Law and Economics. A Productive Relationship

Edited by

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FUNCAS Social and Economic Studies, 8

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Introduction

Juan José GANUZA

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There is a large body of empirical evidence showing how institutions, and among them, legal institutions (laws and regulations, judicial systems, and so on) have important effects upon economic development of societies and countries (Laporta *et al.*, 2008). There is a growing consensus that poor quality law (both in terms of substantive rules and their implementation) may produce relevant harm in social and economic terms.

Thus, in order to fully grasp how economies evolve and eventually grow, it is important to analyze what are the channels through which laws and legal institutions affect the constraints and actions of firms, consumers and organizations. Theoretical and empirical inquiry on the consequences that legal rules and the functioning of legal institutions opens a wide area to the intellectual curiosity of economists and economically motivated legal scholars, especially in what touches the design and implementation of a range of legal policies.

For instance, in a country with the level of economic and legal development of Spain, making sense of the impact of the justice system over various economic variables seems crucial to enhance economic performance and the competitiveness of the Spanish economy. Just bearing in mind the mortgage crisis in Spain and the ensuing litigation wave, where Spanish (and EU) courts and judicial interpretations have had a deep influence on the shape and the contours of the Spanish financial environment constitute recent and dramatic proof of the above statements.

Modern Economics has theoretical and empirical tools to improve our understanding of the legal system. No one can doubt that the Law, as an intellectual field, has a longer pedigree than Economics has, and throughout its secular history, has been able to absorb the intellectual influences and perspectives of a number of disciplines (from theology to linguistics, from moral and political philosophy to history). In recent decades, one of the most conspicuous nutritious forces of legal thinking has been Economics.

The use of modes of thinking, analytical instruments and quantitative methods forged and proven in Economics has substantially transformed the way in which law as a social phenomenon is conceptualized and made, especially

through the Law and Economics movement and, more recently, Empirical Legal Studies.

This book tries to illustrate both dimensions of the interaction between Law and Economics. On the one side, the long shadow of the legal system over the functioning of real-world economies. On the other, how the display of economic methods may contribute to improving our understanding, and eventually also, the design and performance of legal institutions.

To provide a flavor –necessarily incomplete, due to the ample space we intend to cover– of the interaction between economic thinking and the legal system, we have assembled a distinguished group of first-rate scholars in the field. Some of the contributions are more theoretical, others have an applied inspiration, and finally there is an empirical contribution. Taken as a whole, they illustrate the enormous potential of cooperative endeavors of Economics and Law and the range and importance of their ability to improve our knowledge of their interaction.

The first part of the book is devoted to mortgage credit. This is a crucial ingredient of the financial system and the cornerstone of people's access to residential property, and the financial crisis bear witness to the fact that the malfunctions of the mortgage market easily propagate to the entire financial system with terrible social and economic consequences. The first three chapters of the book illustrate how Law and Economics (including Behavioral Law and Economics) may enhance our understanding of key features in mortgage credit: Oren Bar-Gill presents the foundations of the behavioral analysis of mortgage credit; Omri Ben-Shahar dissects disclosure mandates in mortgage loans; Matthias Lehmann and Isabel Schnabel explain the main characteristics of the German model of mortgage credit. Let's consider the three of them in more detail.

Oren Bar-Gill, from Harvard Law School, emphasizes how in mortgage loans, as in other consumer contracts, market forces and consumers' psychology clash: on the demand side, imperfectly informed and limitedly rational consumers lack full knowledge of the costs and benefits linked to contracting mortgage credit; on the supply side, sophisticated lenders design their contracts as a response –partially at least– to consumers' misperceptions. The ensuing market failure works to the detriment of consumers and overall efficiency. This chapter focuses on the US mortgage market -and especially in its subprime segment-in the years prior to the financial crisis in order to illustrate the causes and consequences of behavioral market failures.

Omri Ben-Shahar, from the University of Chicago Law School, looks into the effectiveness of legal disclosure duties designed to enhance the informational

position of consumers, especially in the mortgage market. The recent history of legal disclosure duties may be described as a persistent effort in pursuit of a vain and ill-grounded hope. Also as the widespread success in the adoption of a regulatory strategy with dubious results despite the prevalence of its use and the faith of its promoters. Given this dismal evaluation, what measures can be taken to protect consumers in a world without those ineffective disclosure duties? Alternative regulatory policies lack consensus, and it may prove risky or apt at creating unintended and undesirable side-effects. Thus, caps on fees or limits in mortgage design alternatives may help in some contexts but be hurtful in others. Advertising and marketing bans may also end up being beneficial or harmful depending on context. This is surely unsatisfactory, but perhaps unavoidable in light of the failure of disclosure policies.

Matthias Lehmann and **Isabel Schnabel**, from the University of Bonn, argue that even if the housing market is prone to acute cycles of expansion and corrections, countries show remarkable differences in this respect. Since the 1950's and in clear contrast with other developed economies, even in Europe, Germany has enjoyed a remarkably stable mortgage market. Among other factors, this may be due to certain specific institutions in German Law. The chapter examines whether stability may be attributed to these idiosyncratic institutions (the mortgage bonds or Pfandbriefe, the construction savings banks or Bausparkassen) or the high level of tenants' protection offered by German Law in rental housing. Recent price rises in the housing market are also considered as to their potential origins. In the end, the focus of the chapter is whether legal institutions may play a stabilizing role in the housing market and what are the most adequate to successfully accomplish such a task.

The second part of the book is less homogeneous in its subject matter, although all chapters share the common inspiration of showing "in action" how economic thinking may improve our understanding of key institutions within legal systems.

Marco Celentani, from Universidad Carlos III in Madrid, looks into an institution that, despite being present in most justice systems in developed countries has attracted little attention from an economic perspective: legal aid. This term describes a scheme of subsidized (with public money) access to civil and criminal justice of those people of limited financial resources. The chapter considers a number of reasons why legal aid programs my enhance efficiency through a reduction in social costs associated with asymmetric information in litigation.

In his chapter, **Jorge Padilla** (Compass Lexecon and Research Fellow in CEMFI, Madrid) reviews the impact of economic analysis in antitrust policy

in the EU in the last fifteen years. In his Nobel Prize lecture, Jean Tirole had mentioned the tension between the lawyers' and the economists' views about competition policy. The former tend to prefer *per se* prohibitions, while the second privilege a more detailed consideration of the impact of a given conduct in each affected market. This chapter analyzes the importance of the economic view in the functioning and decision-making of EU antitrust authorities. It also evaluates to what extent is EU competition law actually consistent with economic reasoning, and the various experts' views on the excessive (or insufficient) role that economic analysis plays in EU antitrust.

Next, **Nuno Garoupa**, from George Mason University, looks into law enforcement and criminal law with economic lenses. His chapter deals with the magnitude and probability of sanctions when there is a discrepancy between lawmakers and courts as to the proper size of the sanction for a given offense. The fact that the lawmakers' plans may be altered by courts' decisions cannot be simply corrected by an ex ante rise in the size of the sanctions, since this approach may easily backfire.

Finally, **Sofia Amaral-Garcia**, from DIW Berlin, using data form decisions on medical malpractice cases by the Spanish Supreme Court, explores several relevant dimensions of the actual functioning of tort law in this area, and how it works in terms of deterrence and compensation. More specifically, she looks into potential biases in favor of public administrations who run many hospitals, the differences between civil and administrative courts, the quantification of non-pecuniary damages, and procedural delays, and how these factors affect outcomes in court.

The quality and the broad coverage of the chapters in the book bear witness to the ability of economic analysis and economically-inspired thinking to shed light on important dimensions of the complex set of institutions that make up a modern legal system, and to understand the wide range of social and economic consequences that they may induce. This, we believe, will be a welcome addition to the debate, in Spain but also in other countries, particularly in Europe, about the role social sciences have to play in legal matters.

MORTGAGE CONTRACTS: LAW, ECONOMICS AND PSYCHOLOGY[1]

Oren BAR-GILL

Abstract

Mortgage contracts, like other consumer contracts, are the product of an interaction between market forces and consumer psychology. Imperfectly informed and imperfectly rational borrowers fail to fully comprehend the costs and benefits of the mortgage contract. Moreover, sophisticated lenders design their contracts in response to consumer misperception. The resulting behavioral market failure hurts consumers and reduces efficiency. This Chapter uses the US mortgage market and, specifically, the subprime mortgage market before the financial crisis to illustrate the causes and effects of this behavioral market failure. Different legal policy responses are also considered.

Keywords: mortgage contracts, subprime, consumer psychology, market failure.

JEL classification: D40, G21, K12.

[1] This chapter draws on my prior work, specifically: Bar-Gill (2012 and 2014).

I. INTRODUCTION

For most people, the mortgage contract is among the most important contracts they will ever sign. Focusing on the US mortgage market before the financial crisis of 2008, this Chapter examines the subprime mortgage contract and its central design features. As we will see, for many borrowers these contractual design features were not welfare maximizing. In fact, to the extent that the design of subprime mortgage contracts contributed to the subprime crisis, this welfare loss to borrowers –substantial in itself– is compounded by much broader social costs. A better understanding of the market failure that produced these inefficient contracts should inform the ongoing debates on how to regulate the mortgage market in the US and beyond.

The underlying concern is that imperfectly informed and imperfectly rational consumers might fail to fully comprehend the costs and benefits associated with the mortgage contract. Sophisticated lenders then design their contracts in response to consumer misperception. Indeed, the design of mortgage contracts can best be viewed as the outcome of an interaction between market forces and the psychology of consumers.

The remainder of this chapter is organized as follows. Part II conducts a positive, or descriptive, analysis of the subprime mortgage contract and of the subprime mortgage market more broadly. It shows how the interaction between market forces and consumer psychology results in a behavioral market failure. Part III explores the welfare implications of the behavioral market failure. Part IV discusses possible legal policy responses. Part V offers a brief conclusion.[2]

II. CONTRACTUAL DESIGN IN THE US SUBPRIME MORTGAGE MARKET

Mortgage contracts are an (important) example of the more general family of consumer contracts. We therefore start with a general theory of consumer contracts. Market forces demand that sellers be attentive to consumer psychology. Sellers who ignore consumer biases and misperceptions will lose business and forfeit revenue and profits. Over time, the sellers who remain in the market, profitably, will be the ones who have adapted their contracts and prices to respond, in the most optimal way, to the psychology of their customers. This general argument is developed in Section 1 below. In particular, the interaction

[2] The analysis in this Chapter draws on the burgeoning field of Behavioral Industrial Organization. For an excellent recent textbook that summarizes and synthesizes this important literature, see Spiegler (2011). For an earlier survey of the economics literature, see Ellison (2006).

between consumer psychology and market forces results in two common contract design features: complexity and cost deferral. Section 2 describes these features and how they manifested in the US subprime mortgage market. (For an excellent exposition of the economic theory literature on the topics addressed in Part II, see Spiegler, 2011; Armstrong, 2008).

1. Consumer Contracts: A Behavioral Economics Approach

1.1. A behavioral market failure

When consumers are perfectly informed and perfectly rational, sellers design their contracts to maximize the net benefit to consumers. Otherwise they will lose business.[3] Specifically, sellers seek to maximize the actual (net) benefits to the consumer, which equals the actual benefit that the consumer gains from the product minus the actual price that the consumer pays for the product.

When consumers are imperfectly informed and imperfectly rational and, as a result, misperceive benefits and prices, sellers design their contracts to maximize the *perceived* (net) benefit to consumers, which equals the benefit that the consumer thinks she will gain from the product minus the price that the consumer thinks she will pay for the product.

It is not hard to see why contracts that are designed to maximize the perceived (net) benefit to consumers will generally look very different from contracts that are designed to maximize the actual (net) benefit. Consider, for example, a 5-year mortgage contract, with a prepayment option. A rational consumer realizes that the probability of prepayment is very low and thus prefers a mortgage with a fixed interest rate of, say, 5% for the entire 5-year period. An imperfectly rational consumer, on the other hand, overestimates the probability of prepayment. Specifically, this irrational consumer thinks that she will be able to prepay fully after 2 years (perhaps because she optimistically thinks that she will get a generous inheritance or that her credit rating will substantially improve such that she will be able to refinance with a more attractive loan). For this consumer a mortgage contract with an interest rate of 3% for the first 2 years and an interest rate of 10% for the subsequent 3 years would be more attractive. Indeed, teaser rate contracts, with low interest rates for an initial,

[3] A monopolist will design efficient products and contracts that maximize the (gross) benefit enjoyed by the informed, rational consumer. The monopolist, however, will set higher prices to extract much of this benefit.

introductory period and higher long-term rates were common in the subprime mortgage market. They are also common in many other consumer markets.

1.2. The role of competition

Sophisticated sellers design their consumer contracts in response to the cognitive biases and misperceptions of their customers. As we will see, when contract design responds to consumer psychology rather than sellers' cost structure, the resulting distortions reduce welfare and hurt consumers. Can enhanced competition ameliorate, or mitigate, this behavioral market failure?

The first-cut answer is no. Continuing with the previous example, assume that borrowers are generally optimistic and mistakenly believe that they will be able to prepay fully after 2 years. Consider two competing lenders – a high-road lender and a low-road lender. The high-road lender does not exploit the cognitive biases of its customers. It thus offers a 5% fixed-rate loan. The low-road lender, on the other hand, has no qualms about exploiting the cognitive biases of its customers. It thus offers the loan with a 3% introductory rate and a 10% long-term rate, which, in the eyes of the biased consumer, appears to be more attractive. If many consumers are imperfectly rational, the high-road lender will lose out to the low-road lender. These consumers will flock to the low-road lender and the high-road lender will go out of business.

Competition does not solve the behavioral market failure. The reason is straightforward: Competition forces sellers to maximize the perceived (net) consumer benefit. When consumers accurately perceive their benefits, competition will help consumers. But when consumers are imperfectly rational, competition will maximize the perceived (net) benefit at the expense of the actual (net) benefit. Focusing on price: When consumers are perfectly rational, sellers compete by offering a lower price. When consumers are imperfectly rational, sellers compete by designing pricing schemes that create an appearance of a lower price. The underlying problem is on the demand side of the market: imperfectly rational consumers generate biased demand. Competition forces sellers to cater to this biased demand.

1.3. Market correction

The preceding analysis takes consumers' biases and misperceptions as exogenously given. With exogenous biases and misperceptions, competition does not ameliorate the behavioral market failure. Indeed, competition forces

sellers to exploit the cognitive biases of their customers. But perceptions and misperceptions can be endogenous. In particular, sellers can influence consumer perceptions, *e.g.,* through marketing. With endogenous perceptions, sellers, operating in a competitive market, might try to exacerbate biases that increase the perceived benefit and reduce the perceived price of their products (see, *e.g.,* Glaeser, 2004). But seller may also offer superior, yet underappreciated products and contracts and try to compete by educating consumers and fighting misperception (see, *e.g.,* Gillette, 2004). It is not clear a-priori whether sellers will compete by exacerbating consumer biases (or simply taking them as given) or by trying to fight these biases. But, as I explain elsewhere, there are several forces working against the more optimistic bias-correction alternative (see Bar-Gill, 2012 and 2014). We cannot always count on competition to ameliorate the behavioral market failure.

Before moving on, another market correction force –or set of market correction forces– should be mentioned. Consumers, even imperfectly rational consumers, learn from their mistakes, and from the mistakes of others. Such learning could, in principal, solve the behavioral market failure or, at least, mitigate it. Expert advice and seller reputation can further facilitate mistake correction. While clearly valuable, these market solutions are imperfect. Learning occurs more quickly in some contexts, but less quickly in others. And when the harm is substantial, *e.g.,* when a consumer's home is foreclosed because she failed to fully understand the terms of her mortgage, learning may come too late. Expert advice can be helpful, but such advice is not always sought out and it is not always reliable. And reputation depends on the effective and accurate flow of information among consumers, which sometimes occurs, but not always. In many consumer markets, consumer misperception will persist and sellers will continue to design their products, contracts and prices in response to these misperceptions. (See Bar-Gill, 2012 and references cited therein).

2. Common Contract Design Features

Sellers design consumer contracts in response to the imperfect rationality of their customers. This behavioral market failure manifests in two common contract design features: complexity and deferred costs, with both features playing an important role in the US subprime mortgage market. (Complexity and deferred costs are also recurring themes in theoretical models of industrial organization with imperfectly rational consumers –see Spiegler, 2011, ch. 12; see also Armstrong, 2008).

2.1. Complexity

Consumer contracts are complex! Just look at your mortgage contract. Or, for that matter, at your credit card contract, cell phone contract, checking account contract, insurance contract, etc'. There is a heap of fine print, full of technical legal language, contributing to this complexity. Moreover, substantial complexity is observed on the non-fine print terms, most prominently the contract price. The pricing, in many consumer contracts, is multidimensional and complex. Indeed, complexity was a defining feature of the subprime mortgage contracts that contributed to the economic crises of 2008.

While the traditional FRM sets a single, constant interest rate, the typical subprime mortgage includes multiple interest rates, some of which are implicitly defined by nontrivial formulas that adjust rates from one period to the next. The typical subprime loan also features a host of fees, some applicable at different time periods during the loan term, some contingent on various exogenous changes or on borrower behavior. The numerous fees associated with a subprime loan fall under two categories:

- Origination fees, including a credit check fee, an appraisal fee, a flood certification fee, a tax certification fee, an escrow analysis fee, an underwriting analysis fee, a document preparation fee, and separate fees for sending emails, faxes, and courier mail; and

- Post-origination fees, including late fees, foreclosure fees, prepayment penalties, and dispute-resolution or arbitration fees. These fees can add up to thousands of dollars or up to 20% of the loan amount. The prepayment option, of special importance in the subprime market, further complicates the valuation of these contracts, as does the (implicit) default option.

Because a borrower must choose among many different, complex products, each with a different set of multidimensional prices and features, the complexity of the borrower's decision is exponentially greater than the already high level of complexity of a single contract.[4]

There are efficiency justifications for multidimensional pricing. The complex contract facilitates risk-based pricing and tailoring of optional services to heterogeneous consumer needs (see, *e.g.,* Bar-Gill, 2012; Bar-Gill

[4] Truth in Lending, 73 Fed. Reg. 44,522, 44,524–25 (July 30, 2008) (codified at 12 C.F.R. pt. 226) ("[P]roducts in the subprime market tend to be complex, both relative to the prime market and in absolute terms...").

and Bubb, 2012). These efficiency benefits explain some of the complexity and multidimensionality observed in mortgage contracts. But they cannot explain all of the staggering complexity that consumers face. There is another, behavioral explanation. Complexity hides the true cost of the product from the imperfectly rational consumer. A rational consumer navigates complexity with ease. She assesses the probability of triggering each rate, fee, and penalty and calculates the expected cost associated with each price dimension. The rational consumer may have imperfect information, but she will form unbiased estimates given the information that she chose to collect. Accordingly, each price dimension will be afforded the appropriate weight in the overall evaluation of the product.

The imperfectly rational consumer, on the other hand, is incapable of such an accurate assessment. He is unable to calculate prices that are not directly specified. Even if he could perform this calculation, he would be unable to simultaneously consider multiple price dimensions. And even if he could recall all the price dimensions, he would be unable to calculate the impact of these prices on the total cost of the product. The imperfectly rational borrower deals with complexity by ignoring it. He simplifies his decision problem by overlooking nonsalient price dimensions (see Thaler, 1999). And he approximates, rather than calculates, the impact of the salient dimensions that cannot be ignored. In particular, limited attention and limited memory result in the exclusion of certain price dimensions from consideration. Limited processing ability prevents borrowers from accurately aggregating the different price components into a single, total expected price that would serve as the basis for choosing the optimal product. While the rational consumer is unfazed by complexity, the imperfectly rational consumer might be misled by complexity. (See Bar-Gill, 2012; Korobkin, 2003).

As explained above, when consumers are imperfectly rational sellers design contracts in response to systematic biases and misperceptions. In particular, they reduce the total price as perceived by consumers by increasing non-salient prices and decreasing salient prices. This strategy depends on the existence of non-salient prices. In a simple contract, the one or two price dimensions will generally be salient. Only a complex contract will have both salient and non-salient price dimensions. Complexity thus serves as a tool for reducing the perceived total price.

A clarification is in order. In theory, an incomplete understanding of complex contracts is consistent with rational-choice theory. Facing a complex contract, a rational consumer would have to spend time reading the contract and deciphering its meaning. If the cost of attaining perfect information and perfect understanding of the contract is high, the rational borrower would stop short of this theoretical ideal. Imperfect rationality can be viewed as yet

another cost of attaining more information and better understanding. When this cost component is added, the total cost of becoming informed goes up, and thus the consumer will end up with less information and a less complete understanding of the contract. Imperfect rationality, however, is not simply another cost component. A rational consumer who decides not to invest in reading and deciphering certain contractual provisions will not assume that these provisions are favorable to her. In fact, she will recognize that unread provisions will generally be pro-seller. In contrast, an imperfectly rational consumer will completely ignore the unread or forgotten terms or naively assume that they are favorable to him. Accordingly, a complex, unread term or a hidden fee would lead an imperfectly rational consumer –but not a rational consumer– to underestimate the total cost of the product. As a result, the incentive to increase complexity and hide fees will be stronger in a market with imperfectly rational consumers. The behavioral economics theory of contract design is an imperfect-rationality theory, not an imperfect-information theory.

2.2. Deferred Costs

Non-salient price dimensions and prices that impose underestimated costs create opportunities for sellers to reduce the perceived total price of their product. What makes a price non-salient? What leads consumers to underestimate the cost associated with a certain price dimension? While there is no simple answer to these questions, there is one factor that exerts substantial influence on salience and perception – time.

The basic claim is that, in many cases, non-contingent, short-run costs are accurately perceived, while contingent, long-run costs are underestimated. Take our mortgage example, with the low short-term, introductory interest rate and the high long-term rate. The short-term rate is to be paid for certain and soon. This cost will figure prominently, when the consumer chooses among competing loans. The long-term rate is to be paid in the future and only if the consumer does not prepay the mortgage. This cost will often be underestimated by the consumer. It is less likely to affect the consumer's choice between competing loan products choice. If costs in the present are accurately perceived and future costs are underestimated, market forces will produce deferred-cost contracts.

The importance of the temporal dimension of price and cost can often be traced back to two underlying forces: myopia and over-optimism. Myopic consumers care more about the present and not enough about the future. People are impatient –they prefer immediate benefits, even at the expense of future costs (see, *e.g.,* Loewenstein and O'Donoghue, 2004; O'Donoghue and Rabin, 1999). Myopia is attributed to the triumph of the affective system, which

is driven primarily by short-term payoffs, over the deliberative system, which cares about both short-term and longer-term payoffs. This understanding of myopia, and of intertemporal choice more generally, is consistent with findings from neuroscience (see Loewenstein and O'Donoghue, 2004; McClure *et al.*, 2004).

In addition, future costs are often underestimated, because consumers are over-optimistic. The prevalence of the optimism bias has been confirmed in multiple studies (see, *e.g.*, Weinstein, 1980; Svenson, 1981). Borrowers might be optimistic about their future income. They might also optimistically underestimate the probability of an adverse contingency, such as job loss, accident, or illness, causing them financial hardship. As a result, borrowers might overestimate their ability to service a mortgage loan with high, deferred costs. In addition, borrowers might overestimate their ability to refinance the loan at an attractive rate and to avoid the high, long-term costs associated with a deferred-cost loan by doing so. Such overestimation may result from optimism about future home prices, future interest rates, and the borrower's future credit score.

A sophisticated seller facing imperfectly rational consumers will seek to reduce the perceived total price of her product without reducing the actual total price that consumers pay. When consumers are myopic or optimistic, this wedge between perceived and actual prices can be achieved by backloading costs onto long-term price dimensions. The result is deferred-cost contracts.

III. WELFARE IMPLICATIONS

Mortgage markets often suffer from a behavioral market failure. What are the welfare implications of this market failure? Specifically, what are the consequences of complexity and deferred costs –when responding to imperfect rationality– for consumers and for efficiency?[5]

1. Hindered Competition

The excessive complexity of many mortgage contracts hurts competition to the detriment of consumers and the economy at large. For competition to work well, consumers must be able to compare the benefits and costs of different products and choose the one that provides the best value, given the consumer's

[5] The behavioral market failure and, specifically, the contractual design features highlighted above also have potentially important distributional implications (see Bar-Gill, 2012).

tastes and needs. Gathering information on competing products is costly, and complexity –of the product or contract– increases this cost. When the cost of collecting information goes up, the consumer will collect less information. This is true for the rational consumer. It is even more true for the imperfectly rational consumer, who might be effectively paralyzed by the complexity.

Less information, and less comparison shopping, imply weaker competition. Lenders gain market power, increasing profits at the expense of consumers. Limited competition also imposes a welfare cost in the form of inefficient allocation, as consumers are not matched with the most efficient lender or with the mortgage product that best fits the consumer's needs. (A series of recent papers in industrial organization argue that firms introduce spurious complexity into tariff structures and by doing so inhibit competition and reduce welfare. See, *e.g.,* Ellison, 2005; Gabaix and Laibson, 2006; Spiegler, 2006; Ellison and Ellison, 2009. For a discussion of additional welfare implications of complex contract, see Gilo and Porat, 2006).

2. Distorted Competition

Complexity weakens the forces of competition. But even if sellers vigorously competed for consumers, biases and misperceptions on the demand side of the market would distort these competitive efforts, leading to suboptimal outcomes for consumers and reducing social welfare. Focusing on price, sellers facing rational consumers will try to minimize the total price of their product. Competition would operate on the total-price level. Imperfectly rational consumers, on the other hand, choose products based on a few salient price dimensions. Competition will thus focus on those salient prices, driving them down, while non-salient prices, free from competitive pressure, increase. And when salience is a function of time –when short-term prices are salient and long-term prices are not– competition will drive short-term prices below cost, recouping losses through high long-term prices.

Such pricing entails several efficiency costs. First, product-use decisions will be distorted. Prices affect product-use decisions. For example, a high prepayment penalty will inefficiently deter borrowers from refinancing their mortgage loans. Second, deferred-cost features of the common subprime mortgage are correlated with increased levels of delinquency and foreclosure, which impose significant costs not only on borrowers but also on surrounding communities, lenders, loan purchasers, and the economy at large.

Finally, salience-based pricing inefficiently increases the demand for mortgage products: Lenders reduce salient prices and increase non-salient prices

in order to minimize the total price as perceived by the imperfectly rational consumer. Since the perceived total price will be lower than the actual total price, biased consumers may take-out a loan that costs more than it is worth to them. This inefficiency exists even with optimal pricing: the non-salient price dimensions will be ignored or underestimated, reducing the perceived total price. Distorted contract design exacerbates the problem by back-loading more of the total price onto the non-salient, underestimated dimensions. Bias and misperception result in artificially inflated demand. Distorted contract design adds air to the demand balloon. Loading a loan's cost onto less salient or underappreciated price dimensions artificially inflates the demand for mortgage financing and, indirectly, for residential real estate. The proposed theory thus establishes a causal link between contractual design and the subprime expansion and real estate boom. Accordingly, the subprime meltdown that followed this expansion can also be attributed, at least in part, to the identified contractual design features.

IV. POLICY IMPLICATIONS

The identification of a market failure –the behavioral market failure– that results in possibly substantial welfare costs opens the door for considering the potential role of legal policy. What can the law do to help consumers and enhance efficiency in the mortgage market? Several main legal tools or regulatory techniques are discussed below –starting with hard paternalistic policies, in Section 1, and then focusing on soft paternalistic policies in the remaining sections– disclosure regulation in Section 2, default rules and safe harbors in Section 3, and the right to withdraw from the transaction. (On the range of policy choices, and their normative evaluation, see Bar-Gill and Ben-Shahar, 2013).

1. Mandatory Rules

When a feature of a consumer contract –a feature designed in response to bias or misperception– is found to hurt consumers and reduce social welfare, a natural response would be to ban the feature, *i.e.,* to prohibit lenders from using the specific contract term or practice. There are many examples of such prohibitions. In the US, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 substantially curtailed the use of prepayment penalties in mortgage contracts, essentially imposing a cap on this price dimension.

There is, however, a major concern about such price caps. When price is multidimensional, a cap on one price can trigger an increase in another,

unregulated price. This market response can prevent the legal intervention from achieving its goal. (See Bar-Gill, 2014) An even more basic concern is that a well-meaning but imperfectly informed lawmaker would set the price cap too low, below the efficient level. Price caps, and other one-size-fits-all mandatory rules, are especially problematic given consumer heterogeneity. In particular, a mandatory rule that helps less sophisticated consumers might harm more sophisticated consumers.

These concerns about mandatory rules have led to the increasing focus on alternative modes of legal intervention, which collectively fall under the heading of "soft paternalism." These regulatory techniques aim to minimize any interference with consumer autonomy and market forces. They strive to help the less sophisticated consumer, while imposing minimal costs on the more sophisticated consumer. (See Thaler and Sunstein, 2008; Sunstein and Thaler, 2003; Thaler and Sunstein, 2003; Camerer *et al.,* 2003).

2. Disclosure Regulation

One of the central tools in the soft paternalism arsenal is disclosure regulation. Disclosure mandates can be an effective response to imperfect information when consumers are perfectly rational. Disclosure regulation can be similarly important, and perhaps even more important, when consumers are imperfectly rational. Moreover, the optimal design of disclosure mandates must take into account the imperfect rationality of consumers, as detailed below.[6]

In the mortgage market, one of the most important disclosure mandates is the one requiring sellers to disclose the APR. The importance of the APR, and of total-cost-of-credit measures more generally, has been reaffirmed by recent laws and regulations. The Mortgage Reform and Anti-Predatory Lending Act, enacted as Title XIV of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, requires disclosure of total-cost information. And the new disclosure forms developed by the Consumer Financial Protection Bureau (CFPB), the result of a direct Congressional mandate in the Dodd-Frank Act, secure an important place for the APR.[7] The APR disclosure has the potential to undo the adverse effects of imperfect rationality, including the identified contractual design features and the welfare costs they impose.

[6] Disclosure mandates that are not optimally designed can be ineffective and even harmful. See Ben-Shahar and Schneider (2014).

[7] See Dodd-Frank Act, Sec. 1419 (requiring disclosure of total cost information) and Sec. 1032(f) (directing the CFPB to develop a new disclosure form). See also CFPB, Know Before You Owe Initiative (http://www.consumerfinance.gov/knowbeforeyouowe/).

