

Five Essays on Corporate Governance, Social Norms and Law.

by

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Abstract

This thesis is a collection of five essays that encompass my actual research interests. The first paper discusses the role of regulatory competition in the provision of Corporate / Financial Law with multiple jurisdictions systems (like EU or US). The second paper analyses how the incentive to expropriate stakeholders set by Corporate and Labor Law can differ according to the specific governance structure of the firm. The Third paper proposes a mechanism to reduce corruption in the judiciary of developing countries. The fourth paper describes the effects on lawmaking of the interaction between strong and weak groups, in an articulated society. The fifth paper, finally, is a note on the rationale of assuming the existence of network effect in group-level payoff functions.

1) Disintegrating the regulation of the business corporation as a nexus of contracts: regulatory competition vs. unification of law (with Stefano Lombardo)

Abstract: *We apply the paradigm of the firm as a nexus of contracts to the debate on regulatory competition vs. unification of law as an alternative way of regulating the business corporation. This approach views the business corporation as a set of coordinated contracts among different parties. Agency problems and related agency costs are the result of this interaction. The economic analysis of corporate law, securities regulation and bankruptcy law identifies law as a means to minimize such agency costs. In this paper we develop a model where companies are heterogeneous in their preferences about the legal regulation of contractual relationships. We then compare a regime of regulatory competition to a regime of single supply of regulation and we analyse their relative costs and benefits.*

2) Corporate Governance, Corporate and Employment Law, and the Costs of Expropriation (with Giulio Ecchia and Martin Gelter)

Abstract: *We set up a model to study how ownership structure, corporate law and employment law interact to set the incentives that influence the decision by the large shareholder or manager effectively controlling the firm to divert resources from minority shareholders and employees. We suggest that agency problems between the controller and other investors and holdup problems between shareholders and employees are connected if the controller bears private costs of “expropriating” these groups. Corporate law and employment law may therefore sometimes be substitutes; employees may benefit from better corporate law intended to protect minority shareholder, and vice versa. Our model has implications for the domestic and comparative study of corporate governance structure and addresses, among other things, the question whether large shareholders are better able to “bond” with employees than dispersed ones, or whether the separation of ownership facilitates long-term relationships with labor.*

3) Corruption of Judiciaries and the Independence paradox: a contractual solution?

Abstract: *Unfortunately, corruption, malfeasance and ethical lassitude in general are symptoms of numerous judiciaries in developing countries. The socio-economic costs of a cor-*

rupt judiciary are enormous. Judicial systems form the backbone of societies' institutions, ensuring individuals are dissuaded from socially undesirable activities in favour of socially productive activities. At the same time many developing countries find themselves in a dilemma. Judges and their staff are often chronically underpaid. Though they are recognised as being underpaid, the executive/legislature is unwilling to increase their wages because they are considered corrupt. Judges, on the other hand, justify themselves engaging in corruption because they are underpaid. Judges are unwilling to forgo their corruption-based income because they consider their wages as being too low, and the legislature/executive is unwilling to increase their wages because the basic incentives to be corrupt remain. Disciplinary systems have broken down and are difficult to repair. Judges can hide behind judicial independence as a means to shield themselves against prosecution and investigation. Despite its many virtues, it is judicial independence that makes it particularly difficult to reform a corrupt judiciary. In this paper we propose a solution to the aforementioned. To 'get around' this independence problem we propose a contractual solution. To our knowledge this has never been implemented in any judiciary in the world. The design of the contract is the following. Judges could receive an integrity bonus percent by voluntarily signing an agreement whereby: they allow themselves to be monitored by an agreed upon body. We show that the mechanism we propose would be able to reduce at least partially the degree of corruption while, being voluntary, is not affected by the independence problem.

4) The Political Economy of Minority Protection Law

Abstract: *In this paper we examine situations where the norms adopted to correct for discriminating and unlawful behavior start from an initial, too low level and are then raised to one considered very restrictive by some groups in the society, generally more stringent than the long - run level. Two possible examples are affirmative action and harassment law. We present a model that explains such behaviour. Individuals feel indignation for the inequalities and oppression they are victims of. The very high level of enforcement is due to social pressure, both intra and inter - group, building up over time. After some time, the previously dominant group begins to feel discriminated. Indignation in that group starts a backlash reaction that brings down enforcement. A sequence of jumps may follow.*

5) Discrimination as a 3-Player Game with Emerging Network Effects.

Abstract: *In this short note we propose a simple game that could be used to model discriminatory behaviours. Our game finds, for instance, a natural application in modelling job market discrimination, but could be applied also to other settings. We show that this simple game can generate individual payoff functions that display network effects when the player are randomly extracted from a larger population and tri-wise matched.*

Chapter 1

Disintegrating the regulation of the business corporation as a nexus of contracts: regulatory competition vs. unification of law*

Abstract

We apply the paradigm of the firm as a nexus of contracts to the debate on regulatory competition vs. unification of law as an alternative way of regulating the business corporation. This approach views the business corporation as a set of coordinated contracts among different parties. Agency problems and related agency costs are the result of this interaction. The economic analysis of corporate law, securities regulation and bankruptcy law identifies law as a means to minimize such agency costs. In this paper we develop a model where companies are heterogeneous in their preferences about the legal regulation of contractual relationships. We then compare a regime of regulatory competition to a regime of single supply of regulation and we analyse their relative costs and benefits.

JEL Classification: K20, K22, L51

Keywords: Corporate Governance, Regulatory Competition, Forum Shopping, Unification of Law, Theory of the Firm, Agency Costs, Corporate Law, Securities Regulation, Bankruptcy Law, Choice of Law.

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1. Introduction

In recent years the paradigm of regulatory competition has gained considerable attention both in the United States and in the European Union as an alternative mechanism to reach an integrated internal market among jurisdictions where economic resources, particularly capital, are allocated to their most efficient uses.¹ The regulatory competition paradigm is strictly linked with the paradigm of fiscal competition among jurisdictions. Originally the idea that jurisdictions can compete and produce public goods, as firms produce private goods, comes from public economics. In a well known article of 1956, Tiebout provides a model where citizens are free to choose the pattern of public goods they want to consume by choosing the jurisdiction of residence.² The intuitive idea of the paper is that local jurisdictions (state and municipal jurisdictions as opposed to the federal one) can supply public goods in the same way that firms supply private goods and that such competitive supply is efficient with respect to a monopolistic federal supply.

American law and economics scholarship has used the paradigm of the Tiebout model to argue that law must not necessarily be supplied by a monopolistic supplier but can be also supplied by competition among jurisdictions. In her seminal article of 1985 Roberta Romano provided both theoretical and empirical evidence that the state's production of corporate law in the United States may be efficient in comparison to a monopolistic supply at the federal level.³

More in particular, in the United States the regulatory competition paradigm has been used to propose the abandonment of the monopolistic federal supply of legislation in several crucial areas of US law. Indeed, securities regulation⁴, bankruptcy law⁵, and environmental regulation⁶ have been analyzed using the regulatory competition paradigm. From this perspective, the commonly accepted idea that a monopolistic federal supplier of regulation is preferable to a regulatory competition regime among jurisdictions has been deeply criticized.

The new law and economics approach in favour of regulatory competition has become a term of reference for analysis and policy discussion in Europe as

¹ From a legal perspective even if the European Union is not a federal system we consider it as one for the sake of simplicity.

² C.M Tiebout, 'A pure Theory of Local Expenditures', 64 *Journal of Political Economy* (1956) p. 424.

³ R. Romano, 'Law as a Product: Some Pieces of the Incorporation Puzzle', 1 *Journal of Law, Economics and Organization* (1985) p. 283. See also R. Romano, *The Genius of American Corporate Law* (Washington DC, AEI Press 1993). To be sure, the literature on regulatory competition in corporate law has grown enormously in the recent years both in the US and the EU. For a useful compilation of the literature see K. Kocaoglu, 'A Comparative Bibliography: Regulatory Competition on Corporate Law', *Georgetown Law Working Paper* (2008) available at www.ssrn.com.

⁴ See section 3.2.

⁵ See section 3.3.

⁶ See R.L Revesz, 'Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation', 67 *University of New York Law Review* (1992) p. 1254.

well.⁷

In this paper we develop a framework of regulatory competition in order to model some issues with respect to the legal regulation of the business corporation. A branch of the theory of the firm describes the business corporation as a nexus of contracts among different contractual parties. Agency problems and related agency costs originate from the interaction between them. Economic analysis of corporate law (as well as securities and bankruptcy law) identifies law as a means to minimize such agency costs.

The questions this paper tries to answer are: i) when the regulation of the corporation should be supplied by a single regulator or on the contrary, when it is better to have a set of competing jurisdictions; ii) whether competition between jurisdictions leads to a greater differentiation in the law produced or, instead whether it leads to a convergence; and finally iii) whether, in the case of regulatory competition, it is better to have a bundled or unbundled provision of laws.

With respects to these questions our results show that i) useful conclusions regarding the more efficient regime cannot be reached without a knowledge of the costs structure of lawmaking; ii) under reasonable assumptions, even though the preferences of companies are heterogeneous in the model, we observe a convergence between the kind and the quality of the laws provided by the competing regulators; iii) things change when companies are free to choose different laws from different jurisdictions. In fact, with unbundled provision of laws, regulators may have lower incentives to offer a high quality of the law.

We follow the approach adopted by authors such as Hadfield and Talley who model some issues relating to the provision of corporate law/corporate governance.⁸

The paper is organized as follows. In section 2 we briefly describe the paradigm of regulatory competition as opposed to harmonization or unification of law by pointing out the advantages and disadvantages of the two systems. This section also provides a picture of the economics of conflict of law rules, describing the rationale for forum shopping. Conflict of law rules are in fact the means by which parties are allowed to choose (or not to choose) the law that will apply to their contractual relationship and the judge that will decide the issue in case of litigation. Section 3 describes the economics of the business corporation and the law and economics approach to its regulation, concentrating on the economic dimension of corporate law, securities regulation and bankruptcy law. The discussion also includes a short reference to the legal

⁷The literature on regulatory competition in Europe is extensive. By way of introduction, see N. Reich, 'Competition between Legal Orders: A New Paradigm of EC Law?', 29 *Common Market Law Review* (1992) p. 896; R. Van den Bergh, 'The Subsidiarity Principle in the European Community. Some Insights from Law and Economics', 1 *Maastricht Journal of European and Comparative Law* (1994) p. 366; J.M. Sun and J. Pelkmans, 'Regulatory Competition in the Single Market', 36 *Journal of Common Market Studies* (1995) p. 89; A. Ogus, 'Competition between National Legal Systems: A Contribution of Economic Analysis to Comparative Law', 48 *International and Comparative Law Quarterly* (1999) p. 418; S. Deakin, 'Legal Diversity and Regulatory Competition: Which Model for Europe?', 12 *European Law Journal* (2006) p. 440.

⁸The article concentrates on the relative efficiency of a private vs. a public competitive regulatory regime. See G. Hadfield and E. Talley, 'On Public versus Private Provision of Corporate Law', 22 *Journal of Law, Economics & Organization* (2006) p. 441.

systems of the United States and of the European Union. On the basis of sections 2 and 3, sections 4 and 5 develop a basic and an extended model where the questions described are formally analyzed.

2. Regulatory competition vs. unification of law

According to basic microeconomic theory, competitive markets provide the maximum of social efficiency and in such a context the regulator should not intervene and should leave market forces to act freely. Only in the case of market failures (public goods, asymmetric information, market power and externalities) may a form of public intervention by way of regulation be justified, but only if the costs of the regulatory provisions are lower than their benefits. The costs of the regulatory intervention may increase if we take into consideration not only the objective costs of the regulation provided by a benevolent government, but also the costs incurred from public choice considerations. Society normally bears these costs because regulation may be the product of interested groups (or lobbies) achieving specific gains.⁹

From an efficiency perspective, single jurisdictions (generally national-state jurisdictions) are faced with this regulatory puzzle when evaluating the decision whether to regulate a particular issue or a particular market or to leave market forces unregulated to reach efficiency by themselves.

The regulatory paradigm becomes more complex if we take into account federal systems constituted by the federal level (or federal jurisdiction) and several lower jurisdictions. On the basis of Tiebout's model on fiscal competition, a significant part of law and economics literature has pointed out the potential benefits of a decentralized regulatory system.¹⁰ This system does not necessarily rely on the provision of mandatory federal monopolistic regulation or unification or harmonization of regulations among the lower jurisdictions. On the contrary, it relies on a system of mutual recognition of legal phenomena based on a principle of free choice of law/forum by the interested contractual parties.

The advantages of such a regulatory competition regime in comparison to a centralised regulatory regime are: i) possibility for parties to have more options regarding whom to choose; ii) possibility for lower jurisdictions to achieve operational improvements both in terms of rapidity and correction of mistakes; iii) less opportunity for parties to be exploited by rent-seeking regulation. Ideally, the regulatory competition paradigm requires some prerequisites for it to work properly: i) full mobility of parties; ii) full information of parties regarding the different regulatory regimes; iii) proper incentives for jurisdictions to react to the parties' necessities; iv) no externalities among jurisdictions.

The same paradigm also relies on a crucial assumption: contractual parties have the possibility to choose the legal regime they want their contractual

⁹The classical references are the seminal works by G.J. Stigler, 'The Theory of Economic Regulation', 2 *Bell Journal of Economics and Management* (1971) p. 21 and R.A. Posner, 'Theories of Economic Regulation', 5 *Bell Journal of Economics and Management* (1974) p. 358.

¹⁰See references in sections 3.1., 3.2., 3.3.

relationship to be governed by. It is well known that this legal issue belongs to the realm of private international law or choice of law issues. In its essential terms, a free choice of law is an exit option,¹¹ that is granted to contractual parties who are not obliged to physically move to another jurisdiction (as in Tiebout's model), but can physically remain in a jurisdiction different from the one they decide will govern their contractual relationship. The exit option may be also thought as a means to replace the voice option in order to avoid inefficient local regulation promoted by interested parties lobbying the regulator in order to reach their private interests.¹² In contract law, the general tendency on both sides of the Atlantic is to grant contractual parties a free choice of law. The Restatement (Second) of Conflicts of Law for the United States and for the European Union the Rome Convention of 1980 on the law applicable to contractual obligations in the recent past, as now replaced by EC Regulation 593/2008,¹³ have basically provided parties with a system of free choice of law. The free choice of law granted to parties' autonomy is regarded to be useful and practical at the same time.^{14, 15}

Economic analysis of law has pointed out the relative efficiency of a free choice of law in contractual relationships. The idea is that parties can share the surplus deriving from a contractual relationship they voluntarily enter into (that *per se* is Pareto-improving). Indeed, assuming that the law regulating the contractual relationship provides a form of "value added" to the material content of the contract, it follows that a free choice of applicable law grants an "extra-surplus" parties are able to extract by being free to *ex ante* choose the law that will govern their contract.¹⁶

Intervention by the state for correcting free choice of law is called for in cases of market failures related to the time of contract formation between the involved parties: particularly in cases of asymmetric information among parties, externalities on third parties not directly involved in the contract and market power exercised by one party.¹⁷

¹¹In terms of exit and voice: see O.A. Hirschmann, *Exit, Voice, and Loyalty. Response to Decline in Firms, Organizations, and States* (Cambridge MA, Harvard University Press 1970).

¹²See E.A. O'Hara and L.E. Ribstein, 'From Politics to Efficiency in Choice of Law', 67 *University of Chicago Law Review* (2000) p. 1232.

¹³ Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I), OJ L 177, 4 July 2008, p. 6.

¹⁴ M. Reimann, 'Savigny's Triumph? Choice of Law in Contract Cases at the Close of the Twentieth Century', 39 *Virginia Journal of International Law* (1999) p. 605, provides a good survey on this topic. Note that, according to Article 1(f), EC Regulation 593/2008 is not applicable to companies as it was in the case of the Rome Convention.

¹⁵ Before the introduction of EC Regulation 593/2008 in Europe, if parties did not choose *ex ante* the applicable law, the general rule was to apply the law of the country with the closest connection. The new Regulation provides a richer set of possibilities but probably, according to the "actual circumstances" clause, presents the same result in terms of closest connection. On the other hand, in the United States the general rule was and is to apply the law of the country with the most significant relationship. These principles (closest connection and most significant relationship) share the same scope and philosophy as argued by Reimann, *supra* n. 14, at pp. 578.

¹⁶On the point see F. Parisi and L.E. Ribstein, 'Choice of Law', in P. Newman ed., *The New Palgrave Dictionary of Economics and the Law* (New York, Stockton Press 1998) p. 236.

¹⁷For the discussion of this topic and in particular with respect to cases of asymmetric

To sum up, the theory of regulatory competition assumes that parties are free to choose the law applicable to their contractual obligations independently from their physical location. Free choice of law (meaning here free choice of jurisdiction and applicable law) for contractual relationships is already substantially granted both in the US and in Europe. The next step is to analyze the contractual nature of the business corporation from an economic perspective in order to check whether the free-choice of law paradigm may be fruitfully applied to it.

3. The economic theory of the corporation and of its regulation

In economic terms a corporation as a particular type of firm is considered to be a nexus of contracts among different parties that interact by way of a complex set of contractual relationships.¹⁸ This economic paradigm identifies the business corporation as a nexus of contracts generating agency relationships among contractual parties and the related problems of agency costs among them. Building up on this model,¹⁹ successive scholarship²⁰ has tried to better specify the different claims that the various parties or patrons have in the various sets of contracts. Shareholders, creditors, customers, suppliers, workers and managers present different claims according to the different organizational structure of the firm. In particular, with respect to the central question of the efficient allocation of ownership among the different patrons, we can identify several business forms or in other words, several types of firms. In the business corporation ownership is efficiently allocated in the hands of shareholders who are the residual claimers of the firm, obtaining the two residual rights of control and of profit distribution. All other patrons get fixed claims on the basis of *ex ante* fixed contractual terms and are creditors.

In particular, if we consider shareholders and creditors as the two relevant groups of parties we can identify in a typical principal-agent relationship three

information for consumer protection regulation, see H.B. Schäfer and K. Lantermann, 'Choice of Law from an Economic Perspective', in J. Basedow and T. Kono, ed., *An Economic Analysis of Private International Law* (Tübingen, Mohr Siebeck 2006) p. 87.

¹⁸ M.C. Jensen and W.H. Meckling, 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure', 3 *Journal of Financial Economics* (1976) p. 360. The literature builds up on the seminal paper by R.H. Coase, 'The Nature of the Firm' (1937) reprinted in R.H. Coase, *The Firm, the Market and the Law* (Chicago, The University of Chicago Press 1988) p. 33.

¹⁹The main idea of the article of Jensen and Meckling can be briefly summarised with the following example: in an ideal world without agency problems among parties and related agency costs the value of the contractual relationship among parties in the nexus of contracts business corporation would be maximized to e.g. 100. Due to the presence of the agency costs, the real value of the nexus decreases to e.g. 70. Given perfect information on the market, i.e. given the possibility for the involved principal to discount *ex ante* the agency costs of the agency relationship, no party can be exploited. However, there is a total loss of 30 that would not be present in the ideal world without agency costs. The core of the problem is to find out mechanisms that align the interests of the agent with the interest of the principal in order to try to maximize the value of the contractual relationship closer to 100 so as to reach the ideal optimum.

²⁰See H. Hansmann, 'Ownership of the Firm', 4 *Journal of Law, Economics, and Organization* (1988) p. 304 and more systematically H. Hansmann, *The Ownership of Enterprise* (Cambridge MA, Harvard University Press 1996).

different kinds of agency costs: monitoring costs by the principal, bonding costs by the agent and residual losses.²¹

The economic theory of the firm and specifically of the business corporation has been completed and integrated by an economic theory of the law regulating the business corporation.²²

The aim of legal regulation (broadly meant as statutory law and judicial enforcement) is to provide the legal mechanisms that increase the value of the complex of the contractual arrangements that parties who face a principal-agent relationship incur in order to maximize this value. The complex of the regulatory system provided for by the regulation of the business corporation as a nexus of contracts is called here corporate governance. It is fair to say that legal and economics as well as law and economics scholarship misses an accurate and precise definition of the concept of corporate governance. Broadly speaking the corporate governance regime is the complexity of rules provided by a jurisdiction to regulate the agency problems of the business corporation. From this perspective, the corporate governance system can be divided into three subsystems or groups of rules: corporate law regulating the agency problem between managers and shareholders (or the agency problem between controlling shareholders and minority shareholders), debtor/creditors law and bankruptcy law providing for the regulation of the agency problem between shareholders (agent) and creditors (principal) and, finally, securities regulation providing for a system of information disclosure related to the substantive regulation given by corporate law and debtor/creditor law and bankruptcy law.

In the following sections we explain more accurately the single sets of regulation and also provide a short legal comparison between the US and the EU.

3.1 Corporate law

Corporate law is the legal mechanism that tries to align the interests of shareholders and managers (agency problem between shareholders and managers) or minority shareholders and majority shareholders (agency problem between minority shareholders and majority shareholders) in order to minimize the deriving agency costs. Law and economics scholarship has tried to elaborate a theory of what such a regulatory mechanism should look like in terms of mandatory vs. enabling rules.²³

The basic idea is that the freedom of contract between managers and shareholders should be granted and restricted only in cases of severe market failures. Scholarship seems to generally accept the assumption of efficient capital markets: shareholders are able to price and evaluate the contractual terms

²¹See M.C. Jensen and W.H. Meckling, *supra* n. 18, at p. 308. Note that in the model, agency costs are borne by the agent.

²²See F.H. Easterbrook and D.R. Fischel, *The Economic Structure of Corporate Law* (Cambridge MA, Harvard University Press 1991); J.S. Johnston, 'The Influence of The Nature of the Firm on the Theory of Corporate Law', 18 *Journal of Corporation Law* (1993) p. 244.

²³For the American discussion see Symposium, 89 *Columbia Law Review* (1989) p. 1395; Easterbrook/Fischel, *supra* n. 22, *passim*. See more recently H. Hansmann, 'Corporation and Contract', 8 *American Law and Economics Review* (2006) p. 19.

and to discount them *ex ante*. In particular, institutional investors have the correct incentives to inform themselves on the relevant contractual provisions (i.e. the different mixes of mandatory vs. enabling rules) and small investors free-ride on the efforts of institutional informed investors. It is (at least implicitly) on the basis of this assumption of efficient capital markets that a growing body of literature compares different systems of corporate law/corporate governance by examining the discount at which investors buy equity/debt securities, evaluating them according to their relative efficiency in dealing with agency problems.²⁴

Fundamental in such a debate is also the question of the relative efficiency of a monopolistic regime in comparison to a regime of competition among jurisdictions.²⁵

To briefly sum up the debate on regulatory competition regime in corporate law, the fundamental idea is that this regime (in which Delaware is the state of incorporation of the majority of American business corporations) grants a superior system in the production and development of corporate law than the one provided by a monopolistic federal supplier. The argument is that even if it is not perfect, the current system ensures managers to incorporate the company in the jurisdiction they prefer. At the same time shareholders are able to price that choice and evaluate the corporate law regime of the different states. As in the case of the choice between different mixes of mandatory and enabling rules, the capital market is able to price and evaluate the corporate statutes of the different states and to price its comparative advantage in dealing with the problem of reduction of agency costs.²⁶ Certainly, more recent scholarship points out that the threat to Delaware supremacy from other states could come from a challenge at federal level of Delaware's position in corporation law.²⁷

The idea that a system of regulatory competition may be an alternative to the traditional perspective of *ex ante* harmonization of law has become popular also in the European context.²⁸ It is fair to say that until very recently harmonization

²⁴See the seminal article by R. La Porta, F. Lopez-de-Silanes, A. Schleifer and R.W. Vishny, 'Law and Finance', 106 *Journal of Political Economy* (1998) p. 1155.

²⁵See e.g. R. Romano, *The Genius of American Corporate Law*, *supra* n. 3; more recently, see also R. Romano, 'Is Regulatory Competition a Problem or Irrelevant for Corporate Governance', 21 *Oxford Review of Economic Policy* (2005) p. 212.

²⁶To be sure, scholars in the US have not been unanimously in favor of regulatory competition in corporate law. There have also been strong criticisms to the current regulatory architecture. From this perspective, see in particular L. Bebchuk and A. Hamdani, 'Federal Corporate Law: Lessons from History', in 106 *Columbia Law Review* (2006) p. 1793, who provide a useful picture of the current discussion.

²⁷On the point, see S.J. Choi and A.T. Guzman, 'Choice and Federal Intervention in Corporate Law', 87 *Virginia Law Review* (2001) p. 990. See also M.J. Roe, 'Delaware's Competition', 117 *Harvard Law Review* (2003) p. 646. For the interconnection between federal securities regulation and Delaware corporate law particularly with respect to the Sarbanes-Oxley Act of 2002 see, R.B. Thompson, 2004, 'Delaware, the Feds, and the Stock Exchange: Challenges to the First State as First in Corporate Law', 29 *Delaware Journal of Corporate Law* (2004) p. 804. See also M. Kahan and E.B. Rock, 'Symbiotic Federalism and the Structure of Corporate Law', 58 *Vanderbilt Law Review* (2005) p. 1644. See also Bebchuk and Hamdani, *supra* n. 26.

