validate his model, Weimer subjects it to a statistical analysis using Alameda County Superior Court's data. Coming to concluding remarks, he argues that if the aforementioned prediction was accurate and free of errors, he would promote the establishment of a mixed horizontal and vertical prosecution system through which management would focus on the definition of the preferably -in terms of efficiency- applicable in each case system.

In the same year, **Richard Adelstein** presents a framework for analysis and a behavioral model concerning the negotiated guilty plea. His framework for analysis[56] is based on institutional economic theory[57] seeking differentiation from the previously dominant

[56] *See* Richard Adelstein, "The Negotiated Guilty Plea: A Framework for Analysis," *New York University Law Review* 53, no. 4 (1978): 783-833.

[57] *See* Geoffrey Hodgson, "What is the Essence of Institutional Economics?," *Journal of Economic Issues* 34, no. 2 (2000): 317-29.

utilitarian approach. Supposing that there is a criminal market[58], which operates because of transactions[59] between criminals from the one hand and victims and the society from the other hand, crimes stand as goods in terms of a trade between the parties and are sold in the punishment prices if the criminals can afford them. In this context, Adelstein points out that individuals are excluded from the determination of the price punishment, while legislators -respecting the proportionality principle[60]- provide prosecutors, judges and juries with the minimum and the maximum of it. On these grounds and by stressing out the significance of the individualization of sanctions principle[61] implemented by prosecutors, he perceives plea bargaining to be the most likely choice, since it efficiently internalizes[62] both the economic cost and the moral harm[63] induced by the criminal act. To

---

[58] The term "market" is not exclusively used as a term with strictly economic content referring to trade relations. Apart from that it is also regarded as any model system in which subjects satisfy their needs through choices indifferently if the price of each choice is payable in money or not. This specific concept allows the visualization of a criminal market. *See* Georgios Dellis, *Demos and Agora: An economic analysis of Public Law* (Athens: Eurasia Publications, 2018), 59-60.

[59] Respectively with the term market, the term "transaction" is not exclusively used as a term with strictly economic content referring to consumer goods. Apart from that it is also regarded as the people's decision towards the expression of their choice in a market as described in the previous footnote.

[60] Proportionality is regarded to be a legal principle enshrined in a number of areas of U.S. constitutional law and is broadly referred to case law. Its general acceptance is related to the fact that it serves the goal of the U.S. constitutional government to act proportionately and non-arbitrarily, and further that it is used as a form of doctrine evaluating whether a restriction's and/or punishment's imposing and/or severity is justified based on the meeting of particular criteria. *See* Vicki Jackson, "Constitutional Law in an Age of Proportionality," *The Yale Law Journal* 124, no. 8 (2015): 3094-196.

[61] In the light of economic analysis of the law growing, there have been made attempts to apply tools of the economics science with an aim to confront the rigidity and formality of American criminal law. To this end, Sheldon Glueck proposes the implementation of some principles proven through the abovementioned tools to be rational. In the family of these principles, which take into account the observations of other sciences such as psychology, psychiatry, sociology, the principle of individualization is figured. Glueck perceives the principle's different types, stages, dimensions as well as applications, and examines among them the individualization of punishment principle. He criticizes the used criteria of offender's dangerousness and points out the importance of establishing a *scientifically qualified treatment board*. *See* Sheldon Glueck, "Principles of a Rational Penal Code," *Harvard Law Review* 41, no. 4 (1928): 453-82. For an understanding of the significance of the individualization principle as well as its contribution to -the essential for the criminal procedure, and mostly the prosecutorial discretion- distinction between the dominance of the legality or opportunity principle, *see* Michele Pifferi, "Individualization of Punishment and the Rule of Law: Reshaping Legality in the United States and Europe between the 19th and the 20th Century," *American Journal of Legal History* 52, iss. 3 (2012): 325–76.

[62] Adelstein defines internalization as the result of *forcing criminals to pay for their crimes rather than allowing criminals to impose those costs on others without recompense*.

[63] Adelstein uses the term "moral cost" in order to describe a measurement of the social outrage and unfairness following the commitment of a crime. He does not imply ethical judgement. He uses the term so as

further argue on this view, he repeats what Landes mentioned about the factors that affect the defendants' and prosecutors' decisions to settle or go to trial and focuses on the asymmetry of information that may lead a defendant choosing to plead guilty either to over-punishment or under-punishment. Provided that information asymmetry will be handled, plea bargaining stands as the more efficient means of cases' disposition of, since through it, prosecutors implement the individualization principle, specify on the punishment price, handle the transaction costs arising from this procedure, respond to the costs' internalization aim, adjust to their limited resources and decrease the numbers of unredressed crimes.

In his behavioral model[64] of the negotiated guilty plea, Adelstein criticizes certain omissions of Landes approach and proposes the adoption of a model which includes the examination of another fundamental variable affecting both prosecutors' and defendants' decisions. Based on Landes expected utility's maximization model, which considers parties to be rational decisionmakers, Adelstein supplements this theory by suggesting and adding time, as an essential variable defining costs' calculation. More precisely, he demonstrates the necessity of time parameter, which arises from the observation of the criminal proceedings. The long period of time that passes between the initiation of the procedure and the court decision results in evidences' weakening.[65] As a consequence, prosecutors confront the danger that their cases are undermined while their possibility of succeeding in defendants' expected conviction is reduced. Apparently, as for the

---

to support the view that efficiency should not be exclusively explained with economic terms, since it further refers to the flourishing of a person's and/or society's welfare with non-material means, and as a result, when the society is informed about criminal acts, it deals with moral losses negatively affecting its efficiency. An example of Adelstein is that the habitual criminal may give rise to greater social opprobrium than the first offender. For the example and its explanation *see* Richard Adelstein, "The Negotiated Guilty Plea: A Framework for Analysis," *New York University Law Review* 53, no. 4 (1978): 798 footnotes 43, 45.

[64] *See* Richard Adelstein, "The Plea Bargain in Theory: A Behavioral Model of the Negotiated Guilty Plea," *Southern Economic Journal* 44, no. 3 (1978): 488-503.

[65] Referring to the effect of time on each case's evidence, Adelstein uses the term "evidence effect" and notes that *the memory of witnesses becomes less sharp and physical evidence loses its probity and degenerates as a fact-finding tool*. The most likely outcome is that prosecutors cannot use important evidence in which they had probably based their expectation that the court would rule the defendant's conviction. What is more, prosecutors lose the resources they allocate in such cases, while they bear the opportunity cost of not allocating the lost resources to other cases through which they could have been benefited from defendants' conviction. On these grounds, an extreme hypothesis can be made; if all cases are built based on evidence that can be weakened, then prosecutors may lose all their resources as well as their status and reliability may be questioned.

defendants, passage of long time stands simultaneously as a blessing and a curse. At the one end of the spectrum, defendants' possibility of acquittal at trial raises because of the "evidence effect". At the other end of the spectrum, for the aforementioned period of time, defendants are considered as indicted suspects of having committed a criminal act, while their conviction is proposed by a person representing the interests of the public. Insisting on his view that time is a variable which needs to considered, Adelstein supports that in cases of pretrial detention, prosecutors redress the problem of costs increasing as time goes by, while defendants face economic disaster, since they are not able to work, and psychic losses because of their detention's situation and conditions. For cases in which the defendants are released on bail,[66] they bear the economic cost of bail and the cost of their uncertain legal status related to the social stigma of being charged. To prove the impact of time costs in both rational decisionmakers bargaining behavior, Adelstein presents a dynamic and deterministic behavioral model grown by John Cross; according to it, both of them base their decisions upon a pair of time functions. The prosecutors intend to make the optimal offer, which depends on the maximization of their utility affected by each day passing and their estimate upon defendants' concession rate. Respectively, the defendants target to accept the optimal offer, which depends on the minimization of their losses affected by each day passing and their estimate upon prosecutors' concession rate. If both bargainers succeed in agreeing on conditions under which their aims are satisfied, they terminate the criminal proceedings through plea bargaining.[67] It becomes obvious

[66] Landes makes important observations regarding defendants' pretrial status. In the first place, he notes that detained defendants opt for guilty pleas, while released ones prefer the criminal trial. The reason is that the accused under custody are bearing the excessive cost of court delay and deal with higher conviction probabilities in comparison to released ones. To address the bail system's effectiveness, he develops an economic model of an optimal bail system under the condition of the maximization of social benefit which is specified based on the gains to defendants released on bail and gains and costs to the society of their release. On these grounds, he questions the practices under implementation and proposes the establishment of differentiated criteria governing the decision for defendants' release. *See* Willian Landes, "The Bail System: An Economic Approach," *Journal of Legal Studies* 2, no. 1 (1973): 84, 86, 91-4. Then, through his empirical analysis on specific data, he examines two fundamental costs possibly following defendants' release on bail -namely crimes committed during pretrial release and disappearance of released defendants- which are thought to justify the bail's system structure on the spotlight of social function. He finds out that the prevention of crimes to be committed during the period of pretrial liberty stands as the rationale for the restriction of the defendants' rights. *See* William Landes, "Legality and Reality: Some evidence on Criminal Procedure," *Journal of Legal Studies* 3, no. 2 (1974): 308-29.

[67] To depict the interrelationship between prosecutors' and defendants' concession rates as well as their effect on the possibility of reaching a settlement, Adelstein presents an example. *See* Richard Adelstein,

that Adelstein adds to previously presented approaches a behavioral theory aiming to point out the significance of bargainers' behavior on plea negotiations outcome.

Then, in 1983, **Frank Easterbrook** writes an essay[68] referring amongst others to a popular question in the relevant academic community, namely the reasons why criminal justice systems need plea bargaining. To begin with, he makes a distinction between the market system and the regulatory framework. He signifies the market system as the aggregate of voluntary transactions which set the price for goods and services based on the subjects' desires, demand and supply for them within the limited resources reality and certain legal rules aiming to enhance the bargains, when facing difficulties, and protect third parties. This market system produces Pareto-efficient results[69] provided that the

"The Plea Bargain in Theory: A Behavioral Model of the Negotiated Guilty Plea," *Southern Economic Journal* 44, no. 3 (1978): 499.

[68] *See* Frank Easterbrook, "Criminal Procedure as a Market System," *Journal of Legal Studies* 12, no. 2 (1983): 289-332.

[69] Vilfredo Pareto is world-widely known for his contribution in the welfare economics owing to the meaning he attributes to the term "efficiency". He sets the criterion that need to be fulfilled in order for an allocation to be efficient. Regarding allocation's improvement (Pareto-improved allocation), Pareto predesignates that for an allocation to be considered as Pareto-improved, there should be another allocation such that at least one individual is better off and nobody is worse off. Then, regarding allocation's superiority (Pareto superior-allocation), an allocation is Pareto-superior if at least one individual is better off and nobody opposes it. Lastly, regarding allocation's efficiency (Pareto-efficient or Pareto-optimum allocation), an allocation is Pareto-efficient or Pareto-optimum, if there is no another allocation such that at least one individual is better off and nobody is worse off; that is, no Pareto-improvement is possible. For more information, *see* Vilfredo Pareto, *Manuel d'economie politique* (Paris : V. Giard & E. Brière, 1909). To explain the importance of these definitions in the topic under discussion, it is stated that many scholars, referring to plea bargaining's results efficiency, examine whether the institution, which is part of the criminal procedure as a market system, can allocate the limited resources in a way that it is efficient following the application of the Pareto-efficient allocation criterion. Nonetheless, it is necessary to point out that there has been expressed fundamental criticism regarding the Pareto-efficiency criterion. The key arguments against Pareto-efficiency criterion are that: a) it legitimizes the current unequal allocation of resources as it considers as efficient everything that does not disrupt it, and b) it sets the unrealistic condition of nobody's opposing, meaning parties' unanimity. To answer to the said criticism, Nicholas Kaldor and John Hicks develop another criterion, which is known as Kaldor-Hicks efficiency criterion. More concisely, a reallocation is Kaldor-Hicks efficient if those that are made better off could hypothetically compensate those that are worse off; this way, at least one would be better off but nobody would be worse off, and so Pareto-efficiency criterion would be also met. However, since the compensation is of hypothetical nature, the Kaldor-Hicks criterion accepts that, in practice, reallocation of resources can be efficient and some can be better off only if at least one is worse off. For an overview of the Pareto and Kaldor-Hicks criterion, as well as their interconnection, *see* Richard Posner, *Economic Analysis of Law*, (New York: Publications Wolters Kluwer, Law & Business 3rd ed., 1986), 12-13. Also, *see* Aristides Hatzis, "The Economic Analysis of the Law of Contracts (The example of the Penalty Clause, Article 409 of Greek Civil Code)," *Digesta* 5, (2003): 329-30, footnote 29. A third efficiency criterion has been set by Alfred Marshall and Richard Posner, known as the Marshall-Posner efficiency criterion; its analysis exceeds the purposes of the present paper.

transaction costs are less than the gains from the trade. In parallel, he defines the regulatory framework as the aggregate of the coordinated transactions for which appointed regulators set their terms, their time and the price for goods and services included in them. This regulatory framework produces Pareto-efficient results only if the price set through regulation would be the same with the one set through subjects' bargaining. He points out that it is impossible to choose one mechanism over the other since both are possible to fail.[70] Closely to Adelstein's idea on the existence of a criminal market, Easterbrook makes the suggestion to approach the parties and the proceedings involved in the criminal procedure as parties and proceedings involved in a market system. In this context, he presents the criminal procedure as a limited resources allocator and explains that the allocation's goal is to serve the deterrence goal of the criminal law.[71] Enforcing the criminal law, prosecutors take resources' constraints into serious consideration while they aim to maximize the deterrence goal. To respond to their duties, prosecutors are granted absolute discretion to select the cases to be prosecuted[72] and reach the decision of some cases disposition of through plea bargaining. This specific discretion allows them to set as their guideline the marginal return in deterrence per case criterion. In other words, absolute prosecutorial discretion entails that prosecutors do not comply with rules designating their choices or bear the responsibility to explain these choices in other actors of the criminal procedure for review. Presuming that this structure closely resembles the market structure -as supposed at first place- it is subject to failures that need to

[70] Schulhofer argues that although Easterbrook recognizes that it constitutes an empirical question to answer which system is favorable, *he emphasizes factors that tend to make the market mechanism superior in general*. *See* Stephen Schulhofer, "Criminal Justice Discretion as a Regulatory System," *The Journal of Legal Studies* 17, no. 1 (1988): 45.

[71] Gary Becker also considers the criminal procedure as resources allocator. More precisely, Becker addresses the allocation question -along with the questions of permissible offenses and limits of unpunished offenders- within the concept of minimizing the social loss incurred by offenses. He determines this kind of loss through criminal law's goals of vengeance, deterrence, compensation and rehabilitation. Finally, he uses economic tools to ensure the success of these goals, thus achieving the minimization of social loss. All in all, acknowledging that the economic tools are proven capable of allocating resources, he becomes the first ever in history of economic analysis of law literature to promote these tools' application in criminal law. Nevertheless, he does not omit to note that back in the eighteenth and nineteenth centuries, Ceasare Beccaria and Jeremy Bentham attempted such an application in criminology. *See* Gary Becker, "Crime and Punishment: An Economic Approach," *Journal of Political Economy* 76, no. 2 (1968): 169-217.

[72] It should be mentioned that, in a small number of states, the prosecutors' decision not to prosecute requires judicial approval. Moreover, if such prosecutors' decision follows the charges' filing, judicial approval is necessary. *See* Daniel Hall, *Criminal Law and Procedure*, 6th Ed. (United States of America: Delmar Cengage Learning, 2011), 320.

considered. One failure is that due to unregulated and unreviewed discretion combined with their no personal attach to the cases they handle, it is possible that the prosecutors will take advantage of their position and serve their personal interests, when conflict of interests between theirs and the state's is coming up. This problem, known as the agency problem,[73] cannot be dealt with supervision according to Easterbrook, since supervisors -being granted with powers respective to those of the prosecutors- are agents as well, and subsequently develop, with their principals, relationships challenged by the principal-agent problem and its drawbacks. Secondly, it is thought that the absolute discretion given to the prosecutors leads to results incompatible with the equality principle. That is to say, similarly behaved offenders are treated differently because of prosecutors' powers to prosecute or not and to offer different in sentencing agreements. Easterbrook

[73] The agency problem, also referred to as the principal-agent problem or conflict of interests, is the inherent in every between principal and agent relationship inadequacy of the agent to act in the principal's best interests. The reason behind this situation is that agency of a person's interests by another person is accompanied by four important issues which stand difficult to be confronted. A) To begin with, the agent cannot be fully aware of the subjective preferences, the capabilities and the restrictions of the principal, and thus it is certain that in some cases the former's choices will not satisfy the latter's pursuits. The described problem, which is called asymmetric information or information failure, was initially pointed out by George Akerlof in a paper of his presenting the failure of the market of used cars because of buyers' inability to distinguish honest sellers selling good used cars from dishonest sellers selling bad used cars ("lemons"). For more information on the lemon theory which is used to explain one of the main reasons why markets fail, *see* George Akerlof, "The Market for "Lemons": Quality Uncertainty and the Market Mechanism," *The Quarterly Journal of Economics* 84, no. 3 (1970): 488-500. B) Secondly, the agent has his or her own interests which are presumably different from those of the principal. Even if the interests are not contradictory, the agent is not usually motivated by adequate incentives so as to act in the principal's best interests in a way that he or she will increase his or her costs without concurrently internalizing the gain that will benefit the principal. The described problem is called moral hazard and is observed in circumstances in which someone is behaving carelessly since the outcome of this behavior is connected to gains for him or her and losses for the others. C) Thirdly, due to time constraints, lack of expertise or other technical reasons, the principal is incapable of efficiently controlling the agent; at this point, it should be noted that in cases in which the supervision costs of the principal are high, the agent is not interested in executing the principal's orders in good performance. D) Last but not least, the abovementioned problems result in the increase in the costs of the principal-agent relationship for both parties and discourage its establishment. The present analysis of the agency problem is conducted by Aristides Hatzis on his referring to the agency problem arising between voters and elected officials interacting within a constitution of representative democracy. *See* Aristides Hatzis, "Politics without Romance: Distributive Conspiracies and Rent-seeking," in *Public Law in Progress*: *Mixed in honor of Professor Petros I. Pararas* (Athens: Publications Ant. N. Sakkoulas, 2012), 1121-4. Also, *see* Aristides Hatzis, *Institutions* (Athens: Publications Papadopoulos, 2018), 30-3. Based on the agency relationship and problem as approached, it is understood that the relationship between the defendants and their defense attorneys is an agency relationship which bears the problematic character of any of its kind. However, the agency problem arising in the relationships between the parties involved in plea bargaining bears distinctive characteristics. *See* Oren Gazal-Ayal, and Limor Riza, "Plea-bargaining and prosecution," in *Criminal Law and Economics*, ed. Nuno Garoupa, (Edward Elgar Publishing, 2009), 11-2.

responds to this failure by explaining through the use of economic tools that, as a treatment, *ex post* equality is costly, cannot be accomplished,[74] and even if accomplished is not regarded as fair. At the same time, he perceives that the existing *ex ante* equality, linked to the potential offenders' inherent ability to obey the law and avoid the crime's risk of apprehension and conviction, render *ex post* inequality a fair treatment.[75] Based on his answers to the discretion's failure, Easterbrook defenses it by concluding that absolute prosecutorial discretion is efficient and does not lead to unfair effects.

Then, plea bargaining constitutes along with prosecutorial discretion and sentencing discretion the factors which set the crimes price in the criminal market and on these grounds is regarded as an indispensable part of the criminal justice system. More specifically, through negotiations thought to be analogous to those taking place in the market for goods and services, the prosecutors are capable of supplying/selling a plea and the defendants are capable of demanding/buying this plea, which is for both of them a gain, when it comes to costs calculation. Such a view suggests the possible desirability of the process. Nevertheless, Easterbrook observes that plea bargaining is subject to market failures since it is embodied in a market system able to fail. Addressing the arguments in favor of and against these failures, he primarily outlines again the agency problem, but this time the conflict of interests is between the defendants and their defense attorneys; however, he proposes that this failure should not be generalized and overlook other factors which may prevent its flourish or exaggeration. Concurrently, he examines the failure related to lack of information which concerns an important number of defendants, since it may affect both their decision to accept/reject the proposed by the prosecutor offer and/or the selection of their defense attorney. Also, he warns that since if plea

[74] Easterbrook comments that the society should bear great costs in order to guarantee *ex post* equality treatment for all defendants, argues that such a treatment is merely advantageous for them and questions whether they deserve such costs since they are ensured *ex ante* equality treatment as a state's citizens able to obey to legal rules.