The APR disclosure was the most important innovation of the Truth in Lending Act (TILA) of 1968.[8] A normalized total-cost-of-credit measure, the APR was designed to assist borrowers in comparing different loan products. In theory, the APR should solve –or at least mitigate– both the complexity and cost-deferral problems. Complexity and multidimensionality pose a problem if they hide the true cost of the loan. The APR responds to this concern by folding the multiple price dimensions into a single measure. The APR should similarly help short-sighted borrowers grasp the full cost of deferred-cost loans, as the APR calculation assigns proper weight to the long-term price dimensions. Moreover, since the APR –in theory– strips away any competitive advantage of excessive complexity and cost deferral, lenders will have no reason to offer loan contracts with these design features.[9]

3. Default Rules and Safe Harbors

A second set of policy tools in the soft-paternalism toolkit includes default rules and safe harbors. While mandatory rules say what terms and practices can and cannot be part of a consumer transaction, default rules are more like suggestions – they apply unless the parties opt-out. Default rules are becoming increasingly popular. Indeed, Cass Sunstein, in his prior role as Administrator of the Office of Information and Regulatory Affairs, encouraged the heads of all Executive Branch Agencies to consider the use of default rules as a regulatory tool (Sunstein, 2010).

In many contexts default rules can be a powerful instrument. There are several important examples of default rules that affected major changes in behavior and outcomes. When default rules are sticky and few individuals opt-out, a default rule can be almost as effective as a mandatory rule, while avoiding the strong paternalism objection. The classic examples include rules that default driver's-license applicants into being organ donors (Johnson and Goldstein, 2003) and rules that automatically enroll employees in their employers 401(k) retirement savings plan (Madrian and Shea, 2001). (See also Thaler and Sunstein, 2008; Korobkin, 1998).

There is a concern that default rules would be less effective in the context of consumer transactions. If policymakers set pro-consumer defaults, so the

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[8] Truth in Lending Act, Pub. L. No. 90-321, § 107, 82 Stat. 146, 149(1968) (codified as amended at 15 U.S.C. § 1606 (2006)) (defining the APR); Truth in Lending Act, Pub. L. No. 90-321, §§121–31, 82 Stat. 146, 152–57(1968) (codified as amended at 15 U.S.C. §§1631–49 (2006)) (requiringdisclosure of the APR).

[9] In practice, the APR disclosure, while important, has not lived up to its potential as a decisive response to the behavioral market failure. See Bar-Gill (2012).

argument goes, sellers could easily opt-out in the fine-print of their standard form contracts, without allowing the consumer any meaningful opportunity to object (or demand compensation for the opt-out). (See Barr, Mullainathan and Shafir, 2009) While there is valid reason for concern, there is also evidence of effective default rules –defaults that were not subject to wholesale opt-out– in the consumer transaction area.[10] Moreover, if wholesale, fine-print opt-out is a real concern, policymakers can take steps to increase the stickiness of the pro-consumer default. For example, policymakers can require explicit, separate consent, by the consumer, to such opt-out. The opt-out process, and its regulation, provides a range of possibilities for policymakers.[11] (See Ayres, 2012; Zamir, 1997).

Safe harbors can be viewed as a type of sticky default. It is not uncommon for the legislator to set a vague standard. The regulator can then step-in and define a safe harbor – a course of action that would presumptively satisfy the legislative standard. Firms are not required to use the safe harbor; they are free to adopt other practices. But this de facto opt-out from the de facto default rule, the safe harbor, comes at a price – the price of enhanced regulatory scrutiny (as the practice would need to be evaluated against the vague standard). This enhanced regulatory scrutiny can be viewed as the price of opt-out; it is what makes the default rule sticky.

The qualified mortgage, included in the Dodd-Frank Act and defined by the CFPB, offers an example of the safe harbor strategy. Under the Dodd-Frank Act, lenders must consider the ability-to-repay of a potential borrower before extending a mortgage loan. The ability-to-repay rules impose a significant regulatory burden on lenders. Enter the qualified mortgage. If a lender offers a qualified mortgage – a mortgage that satisfies a predefined set of criteria and is free of some of the riskier product features discussed above, this lender will not be subject to the ability-to-repay rules.[12]

V. CONCLUSION

The design of consumer contracts generally, and mortgage contracts specifically, can be understood as the product of an interaction between market

[10] See CFPB, CARD Act Factsheet, http://www.consumerfinance.gov/credit-cards/credit-card-act/feb2011-factsheet/. See also Johnson *et al.* (1993) (documenting limited opt-out of default rules specifying insurance coverage).

[11] A sticky default has been proposed, in the mortgage context, by Barr, Mullainathan and Shafir (2009).

[12] CFPB, Ability to Repay and Qualified Mortgage Standards under the Truth in Lending Act (Regulation Z) (http://www.consumerfinance.gov/regulations/ability-to-repay-and-qualified-mortgage-standards-under-the-truth-in-lending-act-regulation-z/).

forces and consumer psychology. When consumers make persistent mistakes in evaluating the costs and benefits of a product or service, this interaction results in a market failure –a behavioral market failure– that can substantially hurt consumers and reduce social welfare. When this happens, legal intervention should be considered. While mandatory rules, including bans on certain terms or practices, may sometimes be justified, there is good reason to first try soft paternalistic policies – disclosure regulation, default rules and safe harbors.

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THE UNFULFILLED PROMISE OF MORTGAGE DISCLOSURES[1]

Omri BEN-SHAHAR

Abstract

Mortgage markets are a good laboratory for evaluating the effects of mandated disclosures because there is a great deal of experience and data accumulated in these markets, and because there is a prevailing sense that the fundamental problems in mortgage markets are far from solved.

Keywords: mandated disclosures, mortgage regulation, consumers credit decision.

JEL classification: D21, L21, Z21, Z28.

[1] This Chapter is adapted from Ben-Shahar and Schneider (2014a).

I. INTRODUCTION

Mandated Disclosure is the most common regulatory technique in the law of consumer credit, and in particular in mortgage regulation. I was invited to write this chapter for the Funcas Book on the *Law and Economics of the Mortgage Market* because I am a co-author of another book that argues that disclosures have failed to live up to their promise, in mortgage lending and elsewhere.

In *More Than You Wanted To Know: The Failure of Mandated Disclosure* my co-author Carl Schneider and I examined mountains of social science evidence and concluded that despite being such a common regulatory technique in so many areas of the law, mandated disclosure regularly fails miserably in advancing the goals lawmakers set for. We examined more than two generations of disclosure mandates in every areal of the law –consumer and investor protection, health care regulation, torts and products liability, industry regulation– and showed that all attempts to redesign disclosures have also failed. But our conclusion was even more critical. Not only do disclosures fail to do good, they often cause unintended harms. We concluded the book by recommending that lawmakers stop mandating new disclosures unless they are able to show, with real data, that this time disclosures really will work.

In this chapter, I want to explain what led us to this uncompromising position, by focusing on mortgage markets, but also extending some of my remarks to apply to other domains of consumer protection. Mortgage markets are a good laboratory for evaluating the effects of mandated disclosures because there is a great deal of experience and data accumulated in these markets, and because there is a prevailing sense that the fundamental problems in mortgage markets are far from solved.

The stakes in the mortgage regulatory enterprise are enormous, since many consumers engage in risky and uninformed borrowing, pay unnecessarily high prices for credit, and suffer great secondary losses (financial distress, loss of homes, and even deterioration in physical health) as a result of unwise choices. These harms are a direct result of consumers' poor understanding and limited knowledge of financial instruments, making them easy targets for banks and lenders that promote various consumer credit instruments.

If the problem is information, the solution should be information. This is precisely what mandated disclosure aspires to do: help consumers making such unfamiliar and complex decisions, like mortgage borrowing, by requiring that the lenders with whom they deal disclose information. The hope is that consumers will use this information to choose credit sensibly and that by

disclosing the information the lenders will behave more honestly. Mandated disclosure is therefore both a major educational enterprise (teaching people to make better decisions) and a major purification effort (deterring firms from acting unfairly). The latter goal was minted into law's repertoire by the famous words of Justice Louis Brandeis over 100 years ago: "sunlight is the best of disinfectants" (Brandeis, 1914).

Mandated disclosure has been the core regulatory response to financial crises. In the 1930's, the principal response to Great Depression was to enact sweeping securities disclosure requirements, to help people making saving and investment decisions make them in an informed manner. Periodic financial meltdowns have since prompted lawmakers to ratchet up the disclosure requirements with various "truth in lending" law. The nagging sense (and the hard evidence) that consumers continue to make poor borrowing decisions have led to a patchwork of disclosure requirements that accompany any consumer financial decision – mortgage, credit card borrowing, small loans, retail installment sales, leasing, and many more.

Despite the solid logic underlying disclosure laws, it is a technique that routinely fails to achieve its goals. I will explain in this chapter why it fails, why it cannot be fixed, and why it is causing unintended harms.

II. THE PROMISE OF MANDATED DISCLOSURE

Mandated disclosure is alluring because it addresses a real problem: Credit markets are complex. Once, when people borrowed from their village lender, the decision was much simpler because the financing cost was clear. There were still unknowns –for example, borrowers might not have known whether their future income would make it practicable for them to repay– but the loan instrument itself was simple. Present day life, however, offers loan instruments that are much more complex. The price is now broken into various contingent components, many of which are not salient and hard to calculate. For example, how costly is it to have a mortgage with a penalty for prepayment? Or, how burdensome would the floating rate be? The village lender has been replaced with national lenders offering mortgages in a numerous forms with different conditions.

More choice is good news, because competition often leads to better products. But it is also harder to navigate. So mandated disclosure addresses the problem of a world in which nonspecialists must make choices requiring specialist knowledge. Its solution is entirely simple: if people face unfamiliar and complex decisions, give them information until the decision becomes familiar

and comprehensible. Don't people want to make decisions for themselves, want to make them well, and try to do so? Isn't more information better than less? Won't people gratefully take and earnestly use information they are offered?

Mandated disclosure is not only a sensible solution, but it is also politically alluring. Few, if any, regulations are so broadly supported by all political factions. Free-market advocates like mandated disclosure because markets work best when buyers are informed. Business advocates like mandated disclosure because it is one of the lightest and least costly forms of regulation, much more tolerable to them than command-and-control regulation like price and quality controls or licensing. Consumer advocates like mandated disclosure because they think consumers are entitled as a matter of moral right and of practical policy to make the decisions that shape their lives. Disclosures enable them to do so. And unlike almost any other intervention, mandated disclosure is relatively easy to enact, because it does not require big budgets or big bureaucracy.

One would think that the disappointing performance of mandated disclosure in regulating consumer credit markets and in protecting consumers from financial woes would have chilled the political and academic enthusiasm for it. But no. Despite the broad recognition that disclosures have accomplished none of the goals set for them, supporters are undeterred. Failures of the past are readily attributed to the particular ways disclosures were implemented. So people argue that mandates fail because they did not give enough information, or gave too much, or were handed out too early in the transaction, or too late, or too often, or not often enough. To disclosure advocates, mandated disclosure is a god that cannot fail.

III. THE FAILURE OF MANDATE DISCLOSURE

Mandated disclosure routinely fails to achieve its ambitious goals of helping consumers make better borrowing decisions. It is not doomed to fail, but empirical studies rarely report that disclosures lead disclosees to good decisions. Surveying the entire literature, Lauren Willis concludes that "disclosures currently mandated by federal law for home loans neither effectively facilitate price shopping, nor do they result in good deliberate decision making about risk." (Willis, 2006 and 2008). Similarly, Rubin found that consumer-credit disclosures have not achieved their goals (Rubin, 1991). The U.S. Treasury Department, in a comprehensive study, said that even improved disclosures will not "curb abusive and predatory lending. Disclosure of costs does not, by itself, prevent unfair terms and other abuses [and] can have the unintended effect of insulating predatory lenders where fraud or deception may have occurred."(U.S., 2000).

Why do disclosures fail to improve consumers' credit decisions? The fundamental problem is that mandated disclosure is ill suited to its ends. Exactly because the choices for which it seeks to prepare people are unfamiliar, complex, and ordinarily managed by specialists, lay people cannot master them with the disclosures that lawmakers usually mandate. Take, for example, the information that the Federal Reserve Board thinks consumers should understand in order to select adjustable-rate mortgages: "indexes, margins, discounts, caps on rates and payments, negative amortization, payment options, and recasting (recalculating) your loan" (Federal Reserve Board, 2006). It is hard, even for highly educated people, to even understand what these concepts stand for. It is doubly hard to master these data, and it is entirely implausible that consumers with only basic education would be able to have sufficient command of it.

Or, consider the information relevant to choosing a prepaid debit card, which gives people without bank accounts a way to get cash (ATMs) or to shop electronically. The cost of such cards is obscured by a potpourri of fees, including application fees, activation fees, ATM fees, balance-inquiry fees, fees for using the card, fees for not using the card, maintenance fees, reloading fees, replacement fees, overdraft fees, and fees for calling customer service. Can consumers really master this information effectively to avoid paying too much? Is it realistic to expect that consumers will be able to calculate how the totality of these fees will affect the cost to them, given their individual patterns of use?

Mandated disclosure fails because it makes unrealistic assumptions on how people make decisions. Even if consumers wanted to do what lawmakers hope they will –assemble the relevant information, identify the possible outcomes, assess their own preferences, and determine which choice best serves those preferences– they would likely fail. The main reason is that they will not *understand* the credit disclosures. Even experts can struggle. Senator Elizabeth Warren, previously a Harvard professor of consumer finances, said of credit-card disclosures: "I teach contract law at Harvard, and I can't understand half of what it says." In reality, consumers cannot even read most disclosures. Particularly among those who need regulatory help most, levels of financial literacy are lowest. In a test of *basic* numeracy, only 16% could answer three (*really*) simple questions (such as, how much is 1 percent of $1,000?). Yet mortgage loans notices are generally written at a college level, that only a tiny percent of the population can understand.

Financial literacy means more than knowing terms. Can a consumer evaluate a term like "sum credit life insurance"? How many people know that to compare a lender's life insurance policy with those sold in the general insurance market requires a separate medical screening for each policy? How many people know that creditors may not require borrowers to buy the (often

overpriced) policy from the creditor's affiliate but that creditors can be pushy without crossing the line? How many people know that the policy their lender is offering may overlap with insurance they already have? Similarly, people poorly understand prepayment charges and how they interfere with refinancing. As already mentioned, most borrowers do not know about a prepayment penalty, yet because refinancing can considerably affect the cost of a mortgage, such ignorance can be expensive. Many people know that points lower mortgage interest rates but don't realize that they are a poor choice for anyone planning to refinance or to pay the loan early. These problems are exacerbated by people's natural tendency to rely on advise of brokers or of agents working for lenders, without realizing the conflict of interests that plague these advisers. In the end, facing a well-oiled machine that markets seductive credit opportunities to them, borrowers are paying less attention to the details that mandated disclosures communicate to them.

Even if people were able to read and understand financial disclosures, they would not be able to use them well. The primary reason is what Schneider and I call the "quantity problem." It has two aspects, an intensive and an extensive dimension. The intensive dimension means that each disclosure, view separately, is often too long and overloaded to be digested and used. The extensive dimension means that there are too many disclosures to deal with, and people cannot pay attention to all of them.

The intensive dimension often leads to a problem known as "overload– when disclosures try to give full information about unfamiliar and complex decisions. Complexity demands explanations long enough to cover its many aspects; unfamiliarity increases the number of aspects that must be covered. Thus, we get disclosure mandates that are too detailed, dense, and demanding, and people are unable read them carefully–or at all. If they read them, they struggle to understand, analyze, remember, and assimilate the mountains of information.

Mortgage disclosures are the most vivid illustration of the overload problem. Even after generations of trying to simplify them (for example, by producing a key indicator –the "APR"– which I will discuss later), the basic information is given in numerous pages listing the mortgage's fees, interest charges, payments, and related obligations. Regulators may introduce new formats that are more readable, understandable, and effective in reaching consumers. But in a typical mortgage closing consumers receive a large stack of additional documents and disclosures, sometimes more than fifty separate forms, which means reading almost one hundred hard pages and signing more than fifty times. Much of this material deals with various regulated aspects of the mortgage transaction, which are not covered by the "APR." For example, there are disclosures about

data privacy, about conflicts of interest, about taxes and insurance, about non-discrimination rights, about right to withdraw, and many others. Each of these may be drafted with care, and each may divulge information that is important and even critical for consumers. (How would they other know, for example, that they have the right to withdraw?) But as a whole, these layers of disclosures present the consumer with an insurmountable problem of overload. As a result, even the simplified "APR" disclosure usually is not furnished as a single document; rather, a "large stack of documents, many containing very peripheral information, must be sifted through in order to find the one or two pages that contain key information" (White and Mansfield, 2002) . Even Judges Posner has been quoted as saying that when he took a home-equity loan, he faced so many pages of disclosures that "I didn't read, I just signed."[2]

The overload problem is severe enough to undermine mortgage disclosure, but it is only one dimension of the quantity problem. The other dimension is the "accumulation problem." People face not only a clutter of information in each disclosure, they face a clutter across disclosures. The accumulation problem arises because people confront so many disclosures daily and so many consequential disclosures yearly that they could not attend to (much less master) more than a few even if they wanted to. A consumer attending to her personal finances has to master not only the mortgage disclosure but also credit card disclosures, the disclosures attached to her deposit account at the bank, savings and investment disclosures, information about retirement accounts, disclosures attached to credit purchases and installment sales, and much more. This same consumer also has to attend to non-financial disclosures–relating to privacy, health, safety, product features, nutrition, warranties, insurance, workplace rights, and a long list of additional information that disclosure mandates govern.

Another way to explain the quantity problem is as follows (Ben-Shahar and Schneider, 2014b). Imagine a disclosure (disclosure 1, or D1) given to a borrower, explaining the amount of monthly payments and how they might change in the future. If D1 is the mortgagor's only mandated disclosure, it can be an effective tool. But consider now a second disclosure, D2. It tells the borrower that the loan's cost also includes the home insurance that the creditor requires. Like D1, D2 is easy to explain and it could help borrowers by discouraging undue optimism about whether they can afford the loan and by encouraging them to shop for cheaper insurance. But there is an uncounted cost to D2. It is disclosed at the same time as D1–at the loan application (or closing). The borrower's limited attention must now be divided across two disclosures. Some borrowers may spend

[2] "Judge Posner Admits He Didn't Read Boilerplate for Home Equity Loan," *ABA Journal* (June 23, 2010), visited January 13, 2013, www.abajournal.com/news /article/judge_posner_admits_he_didnt_read_ boilerplate_for_home_equity_loan/

extra time and attention on the combined D1 and D2, but at least some of the attention to D1 is likely to be crowded out. Thus, D2 reduces the effectiveness of D1. Now add disclosures D3, D4, D5, D6, . . . , D*n*. Some of them related to the mortgage, but other relate to different transactions. Each disclosure, delivered alone, could be made effective and useful to many borrowers. Each, viewed alone, might pass cost-effectiveness analysis. Each, empirically tested in artificial surroundings, can be demonstrated to help more than a few trial participants. But as each joins the accumulation of disclosures, any attention it draws reduces the attention the others get.

This example is not imaginary. It captures the exact reality of consumer credit disclosure regulation. Recently, U.S. regulators did great work to simplify "D1", creating a form summarizes the key costs of a mortgage, and successfully tested it in rigorous laboratory experiments.[3] What was not tested, though, is whether the revised form can help people in the real world of mortgages, when they receive D2, D3, D4, D5, D6, . . . , D*n*. As mentioned, even a relatively simple mortgage transaction may be accompanied by as many as 50(!) separate "D"s –disclosures mandated by various agencies and statutes.

What this illustration suggests is that lawmakers mandating disclosures are grazing a public commons – people's attention. Each mandate draws a bit of this resource, degrading the others. Lawmakers never consider this when mandating a disclosure, since they are focused on the immediate problem before them. Yet so many lawmakers are trying to solve so many problems with disclosure that the already overgrazed commons becomes daily more depleted.

This discussion explains some of the key reasons mandated disclosures have not helped consumers make better mortgage decisions. People don't read the disclosures; if they read, they don't understand; if they understand the literal meaning, they are rely on the decision to make good decisions because they lack experience; and, ultimately, consumers are faced with many different disclosures mandated by different lawmakers in many different areas that – even if they were sophisticated enough to use them– they cannot plausibly attend to all. There is much evidence to support the contention that each link in the disclosure chain –read, understand, use– is broken, and (again) I refer the reader to the book, "More Than You Wanted To Know," for a fuller account of the empirical basis of my analysis.

[3] The Consumer Financial Protection Bureau adopted the new integrated disclosure format in a regulation that became effective August 1, 2015 (see Integrated Mortgage Disclosures under the Real Estate Settlement Procedures Act [Regulation X] and the Truth In Lending Act [Regulation Z], 12 C.F.R. pts. 1024, 1026). For the new forms, see http://www.consumerfinance.gov /knowbeforeyouowe/compare/

IV. THE FAILURE OF SIMPLIFICATION

After all these years of attempts to make disclosures work in consumer credit markets, and after so much disappointment, one might have expected that acknowledging the failure of mandated disclosure would be a relief to sophisticated lawmakers and advocates. One might have expected that they would yearn to put their efforts, ingenuity, and ability to more rewarding enterprises – like developing better regulatory methods to protect consumers against disastrous credit decisions. Not so. Even if they develop other regulatory tools, they continue to rely on disclosure –what they sometimes call "heightened disclosures"– to make their proposals work. And even while acknowledging the many weaknesses of mandated disclosure and the many barriers mandates must surmount, lawmakers are not ready to abandon their belief in the method's promise and potential. Rather, they seem to retreat to what one might call peripheral defenses of mandated disclosure, defenses that implicitly accept the fundamental criticism describe above but see hopeful developments in its margins.

The most common defense against the claim that mandated disclosures failed is the hope that simpler and better disclosure formats would succeed. If disclosures fail because of complexity, simplification seems like the obvious solution. If documents are long, or full of jargon, or non-standard–then shorten them, use lay language and demand standard formats. If disclosures describe too much, describe less. Thus, a new wave of enthusiasm is washing through the corps of sophisticated lawmakers in many countries, energizing them to develop new formats of disclosure that they label "targeted transparency" or "smart disclosure" or "behaviorally informed" disclosure, seeking to nudge consumers by providing them with "heightened" and "meaningful" and "just in time" disclosures tested in labs.

Unfortunately, simplification is not the solution. Theoretically, it is hard to imagine how it can be done. How exactly do complex issues get sufficiently simplified? Mortgage disclosures are complex because the underlying decisions are complicated. Making them look simple would require that consumers be given less information and thus be told not take into account some critical aspects of the decision. Or, making them simple would require explaining in words what jargon conveys in technical terms, but that would surely stretch already long disclosures even further.

But my main argument against simplification is a theoretical claim of impossibility. Rather, it is empirical. Simplification has been tried over and over again, always with disappointing results. In the 1980s and again in 2008, American "Truth In Lending" laws were reformed to achieve greater

simplification, and –like the current trend– those reforms drew on advice from leading psychologists who were trying to address the problem of overload. There is a consensus that those reforms failed. True, there are always more techniques to try, and many ingenious ones are being proposed–like Ryan Calo's "visceral" disclosures (Calo, 2013), Oren Bar-Gill's "use pattern" disclosure (Bar-Gill, 2012), Ayres-Schwartz' "substantiated" warning box disclosure (Ayres and Schwartz, 2013) or Porat-Strahilevitz' "personalized" disclosures (Porat and Strahilevitz, 2014). These might succeed where others failed, but let's make sure we understand how formidable their task is and how discouraging the history of such efforts has been.

Specifically, consider the reasons Bar-Gill –one of the most cogent and rigorous proponents of the "smart disclosures" school–thinks that simplification can make disclosure effective. Bar-Gill hangs his hopes on the "APR" (Annual Percentage Rate)– the score that summarizes all the mortgage costs and presents them in a simple number that can allow comparison. Bar-Gill proposes that this score take into account the specific fees and charges that each individual borrower is likely to incur, as calculated based on personalized information about the use pattern this borrower is likely to follow (Bar-Gill, 2012). But many of the writers who have surveyed the vast evidence on APRs have concluded that it has not been a great success (Ben-Shahar and Schneider, 2014, pp. 16-53). Lee and Hogarth, for example, conclude that despite being shown the APR, "many consumers do not understand the price of a closed-end loan" and that those who understood were better educated and "older than those who did not understand" (Lee and Hogarth, 1999). They find that while consumers are generally aware of APRs, it is also the case that "consumer awareness does not translate into their understanding" and that without that understanding consumers cannot make "an optimum decision"(Lee and Hogarth, 1999).

More recent evidence leads to further skepticism. For example, a recent study asked whether APRs reduce lenders' ability to prey on consumers' biases and naiveté (Stango and Zinman, 2011). Before the Truth in Lending Act (TILA) –the statute that invented the APR– lenders could advertise "low monthly rates," lure consumers to apply for loans, and charge biased and naïve (usually poorer) consumers more than other consumers. The study find that strongly enforcing TILA's APR mandate reduces this gap between borrowers, to the advantage of weak, unsophisticated borrowers. But the study also concludes that it is "important to note that strict enforcement of TILA did not seem to reduce rates for more-biased borrowers in an *absolute* sense." Why? Because strict enforcement seems to be correlated with higher APRs, the kind of rise in interest rates that contracted credit causes. Thus "the net effect of weaker TILA enforcement on APRs is zero on more-biased borrowers" (namely, unsophisticated, poorer borrowers) and "negative for less-biased borrowers"

(Ibid at 530). Is this a success? A reform that ends up with nobody paying less for loans and some paying more is a sour accomplishment for consumer protection law, hardly the success that advocates of simplified disclosures would have envisioned.

It is beyond dispute that the APR excellently simplifies some crucial information. But it has limits. It often cannot incorporate *all* credit's costs and burdens. If, for example, the APR excludes third-party costs and junk fees (like appraisal, credit-report, and title-insurance fees and prepayment penalties), it distorts choices. Thus proposals to make APRs more inclusive are common. But APRs have other problems. First, mortgage costs vary and are not always predictable. The list of fees is long, but not all will be incurred. And factoring prepayment penalties into an APR requires information about the borrower's propensity to prepay in varying market conditions. Furthermore, interest rates and fees cannot always be known in advance –most obviously, in adjustable–rate mortgages. Also, much besides a loan's cost affects its appeal. Some borrowers might not prefer the cheapest loan. They might prefer smaller and frequent payments, or prefer lower monthly payments to a lower interest rate. They must decide how many points to buy for a lower APR, a decision inexperienced borrowers often make poorly.

Finally, APRs often cannot overcome the several kinds of illiteracy we have discussed. Many studies show people misunderstanding APRs, confusing them with the interest rate, and preferring other information. Some people are not even sure whether a high or a low APR is preferable.

Other templates for simplification of credit disclosures have met similar defeat. Striking evidence comes from credit card disclosures. One of the most promising simplified disclosures is the "pay off nudge" that was instituted in credit card disclosure statements. It requires monthly statements to prominently display the additional cost of the credit when the consumer chooses to repay the balance by making only the minimum payments. Because this added finance cost is nominally large, the hope was that the prominent display of such simple "months-to-pay" metric would prompt consumers toward paying off a larger fraction of their balance and reduce their overall interest payments. But a 2014 study found that this simplified disclosure had only a negligible effect (Agarwal *et al.,* 2014). Very few people changed their behavior, and those that did saved only $24 on average. In an entire year, the effect of this nudge was a reduction in the aggregate interest payments by no more than $71 million–no more than 0.01% of the credit volume of $744 billion in the market. Hardly worth the design and printing cost of the disclosure.

Additional evidence about the failure of simplified disclosures comes from a large-scale random-assignment experiment conducted in Mexico (Seira *et al.,*

2017). With the cooperation of a big bank, new disclosures were sent to tens of thousands of highly indebted credit card holders. These disclosures were designed by the researchers to prompt the consumers to reduce their borrowing and their debt balances. The disclosure were based on the most up to date techniques: salient display of the (personalized) interest rate, a months-to-pay nudge, a "social comparison" informing consumer when their debt was above (or below) average for like customers, pictures suggesting the consumer was in high-risk terrain, and even a warning against overconfidence. There was every reason to expect some, if not major, effects. The recipients were highly indebted, initially unaware of their interest rate, and overconfident as to their ability to pay their debt. They were paying large portions of their income towards the finance charges. If only they read the disclosures, they could have switched to much cheaper debt (for example, by transferring balances).

But on every measure of response, the innovative disclosures were a miserable letdown. Even when posted saliently, the interest rate disclosure did not change levels of debt, rates of delinquency, or account switching. The months-to-pay disclosure, designed to urge overly optimistic people to make more than the minimum payment, had not effect on debt. Ironically, it led to *increased* rates of default–perhaps by instilling a sense of apathy among debtors, realizing the futility of trying pay back incrementally. Similarly, the peer comparison disclosures had an especially interesting effect. Telling people (half the population) they are higher-than-average risk caused a small decrease in debt. But the flip side was that telling the other half that they are lower than average risk caused a corresponding increase in debt. Overall debt payments under this disclosure intervention actually went *down* by about 10 percent–the opposite of the intended consequence. The main lesson, the authors conclude, is that "*all* treatments have zero or tiny effects in *all* outcomes measured." They explain that "this zero effect is quite precise and robust across subsamples" and "not due to low statistical power." Where non-zero effects were found, they "were relatively small and short-lived, lasting only one or two months."

Thus, evidence is now mounting that even the most widely advocated interventions and simplifications are not likely to work. This evidence should go a long way to further remind mortgage reformers that the failure of "smart" disclosure is not a problem of format. Mortgages and many other loans are complex, and it is therefore hard to compare options and to find the most rational ones. For low income people, the problem is even more fundamental. Low income borrowers know intuitively when they borrow too much, even if they cannot quantify this intuition. The problem for them is not information, it is poverty. They borrow to pay towards urgent needs that they often cannot afford.

V. THE FAILURE OF NUDGES

The message emerging from the discussion above is grim. Disclosures don't work! While most lawmakers all over the world continue to ignore this empirical reality and to mandate new rounds of disclosure, some sophisticated commentators are beginning to look elsewhere. If not disclosure, how else can consumers be protected?