²⁸On the current European debate see e.g. L. Enriques, 'Company Law Harmonization Reconsidered: What Role for the EC?', in S.M. Bartman, ed., *European Company Law in Accelerated Progress* (The Hague, Kluwer Law International 2006); J. Armour, 'Who Should

of corporate law as provided for by the EC Treaty in Article 44(2)(g) as a prerequisite to allow freedom of establishment and mutual recognition of companies ex Articles 43 and 48 EC Treaty was considered to be crucial for the establishment of the internal market. European scholars comparing the US system of regulatory competition based on freedom of incorporation and mutual recognition of companies have only recently started an economic analysis of the costs of such a harmonization to reach a single integrated European market.²⁹ If scholars are still debating the pros and cons of regulatory competition in Europe, the European Court of Justice has continuously provided judicial support to the new paradigm of regulatory competition in several recent cases.³⁰

According to these cases, it is currently possible to incorporate a company in a European jurisdiction, following the incorporation theory, such as the UK or Ireland or the Netherlands and to do business in each Member State. Furthermore, the new directive on international merger³¹ as well as the European Company Statute³² should also grant the legal possibility to reach a US style reincorporation by way of a new-shell company incorporated in a Member State just for the purposes of permitting the reincorporation with change of applicable law of the old-parent company.³³

3.2 Securities regulation

The core of securities regulation is the level and content of disclosure of the

Make Corporate Law? EC Legislation Versus Regulatory Competition', 58 *Current Legal Problems* (2005) p. 413.

²⁹ On the European debate see also M. Ventoruzzo, "'Cost-Based" and "Rules-Based" Regulatory Competition: Markets for Corporate Charters in the U.S. and in the E.U.', 3 *New York University Journal of Law and Business* (2006) p. 91; P. Zumbansen, 'Spaces and Places: A System Theory Approach to Regulatory Competition in European Company Law', 12 *European Law Journal* (2006) p. 534; For empirical data on corporate mobility in Europe see M. Becht, C. Mayer and H.F. Wagner, 'Corporate Mobility and the Costs of Regulation', *ECGI working paper* (2006) available at www.ecgi.org as well as W.W. Bratton, J.A. McChaery and E.P.M. Vermeulen, 'How Does Corporate Mobility Affect Lawmaking? A Comparative Analysis', *ECGI working paper* (2008) available at www.ecgi.org.

³⁰Case C-212/97 *Centros*, 1999, ECR I-1459, Case C-208/00 *Überseering*, 2002, ECR I-9919, Case C-167/01 *Inspire Art*, 2003, ECR I-10155, Case C-411/03 *Sevic*, 2005, ECR I-10805. See also the conclusions by the Advocate General in the Case C-210/06 *Cartesio*, 2008. On freedom of establishment in the European Union, see F.M. Mucciarelli, 'Company "Emigration" and EC Freedom of Establishment: Daily Mail Revisited', 9 *European Business Organization Law Review* (2008) p. 267.

³¹ Directive 2005/56/EC of the European Parliament and of the Council of 26 October 2005 on cross-border mergers of limited liability companies, OJ L 310, 25 November 2005, p. 1. On this directive see A. Ugliano, 'The New Cross-Border Merger Directive: Harmonisation of European Company Law and Free Movement', 18 *European Business Law Review* (2007) p. 585. On the current situation for a proposal for a directive for the transfer of registered office (s.c. 14th directive) see G.J. Vossestein, 'Transfer of the registered office. The European Commission's decision not to submit a proposal', 4 *Utrecht Law Review* (2008) p. 53.

³² Council Regulation (EC) No 2157/2001 of 8 October 2001 on the Statute for a European company (SE), OJ L 294, 10 November 2001, p. 1.

³³On this possible role of the European Company as a means to reach regulatory arbitrage see L. Enriques, 'Silence Is Golden: the European Company as a Catalyst for Company Law Arbitrage', 4 *Journal of Corporate Law Studies* (2004) p. 95.

agency relationship: if corporate law provides the material rule of conduct, securities regulation provides the level and content of disclosure of information about this rule of conduct.

The disclosure regime includes the agency problem between shareholders and managers and the agency problem between shareholders and creditors (creditor-debtor law). Generally speaking, securities are intended to be shares and bonds as well as all possible mixed and derivatives financial products in between.

To the extent that insiders, i.e. managers, know more about the company than investors do, the need for a disclosure regime both for the primary and the secondary market is generally justified in terms of an asymmetric information rationale.

The debate on securities regulation has traditionally been related to the optimal amount of disclosure and to the necessity of mandatory disclosure regulation with respect to investors' protection.³⁴ It has to be noted that the regulatory approach to securities is quite similar among jurisdictions.³⁵

In fact the principal ones typically distinguish between a regulatory regime for the s.c. primary market (i.e. initial public offering, IPO) and a regulatory regime for the s.c. secondary market (i.e. after IPO day-to-day trading activity of investors). The information normally disclosed refers to the characteristics of the securities, the financial and business situation of the company as well as information related to the company structure of control. Generally the regulatory schema also provides for antifraud provisions and related issues of market manipulation and/or insider trading.

Coming more specifically to the US and European situations, we can identify the following regulatory structure. In the US, interstate securities are primarily regulated by federal monopolistic regulation via the Securities Act of 1933 regulating the primary market by way of a registration statement by the SEC and the publication of an issuer's prospectus, and the Securities and the Securities Exchange Act of 1934 covering the information regime of permanent and continuous disclosure required for the correct functioning of the secondary market.³⁶

In Europe, the same regulatory strategy is structured on several directives that provide for basically the same schema.³⁷

The major substantial difference between the US and European regulatory approach is that the American one is provided for by a single federal regulation and enforced by a single agency (the SEC), whereas the European approach relies on a form of *ex ante* harmonization of law to reach a minimum level of

³⁴See as a general introduction R. Kraakman, P. Davies, H. Hansmann, G. Hertig, K. Hopt, H. Kanda E. Rock, *The Anatomy of Corporate Law* (Oxford, Oxford University Press 2004) p. 194.

³⁵Kraakman et al., *supra* n. 34, at p. 197.

³⁶As an introduction, see J.D. Cox, R.W. Hillmann and D. C. Langevoort, *Securities Regulation* (New York, Aspen Law and Business 1997) pp. 3

³⁷Directive 2001/34/EC of the European Parliament and of the Council of 28 May 2001 on the admission of securities to official stock exchange listing and on information to be published on those securities, OJ L 184, 6 July 2001, p. 1, as successively amended. For a picture of the European situation also with respect to the issue of regulatory competition in EU securities regulation see L. Enriques and T. Tröger, "Issuer Choice in Europe", *ECGI working paper* (2007) available at www.ecgi.org.

coordination that allows mutual recognition as well as the coordination of national regulatory agencies.³⁸

The American debate on the optimal amount of disclosure and on the necessity of mandatory disclosure has been ultimately influenced by the idea that a single monopolistic supplier of securities regulation may not be efficient. The idea that regulatory competition can be a valid alternative to the federal regime has reached a very high level of academic attention.³⁹ This perspective relies on two points.

The first point is that issuers have the right incentive to choose *ex ante* the regulatory regime and that this regime will be evaluated *ex ante* and priced by those investors who have the incentive to evaluate legal regimes, i.e. institutional investors. All other investors rely on this price formation by free-riding on the public market.⁴⁰

The second point relates to the idea that different companies have different needs on the optimal amount of disclosure. From this perspective the criticism is that different firms need different amount of information to be disclosed and that homogeneity in the supply of disclosure is inferior compared to a system of heterogeneity. This is the typical economic argument of heterogeneity of preferences.⁴¹

The so-called law and finance literature certainly provides empirical evidence that a kind of regulatory competition is already in force on a global level. Given (increasing) worldwide capital mobility, at present legal regimes are already priced and investors indeed discount *ex ante* the price at which they buy securities.⁴²

By permitting free choice of law in securities regulation one would allow for instance an Italian company to apply, say, the US regime in order to top the Italian market. Assuming that capital markets evaluate the US regime better than the Italian one, the possibility for the Italian company to opt for a qualitatively positive regime leads to a positive revaluation of the company's share prices as investors would be willing to pay more for the benefits of an improved regulatory setting. In fact this would be a Pareto-improvement

³⁸This is, as well known, a typical European regulatory strategy to implement the common market.

³⁹For a review of the debate and the historical reason of this evolution see E.W. Kitch, 'Proposals for Reform of Securities Regulation: An Overview', 41 *Vanderbilt Journal of International Law* (2001) p. 652. See also R. Romano, 2002, *The Advantage of Competitive Federalism for Securities Regulation* (Washington DC, AEI Press 2002). To be sure, also in the case of regulatory competition for securities regulation, like in the case for corporate law, there have been scholars who have strongly criticized the idea that regulatory competition works. From this perspective see in particular, M.B. Fox, 'Optimal Regulatory Areas for Securities Disclosure', 81 *Washington University Law Quarterly* (2003) p. 1017.

⁴⁰Particularly this rationale underpins the proposal by R. Romano, 'Empowering Investors: A Market Approach to Securities Regulation', 107 *Yale Law Journal* (1998) p. 2430. The idea that securities regulation is in force in order to inform what they call information traders (a category composed by institutional investors and analysts) and not small investors, has been also recently made by Z. Goshen and G. Parchomovsky, 'The Essential Role of Securities Regulation', 55 *Duke Law Journal* (2005) p. 782.

⁴¹This rationale is used by S.J. Choi and A.T. Guzman, 'Portable Reciprocity: Rethinking the International Reach of Securities Regulation', 71 *Southern California Law Review* (1998) p. 952.

⁴²See La Porta et al., *supra* n. 24.

transaction in the agency problem concerning managers-shareholders or creditors-shareholders.⁴³

3.3 Bankruptcy law

Bankruptcy law provides the set of rules that regulate the agency problem between shareholders and creditors when corporations are insolvent. In the debtor-creditor relationship and during the insolvency time, creditors are the principal and shareholders the agent. In other words, the procedure is made in order to satisfy creditors with the assets of the distressed corporation. From this perspective, bankruptcy law exists because creditors have a collective action problem in collecting their claims by way of a sum of individual actions: the individual actions would create such transaction costs in terms of non-cooperative strategies that it is efficient to have a single structured procedure to minimize these costs.⁴⁴

The objectives of bankruptcy law are to maximize the *ex post* (insolvency) value of the insolvent firm in order to maximize the value for creditors and to minimize the *ex ante* probability of insolvency by providing managers with the efficient incentives to avoid it.⁴⁵

Scholars have identified basically two procedures to deal with an insolvent corporation. The first one is a procedure of liquidation where the assets of the company are sold and creditors are satisfied according to their priorities. This procedure presents the problem that the firm as a going concern may be lost. This creates an inefficiency that could justify the second procedure, i.e. reorganization. By this procedure the company is reorganized and creditors are satisfied by the selling of some assets or by the acquisition of residual rights. In other words, they become shareholders of the restructured company. As is well known, liquidation is regulated under Chapter 7 of the American Bankruptcy Code, whereas reorganization is regulated under Chapter 11. It is fair to say that almost all developed jurisdictions provide for similar alternatives.

In each jurisdiction bankruptcy law is intimately related to debtor-creditor law and in particular to secured interests law. Ideally, the bankruptcy proceeding should respect the priority regime among creditors provided for by law and by contractual terms of credit contracts.

Single jurisdictions provide a bankruptcy regime that in theory presents the objectives and the devices described above. The problem becomes more complex if one considers bankruptcy cases of corporations that present assets and business in several jurisdictions. In these cases there are basically two possible legal solutions: universalism and territorialism.⁴⁶

⁴³This conclusion assumes that taking the US regime without necessarily entering the US capital market increases the level of investment in the Italian company.

⁴⁴For a general introduction to the theory of bankruptcy law see F. Cabrillo and B. Depoorter, 'Bankruptcy Proceedings', in *Encyclopaedia of Law and Economics* (1999) available at <http://encyclo.findlaw.com/tablebib.html>.

⁴⁵See Cabrillo and Depoorter, *supra* n. 44 and P. Aghion, 'Bankruptcy and its Reform', in P. Newman (ed.), *The New Palgrave Dictionary of Economics and the Law* (New York, Stockton Press) p. 143.

⁴⁶See as a general introduction to the topic S.M. Franken, 2005, 'Three Principles of

Universalism is when a single jurisdiction - usually the home-country jurisdiction of the insolvent company - becomes the sole one to deal with the entire bankruptcy proceeding: all assets are adjudicated and managed by this single jurisdiction according to its law (i.e. choice of forum and choice of law). According to two prominent scholars, universalism is more efficient than territorialism because it does not *ex ante* distort a corporation's investment strategy.⁴⁷

On the other hand, the choice of the home-country jurisdiction may not be entirely clear *ex ante* as supporters of the theory argue by referring to its *ex ante* predictability. In fact the home-country test could lead to different solutions according to the connecting factors used to specify it.⁴⁸

The second legal solution generally referred to, in order to deal with transnational insolvencies is territorialism. According to this system there are as many procedures as the number of jurisdictions where the insolvent company has assets. Each jurisdiction deals with local assets and with local creditors. This system is thought to be more favourable to local creditors because they have to deal with a procedure they know and that is less expensive than the foreign one. Territorialism furthermore ensures that jurisdictions manage the bankruptcy proceeding more in line with their objectives. These may also include redistributive concerns in favour of particular categories of parties as employees, suppliers or the local community.⁴⁹

In the USA, the Bankruptcy Code is federal regulation and provides a coherent system to deal with insolvencies that present assets split countrywide.⁵⁰ It is worth noting that even in the presence of a monopolistic supply of federal regulation, the US system is currently experiencing the phenomenon of forum shopping in the application of such regulation. Indeed, in the USA large public corporations seem to prefer to file bankruptcy proceeding for Chapter 11 in Delaware.⁵¹

This phenomenon replicates for bankruptcy proceeding the same pattern we know for corporate law. However, this is true solely with respect to the choice of the forum and not to the applicable law which is and remains monopolistic federal regulation (on the contrary, Delaware corporate judges apply Delaware statutory law).

Transnational Corporate Bankruptcy Law: A Review', 11 *European Law Journal* (2005) p. 232.

⁴⁷See L.A. Bebchuk and A.T. Guzman, 'An Economic Analysis of Transnational Bankruptcies', 42 *Journal of Law and Economics* (1999) p. 808.

⁴⁸On the point see Franken, *supra* n. 46, at. p. 236.

⁴⁹To these other goals of a bankruptcy system sponsored by "traditionalists" as he calls them, critically refers A. Schwartz, 'A Contract Theory Approach to Business Bankruptcy', 107 *Yale Law Journal* (1998) p. 1807, at. p. 1815.

⁵⁰We do not take into consideration bankruptcy proceedings that are transnational for the USA, i.e. involve the USA and one or more several foreign countries. These proceedings are regulated under the new Chapter 15 of the Bankruptcy Code. On the new regime see T. Rüdner, 'Neues internationales Insolvenzrecht in den USA', 26 *Zeitschrift für Wirtschaftsrecht* (2005) p. 1865.

⁵¹The real consequences of such a phenomenon of forum shopping are object of debate. See on opposite positions R.K. Rasmussen and R.S. Thomas, 'Timing Matters: Promoting Forum Shopping by Insolvent Corporations', 94 *Northwestern University Law Review* (2000) p. 1408 and L.M. LoPucki, 'Can the Market Evaluate Legal Regimes? A Response to Professors Rasmussen, Thomas, and Skeel', 54 *Vanderbilt Law Review* (2001) p. 355.

The European Union has implemented a Regulation that deals with European transnational insolvencies.⁵²

The Regulation provides a mixed bankruptcy system where universalism and territorialism work together. According to Article 3 Reg., the court of the Member State where the company has its centre of main interests is competent for opening the insolvency procedure (so-called Centre of Main Interest - COMI). For companies or legal entities this centre of interest is furthermore supposed (until contrary proof) to coincide with the place where the company's registered office is located.⁵³

This is the main proceeding or principal insolvency procedure. Article 3.2 provides that courts of other Member States can open a secondary procedure (i.e. one for each Member State) if the company has an establishment within their territories. These procedures are the secondary procedures and are limited to the management of the assets located in the Member State where they are opened. With respect to the issue of applicable law, according to Articles 4 and 28 Reg. each court will apply the law of its State (*lex fori concursus* the content of which is more specifically provided by Article 4.2). In the Regulation, universalism and territorialism work together because the system provides for a coordination between principal procedure and secondary procedures in the management of assets particularly with respect to mutual recognition of the openings of main proceeding (Article 16 Reg.), powers of liquidators of the several procedures (Article 18) and their coordination (Article 31) and most importantly rights and obligations of creditors particularly with respect to lodging of claims (Article 32). Finally, the Regulation provides for a system of mutual recognition of courts' decisions (Articles 17, 25 and 27).

As mentioned, the connecting factor for determining the jurisdictional competence of the principal procedure according to Article 3.1 is the centre of main interest (COMI). The COMI is not really defined by the Regulation but only qualified in Recital 13 as the place where the debtor conducts the administration of his interests on a regular basis and is therefore ascertainable by third parties. In spite of intuitive simplicity, this connecting factor seems to be quite unclear thereby leaving space for judicial interpretations that lead to the simultaneous presence of several centres of main interests where a principal procedure may be opened.⁵⁴

On the other hand, some scholars report that the lack of clarity regarding the connecting factor COMI may lead to its misuse on the part of the management of a company: where a choice of Member State for filing the insolvency

⁵² Council Regulation (EC) No 1346/2000 of 29 May 2000 on insolvency proceedings, OJ L 160, 30 June 2000, p. 1.

⁵³ According to the conflict-of-law rules of several Member States, following both the real seat theory and the incorporation theory, the place (i.e. the Member State) where the company's registered office is, should coincide with the place of incorporation (i.e. the Member State of incorporation).

⁵⁴ On this point see B.M. Kübler, 'Der Mittelpunkt der hauptsächlichen Interessen nach Art. Abs 1 EuInsVO, in E. Schilken, G. Kreft, G. Wagner and D. Eckardt, (hrsg.) 2004, *Festschrift für Walter Gerhardt* (Köln, RWS Verlag 2004) p. 427, at p. 540. On the COMI standard and a first decision by the European Court of Justice, see T. Bachner, 'The Battle over Jurisdiction in European insolvency Law', 3 *European Company and Financial Law Review* (2006) p. 329.

procedure (venue choice) exists, this may be made according to personal decisions that do not take into consideration creditors' interest.⁵⁵ In economic terms this would be a form of *ex post* opportunism.

This means that also the context of the European Union where conflict-of-law issues in bankruptcy law have been unified to coordinate transnational insolvencies may become germane to a regulatory competition system for filing bankruptcies procedures.

So far we have analyzed the current real and legal situation both in the United States and in Europe. Now we pass to the next stage and we briefly analyze the literature that argues that regulatory competition should be granted also in the area of bankruptcy law. Indeed, also in the bankruptcy context the theory of regulatory competition has proved to be pertinent for new theoretical developments. The idea is that as corporations are able to choose *ex ante* their jurisdiction of incorporation so they should be allowed to choose *ex ante* their applicable law and maybe also the forum. The basic idea is that corporations are not homogeneous structures and that a single regulatory solution is not optimal.⁵⁶

Some American scholars have argued in favour of a decentralization of bankruptcy law. One of them proposed the decentralization of bankruptcy law as an alternative to federal monopolistic supply.⁵⁷ The idea is to combine corporate law and bankruptcy law, giving competence for both to the states.

More recently, another author proposed to resolve international insolvencies giving corporations the possibility to choose *ex ante* the forum that will provide bankruptcy law applying its own law by putting a clause in the corporate charter.⁵⁸

This contractarian approach to bankruptcy law that applies principles of free choice of law and of forum has found attention also in the European debate. In the context of the European Union, some scholars have started to think about the possibility of extending free choice of law also to bankruptcy law to solve transnational insolvencies in the EU. Scholars disagree on the opportunity to permit companies to choose a bankruptcy law different from the Member State that provides corporate law.⁵⁹

⁵⁵On this point see H. Eidenmüller, 'Free Choice in International Insolvency Law in Europe', 6 *European Business Organization Law Review* (2005) p. 447, at. p. 428; see also Franken, 2005, op. cit., pp. 248. Stressing the same point as well as the fact that also creditors could force forum shopping see L. Enriques and M. Gelter, 'How the Old World Encountered the New One: Regulatory Competition and Cooperation in European Corporate and Bankruptcy Law', 81 *Tulane Law Review* (2007) p. 577.

⁵⁶On the same idea, that a single regulation is not necessarily optimal for all companies see the starting intuition of Schwartz, *supra* n. 49, for his freedom of contract approach to corporate bankruptcy inside the Bankruptcy Code.

⁵⁷See D.A. Skeel, 'Rethinking the line between corporate law and corporate bankruptcy', 72 *Texas Law Review* (1994) p. 553.

⁵⁸See R.K. Rasmussen, 'A New Approach to Transnational Insolvencies', 19 *Michigan Journal of International Law* (1997) p. 36; see also R.K. Rasmussen, 'Resolving Transnational Insolvencies through Private Ordering', 98 *Michigan Law Review* (2000) p. 2275.

⁵⁹See Eidenmüller, *supra* n. 55, proposing a combination of corporate law and bankruptcy law provided both by the same Member State and enforced by its unique forum (same *lex fori concursus* and *societatis*) and Franken, *loc supra* n. 46, who arguing on the basis of a supply side perspective (i.e. the incentives to provide efficient bankruptcy law) proposes the possible

Substantially, this problem is one of compatibility between company law and bankruptcy law in terms of coordination mechanisms between the two regulations as regard to protection of creditors.

4. The model

We develop a simplifying model for our analysis taking into consideration the demand side and the supply side.

On the demand side, referring to Jensen and Meckling (1976), we implicitly assume the existence of two agency problems inside the corporation.⁶⁰ We then imagine a situation in which shareholders-managers have to decide where to incorporate the company. The jurisdiction of incorporation will provide the corporate law of the company. Shareholders-managers have also to decide the jurisdiction that will provide securities regulation and the bankruptcy law. For simplicity we assume that all three systems of regulation follow the rule of the *lex fori*. This means that jurisdiction and applicable law do coincide. In other words if the company is incorporated in jurisdiction A, a court of this jurisdiction will be competent and will apply the company law of jurisdiction A.⁶¹

The corporate charter of the company will include a choice of applicable law-jurisdiction with respect to company law as provided for by the jurisdiction of incorporation. This corporate law will provide all the rules generally referred to as the internal affairs doctrine of the corporation. This concept is an American one but does have a companion also in Europe and is generally referred to as the personal statute of the company (*Gesellschaftsrechtstatut*). The corporate charter of the company will also include a choice with respect to the securities regulation regime corresponding to the jurisdiction of registration. This regime will provide the disclosure requirements as generally intended to in the field of securities regulation. The corporate charter will also provide a clause that will identify the bankruptcy law corresponding to the jurisdiction of filing for bankruptcy. This choice will *per se* imply a choice in relation to a reorganization system or a liquidation system and will also imply a choice for a universalist approach meaning that the substantive bankruptcy law of the chosen jurisdiction will be applied.

divergence of applicable bankruptcy law and company law but retaining the principle of the *lex fori* for both.

⁶⁰From a strictly technical point of view, the model we are dealing with is not a principal-agent model. Nevertheless, the profit function that we use for the corporation can be seen as a reduced form of the traditional framework. Moreover, the main focus of our analysis is not on relations inside the firm but rather on the effect of a regulatory competition regime on the corporation as a whole.

⁶¹In fact we could imagine a more complex situation where jurisdictional competence and applicable law are provided by two different jurisdictions, this meaning e.g. a court of jurisdiction A will apply the securities regulation of jurisdiction B. Scholars who are familiar with issues of international private law know that this is possible. Other scholars have enriched the regime, proposing for the EU that an arbitration body and not a national court applies the law of the Member State of incorporation. See C. Kirchner, R.W. Painter and W.A. Kaal, 'Regulatory Competition in EU Corporate Law after Inspire Art: unbundling Delaware's Product for Europe', 2 *European Corporate and Financial Law Review* (2005) p. 159.

We specify that our model is a one period model, i.e. the *ex ante* choice of applicable law for the three regulations cannot be modified *ex post*. Of course one could complicate the model imagining a world where *ex post* modification is possible by unanimity or majority.

We then imagine that managers by means of an IPO sell 100% of the equity securities as well as debt securities respectively to shareholders and bondholders. As a result the company will have dispersed ownership. In order to decrease the costs of equity and debt (i.e. the costs of financing of the corporation that in our model corresponds to the agency costs of equity and debt) they have to choose the combination of the jurisdictions that minimizes such agency costs (or costs of financing). As in Jensen and Meckling, shareholders and bondholders do not really suffer from an asymmetric information problem and are able to evaluate the goodness of managers' choice by discounting *ex ante* the price at which they buy securities. In other words managers (in the relationship shareholders-managers) and shareholders (in the relationship shareholders-creditors) bear the agency costs of the principal-agent relationship (i.e. bonding costs, monitoring costs and residual losses).⁶²

In our model, shareholders and bondholders are able to discount *ex ante* the agency problem/costs. These include the costs associated with the quality of the incentive structure provided by the different jurisdictions as combined by the managerial choice of applicable laws/forums. In other words, shareholders and bondholders are able to discount *ex ante* the coordination problems caused by a divergence in the substantive provisions of the three regimes between e.g. the company law of jurisdiction A, the securities regulation of jurisdiction B and the bankruptcy law of jurisdiction C. These coordination problems create costs that we qualify as agency costs that are *ex ante* evaluated by the principles and properly discounted.