[75] The questionable demand for *ex post* equality treatment of offenders has been also addressed by Richard Posner. The idea of *ex post* inequality treatment of offenders is challenged by him through its similitude with *ex post* inequality treatment of lotteries players, since some of them are offered money and others are not. *See* Richard Posner, *Economic Analysis of Law*, (New York: Publications Wolters Kluwer, Law & Business 3rd ed., 1986), 112. The significance of this book of Posner, which was for the first time published on 1973, is momentous owing to the fact that he lays the foundation for the establishment of the economic analysis of the law. The reason is that through his analysis he applies economic tools in almost all fields of legal science.

bargaining had to be parallelized with a certain market structure, this would be bilateral monopoly[76], there is the great risk that parties' agreements are coerced. The justification for this failure is that each defendant is obliged to negotiate with one particular prosecutor and if he or she denies to plead guilty and to accept this prosecutor's lenient sentencing, he or she is expected to be subject to a higher sentencing ruled by the court, meaning that he or she is subject to a retribution[77] for opting for his or her trial rights. The validity of this justification is disputed based on the ascertainment that even if the agreements are produced by both parties' consent, there is still a divergence in sentencing identical

---

[76] *A bilateral monopoly is a market structure that is characterized by one firm or individual, a monopolist, on the supply side and one firm or individual, a monopsonist, on the demand side*. For the aforementioned definition of the term and its extensive use in game theory, *see* James Friedman, "Bilateral Monopoly," in *Game Theory* ed. John Eatwell, Murray Milgate, and Peter Newman (United Kingdom: Publications Palgrave Macmillan, 1989), 70-3. For separately approaching the term of monopoly, *see* Luis Cabral, *Introduction to Industrial Organization*, trans. Vasiliki Fourmouzi (Athens: Kritiki Publications, 2nd ed., 2018), 147-50. Resembling the plea negotiation to a free competitive market system, Easterbrook observes that picturing the prosecutors as potential sellers (suppliers of the plea offer) and the defendants as potential buyers (demanders of the plea offer) is not accurate since defendants are denied one of the main powers granted to the buyers of a real market; defendants are denied the power to shop the more lenient plea offer choosing from a variety of offers supplied by different prosecutors. Easterbrook expresses this differentiation by characterizing the market structure to which plea bargaining resembles as a bilateral monopoly. Then, he identifies that defendants actually have the power to shop exactly as buyers do a different time from the one examined. They have this power at the time when they decide to commit a crime or not as well as the circumstances accompanying the crime's possible commitment. Having full access to the information including the rules governing the criminal law and procedure, defendants are aware of the anticipated offenses of their actions which vary based on the conditions and the jurisdiction. Therefore, according to Easterbrook, a free competitive market system operates at the time before each crime's commitment while a bilateral monopoly stands for the plea bargaining.

[77] The argument regarding the difference in sentencing for those defendants accepting a plea and those defendants exercising their trial rights has raised great concerns in the relevant literature since it is argued that the sentencing differential operates as a retribution for those defendants exercising their trial rights and a reward for those defendants accepting a plea. Therefore, such an argument undermines the foundations of the plea bargaining as an institution since it further points out that merely the limited resources available for the functioning of the criminal justice system cannot be adequate justification for allowing the existence of an institution disregarding the constitutional provision of due process in the criminal procedure. This debatable issue is elaboratively addressed through the presentation of McCoy and Mirra's indirect contribution to the economic analysis of plea bargaining discussion. In particular, they clarify that the due process provision of the 14th Amendment of the United States Constitution is disregarded to the same extent in two different ways; the direct way, according to which the state deprives any defendants of life, liberty, or property, without due process of law, and the indirect way, according to which the state withholds any defendants' benefit of a reduced sentence because of the exercise of their rights. *See* Thomas McCoy, and Michael Mirra, "Plea Bargaining as Due Process in Determining Guilt," *Stanford Law Review* 32, no. 5 (1980): 887-941. For an overview of the due process provision of the 14th Amendment of the United States Constitution, *see* "Due Process," LII / Legal Information Institute, Cornell Law School, accessed November 2, 2020, https://www.law.cornell.edu/wex/due_process.

to the one detected in coerced agreements.[78] In other words, the mere existence of the sentencing differential does not justify the conclusion for coercive agreements due to the fact that it constitutes a *petitio principii*[79] argument. To involve the sentencing differential in its remarks, Easterbrook addresses its baseline and uses tables in order to show how the variables of discount rate and possibility of acquittal designate the differential depending on different discounted equivalents. Based on these tables, he shows that a great number of guilty plea sentences are imposed upon rational bargaining negotiations and he ends up that the coercive agreements failure regarding plea bargaining is overcome by respecting the autonomy value connected to one's right to waive[80] his or her rights as a way of exercising them. Finally, Easterbrook expresses his concerns related to judges' involvement in plea bargaining process since such an involvement changes the market structure -as it turns the bargaining from a bilateral to a trilateral monopoly- and results in costs rising.

Few months later, **Gene Grossman** and **Michael Katz** in their paper[81] affirm Easterbrook's observation[82] that plea bargaining process can be regarded as a transaction taking place in a market, satisfying the parties' desires and responding to their demand and supply for goods and services. Simultaneously, without focusing on the limited economic resources challenge and its possible partial overcome through plea bargaining, they add

---

[78] In the argumentation in favor of the existence of the sentencing differential, it is also found Thomas Church's conclusion in 1976. Presenting the results of an experimental research of his, based on plea bargaining's elimination in Midwest, he observes that exactly the sentencing concession -leading to the sentencing differential- attributes credence to plea agreements through defendants securing. In other words, the sentencing differential operates as a safeguarding for those defendants accepting a plea. *See* Thomas Church, "Plea Bargains, Concessions and the Courts: Analysis of a Quasi-Experiment," *Law & Society Review* 10, no. 3 (1976): 377-401.

[79] To understand the accurate meaning and function of *petitio principii* fallacy, *see* John Woods, and Walton Douglas, "Petitio Principii," *Synthese* 31, no. 1 (1975): 107-27.

[80] The act of waiving is defined in the United States Supreme Court's decision in *Johnson v. Zerbst*, 304 U. S. 458, 464 (1938), and then quoted in *Tollett v. Henderson*, 411 U.S. 258, 260 (1973), as *an intentional relinquishment or abandonment of a known right or privilege*.

[81] *See* Gene Grossman, and Michael Katz, "Plea Bargaining and Social Welfare," *The American Economic Review* 73, no. 4 (1983): 749-57.

[82] Grossman and Katz do not directly refer to Easterbrook's approach regarding examining the criminal procedure as a market system and the plea bargaining as an institution that constitutes an indispensable part of it, which along with prosecutorial and sentencing discretion set the crimes prices, but they explicitly refer to the institution as a *voluntary commercial transaction*.

to Landes and Adelstein by pointing out two effectiveness[83] parameters of the institution that have not been previously identified. With their attention being devoted to social welfare, they develop a model which proves that plea bargaining plays the role of an insurance device for the innocents and the society as well as the role of a screening device for sorting between innocent and guilty defendants. To begin with, assuming that the defendants and the prosecutors are rational maximizers of their utility, Grossman and Katz clarify that defendants maximize their utility with the minimization of the punishment to be imposed on them while prosecutors maximize theirs with the maximization of society's welfare. The maximization of society's welfare is achieved through serving the state's interest and limiting the utility losses caused by i) the inappropriate punishment of guilty defendants, ii) the unsuccessful identification of guilty defendants and iii) the false conviction of innocent defendants.[84] Further, they present their model under the hypothesis that all defendants have committed the crimes they are accused of in order to eliminate the failure of asymmetric information. Provided that prosecutors do not lack any information -they are aware of all defendants' guilt-, it is proven that cases disposition of through plea bargaining embodying the socially optimal offer[85] maximizes social welfare to a greater extent comparing to cases disposition of through trial. This observation is associated with the role of plea bargaining as an insurance device for both the innocents and the state, because it points out that a wrongful conviction of an innocent at trial would mean a) for the innocent, a harsher sentence comparing to the more lenient one offered previously within a pre-trial settlement as well as b) for the state, incapability to comply

[83] Effectiveness should not be confused with the notion of efficiency and more concisely, with the different meanings attributed to efficiency, in respect to the context interpreted, such as economic efficiency -including Pareto efficiency-, market efficiency and operational efficiency. In any case, despite both effectiveness and efficiency are referred to the achievement of a goal and/or the successful tackling of a problem, in contrast to efficiency, effectiveness is not considered in relation to resources and/or costs. As indicatively appear in the business and management field, according to Peter Drucker, efficiency means *doing the thing right*, while effectiveness means *doing the right thing*.

[84] The United States Supreme Court has explicitly referred to these purposes as having been set in order to be served by the prosecutors. In *Berger v. United States*, 295 U.S. 78, 88 (1935), it ruled that t*he United States Attorney's … interest in a criminal prosecution is not that it shall win a case, but that justice shall be done. As such, he is in a peculiar and very definite sense the servant of the law, the two-fold aim of which is that guilt shall not escape or innocence suffer.*

[85] The contributor of the socially optimal offer should be ensured since as Grossman and Katz explain *a higher offer either would not be accepted or would exceed the most appropriate penalty, while a lower one would needlessly provide surplus to the guilt party*.

with the constitutional requirement of protecting the innocent[86] because of the court's incorrect findings. In the next step of their model, leaving behind the elimination of asymmetric information failure and assuming that defendants -who are either innocent or guilty- have the same aversion towards risk, Grossman and Katz end up to the same with their previous observation regarding plea bargaining's dominance over trial on terms of social welfare. Under these prepositions, prosecutors stand unable to distinguish the innocent from the guilty defendants, while they stand able to make such an offer that the guilty defendants cannot refuse and the innocent defendants can. Therefore, plea bargaining acts as a self-selecting mechanism, which reflects guilt and innocence and serves the constitutional requirement of ensuring due process[87]. This observation is connected to the role of plea bargaining as a screening device leading guilty defendants to accept the plea and innocent defendants to reject the plea and opt for trial which grants them a higher possibility of acquittal.[88] This screening role of plea bargaining can be performed

[86] The constitutional requirement of protecting the innocent is provided in the Fourth Amendment, named "*Search and Seizure*", of the Constitution for the United States. *See* "Fourth Amendment – Search and Seizure," Interactive Constitution, National Constitution Center, accessed November 2, 2020, https://constitutioncenter.org/interactive-constitution/amendment/amendment-iv. For an overview of the Fourth Amendment, *see* "Fourth Amendment," LII / Legal Information Institute, Cornell Law School, accessed November 2, 2020, https://www.law.cornell.edu/wex/fourth_amendment. For an explanation on what grounds the Fourth Amendment provides the protection of the innocent, *see* Arnold Loewy, "The Fourth Amendment as a Device for Protecting the Innocent," *Michigan Law Review* 81, no. 5 (1983): 1229-72. In addition to the constitutional provision of protecting the innocent requirement, the United States Supreme Court recalls it in an important number of decisions. Indicatively, in *In re Winship*, 397 U.S. 358, 364 (1970), the Court mentions that *it is critical that the moral force of the criminal law not be diluted by a standard of proof that leaves people in doubt whether innocent men are being condemned*. Also, in *North Carolina v. Alford*, 400 U.S. 25, 39 (1970), it holds that *because of the importance of protecting the innocent and of insuring that guilty pleas are a product of free and intelligent choice, various state and federal court decisions properly caution that pleas coupled with claims of innocence should not be accepted unless there is a factual basis for the plea*.

[87] The constitutional requirement of ensuring defendants a due process is provided in the Fifth Amendment, named "*Rights of Persons*", of the Constitution for the United States. For an overview of the Fifth Amendment, *see* "Fifth Amendment," LII / Legal Information Institute, Cornell Law School, accessed November 2, 2020, https://www.law.cornell.edu/wex/fifth_amendment.

[88] Adopting the exact same model, Bruce Kobayashi and John Lott confirm the exact same conclusion. In other words, they refer to plea bargaining including the optimal plea offer as a sorting device between innocent and guilty defendants. Then, they make a step forward; for the proper function of the plea bargaining device, an additional preposition should be met; trials should not impose innocent defendants high penalties. The reason behind it is that under the risk of being convicted with a high sentence at trial combined with their widely-assumed risk aversion, innocent defendants would accept the plea offered to them at the bargaining stage. Thus, plea bargaining would result in functioning as an adverse sorting device. It becomes clear that this result would be instigated provided that the legal system would opt for the low-probability-high-penalty enforcement strategy over the high-probability-low-penalty respective one.

even more effective under two prepositions. More precisely, sustaining the risk averse equality preposition for all defendants, Grossman and Katz further show that adding the factor of granting prosecutors with the ability to decide both on the pre-trial and the upon conviction sentence, their observation comes to even more concrete results. More concisely, if prosecutors are given the opportunity to decide not only for the sentence offered to the defendants through plea bargaining, but also for the sentence imposed upon them after trial, it is guaranteed that guilty defendants will plea, while no innocent defendants will by any means plea. This observation would establish plea bargaining as the ideal mechanism for each and every criminal case's disposition of, but it is based on an unrealistic assumption; the assumption that all defendants averse risk to the same extent. Understanding the low reliability of such results, Grossman and Katz choose to revoke the abovementioned assumption and conclude that because of this condition, plea bargaining cannot be regarded as the sole and ideal maximizer of social welfare.

Taking all the above into account, it stands crucial to proceed with some remarks coming out of a comparison between Landes from the one hand and Grossman and Katz from the other hand. Firstly, recalling the prosecutorial utility function as presented in Landes model, it is obvious that, in their model, Grossman and Katz agree with their predecessor in this particular point. That is to say, assuming that all defendants are guilty, Grossman and Katz confirm Landes hypothesis according to which prosecutors maximize their utility based on the maximization of society's profit or, in other words, prosecutors' objective function is similar to the society's objective function. The mere difference to be admitted on the prosecutorial utility function of these two models is that Grossman and Katz admit

---

Consequently, innocent risk averse defendants prefer a high-probability-low-penalty enforcement strategy, since this strategy would allow plea bargaining to serve its beneficial role as a screening/sorting device. Kobayashi and Lott conclude that plea bargaining is incapable of serving its screening role proved through Grossman and Katz' model, if the low-probability-high-penalty enforcement strategy is adopted by the legal system. On these grounds, the legal system justifies its choice for the high-probability-low-penalty enforcement strategy through choosing the most efficient solution. The efficiency analysis made by Kobayashi and Lott encompass various parameters such as but not limited to enforcement costs, litigation costs, and costs arising from innocent defendants' false conviction. *See* Bruce Kobayashi, and John Lott, "Low-probability- High-penalty Enforcement Strategies and the Efficient Operation of the Plea-Bargaining System," *International Review of Law and Economics* 12, iss. 1 (1992): 69-77. The low-probability-high-penalty enforcement strategy has been also assessed by Easterbrook. *See* Frank Easterbrook, "Criminal Procedure as a Market System," *Journal of Legal Studies* 12, no. 2 (1983): 293-5. Moreover, the screening and subsequently sorting role of plea bargaining is examined by Kobayashi and Lott in combination with the effect of criminal defense expenditures. *See* Bruce Kobayashi, and John Lott, "In Defense of Criminal Defense Expenditures and Plea-Bargaining," *International Review of Law and Economics* 16, (1996): 397-416.

but choose to exclude from their analysis the effects of the resources' constraints failure, which deems to be central in Landes analysis. Secondly, admitting that defendants are either guilty or innocent, Grossman and Katz model makes a step forward from Landes model, which does not consider innocent defendants at all.

In 1988, **Jennifer Reinganum** develops a model of plea bargaining approaching the debatable issue of prosecutorial discretion within it and the failures that are attributed to the implementation of it.[89] Repeating the prosecutorial utility function as designated by Grossman and Katz, she examines two regimes which are differentiated in the context of the prosecutorial discretion's extent; the first to be examined is characterized by prosecutors' unrestricted discretion to offer to defendants personalized sentences as well as to opt for a number of cases to be dismissed, while the second is characterized by prosecutors' restricted discretion to offer to all defendants accused of for the same crime the same sentence. Her analysis on these regimes regards as granted that each actor -namely both the prosecutors and the defendants- has private information (two-sided private information), which is subject to the asymmetry failure. Since both actors have information, it stands obvious that Reinganum disagrees with Grossman and Katz on their observation that merely defendants have private information on their actual guilt or innocence (one-sided private information), contrary to prosecutors who lack any relevant information. More specifically, Reinganum repeats that defendants know whether they have committed or not the crime they are accused of, but, at the same time, she supports that prosecutors have in their possession all available evidence of each case; thus, prosecutors are fully aware of each case's strength.[90] Then, through her analysis, in which she usually refers to Grossman and Katz assumptions, she stresses out the effect of cases' strength on parties' utility and/or disutility. In this context, she presents a sequential equilibrium[91]

[89] *See* Jennifer Reinganum, "Plea Bargaining and Prosecutorial Discretion," *The American Economic Review* 78, no. 4 (1988): 713-28.

[90] It is supported by Alschuler that prosecutors' awareness on the strength of each case is indicated as the prevailing factor contributing in their decision whether or not to propose defendants a plea agreement. *See* Albert Alschuler, "The Prosecutor's Role in Plea Bargaining," *University of Chicago Law Review* 36, iss. 1 art. 3 (1968): 58-60.

[91] Reinganum explains that the sequential equilibrium is dependent on strategies and beliefs. According to her given definitions, a strategy for the defendant -indifferently his or her guilt or innocence- is *a function specifying the probability that the defendant rejects a sentence offer*, and a strategy for the prosecutor is *a function specifying the sentence offered when the case is of some strength*. Considering that the beliefs are

with an aim to discuss the implications of the unrestricted and restricted prosecutorial discretion regimes on serving or not the objectives set within actors' utility function.

To select the favorable regime, Reinganum ends up that all parties' preferences -namely prosecutors', innocent and guilty defendants' preferences- vary based on several parameters' contribution. Aiming to clarify this conclusion, she presents all differentiated combinations of parties' preferences and observes that in case the parties agree, the unrestricted prosecutorial regime is proven to be most preferred. Summing up, Reinganum underlines the interdependence between the strength of each case and the actors' decisions between settling and going to trial; stronger the case is, harsher the sentence offered by the prosecutor is, and thus, more likely the rejection of the plea offer by the defendant tends. Finally, she suggests the significant influence that the arrest process[92] can have on the dilemma regarding unrestricted and restricted prosecutorial discretion.

Despite Easterbrook's extended reference on prosecutorial discretion within plea bargaining, it seems that Reinganum does not base her assumptions, observations and remarks on it. Nevertheless, it cannot be overlooked that Easterbrook mainly discusses the failures stemming from absolute prosecutorial discretion, which means that he does not focus on the same question with Reinganum, who discusses the favorable between two discretionary regimes for prosecutors. That is to say, even though both of them are interested in prosecutorial discretion, Easterbrook examines the failures of a certain prosecutorial discretion regime within plea bargaining, 5 years before Reinganum raises the question of the ideal prosecutorial discretion regime within plea bargaining. The sure thing is that the topic of to what extent should prosecutors be powerful when proposing defendants' settlements, which embodies the risks of violating due criminal process or promoting personal interests and generally not serving the state as they are obliged to, constitutes an essential issue drawing too much attention on the economic analysis of

certain and not subject to alterations, the equilibrium strategy of the defendant maximizes his or her utility and accordingly the equilibrium strategy of the prosecutors maximizes his or her utility.

[92] When she sets the basic assumptions, at the beginning of the presentation of her model, Reinganum takes as given that the arrest process is random. Nevertheless, as she spontaneously makes some remarks, she points out that if the arrest process functions -owing to the imposing of a high standard- as a screening mechanism distinguishing innocent from guilty defendants, then restricted prosecutorial discretion seems preferable, while if the arrest process cannot function -owing to the imposing a low standard- as a screening mechanism distinguishing innocent from guilty defendants, then unrestricted prosecutorial discretion seems preferable.

plea bargaining; this can be further argued based on Schulhofer's relative publication on it.

It is in the same year that **Stephen Schulhofer** admits that the problematic and uneven results stemming from prosecutors'[93] unlimited powers within their role in the criminal justice system as a whole and the plea settlement agreement as a part remains central in the respective academic community's discussion. Recognizing the great added value gained because of economic tools implementation in the criminal procedure, he dedicates an article[94] on criticizing two of Easterbrook's main claims; the first claim is that, assuming that the criminal procedure resembles a market system, uncontrolled discretion granted to prosecutors is efficient in spite of the failures enshrined in it as an undisputable part of the market, and the second one is that arraignments arising from such discretion do not have unfair effects.

Easterbrook's claim on prosecutorial discretion's efficiency is questioned by Schulhofer because of two observations of his on unrestricted prosecutorial discretion; uncertainty effects and agency costs.