Unfotunately, the instinct of most current thinkers is to continue find easy, one-size-fits-all, panaceas. One of the fashionable solutions is the "default option," popularized by Thaler and Sunstein as a promising "nudge" (Thaler and Sunstein, 2009). Inspired by a handful of examples how consumers were made better off by laws that regulate default options, commentators are proposing to regulate mortgages in a similar fashion. Or example, Barr, Mullainathan, and Shafir have proposed what they call a "one-size-fits-all" solution to consumer protection. In essence, they propose that the law should establish a "plain-vanilla" default in mortgage markets, requiring all lenders to offer loan applicants the same basic structure mortgage (30-year fixed rate with no prepayment penalty). This, they think, would help consumers compare different loans and would importantly channel the borrowers towards a safer, less complicated, loan instrument.

But default plans work only if nobody is luring people away from the default and into other options. Defaults work for pension plans, for example, because employers want employees in them. They work for organ donation programs because there is not big business on the other sided of the transaction that benefits from getting people to opt out of the default. But in many areas, including those where consumers are particularly vulnerable, many enterprises profit from seducing people away from the defaults and find the seduction easy. What protects consumers from seduction? Again, it is mandated disclosure.

It is their libertarian veneer that makes opt-out plans so appealing to so many. Freedom of choice is the default regime's foundation (which is why it's called choice architecture). How is that freedom assured? Barr *et al.,* think that opt- outs from the default plans would be valid only when preceded by "meaningful" or "heightened" disclosures (Barr, Mullainathan and Shafir, 2008; Barr *et al.,* 2008; Barr *et al.,* 2007). These would have to be "honest and comprehensible disclosures" that "effectively communicate the key terms and risks of the mortgage to the typical borrower." Thus "people could raise the lack of reasonable disclosure as a defense" against attempts to hold them to improvident opt-outs.

Does this sound familiar? Recall that Barr *et al.,* call defaults an *alternative* to mandated disclosure. They say that "disclosure alone is unlikely to help" and

that they have "another option." But that option, we now learn, depends on those elusive meaningful disclosures. So what will "effectively communicate the key terms"? How would they accomplish what two generations of TILA-mandated disclosures could not?

In the panacea world, opt-outs with meaningful disclosures will succeed where previous meaningful disclosures failed. But in the real world default plans are just more disclosurism. Lenders will quickly figure out what formulas make a disclosure "reasonable," "honest," and "comprehensible" and use them to steer clients away from plain-vanilla products to more profitable ones. If disclosures failed to make meaningful people's choice of plans from a menu, they will also fail when one of the menu options is pre-clicked. As long as it only takes another stack of forms and a few more signatures to make opt-outs "informed," cunning lenders will divert people into bad choices as easily as they do now.

VI. CONCLUSION

Carl Schneider and I concluded our book *More Than You Wanted To Know* with a historical anecdote:

> In the sixteenth century Spaniards arriving in the Americas found themselves greeted with villagers' "malice or ignorance." Hence *el Requerimiento,* the "Spanish Requirement," 400 words read to natives who knew no Spanish: "We ask and require you that you consider what we have said to you, and that you take the time that shall be necessary to understand and deliberate upon it, and that you acknowledge the Church as the ruler and superior of the whole world. But if you do not do this, we shall make war against you [and] slaves of [you]."
>
> So mandated disclosure has been with us for centuries. Telling people more than they want to know in language they don't understand should not have legal consequences. Happily, disclosures no longer ex-cuse slaughter and slavery. On the contrary, their goals are admirable. The modern history of mandated disclosure is one of irrepressible hope, of the rise of a form of regulation perhaps unequaled in the extent of its use or the fervor of its proponents. But modern audiences blessed with disclosures are usually as uncomprehending and ungrateful as the ones who were read *el Requerimiento. ¡Basta ya!*

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irrepressible hope, of the rise of a form of regulation perhaps unequaled in the extent of its use or the fervor of its proponents. But modern audiences blessed with disclosures are usually as uncomprehending and ungrateful as the ones who were read *el Requerimiento.*

In a world without disclosures, how would borrowers be protected? Without the panacea, there is no easy political or academic consensus, and regulation would have to be expensive, risky, prone to unintended consequences, and it would have to vary from one context to another. Limits on fees, or on mortgage structures, could help in some contexts, but hurt in others. Prohibitions on advertising and marketing could help or hurt, again depending on context. This world of tough regulatory choices is the world that disclosurites hope to avoid when they continue to advocate mandated mortgage disclosures. But it is the world that disclosures' failures force us to confront.

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CAN LEGAL INSTITUTIONS CALM 'ANIMAL SPIRITS' ON THE MORTGAGE MARKET? INSIGHTS FROM GERMANY

Matthias LEHMANN

Isabel SCHNABEL

Abstract

While the market for immovable property is prone to boom and bust, there are important differences depending on the country in question. Germany has benefitted from a particularly stable mortgage market since the 1950s. Amongst others, this may have been the result of institutions specific to German law. This contribution examines whether peculiarities such as the Pfandbrief (a version of the covered bond), the Bausparkassen (building savings banks) or the stringent protection of tenants were root causes of stability. It also describes possible challenges that have led to recent hikes in real estate prices. The question at the heart of this contribution is whether law can contribute to stabilize the market for immovable property.

Keywords: mortgage market, market for immovable property, covered bond, building savings banks, German law.

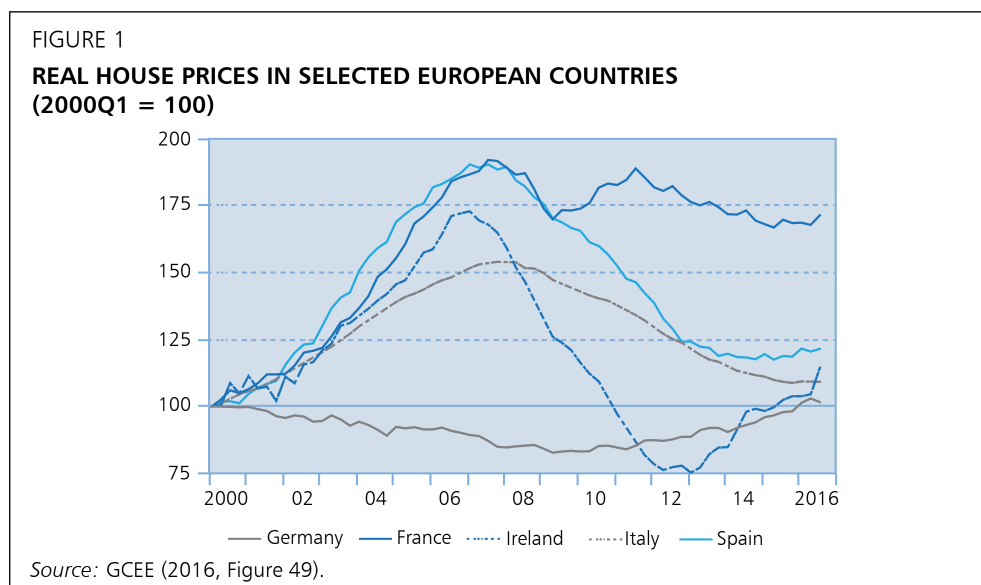
JEL classification: K11, K40, R31.

I. THE RELATIVE STABILITY OF THE GERMAN REAL ESTATE MARKET

It is a well-known stylized fact that financial crises often are preceded by a boom in real estate prices, and that asset price booms accompanied by strong lending booms tend to be followed by severe crises (Jordà, Schularick and Taylor, 2015; Brunnermeier and Schnabel, 2016). From an international perspective, Germany has had a comparatively benign market for real estate. House prices have remained relatively stable over the last two decades (Davies *et al.,* 2016, p. 7; German Council of Economic Experts, 2013, p. 451, Figure 111). The appreciation has even been outpaced by general inflation so that house prices have declined in real terms between 1975 and 2008 (Voigtländer *et al.,* 2012, p. 81). This contrasts with other countries where the housing market experienced strong price increases in real terms until the global financial crisis, such as France, Ireland, Italy and Spain, which –with the exception of France– resulted in a real estate crisis, accompanied by sharply falling prices (see Figure 1).

FIGURE 1

REAL HOUSE PRICES IN SELECTED EUROPEAN COUNTRIES (2000Q1 = 100)

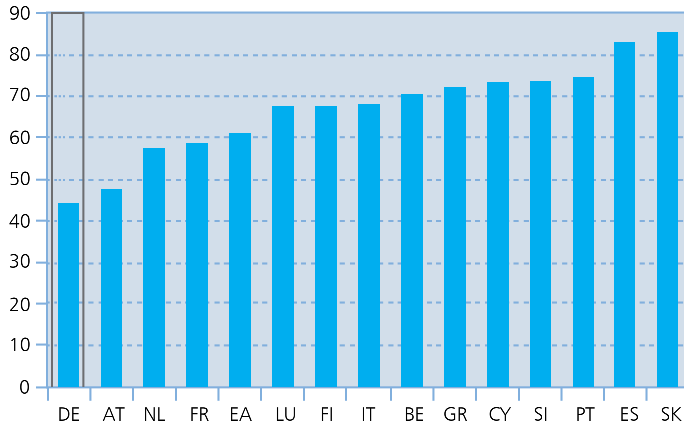


Source: GCEE (2016, Figure 49).

At the same time, the share of homeowners in Germany is relatively low (see Figure 2 for an international comparison). In fact, 57% of Germans rent property instead of owning it (Statistisches Bundesamt, 2016b). Having one's own home is not a "dream" like in many other countries, for instance in the UK, where the size of the rental market is only half of that in Germany (Davies *et al.,* 2016, p. 8). The low rate of owner occupancy is not due to a scarcity of capital, but rather a deliberate choice by the German population. Because of the

FIGURE 2

HOME-OWNERSHIP RATIO (percentage)



Source: GCEE (2017, Figure 55).

comparatively favourable regime for renting immovable property, buying is less urgent than in other countries. This also implies that changes in house prices exert less impact on consumer behaviour than in other countries.

II. WHAT MAKES GERMAN REAL ESTATE FINANCE MORE STABLE?

1. Diversified Banking System Featuring Strong Competition

A key factor for the stability and the relatively low prices on the German mortgage market is the banking landscape. Germany has a highly diversified banking system with over 2000 independent credit institutions (Bankenverband, 2014). This is significant if one takes into consideration that the Euro Area as a whole has about 6,000 banks (ECB, 2017). Besides private banks, Germany features many state-owned credit institutions (mainly savings banks, as well as their regional head institutions called *Landesbanken*), as well as a vibrant cooperative banking sector. The public and cooperative banks are a primary source of credit (*cf.* Köndgen, 2000, p. 172).

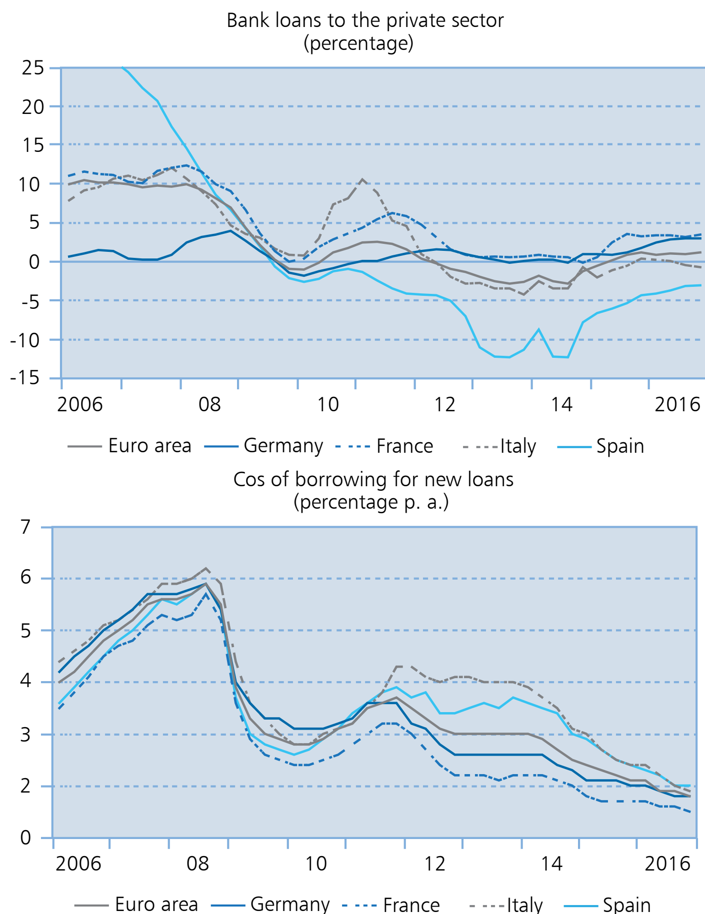
In addition to universal banks, there are specialised institutions like building savings banks (*Bausparkassen*) and *Pfandbriefbanken* that also provide mortgages (see on the *Pfandbrief* below B 5). The *Pfandbriefbanken*

are important actors on the market for real estate finance. As of December 2016, they accounted for around 31% of residential property loans (Verband Deutscher Pfandbriefbanken, 2016a). At the same time, the savings banks provided around one third of residential property loans, and the cooperative banks for around one fifth, whereas the building savings banks accounted for around 10% of such loans, almost as much as the large banks.

In sum, the German mortgage market is very diversified and competitive on the supply side. Several types of institutions compete for offering loans to

FIGURE 3

BANK LOANS TO THE PRIVATE SECTOR AND BORROWING COST IN SELECTED EUROPEAN COUNTRIES



Source: GCEE (2016, Figure 48).

home builders and acquirers. This diversified banking landscape leads to a very competitive environment (Köndgen, 2000, p. 172), explaining the relatively small lending spreads in comparison to market rates. Moreover, the German banking sector recovered relatively quickly from the global financial crisis, such that lending did not collapse as in other countries (Figure 3).

All in all, it is likely that the competitive and healthy banking sector contributed to achieve a stable real estate market in Germany.

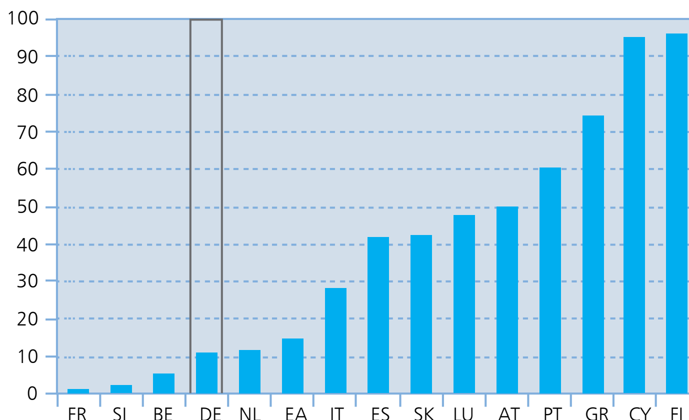
2. Long-term Mortgage Contracts with Fixed Interest Rates

One of the first things that meet the eye when analysing financing methods for the acquisition of real estate in Germany is the preponderance of long-term loans with fixed interest rates (see Figure 4 for an international comparison). Fixed-interest mortgages have long been a characteristic element of the German mortgage market (Voigtländer *et al.,* 2010, p. 36; Köndgen, 2000, p. 172). About 71% of loans for the construction or acquisition of private homes have a maturity of five years or more (Haas and Voigtländer, 2014, p. 4).

Long-term loans with fixed interest rates mirror a cultural preference among Germans, who are known for being inclined to certainty, stability and predictability. The pervasiveness of this contract type may also be attributed to

FIGURE 4

SHARE OF REAL-ESTATE LOANS WITH VARIABLE INTEREST RATES IN SELECTED EUROPEAN COUNTRIES
(percentage)



Source: GCEE (2017, Figure 55).

the relative minor fluctuations of interest rates in Germany in the past, which has allowed for the emergence of fixed-interest mortgages. The strong competition in the banking sector certainly also has played its part in the dominance of these loans.

From the point of view of the debtor, fixed-interest loans secured by a mortgage provide a convenient financial tool for the acquisition of property. Home buyers must not fear to be foreclosed or forced to look for a new home in case of a change in market interest rates. Moreover, the need for rolling over a loan arises comparatively rarely thanks to the long duration of the contract. Debtors will consider a change to their contract only when interest rates drop below the level prevalent at the time of the loan's execution so that it becomes attractive to exchange the loan for another. Effectively, interest rate risk is shifted to the lender.

Long-term financing at fixed interest rates not only serves individual interests, but also benefits the general public by increasing the stability of the market for real estate. In case of rising interest rates, homelessness will not jump up and less people will be looking for a cheaper accommodation than in countries in which variable interest rates prevail. This takes pressure from the real estate market and from the social security system. At the same time, falling interest rates will not trigger a buying spree if interest rates are calculated over longer periods. Contrary to the situation in other states, in particular the United States, loan amounts are typically not increased in reaction to a value increase in the collateral. There will be fewer asset bubbles than in other countries that are more sensitive to changes in market rates. Overall, there is relatively little activity in the German housing market caused by fluctuations of interest rates. As a result, there may be less boom and bust than in countries where mortgage interest rates depend directly on market conditions.

Yet the security for the borrower and the stability of the housing market come at a high cost for the lender. If interest rates are contractually fixed, it is the banks that bear the brunt of any increase in market rates. From their point of view, this arrangement is anything but ideal. That they have accepted to offer fixed-interest loans so far may be a consequence of strong competition in the German banking sector (*cf.* Voigtländer *et al.,* 2010, p. 36). Moreover, the relatively low volatility of German interest rates made it possible for banks to shoulder a worsening of refinancing conditions (for the rates of the years 1977 until 2016, see Deutsche Bundesbank [2016a]). The comparatively low level of house prices in Germany meant that house loans and the interest obligations derived from them used to be a manageable exposure. Also, peculiar instruments of German law like the prepayment fee (*Vorfälligkeitsentschädigung*) and the *Pfandbrief* (in more detail below B 5), allowed banks to shift the risk resulting from fixed-interest mortgages to the capital market.

From an institutional standpoint, it is important to underline that the fixed-interest mortgage is a market-based mechanism. Its introduction and development as the dominant financing tool in Germany did not depend on the will of the state. Legislators or regulators can merely provide conditions that are conducive to its existence, such as the *Pfandbrief,* but they have no way to force banks to offer this product. Nevertheless, it is likely that fixed-interest mortgages increase the stability of the real estate market. But they also have a downside: They make the financing more expensive because switching in case of lowering market rates becomes difficult (see below B 4).

3. Building Savings Contracts *(Bausparverträge)*

Another characteristic feature of the German real estate finance market is the building savings contract (Voigtländer *et al.,* 2010, p. 37). Its economic rationale shall be briefly explained by the following example: Let us assume 10 persons, each of which can save a maximum of 10,000 euro per year, want to build houses worth 100,000 euro each. If they save individually, none of them can build before a period of 10 years has expired. But if they put their savings into a common account or institution and save collectively, the first of them will be able to build after only one year, the second after two years, and so on. The situation is thus Pareto efficient because it increases the overall welfare without making anyone worse off.

From a legal point of view, savers in such a scheme are initially providing a loan to the bank. The legal situation changes at the time they are chosen to build their home through allotment and they accept it. From this moment, the saver receives a loan from the bank – unless they have already fully paid in. Their position thus shifts from that of a lender to that of a borrower.

The way the allotment happens is of utmost importance. Formerly it was done through a sort of lottery in which the builders were chosen at random (Kohlhase, 2012, p. 31). Today, an objective way of selection is pursued, which looks at the potential builders' discipline in aggregating their savings (Kronenburg, 2009, p. 589). Depending on the money saved and the time passed since entering the contract, each saver is attributed a score. Allotment is due when the score crosses a minimum threshold set by the bank.

Interest rates due to savers and paid by borrowers have traditionally been set below the market rate (Köndgen, 2000, p. 172). The goal is to allow builders to finance their real estate activities as efficiently as possible. Crucially, interest rates under building savings contracts are fixed and thus immune to fluctuations on the general market. The savers can be characterised as a group in which

some act as lenders and some as borrowers, their obligations are independent from interest rate movements on the general market (Voigtländer *et al.,* 2010, p. 37). Yet this seemingly autonomous model of financing is more and more put into question by the fact that interest rates have fallen to historically low levels, which has caused some borrowers to use building savings contracts as a general investment product rather than a means of financing real estate (see below C 1).

The concept of building savings contracts was originally developed in the UK, where building societies spread in the 19th century (Kohlhase, 2012, p. 76). This model was copied in Germany, the difference being that the UK building societies were dissolved once the last person had built a house, whereas in Germany savings from the beginning are entrusted to a permanent institution, the building savings banks (*Bausparkassen*). Today, they administer assets in the amount of about 868 billion euro (statista, 2016). Building savings banks exist as state-owned and private institutions. Regardless of their ownership structure, they are subject to specific regulation and supervision under the Building Savings Banks Act (*Bausparkassengesetz* of 16 November 1972). The Act's aim is to ensure in particular that the loans taken out do not exceed the amount paid in by savers. It also limits the services that building savings banks can offer in order to avoid a spill-over to other activities.

Overall, the German experience with building savings banks has been positive. Recently, however, they have run into trouble due to the fall in interest rates. This topic will be expanded further (see below C 1).

4. Prepayment Fee (*Vorfälligkeitsentschädigung*)

A natural reaction to declining market interest rates is for borrowers to terminate their long-term mortgages and switch to a new contract with more favourable terms. However, this is typically not so easy. German law allows the borrower to cancel a fixed-interest loan after a period of ten years independent of the contract terms (sec. 489(1) no. 2 German civil code –*Bürgerliches Gesetzbuch*– BGB). The contract may allow for an earlier repayment. Yet in practice, it often features a prepayment fee clause (Haas and Voigtländer, 2014, p. 3). Under these clauses, borrowers opting to terminate their loan agreement before maturity must pay a fee to the bank. This fee is calculated on the basis of the outstanding interest rates that would have run up until maturity. It is an indemnity for the income that the bank foregoes.

There are two different ways in which this indemnity is calculated (*cf.* Voigtländer *et al.,* 2012, p. 39). The first is based on the losses that the lender

suffers if forced to reinvest the funds paid off early. The other way takes into consideration the duplication of cash flows that the lender has to cope with due to the early termination because it needs to reinvest the capital repaid to finance the interest it has promised to its investors until the date of maturity. Legally, the parties to the loan contract are free to decide which type of calculation they choose. The only condition that the law imposes for the validity of a prepayment clause is that the contract clearly indicates the maturity date of the loan, the consumer's right to terminate and the way of calculating the fee (sec. 502(2) No. 2 BGB). While the amount of prepayment fees is limited by statute for ordinary consumer loans, this is not the case for loans secured by mortgages (see sec. 502(3) BGB). Thus the bank and the customer have complete discretion as to the way in which they want to calculate the prepayment fee.

The existence of prepayment fee clauses makes early termination less attractive for borrowers. In the most extreme scenario in which the fee amounts to all outstanding interest rates, early termination makes no commercial sense whatsoever. Though it is theoretically possible for the customer to enter into an insurance to protect against early repayment at the time of the loan contract's execution, this option is rarely used. One may therefore fairly say that debtors in Germany generally do not benefit from a fall in interest rates. This is the downside in comparison to other states where variable interest rate products exist and prevail, for instance in Spain. This is the price paid for certainty.

5. *Pfandbriefe* – Covered Bonds the German Way

The *Pfandbrief* –literally: "letter of pledge"– is one of the most peculiar feature of the German mortgage market. It is a bond secured by a pool of mortgages, on which the bondholders have a preferential claim in case of the issuer's insolvency. The *Pfandbrief* is famous for the security it offers to investors: until today, not a single instrument has ever defaulted (Spangler and Werner, 2013, p. v; Kronenberg, 2017, p. 57). Its economic importance is evidenced by the fact that it represents 10% of all outstanding covered bonds worldwide (IMF, 2011, p. 6).

The *Pfandbrief* must be distinguished from mortgage-backed securities, such as RMBS (residential mortgage-backed securities) or CMBS (commercial mortgage-backed securities). While these mortgages are issued by a 'normal' bank and later perhaps transferred to a special purpose vehicle, the mortgages of the *Pfandbrief* are issued by a bank with a special purpose and assets that are ring-fenced for investors. In that sense, the *Pfandbrief* is quite similar to the covered bond known in the Anglo-Saxon world. However, the covered bonds are mere contractual arrangements, while the *Pfandbriefbanken* as the

only entities that are allowed to issue *Pfandbriefe* are strongly regulated by mandatory legislation.

The first *Pfandbriefe* were introduced in the late 18th century by the Prussian King Frederick the Great (Frederiksen, 1894; Larsson, 2013, p. 24; Quirk, 2010, p. 1327-28). After the Silesian Wars, Prussia was left in wartime ruin, and there was a loss in agricultural productivity and a shortage of credit (Larsson, 2013, p. 24). As a means to support the cash-stripped nobility, Frederick the Great issued a cabinet order in 1769, which established credit associations (called *Landschaften*) that handed out mortgage-secured loans and refinanced them by the issuance of bonds (Verein deutscher Pfandbriefbanken, 2016b; Quirk, 2010, p. 1327-28). The *Pfandbrief* is however not a purely German phenomenon. Early forerunners existed in Greece, Italy and the Netherlands (Burmeister and Stöcker, 2010, p. 70). Decisive steps in its development were also taken in France and in Poland (Stöcker, 2011, § 87 margin no. 1).

Initially, only public banks were allowed to issue *Pfandbriefe* in Germany. That changed in 1900 when a special act entered into force, which allowed for the creation of private sector mortgage banks (*Hypothekenbankgesetz* of 13 July 1899). With regard to public sector mortgage banks, a special regime remained in place (*Gesetz über die Pfandbriefe und verwandten Schuldverschreibungen öffentlich-rechtlicher Kreditanstalten* of 21 December 1927). Both acts were eventually replaced in 2005 by the *Pfandbrief* Act (*Pfandbriefgesetz* of 22 May 2005) after the European Commission had prohibited any preferential treatment of public banks vis-à-vis private banks on the ground that it restrained free competition (Stöcker, 2011, § 87 margin no. 8). Since then, the same rules apply to public and private banks.

The *Pfandbrief* Act is characterized by several features, which can be boiled down to the keywords dynamic collateral pool, insolvency remoteness, transparency, and compliance.

First, the law requires the issuing bank to maintain a pool of assets to serve as collateral for the bonds it issues. The types of assets that qualify for these asset pools are strictly standardized. Besides bonds secured with residential mortgages, the *Pfandbrief* Act also covers bonds that are secured by mortgages on vessels and on airplanes as well as sovereign debt. Different rules apply to each type of bond and they must not be mixed with each other. Residential mortgages must either pertain to real estate in a Member State of the EU, or third states including the European Economic Area (EEA), Switzerland, the US, Canada, Japan, Australia, New Zealand, or Singapore (sec. 13 *Pfandbrief* Act). A specific feature of the *Pfandbrief* is the fact that the collateral pool is not static, like in the case of mortgage-backed securities, but dynamic, *i. e.,*

it may change over time. To safeguard the interests of the bondholders, the law obliges the issuer to ensure that the value of the pool of assets always matches the outstanding obligations resulting from the bonds on the market, including the claims for interest resulting from them. Indeed, the law even requires overcollateralization by demanding that the monetary value of the asset pool exceeds the outstanding obligations by 2% (sec. 4 *Pfandbrief* Act). The land over which the mortgage has been registered must be insured against risks such as earthquakes or fire (sec. 15 *Pfandbrief* Act). Furthermore, the law provides for strict lending limits (see below B 6).

Since it is insolvency-remote, the collateral pool serves as a security exclusively for those that have invested in a *Pfandbrief*. Should the issuing bank become insolvent, the mortgage pool will be treated separately from the rest of the bank's assets. The collateral pool is reserved and ring-fenced for the bondholders. It is legally protected from seizures by other creditors (sec. 29 *Pfandbrief* Act). The collateral in the pool goes into a separate fund, or trust, and does not become part of the insolvency estate (Brinkmann, 2015, § 47 margin no. 91). In order for the assets of the collateral pool to be identifiable and distinguishable from the other assets of the bank, the *Pfandbrief* Act provides that all assets serving as collateral in the pool must be entered into a special register (sec. 5 *Pfandbrief* Act). There are also special provisions protecting the mortgage pool in case of a restructuring of the issuing bank according to the BRRD (Bank Recovery and Resolution Directive). German law thus makes the mortgage pool fully insolvency-proof. At the same time, the investor may bring an action against the issuing bank, allowing him in effect to have a dual recourse both against the pool and the issuer.

Transparency requirements oblige the bank to disclose certain data (sec. 28 *Pfandbrief* Act): It must publish quarterly information such as the amount of all outstanding bonds, the maturity and interest rate structure of the bonds, the corresponding mortgages as well as the countries in which the real estate is situated. The bank must also make public the amount of all outstanding claims against borrowers that have not been served for a period of more than 90 days (sec. 28(2) no. 2 *Pfandbrief* Act). These disclosure requirements were recently introduced as a response to requests by investors and analysts (Stöcker, 2011, § 87, margin no. 59). Their goal is to overcome information asymmetries.

The comprehensive legal package of the *Pfandbrief* Act is secured by a strict compliance regime, which consists of several avenues. The bank is legally required to appoint a trustee who is responsible for ensuring compliance with the rules on the asset pool (sec. 7 and 8 *Pfandbrief* Act). Only banks that have received a special licence are allowed to use the designation as "Pfandbriefbank" (sec. 41 *Pfandbrief* Act). Most importantly, the fulfilment of all legal requirements

is closely watched by a state body, the German Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht* – BaFin).

All of these features taken together make the *Pfandbrief* an attractive investment option, which is mainly used by institutional investors, such as mutual and pension funds, insurance companies or banks. Particularly noteworthy is the fact that Germany has opted for determining the structure, organization and conditions of the financial instrument in a piece of mandatory legislation, the *Pfandbrief* Act. It is therefore appropriate to characterize the *Pfandbrief* as a "legislative bond" (see Larsson, 2013, p. 23). Adopting mandatory legislation on covered bonds has several advantages. First, it is reassuring for investors since their rights are determined with legal certainty. Second, it allows for the standardization of the financial instrument, which facilitates their comparison and trading for investors. Third, it guarantees that public authorities are supervising the stringent compliance with asset quality standards and other legal requirements. In sum, with the introduction of the *Pfandbrief*, the legislator has created a public good that can be used by banks to signal the special trustworthiness and security of the product they offer.