On the supply side we imagine a federal system like the EU or US but for the sake of simplicity composed solely by a federal jurisdiction and two lower jurisdictions. In each jurisdiction a regulator has lawmaking power with respect to the regulation of companies. The regulator bears the costs of creating, improving and enforcing the laws. On the other side, each regulator raises a franchise fee from each company that decides to adopt the laws made by that regulator. The aim of the regulator is to maximize the net fees (the difference between fees raised and costs of lawmaking), choosing the type and the quality⁶³ of the law produced. We build two different models and then we carry out a comparative static exercise in order to characterize the equilibrium choices of the two sides.

Basic Model: this model sketches a situation where either (i) one single jurisdiction (the federal one) provides one corporate governance package including corporate law, securities regulation and bankruptcy law and companies have to buy this single package or (ii) the two lower jurisdictions

⁶²As in the Jensen and Meckling model we assume that capital markets are efficient and all actors are characterized by rational expectation. We stress that the law & finance literature basically confirms that the price of securities is evaluated and discounted *ex ante* in a comparative way among jurisdictions.

⁶³With the term quality we refer to the effort, that the regulator may apply, to refine provisions and/or to establish a higher level of enforcement.

each provide a corporate governance package and companies may buy the corporate governance package from the jurisdiction they prefer. In the second case, the two lower regulators compete one against the other by choosing the type and the quality of the law provided.

In this model we compare the costs and benefits of the two alternatives (single supply or competitive supplies) in efficiency terms.

Extended Model: this extension allows us to analyze the situation where the different jurisdictions do not provide the single package of corporate governance, but instead provide the single products i.e. corporate law, securities regulation and bankruptcy law and companies are able to pick up the single laws from one jurisdiction, mixing for example company law of jurisdiction A with securities regulation of jurisdiction B and bankruptcy law from jurisdiction C. In this case we compare this decentralized supply of the three laws with the supply of a bundled package of the three by each regulator. For simplicity the model discusses the case of two symmetric jurisdictions where each jurisdiction provides two law products: a company/securities law product and a bankruptcy law product. This restriction does not modify in any way the generality of our findings.

4.1 The Basic Model: single vs. competing jurisdictions

In this model companies are heterogeneous in the sense that each company has its one ideal type of corporate governance package and its profit will be greater the more the type provided by the regulator is similar to the ideal type of that corporation.⁶⁴ Each type of corporate governance package can be provided by the lawmakers with different levels of quality (a higher quality level means a greater reduction in legal uncertainty due to a better definition and coordination of terms among corporate, bankruptcy and security provisions, faster court decisions due to a higher number of judges and better enforcement).

Each jurisdiction faces some costs in providing the regulation and the costs increase with the quality level of the law provided.

In each jurisdiction the law is provided by a regulator that raises a sum of franchise fees proportional to the share of the companies choosing its jurisdiction. The aim of regulators is to maximize the net value of the fees (the difference between raised fees and the costs of providing and enforcing the legislation).

In order to avoid multiple equilibria in the case of a single jurisdiction we make some assumptions.⁶⁵ First of all we assume that the regulator has no reason to harm companies if it cannot gain anything from such an action.

In the following subsections we describe the market equilibria both in the case of a single self-interested regulator and in the case of multiple competing self-interested regulators that offer a bundled provision of law. Or in other words: assuming that companies are not allowed companies to pick different

⁶⁴The importance of heterogeneity of companies in relation to their needs is discussed and assumed also by Hadfield/Talley, *op. cit.*

⁶⁵ See the Appendix for precise statements of the assumptions on which each proposition is based.

body of laws from different jurisdictions. The formal proofs of the propositions can be found in the appendix.

4.1.1 Single jurisdiction

Without competition the single regulator has no incentive to improve the qualitative level of legislation. In fact all the firms are forced to choose the only existing corporate governance package and any improvement in the quality of the legislation is costly but does not increase the revenues for the jurisdiction since no more companies can be attracted by higher quality level. Thus the regulator will provide the lower possible law quality. Since for any choice of the type of law the regulator will raise the same level of fees, from the assumptions follows that its choice will be to maximize the sum of the companies' payoffs. Hence the type of law produced by the regulator will be the one preferred by the median company. Thus it must be true that the following lemma holds.

Lemma 1 *A single regulator will provide the kind of corporate governance package that is preferred by the median firm with the least possible qualitative level.*

4.1.2 Two competing jurisdictions

Let now analyze the case of two competing jurisdictions. If freedom of choice is allowed, each company may choose the preferred kind of corporate governance package by choosing the jurisdiction of incorporation. Thus, each company will choose the regulator (jurisdiction) who provides the law that maximizes the company gains.

Since our main interest is to study the choices of the competing regulators with respect to the type of law produced and its quality level, we assume that the regulators take as given the level of the franchise fees paid by each company and choose only the type and the quality of the laws created.

We also need to assume that the duplication of lawmaking costs is not so costly to be meaningless. If it's not satisfied, in the long run at least one of the two, must go bankrupt, unless additional sources of funds are available.

Given the assumptions we are able to prove the following proposition.⁶⁶

Proposition 1 *If the degree of differentiation between the types of law provided by the regulators cannot be too wide, then the comparison between the single jurisdiction case and the two jurisdictions case leads to three conclusions.*

- a. *The regulators are better off in the case of a single regulator. The welfare of regulators is maximum.*
- b. *The companies are better off when two regulators compete one against the other. The welfare of companies is maximum.*

⁶⁶ See Appendix A for the detailed proof.

c. *A regulatory competition regime is welfare improving if and only if the value given by the company to a high quality legislation ($q = \bar{q}$) is greater than the increment in fixed costs of an additional jurisdiction plus the value of all the variable costs arising from the increase in the quality of legislation in both jurisdictions.*

4.2 The extended model: bundled vs. unbundled provision of laws

The basic model allowed us to compare the single regulator regime with a forum shopping regime with bundled provision of law. The provision is bundled when, once the jurisdiction is chosen, all the regulation is based on the laws provided by that jurisdiction. In this section we want to compare a regulatory regime like the one depicted above with a regulatory regime with unbundled provision of laws. In this second regime forum shopping for different laws is allowed (e.g. the possibility of taking corporate/securities law from one jurisdiction (let us say jurisdiction j) and bankruptcy law from an other jurisdiction (let us say k). To be able to analyse the properties of the latter regime we need to enrich the basic model. In this section we discuss the extension to the basic model presented in the previous sections.

The ideal type of corporate governance package for a certain company is here identified by two different parameters: the type of the corporate/securities law included in the package provided by the regulator and the type of the bankruptcy law included. As in the case of the simpler model, the company's gain will be greater the more similar the type provided by the regulator are to the ideal couple preferred by that corporation. Like in the basic model each type of corporate governance package can be provided by the regulators with different levels of quality. Since the quality is linked with common elements of different laws provided by the same jurisdiction (such as, the effectiveness of courts) we assume that the different laws in the same jurisdiction will be provided with the same qualitative level.

We also assume that if a certain company chose one law (let us say corporate law) from jurisdiction j and different law (bankruptcy law) from jurisdiction k then the company bears additional costs arising from the lack of harmonization between the two laws.

As in the previous model each regulator raises a sum of franchise fees proportional to the share of companies choosing its jurisdiction and its aim is to maximize the net value of the fees.

Using the extended model to compare the two regimes we find some results that are summarized in the following proposition⁶⁷.

Proposition 2 *Comparing the bundled with the unbundled provision of laws within two jurisdictions that use the same lawmaking technology*

⁶⁷ Formal assumption and proofs are in appendix B.

- a. *If the provision of laws is bundled there will be a convergence in the equilibrium outcome between the kind and quality of the laws provided in the two jurisdictions. The quality level of the laws provided is the highest possible.*
- b. *If the provision of laws is unbundled there are three equilibria. The first one is the same that we observe with the bundled provision of laws. In the two other equilibria there is a complete differentiation in the type of law provided by the two regulators and the quality level may be lower than the maximum.*
- c. *With unbundled provision of laws, in the equilibria with differentiation, the welfare for companies is lower than with bundled provision of laws.*
- d. *With unbundled provision of laws, in the equilibria with differentiation, the welfare for the regulator may be higher than with bundled provision.*

5. Conclusions

This paper takes the growing law and economics literature on regulatory competition vs. unification of laws in the field of corporate governance as a starting point in order to develop a model for comparing the two alternative regulatory regimes.

We have analyzed the effect of regulatory competition when companies have different preferences about the type of law that could be provided by the regulator and regulators may compete both with horizontal differentiation (offering different kinds of law) and vertical differentiation (offering the same kind of law with different standards of refinement and enforcement). Assuming that the costs of lawmaking are the same for all the jurisdictions and that the primary aim of regulators is to raise the maximal amount of fees, we have shown the following results.

Firstly, we have compared the case of a bundled provision of laws by a single regulator with the bundled provision by two competing regulators. Here we have found that in equilibrium there is a movement toward a convergence in the type of law provided by the competing jurisdictions. Moreover, the equilibrium type of law provided will be the same provided by a single regulator that cares about the profits of companies, if this does not harm the amount of fees the regulator is able to raise. However, since the single regulator lacks the incentive coming from competition, it will offer the bundle of laws with a qualitative level (refinement of provisions and effectiveness of the enforcement) lower than the one provided by the competing regulators. Thus, even in the event of the single regulator regime being preferred by regulators that can raise higher net gains from fees and the regulatory competition regime being preferred by companies that can benefit from a higher qualitative level of the laws provided, it is not possible to say which is the more efficient. In fact, the social welfare maximizing regime depends upon the structure of the costs of lawmaking.

As a second step we compared the situation in which two regulators compete offering a bundled package of laws, covering all the needs of companies, and a situation in which companies are allowed to choose a different regulator for each type of law. In this case companies face also additional costs arising from the lack of harmonization between the different legislations. Assuming that the preferences are completely heterogeneous (each company expresses a different evaluation of each one of the laws bundled in the package), we have shown that when the provision of laws is unbundled there may be cases when instead of convergence in the type of law offered by the regulators, we see a complete differentiation in the law offered. In these cases, we find that competition may be not enough to push the regulator to offer the maximum level of quality and that companies may be worse off. It may seem counter-intuitive that an increase in the freedom of the corporations makes them worse off. Yet, as we have seen in the previous sections, if the regulators disintegrate the nexus of contracts, allowing companies to take even a single law from each jurisdiction, the final outcome could be a greater market power for regulators. In this case the regulators would be able to raise a greater rent from corporations, thus making the latter worse off in comparison with a regime where the freedom to pick up different laws from different jurisdictions is not allowed.

Appendix A: The Basic Model

Since companies are heterogeneous each company is identified with the index i . The preferred regulation for company i is $t_i \in [\underline{t}, \bar{t}] \subseteq \mathbb{R}_+$

The quality level of the corporate governance package is $q \in [0, \bar{q}] \subseteq \mathbb{R}_+$.

If $T \in [\underline{t}, \bar{t}]$ is the type of corporate governance package provided by the regulator in the jurisdiction chosen by company i and f is the franchise fee paid to the regulator by the company, the pay-off of company i is given by

$$\pi(t_i) = q - (t_i - T)^2 - f \quad (1)$$

The cost function of each jurisdiction is given by

$$c(q) = mq + F \quad (2)$$

where m is the marginal cost of quality and F are the fixed costs, $h(t)$ is the density function of the companies belonging to the jurisdiction and H is the support of $h(t)$.

Hence the objective function of the generic regulator is

$$\max_{q, T} V = \int_{t \in H} f \cdot h(t) dt - c(q) \quad (3)$$

To avoid multiple equilibria in the case of a single jurisdiction we make the

following assumption.⁶⁸

Assumption 1 *If different values of (q,t) allow for a raise in the same level of fees then the regulator will choose the value that maximizes the sum of the companies' payoffs: $\int \pi(t)h(t)dt$*

And for sake of simplicity

Assumption 2 *companies are distributed uniformly⁶⁹ over the support $[\underline{t}, \bar{t}]$.*

Proof of lemma 1

Without competition the single regulator has no incentive to improve the qualitative level of legislation. Thus the regulator will provide the lower possible law quality: $q=0$. Since for any choice of T the regulator will raise the same level of fees, from assumption 1 it follows that its choice will be to maximize the sum of the companies' payoffs.

$$T^* = \arg \max \int \pi(t)h(t)dt = \arg \max \int_{\underline{t}}^{\bar{t}} [q - (t-T)^2 - f] \frac{1}{t-\underline{t}} dt \quad (4)$$

Hence the type of law produced by the regulator will be $T^* = \frac{[\bar{t} + \underline{t}]}{2}$. QED

When two jurisdiction are available, company i in choosing between jurisdiction j and k will decide for the incorporation in jurisdiction j if and only if

$$q_j - (t_i - T_j)^2 - f > q_k - (t_i - T_k)^2 - f \quad (5)$$

Inequality 5 allows us to define the behaviour of the companies for each possible choice made by regulators with just one exception: the case in which both regulators choose the same kind of law with the same level of quality. In order to give a complete definition of firms' behaviour we make another assumption.

Assumption 3 *If the two regulators choose to provide the same type of law ($T_j=T_k$) with the same level of quality ($q_j=q_k$) then half of the companies will choose to adopt the laws of the first jurisdiction and the second half will choose*

⁶⁸We stress that the single jurisdiction case is just a benchmark that we will use later in order to evaluate the welfare properties of the regulatory competition regime. Discussing the multiple equilibria issue would make the analysis less straightforward without adding any interesting insight.

⁶⁹This assumption is common to many models of product differentiation. See for instance the well known Linear City model in A. Mas-Colell, M.D. Whinston and R. Green, *Microeconomic Theory*, (Oxford, Oxford University Press, 1995). Nevertheless we are aware that if the distribution is not uniform some of the results shown in the following subsections may be subject to slight changes.

to adopt those of the second jurisdiction.

Since our main interest is to study the choices of the competing regulators with respect to the type of law produced and its quality level, we assume that the regulators take as given the level of the franchise fees paid by each company and choose only the type and the quality of the laws created. Thus, for the sake of simplicity we assume that

Assumption 4 *The two jurisdictions always require the payment of the same franchise fee.*

Moreover we add two additional assumptions

Assumption 5 $f > 2F$ and $\bar{q} \leq \frac{1}{m}(\frac{1}{2}f - F)$

Assumption 5 guarantees that the cost functions are such that the existence of two jurisdictions is sustainable.

Assumption 6 $\frac{f}{2m} > (\bar{t} - \underline{t})^2$

This assumption states that the degree of differentiation between the types of law provided by the regulators cannot be too wide.

Lemma 2 *For any value of T chosen by the competitor the lawmaker will choose the highest level of quality.*

Proof of lemma 2. Let us assume that in equilibrium $T_j = T_k$. The regulator that chooses the highest level of quality will attract all the companies. The one with the lower level of quality will earn negative profits since it pays the costs of the lawmaking but it does not raise any fee. Thus both the regulators will choose the highest quality value.

Let us assume that in equilibrium $T_j \neq T_k$. Without any loss of generality we can assume that $T_j > T_k$. From equation it follows that any company i such that $t_i > \frac{1}{2}\left(\frac{q_k - q_j}{T_j - T_k} + T_j + T_k\right)$ will incorporate in jurisdiction j . All the others will choose jurisdiction k . Hence the demand for incorporation in jurisdiction j will be

$$D_j(q_j, T_j) = \frac{1}{\bar{t} - \underline{t}} \left[\bar{t} - \frac{1}{2} \left(\frac{q_k - q_j}{T_j - T_k} + T_j + T_k \right) \right] \quad (6)$$

and the demand for incorporation in jurisdiction k will be

$$D_k(q_k, T_k) = \frac{1}{\bar{t} - \underline{t}} \left[\frac{1}{2} \left(\frac{q_k - q_j}{T_j - T_k} + T_j + T_k \right) - \underline{t} \right] \quad (7)$$

Since each jurisdiction aims to maximize its own fees it will face the following problem

$$\max_{q,T} V = fD(T,q) - g(q) - F \quad (8)$$

If we compute the first order condition with respect to quality for the two regulators we find the following

$$\frac{\partial V_j}{\partial q_j} = \frac{f}{2(\bar{t}-\underline{t})} \left[\frac{1}{T_j - T_k} \right] - m \quad (9)$$

$$\frac{\partial V_k}{\partial q_k} = \frac{f}{2(\bar{t}-\underline{t})} \left[\frac{1}{T_j - T_k} \right] - m \quad (10)$$

Given assumption 5, the two derivatives are always greater than zero thus lemma 2 holds.

Lemma 3 In equilibrium the two regulators will provide the same type of law $T_j = T_k = \frac{[\bar{t}+\underline{t}]}{2}$.

Proof of lemma 3 If $T_j \neq T_k$, without any loss of generality we can assume that $T_j > T_k$. From equations 6, 7 and 8 we can compute the first order conditions with respect to the type

$$\frac{\partial V}{\partial T_j} = \frac{f}{2(\bar{t}-\underline{t})} \left[\frac{q_k - q_j}{(T_j - T_k)^2} - 1 \right] \quad (11)$$

$$\frac{\partial V}{\partial T_j} = \frac{f}{2(\bar{t}-\underline{t})} \left[\frac{q_k - q_j}{(T_j - T_k)^2} + 1 \right] \quad (12)$$

Since from lemma 2 we know that in equilibrium $q_k = q_j = \bar{q}$, then condition 11 is always negative and condition 12 is always positive. This implies that for any choice of T made by the opponent the best reply is to choose a value for the type which is as close as possible to that value.

On the other hand if $T_j = T_k = T$, without any loss of generality we can assume that $T > \frac{[\bar{t}+\underline{t}]}{2}$. Since from lemma 2 $q_k = q_j$ then each of the two regulators may increase its revenues by a slightly reduction in its choice of T but only up to the point in which $T_j = T_k = \frac{[\bar{t}+\underline{t}]}{2}$. QED

Proof of proposition 1 Let us prove each sub-proposition individually.

a) To prove this part it is sufficient to see that in the case of a single jurisdiction the welfare of the regulator is $V_s = f - F$ thus, from assumption $V > 0$. On the contrary, when two jurisdictions compete, from lemma it follows that

$$V_j = V_k = \frac{1}{2}f - m\bar{q} - F \quad (13)$$

and

$$V_j + V_k = f - 2m\bar{q} - 2F < f - F = V_s \quad (14)$$

b) Lemma 2 and 3 state that the equilibrium level of q is the only difference between the equilibrium with a sole regulator and the equilibrium when there are two regulators. Thus the welfare of any company will be greater when the regulators compete. In fact for any company i holds

$$\bar{q} - (t_i - T)^2 - f > -(t_i - T)^2 - f$$

c) The social welfare with a single regulator is just $SW_s - F - \int_{\underline{t}}^{\bar{t}} \left(t_i - \frac{[\bar{t} + \underline{t}]}{2} \right)^2$ and, from equation 13 it follows that in the case of competing jurisdictions the social welfare is:

$$SW_c = -2m\bar{q} - 2F + \bar{q} - \int_{\underline{t}}^{\bar{t}} \left(t_i - \frac{[\bar{t} + \underline{t}]}{2} \right)^2$$

Thus, having a regulatory competition regime lead to an increase in the social welfare if and only if $\bar{q} > 2m\bar{q} - F$. QED

Appendix B: The Extended Model

The ideal type of corporate governance package of company i is identified by two different parameters: $t_{i,c}$, the type of the corporate/securities law included in the package provided by the regulator and $t_{i,b}$, the type of the bankruptcy law included. The quality of the corporate governance package is $q \in [0, \bar{q}]$.

Companies differ in their evaluation of the couple $(t_{i,c}, t_{i,b})$ and these evaluations belong to the Cartesian product $[\underline{t}, \bar{t}] \times [\underline{t}, \bar{t}]$. Thus, if j is the jurisdiction from which the company takes the corporate/securities laws and k is the jurisdiction chosen for the bankruptcy law, the pay-off of company i is given by

$$\pi(t_{i,c}, t_{i,b}) = \frac{1}{2}q_j - \frac{1}{2}(t_{i,c} - T_j)^2 + \frac{1}{2}q_k - \frac{1}{2}(t_{i,b} - T_k)^2 - \frac{1}{2}(T_j - T_k)^2 - f \quad (15)$$

where $\frac{1}{2}(T_j - T_k)^2$ is a measure of the additional costs arising from the lack of harmonization when a company does not take all the laws from the same jurisdiction. The cost function of lawmaking is the same used in the Basic Model:

$$c(q) = g(q) + F \quad (16)$$

where F are the fixed costs and $g(\cdot)$ is a strictly increasing function such that $g' > 0$, $g'' > 0$, $g(0) = 0$ and $\lim_{q \rightarrow +\infty} g'(q) = +\infty$.

As in the previous model each regulator raises a sum of franchise fees (f) proportional to the share of companies choosing its jurisdiction and its aim is to maximize the net value of the fees.

For the sake of simplicity, we assume that the companies are distributed uniformly over the support $[\underline{t}, \bar{t}] \times [\underline{t}, \bar{t}]$.

Bundled provision of law

We begin with the case in which the companies are forced to take all the laws from the same jurisdiction. Then, no harmonization costs arise: $(T_j - T_k)^2 = 0$.

Since each company will choose the regulator that maximizes the company pay-off, company i in choosing between jurisdiction j and k will decide for the incorporation in jurisdiction j if and only if

$$q_j - \frac{1}{2}(t_{i,c} - T_j)^2 - \frac{1}{2}(t_{i,b} - T_j)^2 > q_k - \frac{1}{2}(t_{i,c} - T_k)^2 - \frac{1}{2}(t_{i,b} - T_k)^2 \quad (17)$$

Condition 17 allows us to define the behavior of the companies for each possible choice made by regulators with just one exception: the case in which both regulators choose the same kind of law with the same level of quality. In order to give a complete definition of companies' behavior we make the following assumption.

Assumption 7 *If the two regulators choose to provide the same type of law ($T_j = T_k$) with the same level of quality ($q_j = q_k$) then half of the companies will choose to incorporate in the first jurisdiction and the second half will choose to incorporate in the second jurisdiction.*

Also in this extension we keep the assumption that

Assumption 8 The two jurisdictions always require the payment of the same franchise fee.

Hence, again, we get the following result

Lemma 4 *With bundled provision of laws there is no symmetric equilibrium with $T_j \neq T_k$.*

In this case as well, the result is quite easy to prove by contradiction.

Proof of lemma 4 Let us assume that in equilibrium $T_j \neq T_k$. Without any loss of generality we can assume that $T_j > T_k$. From equation it follows that any company i such that $t_{i,c} + t_{i,b} > (T_j + T_k) - \frac{(q_j - q_k)}{(T_j - T_k)}$ will incorporate in jurisdiction j . All the others will choose jurisdiction k . Hence, defining $\Phi(T_j, T_k, q_j, q_k) = \left[(T_j + T_k) - \frac{(q_j - q_k)}{(T_j - T_k)} \right]$, the demand for incorporation in jurisdiction j will be

$$D_j(q_j, T_j) = \begin{cases} 1 & \text{iff } \Phi \leq 2\underline{t} \\ 1 - \frac{(\Phi - \underline{t})^2}{2(\bar{t} - \underline{t})^2} & \text{iff } 2\underline{t} < \Phi \leq \underline{t} + \bar{t} \\ \frac{(2\bar{t} - \Phi)^2}{2(\bar{t} - \underline{t})^2} & \text{iff } \underline{t} + \bar{t} < \Phi \leq 2\bar{t} \\ 0 & \text{iff } \Phi > 2\bar{t} \end{cases} \quad (18)$$

and the demand for incorporation in jurisdiction k will be

$$D_k(q_k, T_k) = \begin{cases} 0 & \text{iff } \Phi \leq 2\underline{t} \\ \frac{(\Phi - \underline{t})^2}{2(\bar{t} - \underline{t})^2} & \text{iff } 2\underline{t} < \Phi \leq \underline{t} + \bar{t} \\ 1 - \frac{(2\bar{t} - \Phi)^2}{2(\bar{t} - \underline{t})^2} & \text{iff } \underline{t} + \bar{t} < \Phi \leq 2\bar{t} \\ 1 & \text{iff } 2\bar{t} < \Phi \end{cases} \quad (19)$$

Each jurisdiction aims to maximize its own fees and faces the following problem

$$\max_{q, T} V = fD(T, q) - g(q) - F \quad (20)$$

Since the regulators have the same cost function, we restrict our analysis to the set of symmetric equilibria; namely the ones in which $T_j = \bar{t} + \underline{t} - T_k$ and $q_j = q_k$, hence $\Phi = \underline{t} + \bar{t}$. Without loss of generality we analyse the first order

condition for regulator j . The first order condition for the choice of quality for regulator j is

$$f \frac{(\Phi - \underline{t})}{2(\bar{t} - \underline{t})^2 (T_j - T_k)} = g'(q_j) \quad (21)$$

thus the lower the difference between the type of law chosen by the two regulators is, the higher the quality level chosen by the two regulators in the symmetric equilibria will be.