Regarding uncertainty effects, he supports that since prosecutors granted with unlimited discretion are given, inter alia, the opportunity to decide whether they will propose settlements to defendants as well as the level of the potential penalty, no prediction of these decisions is possible.[95] To show his concerns raised by this observation, he explains that

---

[93] Schulhofer's analysis do not merely focuses on the absolute prosecutorial discretion within plea bargaining, but it also addresses the disputable issue of the prosecutors' powerful position in the stage of receiving their decision to file charges. What is more, he comments on judges' respective slightly limited power to sentences imposing following defendants' conviction at trial. All observations not related to prosecutorial discretion within plea bargaining exceed the purpose of the present paper and will not be examined.

[94] *See* Stephen Schulhofer, "Criminal Justice Discretion as a Regulatory System," *The Journal of Legal Studies* 17, no. 1 (1988): 43-82.

[95] This observation is closely in nature, structure and argumentation to the examined by Easterbrook failure of equitable results relating to absolute prosecutorial discretion. The point to be underlined is that Schulhofer and Easterbrook end up to different concluding remarks though beginning from similar observations and proceeding with similar argumentation. Comparing their steps with opposite direction, uncertainty effects resemble to inequitable results, *ex post* penalties are identical to *ex post* treatment, unguided prosecutorial discretion is identical to absolute prosecutorial discretion. Though these similarities exist in their papers, Easterbrook argues in favor of the discretion's fairness, while Schulhofer argues that there are no grounds for fairness justification.

there is no theoretical path to follow in order in the light of the unexpected prosecutors' decisions to reach the desirable and expected efficiency.

Regarding agency costs, they are extensively examined by Schulhofer as a result of the different relationships affected by them and the numerous parameters that govern them.[96] More precisely, since prosecutors[97] are state's agents and defense attorneys' are defendants' agents, there is a great risk that state's and defendants' interests -deterrence's maximization and sentence's minimization accordingly- are not served to the utmost extent due to agents' opposing personal interests and/or lack of incentives. In this context, Schulhofer supports the opinion that prosecutors' decisions should be reviewed by other public officials through a regulatory system. Actually, he stresses out the importance of reviewing prosecutors' decisions certainly within plea bargaining, because this particular process is considered the most potential stage for prosecutors to serve their personal interests (favorable public perception, abstaining from facing trial lost embarrassment risk, contacts with successful private practitioners) and ignore the state's interest. On these grounds, he proposes a restricted bargaining prosecutorial system.[98] He ends up that -similarly to his conclusion concerning the uncertainty effects- there is no theoretical basis arising through the economic perspective argumentation towards proving that unrestricted prosecutorial discretion is efficient. Moving to the next relationship (defendant-defense attorney) affected by the agency costs, Schulhofer refers to defense attorneys and distinguishes them through categorization on private practitioners and appointed attorneys so as to present through various examples the different but existing personal interests they are interested or have to serve; private practitioners, for instance, care about good publicity, reputation and fees, while appointed attorneys are

[96] Easterbrook also addresses the principal-agent problem and recognizes it as a failure connected to unrestricted prosecutorial discretion. Nevertheless, he insists on the fact that if prosecutors are supervised, the relationship between them and their supervisors will be as well subject to the principal-agent problem. This means that he presents the argumentation of vicious cycle with an aim to challenge the foundations of the principal-agent problem.

[97] On examining prosecutors' personal interests that might influence their choices and decisions towards serving their principal's -the state's- interest, Schlulhofer argues that the existence of the chief prosecutor and his/her assistants, i.e., the district attorneys, entails one more relationship characterized by the principal-agent pattern, which carries the inherent risk of the agency problem.

[98] Reinganum also examines the restricted prosecutorial discretion system as a way to avoid horizontal inequities and proves the previously addressed screening role of plea bargaining.

influenced by limited resources[99], caseloads and time constraints. Such remarks enhance his relevant criticism that under any circumstances -which means even for cases that there is a high possibility of defendants' acquittal at trial- defense attorneys opt for settlement and reject trial.

Attempting to put plea bargaining process at the center of his argumentation, Schulhofer perceives that the agency costs problem deteriorates within this process. Defendants' lack of information on assessing attorneys' qualifications, defendants' economic distress resulting in random attorneys' appointment and attorneys' complete lack of positive reputation incentives[100] constitute additional factors that worsen defendants' positions -as principals- within plea bargaining. Nevertheless, alternative arrangements to attorney's appointment with conscription, such as a voucher system, which diminish the implications of the intense principal-agent failure, at the same time, bear high transaction and social costs. Taking it into account, Schulhofer compares these alternatives with the current defense services system using the economic analysis tools. He comes to two closely related conclusions; a) the current defense services system is less efficient for defendants than alternatives of it which may impoverish the agency costs problem and ameliorate defendants' position in the plea settlement, and b) it does not resemble to a market system but to a political/regulatory one. Accordingly, Schulhofer searches for possible

[99] These attorneys, who are appointed by the state/court in order to offer legal services to indigent defendants, are publicly funded and are not paid even close the fees paid to private attorneys. As a result, they do not have any financial incentive to use their possible expertise and qualifications and dedicate the necessary time so as to defend the indigent defendants they are called to. It is again the limited resources factor which affects the result; this time, not only the state's limited resources, but also the defendants' limited resources. That is, public defenders and appointed attorneys lack any financial incentive to work hard towards the defendants' acquittal, because of both the states' limited resources and the indigent defendants' lack of funds. In this context, Gazal-Ayal and Riza comment that for indigent defendants, their representation by and reliance on publicly funded attorneys results in a unique and distinct agency problem detected in criminal cases. *See* Oren Gazal-Ayal, and Limor Riza, "Plea-bargaining and prosecution," in *Criminal Law and Economics*, ed. Nuno Garoupa, (Edward Elgar Publishing, 2009), 12. Also, it should be taken into consideration that indigent defendants' lack of funds and subsequent appointment for them of attorneys by the state/court means that they cannot pay for a qualified attorney and they are dependent on the possible qualifications of the appointed one.

[100] Schulhofer points out that the good reputation incentive plays a crucial role in the intensification of the principal-agent relationship drawbacks when referring to defendants-defense attorneys' relationship within plea settlement. Attorneys' behavior is undoubtedly affected by the fact that contrary to courtroom proceedings they have no chance to display their qualifications, gain desirable feedback easy to spread in the law market and benefit from career opportunities and expand their clientele. This issue of attorney's behavior will be further addressed on the section of this paper referring to the fallacies of the plea bargaining parties behavior in the context of their decision-making.

alternatives of unrestricted prosecutorial discretion that may mitigate the previously presented intense principal-agent (state-prosecutors) problem threatening plea bargaining in order to discuss their efficiency level. In this context, he examines the characteristics of uncontrolled prosecutorial discretion's implications within plea bargaining and compares them with the free market's characteristics.[101] Detecting that the plea settlement agreement system does not have the essential distinctive features of a market system, but those of a political/regulatory one, he concludes that it misses the mechanisms that would ensure its efficiency if it was a market system. In parallel, as a political system, the plea settlement and further the criminal procedure embodies the described above agency costs problems.

What is more, Easterbrook's claim on unlimited discretion's fair results within plea bargaining is doubted by Schulhofer under the points of inequitable treatment of similarly behaved offenders as well as coerced agreements' risk. It is reminded that Easterbrook

---

[101] Free market's system main characteristic revealing its automatic efficient function is the equilibrium point. In microeconomic theory, if the demand curve and the supply curve of the market's good are depicted in the same graph, the point (e) in which the curves are crossed constitutes the equilibrium point. In this point e, the exchange price of the good is set (equilibrium price), as a result of the fact that the supplied quantity of the good is equal to the demanded quantity of it (equilibrium quantity); in this point, the market has the same number of sellers and buyers. The most common phenomenon for any market is that the price of the good is either higher or lower than the equilibrium price. If the price of the good is higher than the equilibrium, then the demanded quantity is lower than the equilibrium quantity while the supplied quantity is greater than the equilibrium quantity. This difference between the supplied and the demanded quantity results to surplus of the good. Since the sellers cannot sell the quantity they have at this price, they will adjust the price downward. As the price falls along the demand curve, more buyers will be willing to buy the good. This process of sellers decreasing the price and buyers being encouraged to buy continues until the market gets to the equilibrium. A respective adjustive process takes place if the price of the good is lower than the equilibrium price and the market deals with shortage of the good. Furthermore, any event able to shift the supply or demand curve causes the equilibrium price to rise or fall dependently on the shift of the curve. Consequently, the free market has the automatic re-establishing mechanism, which results in the market's tendency to reach again the price equilibrium. *See* Fleeming Jenkin, "The Graphic Representation of the Laws of Supply and Demand, and their Application to Labor," in *Recess Studies*, ed. Sir Alexander Grant (Edinburgh: Edmonston & Douglas, 1870), 151-70. For the development of the model, s*ee* Alfred Marshall, "Book V - General Relations of Demand, Supply, and Value," in *Principles of Economics* (London: Publications Macmillan and Co. 8th ed., 1920), 269-417. For earlier reference on demand and supply balance *see* Sir James Steuart, "Book II - Of Trade and Industry," in *An Inquiry into the Principles of Political Oeconomy: Being an Essay on the Science of Domestic Policy in Free Nations* (London: printed for A. Millar, and T. Cadell, 1767). Also, *see* David Ricardo, *Principles of Political Economy and Taxation* (London: John Murray, Albemarle-Street 1st ed., 1817), 542-8. For more recent refence on demand and supply equilibrium *see* Christos Agiakloglou, and Victoria Pekka-Oikonomou, *The Microeconomic Approach of the Contemporary Business*, (Athens: Mpenou Publications, 2014), 104-16. Also, *see* Luis Cabral, *Introduction to Industrial Organization*, trans. Vasiliki Fourmouzi (Athens: Kritiki Publications 2nd ed., 2018), 104-11.

supports that there is no inequitable treatment for similarly behaved offenders as they are *ex ante* treated equally and the idea of considering plea agreements as coerced due to the mere existence of sentencing differential is wrong since it overrides the fact that the sentencing differentials also stand for honest compromises between plea parties. Schulhofer contradicts both views.

Regarding the inequitable treatment of similarly behaved offenders, he firstly criticizes prosecutorial discretion due to its outcomes of random cases dismissals and sentences imposing, which are odd with the prevailing punishment's desert principle. Secondly, he notes that *ex ante* equal treatment argument is based on the assumption that the offenders benefited by prosecutorial discretion's cases dismissals and sentences imposing are not chosen with discriminatory criteria, but are certainly random. If cases dismissals and lenient pleas are attributed to determined categories of offenders, then the laid down condition of *ex ante* perspective is not met and at the same time, privileged categories of individuals, when appearing as potential offenders, expect to be treated favorably.

Regarding coercive agreements, Schulhofer calls into question Easterbrook's reasoning on coercion's absence by arguing that great sentencing differentials can be generated from coerced agreements and put innocent defendants at significant risk. More precisely, he explains that Easterbrook creates a grey area by the time he includes prosecutors' opportunity costs on costs and benefits equalization process. Prosecutors' opportunity costs[102] mirror the high trial costs that the prosecutors' save because of plea bargaining and in combination with the limited resources' reality shift the attention to a factor which eludes costs and benefits equalization's process current purpose. In parallel, incorporating them in this process, the plea agreements' coercion argument is enhanced instead of weakened. Prosecutors' provisions of excessive discounts on grounds of their costs savings shake the underpinning of sentencing differentials acceptance and overly allure innocent defendants to falsely plead guilty and be benefited in comparison with the sentence to be imposed after trial conviction. It is profound that in his attempt to contradict Easterbrook's reasoning on coercion's absence, Schulhofer exceeds this primary goal and

[102] In the plea agreement context, apart from prosecutors' opportunity cost, there is the defendants' opportunity cost, which constitutes the forfeiture of their right to trial. Indicatively, *see* Russell Covey, "Reconsidering the Relationship between Cognitive Psychology and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 216.

takes this chance to bring again the attention on unrestricted prosecutorial discretion's overall risks within plea bargaining.

Summing up, Schulhofer presents a plethora of Easterbrook's arguments while he even sometimes quotes some of them in order to remind to his readers in detail how Easterbrook approaches certain issues that doubt the efficiency and fairness of the current prosecutorial discretion model as well as Easterbrook's view on the likeness of the criminal procedure to a market system. Then, he explains on what grounds these remarks are challenged by the contrary proven by the economic analysis viewpoints. His key contribution to the current discussion is that he gives strong justification capable of calling into question Easterbrook's, Grossman's and Katz's and Reinganum's assumption that the criminal procedure resembles a market system. Schulhofer's observations on the missing points to prove this resemblance cause reasonable doubt for the possible similarity. Concurrently, he manages to doubt the bedrock of *ex ante* equality treatment of offenders, supported by Easterbrook and Posner, by proving that its discretionary discriminatory implementation undermines maybe the greatest -according to the economic literature- criminal's law goal, the deterrence goal. The heated debate between Schulhofer and Easterbrook on the absolute prosecutorial discretion model is proven to be fruitful as it importantly advances the economic analysis discussion on plea bargaining.[103] It provides the academic community with the frameworks of the two opposing prosecutorial discretion systems, which also go through Reinganum's analysis. Unlimited discretion permits the resources' allocation problem to be tackled and the criminal law's goals to be served while limited discretion prevents prosecutors from responding to their personal interests and protects guilty and innocent defendants and the state.

In 1992, **Robert Scott and William Stuntz** decide to step in the dispute between the supporters and condemners of plea bargaining and argue in favor of the institution's

---

[103] Plea bargaining out of the economic analysis scope occupies Schulhofer in a paper dedicated to the discussion of the institution's inevitability. He admits that excessive caseloads and cooperation tendencies following professional courtroom work groups cohesion aims make criminal cases dispositions of to be at least partly dependent on plea bargaining. To challenge the argumentation on the institution's inevitability, Schulhofer examines the possibility of the institution's replacement with the bench trial system of Philadelphia, which grants to defendants with adversary proceedings and all their constitutional rights; this system requires current allocated resources to be only slightly risen. In conclusion, he calls his readers to bring in mind the conception of justice that plea bargaining serves and contemplate that it constitutes a choice which may not be the best. *See* Stephen Schulhofer, "Is Plea Bargaining Inevitable?," *Harvard Law Review* 97, no. 5 (1984): 1037-107.

efficiency[104] and fairness -despite its intrigue by several impediments- under contract theory's veil and contract law's reform.[105] The special thing about this Scott and Stuntz' publication is that it advances to a dialogue between them and **Schulhofer** and **Easterbrook**, who answer to their argumentation by criticizing them; Schulhofer takes this chance in order to underline plea bargaining's inefficiency and unfairness[106] -in one more article of his-, while Easterbrook takes this chance so as to point out the institution's necessity for the criminal justice system[107] -in one more article of his. Then, **Scott and Stuntz** provide the readers with a reply to the points raised mainly by Schulhofer and less by Easterbrook.[108]

To begin with, based on the plea bargaining's analogy to a contract, **Scott** and **Stuntz** rely on the classical and contemporary contract theory as the appropriate legal area for conducting an assessment on the necessity of plea bargaining's maintenance or abolition. In this context, they examine whether the several arguments that justifiably deny enforceability of various contracts may apply for plea bargaining's prohibition as well. Such examination brings them to the conclusion that abolishing plea bargaining constitutes disproportionate limitation of contractual autonomy. More precisely, first of all, regarding plea bargaining, they perceive that restricting the norm of expanded choice, which is served by individuals' freedom to exchange entitlements and their freedom to contract, leads to unjustifiable restricting of individuals' choices as well as unnecessary limitation of important social benefits. Nonetheless, in order to enhance the validity of their conclusion under the conceptualization of plea bargaining being a contract, they do not ignore the opposing to their perception argumentation, which is approached within the classical and

---

[104] Scott and Stuntz usually refer to the term "efficient" and value it under the notion of a bargain, meaning a voluntary transaction, whose gains exceed its transaction costs. It is reminded that this transactions costs' condition, as a prerequisite for the production of efficient bargaining results, has been also discussed by Landes, Adelstein and Easterbrook.

[105] *See* Robert Scott, and William Stuntz, "Plea Bargaining as Contract," *The Yale Law Journal* 101, no. 8 (1992): 1909-68.

[106] *See* Stephen Schulhofer, "Plea Bargaining as Disaster," *The Yale Law Journal* 101, no. 8 (1992): 1979-2009.

[107] *See* Frank Easterbrook, "Plea Bargaining as Compromise," *The Yale Law Journal* 101, no. 8 (1992): 1969-78.

[108] *See* Robert Scott, and William Stuntz, "A Reply: Imperfect Bargains, Imperfect Trials, and Innocent Defendants," *The Yale Law Journal* 101, no. 8 (1992): 2011-5.

contemporary contract theory as well. The relevant argumentation can be classified in a part of it addressing the plea bargaining's defects and another interested in plea bargaining's outcomes. The former includes the opposing viewpoints which stand for duress[109], unconscionable information failure and/ or excessive bargaining power, as catastrophic to parties' choices contributors, which in combination with cognitive traits related to risks evaluation and/or poor judgement[110], lead to irrational decision-making. The latter includes arguments which figure out the whole bargain as one of those contracts whose enforceability should be prevented because of its effects; this applies to those plea bargains which remind contracts of enslavement and to those which threaten distributive justice[111]. Scott and Stuntz examine each one of these points, observe that no part of the

[109] Duress is also discussed by Alschuler who pays attention to Posner's approach on the matter. *See* Albert Alschuler, "The Changing Plea Bargaining Debate," *California Law Review* 69, no. 3 (1981): 696-7, 702-3 and Richard Posner, "Utilitarianism, Economics, and Legal Theory," *The Journal of Legal Studies* 8, no. 1 (1979): 134, 138-9. More specifically, Posner explains that the wealth maximization limit does not produce results consonant with the common moral principles. That is to say, from the economic analysis perspective, an immoral contract on grounds of ethics is not a contract whose enforcement should be prohibited unless other causes of the promises from the parties' agreement are revealed. Such causes prohibiting contracts enforcement are related according to Posner to incapacity, fraud, duress, monopoly and externality. Alschuler criticizes Posner for his attempt to apply economic analysis in such an extent that serves his effort and goal to support and extend the contractual autonomy by all means. He strongly supports that the exhaustive list provided by Posner excludes agreements which on a decent society should be refused enforcement. In terms of plea bargaining, Alschuler, who examines the contractual nature of the institution, is interested in duress as of its effects in the decisions made by defendants and prosecutors within the process. This duress is extensively addressed by Easterbrook and Schulhofer -as previously mentioned- named as coercion. Despite the legal scholars' contradictory standpoints on evaluating duress/coercion, it can be unanimously accepted that it constitutes a central notion for the economic analysis of plea bargaining debate.

[110] The discussion on poor judgement as a defect is the only part of the publication in which Scott and Stuntz partially refer to the agency costs generated by the defendants-defense attorneys relationship. The reference is partial because they merely focus on the impact that agency costs have on the indigent principals (defendants). Their conclusion is that prohibiting plea agreement will worsen poor defendants' position. *See* Robert Scott, and William Stuntz, "Plea Bargaining as Contract," *The Yale Law Journal* 101, no. 8 (1992): 1928. This specific approach is significantly contradicted by Schulhofer. He contests all assumptions made by Scott and Stuntz towards the construction of this conclusion and presents the positive progress that, according to him, shifting from bargaining to trial will bring to poor principals due to changed incentives and choices of their agents. *See* Stephen Schulhofer, "Plea Bargaining as Disaster," *The Yale Law Journal* 101, no. 8 (1992): 2001-3. Contradicting it, Scott and Stuntz repeat their aforementioned view that poor defendants will suffer more than now in case plea bargaining is abolished. *See* Robert Scott, and William Stuntz, "A Reply: Imperfect Bargains, Imperfect Trials, and Innocent Defendants," *The Yale Law Journal* 101, no. 8 (1992): 2014.

[111] Normative welfare economics approach is interested in individuals' well-being, which is set as goal along with distributive justice. *See* Louis Kaplow, and Steven Shavell, "Fairness versus Welfare: Notes on the Pareto Principle, Preferences, and Distributive Justice," *Journal of Legal Studies* 32, no. 1 (2003): 331-62.

bargaining process or its outcome is able to justify the institution's prohibition and consider plea bargaining as an enforceable contract type.