From a macroeconomic point of view, the *Pfandbrief* is essential because it ensures that the loans will be refinanced by the capital market. This in turn stimulates the issuance (origination) of loans secured by mortgages. Crucially, this positive effect is achieved without the need of any further governmental intervention on the capital market other than the adoption of a legal act. In particular, it is not necessary to establish government entities like in the US, where mortgages are refinanced mainly by Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation). With the *Pfandbrief* Act, the State merely provides a legal framework that can be used by private and public sector banks alike. This is very much in line with traditional German thinking, which sees the function of the state in setting boundaries for the economy in which market forces can play (see Schnyder and Siems, 2012). The structure of the *Pfandbrief* is set out by mandatory legislation, but their offer and demand is left to private initiatives. This seems to be an efficient and commendable division of tasks between the state and the market.

6. Lending Limits

The institutional peculiarities discussed so far showcase the German conservatism about the financing of the real estate market. A further expression of that conservatism are the strict lending limits imposed on mortgage financiers. The Act on Building Savings Banks ensures that the valuation of real estate in the

context of lending must be based exclusively on the permanent characteristics of the property and the profit it yields if used economically and sustainably (sec. 7(6) Act on Building Savings Banks – *Bausparkassengesetz*). Even stricter rules apply with regard to *Pfandbrief* banks. Not only are they required to base the valuation of land on the long-term characteristics of the property, but they are also explicitly prohibited from taking into consideration any speculative element when evaluating the real estate (sec. 16[2] *Pfandbrief* Act). Furthermore, the law requires that the amount of the mortgage must not exceed 60% of the real estate's value (sec. 14 *Pfandbrief* Act). A similar restriction for building savings banks of 80% was abolished in 2015.

The lending limits must not be understood as absolute caps. In fact, a bank is free to lend money above the limits set out by law by issuing a personal loan. This technique is called "splitting of real estate credit" (*Realkreditsplitting*). The part of the loan that is exceeding the lending limit can be made either in a separate or in the same contract. For this part, the bank relies alone on the creditworthiness of the borrower or on additional security. It must therefore be capitalized separately (Bundesbank, 2005).

For the determination of the value of the real estate, strict methods are laid down in a special decree issued by the federal supervisory authority BaFin (*Beleihungsmittelwertverordnung*). This decree sets out a special procedure and gives detailed explanations how the evaluation should be carried out. A crucial role is played by experts. The law requires that they must demonstrate certain qualifications, be independent and not be employees of the *Pfandbrief* bank, or alternatively must be independent of the unit that is responsible for mortgage loans.

The valuation of real estate is not static but dynamic. Both building savings banks and *Pfandbrief* banks are obliged to use sophisticated risk management systems (sec. 8 *Bausparkassengesetz*, sec. 27 *Pfandbrief* Act). They have to actively manage the loans by providing, *e. g.,* for changes in the market, in interest or exchange rates. In case of adverse circumstances, they must adjust their loan portfolio accordingly. This further increases the security for the investor.

In sum, imposing lending limits on regulated credit institutions may be a proper tool for taking off heat from the real estate market. The German experience with this instrument is very positive. It provides for stability and rationality in the financing of real estate and cools down 'animal spirits'. Of course, it also limits the ability of exploiting the full asset value for borrowing. But that may be a cost that is worth paying for having a stable market for immovables.

7. Tax Incentives and Public Subsidies for Construction, Acquisition and Renting of Real Estate

An important element of the relative stability of the German housing market has been the continuous upward trend in the number of new buildings. The state contributes to this by incentivizing the construction of new houses for own-to-let use (see Siegert, 2013). It does so in different ways. It subsidizes loans taken by house builders with tax benefits by allowing that interest payments can be deducted on the tax return as income-related expenses. The same applies to all costs, such as those for renovation or modernization, which can equally be deducted from the tax return. Impairments in the value of the real estate can be used for a write-down. This makes investments in real estate particularly interesting for those with a high income. In addition, the state also offers special loans for construction through its development bank (*Kreditanstalt für Wiederaufbau* – KfW). There is a tax exemption for any gains from the sale of immovable property after a period of ten years following its purchase; the same applies to real estate purchased exclusively for use as the private home of the buyer (sec. 23 Income Tax Act (Einkommensteuergesetz). However, transaction costs for sales and purchases in Germany are rather high when compared to other countries.

The real estate market had been especially difficult after the war, when many houses had been destroyed and refugees arrived from territories that Germany had lost to other states. The government responded first with forced administration and then with a gradual liberalization of the market for immovables (Grosskopf and König, 2001, p. 167). Another time of housing shortage was the period after German reunification in 1990 when demand for newly modernized accommodation was surging. The government supported the building and acquisition of private houses since 1996 with a special grant. *Eigenheimzulage* was more than a tax deduction; it was a real monetary subsidy (Wernsmann, 2005, p. 194). It incentivized many investments in East Germany, which led to a massive reallocation of production factors towards the construction sector, rising overcapacities and eventually falling prices. In the end, many of the investments failed to yield the projected return. When it expired in 2006, billions of Deutsche Mark and euro had been spent. The example illustrates the potentially distortionary effects of such subsidies (GCEE, 2013, item 833).

German labour law encourages the use of building savings contracts. Employers are required to top up employees' savings under such contracts with an additional amount (*vermögenswirksame Leistungen,* usually a double digit sum in euro). In addition, the state also contributes to the employee's saving with a special subsidy (*Arbeitnehmersparzulage*).

As in many other countries, the German government supports those with a low income through a special allowance. The so-called "Rental Money" (*Wohngeld*) is not limited to a peculiar type of social housing. As a result, recipients get the opportunity to rent space in middle- and high-income areas. This contributes to a socially balanced housing structure and diversified neighbourhoods, while being more expensive than building in cheaper areas. Such subject-oriented allowances are likely to be less distortionary than publicly subsidized social housing (GCEE, 2013, item 879).

Despite these various forms of public support, the overall subsidization of housing in absolute terms is relatively low when compared to other countries. One may speculate whether this may be one of the factors that has kept the German real estate market from overheating so far.

8. Protection of Leaseholders by Mandatory Legislation

The German state is also active in managing the demand side of the market. In particular, it reduces the number of interested buyers by guaranteeing strict protections to tenants. As a matter of fact, the obligations of landlords in Germany are among the strictest in the world. To illustrate, landlords cannot terminate indefinite rental contracts unless they can prove that they need it for their own use or for that of their family (sec. 573 of the German Civil Code –*Bürgerliches Gesetzbuch*– BGB). Rental contracts are mandatorily considered to be indefinite (sec. 575 BGB).

Germany is also intervening with heavy-handed regulation into the pricing of the real estate market. It has a history of rent regulation since the end of the first World War (Herrlein, 2016). Rent increases are subject to strict legal requirements (sec. 557 et seq. BGB). They are limited to the average amount of the area in which the property is located. Moreover, the rent must remain stable for a period of at least 15 months. Within three years, it can be increased by no more than 20%; in areas with a shortage of adequate dwellings this cap is lowered to 15%.

For long, price regulation only pertained to increases of rent, while the starting price remained subject to free negotiation. This changed in 2015, when the government introduced the possibility of a so-called "rental price brake" (*Mietpreisbremse*). The new sec. 556f BGB authorizes the federal states (*Länder*) to determine areas of particular acute short supply of housing. In those areas, the initial rent agreed between the landlord and the tenant at the start of the contract may not exceed the average rent in the surrounding area by more than 10%.

This rental price brake has been subject to considerable dispute. Economists widely criticized it for making investments in housing less attractive and thereby decreasing the supply and exacerbating the problem to be solved. The same is true for excessive requirements for energetic renovation.

In practice, it has proven to be largely ineffective. Landlords have simply ignored it and most tenants shied away from suing them, especially in areas where housing is tight. Another reason is an exception build into the rental cap: It is not binding where the previous tenant paid a rent higher than 110% of the average rate in the surrounding area (sec. 556e[1] BGB). Landlords frequently invoke this exception, and the new tenants who disagree have difficulties to get accurate information about the rent paid by the previous occupant. With regard to the general limit, tenants were unable to collect the necessary data for calculating the average price in their neighbourhood. Cities could have made their life easier by issuing a so-called qualified rental index with the help of scientific experts, but this proved to be costly and was rarely done in a legally correct way.

The rental price brake has actually failed to stop the surge in rents. In 2016, prices rose by more than 6% (Meyer, 2017, p. 1). Increases were especially high in city centres, where they often reached double digit levels (Meyer, 2017, p. 1). Those are precisely the areas in which the brake was supposed to provide some relief.

To make matters worse, the legality of the rental price brake has been put into doubt. Some courts have considered the declaration of areas as being affected by a housing shortage to be void because the government had failed to provide sufficient reasons (*e. g.,* Trial Court (*Amtsgericht*) Hamburg, judgment of 23 May 2017, 316 C 380/16). There is also debate about the constitutionality of the new instrument (Blankenagel, Schröder and Spoerr, 2015; Schultz, 2014; Lange, 2015). Critics argue that it would be incompatible with the landlords' property right and the parties' freedom of contract. They also allege a violation of the principle of equal treatment given that the rent restrictions have very different effects in some areas than in others. The Regional Court (*Landgericht*) Berlin recently took the same view and was prepared to submit the matter to the Constitutional Court (LG Berlin, Press release of 19 September 2017, PM 55/2017, available at https://www.berlin.de/gerichte/presse/pressemitteilungen-der-ordentlichen-gerichtsbarkeit/2017/pressemitteilung.632168.php). However, it did not get so far because the court had to dismiss the tenant's claim on other grounds.

Despite the failure of the rental price brake, renting in Germany is extremely comfortable and easy thanks to the numerous and far-reaching protection of

tenants under mandatory law. This takes pressure from the real estate market. Many of the participants in this market do not have the aim to use the real estate themselves, but want to buy it for investment purposes. This makes the market much smaller, more professional and less prone to overheating. Tenant protection may therefore help reducing volatility on the market for real estate. At the same time, one should not forget that an overly restrictive regulation of tenancies may suppress the construction of new houses. Therefore, policies should be directed at raising the supply of housing, *e. g.,* by designating new building sites.

9. Interaction of Different Factors

None of the above-mentioned factors can by itself explain the relative stability of the German housing market and the easy availability of mortgages. Rather, it is their simultaneous presence, which accounts for the particularities in Germany. Some of the factors are also interrelated. For instance, long-term mortgages would not be offered without strong competition in the banking market and without other peculiarities such as the building savings contracts and the refinancing by *Pfandbriefe*. The attractiveness of constructing new houses despite the stringent protection of tenants was subsidized by tax incentives. Taken together, these factors have created a healthy and stable environment with relatively low-priced real estate.

III. CHALLENGES FOR THE FUTURE

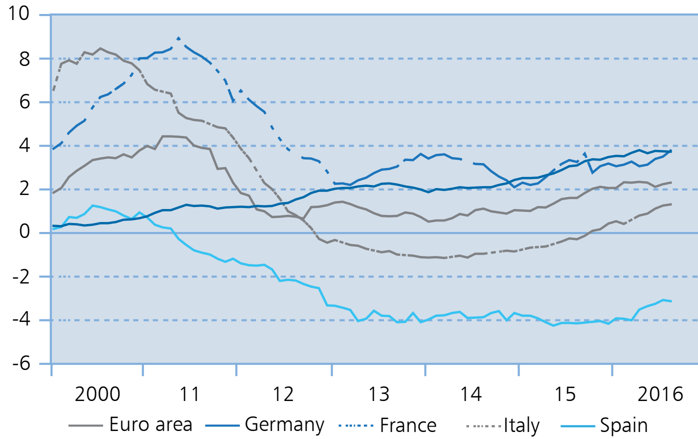
1. Recent Price Surge on the Market for Real Estate

Despite the rosy picture, there are clearly challenges ahead for the development of the German real estate market. Prices for residential and commercial real estate are on the rise. Certain regions and cities of Germany have experienced a price hike (Budde and Micheli, 2016, p. 19 *et seq.*). Since 2010, the prices in Germany have risen by 30%, in the biggest seven cities even by 60% (Deutsche Bundesbank, 2017a).

Over the whole of 2015, prices in 127 cities have risen by an average of 5.1% (Deutsche Bundesbank, 2016a). In the second quarter of 2016, prices have risen by 5.2% against the same quarter of 2015 (Statistisches Bundesamt, 2016a). In fact, the price increase has been stronger than the corresponding increase in rents over the past years (GCEE, 2017, Figure 51). Deutsche Bundesbank

FIGURE 5

GROWTH OF LOANS FOR HOUSE PURCHASES IN SELECTED EUROPEAN COUNTRIES (percentage)

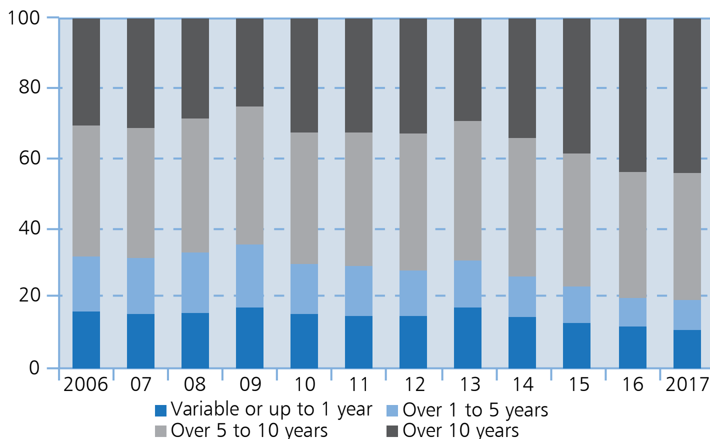


Source: GCEE (2016, Figure 49).

(2017a) now diagnoses an overvaluation of real estate prices in German cities of 15 to 30 percent. This is likely to be due to rising demand as a consequence of changing preferences, in particular the greater preference for living in cities, shrinking household sizes, as well as immigration, in the presence of a relatively

FIGURE 6

FIXED INTEREST PERIODS FOR RESIDENTIAL MORTGAGES AT GERMAN BANKS (as a percentage)



Source: GCEE (2017, Figure 52).

inelastic supply. At the same time, the growth of loans for house purchases remains well below that observed in countries like Spain before and even after the global financial crisis (Figure 5).

However, there is some evidence for higher risk-taking by German banks. Loan-to-value ratios have been rising for more than a third of smaller banks (Deutsche Bundesbank, 2017b). Moreover, fixed-interest rate periods have been lengthened substantially (Figure 6), contributing to an increase in banks' interest rate risk, which in many cases may not be hedged. This reflects a search for yield by banks and is the result of the risk-taking channel of monetary policy (GCEE, 2017, item 475 *et seq.*). Given the indications for rising risks, it would be premature to exclude risks to financial stability based on moderate lending growth.

2. Crisis of Building Savings Banks

Low interest rates have been a problem for building savings contracts as well. Today, most customers do not enter into such contracts with the goal of building a residence, but rather as an investment opportunity. Since building savings contracts feature fixed interest rates and have long maturity periods, they have become an attractive asset. As a matter of fact, the majority of savers keep servicing old-time contracts though they have no intention of building a house or buying real estate (Deutsche Bundesbank, 2016d, p. 64; Singbartl and Rübbeck, 2016, p. 315). As a consequence, they will never take out the loan nor pay any interest.

This development has created a considerable problem for building savings banks. They have become similar to other commercial banks, but are obliged to pay interest above market levels, without getting the opportunity of handing out a corresponding number of loans. To escape this unenviable situation, they try to terminate existing contracts. Yet this strategy proves to be challenging from a legal point of view. There is a hot debate in the legal literature and between the courts whether a building savings bank has a right to terminate a contract where it is obvious that they are used for general investment purposes rather than for building (see Singbartl and Rübbeck, 2016, pp. 317 *et seq.*).

Without a right to end contracts with customers that do not have the intention to construct or acquire real estate, the economic *raison d'être* of building savings banks is in danger. The lesson the German experience holds is that the legal rules at the micro-level –*i. e.,* the terms governing the loan contract– should be synchronized as much as possible with the general purpose of the bank at the macro-level, *i. e.,* the promotion of housing. Without such

synchronization, the special purpose of loans handed out by building savings bank may get lost and they risk becoming ordinary investment products.

3. Impact of the Directive on Residential Immovable Property

Challenges also come from a rather unexpected source. As a Member State, Germany had to transpose the EU Directive on credit agreements for consumers relating to residential immovable property (2014/17/EU), which the German government had agreed to in the Council. The Directive contains a number of information and know-your-customer duties as well as lending limits that banks must respect and which can be summarized under the expression 'responsible lending' (Mak [2015], see also de Gioia-Carabellese [2016]). The Directive aims at fostering the internal market, while strengthening consumer protection.

The German transposition of the Directive has been criticized for being overly strict and full of legal pitfalls and unclear terms (Dorffmeister, 2017; von Klitzing and Seiffert, 2016; Meyer, 2017; Stamenković and Roman-Raphael, 2016). To illustrate, Germany has chosen to not make use of the possibility to exclude loans secured by mortgages from some of the information duties' scope (see Art 3[3][a] Directive 2014/17/EU). It has also transposed the rules of the Directive designed to limit the over-indebtedness of the customer in a particularly stringent way (see sec. 505a BGB). Furthermore, it is unclear whether the violation of the duties regarding residential immovable property loans may lead to a civil liability of the lender (see Harnos, 2016; Omlor, 2017).

These vagaries and uncertainties have led some banks to restrict loans on the grounds that they could not be sure whether the customer was likely meet obligations resulting from the agreement. The result was a tightening of the credit provision, which affected in particular young home-buyers, the elderly and those working in professions with a high risk of unemployment (see Dorffmeister, 2017; Buck-Heeb, 2017, p. 1332). Insofar as these effects were not felt in other Member States, Germany may have to blame itself. The legislator has already partially acted and amended the law. It is now made clear that in the assessment of the probability of repayment, an increase in value of the real estate that is due to construction or renovation may be taken into consideration (see sec. 505b[2] 3 BGB in its version of March 2016). The same rule also applies under the Directive (see Article 18[3] Directive 2014/17/EU), but had been so far left out in the transposition.

First data suggest that the new legislation has failed to reach its goal of providing consumers better access to house finance. On the contrary, it probably rather contributed to the exclusion of certain borrowers from the market. This

shows that regulatory duties imposed for more responsible lending can be a double-edged sword: they may achieve the opposite of what is intended.

4. Existential Threats for the Pfandbrief from Europe?

Danger is also lurking for the *Pfandbrief* – the German version of the covered bond. European law is increasingly closing in on this successful financial product. The Union targets the *Pfandbrief's* legal regime with harmonizing provisions that threatens to level in its particularities with those of the covered bond.

A mild form of indirect harmonisation is exerted through the regulation of investment funds (Units for the Collective Investment in Transferrable Securities – UCITS). These vehicles often invest in covered bonds and insofar must respect certain limits of their investment policy. As a general rule, they must not invest more than 5% of their assets into securities issued by the same body (Article 61[1] UCITS Directive (2009/65/EC). This cap may be raised to 25% "where bonds are issued by a credit institution which has its registered office in a Member State and is subject by *law to special public supervision designed to protect bond-holders"* (Article 61[4] 1 UCITS Directive). This rule targets *Pfandbriefe* as well as covered bonds. However, to qualify for the lift of the threshold, the instruments must fulfil certain conditions. In particular, the sums deriving from the issue of these instruments must be invested in assets to which investors enjoy a right of priority in case of insolvency of the issuer (Article 61[4] 2 UCITS Directive). This definition gives the EU an indirect means to influence the market for *Pfandbriefe*. By tightening the definition, it could trigger fundamental change that will not be without effect on the issuers of the instruments.

A similar soft harmonizing power is exercised via banking law. Banks holding *Pfandbriefe* as assets are privileged in the form of a low risk weight for purposes of capital adequacy calculation (see Article 129[4] and (5) CRR (Capital Requirements Regulation 525/2013/EU)). Those banks that use the Internal Ratings Based Approach are as well privileged thanks to a comparatively low 'loss given default' value assigned to these instruments (Article 161[1][d]CRR). But in order to convey these benefits, *Pfandbriefe* must conform to the definition of 'covered bonds' under Article 129(1) CRR. Although there is currently no doubt that they do, the EU via this definition has a certain harmonising leverage over the instruments via the capital requirements.

A third lever to influence the rules on *Pfandbriefe* is bank resolution. In the case of a crisis of a credit or financial institution, EU law allows the write-down or conversion of debt instruments (so-called 'bail-in') and the transfer to another solvent institution or a bridge bank. The pertinent legal instrument,

the Bank Recovery and Resolution Directive (BRRD (2014/65/EU)), contains, however, some safeguards. These explicitly spare covered bonds from the bail-in tool (Article 44[2][b] BRRD, transposed into German law by sec. 91(2)(b) Sanierungs- und Abwicklungsgesetz- SAG). They also call on Member State law to protect counterparties against the partial transfer of covered bonds to another institution (Article 76[2][e] BRRD, transposed into German law by Article 110[3] no 5 SAG), which would endanger the unity of the collateral pool and the ring-fence designed to protect investors. While these safeguards benefit *Pfandbriefe*, one cannot fail to recognize the considerable power the EU is wielding over these instruments merely by the fact that it can decide to exempt or not exempt them from the recovery and resolution regime.

Recently, the EU has taken a more direct interest in *Pfandbriefe*. In the context of its action plan for a Capital Markets Union, it loathes the disparity between the legal frameworks and supervisory practices of the Member States that dispose of dedicated covered bond laws (European Commission, 2015a, p. 22). In the Commission's view, these laws would limit possibilities for market standardisation in underwriting and disclosure practices and create obstacles to market depth, liquidity and investor access, in particular on a cross-border basis. Therefore, the Commission envisages the enactment of an EU framework for a more integrated covered bond market (European Commission id.). The European Banking Authority (EBA) has voiced a similar view (EBA, 2016). The Commission has tabled a public consultation to gauge the opinions in the Member States (European Commission, 2015b). The German Association of banks issuing *Pfandbriefe* has replied very cautiously (Verein Deutscher Pfandbriefbanken, 2015). Representatives stress the need to maintain the very successful incumbent national models (Kälberer, 2015).

It would indeed be a pity if the positive German experience with the instrument would get lost due to flattening harmonization. Everything depends of course on the precise shape the EU legislation is taking, which yet cannot be foreseen. Options include full harmonisation, high level EU principles or a separate European regime in addition to those existing in Member State laws (Kälberer, 2015). In the end, the advantage of having a standardized product with a deep and liquid pan-European market will have to be weighed against the benefits of regulatory competition for the improvement of the quality of law and a broader choice of investors among diverse products. The result is open.

5. Reaction: Macroprudential Instruments to Limit Real Estate Loans

To counter the recent price hikes in the market for immovable property, the German legislator has taken additional measures. It has authorized the

Federal Financial Supervisory Authority (BaFin) to impose limits on loans for the construction or acquisition of real estate (see the new sec. 48u of the German Banking Act (Kreditwesengesetz–KWG), in force since 1 June 2017). These limits are (1) a loan to value ratio, and (2) an amortization requirement. They may be imposed in case of a dysfunction of the German financial system or a threat to its systemic stability, in particular due to an asset bubble. Exceptions are provided, *inter alia,* for the financing of renovation of property already owned by the borrower, for the support of social housing and for the restructuring of non-performing loans (sec. 48u[1] 3 KWG). There is a de *minimis* exception for loans with an amount below 50,000 euro; BaFin may set further exceptions (sec. 48u[3] KWG).

These new tools are in line with international recommendations (FSB, 2013). In fact, empirical research has shown that credit- and borrower-based instruments are more effective in constraining banks' credit growth than instruments directed at the financial institutions, such as capital-based measures (GCEE, 2017, item 479 *et seq.*). The legislator fell however short of the recommendations made by the German macroprudential authority (*Ausschuss für Finanzstabilität, AFS*) with respect to credit- or borrower-specific macroprudential instruments. The AFS had recommended already in June 2015 to also include income-based instruments, namely a debt-to-income and a debt-service-to-income ratio. Moreover, it had recommended broad data requirements. None of this has found its way into the legislation.

Despite the strong international and economic background and the relative moderation of the new act, it was met with strong opposition, especially from representatives of the financial industry (Lerbs and Voigtländer, 2017; Buck-Heeb, 2017, pp. 1336-1337). In particular, the wide-ranging powers of the supervisor and the ambiguousness of their trigger have been criticized. It was also argued that the duties regarding the indebtedness of the customer would already achieve the same goal. It has furthermore been remarked that Germany has so far not experienced a US-style housing bubble and that if it would, it would already be too late to employ the tools (Buck-Heeb, 2017, pp. 1336-1337).

However, the fact that something has not happened so far gives only limited assurance for the future. Many countries in Europe already have similar tools and have started to apply them (GCEE, 2017, item 481). The developments on the German housing market are not disconnected from those in the rest of the world. The European Systemic Risk Board (2016) issued warnings with respect to the real estate sector in eight member states in November 2016. The data suggest that the indicators of vulnerabilities in Germany are not far from those of the warned countries. In such a situation, adding one more arrow to the

supervisor's quiver certainly does no harm. One may, however, question the wisdom of restricting the new tools to the residential housing market. It would have been more prudent to extend the powers to commercial real estate where similar or even more acute dangers may exist (Schnabel, 2016).

From an institutional standpoint, it is important to highlight that the new tools are conceived from a macroprudential, systemic perspective. They can only be used in case of a crisis of the financial system that is causally related to the housing market. Nevertheless, the effect of those tools will also be felt on the micro-level. Banks will be forced to limit their borrowing to certain customers, which may be precisely those who encounter the most difficulties to access housing in case of a financial crisis. However, such social costs are likely to be much smaller than those of another financial crisis. Therefore, it is more likely that such instruments are going to be applied too late and too little, rather than too often. An application to the market of commercial real estate would not be fraught with the same difficulties, which again underlines the importance of extending the powers to this realm.

IV. SUMMARY AND OUTLOOK

In the past, Germany has benefitted from a relatively calm mortgage market. While cultural factors undeniably had their role in this, such as the population's preference for foreseeability and safety and a fear of speculation and debt, there are also legal particularities that were key. Alongside a quite competitive banking landscape, Germany features a number of peculiar institutions that add to the stability of the real estate market. Among them are, for instance, the existence of the *Pfandbrief*, which made the refinancing of mortgages particularly safe, the prevalence of fixed-term mortgages with a long maturity, lending limits that set a boundary to the ratio between asset value and loan amount, and the stringent protection of tenants, which reduces the pressure to buy real estate for housing. While all of these factors calmed the animal spirits on the market, they did not slow down the building of new homes and offices, mainly because tax breaks incentivized construction.

The mixture of the state and the market is characteristic of the German experience. Both public and private initiatives played an essential role in the relative stability of prices. The division of labour between the state on the one side and banks on the other was quite successful. While the state has set the general legal framework and provided legal institutions such as the *Pfandbrief*, the market used them to the benefit of the society as a role. As a result, housing is much less of an issue than in other countries, particularly in the Anglo-Saxon world.

This picture is however about to change. Due to the pouring in of foreign money and ultra-low interest rates, real estate is becoming more and more an attractive asset for investment and speculative purposes. As a result, house prices are rising considerably. This leads to difficulties on the rental market and the associated social problems. Moreover, given the lack of home-ownership most Germans do not prosper from the price increases for real estate. In a 2013 ECB survey, it was found that they have the lowest median net wealth of all Euro Area Member States, beaten by far by Eastern Europeans and the crisis-affected countries in Southern Europe (ECB, 2013, p. 76). The situation has changed somewhat since then, but Germans are still far from enjoying the wealth levels of citizens in other European countries. The low interest rate and the rise in the property prices did not have a major effect on their prosperity (Deutsche Bundesbank, 2016c, p. 64). On the contrary, low interest rates are disproportionally affecting German savers who hold most of their wealth, including their retirement provisions, in the form of cash and bank deposits. That explains why Germany more than any other Euro Area country consistently opposes the ECB's policy to swamp the market with liquidity and set historically low interest rates.

The answer to the question posed in this article then is "yes, law can help to calm the 'animal spirits' on the mortgage market". But three important qualifications are necessary: First, law alone is insufficient; additional circumstances, such as cultural attitudes or a healthy banking sector, are required to make the real estate market stable. Second, every advantage has a drawback. If money is not invested in real estate, the citizens do not participate in the wealth increases caused by rising real estate prices. Finally, the stability of the German real estate market in the past is not necessarily a good predictor for the future. Rising vulnerabilities indicate that Germany is not entirely immune to a real estate crisis, especially in a low interest rate environment.

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THE CASE FOR CIVIL LEGAL AID[1]

Marco CELENTANI

Abstract

Legal aid programs are in-kind transfer schemes aimed at providing assistance to people otherwise unable to afford legal representation and access to the court system. Because they target low income individuals, legal aid programs are normally viewed as redistributionally desirable. But as with other in-kind programs it is important to determine whether legal aid is an efficient redistribution tool. This paper addresses this issue by proposing an economic environment in which legal aid programs are welfare enhancing because they serve to mitigate the social costs of informational asymmetries in litigation.

Keywords: legal aid, efficiency, in-kind transfers.

JEL classification: C72, I38, K12, K13, K41.

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I. INTRODUCTION

Legal aid makes reference to any of a variety of in-kind transfer schemes that give assistance to facilitate the access to legal advice, legal representation and the court system for socially or economically marginalized people, such as immigrants, victims of domestic violence, and individuals with limited financial means. Legal aid programs provide assistance in both criminal and civil matters. But because the reasons to provide assistance may be different, in this paper I focus attention exclusively on legal aid in civil matters. This includes situations such as foreclosures, unpaid bills claims or tort claims that may have a large impact on the welfare of individuals with limited financial means.

Today practically all developed countries have some type of civil legal program. But remarkable differences exist in terms of the eligibility requirements, the scope, the identity of providers, the source of financing, the organization, and the overall generosity. In some cases legal aid includes only legal procedural assistance (secondary legal aid), but in others also legal advice and assistance (primary legal aid). Civil legal aid is provided and funded by private and public entities as well as by community members. Among the private entities, trade unions have long provided legal services to their members in labor matters; individual lawyers and law firms provide assistance either "pro bono" or in return for fees paid by public agencies; legal clinics provide assistance with the help of volunteers such as professional lawyers, law school faculty members, and students. Public entities provide assistance through salaried personnel in staffed offices. In some cases legal aid is publicly funded but is separated from the public sector as in the case of the Legal Services Corporation, a non-profit independent organization that receives funds from congressional appropriations and in turn assigns grants to a number of local legal aid providers.