At the same time the derivative of the net revenues with respect to T is always negative for any symmetric choice of q and T .

$$\frac{\partial V}{\partial T_j} = -f \frac{\left[1 + \frac{(q_j - q_k)}{(T_j - T_k)^2}\right] (\Phi - \underline{t})}{(\bar{t} - \underline{t})^2} < 0 \quad (22)$$

Hence for any choice of T and q made by the opponent the other regulator may increase its profits by choosing a value of T closer to the one chosen by the opponent and adjusting the quality level in order to satisfy equation. Thus, every symmetric choice of (T, q) , with $T_j \neq T_k$, is not a Nash equilibrium. QED

Lemma 5 With two competing regulators, there is a unique symmetric Nash equilibrium. In such equilibrium the type of law provided by the two regulators is the same in both jurisdictions and the equilibrium quality level of the legislation is the highest possible $q_{j,k} = \bar{q}$

Proof of lemma 5 Lemma 4 implies that if a symmetric equilibrium exists then it cannot be true that $T_j \neq T_k$. Let assume $T_j = T_k$. In this case a symmetric equilibrium exists only with $T_j = T_k = \frac{\bar{t} + \underline{t}}{2}$. Then from condition 22 it follows that no regulator can gain anything by changing the value of T . At the same time, since $T_j = T_k$, the regulator that sets the higher level of q will attract all the companies. Thus, for any choice of q made by the opponent any regulator can gain by choosing a higher level of q . Then the unique symmetric choice of strategies such that none of the regulators can gain with a unilateral departure is the couple of strategies $(q_j, T_j) = (q_k, T_k) = (\bar{q}, \frac{\bar{t} + \underline{t}}{2})$. QED

Unbundled provision of law

If a company chooses different laws from different jurisdictions, it will face a harmonization cost $(T_j - T_k)^2$ that is greater the bigger the distance between the types of law provided by the two jurisdictions is.

The profit function of the company will depend by its choice with respect to the laws taken; in the following s_l is the jurisdiction chosen for the

corporate/securities laws and s_2 is the jurisdiction chosen for the bankruptcy law.

$$\pi(s_1, s_2) = \begin{cases} q_j - \frac{1}{2}(t_{i,c} - T_j)^2 - \frac{1}{2}(t_{i,b} - T_j)^2 & s_1 = s_2 = j \\ \frac{1}{2}q_k - \frac{1}{2}(t_{i,c} - T_k)^2 + \frac{1}{2}q_j + \\ -\frac{1}{2}(t_{i,b} - T_j)^2 - \frac{1}{2}(T_j - T_k)^2 & s_1 \neq s_2 = j \\ q_k - \frac{1}{2}(t_{i,c} - T_k)^2 - \frac{1}{2}(t_{i,b} - T_k)^2 & s_1 = s_2 = k \\ \frac{1}{2}q_j - \frac{1}{2}(t_{i,c} - T_j)^2 + \frac{1}{2}q_k + \\ -\frac{1}{2}(t_{i,b} - T_k)^2 - \frac{1}{2}(T_j - T_k)^2 & s_1 \neq s_2 = k \end{cases}$$

Using the profit function it is possible to compute the demand of law adoption faced by each jurisdiction. There will be four groups of companies with different demands: a) those that take both the laws from jurisdiction j , whose maximum gain is given by $\pi(j, j)$ and whose share of the companies' population will be $D_{j,j}$, b) those that take only bankruptcy law from jurisdiction j and whose share will be $D_{k,j}$, c) those that take only corporate law from jurisdiction j $D_{j,k}$ and, finally, those that take both the laws from jurisdiction k ($D_{k,k}$).

In order to simplify the notation let us define

$$\alpha \equiv \frac{(q_j - q_k)}{(T_j - T_k)} \quad \text{and} \quad \Phi \equiv \left[(T_j + T_k) - \frac{(q_j - q_k)}{(T_j - T_k)} \right]$$

If we assume $T_j \neq T_k$ and, without any loss of generality, we take the case $T_j > T_k$ then the demand functions are

$$D_{j,j}(\Phi) = \begin{cases} 0 & \Phi \geq 2\bar{t} \\ \frac{1}{(\bar{t}-\underline{t})^2} \left[(\bar{t} - T_k + \frac{1}{2}\alpha)^2 - \frac{1}{2}(T_j - T_k)^2 \right] & 2\underline{t} < \Phi < 2\bar{t} \\ 1 & \Phi \leq 2\underline{t} \end{cases} \quad (23)$$

$$D_{j,k}(\Phi) = D_{k,j}(\Phi) = \begin{cases} 0 & \Phi \geq 2\bar{t} \\ \frac{1}{(\bar{t}-\underline{t})^2} (T_k - \frac{1}{2}\alpha - \underline{t})(\bar{t} - T_j + \frac{1}{2}\alpha) & 2\underline{t} < \Phi < 2\bar{t} \\ 0 & \Phi \leq 2\underline{t} \end{cases} \quad (24)$$

$$D_{k,k}(\Phi) = \begin{cases} 0 & \Phi \geq 2\bar{t} \\ \frac{1}{(\bar{t}-\underline{t})^2} \left[(T_j - \frac{1}{2}\alpha - \underline{t})^2 - \frac{1}{2}(T_j - T_k)^2 \right] & 2\underline{t} < \Phi < 2\bar{t} \\ 0 & \Phi \leq 2\underline{t} \end{cases} \quad (25)$$

In order to simplify the computation but without any loss of generality we make the following assumption.

Assumption 9 *Let us secondly assume that the companies that decide to cross incorporate (i.e. taking corporate/securities laws from the first jurisdiction and the bankruptcy one from the second jurisdiction) pay half of the fees to the first jurisdiction and half to the second.*

Also here we get the usual result. Since there is no bundling each regulator faces two demand functions: the demand for the corporate/securities law and the demand for the bankruptcy law.

Lemma 6 *With two competing regulators and unbundled provision of laws, in the Nash equilibria, the quality level of legislation will be the same in both jurisdictions: $q_i = q_j$.*

Proof of lemma 6 Let us assume that in the Nash equilibrium $T_j = T_k$. In this case the regulator that provides the highest level of quality will clear the market. Thus, the competition between the two will push both the regulators to choose the maximum level of quality under the constraint that the net value of the fees is not lower than zero. Since the regulators have the same cost function and given assumption 9, in the equilibrium they must choose the same level of quality. Thus if $T_j = T_k$, also $q_i = q_j$ must hold.

Let us now assume that in the Nash equilibrium $T_j \neq T_k$. Without any loss of generality we can analyse the case $T_j > T_k$. Thus, the demand functions will be the ones given by equations 23, 24 and 25. Given assumption 9, each regulator will face the following maximization problem

$$\max_{q_i, T_i} V = fD_{i,i}(\Phi) + \frac{1}{2}fD_{i,m}(\Phi) + \frac{1}{2}fD_{m,i}(\Phi) - g(q_i) - F \quad i, m \in \{j, k\}, i \neq m \quad (26)$$

If we compute the first order conditions, with respect to q for the two regulators, we find that

$$\frac{dV_j}{dq_j} = 0 \Leftrightarrow T_j - T_k = \frac{f(\bar{t} - \underline{t})}{2(\bar{t} - \underline{t})^2 g'(q_j) - f} \quad (27)$$

$$\frac{dV_k}{dT_k} = 0 \Leftrightarrow T_j - T_k = \frac{f(\bar{t} - \underline{t})}{2(\bar{t} - \underline{t})^2 g'(q_k) - f} \quad (28)$$

and since in the Nash equilibria the two must hold simultaneously, and given that $g' > 0$ and $g'' > 0$ this implies that also $q_i = q_j$ must hold in equilibrium. QED

Lemma 7 *With unbundled provision of laws there are three Nash equilibria. The first one is the same of the unbundled case: same type of law provided by both regulators and maximum quality. In the other equilibria, the regulators choose to provide different types of laws and the distance (differentiation) between the types of law provided is maximum: $|T_j - T_k| = \bar{t} - \underline{t}$.*

Proof of lemma 7 Let us assume that $T_j = T_k$. From lemma 6 we know that also $q_i = q_j$. It is straightforward to see that in this case none of the regulators may raise the net fees by changing T unilaterally, thus this is a Nash equilibrium. Let us now assume that $T_j \neq T_k$. And let us take the case $T_j > T_k$. If we compute the f.o.c. with respect to T of problem 26, for the two regulators, we find that

$$\frac{dV}{dT_j} = 0 \Leftrightarrow T_j = \underline{t} - \frac{1}{2} \frac{(q_j - q_k)(\bar{t} - \underline{t})}{(T_j - T_k)^2}$$

$$\frac{dV}{dT_k} = 0 \Leftrightarrow + \frac{1}{2} \frac{(q_j - q_k)(\bar{t} - \underline{t})}{(T_j - T_k)^2}$$

thus, given lemma 6 we find that in the second Nash equilibrium $(T_j, T_k) = (\underline{t}, \bar{t})$ and $q_i = q_j$. Since \underline{t} and \bar{t} are the extreme values of the interval of feasible types of law, this means that we have a complete differentiation between the laws provided by the two regulators.

Finally, let us assume $T_j \neq T_k$. And let us take the case $T_j < T_k$. The case is the symmetric of the one already shown, and the Nash equilibria will be: $(T_j, T_k) = (\bar{t}, \underline{t})$ with $q_i = q_j$. QED

Moreover, with respect to the level of quality provided, we can prove also the following result.

Lemma 8 *With unbundled provision of laws the quality provided is the highest possible level in the equilibrium where $T_j = T_k$. In the other two equilibria it may be lower when the fixed costs of lawmaking are high with respect to the*

level of the franchise fees: $F \approx \frac{1}{2}f$.

Proof of lemma 8 In the equilibrium where $T_j = T_k$ the regulator that provides the higher q will clear the market, thus the same argument we used to prove lemma holds also here and the quality level provided by the regulators is

$$q^* = g^{-1}\left(\frac{1}{2}f - F\right) \quad (29)$$

In the other two equilibria, if one regulator raises the quality provided, it will gain just the companies that were indifferent between choosing among the two jurisdictions. In fact, condition and tell us that when $(T_j, T_k) = (\bar{t}, \underline{t})$ or $(T_j, T_k) = (\underline{t}, \bar{t})$, the quality level in the equilibrium is

$$\hat{q} = g^{-1}\left(\frac{f}{(\bar{t} - \underline{t})^2}\right) \quad (30)$$

Thus it follows that the quality level provided in the equilibria with differentiation is lower than the maximum when

$$f - g\left(g^{-1}\left(\frac{f}{(\bar{t} - \underline{t})^2}\right)\right) > 2F \quad (31)$$

QED

Proof of proposition 2 The statement in point a) is simply a restatement of lemma 5. The statement in point b) is simply a restatement of lemma 6, 7 and 8. To prove the statement in point c) it suffices to compute the total welfare in the two cases. With bundled provision of laws the total gain for the companies is

$$q^* - \frac{1}{12}(\bar{t} - \underline{t})^2 - f$$

and in the equilibria with differentiation is

$$\hat{q} - \frac{1}{6}(\bar{t} - \underline{t})^2 - f$$

and, since from lemma 8 we know that $q^* \geq \hat{q}$ the lemma is proved.

To prove the statement in point d) it suffices to notice that with bundled provision of laws the net fees raised by the regulators are equal to zero and in the other case they are always greater or equal than zero. The fees are greater

than zero when $\hat{q} < q^*$ and they are equal to zero if and only if $\hat{q} = q^*$. QED

Chapter 2

Corporate Governance, Corporate and Employment Law and the Costs of Expropriation*

Abstract

We set up a model to study how ownership structure, corporate law and employment law interact to set the incentives that influence the decision by the large shareholder or manager effectively controlling the firm to divert resources from minority shareholders and employees. We suggest that agency problems between the controller and other investors and holdup problems between shareholders and employees are connected if the controller bears private costs of “expropriating” these groups. Corporate law and employment law may therefore sometimes be substitutes; employees may benefit from better corporate law intended to protect minority shareholder, and vice versa. Our model has implications for the domestic and comparative study of corporate governance structure and addresses, among other things, the question whether large shareholders are better able to “bond” with employees than dispersed ones, or whether the separation of ownership facilitates long-term relationships with labor.

JEL Classification: G30, K22

Keywords: Hold-up, Private Costs of Expropriation, Corporate Governance, Corporate & Labor Law.

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1 Introduction

The interaction between finance and labor has been studied with increasing interest in recent years (Pagano & Volpin, 2008). One aspect of the debate is the possibility of employees (or other stakeholders) making firm-specific investment in human capital from which the firm will benefit. However, stakeholders may be deterred from such investment if they are not adequately rewarded for it because managers or shareholders will expropriate their (quasi-)rents (Shleifer & Summers, 1988). This paper seeks to contribute to the literature on this issue by trying to identify the circumstances under which such holdup situations are likely to occur by linking them to corporate ownership and governance structures prevalent in different firms and different countries. We also analyze how holdup issues with respect to workers may be connected to agency problems from which shareholders suffer.¹ In any case, even if one does not believe specific human capital to be an important issue for corporate governance, our model may still be of interest for the distributive issue of how rents produced by the corporation are assigned to managers, large and small shareholders, and workers.

The bulk of the corporate governance literature is concerned with private benefits of control, which allows the controller of the firm to usurp part of the corporate patrimony that minority investors would have expected to participate in (Shleifer & Vishny, 1997). It is part of the conventional wisdom in comparative corporate governance that agency problems differ strongly between firms with dispersed and concentrated ownership, the main issue being managerial agency problems in the first and agency problems resulting from the presence of a large shareholder in the second case (e.g. Shleifer & Vishny, 1997:758-761), the effect being that policymakers in different countries will have to look at different issues depending on which kind of ownership predominates in a particular corporate governance system. Differences in the firm's interaction with other stakeholders, such as workers, are a less well researched issue. From an empirical point of view it is well known that in the OECD countries there is a significant negative cross-country correlation between workers' protection and ownership dispersion (Belloc & Pagano, 2009). It is not clear whether there is a causal relation between the two factors, or whether they constitute a set of institutional complements. Roe (Roe, 2003) suggests that stronger employment law and social democratic policies in general might increase the incentives to concentrate ownership due to exacerbated managerial agency problems, while other scholars have recently emphasized a possible (additional) opposite causal relation with

¹Our model does not build directly on the technical literature on holdup models. As usually understood: we use the term "holdup" to refer to opportunism to the detriment of workers in general. In some sense our model is more general than the holdup case; our model applies to any situation in which some kind of contractual incompleteness allows for ex-post expropriation of workers and shareholders.

pro-labor laws as a reaction to the concentration of power and corporate ownership (Gelter, 2009; Belloc & Pagano, 2009).

The latter direction of causality is based on assumptions that are not unanimously held in the comparative corporate governance literature.

While some authors have suggested that large shareholders may be better able to exploit non-shareholder constituencies (Charreaux & Desbrières, 2001:758; Jackson, 2005:116), another part of the literature hypothesizes that large shareholders may be better able to commit to the firm in the long run, thus assuring to stakeholders that specific investment can safely be made without needing to fear ex-post expropriation of rents (e.g. Aguilera & Jackson, 2003:183; Woolcock, 1996:451). On the one hand, one could argue that this proposition is counterintuitive, considering that shareholders presumably are the financial beneficiary of holdup of stakeholders. Large, controlling shareholders (or coalitions of large shareholders) who are able to influence management, could therefore both be in a good position and have strong incentives to “expropriate” workers. By contrast, the literature suggesting that this long-commitment to employees is prevalent seems to presume that managers in dispersed ownership systems are forced by market mechanisms, most of all by hostile takeovers, to expropriate workers where shareholders can benefit from it financially (e.g. Franks & Mayer, 1998:728-729).²

In reality, this assumption often seems not to be justified. In recent years, legal scholars have increasingly found that managers in the US, the paradigmatic dispersed ownership system, are typically relatively insulated from shareholders and often do not have strong incentives to pursue shareholder wealth maximization. In particular, there is persuasive evidence that Delaware corporate law has developed to offer managers highly effective means to shield themselves against hostile takeovers (Bebchuk et al., 2002). Scholars of comparative corporate law point out that the US corporate governance system, taking both the law and financial structures into account, provides an unusual degree of insulation of managers (Hansmann & Kraakman, 2004:53-54).³ While this aspect of US corporate governance often leads to considerable criticism (e.g. Bebchuk & Cohen, 2005), others have attempted to find efficiency explanations (Bainbridge, 2003; Elhauge, 2005). On the basis of Rajan & Zingales’ contribution to the theory of the firm (Rajan & Zingales, 1998), Margaret Blair and Lynn Stout have developed a team production theory of corporate law (Blair & Stout, 1999, Blair & Stout, 2006), the core claim of which is that the insulation of managers from shareholders is efficient because it protects employees and other stakeholders

²This is the situation envisioned by the well-known contribution of Shleifer & Summers, 1988 regarding hostile takeovers in the US.

³In fact, the situation seems to be very different in the UK, the second important dispersed ownership system, where takeover law has provided an obligations for managers to stay neutral in takeover contests since the late 1960s. See Armour & Skeel, 2007.

from holdup. Similarly, others have suggested that taking the firm public reduces the possibility of shareholder intervention, thus effectively allowing managers and/or employees some leeway to capture private benefits if the firm is successful (Burkart et al., 1997, Brealey et al., 2006:949). This kind of argument has problems in firms or corporate governance systems characterized by concentrated ownership. In such systems, other mechanisms such as codetermination or employment law may help to protect stakeholders from holdup (cf. Fauver & Fuerst, 2006:679-680; Armour & Deakin, 2003:445-452). Thus, it has been suggested that pro-employee laws may be relatively more desirable in corporate governance systems with concentrated ownership than in dispersed ones, and in dispersed ownership systems with more vibrant markets for hostile takeovers than in ones where managers can effectively shield themselves (Gelter, 2009).⁴

The two views on the effects of ownership structure on stakeholders seem to be irreconcilable at first glance, as two mutually exclusive phenomena (the presence of large blockholders or ownership dispersion) are interpreted as the solution for the problem of long-term commitment to stakeholders. Our paper seeks to provide a reconciliation on the basis of an identification of the reasons why the effective “controller” of a firm (either a manager or a large shareholder) may refrain from expropriating either shareholders or stakeholders, or both. We argue that expropriating either shareholders or stakeholders comes at a cost. Depending on the respective corporate and labor laws, some resources must be invested in expropriation. Many of these costs are borne by the firm. While the controller always can expect some financial benefit from expropriation, we argue that sometimes she has to bear some additional (private) costs of expropriation herself, which creates a countervailing incentive. On the basis of these costs, whose real-life interpretation we discuss in some detail below, we identify various prototypical “structures” of firms that depend on the nature of the private costs borne by the controller. Thus, the extent to which shareholders and/or employees are “expropriated” will depend (1) on the controller’s ownership share, (2) on the strength of the applicable protecting the respective group, and (3) on the presence of private “costs of expropriating” not borne by the firm, but the controller. Ultimately, whether blockholders or the managers of a dispersed firm are more likely to engage in long-term bonding with employees will depend on their private cost of expropriation (although the controlling shareholders’ larger financial stake certainly has an impact).

At the same time, our model shows how the expropriation of (minority) shareholders and stakeholders are connected. In the presence of a positive cost of expropriation, employees may benefit from laws intended to protect

⁴Legal systems often distinguish between (individual) employment law and (collective) labor law. We use both terms interchangeably, as our model does not distinguish between these two bodies of law.

shareholders, and vice versa. Holdup gains from putting pressure on employees result in higher ex post shareholder value (in the form of higher dividends or stock price). This implies that the controller's incentive to be tough on employees depends on the extent to which he has to share these gains with minority shareholders. In other words, if legal protection against private benefits of control is strong, the incentive to engage in holdup of employees will be reduced, since the controller will have to share a large proportion of holdup gains with minority shareholders. Thus, corporate law and employment law may to some extent be substitutes, and interests of investors and employees may sometimes be aligned, which may explain the "coalitions" between these two groups against managers that some scholars have identified. By contrast, the effects of increased labor protection on minority shareholders depend on the circumstances.

2 The model

2.1 General framework

Our model attempts to integrate specific investment by workers, holdup of workers by the controller of the firm, and expropriation of minority investors by the controller of the firm. The person in control of the firm, to which we refer to as the manager, could, on one hand, represent senior management in a publicly traded firm with dispersed ownership, or, on the other hand, a single large shareholder or a coalition of large blockholders effectively controlling a firm through concentrated ownership blocks. In the second case, it is assumed that conflicts of interests between a third-party manager and the controlling shareholder are negligible; we consider only conflicts of interests between controlling and non-controlling shareholders as the relevant agency conflict in this case. In our model, the two archetypal types of ownership structure are distinguished by the amount of shares held by the manager.

In either case, we assume that the manager needs outside shareholders to finance the firm, and that employees make firm-specific investment (e.g. in human capital). This allows the firm to operate and to produce a surplus. The manager subsequently decides how to allocate the surplus between outside investors, employees, and himself. Both investors and employees have a baseline expectation about their share of the surplus. The manager can decide to withhold part of the expected share from these groups, to which we refer respectively as "minority expropriation" and "employee exploitation".⁵ However, exploitation of either group is costly, and the manager is further constrained by corporate law and employment law.

⁵By these terms we mean actions by managers and controlling shareholders renegeing on expectations by these two groups, thereby decreasing their utility, most of all the classical agency and holdup problems familiar from contract theory.

Wages are often understood to consist of a fixed claim only. However, in our model, the wage accorded to employees and their baseline expectation is assumed to include rewards that are part of an implicit contract, such as e.g. certain types of retirement benefits, expectations regarding job security and advancement within the corporate hierarchy, and the safety of working conditions.

In the model we assume that the value of the production depends upon the effort put up by workers. We devise a two-stage game where the effort of workers is perfectly observable and the manager has the first-mover advantage.⁶

1. In the first stage the manager chooses the level of worker and minority expropriation.
2. In the second stage workers choose the optimal level of effort (amount of costly specific investment)

Since everything is observable and agents are rational, the level of expropriation the manager will choose in the first stage will depend upon the effect he expects on workers' effort in the second stage.

The value of the output produced by the firm will be $x(e)$, where e is the effort of the workers, $x' > 0$ and $x'' < 0$. Once the output is produced, the manager can decide to put up some effort to expropriate the workers (e.g. by exploiting hold up situations).

The wage earned by the worker is a share ω of the output. $w = \omega x(e)$. The effort made by the manager to exploit workers determines ω , $\omega = \varpi - (1 - p_L)\gamma(c_L)$, where ϖ is the share of revenues used to pay workers if the manager does not invest in workers exploitation, $p_L \in [0, 1]$ is the degree of protection accorded to workers by employment law. In our model, employment law is understood to either prevent exploitation outright (e.g. by making it hard or costly to make workers redundant), or by giving considerable bargaining powers to workers and unions, such as mandatory code-termination, consultation requirements, or the requirement to negotiate a costly social plan for redundant employees. c_L is the amount of resources spent to expropriate the workers and $\gamma' > 0$, $\gamma'' < 0$, $\lim_{c_L \rightarrow \infty} \gamma(c_L) = \varpi$. Depending on the particular circumstances of the case (explained below), this cost will be borne by the firm or by the manager himself.

Once the wages have been paid, what remains are the profits:

$$\pi = (1 - \omega)x(e) - c_c - c_L.$$

⁶We try to capture in this way the asymmetric position of managers and workers. We are somehow assuming that the managers are in a stronger position either because of the hierarchic relation between managers and workers or because the manager has better information than the workers.

Profits have to be shared between the manager and minority shareholders. The manager can spend resources to expropriate minority shareholders. The amount of dividends earned by minority shareholders is $d_m = f\pi$, where $f = (1 - \bar{f}) - (1 - p_c)\delta(c_c)$. $\bar{f} \in [0, 1]$ is the share of capital⁷ owned by the manager, $p_c \in [0, 1]$ is the degree of protection accorded to minority shareholders by corporate law. The rules of corporate law we attempt to capture are the ones usually described as “shareholder protection” in the literature, such as the ones preventing or penalizing asset diversion or dilution of stock value (see generally Djankov et al., 2008). c_c is the amount of resources devoted to minority shareholder exploitation. We also assume that the marginal return from expropriation is decreasing:⁸ $\delta' > 0$, $\delta'' < 0$, $\lim_{c_c \rightarrow \infty} \delta(c_c) = 1$.