Nevertheless, they are completely aware that dealing with the dilemma of plea bargaining's preservation or abolition demands addressing all important inefficiencies accompanying the institution. Having answered that the opponents of the institution's abolition may not ground their arguments in contract law, Scott and Stuntz implement economic tools offered by the decision-making analysis so as to further respond to the challenges raised. They present a model based on recent to their time bibliography; they make use of various known assumptions while they propose some additions and/or alterations. Indicatively, they adopt Reinganum's assumption on a model of two-sided private information; namely prosecutors' information on the strength of the case and defendants' information on their actual guilt or innocence. Also, they determine the defendants' interest as being the minimization of sentences and the prosecutors' interest as being the maximization of sentences, implying the maximization of deterrence -exactly as their predecessors determine them. Though, it intrigues much attention the fact that they assume the elimination of the agency costs in the defendant-defense attorney relationship. Additionally, they assume that bargaining can take place in two different time periods of time, after the charges filing and at the trial's conclusion. This last assumption is significant for Scott and Stuntz' model as it verifies another assumption of theirs, according to which prosecutors and defendants have to deal with sentences' upward and downward movement from the former to the latter time period. Prosecutors and defendants are given the chance to come to a plea agreement at the former period of time, which supposes -as contract law provides- a fixed price; that is, a certain sentence. Such an agreement including risk exchanging leads to the reduction of the risk of sentences' fluctuation. This expected risk reduction based on plea bargaining entails net social costs reduction. Consequently, the institution's abolition would induce net social costs' bearing.

Furthermore, Scott and Stuntz observe that the reassigned allocation of risks[112] may be threatened by the information failure. More specifically, since for the agreement to be

[112] For the risks' allocation to be efficient, Scott and Stuntz assume that transaction costs are not higher than the expected from the bargain gains; otherwise, the bargain would be inefficient. Respectively, they assume that the plea bargaining process demands reduced transaction costs in comparison to trials. Nevertheless, plea bargaining's reduced transaction costs are not equivalent to these costs' reduction under

reached and its described benefits to be attributed, each party should have access to the other party's private information, strategic considerations stand capable of preventing the conclusion of a desirable agreement and/or an agreement at all. The idea of a desirable agreement is connected to the widely referred to as the innocence problem, which occupies many scholars, and is about to be treated once again, but under a differentiated angle. Adopting the disputable assumption that criminal procedure resembles a market system, and subsequently, plea bargaining operates within it, Scott and Stuntz discuss the prosecutors' setting of the pleas price as affected by the dominant in markets information failure. The information that prosecutors need -but unfortunately lack- in order to set each crime's right price (from zero to its maximum level) is the defendants' guilt or innocence. Various proposed screening and separating innocence signals fail and question plea bargains ability to produce efficient results. A partially trustworthy innocence signal is generally thought to be the one communicated by defendants to prosecutors through the former's refusal to accept the latter's proposed high sentences pleas whose level express high probability of conviction at trial. But even this signal bears the failure possibility since it may turn into an object of exploitation by guilty defendants. On the same grounds, the proposal of prosecutors assessing the odds of defendants' acquittal instead of their aforementioned claims of innocence is not either considered able to get through information barriers. Under these circumstances and respecting contractual norms, prosecutors make a plea offer with a certain sentence reflecting their evaluation on the cases' strength while ignoring defendants' guilt or innocence. This leads to a pooling phenomenon according to which prosecutors offer the same deals to guilty and innocent defendants. But ignoring defendants' guilt or innocence means that the risk's reduction and the net social costs' reduction generated because of bargainers' exchange private information, as described above, is prevented. As a result, in cases in which the defendants are innocent, the outcome of a fixed sentence ignoring the defendants' guilt or innocence renders the bargain inefficient. It is inefficient because innocent defendants due to their risk aversion accept the high plea offer.[113] Hence, Scott and Stuntz argue that except for those

---

the expected from each bargain gains. Therefore, transaction costs failure remains as a failure doubting the institution's efficiency.

[113] Scott and Stuntz adopt the assumption that innocent defendants are generally risk averse and specifically more risk averse than guilty defendants who are risk lovers. Indicatively, innocent defendants risk aversion and guilty defendants risk preference assumption is also adopted by Becker, Schulhofer, Kobayashi and Lott. *See* Gary Becker, "Crime and Punishment: An Economic Approach," *Journal of Political*

criminal cases whose disposition of is affected by the defendants' pooling problem, plea bargaining stands as an efficient contract leading to net social costs reduction. A solution should be figured out so as to tackle the information failure.

Taking their observations into account, Scott and Stuntz deem it necessary to search amongst legal doctrines' provisions for the best course of action to be proposed. They insist on repeating that plea bargains, which through their contract form dispose of guilty defendants' cases, are exemplary in terms of utility maximization.[114] Nonetheless, the innocence problem -as specified just above- remains present and requires to be dealt with. Scott and Stuntz discuss three alternatives: a) maintaining the status quo, which means accepting the institution's efficiency towards guilty defendants and inefficiency towards innocent ones, b) abolishing the institution as a whole, and c) introducing a legal body to establish specific rules reforms, and, then, to review the institution's implementation compliance with them.

Regarding the preserving status quo solution, Scott and Stuntz comment that it should be examined under the functioning of the insurance mechanism for innocent defendants,

---

Economy 76, no. 2 (1968): 178-9, 183-4. Also, *see* Stephen Schulhofer, "Criminal Justice Discretion as a Regulatory System," *The Journal of Legal Studies* 17, no. 1 (1988): 80, note 97. Also, *see* Bruce Kobayashi, and John Lott, "Low-probability- High-penalty Enforcement Strategies and the Efficient Operation of the Plea-Bargaining System," *International Review of Law and Economics* 12, iss. 1 (1992): 70-1. Also, *see* Bruce Kobayashi, and John Lott, "In Defense of Criminal Defense Expenditures and Plea-Bargaining," *International Review of Law and Economics* 16, iss. 4 (1996): 398-401, 411. The opposite assumption has been also made. *See* Avishalom Tor, Oren Gazal-Ayal, and Stephen Garcia, "Fairness and the Willingness to Accept Plea Bargain Offers," *Journal of Empirical Legal Studies* 7, iss. 1 (2010): 105.

[114] It also follows that under these circumstances, plea bargaining falls within the scope of Pareto efficiency. The reason is that provided that defendants are guilty, through the bargain, at the one end of the spectrum, prosecutors manage to ensure guilty pleas and sentencing imposing as well as to be benefited from saving the high adjudication costs they exclusively bear and dedicate such savings in other cases' prosecution, while at the other end of the spectrum, defendants manage to ensure sentencing discounting as well as to be benefited from saving the high trial costs, including, if applicable, the defense attorney's costs. In other words, prosecutors serve their goal which is equivalent to the public's goal of maximizing deterrence and defendants serve their personal goal of minimizing the imposed sentence. It is profound that such bargains make both parties better off – and even serve their goals- without making anyone worse off. However, the Pareto efficiency criterion is not always met within plea bargains, as not all defendants are guilty, as presupposed. Provided the defendants are innocent, the bargains encompass the risk of leading to falsely conviction of innocent defendants, leaving them worse off and preventing the meeting of the Pareto efficiency criterion. Therefore, it is questioned whether Scott and Stuntz examine the institution's efficient results within the constitutional mandate of the criminal due process to protect the innocent. The failure they develop as the center of the innocence problem is not the wrongful conviction of innocent defendants, but *innocent defendants being offered and taking the same deals as guilty ones*. The meaning that Scott and Stuntz attribute to the innocence problem notably attracts Schulhofer's attention.

namely the trial, through which they are offered an additional criminal procedure's stage for proving their innocence with all available by the constitution and the law safeguards. Concerning the abolition solution, Scott and Stuntz claim that it worsens innocent defendants' position since it entails rocketing for the demand for trials which will necessarily alter the trials' nature and process because of its shortening;[115] the re-established trial institution will lack thorough investigation of evidence enhancing the danger for false conviction of innocent defendants. In parallel, they argue that it is possible police officials and prosecutors do not act with the appropriate degree of care, when exercising their duties, as they will rely on judges and/or juries for separating innocent from guilty defendants. Consequently, plea bargaining's abolition eradicates the information failure, but contributes to increasing the conviction rate of innocent defendants. Lastly, as far as the legal body solution is concerned, Scott and Stuntz strongly welcome it and further develop their proposals on the legal rules that need to be revised[116] in order for the innocence problem in the bargaining stage to be overcome.

[115] Scott and Stuntz' argument for the trials' nature and process alteration as well as the increased trials' error rate is inspired by the Schulhofer's paper supporting plea bargaining's replacement with the bench trial system of Philadelphia. *See* Stephen Schulhofer, "Is Plea Bargaining Inevitable?," *Harvard Law Review* 97, no. 5 (1984): 1037-107. This inspiration is quite paradoxical bearing in mind Schulhofer's stance against the institution. Nevertheless, taking the chance of commenting to their article, Schulhofer argues that the false interpretation of his data results and observations lead Scott and Stuntz to their unfounded presumption of increasing the high error rate. To demonstrate the inconsistency between from the one hand the data results and observations they borrow from his model and from the other hand their interpretation in order to found their argumentation, Schulhofer makes the caustic remark on Scott and Stuntz' analysis that *it compares apples with oranges*. *See* Stephen Schulhofer, "Plea Bargaining as Disaster," *The Yale Law Journal* 101, no. 8 (1992): 2006-7. Further, Scott and Stuntz respond to Schulhofer by insisting on their initial view as well as justifying the assumptions they have made in order to end up to it. It is not surprising that they repeat the caustic remark made by Schulhofer on their analysis as applying to his analysis. That is, they imply that it *compares apples and oranges*. See Robert Scott, and William Stuntz, "A Reply: Imperfect Bargains, Imperfect Trials, and Innocent Defendants," *The Yale Law Journal* 101, no. 8 (1992): 2013-4.

[116] The proposal of reforming the rules governing plea bargaining, instead of advocating in favor of its abolition, has been also adopted by Church. Being fully aware of the difficulty of eliminating plea bargaining as well as the beneficial effect of the institution's implementation on the reduction of adjudication costs and public administration, Church supports that if meeting four specific criteria, criminal cases disposition of through plea bargaining will be desirable. On these grounds, he admits that the goal to be set is the fulfillment of the referred criteria through reforms to be established. For acknowledging the criteria and his positive attitude towards plea bargaining, see Thomas Church, "In Defense of "Bargain Justice," *Law & Society Review* 13, no. 2 (1979): 509-25. It is noted that in the general plea bargaining literature, Church along with Easterbrook are regarded as institution's main supporters.

The first rule to be established is the enforcement of the prosecutors promises on sentencing given to defendants through the bargain and the ancillary withdrawal of the judges' power to accept or reject these promises. That is, innocent defendants will not face the risk of being worse off on two grounds; judges will not be able to reject the prosecutors promises and impose harsher punishments on innocent defendants and innocent defendants will not opt for trials only because they consider prosecutors' promises as untrustworthy. Secondly, keeping in mind the possible mistakes that can be done by defense attorneys during pleas negotiations, Scott and Stuntz propose that the law should promote judges' discretion to impose lower sentences whether the ones promised by the prosecutors seem significantly higher than those set as the market price for the accused crime(s). Such a provision would safeguard innocent defendants against defense attorneys' wrongdoing. Last but not least, prosecutors' power is enhanced owing to the absence of perfect competition in the plea market they bargain with defendants. As previous commentators also observe, the governing system in the plea market is bilateral monopoly, as prosecutors do not compete for defendants since defendants cannot opt for another prosecutor. Mandatory minimum punishments provided through applicable criminal laws, and more specifically, those characterized for their overbreadth, grant to prosecutors the ultimate power to disproportionately charge defendants as well as to coerce their acceptance of the plea offer due to connecting their actions to criminal acts attached to such punishments. Sentencing guidelines preventing prosecutors from acting or threatening to act this way at the bargaining level address the catastrophic implications that unlimited prosecutors' authority has on innocent defendants. In parallel, since, as mentioned above, in some cases, prosecutors do not control the post-trial sentence, which depends on judges and/or juries, sentencing guidelines reducing judicial sentencing discretion are approved. All in all, adopting the widely accepted in the literature presumption of criminal procedure's resemblance to a market system while additionally recognizing that within it, plea bargaining resembles to a contract, Scott and Stuntz point out certain flaws arising from the institution's structure. To overcome them, they propose the revision of the legal rules demonstrated in their article, advocate in favor of plea bargaining's efficiency under the condition of the proposed reforms and warn that the institution's abolition would worsen current situation, and therefore, the innocents' position.

It is true that in order to argue in favor of plea bargaining's efficiency, and therefore maintenance, provided that its structural problem -the pooling phenomenon- is dealt

with through legal doctrine, Scott and Stuntz claim to make use of the economic analysis. To verify that they properly make use of the economic analysis' observations, it is crucial to examine its application to contract law. A contract is a bargain between two parties who agree to engage in promises to limit their future actions.[117] They make these promises so as to be benefited from a surplus (gain), which exceeds the cost of the limited actions. Any such contract operating within a market system -given that contracts constitute the cornerstone of any market economy- is not *a priori* efficient, since it is affected by the embodied in the market failures.[118] For a contract to be or to become efficient, contract law is expected to provide the appropriate legal framework to deal with the market failures applying in the contract. In other words, contract law is invited to correct the market failures applying in the contract by reforming the contract within the standards of an efficient one. Hence, economic tools implemented in contract law demonstrate the contract's inefficiencies that should be addressed. These inefficiencies are coercion, transaction costs, externalities,[119] asymmetric information, imperfect competition and

---

[117] For an example of regarding plea bargaining as contract between two parties (prosecutor and defendant), who agree to engage in promises to limit their future actions, *see* the United States Supreme Court decision in *Santobello v. New York*, 404 U.S. 257, 259, 261-262 (1971). In this case, the prosecutor that participated in the plea negotiation promised to the defendant that if the defendant pleaded guilty to a specific offense, then the prosecutor would not make a recommendation on the sentencing. Delays till the determination of the date of the sentencing resulted in the replacement of the prosecutor that had made the promise of no sentencing recommendation with another prosecutor who ignored his predecessor's promise and recommended a sentence. The Court held that the case should be remanded for further consideration by the state courts.

[118] *See* Aristides Hatzis, "The Economic Analysis of the Law of Contracts (The example of the Penalty Clause, Article 409 of Greek Civil Code)," *Digesta* 5, (2003): 325-30, and Aristides Hatzis, "Civil Contract Law and Economic Reasoning – An Unlikely Pair?," in *The Architecture of European Codes and Contract Law* (Kluwer Law International, 2006), 159-63.

[119] Externalities are in general considered by economists as the effects that a transaction may have in third parties, who are not directly involved in it. They are viewed as an external for the transaction feature because they are not captured in the price determined for the transaction to be completed. But a transaction completed in a price based on the direct cost and profit opportunity and not capturing all its effects is a transaction generating social cost. That is, each negative externality of a transaction leads to social cost. The non-internalization of this cost renders the transaction inefficient due to its outcome of inefficient allocation of resources. Law is thought to be able to contribute to internalizing the social cost emerging. The possibility of overcoming externalities and rendering the allocation efficient is developed by Ronald Coase in 1960 through his relevant theorem addressing transaction costs, externalities and property rights. *See* Ronald Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (1960): 1-44. Also, *see* Carl Dahlman, "The Problem of Externality," *The Journal of Law & Economics* 22, no. 1 (1979): 141-62. Apart from negative externalities, there are positive externalities. Positive externalities refer to the social gain emerging from a transaction or in other words the non-internalization of a gain emerging from a transaction. For an overview and examples of negative and positive externalities, *see* Thomas Helbling, "What Are

parties' irrationality in terms of their decision-making. Bearing in mind on the one hand, this list of inefficiencies, and on the other hand, Scott and Stuntz' points, it becomes apparent that through their publication they address all inefficiencies except for externalities. By addressing, it is meant that Scott and Stuntz assume the transaction costs inefficiency as solved while they examine all the others as able to challenge plea bargaining's efficiency. Through this examination, it comes out by them that all such failures do not challenge the institution's efficiency, but their addressing stands essential in order for the opponents of plea bargaining's abolition arguments to be undermined and subsequently rejected. Though, their omission to examine the externalities failure and the unrealistic assumption of transaction costs eliminations calls into question the validity both of their analysis and conclusions.

As far as Scott and Stuntz' proposals for the overcome of the information failure leading to the innocence problem are concerned, they seem puzzling. All reforms they promote do not appear as ways of defendants disclosing their private information (actual guilt or innocence) to prosecutors within the plea negotiation in order for the latter to offer the former deals respecting and fitting to the possibility of innocence. In other words, the phenomenon of pooling innocent and guilty defendants cannot be effectively tackled through the establishments Scott and Stuntz are looking for. Nonetheless, their proposals may address the defects of the plea bargain process -such as but not limited to duress, unconscionable information failure, excessive bargaining power and/or poor judgement-as detected by the classical and contemporary contract theory viewing the criminal institution as a contract. It is odd that their recommended reforms refer to defects characterized by them as not applicable to plea bargaining. Such ambiguity questions the non-application of these defects to plea bargaining. Actually, if they did not apply, there would be no reforms aiming to their confrontation. Overall, this Scott and Stuntz model is quite confusing and does not carefully make use of economic analysis tools in order to come up with reliable observations, findings, arguments and proposals.

Externalities? What happens when prices do not fully capture costs," *Finance & Development* 47, no. 4 (2010): 48-9. Also, *see* Georgios Dellis, *Demos and Agora: An economic analysis of Public Law* (Athens: Eurasia Publications, 2018), 77-9.

Schulhofer directly and hardly criticizes Scott and Stuntz' analysis and conclusions.[120] First, he outlines the terms "efficiency" and "innocence problem" as specified by Scott and Stuntz in order to prove their paradoxical meaning. It seems troubling to him that the pooling of innocent and guilty defendants does not stick with their predecessors' approach on the innocence problem, namely the breach of the constitutional mandate of a criminal procedure which does protect the innocents. To end up to it, Schulhofer supports that from Scott and Stuntz' article, it arises that part of their argumentation moves towards denying the production of efficiency by the bargains whose fixed high price, leads part of the innocent defendants to refuse them, opt for trial and win acquittal. Despite the result of acquittal, since such a choice is accompanied by defendants facing the risk of conviction at trial with a sentence higher than the one proposed at the bargaining stage and prosecutors carrying the high adjudication costs, Scott and Stuntz doubt its efficiency. They assume that if a lower sentence plea was offered at the bargaining stage, the innocent defendants would accept it and the costs imposed to them and prosecutors would be avoided. For the lower sentence plea to be offered, prosecutors should be given innocence signals so as to able to differ the offers they make to innocent defendants from those they make to guilty ones. But as information barriers exist, the pooling phenomenon leads prosecutors to offer to guilty and innocent defendants the same deals. Some of the innocent defendants find the deals unattractive and refuse them. These deals produce inefficiency due to the losses induced from the refusal. That is, Scott and Stuntz view the terms "efficiency" and "innocence problem" under the prism of plea bargaining resulting in a criminal procedure which does not convict as many innocents as an efficient procedure would. Consequently, the reforms they look for the plea bargaining's structure aim to offer innocent defendants a desirable low sentence plea to accept.

To address this analysis, Schulhofer puts forward three rebuttal arguments. Primarily, he insists that their objection against plea bargaining has almost no practical value as the central in their perspective inability of the innocent defendants to signal their innocence to the prosecutors has very limited effects on the offer made. This is because the level of the sentence involved in the offer is dependent on the prosecutors' estimate upon the possibility of defendants' conviction which is further based on the available evidence.

[120] *See* Stephen Schulhofer, "Plea Bargaining as Disaster," *The Yale Law Journal* 101, no. 8 (1992): 1979-2009.

Thus, innocence without evidence cannot affect the plea offer. Secondly, Schulhofer underlines that whether prosecutors become aware of defendants' innocence, they will concurrently hypothesize their aversion attitude towards risk and propose high sentence offers; this risk aversion will induce innocent defendants to accept these offers. In other words, following information asymmetry's degradation, innocent defendants will still be convicted, and even worse, with higher sentence pleas. Thus, there is no ground for Scott and Stuntz' argument that reducing information barriers increases the institution's efficiency[121]. Thirdly, considering that their idea is summed up to the conclusion that plea bargaining is not efficient enough because it convicts fewer innocent defendants than it would if it was efficient, he detects their model's fault thanks to the economic analysis observations. Looking back in their analysis, Schulhofer identifies that it misses any reference to externalities.

Upon this understanding, he ends up that even if he admits the existence of the problem they describe, he cannot admit that it has the detrimental ramifications on efficiency they attribute to it, since it is not proven to challenge the efficiency of plea bargaining. Therefore, he concludes that Scott and Stuntz' approach on the innocence problem as threatening plea bargaining's efficiency[122] should be regarded as an approach to an impractical theoretical question[123] which has no effect on the institution's efficiency.