Precise expenditure level comparisons are difficult because of the heterogeneity in the services and the availability on expenditure data on these services. But the differences in aggregate figures are so large to leave little doubt about the fact that different views on legal aid have prevailed in different countries. In their analysis of 9 european countries in the years between 2010 and 2013, Barendrecht *et al.* (2014) find "large variations in expenditure, [...]. Legal aid expenditure per capita is highest in England & Wales (€39), followed by Scotland, the Netherlands (€29), Ireland, Finland, Belgium, Germany (€7), France and Poland (€ 0.6)." (Barendrecht *et al.*, 2014, p. 5.). As a fraction of GDP, legal aid spending ranged from 0.13% for England & Wales and for Scotland, all the way down to 0.02% of GDP for Germany, and 0.01% of GDP for Poland. By way of comparison, in recent years Spain has had levels of expenditure in terms of GDP somewhere between Poland and Germany. The 2016 congressional appropriations to the U.S. Legal Services Corporation, the main funder of civil

legal aid services in the U.S., represent approximately 0.002% of GDP, one fifth of its all-time high of 0.01% of GDP in 1979 during the Carter administration when the chair of the board the Legal Services Corporation was Hillary Rodham Clinton.

When compared to other in-kind public transfer programs, such as health and education, (see, for example, Currie and Gavhari, 2008) the cross country variability in legal aid expenditure is very large. Why then do some countries choose to redistribute considerable amounts of resources to the poor through legal aid and others do not? Obviously, these large variations may be regarded as the outcome of delicate interplays of different political forces that shape redistribution in these countries and as such may require no further attention. But they may also indicate that the debate on the role of civil legal schemes and of its economic consequences in modern welfare societies is far from settled. This possibility is supported by the limited attention that the academic literature has given to theoretical welfare justifications for legal aid and to empirical analyses of its effect on various outcomes such as litigation rates, crime rates, contract enforcement. All of this suggests that progress in this policy debate makes it necessary to understand the role of legal aid. This paper attempts to contribute to this debate by studying an economic rationale for civil legal aid.

More precisely, the purpose of this paper is to consider a reason why legal aid may be not only a tool to redistribute to the poor but also a way to create efficiency gains. The focus of the paper is on the legal informational disadvantage of the poor. A simple model shows that the legal informational disadvantage may lead to excessive litigation and that subsidizing the cost of legal assistance to the poor not only favors them, but it also reduces litigation and its social cost thereby creating efficiency gains that may favor trade and participation to economic activity.

The paper is structured as follows. Section 2 provides a background on related literature on public in-kind transfer schemes, on redistribution and the legal system, and more specifically on legal aid. Section 3 introduces the analysis of a litigation example in which one agent, absent legal assistance schemes, has a legal informational advantage with respect the other. Section 4 analyzes a benchmark environment. Against the reference of the benchmark environment, Section 5 studies the economic consequences of the introduction of a legal aid and Section 6 analyzes the effects of a reduction in the cost of the party with the legal information advantage. Section 7 provides a discussion of the main results and concludes with a brief discussion of public and private alternatives to legal aid.

II. LEGAL AID: REDISTRIBUTION AND EFFICIENCY

Legal aid has long been recognized as an essential element to guarantee the correct and equitable functioning of the legal system. It is perhaps surprising to find out that the literature on its consequences, intended or not, is very limited. Very few works provide a theoretical analysis. Even fewer attempt to assess empirically the impact on relevant economic outcomes such as litigation rates, or to explain the international variations in the level of financing of legal aid and the very different ways in which different legal aid programs are structured. One possibility is that the virtual absence of public legal aid schemes in the U.S. has pushed it away from the debate in a field, law and economics, with a very significant presence of U.S. based scholars.

Apart from a few specific contributions that are mentioned below, it is useful to start by framing the debate on legal aid as part of a larger debate on redistribution and its efficiency costs and benefits.

Currie and Gahvari (2008) recall that "[e]conomists have traditionally been skeptical about in-kind transfers viewing cash as superior in terms of the recipient's utility: in-kind transfers constrain the behavior of the recipients, while cash transfers do not" (Currie and Gahvari, 2008, p. 333) and yet point out that public in-kind transfer schemes are uniformly large in nearly all developed countries. In their analysis they review the possible explanations of the reliance on in-kind transfer schemes such as education, health, or public housing against available evidence. One possibility is that they are not efficiency enhancing but simply the outcome of the balance of opposing coalitions of interest groups. But there are also a number of reasons why they may lead to efficiency gains. One is that while they are meant for some individuals (*e.g.,* children) they are administered through others (*e.g.,* the children's parents) who may divert cash for other purposes. Another is that while cash is attractive to all, in-kind transfers are more attractive to some individuals (*e.g.,* the poor) than to others and this may be used as a way to target the assistance schemes. Another reason is that asymmetric information may lead to adverse selection problems and an inefficient provision of insurance or even a complete market failure. Finally, it is argued that in-kind transfer schemes may be used to correct distortion in labor-leisure decisions and may lead to increased labor market participation.

A few scholars have addressed similar concerns but with a more identifiable focus on whether the legal rule should be used as a means for redistribution. Kaplow and Shavell (1994 and 2000) argue against the use of the legal rule for redistributive purposes because it would lead to a "double distortion". Any kind of redistribution, regardless of whether it takes place through the tax system or the legal rule, distorts labor-leisure decision, but redistributing through the legal rule, say, by lowering tort damages for low income defendants, introduces

an additional distortion in the behavior that the legal rule should attempt to regulate, *i.e.,* choice of care. For this reason the legal rule should be focused on efficiency and redistribution should be carried out exclusively through the tax code. Sanchirico (2000) objects that the double distortion argument applies only if damages are made dependent on income but that across-the-board deviations in damages from their efficient levels can generate redistribution without distorting the labor-leisure decision: "even in the presence of an optimally redistributive tax system, legal rules would be adjusted away from the configuration dictated by pure efficiency in an effort to create positive redistributional effects."

Turning to the literature that analyzes the effects of legal expenditure, it is first useful to observe that legal aid dilutes the deterrence effects to the extent that it lowers the cost of legal defense (Gravelle and Garoupa, 2002) and that this effect is likely to be compounded with the lower incentives for self-reporting before detection, and for plea-bargaining after detection (Grossman and Katz, 1983; Reinganum, 1988; Kaplow and Shavell, 1994).

Garoupa and Stephen (2004) explicitly analyze legal aid in a model of tort with legal error and plea-bargaining. Considering the possibility of legal error is important because it makes it clear that legal aid, as a subsidy to defense expenditure, lowers the unit cost of defense not only for the guilty but also for the innocent. Legal defense subsidies unambiguously increase total defense expenditure and decrease incentives for plea-bargaining, but the deterrence effect is ambiguous. The reason is that legal aid favors both the innocent and the guilty. But if it favors the innocent more than the guilty, the incentives for care are higher, not lower.

In their theoretical analysis of the economic costs of rewards and penalties, Dari-Mattiacci and De Geest (2009) turn to the incentives to initiate a litigation or to make excessive demands. Their work maintains in general that, as opposed to "carrots", "sticks" have a "multiplicative" effect and indicates that legal aid can be justified on these grounds. They argue that lower legal defense unit costs serve as a threat that reduce incentives to initiate a lawsuit or make excessive demands. To the extent that the existence of legal aid succeeds in preempting excessive litigation and excessive demands, no resources are used up and legal aid can be a cost effective way of redistribution.

III. CIVIL LEGAL AID AND LEGAL INFORMATION ASYMMETRIES

When compared to individuals with limited financial means, wealthy individuals and firms are likely to have legal informational advantages for at

least two reasons: because they can count on better prior legal knowledge and because scale or scope economies allow them to obtain legal advice and legal services at lower costs. According to Abel (1985), for instance, "In civil litigation, legal aid clients face adversaries [...] who enjoy advantages of experience, information, [...] and can benefit from economies of scale" (Abel, 1985, p. 601).

This observation highlights that courtroom inequality is a possible source of amplification and hysteresis in economic inequality. But that is not all. Prior legal information and the cost of obtaining legal advice and legal representation services also influence the decision to go the courtroom or not. This implies that it may be important to analyze how the distribution of legal costs affects a plaintiff 's decision to litigate or not and a defendant's decision to hire a lawyer for representation in judicial proceedings or not.

The purpose of this section is to analyze the strategic implications of informational asymmetries and asymmetric costs of legal assistance. This is done in the context of a simple example that keeps into account that lawsuits by a plaintiff with an informational advantage may signal his superior information. The example will be used to make predictions that depend on prior legal knowledge of parties in a civil suit and their respective costs of legal assistance, advice and representation. In particular I will use the example to ask three questions:

- Does the informational advantage of the plaintiff lead to an increase in the probability of litigation?
- What is the effect of subsidizing the costs of legal assistance to a relatively less informed defendant?
- Does a lower cost to obtain legal assistance for the plaintiff compound the effect of his superior information on the probability of litigation?

In the following I introduce the general environment and then proceed to answer each of the three questions in a separate section.

Consider two individuals who contest a unit surplus. Individual Π, whom will be referred to as the plaintiff, has to decide whether to file a lawsuit against individual Δ, whom will be referred to as the defendant. Filing a lawsuit is costly for Π and the cost, denoted by C_{Π}, may include both court fees and the cost of legal representation in judicial proceedings. If Π files the lawsuit, the defendant Δ has to decide whether to hire or not a lawyer as legal representative in judicial proceedings. The cost to the defendant Δ to hire a lawyer as a legal representative for judicial proceeding is denoted by C_{Δ}.

If the Π files the lawsuit and the ruling is favorable to him, he will receive a payment of 1 from the defendant Δ. If the ruling is favorable to the defendant, no payments take place. I assume that the American rule applies so that each party will bear their cost regardless of the final ruling.[2] If Π does not file the lawsuit, no payments take place and neither Π nor Δ bear any legal costs.

In the following I will be concerned with the probabilities of the outcome of the lawsuit and in particular how they depend on whether the defendant hires a lawyer or not. I make the following assumptions:

- The *ex-ante* legal merit of the plaintiff 's case is *balanced* in the sense that if the plaintiff files the lawsuit and the defendant hires a lawyer to represent him in judicial proceedings, the plaintiff would win with probability $\frac{1}{2}$;

- Not hiring a lawyer for representation in judicial proceedings lowers the chances of the defendant to obtain a favorable ruling, in the sense that if the plaintiff files the lawsuit and the defendant does not hire a lawyer, the ruling will be favorable to the plaintiff with probability $\frac{3}{4}$.

I also assume that there is an asymmetry in prior legal knowledge of the plaintiff and the defendant. This asymmetry is formalized by assuming that before deciding whether to file a lawsuit or not, the plaintiff privately observes a signal π that is drawn from a uniform distribution on [0, 1]. Signal π conveys information on the legal merit of the lawsuit, with a higher value of π associated with higher probabilities of winning the lawsuit. Just as in the *ex ante* situation, *i.e.,* prior to observing signal π, the probability of obtaining a favorable ruling also depends on whether the defendant hires a lawyer or not. If the plaintiff observes signal π and files the lawsuit, he will obtain a favorable ruling:

- With probability π if Δ hires legal representative for trial;

- With probability $\frac{1+\pi}{2} > \pi$ if Δ hires no legal representative for trial.

Before proceeding, it is important to notice that if the plaintiff observes a signal that is exactly equal to the mean, $\frac{1}{2}$, the probability estimates of obtaining a favorable ruling are just the same as they would have been prior to observing the signal, $\frac{1}{2}$ or $\frac{3}{4}$, depending on whether the defendant hires a lawyer or not. If the the plaintiff observes a signal that is higher than the mean signal (for example $\frac{3}{4}$) the probability estimates of obtaining a favorable

[2] The results are qualitatively the same if the English rule applies, so that the losing party bears all legal costs.

ruling are higher than the probability estimates prior to observing the signal (– or $\frac{7}{8}$, depending on whether the defendant hires a lawyer or not). Finally if the the plaintiff observes a signal that is lower than the mean signal (for example $\frac{1}{4}$) the probability estimates of obtaining a favorable ruling are lower than the probability estimates prior to observing the signal ($\frac{1}{4}$ or $\frac{5}{8}$, depending on whether the defendant hires a lawyer or not). It is also important to notice that observing signal π does not increase in itself the probability of obtaining a favorable ruling (the expected probabilities are the same as without the signal) but it simply gives the plaintiff an informational advantage in that it allows him to make more informed decisions of whether to file the lawsuit or not.

I finally assume that both parties are risk-neutral. This assumption simplifies the analysis substantially and also makes it easy to characterize efficient outcomes as those that maximize the sum of the utilities of the plaintiff and the defendant. Because for every possible ruling the sum of payments is equal to 0 (if the ruling is favorable to the defendant, no payments are made and if the ruling is favorable to the plaintiff, the plaintiff obtains a payment of +1 and the defendant a payment of -1) and because lawsuits are costly, the efficient outcome is that no lawsuit is filed. It is important to understand that this does not mean that all lawsuits should be thought as in general inefficient *ex ante* or *ex post.* It simply means that the example is constructed with the idea of incorporating the possibility that excessive litigation takes place, so that the probability of litigation is higher than the efficient level. For simplicity the example sets the efficient probability of litigation to 0 and therefore makes it possible to interpret the probability of litigation as the probability of excess litigation.

The following three subsections analyze this general environment under different assumptions on legal costs for the plaintiff and the defendant. The claims in these subsections derive from the equilibria of the game (subgame perfect equilibria for the case without private signal, perfect bayesian equilibria for the case with private signal). For the sake of simplicity, rather than providing formal proofs, I present a detailed discussion of the claims and their interpretation.

IV. BENCHMARK ENVIRONMENT

I start the analysis by analyzing a benchmark environment in which cost parameters for the plaintiff and the defendant are $(C_{\Pi}, C_{\Delta}) = (\frac{3}{4}, \frac{1}{5})$. The fact that the costs are unequal has no special bearing, but it makes it easier to work out modified examples to analyze the effects of costs on outcomes.

Before analyzing this benchmark environment, it is worth noticing that given the cost to the plaintiff $C_{\Pi} = \frac{3}{4}$ is high relative to the potential payment of 1 from the defendant, in the situation in which the plaintiff could not count on private signal π, the lawsuit would be filed with probability 0[3], payoffs for the plaintiff and the defendant would both be 0 and the expected legal costs would also be 0.

Turn now to the situation in which the plaintiff observes the realization of signal π before deciding whether to file the lawsuit or not. In this case the strategies of the plaintiff and the defendant are the following:

- The plaintiff Π files the lawsuit if and only if he receives a signal $\pi \geq \frac{1}{2}$;
- If the plaintiff Π files the lawsuit, Δ hires no legal representative.

This implies that Π files the lawsuit with probability $\frac{1}{2}$, which is simply the probability with which he observes a realization $\pi \geq \frac{1}{2}$. Because the expected value added of a legal representative for the defendant is low when the lawsuit is likely to have legal merit, and because the fact the plaintiff decided to file the lawsuit means that the likelihood that the lawsuit has legal merit is high (given that $\pi \geq \frac{1}{2}$, the defendant estimates an average value for π of $\frac{3}{4}$), the defendant chooses not to hire a lawyer (the expected gain is lower than the cost $C_{\Delta} = \frac{1}{5}$). Given that the plaintiff files the lawsuit only if $\pi \geq \frac{1}{2}$, given that the expected π conditional on $\pi \geq \frac{1}{2}$ is $\frac{3}{4}$, and given that the defendant hires no lawyer, if the plaintiff files the lawsuit, he wins with probability $\frac{1+\frac{3}{4}}{2}=\frac{7}{8}$.

The efficiency loss relative to the situation in which the plaintiff obtains no private information can be calculated in one of two equivalent ways.

The first is to compare the sums of equilibrium utilities for the plaintiff and the defendant. When the plaintiff has private information equilibrium utilities to the plaintiff and the defendant are, respectively, $\frac{1}{16}$ and $-\frac{7}{16}$ and their sum is $\frac{1}{16}-\frac{7}{16} = \frac{3}{8}$; compared to the situation without private information for the plaintiff, with 0 utilities for both players and therefore a sum equal to 0, the welfare loss is therefore $\frac{3}{8}$.

The second is to compare legal costs. With private information, because the probability of filing the lawsuit is $\frac{1}{2}$ and the costs are only those borne by

[3] When $C_{\Pi} = C_{\Delta} = \frac{3}{4}$ there is also another subgame perfect equilibrium in which the plaintiff files the lawsuit with probability 1, but for all values of $C_{\Pi} > \frac{3}{4}$, in the only subgame perfect equilibrium the plaintiff files the lawsuit with probability 0.

the plaintiff, $C_{\Pi} = \frac{3}{4}$, expected legal costs are $\frac{1}{2}\frac{3}{4} = \frac{3}{8}$. Compared to the situation without private information for the plaintiff, with 0 legal costs, there is again a welfare loss of $\frac{3}{8}$.

Before moving on to the analysis of other environments with different (private) legal costs, it is useful to notice that fixing $C_{\Pi} = \frac{3}{4}$ all the results would be identical for $C_{\Delta} \in [\frac{1}{8}, 1]$. A cost of $C_{\Delta} = \frac{1}{8}$ is already sufficient to make the defendant not want to hire the lawyer if the plaintiff files the lawsuit. Moreover, equilibrium utilities, legal costs and welfare measure are independent of C_{Δ} for the simple reason that the cost is not paid in equilibrium

V. THE ARITHMETIC OF LEGAL AID

The analysis of Section 4 suggests that the high cost of legal assistance for the defendant and the resulting disinclination of the defendant to hire a lawyer make the plaintiff more aggressive in his decision to file a lawsuit or not and that a lower legal cost for the defendant would provide some deterrence and therefore reduce the probability of litigation. Along similar lines, Dari-Mattiacci and De Geest (2009) have argued that subsidizing legal costs for a defendant may actually imply expending no resources at all, because full deterrence leads to no cost. The complication in the environment described in this paper is that full deterrence is impossible, because with some probability the plaintiff will obtain a signal that will make him arbitrarily confident to obtain a favorable ruling and even the certainty of facing a defendant assisted by a lawyer in court would not persuade him not to file the lawsuit. This means that in the environment I describe a subsidy to a less informed defendant can be expected to have two contrasting effects on expected legal costs:

- It may lower them because it reduces the probability that a lawsuit is filed;

- It may increase them because, conditional on the lawsuit being filed, legal costs will be increased by the costs of the defendant's lawyer, both the part that is paid by the defendant and the part that is subsidized.

In the following I show that, depending on the initial costs, the tradeoff may result in a welfare gain, a welfare loss or simply a redistribution. To do that I start by considering the same legal costs, $(C_{\Pi}, C_{\Delta}) = (\frac{3}{4}, \frac{1}{5})$, but I now assume that a legal aid program of some sort provides the defendant with a subsidy of $\frac{3}{20}$, so that his private cost would be only $\frac{1}{5} - \frac{3}{20} = \frac{1}{20}$.

With the subsidy for the defendant, the strategies of the plaintiff and the defendant are the following:

- The plaintiff Π files the lawsuit if and only if he receives a signal $\pi \geq \frac{3}{4}$;
- If the plaintiff Π files the lawsuit, Δ hires the legal representative.

This implies that Π files the lawsuit with probability $\frac{1}{4}$, the probability with which he observes a realization $\pi \geq \frac{3}{4}$. As compared to the benchmark environment, this means that when the plaintiff files the lawsuit, there is a higher likelihood that it has legal merit, because now the plaintiff, deterred by the lower private legal cost of the defendant, files the lawsuit only when $\pi \geq \frac{3}{4}$. The defendant, though estimating an average value for π of $\frac{7}{8}$, chooses to hire the lawyer because he bears only a part of the cost. Given that the plaintiff files the lawsuit only if $\pi \geq \frac{3}{4}$, given that the expected π conditional on $\pi \geq \frac{3}{4}$ is $\frac{7}{8}$and, given that the defendant hires the lawyer, if the plaintiff files the lawsuit, he wins with probability $\frac{7}{8}$.

I now want to turn to equilibrium utilities and expected legal costs to assess the welfare consequences of the legal aid program. First, equilibrium utilities to the plaintiff and the defendant are, respectively, $\frac{1}{4}\left(\frac{7}{8}-\frac{3}{4}\right)=\frac{1}{32}$ and $\frac{1}{4}\left(-\frac{7}{8}-\frac{1}{20}\right)=-\frac{37}{160}$ and the equilibrium utility for the government (the expected cost of legal aid) is $\frac{1}{4}\left(-\frac{3}{20}\right)=-\frac{3}{80}$. The sum of these utilities is $\frac{1}{32}-\frac{37}{80}-\frac{3}{80}=\frac{19}{80}>-\frac{3}{8}$. Equivalently the computation of expected legal costs (including for the defendant both the private part and the subsidy) gives $\frac{1}{4}\left(\frac{3}{4}+\frac{1}{20}+\frac{3}{20}\right)=\frac{19}{80}$. This means that starting from $(C_{\Pi}, C_{\Delta})=(\frac{3}{4},\frac{1}{5})$, a legal aid program that provides a subsidy of $\frac{3}{20}$ produces a reduction in the probability of litigation that more than compensates the increase in the legal costs conditional on litigation taking place, and therefore produces a net welfare gain.

One should not interpret this result as proving that legal aid is necessarily beneficial. Even in this highly stylized example it is easy to see that legal aid may be beneficial or not, depending on the legal costs of the plaintiff and the defendant. To see this, notice that if one fixes $C_{\Pi}=\frac{3}{4}$, it is easy to see that legal aid produces net welfare gains (lower expected legal costs) for $C_{\Delta} \in [\frac{1}{8},\frac{3}{4})$, produces net welfare loss (higher expected legal costs) for $C_{\Delta} \in (\frac{3}{4}, 1]$ and in the case in which $C_{\Delta}=\frac{3}{4}$ legal aid would produce no welfare changes (the same expected legal costs) and would therefore have only a redistributive purpose.

VI. THE COMPARATIVE STATICS OF THE LEGAL COSTS OF THE INFORMED PLAINTIFF

Once we acknowledge that a plaintiff with higher income is likely to have superior prior legal knowledge, should we also be concerned that the legal

cost advantages that he may have because of economies of scale and scope would provide an additional advantage? And does this have anything to do with the probability of litigation? In this subsection I turn to modifying the cost parameters of the plaintiff to provide answers to these questions.

To answer these question I compare the situation described in the benchmark environment, $(C_\Pi, C_\Delta) = (\frac{3}{4}, \frac{1}{5})$, with one in which the cost for the plaintiff is reduced to $C_\Pi = \frac{1}{10}$. With this lower cost for the plaintiff, the strategies of the plaintiff and the defendant are the following:

- The plaintiff Π files the lawsuit if and only if he receives a signal $\pi \geq \frac{1}{10}$;
- If the plaintiff Π files the lawsuit, Δ hires the legal representative.

This implies that Π files the lawsuit with probability $\frac{9}{10}$, *i.e.,* the probability with which he observes a realization $\pi \geq \frac{1}{10}$. As compared to the benchmark environment, this means that when the plaintiff files the lawsuit, there is a lower likelihood that it has legal merit, because now the lower legal costs of the plaintiff induce him to file the lawsuit for all $\pi \geq \frac{1}{10}$. The lower expected legal merit of the lawsuit filed by the plaintiff (an expected value of π of only $\frac{11}{20}$) induces the defendant to hire a lawyer for judicial proceedings. Given this, if the plaintiff files the lawsuit, he wins with probability $\frac{11}{20}$.

The previous description already demonstrates that a lower cost for a plaintiff that has superior prior legal knowledge can in fact lead to a decrease of the probability of the plaintiff obtaining a favorable ruling, conditional on filing the lawsuit. In the case of the benchmark environment with $C_\Pi = \frac{3}{4}$, this probability was $\frac{7}{8}$; in the current case with $C_\Pi = \frac{1}{10}$, this probability is only $\frac{11}{20}$. The are two reasons for this result. The first one is that a lower cost induces the plaintiff to file the lawsuit for lower levels of the legal merit of the lawsuit, so that, conditional on filing, one should expect a lower conditional probability of the plaintiff winning. The second is that signaling works exactly because the signaling party bears a cost. When the cost is higher, the informational value of actions is also higher and when the cost is lower, the informational value of actions is also lower. In this case this general principal implies that when the cost for the informationally advantaged party, the plaintiff, is reduced, he becomes more inclined to filing the lawsuit; this implies that the signal transmitted by the lawsuit is less informative to the defendant and in turn that the defendant, undeterred by the little information carried by the fact that the plaintiff filed the lawsuit, decides to hire a lawyer that levels relative positions in the courtroom.

To complete the analysis of this case I also compute equilibrium utilities and expected legal costs. Equilibrium utilities to the plaintiff and the defendant

are, respectively, $\frac{9}{10}(\frac{11}{20} - \frac{1}{10}) = \frac{81}{200}$ and $\frac{9}{10}(-\frac{11}{20} - \frac{1}{5}) = -\frac{27}{40}$ and their sum is $\frac{81}{200} - \frac{27}{40} = -\frac{27}{100}$. Equivalently, one can compute expected legal costs and obtain, $\frac{9}{10}(- + \frac{1}{10}) = \frac{27}{100}$. Comparing with the benchmark economy, the drop in the legal cost of the plaintiff leads to an increase in equilibrium utility for the plaintiff $\frac{81}{200} > \frac{1}{16}$), a decrease in the equilibrium utility for the defendant $(-\frac{27}{40} < -\frac{7}{16})$, and a drop in expected legal costs $(\frac{27}{100} < \frac{3}{8})$.

All of this means that the answers that this example provides to the questions posed at the beginning of this subsections are nuanced. A reduction in the cost of an informationally advantaged plaintiff plays to the advantage of the plaintiff and to the detriment of the defendant, but at the same time leads to a lower probability of the plaintiff prevailing in the courtroom and to lower expected legal costs.

VII. DISCUSSION OF THE RESULTS AND CONCLUSIONS

The result of Section 5 clarifies that if economically disadvantaged individuals have less prior legal knowledge to assist them in their legal decisions, providing them with legal assistance in the form of direct legal services or in the form of subsidies for legal expenditure, is not only simply a way to level the playing field but is also a way to mitigate the social costs of legal informationally asymmetries. When compared with the equilibrium in Section 4, the equilibrium in Section 5 makes it clear that legal aid can lower the expected legal costs of a legal dispute. The simplicity of the example should not make one think that this is the only gain that can be expected. The gains discussed here may be compounded if the decrease in the probability of a legal dispute to end in litigation and the ensuing decrease in the expected legal costs make it more likely for parties to engage in contractual relationships that may end into a legal dispute. In other words legal aid may generate additional efficiency gain by mitigating the hold up problem because it provides a way for a party with superior legal information to limit the cases in which it will attempt ex-post expropriation.

The results in the paper can be viewed in the light of the discussion of in-kind public transfer schemes in Currie and Gavhari (2008). Just as in Currie and Gavhari's (2008) review, this paper insists on clarifying that there are reasons why an in-kind public transfer program such as legal aid can generate welfare gains. I find that, as in health insurance, asymmetry of information may be one such reason. But the nature of the asymmetry of information and the reason why its social cost can be mitigated by an in-kind public transfer program are altogether different. It is also important to note that Currie and Gavhari (2008) point out that an in-kind public transfer program may generate welfare gains if

it helps to correct the distortion in the laborleisure decisions and promote labor market participation, but fail to find evidence of such effect in the in-kind public transfer schemes that they analyze. The previous discussion on the potential beneficial effects of legal aid for market participation suggests that this could be a way in which legal aid may have an important efficiency contribution, with repercussions over and above the reduction in the expected legal costs of an exogenously given potential legal conflict.

Beyond the different focus on informational asymmetries, the results in this paper add to Garoupa and Stephen's (2004) analysis of legal aid in that they place the emphasis on the strategic aspects of the decision to initiate litigation. In this accent on the decision to initiate a lawsuits, this paper shares Dari Mattiacci and De Geest's (2009) view angle, but it adds to their analysis taking into account that in certain environments no subsidy of a defendant's legal cost can prevent a plaintiff 's decision to initiate the lawsuit and the recognizing the that these subsidies do have a cost in equilibrium.

On several grounds legal aid seems an attractive means of redistribution. Eligibility is normally established on the basis of a financial test and a legal merit test. The financial test makes it possible to to target economically or socially marginalized individuals and the legal merit test can be used to avoid unintended distortions in the legal system that may lead to excessive litigation. But the assessment of its desirability has to keep into account two other issues. The first is whether there any superior alternative public schemes to carry out redistribution. The second is whether the problems that legal aid schemes are called to solve can also be solved by markets.

Section 2 had already addressed the first question, pointing out that it is important to determine whether an in-kind public transfer program such as legal aid is not inferior to a straight redistribution of income. Section 3 has introduced a novel rationale for legal aid, demonstrating that legal aid may generate welfare gains given that legal knowledge and the access to legal advice are not randomly scattered around, but are positively associated with income. There are of course other reasons why legal aid may produce efficiency gains, and an important one, that is left for future research is that in the case of contractual liabilities, efficient risk-sharing requires higher insurance for individuals with low incomes and high risk aversion and that legal aid may be a valuable insurance program that provides exactly that.

Turning to the second issue, could the gains that legal aid generate also be obtained through other market based schemes that provide some sort of legal expenditure insurance to the poor or alleviate their credit constraints in case of legal disputes? A few market schemes come to mind, such as legal expenditure

insurance, contingent fees, litigation funds, or class actions. Answering this question is clearly beyond the scope of this paper. But it is worth noticing that these solutions may be subject to market failures for the usual reasons (adverse selection, moral hazard) and this may leave room for a public insurance program such as legal aid to promote market participation and generate efficiency gains.

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THE ROLE OF ECONOMICS IN EU COMPETITION LAW: FROM MONTI'S REFORM TO THE STATE AID MODERNIZATION PACKAGE[1]

Jorge PADILLA

Abstract

This paper considers the role of economics in EU competition over the last fifteen years. It offers and personal, and thus subjective, account of policy developments and doctrinal debates. First, I explain the reasons why the European Commission decided to incorporate PhD economists to its ranks, describe the evolution of the Chief Competition Economist Team (CET) at Directorate General for Competition of the European Commission (DG Comp), and document the impact of the creation of the CET for the economic consulting industry. Then, I review the contributions made by the CET economists and economic academics and consultants to the development of EU competition law. I identify those areas where the law does not reflect current economic thinking and those where, on the contrary, the enforcement of competition law is well grounded in economics. I conclude with a brief account and a critical assessment of the views of economists and non-economists who have recently criticized the use –in their opinion abusive– of economics in EU competition law matters.