Workers’ effort For sake of simplicity, let us assume that $x(e) := \sqrt[3]{e}$. In this case the worker will choose the optimal amount of effort in order to maximize his own utility

$$e^* = \arg \max u = w(e) - e$$

Thus

$$\begin{aligned} e^*(c_L, p_L) &= \frac{1}{4} [\varpi - (1 - p_L)\gamma(c_L)]^2 \\ x^*(c_L, p_L) &= \frac{1}{2} [\varpi - (1 - p_L)\gamma(c_L)] \end{aligned}$$

This implies that both the effort provided by the workers and the productivity of the firm are affected by the degree of labor protection, but are not affected by the degree of minority protection. The reason why we have chosen this formulation is mainly for sake of simplicity.

If this is the case, then the manager will choose the level of worker expropriation according to the effects he expects on the effort provided by the workers.

Subsequent analysis Using this framework, we analyze the interaction between labor law and minority shareholder protection. In particular, we argue that these two bodies of law interact so that

⁷We use the term capital with reference to the amount of cash flow rights in the hand of the controller. The amount of cash flow right in the hand of a controlling shareholder may be substantially different from his voting rights in the case of pyramids, cross-ownership and dual class share structures; in some cases it may be possible to control the company with only a small share in cash flow rights. See Bebchuk et al. (2000)

⁸Or, in other words, we are assuming that the marginal cost of expropriation is increasing.

1. when the degree of shareholder protection changes (e.g. as the result of a change of corporate law), the amount of worker exploitation is affected as well. Likewise when the degree of workers protection is changed, the amount expropriated from minority shareholder is also affected.
2. the exact type of interaction between these two bodies of law is firm specific and depends on the type of the governance structure.
3. a change in ownership concentration (mediated by labor and minority protection) does not affect the expropriation of workers in all firms. The extent depends on the existence of private costs of expropriating workers.

Furthermore our analysis shows the significance of the size of the controlling block on the expropriation of workers, and the importance of who bears the cost of expropriation of either of the two “weak” groups.

In the following sections, we distinguish various cases, each of which is interpreted to represent specific types of firms. The cases are distinguished on the basis of whether managers personally bear a cost of expropriating (minority) shareholders and/or employees. Within each section, we can distinguish between firms where managers own only a small stake (dispersed ownership) and firms where they own a large one (concentrated ownership) if the version of the model lends itself to a real-life interpretation. In either case, a private cost of expropriation, that cannot be shifted to the firm, protects both minority shareholders and employees.

2.2 Type 1. Firms controlled by financial investors

In the first case, the cost of both expropriating shareholders and of exploiting workers is borne by the firm and *no private costs are paid directly by the manager*. There is no private cost of expropriating either minority shareholders or labor. Typically, tunneling transactions out of the firm that will harm small shareholders (both under dispersed and under concentrated ownership) will require complex transactions, and the advice of skilled professionals (such as lawyers or accountants) how to circumvent the law. Part of the resources spent on tunneling will therefore not correspond to an advantage to the manager, but simply be a deadweight loss. The same may apply with regard to the expropriation of workers. Firing workers, or even just threatening them with redundancy e.g. to obtain concession from a union, may result in transitory costs, such as reassignment of tasks within the firm or transaction costs resulting from negotiations. We assume that all of these costs are borne by the firm, i.e. the manager has no personal cost. There is not even a non-pecuniary cost from reduced reputation or

from violations of social norms. Thus, the manager does not care whether employees or shareholders suffer because his personal wealth is not affected.

In cases of concentrated ownership, a plausible interpretation could be that controlling shareholder is a *financial investor*, such as a private equity investor, who is only interested in profits. Since the fund does not care about the non-monetary benefit of control and has direct power over the manager, it can divert company resources and use them to cover the costs of exploiting workers and minority shareholders.

In a firm with dispersed ownership, managers would have *no social norms reinforcing long-term interaction with workers*, and no interest in empire-building. The manager also does not have to fear any indirect repercussions from harming shareholders.

Result 1 *In the absence of private costs of expropriation, there only a partial interrelation between the effects of corporate law and employment law.*

1. *If minority shareholder protection increases, the share of minority dividends expropriated by the manager decreases, but the expropriation of workers is unaffected.*
2. *If labor protection increases, both the share of wages expropriated and the share of minority dividend expropriated are affected. The share of wage expropriated decreases. The share of minority dividend expropriated decreases if the labor share is large ($\omega > 1/2$) but grows if the labor share is small ($\omega < 1/2$).*
3. *If the share of cash flow rights in the hands of the financial investor (\bar{f}) increases then the expropriation of workers is unaffected but the degree of minority expropriation decreases.*

Proof. The maximization problem faced by the manager is

$$\max_{c_c, c_L} D_L = (1 - f) \pi$$

$$\max_{c_c, c_L} D_L = [\bar{f} + (1 - p_c) \delta(c_c)] [(1 - \varpi + (1 - p_L) \gamma(c_L)) x(e) - c_c - c_L]$$

then the first order conditions are

$$\begin{aligned} \delta'(c_c) &= \frac{\bar{f} + (1 - p_c) \delta(c_c)}{(1 - p_c) [(1 - 2x^*) x^* - c_c - c_L]} \\ \gamma'(c_L) &= \frac{4}{(1 - p_L) (2x^* - 1)} \end{aligned} \tag{1}$$

1) If p_c increases, δ' must increase and $\delta(c_c)$ must shrink in order for equation 1 to hold true. Since $\delta'' < 0$, then $\delta(c_c)$ has to become smaller

when δ' grows. At the same time p_c does not play any role in the first order condition for γ , hence a change in p_c does not affect γ .

2) If p_L grows, then both first order conditions are affected. A sufficient condition that leads to an increase of γ' is the increase of p_L . When γ' becomes larger, it leads to a reduction of γ . On the contrary δ' becomes larger if and only if $\varpi - (1 - p_L)\gamma(c_L) > 1/2$.

3) Finally if \bar{f} changes, only δ' is affected: it has to become larger implying a reduction of δ . ■

The effects of an increase in labor protection on the expropriation of minority crucially depend on the share of value added that is paid to workers. Intuitively, an increase of labor protection and wages paid has a twofold effect on firm's profits. On one side, an increase in wages leads to a direct reduction of profits. On the other side, the same wage increase push workers to use a higher effort that increases the value of production and profits. The net effects on profits depends on the relative size of the two effects. Since there is a decreasing marginal productivity of effort, when ω is large the effort already provided by workers is high and has a low marginal productivity. In this case a further increase in ω (due to an increase in labor protection) will usually overcome the connected increase in the value added, hence profits decrease. If profits go down, the incentive to expropriate the minority is reduced. By contrast, if ω is small the effort provided by workers is small as well and has a high marginal productivity. In this case, the increase in the value added arising from an increase in labor protection is likely to overcome the additional wage expenses and lead to an increase of profits. If profits grow, the incentive to expropriate minority profits grows as well.

2.3 Type 2. Publicly traded family firms / managerial firms

In this case a private cost of expropriating workers is borne by the manager. As in the previous section, tunneling transactions will cost the firm because of the deadweight loss resulted from the necessity to devise complex transactions to conceal self-dealing as well as it will cost the exploitation of workers holdup. These monetary costs reduce firm's profits and, on the top of them, there is a positive private cost of exploiting employees paid by the manager, but none of expropriating minority shareholders.

Depending on the particular circumstances, there can be various institutional explanations. Our model describes two distinct corporate archetypes. First, in cases where \bar{f} is high, the manager would be a controlling shareholder. More specifically, the firm could be controlled by an *entrepreneurial family*, which is common even in very large firms in some Continental European countries such as Italy. The literature on family firms suggests that families sometimes enjoy non-pecuniary benefits from control, such as national or regional prestige (Burkart et al., 2003). Expropriating employees could harm that reputation and make the social life of the family's members

in the city or region dominated by the company less pleasant. Furthermore, entrepreneurial families may enjoy reigning over a large retinue of employees and therefore suffer a cost from if it lost some of them.⁹ By contrast, the controlling family may care little about the well-being of outside shareholders, which is why there is no private cost of expropriating these.

Second, where \bar{f} is low, the model could apply to what is known as a *Berle-Means firm* (Berle & Means, 1932), in which a publicly traded company is effectively controlled by managers holding only a small share of stocks. Blair and Stout suggest that the (legal and factual) insulation of US boards of directors (and managers) from shareholders may be efficient because it prevents holdup, thus facilitating specific investment by employees and stakeholder groups (Blair & Stout, 1999; Blair & Stout, 2001:438-441). Under this theory, the reason why employees trust managers is that these stand to lose something if they expropriate employees. For example, there may be social norms that encourage directors to maintain a reputation of trustworthiness. Furthermore, entrenched managers may have a taste for empire-building, which will often coincide with the interests of workers. In this interpretation of our model, c_L would correspond to managers' costs when they forgo these possibilities and violate social norms at work in this context. In fact, there seems to be empirical evidence that at least some workers and bondholders benefit from entrenched management (Gokhale et al., 1995; Chemla, 2005:379-380). Workers and managers are thus often seen as natural allies against hostile takeovers (Pagano & Volpin, 2005).

In our model, the personal costs of expropriation are captured by the parameter α , which is the ratio between the the private costs borne by the manager and the costs of expropriating labor paid out the firm's cash. The larger α becomes, the bigger are the private costs in comparison to the direct cost of expropriation.

Note that we are not yet taking the possibility of an effective market for takeovers into account at this point. In this subgroup of cases, managers (and controlling shareholders) are fully entrenched, meaning that the desire to holdup workers will largely depend on financial incentives resulting from their ownership share. Their non-pecuniary cost protects employees from holdup.

Conceivably, the manager's private costs from expropriating workers could also be negative. This would mean that there are other factors balancing the pro-employee bias described above in the Berle-Means firm, such as social norms favoring a strong shareholder primacy norm.¹⁰

⁹Similarly, the firm could be controlled by a government entity. Political decision-maker may be penalized by voters if they expropriate employees (resulting in the loss of jobs).

¹⁰In the case of a (partly) government-owned entity, the cost may be negative because the predominant voter preferences are against government stakes in the industry (which may often have required subsidies from tax money in the past). In such a case, the

Furthermore, the existence of cost of expropriating workers also leads to a shielding effect for minority shareholders: The diminished holdup gains to shareholders also decrease the incentive to expropriate this group.

Result 2 *When the cost of expropriating labor is borne by managers, the shielding effects of corporate law and employment law are interrelated. Specifically,*

1. *if the protection of minority shareholders increases, the share of minority dividends expropriated (by the manager) decreases and the labor expropriation is reduced as well.*
2. *if labor protection increases, the share of wages expropriated by the manager decreases. The share of minority dividends expropriated decreases if $\omega > 1/2$ and grows if $\omega < 1/2$.*
3. *if \bar{f} increases, the rate of minority expropriation decreases and the rate of expropriation of workers increases.*
4. *if private costs of worker expropriation (α) increase, there is a first order reduction in worker's expropriation. There is also a second order change in the degree of minority expropriation: it decreases if $\omega > 1/2$ and grows if $\omega < 1/2$.*

Proof. The maximization problem faced by the manager is

$$\max_{c_c, c_L} D_L = (1 - f) \pi - \alpha c_L$$

$$\max_{c_c, c_L} D_L = [\bar{f} + (1 - p_c) \delta(c_c)] [(1 - \varpi + (1 - p_L) \gamma(c_L)) x(e) - c_c - c_L] - \alpha c_L$$

whose first order conditions are

$$\delta'(c_c) = \frac{\bar{f} + (1 - p_c) \delta(c_c)}{(1 - p_c) [(1 - 2x^*) x^* - c_c - c_L]}$$

$$\gamma'(c_L) = \frac{4(\alpha + \bar{f} + (1 - p_c) \delta(c_c))}{(1 - p_L)(2x^* - 1)(\bar{f} + (1 - p_c) \delta(c_c))}$$

1) If p_c increases, δ' and γ' must increase. Since $\delta'' < 0$ and $\gamma'' < 0$ then $\delta(c_c)$ has to become smaller when δ' grows and $\gamma(c_L)$ has to reduce since γ' grows, as well.

2) If p_L grows, then both first order conditions are affected. A sufficient condition that leads to an increase of γ' is the increase of p_L . When γ' becomes larger, it leads to a reduction of γ . On the contrary δ' becomes larger if and only if $\varpi - (1 - p_L) \gamma(c_L) > 1/2$.

government-appointed manager may have incentives to cut labor costs.

3) If \bar{f} changes, δ' has to become larger implying a reduction of $\delta(c_c)$, while γ' has to become smaller implying an increase of $\gamma(c_L)$.

4) Since α appears only in the first order condition for γ , an increase of α will directly affect γ , reducing it. A reduction in γ will lead to an increase of ω and x such that δ' will reduce if $\omega < 1/2$ and will increase if $\omega > 1/2$.

■

An important result is that workers are not only protected by employment law, but also by corporate law. The improvement in the protection of minority shareholders makes it less attractive for the manager to expropriate employees because he has to assign a larger proportion of potential holdup gains to the outside shareholders.

On the flipside of the coin, the impact of labor protection on minority shareholders is less clear: Overall, minority shareholders do not necessarily benefit from increased labor protection, since it is only their share that decreases: they could still benefit if holdup leads to an overall increase in shareholder value.

2.4 Type 3. “Partnerships” / publicly traded firms subject to a vibrant market for corporate control

In this subsection, there is a positive *private cost of expropriating minority shareholders, but none of expropriating employees*. The firm directly pays the entire cost of exploiting workers (with a reduction in profits). The manager, on the other hand, has a cost of exploiting minority shareholders. In a concentrated ownership firm, this model setup could be interpreted as a *professional partnership*, where partners are in a long-term relationship and typically will care about each other, therefore making expropriation of other partners costly.¹¹ On the other hand, shareholders may care little about employees (e.g. associates in a law firm, where, according to the conventional wisdom, the turnover is very high).

In the context of a *publicly traded firm with dispersed ownership*, the private cost of expropriating shareholders could be the result of institutions aligning the interests of managers with those of shareholders, such as a functioning system of executive compensation, or an effective market for corporate control. Arguably, such factors are much less present in one paradigmatic dispersed ownership system, the US, than it was often thought. In recent years, scholars have suggested that compensation schemes actually found in practice are rather a rent-seeking device for managers than a solution to agency problems, since managers themselves have considerable influence on the design of compensation packages (Bebchuk &

¹¹The existence of a “manager” that could exploit other partners may seem unlikely at first glance, since normally no individual partner will have a controlling stake. However, several partner could form a coalition against another one to jointly control the firm.

Fried, 2003). Furthermore, Delaware corporate law provides nearly perfect takeover defenses, namely the combination of staggered boards and poison pills (Bebchuk et al., 2002). By contrast, takeover law in the UK, the second important dispersed ownership system, is entirely different, as the City Code on Mergers and Takeovers has provided an obligation for managers to stay neutral in takeover contests since the late 1960s (Armour & Skeel, 2007). As a leading scholar of UK company law puts it, when facing a hostile bid, “the directors of the target are thrown back on their powers of persuasion” (Davies, 2008:987). The model could here represent a publicly traded British firm, where the directors face a more significant cost in the form of an increased probability of a hostile takeover when they expropriate minority shareholders.¹²

The introduction of a private cost of exploiting minority shareholders is shown by β , which is the ratio between the private cost borne by the manager alone and the one paid directly by the firm..

Result 3 *When there is a private cost of expropriating shareholders, but not of employees, there is a partial interrelation between the effects of the two bodies of law.*

1. *If minority shareholder protection increases, then the share of minority dividends expropriated by the manager decreases, but the expropriation of labor is unaffected.*
2. *On the contrary, if labor protection increases both the share of wages expropriated and the share of minority dividends expropriated are affected. Labor expropriation is reduced while the effects on minority expropriation depend on the value of ω . Its share grows if and only if $\omega < 1/2$, and decreases otherwise.*
3. *If \bar{f} increases, the rate of expropriation of workers is unaffected, but the rate of minority expropriation becomes smaller.*
4. *If private losses of shareholders expropriation (β) increase, there is a reduction in minority expropriation.*

Proof. The maximization problem faced by the manager is

$$\max_{c_c, c_L} D_L = (1 - f) \pi - \beta c_c$$

$$\max_{c_c, c_L} D_L = [\bar{f} + (1 - p_c) \delta(c_c)] [(1 - \varpi + (1 - p_L) \gamma(c_L)) x(e) - c_c - c_L] - \beta c_c$$

¹²Social norms may also play a role here. Bainbridge (Bainbridge, 2003:582) claims that it is largely a social norm of shareholder primacy (and not the market for corporate control) that keeps US directors aligned with shareholder interests.

$$\delta'(c_c) = \frac{\beta + \bar{f} + (1 - p_c) \delta(c_c)}{(1 - p_c) [(1 - 2x^*) x^* - c_c - c_L]}$$

$$\gamma'(c_L) = \frac{4}{(1 - p_L)(2x^* - 1)}$$

1) If p_c increases, δ' must increase. Since $\delta'' < 0$, then $\delta(c_c)$ has to become smaller when δ' grows. At the same time p_c does not play any role in the first order condition for γ , hence a change in p_c does not affect γ .

2) If p_L grows, then both first order conditions are affected. A sufficient condition that leads to an increase of γ' is the increase of p_L . When γ' becomes larger, it leads to a reduction of γ . However, δ' becomes larger if and only if $\varpi - (1 - p_L) \gamma(c_L) > 1/2$.

3) If \bar{f} changes, δ' has to become larger implying a reduction of $\delta(c_c)$, while γ' is not affected.

4) Since β appears only in the first order condition for δ , an increase of α will directly affect δ , reducing it. A reduction in δ does not affect γ since it does not affect x^* . ■

2.5 Type 4. Closely-held family firms / publicly traded firms subject to a vibrant market for corporate control

In this case, there is a *private cost of expropriating either minority shareholders or labor*, i.e. the manager pays private costs both of exploiting workers and minority shareholders.

In the concentrated ownership situation, the most intuitive interpretation would seem to be a *closely-held family firm*. Minority shareholders who may be exploited may be family members or friends with a long-standing social relationship to the manager. The manager's utility function would therefore also be altruistic with respect to this group. Furthermore, as a leading member of the entrepreneurial family, he also cares about the well-being of long-term employees he closely interacts with on a day-to-day basis, and draws non-pecuniary benefits from the family's social standing in the town where the company is located.

The dispersed ownership case of this version of the model resembles that of the previous section, with the exception of the additional private cost of "exploiting" workers. The manager may still be subject to a *vibrant market for corporate control* (represented by the private cost of expropriating shareholders), but at the same time care about the well-being of workers, e.g. because of countervailing social norms. The exact effects will depend on the relative magnitude of these effects.

Conceivably, the costs of exploiting either shareholders or workers could also be negative. For example, the cost of exploiting minority shareholders could be negative because the shareholder-manager tunneling assets out of the firm could have an advantage the firm does not have, e.g. resulting

from synergy effects that increase the value of assets when used outside the firm. In the case of a negative cost of exploiting employees, he would reap an additional benefit when they expropriate employees, e.g. because the market for corporate control creates a particularly high probability of being ousted by a hostile bidder

Result 4 *When the manager faces both private cost of expropriating minority and labor, then there is an interrelation between the effects of the two bodies of law. Specifically,*

1. *if minority shareholders protection increases, both the share of wages expropriated by the manager and the share of minority dividends expropriated (by the manager) decrease;*
2. *if labor protection increases, the share of wages expropriated by the manager decreases, while the effect on minority expropriation depends on the value of ω . Minority expropriation decreases if and only if $\omega < 1/2$. It grows in the opposite case;*
3. *if \bar{f} increases, the rate of minority expropriation decreases and the rate of workers expropriation increases.*
4. *if private costs of worker expropriation (α) increase, there is a first order reduction in expropriation of workers and a second order change in shareholder expropriation: it increases if $\omega < 1/2$ and decreases otherwise.*
5. *if private costs of shareholders expropriation (β) increase, there is a first order reduction in minority expropriation and a second order reduction in labor expropriation;*

Proof. The maximization problem faced by the manager is

$$\max_{c_c, c_L} D_L = (1 - f) \pi - \beta c_c - \alpha c_L$$

$$\begin{aligned} \max_{c_c, c_L} D_L = & [\bar{f} + (1 - p_c) \delta(c_c)] [(1 - \varpi + (1 - p_L) \gamma(c_L)) x(e) - c_c - c_L] + \\ & - \beta c_c - \alpha c_L \end{aligned}$$

$$\begin{aligned} \delta'(c_c) &= \frac{\beta + \bar{f} + (1 - p_c) \delta(c_c)}{(1 - p_c) [(1 - 2x^*) x^* - c_c - c_L]} \\ \gamma'(c_L) &= \frac{4(\alpha + \bar{f} + (1 - p_c) \delta(c_c))}{(1 - p_L) (2x^* - 1) (\bar{f} + (1 - p_c) \delta(c_c))} \end{aligned}$$

1) If p_c increases, δ' and γ' must increase. Since $\delta'' < 0$ and $\gamma'' < 0$ then $\delta(c_c)$ has to become smaller when δ' grows and $\gamma(c_L)$ has to reduce since γ' grows, as well.

2) If p_L grows, then both first order conditions are affected. A sufficient condition that leads to an increase of γ' is the increase of p_L . When γ' becomes larger, it leads to a reduction of γ . On the contrary, δ' becomes larger if and only if $\varpi - (1 - p_L)\gamma(c_L) > 1/2$, since a reduction of γ increases wages and lead to an increase of x^* .

3) If \bar{f} changes, δ' has to become larger implying a reduction of $\delta(c_c)$, while γ' has to become smaller implying an increase of $\gamma(c_L)$.

4) Since α appears only in the first order condition for γ , an increase of α will directly affect γ , reducing it. A reduction in γ will lead to an increase of ω and x such that δ' will decrease if $\omega < 1/2$ and will increase if $\omega > 1/2$.

5) Since β appears only in the first order condition for δ , an increase of α will directly affect δ , reducing it. A reduction in δ does not affect γ since it has no effect on the size of x^* . ■

3 Comparative observations

As we have seen, the effects of changes in shareholder protection, labor protection, and concentration of ownership depend on the structure of the firm and the respective private costs of expropriation. The following table summarize some of the results.

	Higher minority protection	Higher labor protection	Higher ownership concentration
Type 1 no private cost	lower minority expr.	1. ambiguous change in minority expr. 2. lower labor expr.	lower minority expr.
Type 2 private costs of expr. labor	1. lower minority expr. 2. lower labor expr.	1. ambiguous change in minority expr. 2. lower labor expr.	1. lower minority expr. 2. higher labor expr.
Type 3 private costs of minority expr.	lower minority expr.	1. ambiguous change in minority expr. 2. lower labor expr.	lower minority expr.
Type 4 private costs of both expr.	1. lower minority expr. 2. lower labor expr.	1. ambiguous change in minority expr. 2. lower labor expr.	1. lower minority expr. 2. higher labor expr.

The first result of our model is that changes in the level of labor and minority protection may affect also players different from the ones that the

law is supposed to target. A change in minority protection may affect the behavior of the manager in respect of the workers, and vice-versa a change in the level of labor protection may affect the degree of minority shareholder expropriation in a significant way. This is one of the reason why we argue that policy making in the two bodies of law should be coordinated in order to not give the wrong incentives to managers.

Countries with strong shareholder protection tend to have weak protection of labor, and vice versa (Roe, 2002:263-264; La Porta et al., 2008:311; Belloc & Pagano, 2009). To a certain extent, our model confirms that shareholder protection and labor protection may sometimes serve as substitutes: as long as there is a private cost of exploiting workers, they will benefit from either. The reason why they benefit from minority protection is that the manager would have to share a larger proportion of holdup gains (and out of cash box cost of expropriation) with minority shareholders. His inability to reap all of these gains reduces his incentive to harm workers given his unchanged private cost. As said, this result holds only where there is a positive cost of expropriating labor, as in the case of a controlling family or insulated managers that identify with employees e.g. because of social norms. These might be the circumstances, where, according to some scholars' claims, investors and employees occasionally engage in political coalitions against management (Gourevitch & Shinn, 2005:65-67).

While labor protection naturally improves the position of labor, its effects for investors are mixed: Depending on the circumstances, they may benefit from it, or sustain harm. When either is likely to occur depends on the baseline expectations of labor about the distribution of rents produced by the company. If these are low, the marginal benefit of increasing labor protection for profits is high, which also increases the incentive of the controller to expropriate minority shareholders. Particularly when minority protection is low, controlling shareholders (managers) might have a joint interest in increasing labor protection, to the detriment of minority investors. What will happen over time will of course depend on political processes and on how employees' baseline expectation about their share in corporate rents is formed. Assuming, for example, a continuous increase in labor protection (due to joint lobbying by controlling shareholders and labor unions) that is accompanied by a concurrent (or even stronger) increase in employees' expectations, a corporate governance system will eventually reach a point where the marginal effects of labor protection on profits are negative, in which managers will rather side with minority shareholders against labor and lobby for the reduction of labor protection. This may be one reason for increasing efforts to reduce labor protection in Europe since the 1990s after decades during which labor rights were strengthened.