---

[121] It is important to clarify that, according to Schulhofer, the plea bargaining's negative outcome of convicting too many innocent defendants -because of their aversion towards risk- constitutes a justice objection against the institution and not an efficiency one. In this context, the author suggests that this justice objection should not be confused with the efficiency objection that Scott and Stuntz wish to present through their article.

[122] Schulhofer highlights that this specific formulated by them objection on the efficiency of the institution should not be considered as such, since it can merely be an objection on the desirability of the institution.

[123] Schulhofer's exact wording is *a barely perceptible theoretical ripple*. *See* Stephen Schulhofer, "Plea Bargaining as Disaster," *The Yale Law Journal* 101, no. 8 (1992): 1981. This wording seems very attractive to Easterbrook, who quotes it in his article and, convinced on its accuracy, mentions "*I concur*". *See* Frank Easterbrook, "Plea Bargaining as Compromise," *The Yale Law Journal* 101, no. 8 (1992): 1969. Commentators agreement on this characterization, draw Scott and Stuntz' attention, who in their reply state that "*this may not be earth-shattering, but neither is it a barely perceptible theoretical ripple*". *See* Robert Scott, and William Stuntz, "A Reply: Imperfect Bargains, Imperfect Trials, and Innocent Defendants," *The Yale Law Journal* 101, no. 8 (1992): 2012. Nevertheless, it stands puzzling that Scott and Stuntz do not contradict this characterization; they just repeat their perception that the pooling phenomenon constitutes an important problem arising from plea bargaining.

To persuade for the reasonableness of his arguments, he provides a presentation of those flaws, which, according to him, set both inefficiency and unfairness objections against the institution. The flaws he discusses are the agency costs[124] as appeared both in the state-prosecutors as well as the defendants-defense attorneys relationships.[125] The structure of these relationships and the divergence between the principals' and the agents' personal interests are neared under the economics' scope indicating the author's loyalty on the economic analysis application on plea bargaining. The outcome of this approach brings out two important characteristics accompanying the agency costs. Firstly, agency costs reject any argument indicating that the results of each relationship may cancel -through balancing- those of the other. Secondly, under the reminder that plea bargaining functions not as a market system, but as a political process, agency costs cannot be reduced; the reason behind this is that political process does not incorporate the inherent to the market mechanisms and devices which reduce costs. It becomes clear that under these circumstances, the agency costs deriving from plea negotiations have negative effects on both interested and involved in the plea negotiation parties; the state and the defendants. That is, plea bargaining does not succeed in maximizing deterrence and minimizing sentences. To further indicate that these are the flaws which need to be dealt with, in order for the institution to function efficiently and justly, Schulhofer addresses all the reforming proposals of Scott and Stuntz so as to demonstrate their irrelevance to this goal.

As far as the first proposal on rendering prosecutors promises binding and denying judges' power to affirm them or turn them down is concerned, Schulhofer extensively discusses its unproductivity. At first sight, he observes that this reform is uncapable of effectively signaling innocence and thus leading prosecutors to provide innocent defendants with lower pleas than those they provide guilty ones with. Also, he insists that this reform which is expected by Scott and Stuntz to protect innocent defendants, it threatens

[124] It is recalled that when they develop their model, Scott and Stuntz include the assumption that the agency costs of the defendants-defense attorneys relationship are considered eliminated. As far as the agency costs of the state-prosecutors relationship are concerned, they refer to them as being an insignificant problem; the reason is that they support the opinion that agency costs would rise in case the solution of abolishing plea bargaining was adopted.

[125] His detailed examination of these flawed relationships mostly repeats the observations presented in the previous relevant publication of his. *See* Stephen Schulhofer, "Criminal Justice Discretion as a Regulatory System," *The Journal of Legal Studies* 17, no. 1 (1988): 49-60.

to inflict on them. His reasoning is that their argument pointing out that judges' intervention is inefficient neglects the externalities exactly as their argument supporting plea bargaining's efficiency as a contract. He ends up that not only should judges continue affirming or turning down prosecutors promises, but also if they do not, innocent defendants' position will get worse. Concerning the second proposal on granting judges with sentences downward discretion, Schulhofer argues that it cannot succeed in avoiding the innocent and guilty defendants pooling on terms of the plea offer made by the prosecutors. In parallel, he underlines the reform's ineffectiveness on protecting the innocent defendants from conviction owing to the fact that judges cannot detect any attorneys' mistakes made during the negotiations and resulted in disproportionately high in sentence plea agreement. Regarding the third proposal of banning minimum mandatory sentences through establishing sentencing guidelines limiting prosecutorial and judicial discretion, Schulhofer questions the banning idea based on three arguments. Firstly, such a reform does not contribute to separating innocent from guilty defendants at the bargaining stage. Secondly, it does not distinctively ameliorate innocent defendants' position. Thirdly, it leaves unaffected all other cases in which innocent as well as guilty defendants' decisions are made under duress. The first argument implies that the reform stands unable to address the innocence problem as viewed by Scott and Stunz, while the second and the third imply that it similarly stands unable to address the innocence problem as viewed by all other commentators on the issue; the third argument also implies that the reform stands unable to contribute to plea bargaining's compliance with the constitutional mandates ensuring all defendants rights.

Then, Schulhofer advocates that economic analysis acknowledges the inefficiency and unfairness generated by plea negotiations and to that extent recommends the institution's abolition. His argumentation can be summarized in his admittance that agency costs arising from defendants-defense attorneys relationship can be diminished, but still agency costs arising from state-prosecutors relationship as well as the negative externalities following innocent defendants' false conviction cannot be overcome. Consequently, he strongly supports plea bargaining's abolition upon economic analysis' confirmation.

Schulhofer's intense efforts to dismiss Scott and Stuntz' proposals call into question his initial statement of criticizing their particular proposals' outcome on plea bargaining's efficiency. More precisely, after having fought over Scott and Stuntz' approach on the

terms of the innocence problem and efficiency, he accepts that they are construed differently from them, compared to other commentators of the identical terms. Nonetheless, when developing his criticism on the abovementioned reforming proposals, he chooses to examine them from two viewpoints. That is, he examines their possible outcomes on dealing with the innocence problem, and subsequently on enhancing plea bargaining's efficiency, from two viewpoints. He attributes to innocence problem and efficiency the different meanings that have been attributed to them on the one hand by Scott and Stuntz and on the other hand by other commentators. The former approach serves his initial goal. The latter approach is totally irrelevant to the goal he has set, because it unreservedly leads to a paradox. The paradox is that he assesses whether particular reforming proposals are capable of addressing a problem and a purpose different from those they have been designed upon. In other words, he doubts the reforms' outcomes under assessing their capacity towards confronting other problems and goals than those they target. This inconspicuous and troubling reasoning serves his underlying purpose to convince his readers on Scott and Stuntz' weak argumentation and respectively reinforce his own on plea bargaining's abolition.

Easterbrook is close to Schulhofer's intense criticism on Scott and Stuntz analysis.[126] In fact, on an important part of his article, he repeats Schulhofer's concluding remarks, as arising from Scott and Stuntz analysis assessment, but only after having developed his own way of thinking and argumentation on each issue at hand. First of all, he expresses his great doubt even on the mere existence of the innocence problem -stemming from the particular information failure- which Scott and Stuntz present as plea bargaining's main inefficiency factor. In this context, comparing the information failure indicated within plea negotiations with the respective failure indicated within the trial process, Easterbrook perceives that it can be proven greatest within the trial process based on a course of factors. Thus, it is trials' and not plea bargains' fault that the innocent defendants cannot be separated from the guilty ones. Then, he disputes Scott and Stuntz reforms' necessity, usefulness, new twist and relation to plea bargaining. After arguing against them, he expresses his strong belief that the institution's reform should direct towards the establishment of a contractual framework. On these grounds, Easterbrook reinstates

[126] *See* Frank Easterbrook, "Plea Bargaining as Compromise," *The Yale Law Journal* 101, no. 8 (1992): 1969-78.

Schulhofer's proposal of terminating defense attorneys' appointment through conscription. The difference in Easterbrook's and Schulhofer's approach on this identical proposal -which is afterwards also endorsed by Scott and Stuntz- is identified in a main difference of their general approach on plea bargaining. As it has been extensively discussed, Easterbrook argues that the criminal procedure -and subsequently, plea bargaining- resembles a market system while Schulhofer strongly condemns this opinion declaring that the criminal procedure -and subsequently, plea bargaining- resembles a political process. Taking these unlike approaches into account, it can be explained why Easterbrook, when stating the proposal, invites the criminal justice system to pay the defense attorneys according to the price set within the relevant market of legal services provision.

And this is not the only contradictory point between Schulhofer's and Easterbrook perception on plea bargaining. As Easterbrook clarifies, he supports Scott and Stuntz conclusion in favor of plea bargaining while disagrees with Schulhofer's conclusion in favor of the institution's abolition. Nevertheless, he extends his criticism on the economic model of plea bargaining as a contact pointing out its impossibility to be rendered Pareto-efficient. Despite this impossibility, instead of promoting its abolition leading to obligatory litigation, he prioritizes its maintenance leading to compromise. The reason is that the settlement choice embodies the chance of defendants, prosecutors and the state to be better off. The parties right to compromise should not be denied owing to the agency costs, and particularly these detected in the defendants-defense attorneys relationship. Easterbrook observes that they are inherent in every respective principal-agent relationship but do not stand as a factor justifying the abolition of all agreed arrangements dependent on such relationships. It is true that some private choices are restricted even in constitutional basis, but he wonders the criteria set for these choices to be separated from others. In any case, he finds no basis for restricting defendants' choice to bargain through abolishing plea bargaining. All in all, he wishes to make it clear that despite the weaknesses he notices on all matters addressed through Scott and Stuntz analysis, he wholeheartedly endorses their approach that the institution is in general efficient and should keep its position as the prevailing procedure of criminal cases disposition of while he insists on the amelioration of the trial process.

But **Scott and Stuntz**[127] comment on Schulhofer's hard criticism while they make fewer references on Easterbrook's observations. It is quite interesting that they approach the former[128] who strongly opposes plea bargaining and the latter who strongly supports it, and then indicate that their stance differs from both. Indeed, they disagree with both options; the former's that plea bargaining should be abolished and the latter's that plea bargaining is efficient as it currently operates. They answer to Schulhofer that the meaning they attribute to efficiency generates from a significant factor he chooses to ignore; that is, trials' imperfection. More precisely, they explain that since trials are imperfect and bear the risk of innocent defendants' false convictions, abolishing plea bargaining entails that innocent defendants are denied the choice of pleading guilty under the promises of low sentences, which would let them avoid higher trials' sentences. So, their idea of deeming as efficient a system which permits innocent defendants -whose conviction cannot be avoided in any event- to choose the lower over the higher sentence is far more plausible. Thus, they observe that, in fact, Schulhofer is in favor of convicting less innocents harshly while they are in favor of convicting more innocents lightly. That way, they show that abolition of plea bargaining does not ensure the protection of innocents requirement. In this context, they respectively answer to Easterbrook that, close to trials, plea bargaining is imperfect as well, since it also bears the risk of innocent defendants' false convictions. Nevertheless, owing to advocating the institution's general efficiency and fairness, they insist that reforming it stands as the best possible solution and concurrently a necessity.

Regarding Schulhofer's criticism towards the reforming recommendations they have made, Scott and Stuntz admit that they may ameliorate all defendants' position -that's not the point- while they also argue that they ameliorate innocent defendants' position to a greater extent compared to guilty ones. Further, they comment that their recommendations are not presented with an aim to be considered as the unique ways of tackling the innocence problem and for this reason, it lacks any basis to be assessed as such. Also, as far as Schulhofer's argument that externalities are missing from their analysis in which they resemble the plea negotiation to a contract, they refer to it as an interesting point,

---

[127] *See* Robert Scott, and William Stuntz, "A Reply: Imperfect Bargains, Imperfect Trials, and Innocent Defendants," *The Yale Law Journal* 101, no. 8 (1992): 2011-5.

[128] Schulhofer along with Alschuler have been among the harshest opponents of plea bargaining. *See* Albert Alschuler, "The Changing Plea Bargaining Debate," *California Law Review* 69, no. 3 (1981): 652-730.

but as one that cannot be regarded it as able to question their observations and conclusions. Their justification is that in practice not all inefficiencies should be overcome in order for a contract to be efficient. Finally, they do not seem interested on Schulhofer's opinion that they attribute to the innocence problem a different meaning from other scholars.

Taking this rebuttal effort into account, it is quite obvious that it does not satisfactorily fulfills its primary goal. Since Schulhofer makes use of economic analysis in order to examine Scott and Stuntz' idea of assessing plea bargaining as an efficient contract within a market system and ends up with the idea of approaching plea bargaining as a disaster, for Scott and Stuntz' reply to be valuable for the relevant literature, they should have made use of economic analysis as well. Thus, responding to Schulhofer, they rely on an argument based on the admittance that a bad outcome is better than its worse (when comparing sentencing level of innocent defendants' false convictions after pleas and after trial), an argument based on common sense with no practical value (when stating the non-exhaustiveness of their recommendations), and an argument based solely on a hypothesis arising from practice (when justifying externalities missing). That is, their response does not foster the economic analysis of the institution. Regarding their response to Easterbrook, it lacks significance. The reason is that they overlook that Easterbrook does not advocate on plea bargaining's perfection; he deems it equally effective to trial, but more superior than trial in terms of quality. They respond as he had seen it perfect.

Then, it is in **1996**, when **Bruce Kobayashi** and **John Lott** recall the model presented in 1983 by Grossman and Katz. More specifically, their article[129] focuses on the role of plea bargaining as a device screening defendants and therefore sorting innocent from guilty ones. Their model involves three terms which -depending on their positive or negative sign- allow the aforementioned role to be served; these terms are the probability of conviction at trial, risk penalty and defense expenditures. The first term, based on the general assumption that innocent defendants have a lower probability of conviction at trial compared to guilty ones, has a positive sign. The second term, based on the general assumption that innocent defendants are more risk averse compared to guilty ones, has a negative sign. Following these signs determination, for the sorting role to be served, the third

[129] *See* Bruce Kobayashi, and John Lott, "In Defense of Criminal Defense Expenditures and Plea-Bargaining," *International Review of Law and Economics* 16, iss. 4 (1996): 397-416.

term needs to have a positive sign; otherwise, plea bargaining will operate as an adverse sorting device[130]. The third term, based on the assumption that innocent defendants expend less on trials compared to guilty ones, has a positive sign. In other words, Kobayashi and Lott's model reintroduces Grossman and Katz' model and results and comes to the observation that defense expenditures constitute a condition which needs to be taken into account on the assessment of the plea bargaining's sorting ability. As a matter of fact, they indicate that omitting the consideration of the defense expenditures variable, prosecutors cannot offer a plea that all guilty defendants will accept and all innocent defendants will reject; this way, some guilty defendants will opt for trial and some innocent defendants will falsely plead guilty. Furthermore, reminding Landes model remark according to which parties settle in order to avoid trial's increased cost compared to settlement's cost, Kobayashi and Lott take this chance to point out that disparities in defense expenditures enable parties to avoid trial's increased cost by allowing prosecutors to figure out which cases demand excessive trial cost -as prosecutors and defendants are evenly matched to trial- and consequently can be more efficiently disposed of through settlement.

An important point to be raised regarding Kobayashi and Lott's analysis is that they name the sorting role of plea bargaining as an efficiency parameter of the institution. Concurrently, they support that Grossman and Katz' analysis also regards it as an efficiency parameter. Nevertheless, thoroughly reading Grossman and Katz' analysis, it becomes apparent that Grossman and Katz consider the sorting role of plea bargaining as an effectiveness parameter of it. As it has been previously clarified the terms "efficiency" and "effectiveness" are not identical in meaning and should not be perceived as such. Kobayashi and Lott do not define which meaning of efficiency they adopt, but it can be assumed that

[130] Adverse sorting has been previously referred to as an undesirable result of plea bargaining's operation again by Kobayashi and Lott. *See* Bruce Kobayashi, and John Lott, "Low-probability- High-penalty Enforcement Strategies and the Efficient Operation of the Plea-Bargaining System," *International Review of Law and Economics* 12, iss. 1 (1992): 71.

they adopt the same[131] they did in their 1992 paper.[132] As for their mistaken notion to deal with Grossman and Katz' effectiveness parameter as it was an efficiency one, it stands as a logical leap which exclusively serves their analysis main purpose; the purpose to present it as completing Grossman and Katz' initial idea of plea bargaining operation as a screening device sorting between innocent and guilty defendants. All in all, Kobayashi and Lott insist that by performing this sorting the institution is efficient and subsequently criminal justice can ensure efficiency. It is exactly the same sorting that for Grossman and Katz deems plea bargaining effective.

II. General Remarks

The reviewed literature proves that the economic analysis contribution to approaching plea bargaining has been great. All aforementioned academics have more or less developed economic models as well as applied observations coming out from the economic analysis of law so as to deal with the debatable issue occupying the interested in criminal law and procedure community; the issue whether plea bargaining should maintain its position as the additional to criminal trials institution leading to criminal cases' disposition of or should be abolished.

More precisely, the scholars interested in addressing this issue are proven to have implemented the RCT. Assuming that the parties involved in plea bargaining are economic actors who set particular goals, their behavior can be predictable and subsequently interpretable. In other words, the prediction of the behavior of the parties involved in plea bargaining, which is certainly subject to the rules and principles governing the institution, allows scholars to attempt proceeding with an evaluation of the efficiency of the

[131] *See* Harold Demsetz, "Information and Efficiency: Another Viewpoint," *The Journal of Law & Economics* 12, no. 1 (1969): 1-22. Demsetz examines efficiency in regards with the problem of resources allocation when applying to information's production. In parallel, he criticizes Arrow's approach to efficiency in regards with perfect competition system's contribution to the problem of resources allocation. *See* Kenneth Arrow, "Economic Welfare and the Allocation of Resources for Invention," in *The Rate and Direction of Inventive Activity*, ed. Universities-National Bureau Committee for Economic Research, Committee on Economic Growth of the Social Science Research Council, (Princeton: Princeton University Press, 1962), 609-26.

[132] *See* Bruce Kobayashi, and John Lott, "Low-probability- High-penalty Enforcement Strategies and the Efficient Operation of the Plea-Bargaining System," *International Review of Law and Economics* 12, iss. 1 (1992): 76, footnote 17.

institution. That is, RCT's application in plea bargaining enables an economic efficiency evaluation of it.

Since plea bargaining can be proven efficient provided that it manages to allocate resources in a way that it serves criminal law's deterrence goal at the lowest possible cost, the relevant literature dedicates an important part of it to examining plea bargaining within the criminal procedure as a limited resources allocator towards accomplishing the deterrence goal. Nonetheless, due to the differences of the developed models in terms of assumptions, viewpoints, focus, examined parameters and behavior interpretation, some scholars have pointed out the institution's efficiency, some others its inefficiency and some others the circumstances under which it may be efficient. The specific contribution of each scholar is included in the previous review of each one's work.

A key point to be underlined here is a discussion emerged from Scott and Stuntz' analysis. Within it, they break the casual assumption of RCT on decisionmakers rational behavior by referring to the existence of cognitive impairments which may affect defendants.[133] Acknowledging that psychology is providing the economic analysis of law with observations that lead to behavioral economics involvement in the prediction of economic actors' behavior, Scott and Stuntz wonder whether this new concept could be applied in plea bargaining as well. Nevertheless, despite their attempt to approach defendants' behavior under this concept, at the end, they argue against the compatibility of behavioral economics application in plea bargaining.

The completion of the economic analysis of law with the behavioral economics does result in the subsequent completion of the economic analysis of plea bargaining with the behavioral economics of plea bargaining. But it took some years until scholars accepted to incorporate behavioral economics concept in plea bargaining.

---

[133] *See* Robert Scott, and William Stuntz, "Plea Bargaining as Contract," *The Yale Law Journal* 101, no. 8 (1992): 1925-7.

PART III – BEHAVIORAL ECONOMICS AND GAME THEORY OF PLEA BARGAINING

I. Comparative Presentation and Critical Review of the Literature of the Behavioral Economics of Plea Bargaining[134]

In 1999, **Richard Birke** offers to the relevant literature a significant paper[135] since he attempts to examine on what grounds it may be justified that an important cognitive psychology's observation on decision-making is not verified within plea bargaining. More precisely, Birke wishes to explain the circumstances under which the widely-accepted principle of decision makers' risk attitudes towards losses and gains is refuted as for criminal defendants. According to this principle, decision makers -when they are called either to accept losses or to take risks- tend to be risk seeking so as to avoid losses.[136] However, most defendants, when deciding, do not take the risk seeking decision to go to trial, a decision including the possibility to avoid losses through acquittal. Instead, they take the risk averse decision to plead guilty, a decision leading to the acceptance of certain losses[137] and the waiving of trials' gambling which could result in the avoidance of these losses. In other words, Birke searches for the reasons why the decision makers' expected

[134] It is noted that this subsection proceeds in chronological order based on publication date.