Keywords: antitrust policy, European Competition Law, European Commission.

JEL classification: K21, L40.

[1] This paper was presented at 2014/15 LSE-UCL Economics Conference and the Bundeskartellamt's 17th International Conference on Competition. This paper reflects the outcome of conversations, which sometimes resulted in joint papers, with Christian Ahlborn, Matthew Bennett, Lorenzo Coppi, Neil Dryden, Kirsten Edwards, David Evans, Cani Fernandez, Fred Jenny, John Fingleton, Anne Layne-Farrar, Damien Neven, Miguel de la Mano, Valerie Meunier, Massimo Motta, Robert O'Donoghue and Alison Oldale. The opinions in this paper are, however, the author's sole responsibility.

There are some people who live in a dream world, and there are some who face reality; and there are those who turn one into the other.

Desiderius Erasmus

I. THE ARRIVAL OF THE PHD ECONOMISTS

The story begins in the early 2000s, when the first group of PhD economists arrived at DG Comp. DG Comp had prohibited several horizontal, vertical and conglomerate mergers relying on theories of harm that were not compatible with economic principles and/or not grounded on a rigorous empirical analysis. The Court of First Instance (now General Court) quashed three such decisions in 2002-2003: *Airtours/First Choice,*[2] *Schneider/Legrand*[3] and *Tetra Laval/ Sidel*.[4] The Court stated that the Commission's analysis of coordinated effects in Airtours/First Choice was conceptually flawed and factually unsupported. The Court also said that the analysis of conglomerate effects in *Tetra Laval/ Sidel* was speculative and implausible. It also concluded that the prohibition of the *Schneider/Legrand* merger was based on an incomplete economic analysis. The Court clearly understood the logic and limits of the economics of conglomerate effects and the difficulty of establishing coordinated effects in practice. Based on that understanding, it concluded that the three decisions relied on flawed economic analyses.

These rulings moved Commissioner Monti to adopt a series of reforms that changed EU merger control, and EU competition law practice, forever (Monti, 2002). The main objective of Commissioner Monti's reforms was to ensure that EU competition law is fully compatible with economic learning. He made it clear that the goal of merger control is to protect competition to the benefit of the citizens and not the protection of rivalry or the maintenance of a fragmented market structure *per se.*[5]

One of these reforms was the creation of the CET led by the Commission's Chief Competition Economist. The role of the Chief Economist is clearly stated in DG Comp's website:

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[2] Case T-342/99, *Airtours plc v Commission,* 6 June 2002.

[3] Case T-310/01, *Schneider Electric SA v Commission,* 22 October 2002.

[4] Case T-5/02, *Tetra Laval v Commission,* 25 October 2002.

[5] "… a major trend of this mandate has been to ensure that competition policy is fully compatible with economic learning. Furthermore, competition policy is an instrument to foster economic growth, promote a good allocation of resources and to strengthen the competitiveness of European industry for the benefit of the citizens." (Monti, 2004).

> The Chief Economist is part of the Commission's Competition Directorate General, and assists in evaluating the economic impact of its actions. The Chief Economist provides independent guidance on methodological issues of economics and econometrics in the application of EU competition rules. He contributes to individual competition cases (in particular ones involving complex economic issues and quantitative analysis), to the development of general policy instruments, as well as assisting with cases pending before the Community Courts.[6]

The first Chief Economist was Prof. Lars-Hendrick Röller. He had a small team but played a key role in establishing the Chief Competition Economist Team and building its reputation as a credible check-and-balance mechanism within DG Comp. The second Chief Economist, Professor Damien Neven, led the CET during 5 years and grew the team from 5 to 25 economists. His mandate was crucial in shaping the CET. His experience in economic consulting –he was the economist who contributed to persuade the CFI in *Airtours/First Choice* and *Tetra Laval/Sidel*– was key to ensure that the CET's views were taken seriously into consideration by the hierarchy rather than dismissed as purely theoretical or merely academic. During the mandate of the third and fourth Chief Economists, Professors Kai-Uwe Kühn and Massimo Motta, the CET has worked more closely with the case teams involved in the assessment of cases, especially in merger reviews. This can be seen in many recent decisions (Padilla, 2014), which include much more economic and econometric analyses than ever before. The downside of this recent change is that the CET is less likely to act as a check and balance mechanism today than it did under Professors Röller and Neven.

The creation of the CET in Brussels has been copied all throughout Europe.[7] From Finland to Spain, from Portugal to Poland, and of course in France and Germany, the competition authorities in the EU have hired PhD economists to strengthen the ability of their organisations to deal with complex economic theories of harm and economic evidence.

The reforms introduced by Commissioner Monti also had a major impact on the economic consulting business. Prior to 2003, economists were hired mainly in merger control cases and were typically involved at the end of Phase I or even in Phase II in the merger review process. They were called late in the game to save mergers that were in trouble and often damaged beyond repair.

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[6] DG Comp, *The Chief Competition Economist,* available at http://ec.europa.eu/dgs/competition/economist/role_en.html. See also Röller and Buigues, 2005.

[7] The UK competition agencies had appointed chief economists and directors of economics before the European Commission did so. Over the years I have been fortunate to debate with many of them: Matthew Bennett, Kirsten Edwards, Amelia Fletcher, John Davies, Alison Oldale, Mike Walker and Chris Walters.

The main focus of their work was market definition – an area of inquiry which is not taught as such in economic faculties. Unlike in the US, and prior to the 2003 reforms of Commissioner Monti, most economic consultants in Europe did not have PhDs. They limited themselves to applying common sense and the most basic principles in economics to question the objections raised by DG Comp's Merger Task Force – the part of DG Comp which dealt with mergers at that time. This has changed radically. Economists are now involved in all sorts of competition cases and not just in mergers. When they are hired to advice on mergers, they are retained even before the merger is notified, working hand in hand with counsel during the pre-notification stage or even before the deal has been negotiated. Their work is no longer limited to market definition. Now they also assess closeness of competition, estimate UPPs (Upward Pricing Pressure indices) and IPRs (Indicative Price Rise indices), simulate the effects of the mergers using game theoretic models, perform price-concentration analyses, and assess efficiencies using state-of-the-art tools. And this is not true only in Brussels. It is now the case in many (though I must admit not all) EU Member States.

The economic consulting industry has also experienced massive change. Prior to the 2003 reforms, two firms –Lexecon and NERA– advised in most EU cases. Many new firms have entered the market since then. (See Figure 1). The market is now highly fragmented and competition is fierce.[8]

The size of the market has multiplied and I expect it to grow more and faster, especially in Germany and also in Southern and Eastern Europe. (See Figure 2).

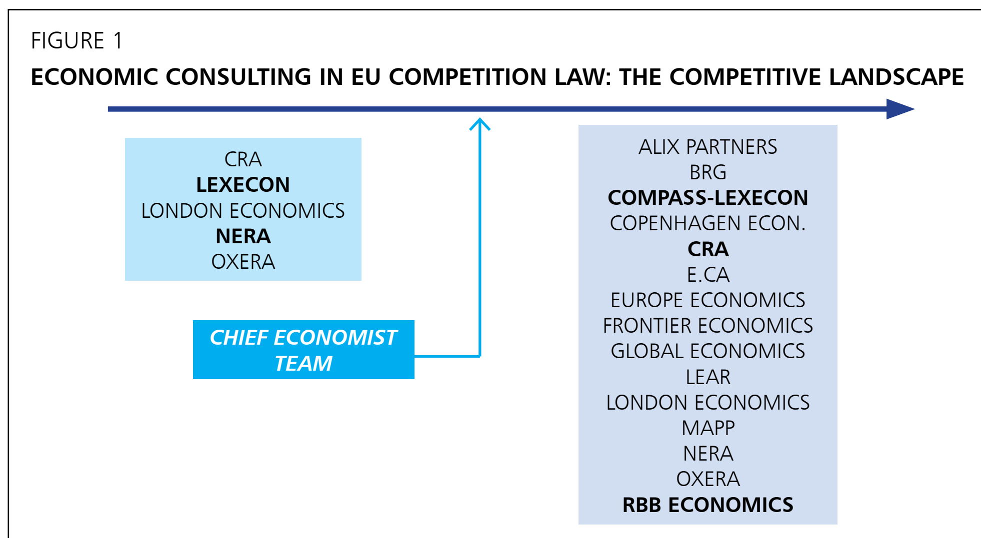


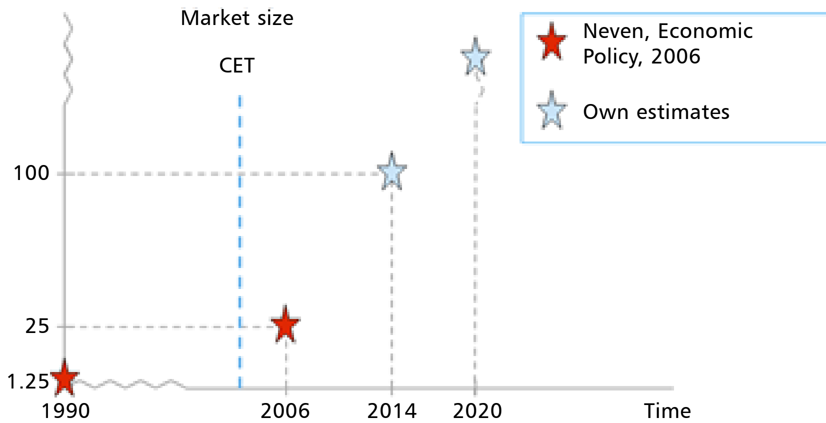
FIGURE 1

ECONOMIC CONSULTING IN EU COMPETITION LAW: THE COMPETITIVE LANDSCAPE

[8] Three firms –Compass Lexecon, CRA and RBB Economics– are somewhat larger than the rest, however.

FIGURE 2

ECONOMIC CONSULTING IN EU COMPETITION LAW: MARKET SIZE



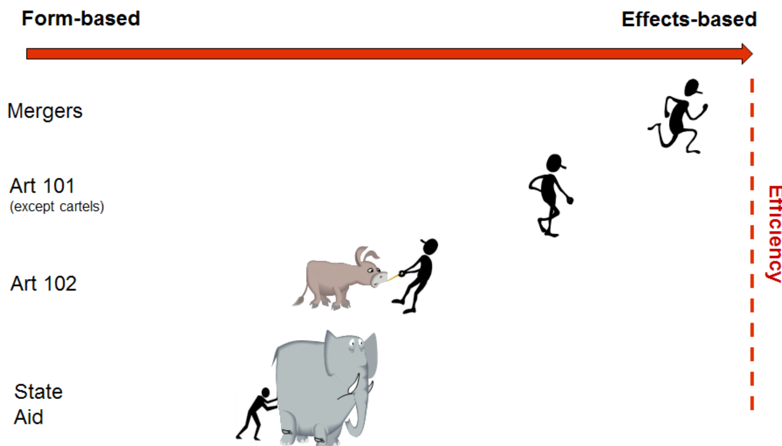
Source: Neven, 2006.

II. WHAT DO ECONOMISTS DO IN EU COMPETITION LAW CASES?

What is the real contribution of economics to competition law in Brussels and the other European capitals? Or, in simpler terms, what is that all the

FIGURE 3

THE CONTRIBUTION OF ECONOMICS TO DIFFERENT AREAS OF EU COMPETITION LAW



Note: This Figure is taken from a PowerPoint presentation from Lorenzo Coppi.

economists with master degrees and doctorates working at the European competition agencies and their counterparts in private practice have been doing over the recent years? As illustrated in Figure 3, and as I will explain in what follows, the importance of economics in EU competition law varies from merger control, where it is undoubtedly high and has contributed to the development and implementation of a successful effects-based policy, to state aid, where it still plays a very minor role.[9]

1. Merger control

Merger control is the area of competition policy where economics has had more influence in recent years. The analysis of horizontal mergers, for example, has evolved from a formalistic approach based on the so-called "structural presumption", according to which a significant increase in market concentration will presumably raise prices and harm consumers, to an effects-based approach, where the key is to predict the likely price effects of the merger using information about diversion ratios and margins, and where market shares and concentration indices no longer play a crucial role.

The move started in the UK with the adoption of the Significant Lessening of Competition (SLC) test. The EU followed with the adoption of the Significant Impediment of Effective Competition (SIEC) test.[10] From then on, many other EU jurisdictions have followed, as Spain did a few years ago.[11]

Soon after the three CFI judgements I described above, the European Commission published Horizontal Merger Guidelines in 2004 (European Commission, 2004a), and Non-horizontal Merger Guidelines in 2008 (European Commission, 2008). These are excellent documents, well-grounded in economic theory and evidence. They set out the Commission's approach to analysing horizontal, vertical and conglomerate mergers. They are not just mere declarations of intentions. They provide a detailed roadmap that the Commission's case teams follow closely in each case. As a result, the merger guidelines provide legal certainty while adopting an effects-based approach and thus demonstrate that sound economic analysis and legal certainty are

[9] See Jones and Suffrin, 2014; Whish and Bailey, 2012, for excellent reviews of EU competition law.

[10] The SIEC test states that concentration which would significantly impede effective competition, in the common market or in a substantial part of it, in particular as a result of the creation or strengthening of a dominant position, shall be declared incompatible with the common market. Article 2.3, *Council Regulation (EC) No 139/2004 of on the control of concentrations between undertakings* (the EC Merger Regulation), 20 January 2004.

[11] Article 10, *Ley de Defensa de la Competencia,* 3 July 2007.

not contradictory – a lesson that some appear to ignore when advocating the form-based approach to Article 102 using legal certainty arguments (Wils, 2014). There are some unresolved issues –such as the treatment of efficiencies in horizontal mergers or the delineation of "materiality thresholds"[12] when assessing price effects– but I have no doubt that progress on those matters will be made during the next five to ten years.

Economists in Europe, whether working for the parties, DG Comp or the more advanced national competition authorities (NCAs) in the EU, now regularly analyse horizontal mergers using the tools that have become standard in the US: demand analysis, UPP indicators, merger simulation techniques, price-concentration regressions, bidding studies, etc. (Padilla, 2014). Likewise, the analysis of vertical and conglomerate mergers is now conducted using a framework, which draws from modern Industrial Organisation, pioneered among others by Nobel Prize Winner Jean Tirole (Tirole, 1988; Rey and Tirole, 2007). It considers the ability and incentive of the merging parties to exclude competitors and the likely anticompetitive effects of potential exclusionary strategies; and seeks to balance those pernicious effects with the efficiencies generated by the merger. This is again consistent with merger control practice on the other side of the Atlantic.

2. Horizontal and vertical agreements

EU competition laws (Article 101 TFEU) prohibit all agreements between firms, decisions by associations of firms and concerted practices which may affect trade between Member States, and which have as their object or effect the prevention, restriction or distortion of competition within the internal market.

Economics has had a decisive influence in the design of EU competition law in connection with both horizontal and vertical agreements. The European Commission's 2010 Guidelines on vertical restraints (European Commission, 2010), its 2011 Guidelines on horizontal agreements among competitors (European Commission, 2011), and its 2014 Guidelines on technology transfers (European Commission, 2014a) are largely compatible with extant economic thinking. In my opinion there remain only three areas of potential concern: (i) the treatment of resale price maintenance (RPM) agreements, (ii) the categorization of certain practices, such as certain exchanges of information

[12] That is, the percentage price increase threshold above which a merger should be prohibited or, at very least, conditioned.

among competitors, as restrictions by object, and (iii) the assessment of efficiencies. I explain why in what follows.

RPM. As regards RPM, there is evidence that RPM agreements may be procompetitive while others may facilitate collusion (Wright, 2014). As a matter of economics, therefore, RPM agreements should be treated on a case-by-case basis using an effects-based approach or, in competition law jargon, using a "rule of reason" approach.[13] And yet EU law treats RPM as a hardcore restriction of competition and as such *de facto* illegal *per se* (European Commission, 2010).[14]

Information sharing. In Europe, certain exchanges of information –*i.e.*, exchanges that involve the sharing of individualised data on future commercial behaviour or of individualised data on current conduct that reveals intentions on future behaviour– are presumed to be illegal and treated as restrictions by object within the meaning of Article 101(1) TFEU (European Commission, 2011).[15] I have concerns about this policy. Its appropriateness needs to be investigated further. As is well-known, information exchanges can be procompetitive or anticompetitive, and they often make no difference at all. Because information exchanges among competitors may have both procompetitive and anticompetitive effects, it would seem that the right approach would consist in assessing them on a case-by-case basis under the so called rule of reason (Padilla, 2010).

Unfortunately, the economic literature does not provide clear-cut "identification results" (*i.e.*, useful descriptions of the circumstances determining whether a business practice is procompetitive or anticompetitive). All we have at this stage is a large number of "possibility" results. For example, we are told that the exchange of future intentions *may* facilitate tacit collusion by helping competitors reach a focal point for coordination. Yet the literature does not tell us under which precise circumstances such an exchange of information will allow competitors to identify a focal point and coordinate in practice. To make things even more complex, the economics literature also finds that the exchange of future intentions *may* enhance competition, but once again it fails to provide the tools –*i.e.*, the identification results– needed to distinguish between procompetitive and anticompetitive exchanges of future intentions. Because of these limitations, the competitive assessment of information sharing among competitors is bound to cause significant type I and type II errors. Information exchanges that are procompetitive or can have no effect

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[13] "The Rule of reason is a legal approach by competition authorities or the courts where an attempt is made to evaluate the pro-competitive features of a restrictive business practice against its anticompetitive effects in order to decide whether or not the practice should be prohibited". OECD Glossary of Statistical Terms, available at: https://stats.oecd.org/glossary/detail.asp?ID=3305

[14] Section 2.10.

[15] Section 2.

on competition may be found to be anticompetitive (a type I error), while exchanges that are anticompetitive may be left unchallenged (a type II error).[16] The relative frequency and cost of those two types of error will be influenced by the nature and character of the legal rules that are used to assess the exchanges of information among competitors. Given the lack of identification results in the economics literature, a case-by-case approach (or set of rules), which determine the pro- or anticompetitive character of an information exchange on the basis of the nature of the information exchange and the characteristics of the market or markets where the firms sharing information compete, will likely cause both types of error.

As noted by Matthew Bennett and Philip Collins in an excellent paper that provides an exhaustive overview of the law and economics of information sharing (Bennett and Collins, 2010) a case-by-case analysis places a high burden on (a) firms, who may not be in a position to perform the complex economic analysis required, and (b) on competition authorities and private claimants in bringing cases. Therefore, a case-by-case approach risks chilling procompetitive exchanges of information (thus causing too many type I errors) while, at the same time, may lead to insufficient deterrence of anticompetitive behaviour (*i.e.,* too many type II errors). This is why, as explained by Bennett *et al.* (2010) it may make economic sense to restrict the scope of the rule of reason. In particular, it may be reasonable to attribute a presumption of illegality to exchanges of information which are very likely to have an anticompetitive effect and highly unlikely to have an objective justification or procompetitive motivation (Kühn, 2001). In other words, it may be appropriate that an information exchange be presumed illegal if its condemnation is unlikely to cause costly type I errors, while under-enforcement will likely cause costly type II errors.

Efficiencies. The other area of friction between the legal assessment of horizontal and vertical agreements according to EU law and competition economics concerns the treatment of efficiencies. Article 101(3) TFEU establishes four conditions to determine whether an agreement, which does not constitute a hardcore agreement and is not exempt for other reasons, may be exempt due to its efficiency effects: the agreement must (i) contribute to improving the production or distribution of products or to promoting technical or economic progress, (ii) allow consumes a fair share of the resulting benefit, and must not (iii) impose restrictions which are not indispensable to the attainment of the above objectives, and (iv) afford the possibility of eliminating competition in respect of a substantial part of the products in question (European Commission, 2010, para. 34). These conditions are cumulative: all four must be fulfilled before

[16] The application of the error-cost framework to the design of antitrust rules was pioneered by F. H. Easterbrook (Easterbrook, 1984). For a more recent discussion of its relevance, see Evans and Padilla, 2005a.

an agreement may be said to enhance competition (European Commission, 2010, para. 38).

My main concern as an economist relates to condition (iv). The fourth and final limb of Article 101(3) states that the agreement must not result in the elimination of competition in respect of a substantial part of the products concerned. The Article 101(3) Guidelines explain that in its assessment of this condition will take into account the degree of competition before the agreement. Hence, agreements producing anticompetitive effects in market where competition is particularly weak will be subject to a tighter scrutiny. The Article 101(3) Guidelines provocatively state:

> "Ultimately the protection of rivalry and the competitive process is given priority over potentially procompetitive efficiency gains which could result from restrictive agreements" (European Commission, 2004b, para. 105).

But why should we give greater weight to the protection of rivalry than to consumer welfare? Indeed, why should an agreement be blocked when there are benefits that flow to consumers that outweigh the potential anticompetitive effects of the deal? The Guidelines state that

> "[w]hen competition is eliminated the competitive process is brought to an end and short-term efficiency gains are outweighed by long-term losses" (European Commission, 2004b, para. 105).

That is, the Commission presumes that the negative long-term impact on consumer welfare caused by the elimination of actual competition will always be larger than the positive short-term benefits for consumers originating from an efficiency-enhancing arrangement. That presumption is, however, unjustified. Whether the long-term effects of the agreement offset its short-term effects is an empirical matter that can only be resolved case by case. Furthermore, such an inter-temporal balancing exercise requires, to be properly conducted, discounting the future and adjusting for uncertainty, because while the short-term benefits of the agreement may be measurable and relatively certain, its future effects are likely to be speculative and hard to quantify (Bennett and Padilla, 2009).

3. Abuse of dominance

The area of EU competition law which has generated more controversy among lawyers and economists over the last 15 years is the law on the abuse of

dominance.[17] According to Article 102 TFEU, any abuse by one or more firms of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States. Dominant firms have a "special responsibility". They are allowed to compete on the merits but their unilateral actions can be challenged when they are shown to be exploitative (*e.g.,* when the firm is found to charge prices that are unfair) or exclusionary (*i.e.,* when the dominant firm's strategies are likely to foreclose their rivals) (O'Donoghue and Padilla, 2013).

The areas of disagreement between economists and non-economists in connection with the enforcement of Article 102 are mainly two: (a) whether welfare should be the only goal of competition law, and (b) whether the assessment of the unilateral behavior of dominant firms requires the analysis of their likely effects.

Fairness v welfare. Many non-economists, including some prominent competition enforcers sustain that the ultimate goal of competition law is not consumer welfare. In a recent paper, Dr. Wils, Hearing Officer of the European Commission, stated:

> "The EU competition rules no doubt have positive effects on consumer welfare and on efficiency, but the EU Treaties do not allow these effects to substituted for the objective of a system of undistorted competition, to the exclusion of the other benefits of undistorted competition … such as variety and consumer choice, the right to compete on the merits, and *equality of opportunity between economic operators."* (Wills, 2014).[18]

Economists, on the contrary, regard as procompetitive (respectively, anticompetitive) those actions that increase (respectively, decrease) welfare (in competition long-run consumer cases welfare).[19] The consensus among

[17] Note for example the controversy surrounding the recent General Court's ruling in *Intel*. (Case T-286/09 *Intel Corp v Commission,* Judgment of 12 June 2014, nyr.) In this case the General Court held that exclusivity rebates are quasi *per se* abusive. For the General Court, exclusivity rebates granted by a dominant firm are by their very nature capable of restricting competition (¶85), because (a) a supplier in a dominant position is, to a large extent, an unavoidable trading partner (¶91) and (b) the grant of an exclusivity rebate by an unavoidable trading partner makes it structurally more difficult for a competitor to submit an offer at an attractive price and thus gain access to the market (¶93). The Court states that the Commission is not required to demonstrate the foreclosure capability of exclusivity rebates on a case-by-case basis (¶143). In fact, it considers that not even the share of the market that is foreclosed by the rebate scheme is relevant when assessing the existence of an infringement (¶120). See Kjobye, Padilla and Snelders (2015).

[18] Emphasis added.

[19] While most economists agree that the ultimate and only goal of antitrust should be to maximise total welfare, which aggregates consumer welfare and firms' profits (or producers' surplus), many economists believe that total welfare is likely to be greater when competition authorities and courts are instructed to intervene in order to maximise *consumer welfare*. See Neven and Röller, 2005; Lyons, 2002; Besanko and Spulber, 1993. See also Oldale and Padilla, 2010.

economists is that competition law will only serve its purpose if welfare becomes the sole, or at very least the main, goal of competition policy intervention. A policy which reduces aggregate consumer welfare cannot be legitimately justified by reference to vague notions of fairness.[20] As stated by Ahlborn and Padilla,

> "The social value of policies aimed at preserving rivalry and ensuring a competitive level playing field is given by the impact of such policies on aggregate social welfare. Protecting rivalry is not an end in itself: it only makes sense if it helps to increase consumer welfare. Or, in other words, social welfare is the meta-objective that justifies objectives such as the promotion of competition and the protection of the competitive process" (Ahlborn and Padilla, 2008).

Form-based v effects-based analyses. From an economic perspective, the competitive assessment of the unilateral conduct of a dominant firm is a complex exercise, because almost any unilateral strategy adopted by a firm with market power is bound to produce both procompetitive and anticompetitive effects. Economists thus consider that no unilateral action can be regarded as per se anticompetitive. They believe that courts and competition regulators using simplistic form-based approaches are bound to make mistakes: some practices will found to be legal when they are welfare-reducing and vice versa. In their opinion, the competitive assessment of the unilateral actions of dominant firms must investigate their likely net effects (Wright, 2011; EAGCP, 2005). Economic and econometric tools, for all their limitations, will help reduce the likelihood of error and, hence, lead to better welfare outcomes.

The problem in practical terms is that economics does not provide much guidance on how to quantify and balance anticompetitive and procompetitive effects in abuse of dominance cases (or more generally in competition policy cases). If it is to be useful, economics needs to develop practical "identification theorems", as opposed to the theoretical possibility or impossibility theorems that are commonly developed in the literature (Evans and Padilla, 2005a). Economists must focus their energies in developing robust and practicable empirical tests to help courts and competition agencies to make better decisions and achieve better outcomes.

Economics may be more useful in designing "workable rules" than in balancing efficiencies against anticompetitive effects on a case-by-case basis.

[20] "The hallmark of welfare economics is that policies are assessed exclusively in terms of their effects on the well-being of individuals" "legal rules should be selected entirely with respect to their effects on the well-being of individuals in society and that notions of fairness … should receive no independent weight in the assessment of legal rules". (Kaplow and Shavell, 2002).

These rules may take the form of *rebuttable presumptions of legality,* according to which a business practice will be regarded as legal unless the plaintiff can demonstrate that certain economic conditions are met in practice, or *rebuttable presumptions of illegality,* whereby a practice will be regarded illegal unless the defendant can prove that certain economic conditions hold in that case.

As noted by Professor John Vickers, former head of the UK competition authority and a leading industrial economist,

> "To say that the law on abuse of dominance should develop a stronger economic foundation is not to say that rules of law should be replaced by discretionary decision making based on whatever is thought to be desirable in economic terms case by case. There must be rules of law in this area of competition policy, not least for reasons of predictability and accountability. So the issue is not rules versus discretion, but how well the rules are grounded in economics. To that end there is great scope for economic analysis and research to contribute to the development of the law on abuse of dominance. To be effective, however, economics must contribute in a way that competition agencies, and ultimately the courts, find practicable in deciding cases." (Vickers, 2005).

Because courts and competition authorities are not populated by enlightened economists born and bred in the arcane business of balancing pro- and anticompetitive effects, provided such a species exist, and because competition law enforcement impacts the welfare of individuals, and that is a treasure too precious to play with, the design of pragmatic rules, easy to implement and with desirable welfare properties should become the focus of economic research on antitrust law and policy (Evans and Padilla, 2005a and 2005b; Evans, Padilla and Salinger, 2006; Ahlborn, Evans and Padilla, 2005; Ulph and Katsoulakos, 2009, 2011 and 2014).

4. State aid

Article 107(1) TFEU defines State aid as any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods in so far as it affects trade between Member States. State aid is incompatible with the single market and thus prohibited. Despite the general

prohibition of State aid, some State aid measures can be considered compatible. Articles 107(2)[21] and 107(3)[22] TFEU stipulate these exemptions.

The role of economics in State aid control has traditionally been very limited (Coppi, 2011). By and large, the only application of economic principles in State aid cases concerns the implementation of the so-called Market Economy Investor Principle test,[23] which serves to identify whether a transfer of State resources should be considered aid. While Article 107(1) stipulates that only aid which distorts competition and affects trade is prohibited, and assessing properly whether those conditions are verified would require an in-depth economic analysis, the existence of distortions of competition and effect on trade has been presumed whenever aid was present. The assessment of compatibility under Articles 107(2) and 107(3) has also been performed according to formalistic criteria.

In 2005, the European Commission launched its State Aid Action Plan (SAAP) (Kroes, 2005). The SAAP introduced a new "balancing test" to assess the compatibility of State aid. According to the balancing test, the EC must weigh the positive economic effects of the aid against its negative effects in order to ensure the goal of "lesser and better targeted aid" (Kroes, 2005). While the logic of the test is well grounded in economic analysis, the general impression is that the balancing test has merely provided a narrative framework for the assessment of compatibility and, therefore, has not served to reduce the level of political interference in State aid control. Not surprisingly, perhaps, the Commission is once again completely overhauling its State aid rules under the State Aid Modernisation (SAM) package (European Commission, 2014b).

[21] The following shall be compatible with the internal market: (a) aid having a social character, granted to individual consumers, provided that such aid is granted without discrimination related to the origin of the products concerned; (b) aid to make good the damage caused by natural disasters or exceptional occurrences; (c) aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required in order to compensate for the economic disadvantages caused by that division.

[22] The following may be considered to be compatible with the internal market: (a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment, and of the regions referred to in Article 349, in view of their structural, economic and social situation; (b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State; (c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest; (d) aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Union to an extent that is contrary to the common interest; (e) such other categories of aid as may be specified by decision of the Council on a proposal from the Commission.

[23] "The essence of the MEIP is that when a public authority invests in an enterprise on terms and in conditions which would be acceptable to a private investor operating under normal market economy conditions, the investment is not a state aid". (Slocock, 2002).

State aid evaluation is an integral part of this reform. The Commission will require Member States to evaluate a selected number of State aid schemes in order to identify their impact (European Commission, 2014c). The methodologies identified by the Commission to perform such evaluations are economic and econometric (European Commission, 2014d). The door to the use of economics in State aid control may have finally opened.