Most importantly for the point originally motivating the paper, the model also illustrates that a change in the ownership that leads to a higher (lower) concentration is associated with an augmented (reduced) degree of

expropriation of workers only when there is a private cost of expropriating workers. If the private cost of expropriating labor does not exist the owner will choose the same degree of workers' expropriation regardless of his share in the company. The private cost inhibits expropriation because of its countervailing incentive. In the case of a larger ownership share, the manager has a greater financial incentive to exploit workers, which is why the private cost factor is more likely overcome. By contrast, if ownership concentration increases, the degree of exploitation of minority shareholders always decreases. The simple intuitive explanation is that the amount that can be gained decreases with the minority's ownership share, so that the benefits are no longer made up by the cost (irrespective of whether they are borne by the firm or the manager).

For the question whether controlling shareholders or "independent" managers are better able to bond with stakeholders and incentivize them to make specific investment, the answer is (trivially) that in principles it is managers, since they have no financial gain from creating hold up situations that harm stakeholders. However, there are many factors that complicate the issue, which we have interpreted as private costs of expropriation that shield workers from holdup (such as social norms or idiosyncratic preferences of controlling families). The shielding effect may be turned into its opposite if managers are particularly attuned to shareholder interests for institutional reasons.

4 Conclusion

Our paper has attempted to elucidate factors that may eliminate incentives for controlling shareholders and managers to engage in self-dealing behavior to the detriment of minority shareholders and in taking holdup and other opportunities to exploit stakeholders, particularly labor. In particular, the previous literature has often assumed that either managers of Berle-Means firms or large blockholders are better able to provide credible commitment that allows stakeholders to make firm-specific investment. Large ownership stakes may of course create an incentive to exploit labor, since the financial benefit from it is comparatively large. However, the most important factor for both managers or blockholders is private costs of expropriation. For example, the CEO of a managerial firm may enjoy empire-building or social prestige from controlling a large number of employees, which will create a disincentive against holding up labor. Similarly, a blockholding family may enjoy social prestige within the local community, as a result of which they will refrain from exploiting labor's firm-specific investment. For analytical purposes, we have also extended the concept of costs of expropriation to the exploitation of minority shareholders through private benefits of control. For example, in a family firm, the controlling shareholder member

may be reluctant to expropriate his family members because he fears social repercussions.

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Chapter 3

Corruption of Judiciaries and the Independence paradox: a contractual solution?

Abstract

Unfortunately, corruption, malfeasance and ethical lassitude in general are symptoms of numerous judiciaries in developing countries. The socio-economic costs of a corrupt judiciary are enormous. Judicial systems form the backbone of societies' institutions, ensuring individuals are dissuaded from socially undesirable activities in favour of socially productive activities. At the same time many developing countries find themselves in a dilemma. Judges and their staff are often chronically underpaid. Though they are recognised as being underpaid, the executive/legislature is unwilling to increase their wages because they are considered corrupt. Judges, on the other hand, justify themselves engaging in corruption because they are underpaid. Judges are unwilling to forgo their corruption-based income because they consider their wages as being too low, and the legislature/executive is unwilling to increase their wages because the basic incentives to be corrupt remain. Disciplinary systems have broken down and are difficult to repair. Judges can hide behind judicial independence as a means to shield themselves against prosecution and investigation. Despite its many virtues, it is judicial independence that makes it particularly difficult to reform a corrupt judiciary. In this paper we propose a solution to the aforementioned issues. To 'get around' this independence problem we propose a contractual solution. To our knowledge this has never been implemented in any judiciary in the world. The design of the contract is the following. Judges could receive an integrity bonus percent by voluntarily signing an agreement whereby: they allow themselves to be monitored by an agreed upon body. We show that the mechanism we propose would be able to reduce at least partially the degree of corruption while, being voluntary, is not affected by the independence problem.

JEL Codes: K42, K49

Keywords: Corruption, Judicial Reforms, Independence of the Judiciary.

1. Introduction

Unfortunately, corruption, malfeasance and general ethical lassitude are symptoms of numerous judiciaries in developing countries. The socio-economic costs of corrupt judiciaries are enormous. Judicial systems form the backbone of societies' institutions, ensuring individuals are dissuaded from socially undesirable activities in favour of socially productive activities. Where judiciaries are corrupt contracts go unenforced and there is an unwillingness to enter into market-based exchanges; this greatly reduces productivity and hinders long-term economic development, as individuals prefer only to transact with those they know well. Moreover, as property rights are not secure it is impossible to put these resources to their optimal use as investment rates therein will always be suboptimal. In addition to being a fundamental threat to core democratic principles, corrupt judiciaries further a serious mismanagement of societies' resources bringing enormous social costs. In very poor countries this frustrates attempts at poverty alleviation, which must be a core goal of 21st century development, and makes it difficult to fight crime.

Many developing countries find themselves in a dilemma. Judges and their staff are often chronically underpaid. Though they are recognized as being underpaid, the executive/legislature is unwilling to increase their wages because they are considered corrupt. 'Why should we increase the wages of corrupt judges,' is often used as an argument against increasing their wages. Judges, on the other hand, justify themselves engaging in corruption because they are underpaid. Judges are unwilling to forgo their corruption-based income because they consider their wages as being too low, and the legislature/executive is unwilling to increase their wages because the basic incentives to be corrupt remain.

Disciplinary systems have broken down and are difficult to repair. Judges can hide behind judicial independence as a means to shield themselves against prosecution and investigation. Despite its many virtues, it is judicial independence that makes it particularly difficult to reform a corrupt judiciary. It is hardly surprising that despite all the corruption, one characteristic of systematically corrupt judiciaries is that judges or their staff are rarely prosecuted for corrupt acts.

In this paper we propose a solution to the aforementioned.¹ To 'get around' this independence problem we propose a contractual solution. To our knowledge this has never been implemented in any judiciary in the world.

The design of the contract is the following. Judges could receive an integrity bonus by voluntarily signing an agreement whereby: they allow themselves to be monitored by an agreed upon body. The contract clearly stipulates entitlements and obligations regarding judicial conduct as stipulated in a judicial code of conduct. The contract also includes the sanctions and the mechanism of dispute resolution. This judicial supervisory body would be designed by and with the judges as well as other respected individuals.

A key advantage of the aforementioned mechanism is that it is voluntary. Another advantage of this approach is that you can have a separating

¹ The basic dilemma was already outlined in Francisco Cabrillo and Sean Fitzpatrick, 'The Economics of Courts and Litigation (2008), Edward Elgar. Here we develop a model and offer various extensions of the model.

mechanism. Say 50 percent agreed to this voluntary agreement to allow themselves to be monitored. The 50 percent that do not agree are more likely to be corrupt. Resources can be spared in monitoring.

Some judges that do not sign may be honest but argue that it violates their judicial independence. In this case, honest judges who refuse to sign may be pooled together with dishonest judges, thus reduce the effectiveness of the mechanism. We discuss the possibilities to get around this problem.

Moreover, this mechanism could also be combined with different types of amnesties. One can see how there are increasing incentives for judges to sign both due to monetary improvements and the fact that they are perceived as dishonest. We thus create a structure to break the 'stalemate'.

2. Related Literature

The law and economics literature on corruption is vast and disparate. Surprisingly, not a large share of it is devoted to anti-corruption strategies, much less anti-corruption strategies in the judiciary. Economists have had the largest impact in econometric studies, highlighting the negative impact on corruption on investment and growth,² measuring perceived levels of corruption,³ and expounding some of the causes of corruption.⁴ More recently, empirical work has moved beyond examining corruption to addressing broader issues of governance.⁵ Several in-depth, country specific, diagnostic

² The first economist to seriously examine the impact of corruption on investment and growth was Mauro (1995). He showed that the efficiency of the judiciary system, the political stability and the level of corruption all effect the level of growth in the economy. He, furthermore, highlighted that countries with higher rates of corruption have a lower ratio of private sector and overall investment to income. Ades and Di Tella (1996) have confirmed the general finding that corruption adversely affects investment. Similarly, Wei (1997a) tackled the issue of how taxing corruption is on foreign direct investment (FDI). An increase in the level of corruption for a country that is relatively clean such as Singapore to the level of a country where corruption is rather common such as Mexico, he finds would be like increasing the tax rate in a country by 20 percent.

³ Several studies had already existed related to perceived levels of corruption. Lambsdorff developed the now famous Transparency International Corruption Perception Index. This is a composite index based on the perception of experts on the degree of corruption within a society. If we accept that perceptions are a good indicator of the real level of corruption, then the data permit various regressions with other macroeconomic, political or social data (see <http://www.icgg.org/corruption.index.html> for the complete documentation of the methodology and the data).

⁴ It is difficult to derive clear arguments with respect to causality. Corruption is often both a cause and a consequence of the variables in question.

⁵ Several in-depth within-country diagnostic measures of governance have been developed that are not designed for cross-country replicability and comparisons (see Knack 2006 for studies). Other studies, however, as exemplified by the Worldwide Governance Indicators (WGI) compiled and presented in the Governance Matters series by reported Kaufman, Kraay and Mastruzzi (2004, 2005, 2006, 2007), emphasize empirical measures explicitly designed to be comparable across countries and in most cases over time. These surveys generally rely on a large number of individual data sources which provide information on perceptions of governance. In the case of the WGI these data sources consist of surveys of firms and individuals, as well as the assessments of commercial risk rating agencies, non-governmental organizations, and a number of multilateral aid agencies. The indicators are based on hundreds of underlying individual indicators drawn from 30 organizations. They report on six dimensions of governance for more than 200 countries for 1996–2006, of which corruption is one dimension.

measures of governance have been developed that are not designed for cross-country replicability and comparisons (see Knack 2006 for studies). Others, such as the Worldwide Governance Indicators (WGI) compiled and presented in the Governance Matters series by Kaufman, Kraay and Mastruzzi (2004, 2005, 2006, 2007), emphasize empirical measures explicitly designed to be comparable across countries and in most cases over time. These surveys generally rely on a large number of individual data sources which provide information on perceptions of governance and aggregate the data. In the case of the WGI these data sources consist of surveys of firms and individuals, as well as the assessments of commercial risk rating agencies, non-governmental organizations, and a number of multilateral aid agencies. It is encouraging that empirical work concentrates increasingly not on formal rules (what exists in the books, but rather what exists in practice).

However, several key economic approaches have been developed to fight corruption.

2.1 Privatization and deregulation

A key economic approach to fighting corruption is by removing an activity from the sphere of governmental reach. The argument is simple. Where an activity falls outside of the reach of government, it can no longer result in public sector corruption. There are two key means removing activities from government: privatization and de-regulation. Privatization has numerous meanings. In Europe privatization is generally taken as the sale of a public sector asset to the private sector. In the United States, privatization refers to a shift towards private sector responsibility for the delivery of goods or services where previously the public sector was responsible for such. Privatization in the sense of selling off the courts to the private sector is clearly not an option. However, privatization in the sense of increasingly relying on the private sector to deliver certain services is an option most judicial systems have begun to explore. The most obvious example is the development and recognition of alternative dispute resolution mechanisms (ADR), which in some instances have reduced the burden of the court considerably. Other instances include contracting out administrative functions of courts to the private sector, where the latter can deliver these services more efficiently and effectively.⁶

Deregulation is a real possibility which can reduce the potential for bribery and the impact of a corrupt judiciary. This basically consists of reshaping the initial allocation of legal entitlements and obligations. The classic example is the repealing of Prohibition in the United States. Repealing unpopular laws remove opportunities for corruption as government no longer regulates this activity. Similarly, removing entitlements to sue for particular actions can have a similar effect. Where legal entitlements and legal obligations are redefined, the costs of corruption are mitigated because the courts are avoided entirely.

2.2 Deterrence

With its roots in the early work of Bentham and Beccaria, the economics of deterrence is an application of the theory of demand. It proposes that crime

⁶ Examples include contracting out services in information technology, cleaning and security, hiring professional administrators for court management, and so on.

rates may be influenced by altering the risks and benefits of criminal behaviour (Garoupa 1997).⁷ The general conclusion of these models is that high fines are desirable, as they deter criminal activity and permit society to reduce the level of resources utilized for enforcement. Similarly, it can compensate for a low probability of detection, which may of itself be desirable, as it is costly to uncover these transgressions.⁸ Early deterrence models only depicted one party in a criminal transaction, but corruption generally consists of two or more parties acting at the expense of a third. Consequently, scholars have generally shifted towards incorporating strategic considerations into their models.⁹

There are, however, some serious limitations to pure deterrence-based approaches to fighting corruption in an environment where corruption is endemic. These problems have to do in large part with the fact that in environments where corruption is endemic, the probability of being detected and sanctioned for corruption is so low that punishment would have to be set extremely high for deterrence to have any chance of working. Having extremely high sanctions is inappropriate for a number of reasons. 1. Very severe sanctions are generally highly unpopular and, thus, do not enjoy citizen support. 2. Having extremely severe sanctions awards monitoring parties and superiors in hierarchies even greater potential for extortion and blackmail, making it easier to maintain some corrupt systems. 3. Facing severe sanctions few people will be willing to blow the whistle on corrupt activity.

Moreover a peculiarity of the judiciary is the fact that, for reasons of judicial independence, the judiciary can normally prevent the application of severe penalties as it is largely self-regulated.

2.3 Hierarchies

Economists have devoted much effort to show the importance of hierarchies in developing anti-corruption measures. The general result of these studies is that while some measures are likely to succeed in mitigating corruption, none of them is *per se* effective: their incentive properties typically depend on the structure of the organization at hand.¹⁰ Additional layers within or external to an organization may be developed to control malfeasance. The internal affairs department common in the United States is one example of an internal device to control police impropriety, as it falls within the control of the police department itself. Similarly, internal auditors within public organizations provide an additional supervisory layer. Whilst such mechanisms are important, they are subject to two major criticisms. First, the same problem may still occur within an organization just one step removed. Second, it is a form of self-policing where the incentives to uncover and disclose malfeasance are limited as there are reputation costs for an entire agency or department. Alternatively, such policing devices may as suggested above, be external, such as external auditors, ombudsmen, inspectorates, and so on. The ability of newly formed bodies to fight corruption is limited by

⁷ Classic references in the economics of crime include Becker (1968) and Stigler (1970).

⁸ See Garoupa (1997) and Polinsky and Shavell (1999) for a concise treatment and summary of the economics of optimal law enforcement.

⁹ Cadot (1987), Bowles and Garoupa (1997) Polinsky and Shavell (2000)

¹⁰ See Mehment Bac (1996), Parimal Kanti Bag (1997), Juan D. Carillo (2000).

such factors as skills, partiality, budgetary deficiencies and political steering and control (particularly through budget allocation) and the fact that they generally provide ex post as opposed to ex ante supervision.

2.4 Competition

Another economic approach to curbing corruption is the recommendation to government that it consider introducing competition both within and among agencies. This is particularly important in order to reduce the monopoly hold that any person may have within an organization or the monopoly hold that an organization may have itself on the supply of a particular public good (Rose-Ackerman 1978; Shleifer and Vishny 1993; Bardhan 1997). Some competitive forces can be introduced to courts, such as alternative dispute resolution (ADR), which if they serve as a real alternative can reduce the potential for bribery and remove opportunities for corrupt payoffs within the judiciary.

2.5 Social norms

A substantial economics literature exists on the importance of social norms to upholding the law.¹¹ We know that corruption thrives in an environment in which bribes are large and the probability of detection is low; but corruption also thrives where there is a high probability that others in a similar situation would also do the same. This reduces the psychological and social costs of engaging in such undertakings. A key recommendation of this literature is generally repealing unpopular rules and regulations in favour of those that enjoy popular support.¹² In doing so, societies may generate good will and tap into a pool of moral – internalized norms – to curb undesirably activities. In practice, however, there are some strong limitations to these measures. What enjoys popular support is often ephemeral – preventing one from relying on social norms in these cases. Moreover, social norms and norms based sanctions can suffer from problems of collective action, particularly the free-rider problem. Nevertheless, experience teaches us that most regulation is indeed social, and sustainable reform is impossible without social support.

2.6 Generating distrust

A key approach to curbing corruption is based on exploiting the vulnerabilities of corrupt exchanges.¹³ For corrupt exchanges to take place – as with other exchanges – parties need to find each other, agree on the terms of an agreement, and deliver upon an agreement. Each of these steps can potentially leave parties vulnerable. These problems for potentially corrupt parties are mitigated and illicit cooperation is more likely to develop as transactions are repeated. What society basically wants is to introduce or maintain this trust problem. Several mechanisms exist to exploit this weakness in corruption. For instance, officials in sensitive positions are frequently rotated to prevent trust from developing. Similarly, supervisors can be assigned on a random basis, which increases the costs and risks substantially

¹¹ See Cooter (1996).

¹² Cooter (1996).

¹³ See Fitzpatrick (2003), Chapter II for an overview of these strategies.

of engaging in corrupt exchanges. Having judges assigned cases on a random basis is an example of this mechanism. There are several other techniques used in law enforcement that are based on exploiting trust problems which are found in corruption. For example, rewards may be given to individuals who report fraud and amnesties given to individuals who blow the whistle on corrupt activities and/or secure prosecution.¹⁴ Plea bargaining of the nature of a prisoner's dilemma is another example of injecting distrust among individuals in cooperative crimes. A final example of exploiting the vulnerabilities of corruption is the use of undercover agents. Using undercover agents against corruption, as in narcotics, raise substantially the risks of engaging in these activities. Public officials who wish to engage in corruption now need to gather much more information on the parties with whom they transact if they are to mitigate this risk and know player type.

2.7 Use of empirics

Though not directly an anti-corruption strategy, using empirics to study judicial performance is clearly a very important means to reduce corruption.¹⁵ In truth, it is often difficult to differentiate between nonfeasance, malfeasance and poor management. And, what is good to improve judicial performance is generally good against corruption. Indicators such as cases filed per judge, cases resolved per judge, cases pending per judge, clearance rates, congestions rates and time to resolves a case clearly add increase transparency in the administration of justice and serve as a management tool for the allocation of judicial resources and cross-country comparison. Their ability to further accountability is often limited as no real sanctions are commonly in place for judges who are underperforming.¹⁶

2.8 Pay structures

Though we are unaware of any literature that directly proposes a contractual solution to overcome problems associated with corrupt judges who shield themselves behind judicial independence, there is a strand of the literature that proposes mitigating corruption through designing pay structures (through the use of contracts) that make engaging in corruption undesirable.¹⁷ One method for doing this is to set wages above that which can be received elsewhere (Becker and Stigler 1974; Klitgaard 1988). It is argued that if individuals make above the market wage they will be more diligent in their work, as outside of their current employment they would not enjoy the same income. Another method is to set pensions conditional to "good behavior", where all is lost if malfeasance is discovered (Becker and Stigler 1974). These can be considered as bonds paid by officials that are forfeited in case of corruption.

3. Causes of corruption

¹⁴ Cooter and Garoupa (2000).

¹⁵ Buscaglia et al. (1995, 1996, 1999).

¹⁶ Cabrillo and Fitzpatrick (2003).

¹⁷ See Besley and McLaren (1993), Mookherjee and Png (1995).

There is, of course, no simple answer that accounts for the different levels of corruption in various countries. The number of variables that conceivably play a significant role is mind-boggling. Though ideology undoubtedly seems to drive many of the commentaries, it would appear to be unanimously accepted in the economics literature that three factors influence greatly the level of corruption in a society, namely: the level of government intervention in the economy (this assigns the public official with a monopoly right); the discretion officials actually have in performing their job, and their level of accountability.¹⁸ In developing countries it is commonplace to find a high rate of government intervention, a high level of official discretion and a low level of official accountability. These create avenues for corrupt activities, where frequently the perceived expected payoffs of entering into corrupt transactions are greater than the perceived expected costs.

Thus one may argue with confidence that there are various degrees of corruption in different countries because there are different opportunities available to the self-interested individual.

Add to the above three factors the fact that where salaries are low, there is strong will to obtain extra income. Moreover, factors that are taken for granted in developed countries, such as insurance (be it private or social) against accidents, illness and unemployment, are almost non-existent. Neither are well-developed labour markets.

Economics therefore stresses that corruption is very common in developing countries, not because the people are in any way different, but rather because conditions and opportunities lend themselves to corruption. Not only do developing countries have an abundance of regulation, but it is generally poorly designed and arbitrarily implemented. Abundant and ill-defined regulation raises opportunities for corruption, worsened by the fact that officials generally enjoy widespread discretion in implementation and escape supervision. Further aggravating the situation is the fact that corruption breeds demand for more government regulation. Poor regulation is therefore both a cause and a consequence of poor governance.

To comprehend the problem of the causes of corruption and how to control it, a useful endeavor is to conjure up a climate where corruption is most likely to evolve; one, so consummate to malfeasance that even an honest person would find himself enticed to enter into corrupt exchanges. Among the more salient factors that induce this likelihood are a large bribe, a low probability of detection, and a high probability that others in a similar situation would also do the same, in order to lower the psychological and social costs of engaging in such undertakings. As Klitgaard suggests, "Corruption is a crime of calculation, not of passion. People tend to engage in corruption when the risks are low, the penalties mild and the rewards great."¹⁹ The ability of the official to receive a bribe in the first place is contingent upon government involvement in the regulation or allocation of valuable activities. In turn, the size of the bribe is contingent on the allocation of discretionary and monopolistic authority of governmental decisions enjoyed by the official, *i.e.*, whether he or she must act alone or whether the decision is made by more

¹⁸ The classic reference is Klitgaard (1988).

¹⁹ Klitgaard, MacLean-Abaroa and Parris (2000, p. 27)

than one person, thus reducing the size of the bribe and increasing the risk and the difficulties of maintaining collusive agreements.

In such an environment, to avoid detection, the official's decision must be so lacking in standards as not to draw suspicion or alternatively, unobservable or nontransparent, hidden within and indistinguishable from other actions. Actions would be secretive. Moreover, he would be familiar with those with whom he transacts and their interests would be largely aligned. To wit, in the classic case of bribery, corruption is a consensual crime. Interests between the briber and the bribee are largely aligned, at the expense of a third party - normally society, but in some instances also a third party, as is the case in corruption in public procurement and litigation. Moreover, to reduce the pangs of conscience and the threat of social sanction (such as ostracism), the individual would operate in an environment where corrupt as opposed to non-corrupt transactions are considered the norm, and where failure to participate was subject to derision and ridicule, if not sanctions of their own. Moreover, loyalty to the public that the official is supposed to service would be foregone, perhaps in favor of some other group.

Those are some of the key conditions that make corruption more likely to evolve - the reformers task is clearly to limit as many of them as possible.

Empirical studies seem to indicate that judicial corruption is particularly common where judges receive low remuneration, enjoy far reaching discretionary powers and there is weak monitoring of judicial actions (Buscaglia Dakolias 1999). Moreover, the paucity of transparency and regularly updated databases further the arbitrary application of the law and frustrate attempts to identify corruption in action. Corruption may take many forms in the judiciary, beyond substantial judicial decisions. Public perception surveys suggest that indicators of corruption include "decisions to delay in the execution of court orders; unjustifiable issuance of summons and granting of bails; prisoners not being brought to court; lack of public access to records of court proceedings; disappearance of files; unusual variations in sentencing; delays in delivery of judgments; high acquittal rates; conflict of interest; prejudices for or against a party witness, or lawyer (individually or as member of a particular group); prolonged service in a particular judicial station; high rates of decisions in favour of the executive; appointments perceived as resulting from political patronage; preferential or hostile treatment by the executive or legislature; frequent socializing with particular members of the legal profession, executive or legislature (with litigants or potential litigants); and post retirement placements."²⁰

4. Judicial reform

Whilst in many developed countries factors such as growing caseloads, rising costs, long delays, employee nonfeasance and inefficient organizational structure may be the problem, in most developing countries other factors are prevalent that significantly worsen the situation. These include: endemic corruption; politicization and lack of judicial independence; chronic underfunding; inadequate legal training of judges, their staff and lawyers; and divided and conflict ridden societies where access is effectively denied to

²⁰ Langseth and Stolpe (2001).

many sectors of society. The reality of legal systems in numerous parts of the world is that they are seen as almost completely irrelevant to the majority of the population, and citizens facing corruption and chronic inefficiency tend to avoid them in search of other alternatives to resolve disputes.

Whilst talk of improving court performance in wealthier nations is often concentrated on raising efficiency levels in the administration of justice, reform measures in developing countries have rightfully started to move beyond efficiency building measures to include accountability and integrity building tools.

In general terms, common efficiency enhancing measures in developing countries tend to include: (i) increasing the pay of judges and court staff to attract more talented and qualified individuals and improve incentives to work; (ii) improving court infrastructure, thus increasing the functionality of the courts and the public perception thereof; (iii) increasing the court budget, so courts can cover all basic material costs; (iv) legal and administrative training of judges and court staff to improve more accurate and efficient services, and (v) improving filing and case management systems.

Of course, there is substantial over-lap between efficiency measures and those used to improve accountability. For instance, improvements in case filing and records management both increase the speed and accuracy of court decisions, as well as further transparency and accountability by *inter alia* preventing cases from being lost or mishandled, and mitigating unusual variations in sentencing.

Attention is finally shifting towards accountability and integrity building measures, common to which are the following: (i) the introduction of a code of conduct; (ii) judicial training in ethics; (iii) the use of performance indicators; (iv) instituting or improving a public complaints system; (v) furthering transparency in legal proceedings; (vi) developing systems of whistleblower protection and the (vii) revision of disciplinary procedures.