[135] *See* Richard Birke, "Reconciling loss aversion and guilty pleas," *Utah Law Review* 1999, no. 1 (1999): 205-54.

[136] On determining choices' determinants within cognitive psychology, Tversky and Kahneman observe that, as various investigators have confirmed, *the psychophysics on value induce risk aversion in the domain of gains and risk seeking in the domain of losses*. In addition to this result of the value function for gains and losses, it is observed loss aversion. Loss aversion is the phenomenon/bias according to which a loss is more aversive than a gain is attractive. *See* Amos Tversky, and Daniel Kahneman, "Choices, Values and Frames," *American Psychologist* 39, no. 4 (1984): 341-3. The whole point is based on the prospect theory developed and presented by Tverksy and Kahneman in 1979. The prospect theory constitutes a significant alternative to the utility maximization theory. While the utility maximization theory suggests that actors assess outcomes as being a final state of welfare independently of any reference point, the prospect theory suggests that they do not. The prospect theory suggests that actors assess outcomes as being gains or losses, which means states emerging in relation to a reference point. *See* Amos Tversky, and Daniel Kahneman, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica* 47, no. 2 (1979): 263-91.

[137] The fact that the losses arising from a plea agreement are certain also is regarded as a choices' determinant for cognitive psychology. As Tversky and Kahneman point out *the psychophysics of chance induce overweighting of sure things and improbable events, relative to events of moderate probability*. *See* Amos Tversky, and Daniel Kahneman, "Choices, Values and Frames," *American Psychologist* 39, no. 4 (1984): 341, 344-6.

loss aversion is contradicted as for the defendants who accept the losses of a guilty plea.[138]

Firstly, on assuming defendants as rational maximizers of their utility, Birke develops a model predicting their decisions on the prosecutors offers. Nevertheless, practice has shown that such predictions are not always verified, meaning that RCT is not always verified. That is, for cases that the trial option is the rational choice, defendants' decision to plead guilty causes concerns. Birke approaches these concerns on grounds of this decision's contradiction to defendants' expected loss aversion. Towards this end, he provides four different hypotheses addressing the issue and ends up that when defendants make the irrational choice of pleading guilty, it is because of information asymmetry, agency problem as well as cognitive biases effects in their decision-making. Information asymmetry is detected owing to the fact that defendants do not acquire appropriate information concerning the expected value of the trial so as to compare it with the value of the plea and opt for the trial option when it maximizes their utility. This failure is mainly attributed to defense attorneys whose position as defendants' agents allows them to cooperate with prosecutors on reaching an agreement -because of both sides' strategic behavior- and then induce defendants to accept these pleas. The way defense attorneys induce defendants to accept the pleas is through the exploitation of the framing effect[139], which refers to the phenomenon indicating that decision-making and possibilities' calculation are completely dependent on the frame to which the choice or the problem is placed. Consequently, if the losses from plea bargaining are framed and communicated to defendants as gains from it, it is plausible that defendants choose plea bargaining over trial. Taking these remarks into consideration, Birke proposes solutions on addressing information asymmetry which he considers as the justification -combined with the framing effect exploited by defense attorneys and prosecutors- for defendants showing risk aversion, pleading guilty and accepting certain losses, instead of showing risk seeking,

---

[138] The puzzling question to be answered is *given people's tendency to take risks in the domain of losses, why so many defendants enter into plea bargains with the prosecution?* For an overview of this phenomenon and the four explanations of it provided by Birke, *see* Eyal Zamir, and Doron Teichman, *Behavioral Law and Economics* (New York: Oxford University Press, 2018), 520-1.

[139] *See* Amos Tversky, and Daniel Kahneman, "The framing of decisions and the psychology of choice," *Science* 211, iss. 4481 (1981): 453-8. Also, *see* Amos Tversky, and Daniel Kahneman, "Choices, Values and Frames," *American Psychologist* 39, no. 4 (1984): 346.

opting for trial and expecting losses avoidance through acquittal, when the latter is the rational choice.

It is crucial that by accepting the influence of the interrelationship between risk preferences and the framing effect[140] as an indicator of the likelihood of the plea acceptance, Birke accepts that parties involved in plea bargaining behavior needs to be approached within the context of cognitive psychology and behavioral economics. Birke is not the first to take into account that the decision taken by defendants is a decision taken under risk. The acceptance of the influence of risk preferences in this decision-making is first admitted by Landes. The new point raised by Birke is that defendants' preferences towards risk are not invariant -as RCT assumes-[141] but instead alter depending on the frame in which the options are placed. That is, the new observation is the application of the framing effect phenomenon combined with loss aversion in defendants' decision-making. Such an application allows the more careful examination and understanding of a bias preventing defendants' rational choice, when the rational choice is the trial, and thus feeds the debate on plea bargaining's efficiency.

Few years later, in 2004, **Stephanos Bibas** publishes a paper[142] which is regarded as central since a descriptive part of it refers to the application of heuristics, weaknesses and biases to the behavior of the parties involved in plea bargaining. The general scope of the paper is to explain why the classic shadow-of-trial model[143] is falsely applied to plea bargains.[144] This model, which ends up that plea bargaining results in outcomes as fairly as

---

[140] It will be discussed that there is important interaction between loss aversion, the framing effect as well as the endowment effect bias.

[141] *See* Amos Tversky, and Daniel Kahneman, "Choices, Values and Frames," *American Psychologist* 39, no. 4 (1984): 343-4.

[142] *See* Stephanos Bibas, "Plea Bargaining outside the Shadow of Trial," *Harvard Law Review* 117, no. 8 (2004): 2464-547.

[143] For an overview of the experimental tests of the shadow-of-trial model, *see* Lauren Clatch, "Shining a Light on the Shadow-Of-Trial Model: A Bridge between Discounting and Plea Bargaining," *Minnesota Law Review* 102, no. 5 (2017): 949-54.

[144] The inadequacy of the classic shadow-of-trial model to evaluate the decision-making within plea bargaining has been also underlined by Rebecca Helm. More precisely, she argues that new insights of modern cognitive theories render the replacement of this model necessary. Among these theories, the Fuzzy-Trace Theory (FTT) assumes that people encode information in two types of memory representation (verbatim and gist), each of which has different effects on the defendants' decisions within plea bargaining. In this context, the prosecutors may exploit such effects accordingly in order to create incentives leading defendants to accept the pleas regardless of their factual guilt or innocence. Also, a reference on certain biases,

trial, overlooks the distorting effects that various structural and psychological impediments have on plea bargaining. As a consequence, an updated model taking these impediments and their effects into consideration should be applied in bargains. To respond to the issue he sets, Bibas addresses the structural and psychological impediments, and, finally, proposes the incorporation of them in the appropriate for bargains model.

As far as the structural obstacles to bargains, Bibas refers to problems that have already extensively discussed by commentators of plea bargaining's efficiency within the context of the economic analysis. To name them, he analyzes from his own point of view i) the agency costs generated from the conflict of interests in both relationships on the form of principal-agent established; that is state- prosecutors and defendants- defense attorneys relationships, ii) the sentencing guidelines and mandatory minimum and maximum statutory sentences operating as cliffs and discouraging gradations, iii) the bail and mostly pretrial detention which may exceed post-trial sentence, iv) the information asymmetry confronted both by prosecutors and defendants in terms of each other's strength of the case, as well as by defendants when selecting their defense attorneys.

Moving to psychological impediments, Bibas directly doubts based on cognitive and social psychology's observations RCT's main assumption; the assumption on decision makers rationality. He supports that heuristics and biases prevent parties involved in plea negotiations from rational decision-making. To justify this view, he attempts to show how the negotiations outcome is influenced by or even depends on various biases.

namely, the framing effect and the contrast effect (close to the elsewhere found as anchoring effect), that may influence defendants' decision-making, is made by Helm. *See* Rebecca Helm, "Cognitive Theory and Plea-Bargaining," *Policy Insights from the Behavioral and Brain Sciences* 5, no. 2 (2018): 195-201.

To begin with, over-optimism[145] leading to overconfidence leading to illusion of control and self-serving bias[146] induces parties to selective information processing,[147] which means prosecutors and defendants interpreting existing data asymmetrically so as to ascertain their pre-formed views and adapt to their fairness notion.[148] Thus, within this contest, distant opinions between prosecutors and defendants on the most possible to prevail and the one to be the fair trial outcome result in its different evaluation by each side rendering the settlement difficult or even impossible.

Then, denial mechanisms and psychological blocks, which means defendants distorting perception of their own status of guilt, induces them to wrongful evaluation of the trial outcome and the post-trial sentence. Thus, respectively to the aforementioned bias, each side proceeds with different evaluation on the expected trial outcome; but this time, the defendants are those rendering the settlement difficult or even impossible.

Another bias, which is also considered to impair the plea agreement is the discounting of future costs, or, otherwise called, the over-discounting. The discounting of future costs - referring to the divergence in terms of worth between a day of freedom today and a day of freedom a few years from now- is expressed by defendants regarding their imprisonment. This means that this bias may lead defendants to accept, in the future, worse sentence than the one they reject in the present.[149] The more interesting thing about this

---

[145] Innocent defendants have been experimentally proven to be more over-optimistic than guilty ones regarding the possibility of acquittal at trial. *See* Avishalom Tor, Oren Gazal-Ayal, and Stephen Garcia, "Fairness and the Willingness to Accept Plea Bargain Offers," *Journal of Empirical Legal Studies* 7, iss. 1 (2010): 98, 100, 109.

[146] In the social psychology literature, it is also found as confirmation bias or egocentric bias. Indicatively, for the term confirmation bias, *see* Matthew Rabin, and Joel Schrag, "First Impressions Matter: A Model of Confirmatory Bias," *The Quarterly Journal of Economics* 114, no. 1 (1999): 37-82, and for the term egocentric bias, *see* Jerald Greenberg, "Overcoming Egocentric Bias in Perceived Fairness Through Self-Awareness," *Social Psychology Quarterly* 46, no. 2 (1983): 152-6.

[147] Karampatzos explains that selective information processing comes as a result of cognitive dissonance phenomenon. This phenomenon is observed when people are provided with information which calls into question their pre-existing views, beliefs, values or feelings. Such information evokes a feeling of dissatisfaction, which people aim to avoid through the selective information processing. *See* Antonis Karampatzos, *Private Autonomy and Consumer Protection*, *A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 40-1.

[148] It will be further pointed out that serving their fairness notion, actors make their decisions falling upon the known as fairness and reciprocity bias, and/or inequity aversion.

[149] More specifically, the aftermath is that defendants underestimate the long-term negative effects of their today decisions because of discounting positive future effects. This phenomenon is otherwise called

bias, according to Bibas, is that the rates of the discount differ due to their dependence on various factors. And, the extent to which the plea agreement is in danger of failure varies based on these discount rates.

Examining defendants' risk preferences, Bibas admits that their expected risk-seeking behavior in the domain of losses is thought to be accompanied by their loss aversion, which means their perception that losses loom larger than gains.[150] Expecting that defendants consider their guilty plea and its subsequent sentencing as certain losses to be avoided, they are expected to opt for trials since trials encompass the chance of an acquittal. Then, psychology suggests that loss aversion seems closely related to another phenomenon, the endowment effect, which stands as the attachment people feel to what they already have. In plea bargaining terms, defendants are willing to maintain their freedom since they feel attached to it, so they are unwilling to settle and as a result, they opt for trials. However, he does not explicitly support that this is the expected outcome. He also discusses the reverse results as prospective, in the case of risk-averse defendants, as well as personality characteristics which inevitably formulate each defendant's attitude towards risk.

Close to attitudes towards risk, the framing effect, as already mentioned by Birke, plays a decisive role in defendants' choice. If the guilty pleas followed by sentencing are framed so as to be viewed by defendants as losses, then, the plea agreements are possible to fail. And they are framed as losses when, for example, the defendants are free and they are proposed to be imprisoned. Nevertheless, the guilty pleas followed by sentencing can be also framed so as to be viewed by defendants as gains. For instance, when the defendants

---

hyperbolic discounting or present bias. From a theoretical perspective, this phenomenon shows a tendency of economic actors making decisions that their future self would not make; decision makers show a time inconsistent behavior regarding their preferences due to the preferential divergence between their present and future self (multiple-selves problem). Karampatzos observes that this divergence contradicts the RCT assumption on fixed preferences. *See* Antonis Karampatzos, *Private Autonomy and Consumer Protection*, *A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 45-51. Also, Ulen uses examples showing that people are interested in current pleasure while undervalue future costs; he attributes such behavior to financial illiteracy. *See* Thomas Ulen, "The Importance of Behavioral Law," in *The Oxford Handbook of Behavioral Evonomics and the Law*, ed. Eyal Zamir and Doron Teichman (New York: Oxford University Press, 2014), 103-7.

[150] *See* Amos Tversky, and Daniel Kahneman, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica* 47, no. 2 (1979): 279. Also *see* Amos Tversky, and Daniel Kahneman, "Rational Choice and the Framing of Decisions," *The Journal of Business* 59, no. 4, pt. 2 (1986): S258.

are in pretrial detention or are subject to mandatory minima, reaching an agreement for less years of imprisonment than those threatened after a trial conviction is regarded a gain.[151] Bibas clarifies that the interaction between loss aversion and the framing effect determines whether defendants will resist or not to guilty pleas.

The last bias, he examines, is anchoring,[152] otherwise called status quo bias. Because of anchoring, prosecutors make extremely high unreasonable offers which despite their rejection from defendants operate as reference points, called anchors. These anchors lead defendants to the acceptance of the next more reasonable offer, which would probably not seem reasonable at the anchors' absence. Respectively, as anchors may operate, for recidivists, previous sentences imposed on them, and for judges, the prosecutors' proposals. Thus, anchoring stands as a bias capable of distorting the parties' rational assessments of the suitable sentence.

Taking into consideration that all these biases prevent defendants from properly assessing and deciding during plea bargaining, Bibas suggests that defense attorneys work towards their clients' debiasing through various techniques that have been empirically proven to be sufficient. However, his analysis does not choose to overlook all crucial factors that could hinder this attempt. In other words, he provides his readers with a comprehensive approach of his proposal. Finally, at the last part of his paper, he discusses potential reforms that will enhance the institution's efficiency.[153]

---

[151] A latest experiment shows that framing the plea as a gain encourages innocent defendants to plead guilty, while discourages the guilty ones to do so. *See* Laura Garnier-Dykstra, and Theodore Wilson, "Behavioral Economics and Framing Effects in Guilty Pleas: A Defendant Decision Making Experiment," *Justice Quarterly* 38, no. 3 (2019): 1-25.

[152] The anchoring effect is observed when the actor wrongfully accesses the likelihood of occurrence or frequency of an event, because of his or her attachment to an arbitrary reference point, which is usually a number. The heuristic which leads to this wrongful assessment is called adjustment heuristic. *See* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 85-6.

[153] It is noted that many years later, in 2016, Bibas presents relevant reform concerns of his along with proposals prospective to address them. More precisely, in another paper of his, Bibas wishes to point out the accuracy and fairness challenges emerging from the prevalent method of criminal cases' disposition of, plea bargaining. Bibas, taking for granted the prevalence of plea bargaining, considers it as significant to redefine and reform it. In fact, he underlines that the institution needs to be accompanied with safeguards adequate to accompany an institution serving criminal justice to such extent. Needless to say, the part of his analysis referring to the factors contributing to the challenges raised includes information asymmetry and cognitive biases. For his whole analysis, *see* Stephanos Bibas, "Designing Plea Bargaining from the

It is in 2007 that **Rebecca Hollander-Blumoff** decides to answer to one of the proposals raised by Bibas on the grounds of dealing with parties involved in plea bargaining biases.[154] More precisely, she disagrees with the view of Bibas that defense attorneys' decision-making may not be affected by all those biases that defendants' decision-making is, and consequently that defense attorneys may be able to act as their clients' debiasers.[155]

To begin with, in terms of actors' decision-making, she does not set as her starting point the assumption of economic actors' rationality as it is currently further supplemented by behavioral economics heuristics and biases. Instead, she adopts social psychology's observation whose assumption involves that information processing and subsequently decision-making are initially dependent on a great variety of factors, which determine and explain them. Nonetheless, since the relevant academic community insists on the examination of plea bargaining under the economic model's umbrella, Hollander-Blumoff takes this publication as a chance to combine observations arising from the economic model with those arising from social psychology. The observation from the economic model constitutes Bibas' view on defense attorneys' capacity of at least partially debiasing their clients while the observation from social psychology constitutes the view that there are two factors resulting in defense attorneys increased reliance on heuristics and biases. More concisely, Hollander-Blumoff supports that the behavior of defense attorneys within plea negotiations is directly affected by epistemic motivation[156] and group identity[157].

Ground Up: Accuracy and Fairness without Trials as Backstops," *William & Mary Law Review* 57, no. 4 (2016): 1055-81.

[154] *See* Rebecca Hollander-Blumoff, "Social Psychology, Information Processing, and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 163-82.

[155] For the concise view of Bibas and the relevant analysis, *see* Stephanos Bibas, "Plea Bargaining outside the Shadow of Trial," *Harvard Law Review* 117, no. 8 (2004): 2519-27.

[156] For an overview of the past observations as well as more recent developments on epistemic motivation's role on decision-making, *see* Adi Amit, and Lilach Sagiv, "The role of epistemic motivation in individuals' response to decision complexity," *Organizational Behavior and Human Decision Processes* 121, no. 1 (2013): 105-7, 114, 116.

[157] Group identity is a subcategory of social identity and is formed on the basis of each group each person belongs to. This means that a person belonging in more than one groups has more than one different group identities. Indicatively, *see* Michael Hogg, Dominic Abrams, Sabine Otten, and Steve Hinkle, "The Social Identity Perspective: Intergroup Relations, Self-Conception, and Small Groups," *Small Group Research* 35, no. 3, (2004): 251-3.

Social psychology shows, from an individual perspective, that the level of an actor's epistemic motivation operates as an indicator for his or her tendency on processing information quickly and automatically through mental shortcuts or thoroughly through effortful review. As previously explained, the former induces actors' orientation to heuristics and biases. Thus, defense attorneys' assumed low epistemic motivation indicates that they are likely to behave influenced by biases and heuristics. Accordingly, examining epistemic motivation from a situational perspective, which takes time pressure[158] into consideration, defense attorneys' behavior seems even more likely to be guided by heuristics and biases. As for the group identity factor, Hollander-Blumoff argues that the strong perception of both defense attorneys and prosecutors of being part of a group results in behavior adherent to each group's behavior; that is, biased behavior.

It may be commented that despite the initial purpose of Hollander-Blumoff to welcome the observations of social psychology within the economic analysis and behavioral economics of plea bargaining, her concluding remarks lack placing under the operation of plea bargaining institution. To contradict Bibas view that defense attorneys can act as their clients' debiasers, it is not sufficient to show that defense attorneys are biased. It should be further shown that their biases affect them in the particular context of the plea negotiations and more importantly that they render them uncapable of successfully confronting them and their clients' biases. Last but not least, as for her argument that both defense attorneys and prosecutors are influenced by their respective groups' behavior and *especially in plea bargaining, there is no neutral third party to make more objective assessments*, it is reminded that the judge may play the role of the regarded as absent neutral third party and even if not, he or she plays the role of a safeguard as he or she needs to accept the agreement before its enforcement.

Interested more in the prosecutors' side, **Alafair Burke** chooses to discuss the effect of cognitive biases in their decision-making within plea bargaining.[159] In his attempt to examine the factors determining prosecutors' decisions on the prioritization of cases

---

[158] Hollander-Blumoff admits that defense attorneys are called to handle a criminal case under high time pressure since their clients may already be detained, and, if not, they are threatened to be. Within this context, they are prone to dispose of the case as quickly as possible.

[159] *See* Alafair Burke, "Prosecutorial Passion, Cognitive Bias, and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 183-212.

assigned to them, he refers to the undefined factor of prosecutorial passion. After defining prosecutorial passion as the extent to which prosecutors care about a case, he depicts it as the prosecutors' subjective approach towards all other objective factors affecting and justifying their decisions, such as, but not limited to, the severity of the crime, the strength of the case and the factual circumstances. In other words, prosecutors are considered to evaluate objective factors subjectively; that is, depending on their personal mentality, experience as well as other cases assigned to them.