III. THE CONTROVERSY ABOUT THE IMPACT OF ECONOMICS IN EU COMPETITION LAW?

In my opinion, the use of economic tools in merger control (and to a lesser extent in Article 101 cases[24]) has allowed DG Comp and the NCAs of the Member States to make better decisions. I do not agree with some of those decisions (Padilla, 2014), but when I take distance from the cases that I fought and lost, I am proud of the state of EU merger control. To the extent that I am less satisfied with the state of the other areas of EU competition law, this reflects the fact that economic analysis has played a lesser role in decision making and in the articulation of policy. In short, I believe the contribution of economics to EU competition law has been positive and, if anything, I regret that its influence is still mainly limited to merger control.

1. Critical voices

Not everyone agrees with my conclusion, however. There are critical voices inside and outside the competition agencies (Wils, 2014; Bishop, 2014). For some the use of economics, and in particular what they term as "sophisticated" economics, has proved detrimental. Economics, it is claimed, has increased the cost of the merger control process and the assessment of antitrust matters without leading to better results.

These critical voices forcefully state that economics is not a science and, as a result, they aver that the application of modern economic tools cannot produce robust results and, what is worse, is opened to manipulation.[25] They

[24] See Case AT 39595 *Continental/United/Lufhansa/Air Canada,* 23 May 2013 and Case AT 37984 Skyteam, 12 May 2015.

[25] Wouter Wils, Hearing Officer at DG Comp recently stated: "However much more some economists may try to pretend otherwise by wrapping their thoughts in mathematical formulas, economics is not an exact science, like physics or chemistry, but a social science, like sociology, history or moral philosophy". (Wils, 2014) Likewise, Simon Bishop, one of the founders of RBB-economics, a leading economic consultancy, recently said: "We therefore need to remember that there are a few robust economic presumptions that can be drawn from the available literature, *i.e.,* there are few or no "universal economic truths" … Those familiar with economic theory will know that a large of number results can often be reversed by making alternative assumption. This is particularly true of modern economic analysis which employs game theoretic methodology". (Bishop, 2014).

complain about the complexity added by economics,[26] and the immoderate use of mathematics, which is in their opinion relied on to cover unacknowledged value judgments.[27]

The result –these voices claim– is that companies involved in merger investigations and other competition law cases now need to answer cumbersome requests for information questionnaires (RFIs) prepared by the economists at the CET, and provide vast amounts of data for no obvious reason other than to foster the careers of economists at the agencies and increase the fortunes of economic consultants and satisfy the corporatist interests of the economics profession.[28]

2. Eppur si muove[29]

While all views need to be considered, and the criticisms raised by people with knowledge and experience of competition policy cannot be dismissed out of hand, I must state that I disagree with the criticisms that I have described above. I believe economics has contributed positively and has much more to contribute in coming years.

The scepticism towards economic analysis is often based on the understandable, but incorrect, belief that the application of scientific methods to the facts of a competition law case should produce unambiguous and consistent results. Contradictory results are thus interpreted as evidence of advocacy or unprofessional behaviour by so-called "hired guns". However, those apparent contradictions may simply reflect differences in the data, differences in the approach to economic modelling or in the assumptions used to interpret the data, differences in the empirical techniques and methodologies, or may be the result of unintentional mistakes. When alternative studies produce contradictory conclusions, their relative merits should be investigated fully. The right approach cannot be to discard them all as if they were equally incorrect or unscientific. It may well be the case that all those studies prove valuable

[26] "[T]he use of superficially more complex models and techniques has detracted attention and effort away from understanding how competition really works". (Bishop, 2014).

[27] "Many economists and philosophers of science have criticised the immoderate use of mathematics in economics as creating an appearance of scientifity while covering a vacuity of thought and unacknowledged value judgements". (Wils, 2014).

[28] "Apart from serving the interests of the dominant companies, the so-called "more economic approach" also serves the special interests of the economics profession". (See Wils, 2014) "When an economist says the evidence is "mixed," he or she means that theory says one thing and data says the opposite". (Bishop, 2014).

[29] In Italian, "And yet it does move", sentence attributed to astronomer Galileo, after he was forced by the Inquisition to accept that the Sun moved around a static Earth.

in spite of their apparent contradictions. Furthermore, those inconsistencies may simply reflect some inescapable "ambiguity". As Professor Charles Manski clearly stated:

> "We need to develop a greater tolerance for ambiguity. We must face up that we cannot answer all of the questions that we ask" (Manski, 1995 and 2008).

If the analyses submitted to test a given proposition in a competition policy case produced contradictory results but (i) all of them were scientifically valid and (ii) none of them could be consider intrinsically superior to the other(s), the only legitimate conclusion would that the available evidence can neither validate nor falsify or refute that proposition. The outcome will then be determined by the allocation of the burden of proof (Kaplow, 2011).

We should also keep in mind there is no such a thing as a perfect economic and econometric model. All models involve simplifying assumptions and/or are based on imperfect data. However, in many circumstances, those simplifications and imperfections do not have a material impact on the quantitative and/or qualitative results of the analysis.[30]

Economists don't like complex models *per se.* Other things equal we definitively prefer a parsimonious simple model to a complex one. Complexity is sometimes unavoidable, because as is well-known, "logic sometimes breeds monsters" (Poincaré, 1952). As Professor Hahn explained back in 1933:

> "Because intuition turned out to be deceptive in so many instances, and because propositions that had been accounted true by intuition were repeatedly proved false by logic, mathematicians became more and more skeptical of the validity of intuition. [scientists] learned that it is unsafe to accept any mathematical proposition, much less to base any mathematical discipline on intuitive convictions" (Hahn, 1980).

Economists do not use mathematical symbols and Greek letters to annoy lawyers, or to cover their vacuous and mischievous thoughts. They use mathematics to impose discipline on their thoughts and analyses, to avoid the

[30] To explain this point I cannot do better than quote Jorge Luis Borges and Alberto Bioy Casares: "... In that empire, the art of cartography reached such perfection that the map of one province alone took up the whole of a city, and the map of the empire, the whole of a province. In time, those unconscionable maps did not satisfy, and the Colleges of Cartographers set up a map of the empire which had the size of the empire itself and coincided with it point by point. Less addicted to the study of cartography, succeeding generations understood that this Widespread Map was useless and not without impiety they abandoned it to the inclemency of the sun and of the winters. In the deserts of the West some mangled ruins of the Map lasted on, inhabited by animals and beggars; in the whole country there are no other relics of the Disciplines of Geography." (Borges and Bioy Casares, 1990.)

risks of uncontrolled intuition, to escape from the dangers of logically incorrect but plausible narratives, especially those spiced with economics jargon. As explained by Professor Dennett, the famous philosopher,

> "Another reason why scientists are often suspicious of theoretical discussions conducted in "mere words" is that they recognize that the task of criticizing and argument not formulated in mathematical equations is much trickier, and typically less conclusive. The language of mathematics is a reliable enforcer of cogency. It's like the net on the basketball hoop: it removes sources of disagreement and judgment about whether the ball went in. (Anyone who has played basketball on a playground court with a bare hoop knows how hard it can be to tell an air ball from a basket.)" (Dennett, 2013).

As to moral character, I believe that economists are no more honest or dishonest than any other professional. I am concerned as much as anyone else by the misuse of economics in competition cases and elsewhere. The solution to the actual or perceived dishonesty of some economists, whether working for the merging parties, their complainants or the competition authorities, is not to dismiss economics or to ban it altogether. What we need is appropriate processes to assess economic evidence.

Competition authorities and courts can adopt measures aimed at facilitating the assessment of seemingly contradictory economic and econometric evidence (Coombs and Padilla, 2011). One option is to request the opposing experts to explain their discrepancies in intuitive terms, possibly, though not necessarily, working in cooperation. An alternative is to instruct the opposing experts to meet and discuss, *inter alia,* data issues, economic theory and modelling approaches.[31] A third option is for courts to appoint independent experts who could advice judges on technical matters (*e.g.,* on econometric models or game theoretic reasoning). Finally, courts in many jurisdictions (*e.g.,* Australia) organize so-called "hot tub" sessions where testifying experts are asked to question each other and debate before the court. This mode of taking economic evidence effectively narrows the differences between the experts and crystallizes the main areas of dissent.

The scientific rigour of the economic submissions made in a case can also be litigated in court. Following the U.S. Supreme Court's ruling in *Daubert* in 1993,[32] US federal court judges are oftenasked to make a "preliminary assessment" of

[31] This is now standard practice in cases before the UK Competition Appeals Tribunal, the UK High Court as well as in many international arbitration cases.

[32] *Daubert v. Merrell Dow Pharmaceuticals,* 509 U.S. 579 (1993).

whether expert testimony is "scientifically valid," focusing "solely on principles and methodology". The *Daubert's* ruling directs trial judges to consider at least four factors when determining the admissibility of scientific evidence in legal proceedings: (a) whether the theory or methodology can be tested, (b) whether the proffered work has been subject to peer review, (c) whether the rate of error is acceptable and (d) whether the method at issue enjoys wide acceptance.

The Court's ruling in *Daubert* has clear consequences for economic analysis in competition matters. Broadly speaking, economic analysis will be admissible in competition proceedings only when they are both intellectually rigorous and sufficiently tied to the facts of the case. And yet the practical implications of this ruling are still being developed.[33] In August 2006, the Economic Evidence Task Force of Antitrust Section of the American Bar Association concluded that "*Daubert* likely deters at least some types of unprofessional economic testimony, particularly by encouraging efforts to match the economic evidence with the facts of the case" (American Bar Association, 2006). Yet, it urged the Section to identify "antitrust-specific criteria courts might use in ruling on *Daubert* motions", *i.e.,* motions to exclude economic analysis (American Bar Association, 2006, p. 5).Competition agencies can also raise the level of rigour and relevance of the economic analyses submitted in competition cases by issuing best practice guidelines,[34] which to be fully effective should be binding on all parties concerned, including the agencies themselves.

Importantly, competition agencies and courts need more time to discuss complex economic evidence, especially if they want to take advantage of the large databases now available. For example, merging parties should commit to provide their studies in Phase I or early in Phase II, possibly as part of the response to the 6.1.(c) decisions in the EU case.

Competition authorities should allow the parties' economists sufficient time to assess the economic evidence presented in their statements of objections. None of this is conceptually too difficult, but it requires procedural reforms and possibly new legislation.

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[33] Werden, Froeb and Scheffman (2004) discuss the discipline imposed by *Daubert* for the application of simulation techniques in merger control. The authors conclude that *Daubert* makes three demands: (1) The simulation must be conducted by someone with expertise in structural modeling of real-world industries and the underlying economic theory. (2) The economic models employed in the simulation, and any estimation methods used to calibrate those models, must be considered sound within the relevant fields of economics. (3) The simulation model must reasonably fit the facts of the case.

[34] See DG Comp, *Best practices for the submission of economic evidence and data collection in cases concerning the application of Articles 101 and 102 TFEU and in Merger cases,* available at: http://ec.europa.eu/dgs/competition/economist/best_practices_en.html. See also D. Neven and R. De Coninck, "Best Practices on the Submission of Economic Evidence and Data Collection", also available at http://ec.europa.eu/dgs/competition/economist/best_practices_en.html

IV. WHITHER ECONOMICS IN EU COMPETITION LAW?

Competition law is not a form of belief; it is a policy tool, which can positively affect the way markets work in tangible ways. We may disagree about how to improve the competition policy tool, but questioning the need for proactive competition law enforcement is misguided. In the current economic scenario where many countries are not able, and may not be able in the foreseeable future, to offer their citizens the level of protection and welfare services that were provided to them pre crisis, competition policy and consumer protection policy are more important than ever. They have a role to play so that consumers can participate in the prosperity generated by the market system. But they will only achieve that goal if they are properly grounded on sound economic theory and empirical evidence.

True, there are many open issues regarding the best way to deploying economics in competition law cases, but this should not be surprising. After all, the history of economics in EU competition law is relatively short; it only began in 2003. As in many other cases, we need not be frustrated because change does not happen immediately. We must continue to improve the enforcement of competition policy, and we should do so gradually in order to avoid unintended consequences, but we need to do it persistently because –and this is the main lesson I have learned as an economist advising governments and corporations– the institutions that do not improve over time are condemned to decline and perish.

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OPTIMAL MAGNITUDE AND PROBABILITY OF FINES WHEN COURTS DISLIKE PUNISHMENT[1]

Nuno GAROUPA

Abstract

The economic literature on crime and punishment has focused on the trade-off between probability and severity of punishment for many decades. It suggests that detection probability and fines are substitutes. However, the literature assumes implicitly that courts are willing to enforce maximal fines. In this article, it is shown that, in presence of courts who dislike punishment, the optimal policy involves lower sanctions. The effect on the probability varies with the parameters of the model. In particular, when substantial underdeterrence caused by costly detection and punishment prevails, the probability might also go down. Policy implications are discussed.

Keywords: crime, probability and severity of sanctions, law enforcement.

JEL classification: K40.

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I. INTRODUCTION

The proposition that crime rates respond to risks and benefits is called in the economic literature the deterrence hypothesis. It asserts that individuals respond significantly to the incentives created by the criminal justice system. If so, increasing the resources that society devotes to the arrest, prosecution, conviction, and punishment of criminals will reduce the amount and social cost of crime.

Suppose that there is a particular offense that we wish to deter, say, illegal parking or a specific unlicensed activity. It might be possible to eliminate them, or very nearly eliminate them, by imposing a severe punishment with high probability. However, deterring illegal parking or unlicensed activities in this way may run into a cost problem. Apprehending, prosecuting, and punishing offenders can be significantly expensive. Policy-makers need to balance these costs against the advantages of reducing illegal parking (Garoupa, 1997; Polinsky and Shavell, 2000).

In this paper, we reconsider the high fine-low probability result by Becker (1968): When deciding whether or not to commit an act, an individual compares the benefit from the act with the expected punishment. The expected punishment is given by the probability of detection and punishment times a monetary sanction. A fine is a costless transfer from the convicted offender to the government. In contrast, detection is expensive. Consequently, the government should set the fine equal to an offender's entire wealth and complement it with the appropriate probability in order to achieve optimal deterrence. This high fine-low probability result suggests the following corollary: If the agents' wealth goes up, the government should increase the sanction and, at the same time, reduce the probability of detection. That way the government still provides for optimal deterrence, but saves resources on law enforcement.

Garoupa (2001) already shown that this intuitive corollary (the substitutability between fine and probability) only holds if the social optimum involves nearly or is close to full deterrence. If there is substantial underdeterrence (the expected fine is significantly less than the social damage caused by the offense), then there is a complementary relationship between the two variables. When the fine goes up, so should the probability of detection.

In order to understand this result, consider a rather extreme case where the agent's wealth is zero. In this case, fines are zero and the deterrent value is zero. Thus, it makes absolutely no sense to spend money on enforcement. When wealth goes up, so do fines. Now it becomes worthwhile for the government to engage in some detection and punishment.

As a consequence, we have a complementary relationship between fine and probability when there is substantial underdeterrence (alternatively, when offenders are poor and monetary sanctions are very low). This contrasts with the conventional substitutability which holds if the expected sanction is close to the social damage caused by the offense (that is, when offenders are wealthy and monetary sanctions are severe).

The standard analysis implicitly assumes that courts are willing to implement Beckerian fines. Suppose, however, that courts dislike severe punishment. Maximal sanctions could induce a countervailing effect. Courts might opt for acquittal rather than punishment with an extremely severe punishment. They could also consider conviction for a less severe crime in order to modulate the magnitude of punishment. Clearly, in these situations, severe punishment is no longer effective. Fines should be lower to take into account court preferences. The impact on the probability follows the analysis of Garoupa (2001).

A numerical example can illustrate the insight of the present analysis. Suppose a particular crime generates harm of 100. The maximal sanction is 2,000. Under the multiplier principle (which eliminates underdeterrence), the probability should be 5%. However, notice that the optimal probability should be less than 5% due to enforcement costs. In a world where courts dislike punishment and can opt for acquittal rather than conviction, the maximal sanction cannot be effectively implemented. Let us assume that the maximal sanction courts are willing to implement is 500. Under the multiplier principle, now the probability should be 20%. We show in this article, following Garoupa (2001), that the optimal probability could be less than 10% due to enforcement costs. When such result occurs, not only the severity of punishment goes down due to court preferences, but the probability also goes down in order to maximize social welfare. As a consequence, we can say that when courts dislike punishment, substantive underdeterrence can take place.

The paper is organized as follows: the result is formally derived in section two; applications and final remarks are addressed in sections three and four, respectively.

II. THE MODEL

Risk-neutral individuals choose whether or not to commit an act that benefits the actor by b and harms the rest of society by h. The policy-maker does not know any individual's b but knows the distribution of parties by type described by a general density function $g(b)$ with support $(0, \infty)$, a cumulative distribution $G(b)$. Some acts are socially beneficial: $h < \infty$.

The government chooses a sanction f and a probability of detection and conviction p. The expenditure on detection and conviction to achieve a probability p is given by $x(p)$, where $x'>0$ and $x''\leq 0$. The maximum feasible sanction is F, which can be interpreted as the maximum wealth of individuals. We further assume that the sanction is costless to impose and collect.

The objective function to be maximized is the sum of individuals' benefits minus the harm caused by their acts and enforcement costs (Polinsky and Shavell, 2000).

Risk-neutral individuals commit an offense if and only if $b\geq pf$. Given each individual's decision to be honest or dishonest, social welfare is:

$$W=\int_{pf}^{\infty}(b-h)dG(b)-x(p)$$

The government maximizes the welfare function with respect to f (severity of punishment) and p (probability of punishment) subject to $f \leq F$. We study non-trivial solutions. Therefore, we ignore the following constraints: $f \geq 0$ and $0\leq p\leq 1$. We assume that these constraints are not binding. The public sector budget is financed by lump-sum taxation.

— *Proposition 1*

(1) The optimal fine is the maximal fine F.

(2) The optimal probability of detection and conviction p^* satisfies $F(h-p^*F)\,g(p^*F)=x'(p^*)$.

(3) Some underdeterrence is optimal: $p^*F < h$.

— *Proof of Proposition 1*

See Garoupa (2001). QED

This proposition formally introduces Becker's argument.

Suppose now that courts are not willing to enforce a fine higher that F'. In other words, if the optimal fine is more than F', courts will prefer acquittal rather than conviction.[2]

[2] This is a model of law enforcement with false negatives. Unlike previous literature (Polinsky and Shavell, 2000) where false negatives are exogenous, in this version they are endogenous to the sanctioning policy.

— *Proposition 2*

(1) The optimal fine is the sanction preferred by the court and equals F'.

(2) The optimal probability of detection and conviction p' satisfies $F' (h- p'F') g(p'F')= x'(p')$.

(3) Some underdeterrence is still optimal: $p'F' < h$.

— *Proof of Proposition 2*

Suppose the government sets the maximal fine F. Then courts will acquit criminals and social welfare will be minimal, with expected fine equal to zero. As consequence, by the same reasoning of Proposition 1, the optimal fine should be F' and the probability adjusts appropriately. QED

The distaste for severe punishment exhibited by courts forces formal sanctions down. The remaining question is the extent to which the probability goes up to compensate. More fundamentally, is p^* more or less than p'?

We know from Garoupa (2001) that the optimal probability is not necessarily monotonically decreasing in the fine. Suppose for a moment that the marginal cost of punishment is zero. We know that $p^*F=p'F'=h$. Therefore, when the marginal cost of punishment is zero, it is necessarily the case that $p^*<p'$. By the same reasoning, in order for $p^*>p'$ to be a serious possibility, it has to be the case that the value of the marginal cost of punishment is significantly relevant. As in Garoupa (2001), that could be the consequence of a reduction in fine making detection relatively more expensive.[3]

If the original fine is high, the level of deterrence is also high and the difference between full internalization of harm and optimal deterrence is small. When the fine is reduced, the probability p should increase, achieving the same deterrence level but at higher enforcement costs. This is Becker's trade-off.

However, if the new fine is very small, the level of deterrence is very low. In this case, a decrease in the fine diminishes substantially the value of deterrence for any given probability and thus makes it more profitable to simply reduce p. Thus, in this range of parameters, the probability and magnitude of fines are complements rather than substitutes.

[3] Mathematically, under Proposition 2, notice that the marginal cost $x'(p)$ is divided by $g(pf)f$.

Summing-up, when courts dislike punishment, we might observe a reduction of severity (due to court preferences) and probability of punishment (due to technology costs) at the same time.

Consider now the following the extension of the model. Suppose that only a fraction β of courts is not willing to enforce a fine higher that F'. In other words, if the optimal fine is more than F', a fraction β of courts will prefer acquittal rather than conviction.

For a moment, let us consider the case where enforcement is costless. By construction, we know that the expected sanction equals harm. Therefore, the government has to pick one of the following two solutions:

(a) Solution A: the fine equals F' and the probability is simply h/F'.

(b) Solution B: the fine equals F, the average fine is $(1-\beta)F$ due to the remaining β courts setting a zero fine and the probability is $h/(1-\beta)F$.

— *Proposition 3*

When enforcement is costless,

(1) The government is indifferent between solution A and solution B.

(2) The optimal probability of detection is lower under solution A iff $\beta > 1 - F'/F$.

(3) There is full deterrence.

— *Proof of Proposition 3*

Since enforcement is costless and both solutions guarantee that expected sanction equals harm, they are equivalent. The difference between the probabilities of detection is determined by F' and $(1-\beta)F$.

If the fraction of courts disliking punishment is high, F' is greater than $(1-\beta)F$ and therefore the probability is lower under solution A. The converse takes place if the fraction of courts disliking punishment is low. QED

We can offer an immediate interpretation of the main insight. Suppose, initially, a lot of courts dislike punishment (that is, β is close to one). Then solution A is more appropriate, with a less severe sanction given by F' (lower

than F) and a lower probability given by *h/F'.* As time goes by, let us imagine that the government packs courts with judges who like punishment or suppose announcing tougher law enforcement induces a self-selection pattern by which people who like punishment are more willing to become judges (that is, β gets closer to zero). At some point, the threshold *1- F'/F* is crossed. Now solution B is more appropriate. A maximal sanction should be imposed (even though a small fraction β will deviate and acquit offenders). The probability is given by *h/(1-β)F*.

Another way of looking at our suggested interpretation is to say that as more and more courts dislike punishment, sanctions go down and probability goes up, initially as function of β and later is simply given by *h/F'.*

Once enforcement is costly, the results are more cumbersome since optimal probabilities should take into account enforcement costs. However, we can develop the basic intuition. For a moment, let us assume that full deterrence is still optimal. The government should favor solution A when the probability is lower, namely, when *F'* is greater than *(1-β)F.* The government should favor solution B otherwise.

As probabilities need to be adjusted for incomplete deterrence as shown by Proposition 2, following Garoupa (2001), the optimal policy is necessarily more nuanced. In fact, let us define the pair $<p', p''>$ as the following implicit probabilities:

$$F' (h- p'F') g(p'F')= x'(p') \qquad [1]$$

$$(1-\beta)F (h- p''(1-\beta)F) g(p''(1-\beta)F)= x'(p'') \qquad [2]$$

We can write that *p'* is above *p''* when the left-hand-side of [1] is higher than the left-hand-side of [2]. The left-hand sides measure the marginal gain from enhancing the probability of punishment given a specific marginal cost measure by *x'(p).* In fact, by equalizing both left-hand sides of [1] and [2], we derive an implicit threshold for β taking into account that enforcement is costly.

Let us illustrate the specific trade-off with a simple linear example. The enforcement cost function is given by x(p)=xp and assume the type are described by a uniform distribution with support (0,1), with h<1 so that some acts are socially beneficial. From [1] and [2], we derive the following results:

$$p'=h/F' - x/F'^2$$

$$p''=h/(1-\beta)F-x/(1-\beta)^2F^2$$

The fundamental exercise is easy to understand. When the sanction is *(1-β)F,* rather than *F',* should we expect the probability to go up or down? The answer depends on two distinct effects. The first piece, as we have seen before in Proposition 3, is how *(1-β)F* relates to *F'.* The second concern is the substitutability of severity and probability of punishment following Garoupa (2001).

III. APPLICATIONS

There are important applications of the simple model developed in this article. First, reform of criminal law cannot ignore the willingness of courts to impose tougher sanctions. Under our analysis, severe sanctions could induce more acquittals thus undermining reforms that enhance law enforcement. Second, the results suggest a significant concern about the political economy of criminal sanctions. A prevalence of liberal judges opposing severe punishment coupled with a government favoring tougher law enforcement might force a reduction in probability and severity of punishment at the same time. Third, judicial preferences can undermine sentencing guidelines and other mandatory sentencing policies in ways that are detrimental for criminal deterrence.

Another area of application of these results is regulation. A divergence between regulators and courts concerning appropriate sanctions might diminish not only effective regulatory penalties but also the incentives for regulatory enforcement. When regulators are more demanding than courts we might end up with lower sanctions and lower probabilities if there is significant underdeterrence. In fact, our analysis suggests that the experience of regulatory decisions being reversed by courts frequently as we have observed in a few jurisdictions cannot be addressed or solved by escalating sanctions.

IV. FINAL REMARKS

In this paper, we have observed that when courts dislike punishment, sanctions naturally go down. We have also argued that the trade-off between probability and severity of punishment may not be consistent with optimal law enforcement when there is substantial underdeterrence. When sanctions are sufficiently large, we approach complete deterrence (the negative externality is fully internalized). By decreasing the fine, we must increase the probability, thus achieving the same deterrence level but with more significant enforcement costs. However, when sanctions are low, we have substantial underdeterrence. By reducing fines, we should also decrease the probability making further losses in deterrence.

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MEDICAL MALPRACTICE APPEALS TO THE SPANISH SUPREME COURT

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Abstract

This short paper focuses on outcomes of medical malpractice claims decided by the Spanish Supreme Court from 2006 until 2010. Section 1 provides a brief introduction to the problem of medical malpractice. Section 2 describes the dataset and provides an overview of the main results in Amaral-Garcia and Garoupa (2015) and in Amaral-Garcia (2019). The former assesses whether administrative courts can favor the government (*i.e.,* whenever the medical accident took place in a public hospital) in medical malpractice cases. The later focuses on non-economic damages and tests for differences between administrative and civil decisions (in general terms, it tests whether courts award different non-economic amounts to patients suffering harm in public and private hospitals). Section 3 briefly considers which medical specialties are more commonly sued and makes a comparison with other jurisdictions. Section 4 analyses the impact of legal reforms introduced in 1998 and 1999, which aimed at reducing the duration of legal claims. Finally, conclusions are presented in Section 5.

Keywords: medical malpractice, Tort Law, compensation, empirical analysis, Spanish Supreme Court.

JEL classification: K13.

I. INTRODUCTION

Every day, patients search for medical treatments. Generally speaking, patients nowadays tend to be better informed with respect to available therapies, more demanding concerning medical treatments, and tend to live longer.[1] In some cases, these patients will be injured by the treatment they have received due to a medical error. Medical errors bring suffering to patients and their families, and can also bring important implications for the physician that provided health care. Overtime, patients became more aware of their rights and might be more willing to react whenever harm results from medical treatment.

Medical accidents are costly for several reasons; besides the obvious human suffering, loss of income, there are generally additional costs involved in terms of medical care to the injured patient. Moreover, patients can also bring a claim against the hospital and doctor that allegedly caused the harm. All these factors add to the costs of healthcare that have been rising for the last few decades.

When injured plaintiffs decide to bring a claim, there are three main things that must be proved in medical malpractice cases: harm, negligence and causation (Sloan and Hsied, 1990). Proving harm is generally the easiest part of proving medical liability, as one expects plaintiffs to bring claims precisely because they have been injured and harm tends to be easily observed. A proof of negligence is also needed, and the idea is to prove that the standard of care required for a similar treatment has not been met. There can be different schools of thoughts in medicine, and therefore there can be different opinions when assessing whether a specific type of medical care was negligent. Finally, plaintiffs must prove that the treatment received/omitted is the cause of the harm. Proving causation in medical malpractice cases is particularly challenging: patients search for medical care because they are sick already. Moreover, it is impossible to obtain a contrafactual for a patient, had she not have received such treatment.

There is evidence that only a reduced number of injured patients fill a claim against doctors and hospitals (see, among others, HMPS, 1990; Studdert *et al.,* 2006). Moreover, the design of the liability system provides distinct incentives for patients to present a claim. The costs of litigation, the duration (Rickman and Fenn, 2001; Studdert *et al.,* 2006; Hyman and Silver, 2006) until a decision is made and the compensation that the patient expects to recover are some of the variables that influence the decision of filing a claim. The level of injury is an essential variable to calculate indemnity amounts if compensation is provided to

[1] Spain ranks second in terms of life expectancy: 83.2 years. Only Japan ranks ahead, with a life expectancy of 83.4 years. OECD (2015).

patients. Hence, presenting a claim is more appealing for patients that suffered higher levels of injury (Hyman and Silver, 2006),[2] also because malpractice litigation involves costs and delays.

In recent years, several studies have focused on medical malpractice,[3] a field of research that had attracted attention from scholars with different backgrounds, such as law & economics, medicine, health law or health economics. A number of empirical studies to date have focused on data from the US to analyse different problems related to medical accidents and the litigation process. The empirical literature published after 2000 on the American case presents some interesting results on the ability of the tort system to provide correct decisions in medical malpractice cases. For example, Spurr and Howze (2001) find that the defendant´s fault is the only significant variable predicting whether the plaintiff drops the case or settles. Peeples, Harris and Metzloff (2002) found a strong connection between standard of care and settlement.

Studdert *et al.* (2006) analysed a random sample of 1,452 malpractice claims closed from 1984 to 2004. From the reviewed claim files, 97% involved injury, of which negligence was found in 63% of the cases. In turn, payment was made in 73% of these cases. Regarding cases involving injury but where no error was involved, payment was made in 28% of them. This means that *"[o]verall, 73 percent (1054 of 1441) of all claims for which determinations of merit were made had outcomes concordant with their merit".* Several interesting results were also presented concerning cases that involved injury: 80% of the claims involved injuries that caused significant disability, major disability or death; the average time span between the occurrence of the injury and the closure of the claim was five years; a small percentage of cases arrived in court, and in these plaintiffs rarely won damages. Studdert and Mello (2007) use the same sample to assess predictors of discordant outcomes, *i.e.,* cases in which the reviewer's judgment disagreed with the case outcome. Payments in non-error claims are more common if they involve infants, nurse defendants, major injuries, obstetrics injuries or institutional co-defendants. It was furthermore less likely to receive a payment in non-error claims if they involved elderly plaintiffs, orthopaedic surgeons, emotional injuries, allegations of missed or delayed diagnosis, and claims that reached a trial verdict. The main finding of the study was that approximately one in every four cases presented discordance between outcome and merit. Although the authors found several differences in terms of discordant outcomes regarding payment of non-error claims and unpaid error claims, resolution by trial verdict was the only significant predictor present in both types of discordant outcomes. Therefore, one implication of this discovery

[2] For more details regarding patient behavior when bringing claims to the legal system.