As history and experience teach us, the burdens of overcoming an inefficient and corrupt judiciary are numerous. Countries that are serious about effectuating real and effective judicial reform often face a particular dilemma. Judges and their staff are underpaid. Though they are recognized as being underpaid, the executive/legislature is unwilling to increase their wages because they are considered corrupt. A well-meaning reformer can justifiably ask himself why one should increase the wages of judges if they are corrupt and the underlying incentives and propensity for corruption remain the same. Judges, on the other hand, may justify themselves as engaging in corruption because they are underpaid. Judges are unwilling to forgo their corruption-based income because they consider their wages as being too low, and the legislature/executive is unwilling to increase their wages because the basic incentives to be corrupt remain.

Tackling corruption is difficult in any public body, but it is more difficult in judiciaries, where court operations are shielded by judicial independence. Disciplinary systems have broken down and are difficult to repair. Corrupt judges hide behind judicial independence as a means to shield themselves against prosecution and investigation. Despite its many virtues, it is judicial independence that makes it particularly difficult to reform a corrupt judiciary. It is hardly surprising that despite all the corruption in numerous judiciaries, judges and their staff are rarely prosecuted for corrupt acts.

What is therefore needed is a mechanism to get beyond this impasse. Societies are understandably unwilling to improve the wages and working conditions of judges whom they perceive to be corrupt and judges are unwilling to assume high levels of probity if they believe that societies do not offer them a living wage and other branches of government frequently encroach upon its independence. There is clearly a first-mover problem.

In this paper we propose a solution to the aforementioned. To ‘get around’ this independence problem we propose a contractual solution. To our knowledge this has never been implemented in any judiciary in the world though this mechanism has recently been suggested as a possibility.²¹

The design of this mechanism would be as follows:

Judges and judicial staff would voluntarily sign a contract indicating that they are not willing to participate in corruption and malfeasance, and are willing to uphold high standards of ethical behavior. Among the clauses of the contract, judges and their staff would agree to abide by all the conditions of a modern code of conduct, and would agree to let themselves be monitored. The contract would specifically outline the types of behavior that are unwanted and possible sanctions for engaging in these practices. Judges and judicial staff who voluntarily agree to let themselves be monitored and do not violate the terms of the agreement would be awarded an integrity bonus, perhaps quarterly. The size of this bonus, to have a real impact, could be a substantial fraction of the basic salary. Like a performance bonus for good performance, an integrity bonus would be given to judges and judicial staff for honest behavior. The contract would also specify the duties of the monitoring body. There are a number of advantages to using such a mechanism.

It is a voluntary solution

This is a voluntary mechanism. Judges and administrative staff should sign such an agreement not as a group but as individuals. It must be voluntary and not imposed by a third party. It is a contractual solution to the problem and does not violate the principle of judicial independence. In fact it strengthens judicial independence as the parties agree to observe a modern code of judicial conduct, such as the Bangalore Principles, which explicitly state factors to support judicial independence.

It solving the first mover problem

One of the problems with the judiciary in some countries is that many external to the judiciary do not consider it fair to increase the conditions and wages within the judiciary, while the judiciary is perceived as being corrupt. The judiciary on the other hand argues that it is doing the best it can, given the poor conditions and salary it has available to it. This solution solves this first mover problem, given that both sides would move at the same time. Incentives would be given to the judiciary to be honest and at the same time it would receive better financial remuneration.

²¹ Langseth and Fitzpatrick, Handbook for Judicial Reform: Special Focus on Madagascar.

It can get around loopholes in the law

Contractual solutions may get around loopholes in the law. On some occasions, laws may not be forthcoming or be hopelessly incomplete. A contractual solution voluntarily obliges parties to adhere to terms which are not encompassed in the law.

It may offer a separating mechanism

Such a system may function as a means to separate the good from the bad. Parties who trust the system and feel that they have nothing to hide will agree to the terms of the binding agreement, and will also agree to let themselves be monitored. Those that are unwilling to sign the agreement will be widely known and may incur reputation losses and arouse suspicion. Properly designed and conducted, with time, more and more parties should be willing to sign the agreement given both the financial benefits involved, and the impression that is made by not signing it.

It can solve the enforcement problem

Where judiciaries were formerly reluctant to monitor for and sanction improbity among its actors; such a contractual agreement would solve the enforcement problem.

The question of who is going to monitor such agreements is crucial. It would be necessary that the monitor (and enforcer) of such agreements be selected in direct consultation with the judiciary. The monitor cannot be imposed, for instance, by the executive. Below, we highlight the key features of such a monitoring body.

It can be exported later to other sectors

This mechanism may be pilot tested in the judiciary, forming an action learning approach. Pursuant to successful implementation, it could then be exported to other sectors.

5. Model

Here, we wish to show how the contractual mechanism we develop is welfare enhancing. We extend the model devised in Shavell (1999). In that model the author showed that it is welfare enhancing to spend a certain amount of resources to fight corruption of enforcement agents. He also characterizes the optimal level of deterrence for criminals and corrupt enforcement agents.

In our model, as in Shavell, we take the classic case of bribery, where there is a bribe-giver and a bribe receiver. We extend the Shavell model by assuming heterogeneity in the bargaining power (λ) of the enforcement agents, hence we assume that some enforcement agents are able to extract a greater part of the surplus coming from the corrupt transactions than others. We assume that λ follows a density distribution $s(\lambda)$ over the support $[0,1]$, and we will use $S(\lambda)$ for the cumulate.

From Shavell (1999), the relevant variables of the model are

- h = harm from committing the act
- q = probability of detecting bribery
- g = gain an individual obtains from committing the act
- $r(g)$ = density of gains among individuals, $r(g) > 0$ on $[0, \infty)$
- p = probability of detecting offenders
- $e(p)$ = enforcement expenditure to detect offenders, $e'(p) > 0$
- w_0 = wealth of an offender
- w_e = wealth of an enforcement agent
- f = fine imposed on the offender if an offence is reported, $f < w_0$
- b = bribe paid to an enforcer for not reporting an offense $b < w_0$

We also assume that if an enforcement agent decides to sign the contract she will receive an integrity bonus of a share i of her wage.

iw_e = integrity bonus

5.1) Before the contract

As we discussed in the paper, the probability that bribery is detected in developing countries is very low. A factor that makes it difficult to increase q , discovering the bribe, is judicial independence. Let us assume that the level of monitoring for corruption of enforcement agents is bounded by independence to q^* . In this case social welfare reads:

$$\int_0^1 s(\lambda) \int_{p[\lambda w_0 + (1-\lambda)q^*(w_0 + w_e)]}^{\infty} (g-h)r(g) dg ds - e(p) - c(q^*)$$

If an integrity bonus is paid, then the marginal enforcement agent that agrees to sign the contract is the one whose expected gains from bribery are equal to the bonus, defined by:

$$iw_e = p[\lambda w_0 + (1-\lambda)q^*(w_0 + w_e)]$$

Hence, if q^* is small enough, then it insures that those judges who have the greatest bargaining power are also those that are able to extract larger bribes²²; in this case the contract will only be signed by those judges whose bargaining power is smaller than the critical value:

$$\lambda = \frac{iw_e - q^*(w_0 + w_e)}{p[w_0 - q^*(w_0 + w_e)]}$$

And the social welfare function is

²² Which is the case if the enforcement agent is not monitored, since q is very small, in some cases almost near to zero.

$$W(i, p) = \int_{\frac{iw_e - q^*(w_0 + w_e)}{p[-w_0 - q^*(w_0 + w_e)]}}^1 s(\lambda) \int_{p[\lambda w_0 + (1-\lambda)q^*(w_0 + w_e)]}^{\infty} (g-h)r(g) dg d\lambda +$$

$$-e(p) - c(q^*) - iw_e S\left(\frac{iw_e - q^*(w_0 + w_e)}{p[-w_0 - q^*(w_0 + w_e)]}\right)$$

In this framework the government can decide simultaneously both the optimal level of enforcement of crimes and the optimal level of the integrity bonus by choosing a value of p and i that satisfy the first order conditions:

$$\frac{\partial W(i, p)}{\partial p} = 0,$$

This gives us:

$$\left. \begin{aligned} & \left\{ \frac{1}{p^2[-w_0 + q^*(w_0 + w_e)]} \left[p^2[-w_0 + q^*(w_0 + w_e)] \int_{\frac{iw_0 - pq^*(w_0 + w_e)}{p[-w_0 + q^*(w_0 + w_e)]}}^1 [q^*(w_0 + w_e)(-1 + \lambda) - w_0 \lambda] \right. \right. \\ & \left. \left. \{-h + p[-q(w_0 + w_e)(-1 + \lambda) + w_0 \lambda]\} r(p[-q(w_0 + w_e)(-1 + \lambda) + w_0 \lambda]) \right] \right\} = 0 \\ & \left. \begin{aligned} & S(\lambda) d\lambda - iw_0 \left[iw_e + \int_{iw_0}^{\infty} (g-h)r(g) dg \right] S\left(\frac{-iw_0 + pq(w_0 + w_e)}{p[-w_0 + (w_0 + w_e)]}\right) \\ & + p^2[-w_0 - q^*(w_0 + w_e)] e'(p) \end{aligned} \right\} \end{aligned}$$

and

$$\frac{\partial W(i, p)}{\partial i} = 0$$

which gives us:

$$w_0 \left(iw_e + \int_{iw_0}^{\infty} (g-h)r(g) dg \right) = -pw_e[-w_0 + q^*(w_0 + w_e)]$$

This can be interpreted as showing that the marginal cost of raising the integrity bonus must be equal to marginal benefit of an increase in deterrence that comes from the fact that we are convincing those enforcement agents with the lowest bargaining power to stop accepting bribes. This implies that the value of the bribe that a criminal expects to pay will rise after the implementation of the contract and thus crime deterrence will be increased.

6. Judicial Monitoring: Respecting independence and furthering accountability

The issue of judicial accountability was nearly taboo in most countries until the last decade, as judges were hailed as divine like figures. Historically the divine model may have been necessary to separate the judge from partial roles in societies where blood relationship and rules of reciprocity governed. As Noonan notes:

“Symbols of impartiality such as the blindfold and the scales became important factors in creating the standard of a judge above the litigants and the interests of the litigants. Important as these symbols have been, they risked creating an image of a judge that masked completely the play of human personality in judging.”

Accountability can no longer take a back seat in discussions on judicial independence. To wit, history teaches us that where the judiciary is perceived as being unaccountable that it is a great threat to its own independence, as the executive enjoys greater support and greater incentives to reorganize or indeed dissolve the judicial body in its entirety.

There is no single best option for the nature of judicial discipline, and countries commonly rely on a combination of the following factors: elections, criminal prosecutions, commissions, collegial supervision, the media, and civil society. What is certain, however, is that the judiciary itself should be primarily in charge of disciplinary matters, a factor that is furthered by it having well-established internal supervisory structures. Though modern standards of judicial performance necessitate accountability, judicial independence is and should always be the primary factor that wields influence over measures, given that judicial independence is perhaps the single most fundamental institutional support for the furtherance of the rule of law.

The role of well-functioning disciplinary structures should be given more attention in order to improve judicial incentives and judicial performance. The role of other factors that are complimentary to these structures must be duly recognised. One factor is transparency in court and judicial procedures, which affords citizens the possibility of supervising their courts. Open court proceedings, for instance, for interested citizens, the media and civil society are an important safeguard against malfeasance or the appearance of malfeasance. Public commentary on matters such as the efficacy, integrity and fairness of proceedings and outcomes is important and should not be unduly restricted by legislation, judicial orders or the application of contempt-of-court offences.

The first line of a disciplinary/monitoring structure is inevitably collegial. Collection and dissemination of performance indicators, such as case statistics, we have seen above, can ensure judges pull their own weight and improve court management and performance. But an interesting aspect of these statistics is that they allow for comparison of caseloads and other factors among judges. Where this information is disseminated among judges this affords them an opportunity to compare their efforts with other judges, thus granting them a monitoring role over their fellow colleagues.

The second line of supervision in most democratic systems rests with a superior such as a senior judge, president of the court, etc. The role of the superior is often to ensure that judges are pulling their own weight and in some instances to make some recommendations concerning remedial action.

Thereafter, the authority for disciplining and removing judges varies. In some countries, the chief justice or judicial council is responsible, whereas in others external institutions are responsible. There may also be some mixture of both. In several countries the disciplining and removal processes for higher court and lower court judges diverge.

It is common for judges to receive some protection against sanctions based upon the exercise of their core judicial functions. This covers both civil actions against the judge, as well as disciplinary actions based on these core functions. In some cases, such as in France and Italy, the state can be sued for a judge's mistake. Personal liability for civil crimes is not common but it is often allowed for criminal actions.

Some jurisdictions have started to use codes of conduct for judges, which serve as an ethical guide, but others such as Spain, prefer to use case-law based on the Higher Judicial Council (*Consejo General del Poder Judicial*) and the Supreme Court, the two bodies that hear judicial disciplinary cases in Spain. Though countries such as Spain and Germany, and many individual States in the US, have developed rather detailed structures regarding judicial discipline, only rarely do judges receive a serious sanction. In the case of Spain for instance, in 2002 there were reportedly 643 complaints resulting in forty-eight cases coming before the Disciplinary Committee of the Consejo General del Poder and another thirteen before the governing councils of the *Tribunales Superiores de Justicia*. Serious sanctions such as suspension of pay for up to one year are uncommon. Dismissal is a very rare occurrence.

Several nations have constitutional protections that very narrowly define the grounds on which a permanent judge can be removed, particularly from the higher courts. Formally, impeachment type procedures are frequently the main option for removal. In England for instance, judges of the High Court and Court of Appeal cannot be removed from office except by an Address from both Houses of Parliament. Interestingly, this process has not been invoked against such a judge since 1830. In Germany, a federal judge may be removed by a resolution passed by two-thirds of the *Bundesrat* and *Bundestag*, for breach of democratic duties of office. In the United States, the only means for removing a federal judge is often considered to be a cumbersome impeachment process.

Despite these institutional differences, there are basic elements that should be common in the design of a disciplining and monitoring structure for judges.

First, the key factor behind judicial ethical standards should be adherence to a modern code of judicial conduct. Excellent advances have been made in the design of such in recent years. A judicial code of conduct serves as the basis upon which judicial ethical obligations and entitlements are founded. (See appendix - Bangalore Principles).** And all judges who sign the contract must recognise these entitlements and obligations as set out in the code.

Second, this process is best managed by the judiciary itself. History teaches us that judicial disciplinary bodies are one of the key areas in which the executive encroaches upon judicial independence. We also know, however, that investigations and disciplinary actions are rare, and removals very infrequent, when the judiciary is responsible for its own discipline. One of the reasons for this is clearly that the judiciary has great disincentives to highlight problems within its own ranks, given the associated reputation costs. To wit, this is a common problem in all bodies of self-regulation. In order for

the investigative and disciplinary body to work, a statutory obligation to investigate all complaints would appear to be important, as would transparency in the entire process. Moreover, the supervisory body should be required to present a yearly report on its finding to Parliament, making the information accessible to the media and civil society by its publication. Furthermore, to mitigate the problems associated with self-regulation, the disciplinary body should include members of the public and the bar.

Third, there is a need to have a system to address not just serious wrongdoings, such as bribery and corruption, but also less serious wrongs. These commonly include demeanour problems such as name calling, abuse of contempt of power, insulting attorneys, gender bias and other unprofessional conduct. This conduct would generally be seen as a non-removable offense, whereas more serious issues, such as corruption, and most criminal offenses would be regarded as removable offenses.

Fourth, the need for disciplinary bodies is dependent upon the working conditions within the judiciary. Where working conditions are extremely poor, it should come as little surprise that judges and their staff are more likely to engage in improper behaviour. Whilst an integrity bonus will increase judicial income, working conditions must be raised to a level that can guarantee independence and accountability. Too much weight should not be given to discipline. The goal is voluntary compliance with honest behaviour and not to discipline as many judges and their staff as possible.

Fifth, the actions of monitoring and disciplinary bodies should be transparent and accountable. Findings should be put on the internet. Results from more important disciplinary proceedings may be used as a guideline for judges and judicial staff in the future. Disciplinary hearings should generally be public, a subject which is frequently resisted. This has been and continues to be seriously resisted in numerous countries.

Sixth, judicial disciplinary bodies should explain to both the media and citizenry their actions in a systematic manner, and a policy of public outreach should be nurtured.

Seventh, though there are numerous investigative and disciplinary mechanisms that can be selected, all of these require a well-functioning public complaints system. Citizens need to have mechanisms to voice eventual complaints against judges and their staff in order to initiate disciplinary or even criminal action; doing so would reduce the levels of undesirable behaviour in the judicial domain. Some countries, such as France, still have no formal method to file a complaint. In the US, on the other hand, every state has judicial conduct organizations that receive, investigate and make recommendations on judicial conduct (Dakolias and Thacuk). Complaints can be filed to the Chief Judge of the circuit court, and are then passed on to a committee for investigation. The Chief Judge dismisses about three-quarters of all complaints where a case has not been stated. Though the system works better in some states than other, in New York, it is reported investigations by the judicial supervising organization led to the dismissal of 75 judges over a period of 12 years (ibid.).

Eight, factors that constitute improper behaviour must be clearly specified in the Code of Conduct so that judges (and their staff) know what precisely constitutes proper behaviour. Moreover, educational programmes should accompany the code as a means to shift attitude and further peer pressure.

Nine, supervisory bodies on their own are not going to be enough to increase court performance and mitigate improbity. They must be accompanied by efficiency based mechanisms that improve court performance generally.

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Chapter 4

The Political Economy of Minority Protection Law

Abstract

In this paper we study a situations where the norms adopted to correct for discriminating and unlawful behavior start from an initial, too low level and are then raised to one considered very restrictive by some groups in the society, generally more stringent than the long - run level. Two possible examples are affirmative action and harassment law. We present a model that explains such behaviour. Individuals feel indignation for the inequalities and oppression they are victims of. The very high level of enforcement is due to social pressure, both intra and inter - group, building up over time. After some time, the previously dominant group begins to feel discriminated. Indignation in that group starts a backlash reaction that brings down enforcement. A sequence of jumps may follow.

JEL Codes: K10, K42, D70, B52, Z13.

Keywords: Legislation, Social Norms, Law enforcement, Backlash, Evolutionary dynamics regulation, bankruptcy law, choice of law.

1 Introduction

In this paper we examine situations where a society perceives legal sanctions to be excessive with respect to the behavior that is being punished. Alternatively, there are cases where norms adopted to correct for discrimination (either racial or sexual) are considered as being very restrictive for those members of society who constitute the previously dominant group.

Consider for example affirmative action, i.e. policies aimed at recruiting and employing groups (minorities and women) who may have been discriminated against in the past. Another example is harassment law.

The common traits in these examples are *a)* the establishment of initially very high levels of protection and enforcement towards discriminated groups, and *b)* an adjustment towards lower levels of protection after some time.

We analyze whether the observed behavior of norms and enforcement reflects a concept of rationality for the society. The situation we have in mind is one where the initial level of protection for discriminated groups is

too low from the standpoint of social optimality. In the short run, in order to raise it to the optimal long-run level, norms and enforcement need to be more stringent than those implied by the long-run optimal level itself.

This is an interesting issue, as one of the fundamental insights of the economic analysis of law is that norms set a price for the behavior they sanction and create an incentive system where the sanctioned behavior is adopted if the private benefits accruing from it more than compensate the costs entailed by sanctions. In the cases presented above, the price for a certain behavior changes over time, making early offenders pay more than later ones.

We ask under which conditions such pattern of norms can occur. We assume that individuals belonging to the discriminated group feel moral indignation for the inequalities and oppression they are victims of. Restrictiveness of norms and the level of enforcement are the result of social pressure, building up over time. Initially, indignation is low, as both the discriminated and the dominant group may believe that inequality follows from either natural or real differences. Inequalities between men and women, for example, may be justified on the ground of biological differences. At times, discrimination can be accepted as the result of the natural order (as it is the case with the caste system in India). However, situations like these may not remain stable in the long-run. Indignation starts building up and individuals belonging to the discriminated group threaten to disrupt the actual, stable equilibrium to reach a state of increased equality, even if it involves lower payoffs for all societal groups. Disruption involves sacrificing their self-interest (at least partially) and their threat is not credible until indignation reaches a threshold level. Indignation at that point is so high that, in order to avoid the disruptive equilibrium, where the dominant group would suffer a substantial reduction in payoff, very restrictive norms and strong enforcement are required. We might then have the result of overshooting with respect to the long-run optimal level.

After some time, the previously dominant group begins to feel discriminated and perceives the new, reversed inequality as unfair. Indignation in that group starts a backlash reaction that brings down enforcement. A sequence of jumps follows. If the new level is too low compared to the long-run optimum, indignation in the newly discriminated group leads to a new jump, which might provoke backlash, and so on, until the long-run optimum is reached.

This has important consequences for the design of new legal norms and the timing of their introduction. Given that a level of enforcement either above or below the equilibrium one imposes costs to the society. If moral indignation is anticipated, then it is better to introduce norms to correct for discrimination before the level of indignation is such to require overshooting.

The paper is organised as follows. In the next section an overview of the literature is provided. Section 3 introduces the model. Section 4 presents

the results on the changing patterns of enforcement and the implementation of new legal norms. Section 5 presents some evidence on the existence of support cycles for enforcement and legal norms. Section 6 concludes.

2 Related literature

The literature on social conflict and the evolution of consensus for new laws and enforcement is scanty. To our knowledge, the only other paper working on similar themes is Parisi and von Wangenheim (2004), which analyses the effect of the introduction of new norms on the formation of social norms and on the behaviour of individuals. Within an information cascade model they show that laws departing only slightly from current mode may lead to gradual adaptation of opinions (hence social norms). Controversial laws may induce civil disobedience. Hence the conclusion that laws disaligned with existing norms should go on in small consequential steps. Their conclusions are close to ours in the sense that in our model a high level of enforcement (or the implementation of a new law that is far away from the current mode) can provoke a counter reaction leading to the reduction of enforcement and to the withdrawal of the new law.

Another paper that studies the dynamics of law enforcement is Garoupa and Jellal (2004), which however addresses a completely different question. Garoupa and Jellal address the problem of optimal law enforcement when the enforcing agency is subject to learning by doing. They find that enforcement (defined as the probability of detection) could be higher than without learning, whereas the optimal fine could be lower (although the optimal imprisonment sentence could be higher).

Also the literature on expressive law presents some insights that can support our findings.

Cooter (1998, 2000) develops a general theory of how legal rules can create or destroy social norms through the expression of social values. Concludes that law is most effective when aligned with existing social norms. Unaligned law may crowd out norms rather than create them.

Robinson (2000) observes that often law is used as an instrument of moral suasion. To accomplish this task law cannot deviate too much from the community's current perception of justice.

Our paper is an application of the literature on evolution under asymmetric competition. This literature studies the evolution of two interacting species characterized by asymmetry (typical example, predator - prey models with Lotka - Volterra dynamics).¹ In this respect, especially relevant are the contributions by Law, Marrow and Dieckmann (1997) and by Marrow and Cannings (1993), who characterize the properties of fixed points,

¹See Hofbauer and Sigmund (1992) for a thorough presentation of evolutionary games based on the Lotka - Volterra dynamics.

of both the interaction between the individuals of a given phenotype and of the coevolution of phenotypes and present interesting simulation techniques for the numerical solution of nonlinear differential equations.

Finally, our paper is also related to the literature on predation and the political economy of conflict and appropriation. Relevant contribution in this literature are the papers by H. Grossman (1991), Hirshleifer (1991) and Grossman and Kim (1995, 1996). This literature however is focused on general equilibrium models of reallocation of resources with predation and investment in property defense. An interesting result of this literature is that an equilibrium with "pure predation" entails if the predator's initial endowment relative to the prey's is small. This implies that a group is more aggressive when relatively worse off, a result that can occur in our model too.

3 A model of social discrimination

Consider the following model of social discrimination. There are two social groups: D , the dominant group and S , the discriminated group. In each group individuals have two different strategies. Members of the dominant group can either discriminate (strategy d) or not discriminate (strategy nd). A proportion n_D^d of the dominant group plays the discriminating strategy d whereas a proportion $n_D^{nd} = 1 - n_D^d$ does not discriminate. Similarly, members of the discriminated group can either fight discrimination (strategy f) or surrender (strategy nf). A proportion n_S^f of the discriminated group fights against members of the other group, whereas a proportion $n_S^{nf} = 1 - n_S^f$ surrenders.

3.1 Payoffs

Payoffs for both groups are affected by two kinds of network effects.² Such network effects occur because whenever an individual from the dominant group adopts strategy d both social groups suffer a reduction in their payoffs. Similarly, when an individual from the discriminated group fights, all people in that group receive an increase in their payoff whereas all people in the other group suffer a reduction in their own payoff. We postulate the existence of both an intra and an inter-group network effect linking every member's payoff in each group to the number of players adopting the strategies of discriminating and fighting, respectively.