In this context, Burke, first of all, perceives that prosecutorial passion questions the RCT model's assumption according to which prosecutors are rational maximizers of their utility as succeeded through sentences' maximization. The reason is that practice has demonstrated that, sometimes, affected by their passion for a case, prosecutors choose to refuse plea bargaining or to make unattractive to defendants offers, so as to exercise their advocate role against defendants at trial. However, such a decision results in the denial of the certain sentence ensured through plea agreement and the acceptance of the possibility of defendants' acquittal at trial. That is, such a decision does not comply with prosecutors' utility maximization goal and thus, it is irrational.

Further, Burke examines the interrelation between prosecutorial passion and cognitive biases attributed to prosecutors. He starts from the selective information processing. Extending Bibas observation on the effects of this bias, Burke underlines that prosecutorial passion aggravates them. In other words, provided that prosecutors may overestimate the possibility of defendants' conviction and the post-trial sentence due to selective processing of existing evidence, the additional passion for a case will lead to further overestimation of these predictions' outcomes. Such overestimation eliminates the possibility of reaching a plea agreement.

Then, regarding the interactive phenomena of loss aversion and framing, Burke supports that they may affect and concurrently be affected by prosecutorial passion. More concisely, the phenomena of loss aversion and framing may affect prosecutorial passion in terms that prosecutors may perceive as a loss the disposition of through plea bargaining the cases they care about. Consequently, they will be risk seeking, try to hinder plea agreements with an aim to lead such cases to trial and press towards the highest possible sentence. At the same time, the phenomena of loss aversion and framing may be affected by prosecutorial passion in terms that prosecutors can take advantage of them so as to

make defendants perceive as a gain the disposition of through plea bargaining the cases they care about. To this end, they will convince defendants that the possibility of acquittal at trial is extremely low; this will induce them to be risk averse and accept the agreement proposed by prosecutors.

What is more, according to Burke, the influence of prosecutorial passion on over-optimism and hindsight biases is analogous to the influence of prosecutorial passion on selective information processing. That is to say, prosecutorial passion aggravates the effects of them. Prosecutors, who view owing to unrealistic optimism the occurrence of defendants' conviction (good event) as possible and occurrence of defendants' acquittal (bad event) as impossible (over-optimism), or prosecutors, who regard defendants' conviction as extremely possible to occur, after it has already occurred (hindsight bias), can be affected by their care about a case, in terms that they will additionally overestimate the possibility of defendants' conviction and their subsequent winning at trial. Again, plea bargaining is expected to be impeded.

As far as prosecutorial passion's effect on anchoring is concerned, Burke observes that it stands able to leave a strong imprint on the anchors as well as the bargain's outcome. Through anchoring, passionate prosecutors are expected to propose even higher initial offers than those they would if they were not passionate. These extremely high anchors have a direct impact on defendants' as well as judges' evaluation of the appropriate sentence.

Last but not least, Burke discusses the influence of prosecutorial passion on sunk cost fallacy. This fallacy refers to decision makers' unwillingness to quit and move on from a situation in which they have dedicated their resources. It applies to prosecutors' unwillingness to negotiate towards reaching an agreement when they have dedicated their resources in preparing a case so as to be tried. This means that it applies to a greater extent to passionate prosecutors who have dedicated more resources than those who are not passionate in a case's trial preparation. In other words, passionate prosecutors affected by the sunk cost fallacy are more unwilling -compared to impassionate prosecutors- to reach a bargaining agreement.

To contribute to the discussion of overcoming prosecutorial passion as combined with cognitive biases, Burke proposes that: a) prosecutors be supervised, be guided by

particular principles, be educated so as to be aware of the biases threatening their rational decision-making as well as certain debiasing strategies, b) judges be allowed to participate in plea negotiations since they are expected to be less biased than prosecutors and more accurate than them on evaluating the possibility of defendants' conviction at trial and the respective sentence, c) all parties be granted access to objective sentencing information so as to succeed in a more accurate assessment of the post-trial sentence, d) defense attorneys attempt to implement strategies such as change of prosecutor.

Burke's contribution to the behavioral economics of plea bargaining is noted to be a complete and comprehensive examination of cognitive biases' effect on prosecutors' decision-making within it. Since Birke exclusively discusses about defendants' biases, Bibas focuses more on defendants' and less on prosecutors' biases, Hollander-Blumoff is interested in attorney's biases, Burke finds the suitable opportunity to turn the attention on prosecutors' biases. Through this attempt, he also strengthens and further supplements Bibas observations on prosecutors' biases because of taking into account the impact of their passion on the one hand and its absence on the other.

In the same year, **Russell Covey** enriches the behavioral economics of plea bargaining literature with a paper[160] that mostly welcomes the observations of previous scholars while wishes to draw attention to the inevitable question of plea bargains' high rates despite cognitive biases assumed discouraging role on them. As starting point of his analysis, Covey chooses to refer to the effects of bounded rationality, overconfidence and self-serving biases, loss aversion, risk aversion and endowment effect[161], over-discounting[162]

---

[160] *See* Russell Covey, "Reconsidering the Relationship between Cognitive Psychology and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 213-48. It is noted that this paper is also published in 2014 with slight changes as a book chapter. *See* Russell Covey, "Behavioral Economics and Plea Bargaining," in *The Oxford Handbook of Behavioral Evonomics and the Law*, ed. Eyal Zamir and Doron Teichman (New York: Oxford University Press, 2014), 643-63.

[161] For the exhaustiveness of the comparative presentation of the papers addressed, it is noted that Bibas and Covey relate the endowment effect to different endowments. More precisely, as clarified above, Bibas relates it to the endowment of freedom; defendants that maintain their freedom are reluctant towards relinquishing it, since the mere possession of it leads them to its high valuation. Within this context, they may seem unwilling to opt for pleas. Nonetheless, Covey comes to the same conclusion through a different consideration; he relates the endowment effect to the endowment of the right to a trial. That means Covey supposes that defendants may reject pleas for trials, because they feel attached to the right to trial they are entitled to.

[162] Covey elucidates that it is indifferent whether a person is aware or not of the fact that he or she falls within the over-discounting when it comes to his or her time preferences. In other words, it does not make

and the fairness bias, all of them applying on defendants, when facing the dilemma of opting for between guilty pleas and trials. Provided that the other biases he discusses in terms of their effect on plea bargaining have already been approached to some extent, Covey actually adds in the current discussion his observations on bounded rationality within the plea bargaining context as well as the effects of the fairness bias.

Regarding bounded rationality, it is examined with an aim to predict the effects on the plea outcome of restricted human abilities plus the information deficits in combination with the numerous variables that may interfere with the institution. Covey comments that the under the above circumstances assumed uncertainty of the plea outcome should be further linked to defendants' risk preferences which are, at the end, those governing the defendants' expected preference for trials.

As for the fairness[163] bias, it is reminded that it is firstly implied as existing by Bibas when discussing the interplay of overconfidence, self-serving biases and selective information processing. In general, the fairness bias is regarded as an important breach to the mainstream utilitarian approach of the RCT, as it notifies that when actors are called to make decisions following choosing between an option that respects the fairness and reciprocity principles and social norms from the one hand, and an option that promises the maximization of their utility on the other hand, they go for the former.[164] They go for it owing to the fact that they wish to ensure either fair treatment of theirs or the other party's punishment for unfair treatment of theirs. In plea bargaining terms, as Covey observes, defendants -subject to the fairness bias- reject beneficial on grounds of utility offers made by prosecutors so as either to repel them since they are regarded as unfair or to punish the prosecutors for them since they are regarded as unfair. That is to say, overall, this

---

a difference whether the outcome is a product of bounded willpower of the actor or of him or her being subject to a cognitive trait.

[163] Empirical data has shown that substantive fairness, which is different for guilty and innocent defendants, affects their willingness to accept pleas; that is to say, guilty defendants, who are culpable, are more willing to accept pleas in comparison to innocent defendants, who are not. *See* Avishalom Tor, Oren Gazal-Ayal, and Stephen Garcia, "Fairness and the Willingness to Accept Plea Bargain Offers," *Journal of Empirical Legal Studies* 7, iss. 1 (2010): 103-4.

[164] *See* Antonis Karampatzos, *Private Autonomy and Consumer Protection*, *A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 61-4.

phenomenon is one more that is supposed to impede the conclusion of the plea negotiations.

Taking into account his and his predecessors' observations on the distorting effect of cognitive quirks on these negotiations, Covey looks for an explanation for the incompatible with them high plea rates. To begin with, Covey does not overlook what others have; the fact that for the biases to impede a plea agreement, the assumption *all things being equal* should be met. Nevertheless, practice shows that this assumption is not met since, when one or more biases affect defendants, not all other factors remain unchanged. In this context, he presents the ways through which he supposes that the discussed biases are overcome.

His first argument supports that defendants' bounded rationality and loss aversion[165] are overcome because of the extremely high discounts -applying to both charging and sentencing- offered to them by the prosecutors. More specifically, Covey explains that despite the fact that defendants are inclined to opt for trials because of their limited ability to assess existing evidence unbiasedly and calculate probabilities with accuracy as well as their natural aversion for losses, such inclinations are not adequate for leading them to reject offers with extreme charge reductions and remarkably low sentences -or even dismissals. What is more, these lenient offers compared to the punishment threatened after the trial conviction increase the sentencing differential, which therefore additionally reduces defendants' resistance against pleas.

[165] It is reminded that the first scholar addressing the puzzling relationship between the defendants' loss aversion in their decision-making and the high rates of guilty pleas is Birke. In fact, Birke dedicates all of his analysis on the paradox emerging; the paradox that the theoretical prediction of loss-averse defendants keeping guilty pleas at low levels is contradicted by the actual extremely high plea rates.

His second argument holds that defendants' overconfidence and self-serving biases are softened through "open-file" discovery policies[166] and reverse proffers[167]. That is, certain practices, which constitute criminal procedure's developments, operate as mechanisms managing to moderate the defendants' uncertainty over the trial outcome; thus, they operate as defendants' debiasing mechanisms. In parallel, other mechanisms such as the sentencing guidelines and the mandatory minimum sentences' statutes, which make defendants aware of the precise range of sentences that will accompany their conviction, are supposed to operate the same way. All relevant mechanisms mitigating defendants' uncertainty both on the likelihood of conviction and the penalty upon it, according to Covey, deal both with the self-serving biases and overconfidence of boundedly-rational defendants.

As for the overcome of risk aversion, loss aversion and the endowment effect, Covey recalls observations made by Birke, Bibas and Burke and presents them in a slightly different way. More precisely, while Birke, Bibas and Burke suggest that the framing effect is a phenomenon of cognitive psychology, which interacts with risk and loss aversion and determines defendants' decision on rejecting or not a plea offer, Covey perceives it as this phenomenon of cognitive psychology, which has the power to overcome risk and loss aversion and the endowment effect. In fact, Covey's argumentation on the matter repeats Bibas' idea on the framing effect's link to defendants' pretrial detention while it adds the idea on the framing effect's link to high process costs of trials.

Finally, Covey argues that overconfidence and over-discounting are overcome because of defense attorneys' role within plea bargaining. Actually, he reinstates Bibas' proposal on defense attorney's work towards their clients' debiasing, a proposal criticized by Hollander-Blumoff as previously mentioned. The differentiated point between Bibas' and

[166] Open-file discovery policies refer to policies allowing defense attorneys and subsequently defendants to have access to the evidence held in the prosecutors' files so as to be wholly or at least partially aware of the strength of the prosecutors' case, at a time before defendants have decided between a plea settlement and a trial. Within the open-file discovery policies' context, Covey discusses the different effects that the reveal of inculpatory evidence, from the one hand, and exculpatory evidence, on the other hand, may have on defendants' biased behavior. The former is supposed to blunt their biases while the latter to enhance them.

[167] Reverse proffers refer to the technique of prosecutors presenting to defendants the evidence of the case in the way that the state will present this evidence against them at trial so as to succeed in their conviction, at a time before defendants have opt for between a plea settlement and a trial.

Covey's approach is that Bibas recommends defendants' debiasing with their attorneys' contribution while Covey regards it as granted that attorneys contribute in their clients' debiasing, when it comes to their overconfidence and over-discounting.

Pursuant all his observations, Covey makes a concluding remark that seems possible to cause controversy. That is, he perceives the current form of criminal justice system as a means towards confronting cognitive traits. He believes that the system is designed in a way which manages to overcome cognitive biases and induces criminal defendants to make plea agreements. Nonetheless, this view encompasses a paradox which seems difficult to be ignored. This view overlooks the fact that the current form of the criminal justice system preexists from the idea of cognitive biases effect on criminal defendants and cannot have been designed based on them. The only thing that could be supported is that, first of all, the legislators and, also, the law practitioners that give life to the criminal justice system have predicted and acknowledged the biases in a shoddy, premature and indeterminate way which has allowed them to take biases into consideration before their recent systematic approach by cognitive psychology and behavioral economics of plea bargaining. Although there may be some truth in this, overall, weak assumption, it cannot be denied that even if legislators and law practitioners have been aware of the biases and their subsequent effect on defendants' decision-making, they have no incentive to design and work towards a criminal justice system paying attention to them and even further, dealing with them. This is because the criminal justice system serves the criminal law goals following the constitutional imperatives. In other words, a view supporting that the criminal justice system and practice serves the biases' overcoming is kind of short-sighted, as it takes for granted that the criminal justice and practice are interested in biases' overcoming.

Then, **Chad Oldfather**, also in 2007,[168] sets the same goal with Covey; the goal to justify on what grounds the expected effects of heuristics and biases on defendants' decision-making towards rejecting plea offers are contradicted by the high numbers of criminal cases disposion of through plea agreements. This divergence between theory and practice is attempted to be justified by Oldfather based on one reason with two grounds. In fact, his suggestion is that the predicted -in terms of behavioral economics observations-

[168] *See* Chad Oldfather, "Heuristics, Biases, and Criminal Defendants," *Marquette Law Review* 91, no. 1 (2007): 249-62.

plea bargaining outcome is proven wrong owing to the fact that behavioral economics observations do not apply to defendants within plea bargaining. Therefore, Oldfather seems to question the literature of the behavioral economics of plea bargaining applying to defendants as a whole. Nonetheless, understanding that such a questioning would need groundbreaking argumentation and research evidence, he rushes to clarify that his reasoning is of skeptical nature and does not reflect his personal judgement.

As for his specific points, Oldfather explains that behavioral economics observations referring to heuristics and biases, may not apply to criminal defendants based on two different viewpoints, which have not been taken into serious consideration by scholars yet -despite having been recognized. His first point is that since criminal defendants constitute a subpopulation -distinct from individuals and/or other subpopulations-, any heuristics and biases observations applied to them should emerge from research results based on them, and not from results based on individuals and/or other subpopulations. To enhance the plausible assumption that the subpopulation of defendants is defined by specific characteristics that are expected to affect some way their vulnerability towards heuristics and biases, Oldfather recalls his predecessors' views on this subpopulation's distinctive risk preferences and loss aversion. His second point is that situational factors, including the context within which the plea decision is made as well as the defense attorney and the people of the defendants' environment, which may influence them on their decision, play a major role on whether and to what extent heuristics and biases may apply to defendants.

As for his first proposal, which means -among others- by accepting that criminal defendants constitute a subpopulation, in which biases may apply to a greater or a lesser extent in comparison to the general population, it challenges behavioral economics observations as a whole. That is, since all people having participated in behavioral economics research, through which heuristics and biases have been claimed and approached, belong to one or more subpopulations, Oldfather's point suggests that the results of such research are of minor value.

Regarding his second point, in fact, to a great extent, he repeats and slightly expands Covey's primary observation; that for a plea agreement to be impeded by the heuristics and biases, all other things should be equal; and since this requirement is not met, in the end, the agreements are not impeded. This observation, being general and applicable to

almost all theoretical structures of most sciences, may be the foundation for a concrete explanation of high plea rates despite heuristics and biases assumed discouraging effect on them.

Nonetheless, it stands crucial to point out that Oldfather brings to the interested scholars' attention causes that may doubt the heuristics and biases application to defendants within plea bargaining. The most important contribution of his paper is that he paves the way for a new era of the behavioral economics research; the era of behavioral economics of plea bargaining research which will examine how the heuristics and biases may apply to the subpopulation of criminal defendants, who make decisions influenced by characteristics of theirs as well as some factors. To expand Oldfather's indirect idea, it may be proposed that such research involves prosecutors and defense attorneys, as they constitute key players within plea bargaining, who also decide.

II. Applying not already applied Heuristics and Cognitive Biases to Plea Bargaining

To sum up previous observations, initially applying the RCT to plea bargaining, it is assumed that defendants and prosecutors decide towards the rational maximization of their utility. Defendants maximize their utility by minimizing the punishment imposed on them while prosecutors maximize their utility by maximizing deterrence through maximizing the punishment on defendants. This means that the RCT holds that neither the plea agreement nor the trial is the rational choice for disposing of every criminal case. The rational choice for the disposition of each criminal case should be considered ad hoc. Thus, the rational choice for the disposition of some criminal cases is the plea agreement while at the same time the rational choice for the disposition of some other criminal cases is the trial. In this context, bearing in mind that the heuristics and biases operate as deviations from the rational choice, it stands obvious that the heuristics and biases can induce defendants and prosecutors either to impede the plea agreement, when the plea agreement is the rational choice, or to impede the trial, when the trial is the rational choice.

The abovementioned literature applies most of the known biases in the defendants' decision-making and some of the known biases in the prosecutors' decision-making within plea bargaining. All commentators, but Birke, apply and examine the biases, under the

assumption that the rational choice is the plea bargaining. Only Birke address the bias that interests him under the assumption that the rational choice is the trial.

The aim of this subsection is to examine the effects of heuristics and biases that have not already been assumingly applied to the defendants' and the prosecutors' decision-making. This application is made from two perspectives. Thus, the examined heuristics and biases are applied to defendants' and prosecutors' behavior as if the rational choice is the plea agreement and as if the rational choice is the trial.

Finally, the application is made under the assumption "all things being equal", which means that it focuses on the effects that the examined heuristics and biases have on the defendants' and prosecutors' decision-making, assuming that all other factors affecting them remain unchanged.

Starting the present analysis, as for the heuristics, previous academics have referred to them, as indicated above, but none of them has focused on the effects that they may have on defendants' and/or prosecutors' decision-making. It is recalled that the general idea about heuristics is that they constitute the quick and automatic mental shortcuts used within the actors' complex tasks of information processing, probabilities assessing, values predicting and decision-making, in the context of reducing the relevant costs of such tasks.

The three heuristics, put down by Tversky and Kahneman and described as those operations employed in judgement under uncertainty[169], are the availability heuristic, the representativeness heuristic and the adjustment heuristic. Taking into account that the plea bargainers are called to make decisions under uncertainty, the analysis proceeds with these heuristics' application within plea bargainers' decision-making. More precisely, our analysis addresses the availability heuristic and the representativeness heuristic, while omits the adjustment heuristic, since it is the shortcut which induces the previously presented and already discussed anchoring effect.

a. Availability Heuristic

---

[169] *See* Amos Tversky, and Daniel Kahneman, "Judgment under Uncertainty: Heuristics and Biases," *Science* 185, iss. 4157 (1974): 1124- 31.

To begin with the availability heuristic, an actor is biased by availability, when he or she wrongfully calculates the probability and/or estimates the frequency of an incident or an outcome; more concisely, when his or her calculations and estimations (namely assessments) are formed based on recent incidents or outcomes of his or her personal experience and own memory, overlooking the proper factors actually contributing to the respective incidents or outcomes and determining their probability and/or frequency.[170]

To indicate the effects of the availability heuristic in the defendants' and prosecutors' decisions within plea bargaining, we proceed with a first hypothesis. Let us suppose that (i) a defendant (A) has been recently informed about or even witnessed a trial of another defendant (B) accused of having committed the same with him or her crime; and that (ii) the case, which A has in his or her mind, was brought to trial and disposed of with the conviction and the harsh sentencing of B. Relying on the availability heuristic, it is likely that A perceives the aforementioned outcome as prospective to occur in his or her own case as well. This is because when processing the existing for his or her case information and assessing the probabilities of his or her conviction, A may retrieve the familiar to him or her and salient incident and outcome of B's case. Under these circumstances, A may assess the conviction and harsh sentencing as being the most possible trial outcome of his or her case and may opt for a plea agreement to avoid it. Provided that the trial is the rational choice, the availability heuristic induces A to deviate from it. In other words, the availability heuristic may increase the defendants' willingness to accept a plea and as such enhance the possibilities of reaching a plea agreement.