[3] Even though it was not the first study in the field, the Harvard Medical Practice Study (1990) had a strong impact and significantly contributed for the awareness of adverse events in hospitals.

is that it does not support the view that juries are too generous to plaintiffs when a medical malpractice case arrives in court.

In spite of the extensive empirical literature currently existing mainly for the US, little is known with respect to the medical malpractice litigation process in civil law tradition countries in general. Several variables would be needed if one aims at making an extensive analysis, but these are not generally available to the public or to researchers. For instance, in order to have a complete picture of the current state of medical accidents and the litigation process we would need to know, among other things: how many medical treatments result in harm; how many of these cases are due to a negligent medical treatment and how many of these were caused by the medical treatment; how many patients sue their doctors and hospitals; how many plaintiffs receive compensation (and how many cases are correct, *i.e.,* how many receive compensation because the harm was indeed due to a negligent treatment that caused it, and how many do not receive compensation because the harm was not due to a negligent treatment or the treatment did not cause the injury); how much compensation are plaintiffs receiving, conditional on the level of harm that they have suffered and other characteristics, such as age.

Safety on health care was brought to the policy debate (Baker, 2004) eventually after the publication of the report from the U.S. Institute of Medicine (2000), which estimated that there were more people dying in the US due to medical errors than from breast cancer, motor vehicle accidents or AIDS. Subsequently, some countries performed studies to estimate adverse events in hospitals. Estimations for Spain are that approximately 8.4% of patients suffered an adverse event when receiving hospital care, of which more than 40% were considered as preventable (Aranaz-Andres *et al.,* 2008). This is in line with the results obtained for other countries, even though it can be difficult to obtain a reliable estimate.[4] A more recent report from the U.S. Institute of Medicine (2007) estimated that a total of 1.5 million preventable adverse drug events occurred each year in the US. For Spain, a study estimates that almost 50% of adverse events in primary care in Spain are due to medication errors (Ministerio de Sanidad y Consumo, 2008). Meanwhile, several governments have implemented policies with the aim of increasing patient safety. It is still difficult and early to assess whether these initiatives have been properly implemented and if they improved patients 'safety.

Besides these initiatives, recent empirical studies have found that a relationship between physician behaviour and malpractice pressure. For instance, changes in malpractice pressure can have an impact on the procedure chosen

[4] See Amaral-Garcia (2011) for a review of these studies.

by physicians when delivering newborns, as shown in Currie and MacLeod (2008), Frakes (2012) and Shurtz (2013) for the American case. For Italy, Amaral-Garcia, Bertoli and Grembi (2015) also provide evidence of changes in medical behaviour. What this line of research has supported is that the design of the medical liability system can be relevant for providing the incentives to physicians to deliver appropriate care.

II. THE DATASET AND MAIN FINDINGS

The details about the dataset and empirical methodology can be found in Amaral-Garcia (2019) and in Amaral-Garcia and Garoupa (2015). More extensive details on the construction of the dataset can be found in Amaral-Garcia (2011). After summarizing the main results from those studies and reconciling them, an analysis of the duration of claims will follow. The focus of this empirical exercise is on Spanish Supreme Court[5] decisions on medical malpractice cases decided between 2006 and 2010. The dataset is composed by the universe of decisions in which the Supreme Court made a judgment regarding the evidence of medical negligence during that time period: 366 decisions, of which 113 were made by the civil section of the Supreme Court, and 253 by the administrative section. Several variables were collected, such as: the outcome of the case (which can be compensation awarded or refused), whether the Supreme Court agreed with the previous court decision, the party appealing to the Supreme Court, the age and gender of the patient, the medical specialty of the physician, the level of harm (which can be categorized as temporary/emotional, permanent minor, permanent major or death), the injury date, the lower court decision date and the Supreme Court decision date.

One question might be raised concerning the use of this dataset: why does the dataset include only Supreme Court decisions, when there is evidence from other jurisdictions that only a reduced number of injured patients present a claim and that only a fraction of these patients appeal to the Supreme Court? To start with, Supreme Court decisions are relevant as they make new law, clarify the law, produce precedents and harmonize conflicting lower court decisions, benefiting many parties in the future and allowing for error correction (Shavell, 2010). Moreover, appealing to the Supreme Court is as of right in civil law tradition countries and the majority of costs have been incurred previously, which reduces concerns with respect to the sample. Furthermore, and contrarily to lower court decisions, the universe of Supreme Court decisions are available to the researcher. This is relevant because, in case an analysis of lower court

5 For more on the Spanish Supreme Court, see Garoupa, Gili and Gómez-Pomar (2012).

decisions would be performed, the sample would be biased.[6] Finally, the idea of these studies was precisely to compare administrative and civil Supreme Court decisions, rather than explaining medical suits. Therefore, this mitigates selection bias concerns.

In Spain, similarly to what happens in other countries in Continental Europe, patients can receive medical treatment in public and private hospitals.[7] In case of litigation, they can bring a claim to administrative courts[8] if the medical accident took place in a public hospital; or to civil courts if the medical accident took place in a private hospital.[9] The distinction between the administrative and civil jurisdictions can bring concerns, namely that plaintiffs and defendants might be treated differently (Gómez-Pomar and Sánchez Álvarez, 2006). As the defendant in administrative cases is the State, one might worry that judges can have some pro-State bias while judging these cases (Dari-Mattiacci, Garoupa and Gómez-Pomar, 2010).

Amaral-Garcia and Garoupa (2015) have tested the extent to which administrative courts are biased in favour of the government, as this is the defendant in medical malpractice cases reaching the administrative section of the Supreme Court. The empirical strategy in this work was based on the similarities between judges sitting at the administrative and civil sections of the Supreme Court, respectively, and on the error correction mechanism allowed by the appeals process. Moreover, there are fundamental similarities between administrative and civil medical malpractice cases in terms of legal procedure (including the grounds for reversal) in practice, which make the comparison possible. As explained in detail in the original work, the analysis is based on two premises: i) in the Spanish Supreme Court, the composition and behaviour of judges sitting in the administrative section is not significantly different from those in the civil section; ii) in the presence of a pro-defendant bias, we should expect the Supreme Court to correct such a feature in the process of appeal. Therefore, in case there is a pro-state bias from lower courts, the Supreme Court should be able to correct such bias which implies having significant higher reversal rates at the Administrative Section of the Supreme Court. There was however no evidence of such phenomena when analysing Supreme Court decisions from

[6] Lower court decisions are starting to become available.

[7] There is an extensive literature on the Spanish legal system in medical malpractice cases. See, among others, Martín-Casals, Ribot Igualada and Solé Feliu (2003); Ferrara, Boscolo-Berto and Viel (2013); Arroyo and Yágüez (2013); Amaral-Garcia (2011); Koch (2011); Amaral-Garcia and Garoupa (2015) and Amaral-Garcia (2015a).

[8] For more on administrative courts, see Amaral-Garcia (2015b).

[9] This has been made clear after the introduction of Law 29/1998 of July 13 according to which plaintiffs injured in public hospitals could no longer chose in which jurisdiction to file a claim. For more on this, see next Section.

2006 until 2010. The authors present three alternative explanations for the results. The first is that no bias is observed because the cases litigated in civil courts and in administrative courts are fundamentally different in dimensions that cannot be controlled for or, alternatively, that are not reflected in the litigation that goes on appeal to the Supreme Court. Given the nature of the legal system and the known characteristics of the cases litigated in the Supreme Court (there is no case selection by the Supreme Court itself), this seems to be unlikely. The second is that such bias does exist, but the Supreme Court fails to correct it. The third and more plausible explanation is that there is no systematic bias in administrative courts. Medical malpractice is decided in similar ways in the two court jurisdictions and therefore the Supreme Court corrects legal errors that are uncorrelated with the nature of the law.

Amaral-Garcia (2019) assessed predictors of payouts and non-economic damages in medical malpractice cases. The main objective was to understand which case characteristics are associated with a positive payout and to test the extent to which administrative courts might attribute different non-economic damages than civil courts. A two-part model was estimated in the following way: in the first part (selection equation) the dependent variable was a dummy equal to one if the plaintiff received compensation and zero otherwise. In this model, the probability of receiving compensation was estimated, controlling for several case, hospital and patient's characteristics. In the second part (outcome equation) only cases with a positive payout were considered. The dependent variable was in this case the log of non-economic compensation awarded to plaintiffs. The main results were the following:

- Higher levels of harm are a strong predictor of compensation. Still, compensation was refused in approximately one third of cases involving this level of harm. Therefore, suffering a high severity injury is not a sufficient condition to receive compensation.

- It is more likely to receive compensation in case the lower court has attributed compensation already. This supports the argument that the majority of appeals in civil law tradition countries tend to fail (Shavell, 2010), *i.e.,* that the Supreme Court tends to agree with the decision being made by the previous court.

- The probability of receiving compensation at the Civil Section of the Supreme Court is not statistically significant different from cases judged at the Administrative Section.

- The amount of non-economic damages attributed by the Civil and Administrative Section of the Supreme Court is not statistically significantly different.

These conclusions also hold for two robustness check exercises. The first consisted in estimating with a matching procedure the effect of administrative courts; the second consisted in a simulation exercise that evaluated the counterfactual compensation.

III. MEDICAL SPECIALTIES

Let us consider the medical specialty of the doctor that allegedly provided the negligent medical care. During the period of this study, obstetrics/gynecology has been the specialty with the highest number of appeals to the Spanish Supreme Court (89 appeals), followed by neurosurgery and orthopedics (85 appeals). Studies from other jurisdictions found that these are typically the most sued specialties. For Italy, Grembi and Garoupa (2013) find that the most frequently sued specialties in civil cases reaching the Court of Cassation were obstetricians/gynecologists (30%), surgery (17%) and orthopedics (11%). For the US, Studdert *et al.* (2006) find that, in their sample, the most frequently sued physicians were obstetrician-gynecologists (19%) followed by general surgeons (17%) and primary care physicians (16%). Klick and Stratmann (2007) identify 10 specialties exhibiting the highest average medical malpractice awards per doctor: neurological surgery, thoracic surgery, obstetrics and gynecology, general practice, emergency room, plastic surgery, radiology, anesthesiology, general surgery, and cardiovascular disease.

A significant proportion of cases reaching the Spanish Supreme Court and involving obstetricians-gynaecologists are related to harm during deliver and labour. This is in line with the results found for Catalonia by Gómez-Durán *et al.* (2013). Moreover, while the majority of claims involving obstetricians are related to care provided to newborns, the majority of claims against neurosurgery and orthopedics are related to care provided to adults. Claims against these specialties generally involve severe levels of harm. However, not all claims involving the most serious levels of harm received damages for the harm suffered.

IV. THE 1998 AND 1999 REFORMS

Besides the outcome of a legal claim, there is also another factor relevant for the litigation process: the length of time required to resolve a claim. Delays in the judicial system can be costly not only to the harmed patients and families, but also to health care providers. Delays can distort the incentives of injured patients to bring claims or the incentives of injurers to avoid accidents, which

is worrying. In fact, the deterrent effect might be diminished if potential tortfeasors are aware that litigation takes too long to be resolved. The longevity of judicial claims has led several states in the US to implement reforms aiming at reducing the length of those claims. In fact, many states designed laws during the 1970´s and the 1980´s to expedite the longevity of medical malpractice disputes (Hughes and Savoca, 1997).

The perception that delays in judicial systems are excessive is not exclusive of the US, though. In fact, civil law tradition countries tend to be aware of the problem of delays as well. In Italy, reforms were implemented, even though they did not have the intended consequences (Grembi and Garoupa, 2013). In Spain there was also the perception that delays in the judicial system were excessive. Two reforms took place in 1998 and 1999 with the aim of reducing delays in the judicial system: Law 29/1998 of July 13 and Law 4/1999 of January 13. The 1998 reform made it clear that liability cases concerning the public administration can only be tried by the administrative jurisdiction, interdicting civil courts from judging those cases. A few months later, in 1999, new legislation came into force, stating that medical liability in cases involving social security institutions must be tried in the administrative jurisdiction as well. The main motivation claimed by the legislator to implement such reforms was the extraordinary increase in litigation between citizens and the State that brought delays to the judicial system.[10]

In this section, a survival analysis is performed in order to test whether the reforms had the intended effect, *i.e.,* if the duration of cases has been reduced. It is not possible to provide considerations regarding other potential effects of this reform. For instance, injured victims can opt for not bringing claims against public hospitals because they can no longer choose to have their case tried by civil courts. This can be relevant if, for instance, injured patients believe that the civil jurisdiction would provide a better outcome for them (*e.g.,* in terms of awarding compensation, amount of compensation). Another possibility is that plaintiffs started to take claims to the criminal jurisdiction, which is appealing to the plaintiff due to delays in the administrative jurisdiction and to a possible bias towards the State (Gómez-Pomar and Sánchez Álvarez, 2006) (see also Martin-Casals*, Feliu and Torreblanca* 2004). Moreover, no conclusions can be drawn with respect to the quality of the decisions being made: more speed does not imply having a more efficient allocation of resources or better decisions.

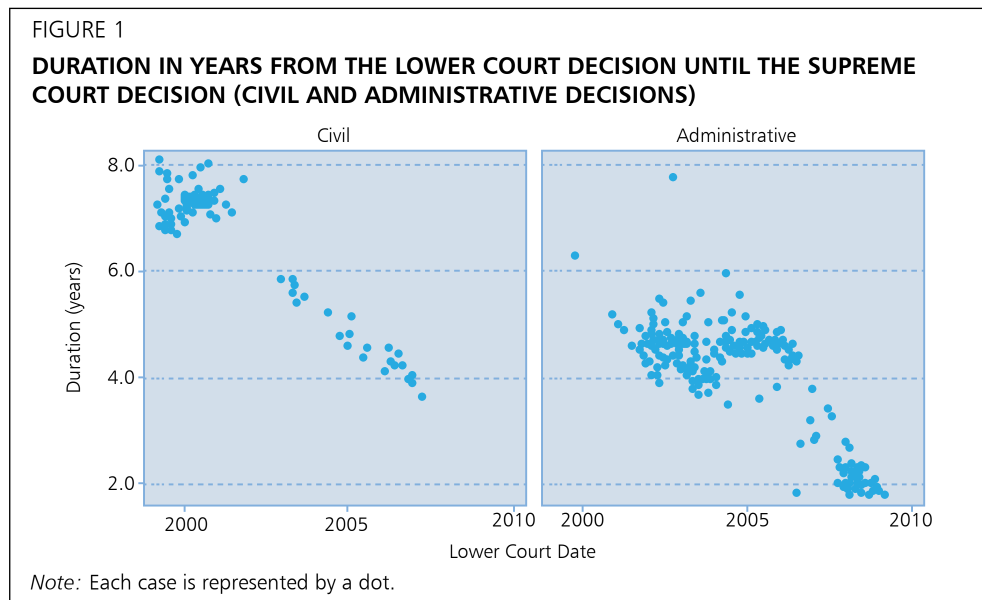
[10] This is indeed the main motivation according to both laws. Law 29/1998 of July 13 presents many arguments to favor citizens in litigation with the State, namely the possibility of appeal when the State is inactive in providing an answer (when it takes too much time to make a decision). Law 4/1999 of January 13 refers to the exoneration of citizens from bureaucratic duties, in order to ensure judicial security more intensively.

Two measures of duration are considered: the time span from the medical accident until there is a final decision made by the Supreme Court; and the time span from the lower court decision and the Supreme Court decision.[11] The limitation period in Spain is one year for actions in tort.[12] The *dies a quo* is the day that the victim knew the consequences of the harm instead of the day of the medical accident. Therefore, the Court makes a distinction between *"daños permanentes y continuados", i.e.,* between permanent and continuous injuries. In the first type of harm, the consequences are known, and unchangeable; the second type of harm is characterized by the fact that there is an evolution, and the patient might have to wait a certain period of time until the consequences are fully known. The vast majority of cases involve permanent injuries that are generally known immediately after the medical treatment took place.

The duration from lower court decision to the Supreme Court decision of pre-reforms cases tends to be lower in the administrative jurisdiction than in the civil jurisdiction (Figure 1). On average, pre-reform cases took 4 years from the lower administrative court until the Supreme Court decision, whereas these cases took on average 7 years in the civil jurisdiction (Table A). Moreover, while the difference between the maximum duration in civil and administrative jurisdictions is not very high (8.1 and 7.8 years) there is a somehow large

FIGURE 1

DURATION IN YEARS FROM THE LOWER COURT DECISION UNTIL THE SUPREME COURT DECISION (CIVIL AND ADMINISTRATIVE DECISIONS)



Note: Each case is represented by a dot.

[11] This is the last court making a decision before the Supreme Court.

[12] Art.1968.2 of the Civil Code. This is the maximum time period that plaintiffs have to present a claim (after the medical accident has taken place).

difference between the minimum duration in civil and administrative jurisdictions: the minimum duration of cases in the civil jurisdiction is more than twice the minimum duration in the administrative jurisdiction.

The second part of Table 1 shows summary statistics for post-reform cases. The difference between civil and administrative jurisdictions seems to have diminished, even though the duration of cases reaching the administrative jurisdiction became smaller.

TABLE 1

SUMMARY STATISTICS FOR CLAIMS DURATION FROM LOWER COURT DECISION UNTIL THE SUPREME COURT DECISION

	Mean	*p25*	*p50 (Median)*	*p75*	*Max*	*Min*
			Pre-reforms			
Civil	6.99	6.96	7.21	7.44	8.10	4.02
Adm.	4.21	4.01	4.46	4.68	7.76	1.81
Total	5.32	4.29	4.78	7.12	8.10	1.81
			Post-reforms			
Civil	4.37	4.10	4.35	4.54	5.61	3.64
Adm.	3.28	1.98	2.92	4.55	5.95	1.76
Total	3.40	2.00	3.87	4.55	5.95	1.76

Note: Duration is the total number of years from the lower court decision until the Supreme Court decision.

Let us now consider the duration between the medical accident and the Supreme Court decision (Table 2). The differences between Administrative and Civil decisions for this duration measure seem to be smaller. This is particularly true when considering only post-reforms cases. However, a word of caution is needed: the Civil section of the Supreme Court has made only 12 post-reforms decisions. The Administrative section has made a total of 96 post-reforms decisions instead.

There are some issues when analysing claims duration that have to do with the cases that are included in the sample.[13] In the case of the dataset presented in this paper, the time period being considered is from 2006 until 2010, and it is only possible to observe the outcome of cases decided by the Supreme Court within this time frame. For instance, there is the possibility that cases that have

[13] For a discussion of the problem and suggested alternatives see Hughes and Savoca (1997 and 1999). The main idea is to restrict the analysis to a subset of claims in which sampling bias is believed to be small or to correct the biases using estimation techniques.

TABLE 2

SUMMARY STATISTICS FOR CLAIMS DURATION FROM THE MEDICAL ACCIDENT UNTIL THE SUPREME COURT DECISION

	Mean	*p25*	*p50 (Median)*	*p75*	*Max*	*Min*
			Pre-reforms			
Civil	13.9	12.1	13.7	15.7	9.8	19.6
Adm.	12.5	10.6	12.1	14.3	8.0	18.5
Total	13.0	11.2	12.9	12.9	8.0	19.6
			Post-reforms			
Civil	8.9	7.9	8.8	10.1	6.6	10.9
Adm.	8.8	7.6	8.9	10.0	5.7	11.5
Total	8.8	7.7	8.9	10.0	5.7	11.5

Note: Duration is the total number of years from the medical injury until the Supreme Court decision. A few outliers were excluded (the only relevant difference when including all observations is the maximum duration of cases, which is lower in the table above).

been filled at the same time than others but for some reason were decided faster might not be showing up in the dataset because they have been decided before 2006. Considering the statistics available for the duration of a medical malpractice cases, this does not seem to be particularly problematic for this analysis: it is unlikely that a significant number of pre-reforms cases has been solved already by the Supreme Court before 2006. In fact, in 2006 none of the decisions made by the Supreme Court are with respect to medical accidents happening before 1998. What it seems to be the case is that the Supreme Court is solving older cases and, as the backlog diminishes, more recent cases can then be solved.

Table 3 shows the total number of decisions made each year by the Supreme Court according to the date of the lower court decision. This table provides support to the previous claim. While in 2006 a significant number of Supreme Court decisions were on cases in which the lower court had issued a decision in 1999, there were no such cases from 2008 onwards. Moreover, another interesting fact emerges from this table: in 2006, the fastest that the Supreme Court could be was to solve cases in which the lower court had issued a decision four years before, in 2002 (in a total of 17 cases). In 2010 the Supreme Court decided a significant number of cases with an appeal from two years before (a total of 49 cases that had a decision in 2008) and even three cases from the previous year (*i.e.,* from 2009).

There is also the possibility that some cases with similar dates of injury or filing are still being decided and therefore we cannot observe them. Even though

TABLE 3

YEAR OF THE SUPREME COURT DECISION AND THE LOWER COURT DECISION

	Year of the Supreme Court Decision				
Year of Lower Court Decision	*2006*	*2007*	*2008*	*2009*	*2010*
1999	25	13	0	0	0
2000	1	35	12	0	0
2001	14	0	3	1	0
2002	17	24	1	0	1
2003	0	45	12	4	0
2004	0	2	9	18	3
2005	0	0	1	8	20
2006	0	0	1	2	25
2007	0	0	0	5	9
2008	0	0	0	3	49
2009	0	0	0	0	3

more years of data would be necessary in order to draw some conclusions, it seems plausible to assume that cases that have not been solved yet are more likely to be concerning post-reforms medical accidents (see also Table 3).

The regression analysis performed aims to assess the impact of the reforms, and it uses models of survival. Given the scope of this article, I will not elaborate much on these models. The interested reader can find a detailed explanation elsewhere (*e.g.,* Jones 2007; Wooldridge 2002). Duration models aim at investigating the duration of an event. In this paper, the duration of the event is the duration of the legal claim. The basic notion involved in these models is the existence of a hazard function, which measures the probability that someone fails at a certain point of time, given that this person has survived until then.[14] In order to estimate the hazard function, both Weibull model and Cox[15] proportional hazard model are used. The results can be found in Tables 4 and 5, which use different dependent variables. In Table 4, the duration measure is the length from the medical injury to the Supreme Court decision, whereas in Table 5 the duration measure is the length from the lower court decision to the Supreme Court decision. The coefficients express hazard ratios and should be interpreted in the following way: if higher than 1, the probability of being

[14] Many applications of survival analysis are on health economics – for instance, on cancer treatments or on smoking.

[15] Cox models have the advantage of not imposing priors on the shape of the baseline hazard function.

closed sooner is higher (*i.e.,* expected duration is smaller); if lower than 1, the probability of being closed sooner is lower (*i.e.,* expected duration is higher).

The most consistent result obtained from the econometric analysis is that the reforms are associated with a reduction in the duration of claims. There is some evidence that cases involving permanent major injuries take longer to be solved, but the results are only statistically significant at the 10% level in Regressions (1), (2) and (3) of Table 4. In Table 5, cases being judged by the Administrative jurisdiction are associated with a lower duration than those tried in the Civil jurisdiction. Moreover, cases involving neurosurgery/orthopaedic surgery also associated with a lower duration.

TABLE 4

REGRESSION RESULTS – TIME ELAPSED FROM MEDICAL INJURY TO THE SUPREME COURT DECISION

	(1) Weibull	*(2) Cox*	*(3) Weibull*	*(4) Cox*
Administrative	0.864	1.155	0.745	1.034
	(0.129)	(0.171)	(0.122)	(0.167)
Post-Reform	7.684***	11.77***	9.351***	14.24***
	(1.238)	(2.119)	(1.651)	(2.865)
Newborn	1.030	1.059	0.971	1.030
	(0.303)	(0.315)	(0.304)	(0.325)
Adult/Elderly	1.471	1.127	1.417	1.083
	(0.323)	(0.242)	(0.331)	(0.249)
Male	0.745*	0.802	0.710**	0.777
	(0.0883)	(0.0951)	(0.0918)	(0.100)
Patient Appeals	1.261	1.086	1.190	1.044
	(0.191)	(0.160)	(0.200)	(0.169)
Permanent Minor	0.504**	0.641	0.487**	0.640
	(0.115)	(0.146)	(0.127)	(0.166)
Permanent Major	0.562*	0.606*	0.552*	0.613
	(0.143)	(0.155)	(0.157)	(0.175)
Death	0.832	0.875	0.815	0.889
	(0.214)	(0.223)	(0.239)	(0.258)
Obstetrics/Gynecology	1.328	1.085	1.435	1.134
	(0.249)	(0.214)	(0.291)	(0.242)
General Surgery	0.538**	0.768	0.578*	0.809
	(0.122)	(0.165)	(0.141)	(0.186)
Neuro/Orthopedics	0.791	0.892	0.798	0.934
	(0.127)	(0.140)	(0.143)	(0.164)
Anesth/Reanimation	0.766	0.832	0.745	0.810
	(0.232)	(0.251)	(0.238)	(0.258)

TABLE 4 *(continued)*

REGRESSION RESULTS – TIME ELAPSED FROM MEDICAL INJURY TO THE SUPREME COURT DECISION

	(1) Weibull	(2) Cox	(3) Weibull	(4) Cox
Emergency Medicine	1.108	1.143	1.117	1.149
	(0.240)	(0.243)	(0.271)	(0.272)
Duration Dependence	4.028***		4.144***	
Parameter	(0.153)		(0.174)	
Observations	355	355	302	302

Note: Exponentiated coefficients; Standard errors in parentheses. The dependent variable is the time interval from the medical injury to the Supreme Court decision. Coefficients in hazard ratios: higher than 1 means a decrease in expected duration. Regressions 3 and 4 exclude 2006. * p < 0.05, ** p < 0.01, *** p < 0.00. Weibull models include a constant. Regressions (3) and (4) exclude decisions made in 2006.

TABLE 5

RREGRESSION RESULTS – TIME ELAPSED FROM THE LOWER COURT DECISION TO THE SUPREME COURT DECISION

	(1) Weibull	(2) Cox	(3) Weibull	(4) Cox
Administrative	7.927***	9.458***	6.523***	7.715***
	(1.426)	(1.917)	(1.241)	(1.655)
Post-Reform	2.058***	2.010***	2.028***	2.000***
	(0.270)	(0.271)	(0.281)	(0.286)
Newborn	1.079	1.104	1.002	0.973
	(0.334)	(0.347)	(0.334)	(0.330)
Adult/Elderly	0.869	0.856	0.874	0.882
	(0.181)	(0.182)	(0.193)	(0.199)
Male	1.025	1.040	1.045	1.073
	(0.118)	(0.121)	(0.131)	(0.136)
Patient Appeals	0.873	0.830	0.876	0.878
	(0.127)	(0.122)	(0.140)	(0.143)
Permanent Minor	0.788	0.777	0.761	0.791
	(0.178)	(0.180)	(0.196)	(0.211)
Permanent Major	0.746	0.771	0.713	0.809
	(0.197)	(0.210)	(0.215)	(0.252)
Death	0.605*	0.592*	0.548*	0.559
	(0.154)	(0.155)	(0.161)	(0.168)
Obstetrics/Gynecology	1.424	1.490	1.541	1.634*
	(0.291)	(0.311)	(0.348)	(0.375)
General Surgery	1.209	1.246	1.241	1.286
	(0.245)	(0.256)	(0.269)	(0.284)
Neuro/Orthopedics	1.463*	1.684**	1.482*	1.664**
	(0.236)	(0.278)	(0.266)	(0.307)

TABLE 5 *(continued)*

RREGRESSION RESULTS – TIME ELAPSED FROM THE LOWER COURT DECISION TO THE SUPREME COURT DECISION

	(1) Weibull	*(2) Cox*	*(3) Weibull*	*(4) Cox*
Anesth/Reanimation	1.327	1.299	1.329	1.332
	(0.405)	(0.400)	(0.434)	(0.440)
Emergency Medicine	1.318	1.434	1.391	1.377
	(0.278)	(0.311)	(0.330)	(0.336)
Duration Dependence	4.865***		4.387***	
Parameter	(0.214)		(0.209)	
Observations	362	362	307	307

Note: Exponentiated coefficients; Standard errors in parentheses. The dependent variable is the time interval from the lower court decision to the Supreme Court decision. Coefficients in hazard ratios: higher than 1 means a decrease in expected duration. Regressions 3 and 4 exclude 2006. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Weibull models include a constant. Regressions (3) and (4) exclude decisions made in 2006.

V. CONCLUSIONS

This article has started by reconciling the main findings from two previous studies (Amaral-Garcia and Garoupa (2015) and Amaral-Garcia (2019)). As described above, no significant differences have been found between civil and administrative decisions at the Spanish Supreme Court. Subsequently, a duration analysis has been performed in order to assess the impact of the 1998 and 1999 reforms. Post- reform cases are associated with a reduction in the duration of claims that reached the Spanish Supreme Court.

A word of caution is needed: the conclusions made here refer to Supreme Court decisions between 2006 and 2010. Therefore, it is not possible to extrapolate these conclusions to the entire litigation system, nor to different time periods. In order to make such analysis, there should be an extensive understanding of medical malpractice lawsuits reaching lower courts as well. With respect to the impact of the 1998 and 1999 reforms, there are possible unintended consequences that are not possible to draw with this dataset. For instance, these reforms might have brought an increase in criminal lawsuits. If this is the case, the duration in civil and administrative jurisdiction might now be lower because a significant proportion of cases are currently being tried at the criminal jurisdiction. Moreover, a reduction of claims duration per se does not imply better decisions.

Overall, and even though the results obtained for Spain cannot be generalized to other civil law tradition countries, the present article discussed issues that are a reality in many other jurisdictions: a possible pro-state bias

whenever the legal system makes a clear distinction between administrative and civil jurisdictions; the challenges of quantifying non-economic damages; and the problem of delays in the litigation system. More studies on other jurisdictions are welcome, in order to understand better the complex worlds of medical malpractice and litigation.

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