Nevertheless, respectively, provided that the recent trial leading to the disposition of B's case, which A has been informed about or witnessed, had the adverse outcome, namely acquittal or conviction followed by a light sentence, the adverse effect of the availability heuristic is expected. That is, A may opt for trial expecting to ensure a similar outcome. If the plea is the rational choice, the availability heuristic induces A to deviate from it. Thus,

---

[170] *See* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 83. For an overview and examples of the application of the availability heuristic in decision-making under uncertainty, *see* Amos Tversky, and Daniel Kahneman, "Judgment under Uncertainty: Heuristics and Biases," *Science* 185, iss. 4157 (1974): 1127-8 and Russell Korobkin, and Thomas Ulen, "Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics," *California Law Review* 88, no. 4 (2000): 1085, 1088-90.

the availability heuristic may also decrease the defendants' willingness to accept a plea and as such reduce the possibilities of reaching a plea agreement.

Except for the defendants, this heuristic may also apply to prosecutors. Similarly, it induces them to deviate from the rational choice, either it is the plea agreement or the trial; thus, respectively, it may either reduce or enhance the possibilities of reaching a plea agreement depending on the outcome of the recent event forming the prosecutors' prediction and perception on the probabilities' assessment.

b. Representativeness Heuristic

Close to the availability heuristic, it is the representativeness heuristic. An actor is biased by representativeness, when he or she assesses the probability of an incident or an outcome based on the degree to which this incident or outcome is represented at the time of the assessment, overlooking the proper factors actually contributing to the respective incident or outcome and determining its probability.[171] In general, the representativeness heuristic refers to the tendency of an actor to wrongfully correlate one incident or outcome with another based on a resemblance which does not result in any actual correlation.

To indicate the effects of the representativeness heuristic in the defendants' and prosecutors' decisions within plea bargaining, we proceed with a second hypothesis. Let us suppose that a defendant (C) is informed that at his or her district, the greatest majority of criminal cases of the last year, in which the defendant (D) has denied the prosecutor's offer and thus has impeded the plea agreement, has been disposed of with the conviction and the harsh sentencing of D at trial. Relying on the representativeness heuristic, C is likely to correlate the aforementioned cases with his or her own, as they seem to resemble due to the similarities of time and place. This is because C is expected to proceed with selective -and maybe worthless- information processing (that is, same year, same district) and ignore that each case differs from the others in terms of evidence, severity of

[171] *See* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 83. For an overview and examples of the application of the representativeness heuristic in decision-making under uncertainty, *see* Amos Tversky, and Daniel Kahneman, "Judgment under Uncertainty: Heuristics and Biases," *Science* 185, iss. 4157 (1974): 1124-7 and Russell Korobkin, and Thomas Ulen, "Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics," *California Law Review* 88, no. 4 (2000): 1085-7.

crime, prosecutor's handling, attorney's handing etc.; thus, C is expected to wrongfully correlate his or her case to others (such as D's). On this occasion, C, similarly to the defendant of the previous hypothesis, A, may assess the conviction and harsh sentencing as being the most possible trial outcome of his or her case, if he or she denies the prosecutor's offer to plea. As a consequence, in order to avoid the conviction and the harsh sentencing, C may then opt for a plea agreement in order to avoid such outcome. Provided that the trial is the rational choice, the representativeness heuristic induces C to deviate from it. In other words, the representativeness heuristic, similarly to the availability heuristic, may increase the defendants' willingness to accept a plea and as such enhance the possibilities of reaching a plea agreement.

Again, in case of an adverse trial outcome for most cases in the district of C, he or she may choose to go to trial intending to ensure a similar outcome; thus, being C informed that, at his or her district, the vast majority of criminal cases of the last year, in which the defendant has denied the prosecutor's offer and thus has impeded the plea agreement, has been disposed of with the acquittal or the light sentencing of the defendant at trial, he or she may decide to go to trial. Provided that the plea is the rational choice, the representativeness heuristic induces C to deviate from it. That is to say, the representativeness heuristic, similarly to the availability heuristic, may also decrease the defendants' willingness to accept a plea and as such reduce the possibilities of reaching a plea agreement.

Apart from the impact of the representativeness heuristic on defendants' decisions within plea bargaining, which is determined by the outcome of the case considered to resemble with their own, likewise, the heuristic may influence prosecutors' decisions. It is plausible that the representativeness heuristic also applies to prosecutors in terms of them believing in a correlation of the case they handle each time with other cases they or their colleagues have handled.

c. Hot Hand Fallacy

Moving to biases, close to the representativeness heuristic, there is a cognitive bias to which it can be related, as it is possible that this heuristic leads to behavior consistent with it; that is, the hot hand fallacy.[172] The hot hand fallacy refers to an actor's expectation

[172] Psychologists have pictured the hot hand fallacy as stemming from the representativeness heuristic. *See* Thomas Gilovich, Robert Vallone, and Amos Tversky, "The hot hand in basketball: On the misperception of

that a successful performance of someone in a task or activity results in the successful performance of his or her future attempts to carry out this task or activity. Such expectation was firstly depicted in the sports sector, and more specifically, the basketball game. That is why the classic example of the hot hand fallacy is the belief of the fans, coaches and even players, who watch a basketball game, that the player, who has scored his or her previous shots is going to score the next one as well, because he or she is hot. In other words, a small number of a basketball player's successful shots make fans, coaches and even players believe that the player is on a hot successful streak and consequently, predict that he or she will continue to be on it.[173] The growing literature indicates that the hot hand fallacy is also observed within the context of gambling[174] as well as investment decisions.

To indicate the effects of the hot hand fallacy in the defendants' and prosecutors' decisions within plea bargaining, we proceed with a third hypothesis. Let us suppose that a defendant (E) is informed that the prosecutor, who is handling his or her case, has succeeded in the conviction and harsh sentencing at trial of all those defendants who have rejected his or her offers within the last year. Believing that the prosecutor is hot in success at trial, E is likely to believe that the prosecutor will succeed in his or her conviction and harsh sentencing at trial, if E rejects the prosecutor's plea offer. To prevent such an outcome, E is expected to accept the prosecutor's offer and plead guilty. Provided that the trial is the rational choice, the hot hand fallacy induces E to deviate from it. This means

---

random sequences," *Cognitive Psychology* 17, no. 3 (1985): 296. Nonetheless, such approach has induced various criticism.

[173] For the hot hand belief and the streak shooting in the basketball game, *see* Thomas Gilovich, Robert Vallone, and Amos Tversky, "The hot hand in basketball: On the misperception of random sequences," *Cognitive Psychology* 17, no. 3 (1985): 295-314.

[174] The hot hand fallacy is sometimes combined to the gambler's fallacy. Defining them in order to understand the difference between them, the hot hand fallacy is an actor's belief that there is *a positive autocorrelation of a non-autocorrelated random sequence of events*, which will lead *a run of the same realization to continue*, while the gambler's fallacy is an actor's belief that there is *a negative autocorrelation in the case of a non-autocorrelated random sequence of events*, which will lead *a run of a particular realization to be followed by the opposite realization*. For the definition of the hot hand fallacy and the gambler's fallacy as well as their comparison and differentiation, accompanying by experimental data, *see* Jürgen Huber, Michael Kirchler, and Thomas Stöckl, "The hot hand belief and the gambler's fallacy in investment decisions under risk," *Theory and Decision* 68, no. 4 (2010): 445-62.

that the hot hand fallacy may increase the defendants' willingness to accept a plea and as such enhance the possibilities of reaching a plea agreement.

On the contrary, let us suppose that E is informed that the prosecutor, who is handling his or her case, has failed[175] in the conviction and harsh sentencing at trial of all those defendants who have rejected his or her offers within the last year. Believing that the prosecutor is hot in failure (i.e., cold) at trial, E is likely to believe that the prosecutor will fail in his or her conviction and harsh sentencing at trial, if E rejects the prosecutor's plea offer. To ensure such an outcome, E is expected to reject the prosecutor's offer and opt for trial. Provided that the plea is the rational choice, the hot hand fallacy induces E to deviate from it. This means that the hot (actually cold) hand fallacy may decrease the defendants' willingness to accept a plea and as such reduce the possibilities of reaching a plea agreement.

Applying the hot hand fallacy to prosecutors, as a misinterpretation of randomness affecting their decision-making within plea bargaining, leads to further observations arising. Let us assume that within a year, a prosecutor (F) is hot in success at trial, meaning that he or she has succeeded in convicting and imposing harsh sentences on the defendants who have rejected his or her plea offers. It is likely that F will predict that he or she will be successful if the case currently handing goes to trial. Thus, F will be less willing to propose an offer and negotiate a plea than he or she would be, unless he or she believed that independent events are dependent. Provided that the plea is the rational choice, the hot hand fallacy induces F to deviate from it. In other words, the hot hand fallacy may decrease the prosecutors' willingness to plea and as such reduce the possibilities of reaching a plea agreement.

The opposite result is expected to come up, if the prosecutor is hot in failure (i.e., cold) at trial. That is to say, on this occasion, with an aim to avoid another failure at the currently handing case, the prosecutor will be more willing to make an offer and negotiate a plea. Provided that the trial is the rational choice, the hot hand fallacy induces F to deviate from it. In other words, the hot (here actually cold) hand fallacy may increase the prosecutors' willingness to plea and as such enhance the possibilities of reaching a plea agreement.

---

[175] When there is series of failures, instead of successes, the same concept applies as the cold hand.

d. Herd Behavior Bias

Another cognitive bias to be addressed is the herd behavior bias. It refers to an actor's tendency to do what others are doing instead of using his or her own information and/or making independent decisions.[176] This kind of bias has been usually detected in the financial markets and more specifically in the behavior of individual investors who proceed with correlated trading that stems from mutual imitation of action.[177]

To show the effects of the herd behavior bias in the defendants' and prosecutors' decisions within plea bargaining, we proceed with a fourth hypothesis. Let us suppose that a defendant (G) is aware of the great percentages to which the guilty pleas are climbing up every year in the United States. After being offered by the prosecutor a (not necessarily lenient) sentence in exchange for his or her guilty plea, it is expected that G will accept it. That is, demonstrating herd behavior, G decides biased and tends to do what other defendants in the United States are doing, and thus, accepts the guilty plea and waives his or her right to trial. Provided that the trial is the rational choice, the herd behavior induces G to deviate from it. This means that the herd behavior may increase the defendants' willingness to accept a plea and as such enhance the possibilities of reaching a plea agreement.

On the other hand, if G becomes aware that most defendants in his or her country reject the prosecutors' plea offers and opt for trials, it is likely that, demonstrating herd behavior, G does the same. Provided that the plea is the rational choice, the herd behavior induces G to deviate from it. In other words, the hot herd behavior may decrease the defendants' willingness to plea and as such reduce the possibilities of reaching a plea agreement.

Applying the herd behavior bias to prosecutors is significantly debatable, as it overlooks the fact that they are not as vulnerable and prone as most defendants to biases. On these grounds, even the hypothetical application is omitted to ensure an as realistic as possible address of the issue.

[176] *See* Yulie Foka-Kavalieraki, *Economic Psychology* (Athens: Papadopoulos Publications, 2017), 86.

[177] *See* Fotini Economou, Christos Hassapis, and Nikolaos Philippas, "Investors' fear and herding in the stock market," *Applied Economics* 50, no. 34-5 (2018): 3654-63.

e. Remarks on the abovementioned heuristics and biases

Taking all the above observations into consideration, it should be noted that, particularly for the prosecutors, their position, expertise, experience, education, goals, as well as the constitutional requirements and principles they are called to respect, operate as a net; a net which prevents heuristics and biases to affect them. Their professional background and their occupational goals make them less vulnerable and prone to be affected by the heuristics and biases in comparison to defendants. Though, the level to which each one of them is vulnerable and prone to heuristics and biases differs based on the extent to which each of the referred factors applies to them.

As for the defendants, the vulnerability and proneness of each one of them to heuristics' and biases' effects differ as well. In general, the level of defendants' vulnerability and proneness mostly depends on their defense attorneys and the certain factors that may influence each one of them. Since the defense attorneys provide defendants with advice on whether to settle or go to trial, it seems plausible that they may prevent defendants' biasing from some heuristics and biases. Furthermore, factors, such as education and age, may either limit or exacerbate the heuristics and biases' effects on defendants' behavior within plea bargaining.

III. Applying the Ultimatum Bargaining Game to Plea Bargaining

According to the ultimatum bargaining game, there are two players, player A and player B. Player A is expected to make player B an offer for the allocation between them of the sum of money of 100 dollars to be realized. The sum of money is given by a third person who sets the terms of the game. A's offer is of an ultimatum's nature, since, provided that player B accepts the offer, the allocation of the money will take place, while, provided that player B denies the acceptance of the offer, neither player A or player B will be better off. In addition, it is clarified that player B knows the terms under which the allocation is possible to be realized as well as the unique chance of its realization (i.e., its ultimatum nature).

The rational choice for player A would be to make an offer, according to which he or she provides player B with the lowest possible sum of money, meaning 0,01 dollar, and keeps the highest possible, meaning 99,99 dollars. The rational choice for player B would be to accept this offer as 0,01 dollar is better than nothing. That is to say, the abovementioned

strategy suggested by RCT as the rational one is expected to maximize both players utility. Nevertheless, various testing of the game has proven and verified that player B rejects offers of less than 20 dollars and accepts offers of between 20-30 dollars, while player A makes offers of about 40-50 dollars.[178] The justification for both player's irrational -according to RCT- choices is based on the players perception regarding fairness[179] and reciprocity, which also reveals their inequity aversion[180]. In other words, the present game indicates the existence as well as the effects of the fairness and reciprocity bias, as it proves that a particular perception induces the players to deviate from their rational choices.

Applying the ultimatum bargaining game to plea bargaining, it is supposed that A is the prosecutor and B is the defendant. A is expected to make B an offer for the criminal case against B to be disposed of; that is, an offer to plead guilty for having committed the accused crime (or a lesser one) while be punished with a more lenient sentence than the one that would be imposed to him or her if tried. According to the terms, the offer made by A is a "take-it-or-leave-it" offer;[181] that is, if B accepts the offer, the case will be disposed of following the offer's provisions and a trial will be avoided, while, provided that B denies its acceptance, the case will not be disposed of and the parties will remain in their initial position on grounds of benefit. It is noted that B is fully aware that if he or she turns down A's offer, no benefit will be attributed to none of them and that they have only

[178] *See* Antonis Karampatzos, *Private Autonomy and Consumer Protection*, *A contribution to Behavioral Economic Analysis of the Law* (Athens: P.N. Sakkoulas Publications, 2016), 61-4.

[179] For a detailed understanding on which behavior people may exhibit because of their fairness perception, *see* Christine Jolls, Cass Sunstein, and Richard Thaler, "A Behavioral Approach to Law and Economics," *Stanford Law Review* 50 (1998): 1493-6.

[180] This aversion is interpreted not only as the desire to be treated fairly by others, but also the desire to treat others fairly. The desire to treat others fairly, despite being a deviation from the selfish RCT approach regarding utility maximization, is apparently proven through the dictator game developed by the game theory. For an overview of the fairness bias as well as its affirmation through the ultimatum bargaining and the dictator game, *see* Russell Korobkin, and Thomas Ulen, "Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics," *California Law Review* 88, no. 4 (2000): 1135-8.

[181] It may be argued that the offer is not of a "take-it-or-leave-it" nature because of the negotiations background or the fact that there are usually made more than one offers. Nevertheless, as for the former, it is clarified that such an argument presupposes that the negotiations do take place and necessarily constitute a determinant to the offer factor, two prepositions that are frequently refuted in practice. And, as for the latter, it is indicated that even if there are repetitive offers until an agreement is reached or a failure of it is decided, each of these offers have the "take-it-or-leave-it" nature since after rejecting one of them, defendants have no information on whether the prosecutors will proceed with another.

one round of interaction. It becomes obvious that plea bargaining's operation perfectly matches the players and special features of the ultimatum bargaining game. To that extent, it is quite interesting to examine the defendants and prosecutors' behavior on their decision-making following the game's implementation, and thus demonstrate the fairness and reciprocity bias as well as inequity's aversion effects on them within plea bargaining.

Under the abovementioned circumstances, the rational choice for the prosecutor would be to make an offer, according to which he or she provides the defendant with the least lenient sentence, meaning a sentence with a discount of 1 day or of 0,01 dollar -depending on the sentence's nature-, and keeps the benefits of the case's disposition of without trial (i.e., saving his or her limited resources for corresponding to his or her caseloads and ensuring the defendant's conviction). Concurrently, the rational choice for the defendant would be to accept this offer as 1 day or 0,01 dollar less is better than nothing, plus his or her benefits from avoiding trial (i.e., skipping money and psychic loss). Nevertheless, practice[182] shows that the defendant tends to reject offers under certain percentages of discounting and respectively to accept offers above other certain percentages of discounting, while the prosecutor tends to make offers of higher discounts than those expected to be accepted. In other words, both parties decide irrationally.[183] Such observations indicate that both bargainers are aware of each other's fairness and reciprocity bias and take it into account, when deciding, to ensure the success of the bargaining agreement;[184] this is because they both wish to reap the benefits from its conclusion.

In this context, it may also be thought that the bias and the aversion as well as the consequent irrationality they induce may be solely attributed to the defendant, and not to the prosecutor. That is, at the one end of the spectrum, the defendant decides irrationally governed by his or her bias and aversion, while at the other end of the spectrum, the

[182] Indicatively, *see* the United States Supreme Court's decision in *Bordenkircher v. Hayes*, 434 U.S. 357 (1978).

[183] The behavior of both parties on their decision-making within plea bargaining is characterized as irrational because it deviates from the predictions arising from the application of RCT.

[184] Covey also advocates that fairness bias is expected to operate as an impediment for plea bargaining. *See* Russell Covey, "Reconsidering the Relationship between Cognitive Psychology and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 221-3.

prosecutor decides rationally by offering an acceptable for the defendant choice following the reasonable expectation of the defendant's bias and aversion.

To sum up, applying ultimatum bargaining game to plea bargaining affirms the existence of fairness and reciprocity bias to the parties involved in plea bargaining, when parallelized with economic actors in their decision-making.[185] At the same time, the extreme expected utility maximization assumption of the homo oeconomicus of the RCT of neoclassical economics is weakened, turning the attention to the approach of the homo sociologicus[186] and the developments of the behavioral economics.

CONCLUSION

The present paper has attempted to add to the traditional economic analysis and behavioral economics of plea bargaining literature, first of all, by critically reviewing, comparing and contrasting the observations presented through them.

Then, in view of the fact that all commentators of the behavioral economics analysis refer both to heuristics and biases, but examine only the biases, a hypothetical application of the heuristics in the main parties involved in the plea bargaining is presented. In other words, except for the adjustment heuristic which importantly coincides with the anchoring effect as it leads to it, the present paper applies the other two heuristics observed, namely the availability heuristic and the representativeness heuristic, both to the defendants and the prosecutors. In the same context, the paper provides a hypothetical application of two biases that have not previously applied by the existing literature to the parties, i.e., the hot hand fallacy and the herd behavior bias. More precisely, the former is hypothetically applied both to defendants and the prosecutors while the latter only to defendants.

---

[185] The fact that the existence of the fairness bias can be proven through the ultimatum game is demonstrated on the papers of Jolls, Sunstein and Thaler, Korobkin and Ulen and Covey. Accordingly, *see* Christine Jolls, Cass Sunstein, and Richard Thaler, "A Behavioral Approach to Law and Economics," *Stanford Law Review* 50, (1998): 1489-93, Russell Korobkin, and Thomas Ulen, "Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics," *California Law Review* 88, no. 4 (2000): 1135-8 and Russell Covey, "Reconsidering the Relationship between Cognitive Psychology and Plea Bargaining," *Marquette Law Review* 91, no. 1 (2007): 222.

[186] *See* Georgios Dellis, *Demos and Agora: An economic analysis of Public Law* (Athens: Eurasia Publications, 2018), 56-7.

Also, considering that the heuristics and biases constitute deviations from the rational choice and all commentators, but one, examine the biases they are referred to as if the rational choice is the plea agreement, the paper makes a step forward. It examines the heuristics and biases it refers to under two different assumptions and reaches two different conclusions. That is, the one conclusion is reached under the assumption that the rational choice is the plea agreement and the other under the assumption that the rational choice is the trial.

Finally, acknowledging the dimension that the game theory has taken, as well as its connection to the behavioral economics, the paper suggests its direct application to plea bargaining. More concisely, the observation of the fairness and reciprocity bias as well as the inequity aversion through the ultimatum bargaining game offers potential for the direct application of this game to plea bargaining.

All in all, it comes up that contribution of the economics science and social and cognitive psychology in the efficiency evaluation of plea bargaining is unparalleled. The reason is that the interaction and complementarity of these sciences feeds the overall debate on the maintenance -followed by possible amendments and reforms- or abolition of the plea bargaining. The safeguards that should be offered by an institution of the criminal law and procedure call the plea bargaining into question all the time. Targeted survey, detailed recording of the criminal cases disposition of, analytical thinking and open-minded argumentation may creatively enrich the heated debate.