More specifically, the dominant group presents a "group reputation" effect such that its members' payoff decreases with the share of discriminating

²Usually, there are network effects when the payoff to an individual belonging to a given group is (positively) affected when another individual joins the group as well (see Katz and Shapiro, 1994).

people in that group (n_D^d). This is the intra - group network effect. The inter-group effect in the dominant group has to do with the share of people in the discriminated group that fights against discrimination (n_S^f): the higher n_S^f the lower the payoff for the members of the discriminating group, no matter whether they are playing the discriminating strategy or not.

Assuming a linear specification, the payoff function for the members of group D is

$$\Pi_D^r = \begin{cases} (K_D + g) - \varepsilon_1 n_D^d - b_1 n_S^f & \text{iff } r = d \\ K_D - \varepsilon_2 n_D^d - b_2 n_S^f & \text{iff } r = nd \end{cases} \quad (1)$$

where $K_D > 0$ is a constant representing the general payoff from the activity individuals in the dominant group are involved in and g is a positive gain coming from active discrimination.³ In general, $b_1 \neq b_2$ and $\varepsilon_1 \neq \varepsilon_2$, meaning that people in the dominant group are hit differently by group reputation and by the protest by the discriminated group. We will see below that different hypotheses on the relative magnitude of b_1 , b_2 , ε_1 and ε_2 imply different social dynamics.

We now turn the attention to the discriminated group. There is a fundamental asymmetry between the two groups. Fighting is a defensive strategy for the discriminated group, adopted in response to discrimination by the dominant group. Discrimination then implies a cost $c > 0$.

Also for the discriminated group we have a intra and a inter-group network effect. The intra-group effect implies that the payoff from fighting is positively affected by the number of fighting people, n_S^f . This means that there is a gain from civil protest, which is a public good inside the discriminated group. All members of that group benefit from the presence of fighting people, no matter whether they themselves are fighting or not. The inter - group effect is a payoff reduction deriving from discrimination, reduction that is increasing in the number of discriminating people in the dominant group, n_D^d . Again assuming a linear specification, payoffs for the discriminated group are

$$\Pi_S^r = \begin{cases} (K_S - c) + h_1 n_S^f - f_1 n_D^d & \text{iff } r = f \\ K_S + h_2 n_S^f - f_2 n_D^d & \text{iff } r = nf \end{cases} \quad (2)$$

where $K_S > 0$ is similar to K_D and is a group - specific, constant payoff.

In line with the interpretation of the intra and inter - group network effects outlined above, we assume that all parameters are strictly positive

³For example, individuals may be discriminating on the workplace. In that case, working yields a base payoff equal to K_D plus the payoff from discriminating activities, g . In general, K_D can be interpreted either as the wage in a job activity where members of the dominant group are involved or as a non - monetary utility stemming from the mere fact of belonging to a certain group (*e.g.* access to university education or to certain career paths).

($g, c > 0, \varepsilon_i, b_i, f_i, h_i > 0, i = 1, 2$).

We now characterise both the intra and inter - group dynamics of social interaction.

3.2 The dynamics

In this paper we follow an evolutionary - game framework. This implies that, in every period, each strategy is played by a given fraction of the population. Each individual's choice to play a given strategy (*e.g.* discrimination) is not the result of a maximisation process, but the response to an intrinsic characteristic of the individual herself or the result of past experience, often inherited. The share of population playing a given strategy evolves over time. The share of individuals playing the strategy yielding the highest payoff increases, whereas the share of individuals playing strategies with lower payoffs decrease. The mechanism leading to such result can be interpreted in two different ways. The change in population shares occurs either because a strategy has a higher fitness⁴, favouring individuals playing it and allowing them to reproduce faster or because people learn how to play while playing and learn which strategy is best, in terms of payoff maximisation.

We assume that n_D^d and n_S^f follow a replicator dynamics. Every period a positive fraction of each population changes strategy, choosing the strategy yielding a payoff higher than the average population payoff.⁵

At a given time t , the average payoffs for each population are

$$\bar{\Pi}_S(t) = n_S^f \Pi_S^f(t) + (1 - n_S^f) \Pi_S^{nf}(t) \quad (3)$$

and

$$\bar{\Pi}_D(t) = n_D^d \Pi_D^d(t) + (1 - n_D^d) \Pi_D^{nd}(t) \quad (4)$$

respectively for the discriminated and the dominant group.

According to the definition of the replicator dynamics, the rate of change of each population's share adopting the strategies of fighting and discriminating are, respectively

$$\frac{\dot{n}_S^f}{n_S^f} = \frac{\partial n_S^f}{\partial t} = \Pi_S^f(t) - \bar{\Pi}_S(t) \quad (5)$$

$$\frac{\dot{n}_D^d}{n_D^d} = \frac{\partial n_D^d}{\partial t} = \Pi_D^d(t) - \bar{\Pi}_D(t) \quad (6)$$

⁴A strategy with higher fitness implies a higher payoff for individuals playing it, compared to any other strategy at their disposal.

⁵For a thorough analysis of evolutionary games and replicator dynamic see Weibull (1995).

which, substituting the definitions of $\Pi_S^f(t)$ and $\Pi_D^d(t)$ respectively from (2) and (1), the definitions of $\bar{\Pi}_S(t)$ and $\bar{\Pi}_D(t)$ from (3) and (4) and simplifying, can be rewritten as

$$\dot{n}_S^f = \frac{dn_S^f}{dt} = n_S^f (1 - n_S^f) (fn_D^d - hn_S^f - c) \quad (7)$$

$$\dot{n}_D^d = \frac{dn_D^d}{dt} = n_D^d (1 - n_D^d) (g - \varepsilon n_D^d - bn_S^f) \quad (8)$$

where $b = b_1 - b_2$, $\varepsilon = \varepsilon_1 - \varepsilon_2$, $f = f_2 - f_1$, $h = h_2 - h_1$. This is a system of two non - linear, first - order differential equations. In that follows we will refer to this system as the "reduced form" of the model. Depending on the values of the parameters b , ε , f and h the dynamics has different qualitative properties and we can have several cases. We will present the most interesting ones in the following section.

4 Civil protest and backlash

In this section we present three cases describing possible dynamic behaviors in the two populations.

4.1 Case 1: Convergence to the steady - state

In the first case we assume that

1. Discriminators in the dominant group are hit more by civil protest than the other members of the group ($b_1 > b_2$).
2. Discriminators suffer more from moral riprovation (collective reputation) than non discriminating members of the dominant group ($\varepsilon_1 > \varepsilon_2$).
3. Submissive people in the weak group lose more from discrimination than reacting ones ($f_1 < f_2$).
4. Submissive people gain more from civil protest (they do not pay the cost of riots) than fighting ones ($h_1 < h_2$).

These assumptions imply that all parameters in the reduced form are positive ($b, \varepsilon, f, h > 0$).

We can prove the following results.

Proposition 1 *If all the parameters in the reduced form are positive, the system has five rest points, but only one is stable.*

Proof. Straightforward, from a qualitative analysis of the dynamics. ■

Corollary 2 If $0 \leq \frac{bc+gh}{bf+h\varepsilon} \leq 1$ and $0 \leq \frac{gf-c\varepsilon}{bf+h\varepsilon} \leq 1$, then the unique (stable) equilibrium is

$$n_S^{f*} = \frac{bc + gh}{bf + h\varepsilon}; n_D^{d*} = \frac{gf - c\varepsilon}{bf + h\varepsilon}$$

Proof. If $0 \leq \frac{bc+gh}{bf+h\varepsilon} \leq 1$ and $0 \leq \frac{gf-c\varepsilon}{bf+h\varepsilon} \leq 1$ the equilibrium is in the admissible range of the parameters and will be reached by n_S^{f*} and n_D^{d*} . ■

The system consisting of (7) and (8) does not allow for a closed form solution. We therefore provide a set of simulations. We considered a large number of different values for the parameters, extrapolating the following result. In order to illustrate them we take the following set of specific values for the reduced form parameters

$$g = 3, b = 5.91, \varepsilon = 1, h = 0.6, f = 3, c = 1.2, n_S^f(0) = 0.3, n_D^d(0) = 0.9$$

The phase plane dynamics for the unique equilibrium then is

Figure 1.

If we plot the shares of discriminating people in the dominant group and fighting *ones* in the submissive group we have

Figure 2.

From Figure 2 we can see that the initial upsurge of protest by members of the submissive group leads to an almost immediate reduction in discrimination in the dominant group. This indicates that the instances by the weak group are initially accommodated. Fueled by success, protest increases and members in the dominant group reduce discrimination more and more. Soon after protest in the weak group reaches $n_S^f = 0.7$ (that is, 70% of the people in that group fights) a backlash starts in the dominant group. Discriminations starts increasing again, accompanied by an immediate drop in the rate of protesters. Thus we observe a sequence of backlash and reversed backlash. The intensity of the waves in the behaviour of people converge to a steady state equilibrium in the long-run, with $n_S^{f*} = 0.425$, $n_D^{d*} = 0.485$.

4.2 Case 2: Social disruption (total conflict)

In this second case all parameters in the reduced form model are positive apart from the one governing the relative strength of the reputational effect on the dominant group's payoff ($\varepsilon < 0$). Thus: $b > 0$, $\varepsilon < 0$, $f > 0$, $h > 0$

Compared with Case 1 the only difference is that in the strong group, non discriminators suffer more from moral riproavation than discriminators. Selecting the following values of the parameters for the simulation:

$$g = 0.8, b = 1.3, \varepsilon = -1, h = 1, f = 5, c = 1, n_D^d(0) = n_D^{d*} = 0.236; \\ n_S^f(0) = n_S^{f*} = 0.1818$$

Figure 3

Plotting n_S^f and n_D^d (for $n_S^f(0) = 0.236$, $n_D^d(0) = 0.1818$) we obtain

Figure 4

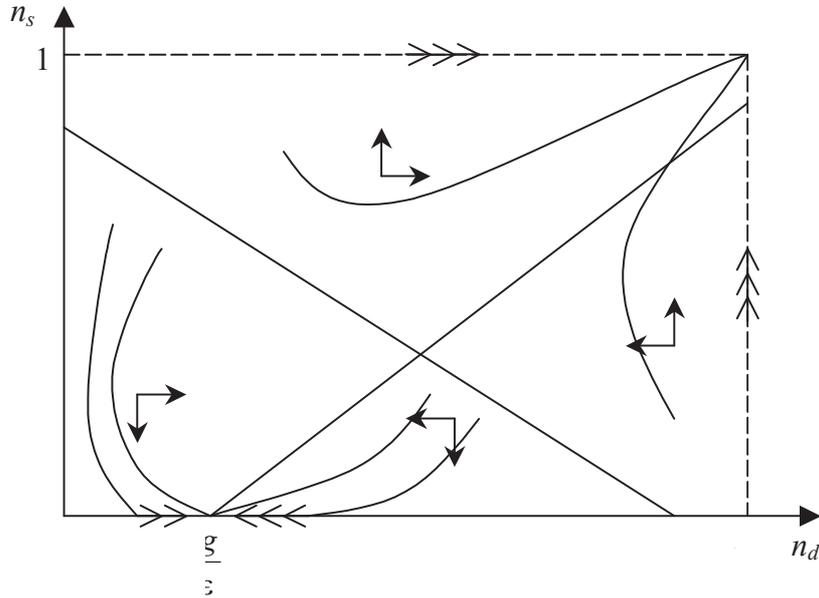
Here the path of n_S^f and n_D^d are explosive. The sequence of increases in civil protest and backlashes by the dominant group exhibit enlarging waves and the final equilibrium is a corner point where everybody in the dominant group discriminates and all individuals in the weak group fight ($n_S^{f*} = 1$ and $n_D^{d*} = 1$).

4.3 Case 3: Multiple equilibria. No protest vs total conflict

In the final case we present both the parameters b and h are negative. $b < 0$, $\varepsilon > 0$, $f > 0$, $h < 0$. Thus the set of hypotheses imply that

1. No discriminators in the dominant group are hit more by civil protest than discriminators ($b < 0$).
2. Discriminators suffer more from moral riproavation than non discriminators ($\varepsilon > 0$).
3. Submissive people in the weak group lose more from discrimination than fighting ones ($f > 0$).
4. Inside the weak group, submissive people gain less from civil protest (no free riding) ($h < 0$).

In this case the internal rest point $\left\{ n_S^{f*} = \frac{bc+gh}{bf+h\varepsilon}, n_D^{d*} = \frac{gf-c\varepsilon}{bf+he} \right\}$ is unstable. The stable equilibria are $\left(\frac{g}{\varepsilon}, 0 \right)$ and $(1, 1)$ according to initial conditions. The trajectories in the phase plane will be:



Here in this case we can end up with total conflict (equilibrium $(1, 1)$) or with no protest and some discrimination (equilibrium $(\frac{g}{\epsilon}, 0)$).

5 Civil support to new norms and the level of enforcement

If, as a first approximation, we assume that the government assures a level of enforcement (minorities' rights protection) consistent with the behaviour expressed by the population, then the level of enforcement depends on n_S and n_D .

Assume that N_S is the numerosity of group S , whereas N_D is group D 's numerosity. If we also assume that all people playing the discriminating strategy in the D group are in favour of it and would support a policy that involves discrimination, whereas all people playing nd would support more egalitarian policies and all those fighting would support policies more in favour of discriminated groups, the level of support for egalitarian policies can be defined as follows

$$EG = \alpha(N_S n_S^f, N_D n_D^d) \quad (9)$$

with $\frac{\partial EG}{\partial (N_S n_S^f)} > 0$; $\frac{\partial EG}{\partial (N_D n_D^d)} < 0$.⁶

⁶This assumption rule out the possibility of people supporting one strategy while adopting another. For example, somebody may behave as if they disliked discrimination and then support such policies when voting is secret. More common the behaviour of an individual belonging to the discriminated group that does not fight (maybe to avoid retaliation) but supports more egalitarian policies.

One possible explicit form for the function expressing support for egalitarian policies is a weighed average of n_S^f and n_D^d

$$EG = \alpha(N_S n_S^f, N_D n_D^d) = \frac{N_S n_S^f + N_D (1 - n_D^d)}{2}$$

We will now provide the dynamics of civil support to anti - discrimination policies and enforcement for cases 1 and 2 presented above.

For case 1, given the same values for the parameters assumed above and assuming that the two populations have the same numerosity⁷

Figure 6

Support and enforcement go in waves, with sharp increases, above the long-run level, followed by decreases (backlash), below the long-run level, until enforcement stabilizes.

For case 2, again assuming the same values for the parameters as above and same numerosity, we have

Figure 7

Here approved laws and enforcement become more and more extreme over time, as a result of the mounting social conflict.

6 Three examples of support cycles

In this paragraph we provide some evidence to support the analysis presented above. We present three cases where support to norms and measures aiming at protecting disadvantaged groups increased, following either increased social concern or civil protest. The first case is the antifeminist backlash that took place in the States in the eighties and then spreaded to the rest of the western world. The second case is harassment law. Finally, the third case is affirmative action (also known as "reverse discrimination").

⁷This assumption works very well when one population consists on men and the other of women. It is less plausible when the weak population consists of a ethnic minority. However the main findings of the paper would remain true even if we assumed different numerosity for the two populations, only the shape of the waves would change and not the direction.

6.1 The antifeminist backlash

In 1992, the American journalist Susan Faludi wrote a book that has become a classic reference for gender studies.⁸

She reported several alarming statistics, showing that in the nineties American women represented two thirds of all poor adults. They were twice as likely than men to live in poor housing, without health insurance and to draw no pension. The average female earned much less than the average male with lower school degree. The percentage of women in top jobs was still remarkably low.

In public opinion surveys women ranked inequality at work and home as their most urgent concern.

Still, starting from the early eighties the press claimed that: "women have made it" and that "they were so equal they didn't need an Equal Rights Amendment", that they "had so much the White House no longer needed to appoint them to higher office" (this latest quote is attributed to President Ronald Reagan himself).

At the same time, several slogans were circulated by the press, especially women magazines, like "women have never been more miserable": they are grieving from a "man shortage", succumbing to an "infertility epidemic", they are "depressed and confused". "Feminism, having promised [women] a stronger sense of [their] own identity, has given [them] little more than an identity crisis" and has condemned them "to a lesser life".

In the same years the Equal Rights Amendment was defeated in Congress (1982), funding for battered women's programs was stalled, the Office of Domestic Violence shut down and funding for single mothers withdrawn.

This was clearly an antifeminist backlash, set off not by achievement of full equality but by the possibility of it.

"backlashes occur when advances have been small, before changes are sufficient to help many people"

6.2 Harassment law

In the nineties, sexual harassment has been one of the fastest-expanding areas of American law. According to The Economist magazine⁹, in 1991, 6,127 cases were settled, for a value of \$7.7m in damages to victims. In 1997, 15,889 complaints were handled and \$49.4m won for victims. These figures underestimate the total, as they do not include cases fought in state courts under similar state laws and thousands of private cases settled outside court. Although some of these cases concern behavior that would incontrovertibly deserve to be punished if proven (like indecent assault), sexual harassment

⁸S. Faludi (1991) "Backlash. The undeclared war against American women", Crown Publishers, Inc., New York.

⁹"The perils of flirtation", Feb 12th 1998.

law has gone far beyond such cases. Companies have been successfully sued for allowing offensive jokes to be told, posters to be displayed, even for books or magazines to be brought into the workplace. Now the trend seems to be partially reverting in the US, where a fundamental rethinking of harassment law is taking place¹⁰ and courts are reducing the number of verdicts where firms are found liable for their employees' harassing behavior. In Europe, however, the number of cases is just increasing¹¹ and the proposal for amending Directive 76/207/EEC on the implementation of the principle of equal treatment for men and women includes a new article making explicit that sexual harassment constitutes discrimination on grounds of sex and defining what would constitute sexual harassment.

6.3 Quotas (affirmative action or reverse discrimination)

Originally, affirmative action was designed to correct underemployment of qualified women and minorities by imposing on companies and public offices specific quotas to be filled before it was possible to hire people regardless of their gender or ethnicity. Important cases include the quota-driven promotion of black police officers in Memphis, Tennessee, and the firing of white teachers in a New Jersey high school. However, as the quota of individuals belonging to those groups increased over time, other groups started to perceive these policies as unfair, and this has spawned many legal battles in America. In June 2003, the Supreme Court ruled that race could be a criterion in admissions as long as it is not "a decisive factor". Some commentators saw in this verdict America's continuing ambivalence about race. Alternatively, this verdict may represent a backlash against policies perceived as too restrictive for those groups previously not discriminated.

7 Conclusions

The level of protection granted by law protecting weak groups (minorities) in many cases tend to fluctuate over time. In this paper we had built a model where this fluctuations naturally arise from the interaction between weak and strong groups in a *democratic* political environment where the wills of citizens belonging to the weak and the strong group have the same influence on the lawmaking process. This framework can easily be extended to take into account also the effect in societies where the votes of *weak* and *strong* citizens do not have the influence on the lawmaking process.

¹⁰See Vicki Schultz (2001), "Talking about harassment", Journal of Law and Policy, nr.9, for an early account of the backlash against sexual harassment law. According to Schultz, the backlash consisted both of a debate on the definition of harassment ("sexual harassment law turns all sex into harassment") and of an increasing number of men filing harassment claims.

¹¹See The Economist, "Women in suits", Feb 28th 2002.

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Figure 1

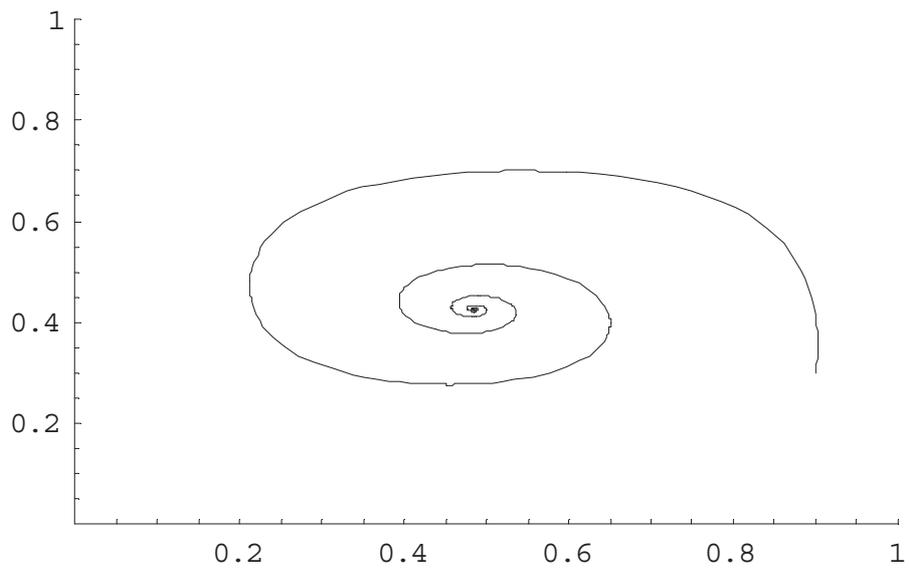
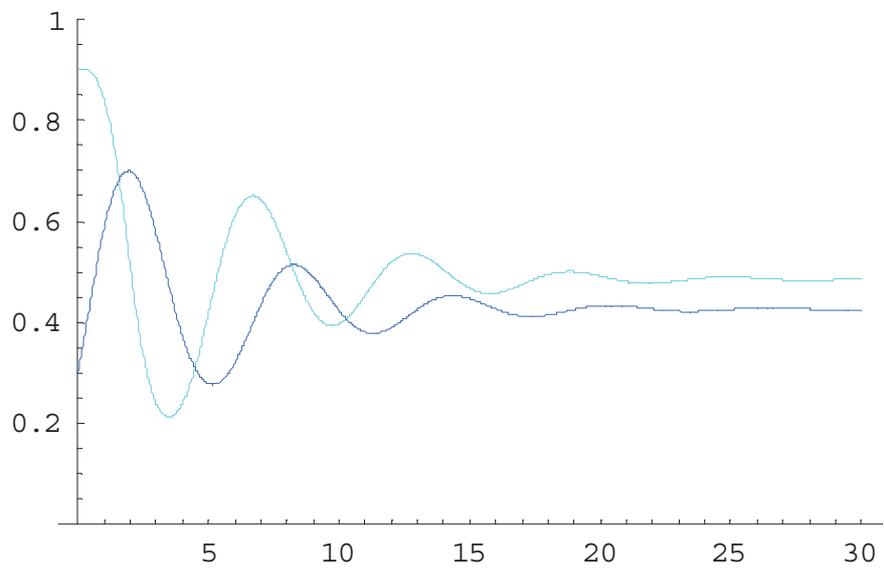


Figure 2



Chapter 5

Discrimination as a 3-Player Game with Emerging Network Effects.

Abstract

In this short note we propose a simple game that could be used to model discriminatory behaviours. Our game finds, for instance, a natural application in modelling job market discrimination, but could be applied also to other settings. We show that this simple game can generate individual payoff functions that display network effects when the player are randomly extracted from a larger population and tri-wise matched.

Keywords: Network Effects, 3-Player Games, Replicator Dynamics, Job Market Discrimination.

1 Introduction

Network effects¹ are pervasive in real life environments. Nevertheless it is less common to find evolutionary models that assume the existence of network effect². In this paper we provide a rationale for these kind of pay-off function showing how this kind of pay-off function may be just the result of a random matching³ of players extracted from a population to play a game with constant payoffs. We think that the game that we propose is especially suitable to model job market discrimination, a phenomenon that is very hard to investigate but that, at the same time, seems to be quite resilient, as the field experiment done by Bertrand and Mullainathan (2004) shows⁴

¹With *network effect* we refer to the situation in which the pay-off earned by a certain player is a direct function of the number of players (or the share of them) that plays the same strategy.

²For a couple of examples see Carbonara and Pasotti (2010), Pasotti (2011).

³Random matching is a common procedure in game theory and is one of the key elements in Evolutionary Game Theory. See, among many others, Weibull (1995), Vega-Redondo (1996), Fudenberg and Levine (1998).

⁴In their field experiment the two authors "had sent fictitious resumes to help-wanted ads in Boston and Chicago newspapers. To manipulate perceived race, resumes had been randomly assigned African-American or White-sounding names. White names received 50 percent more calls backs for interviews.", Bertrand and Mullainathan (2004), 1.

for US labor market. Their experiment had been replicated also in Sweden by Carlsson and Rooth (2007) with similar findings. Both these paper seem to show that *race* is a discriminant factor on the job market on both sides of the Atlantic.

Nevertheless the structure is general enough to be applied to other situations. We will assume that the general population is divided in two main groups: weak and dominant. The two group are in an a-symmetric situation where the dominant can enjoy some kind of power over the weak group's members. In job market relations the employer has the power to decide who will be hired among many (in our model two) workers.

2 The composing game.

It is possible to devise a game where the structure of interaction gives rise to network effects in the payoffs.

Let us assume that, in every period t , members of the weak group are randomly matched with members of the dominant group. In particular, we assume that each period two members of the weak group are matched with one member of the dominant to play the following game: one of the weak individual (the insider) will have a direct deal with the dominant, the other weak will play the role of the outsider. All player choose simultaneously the strategy played and the two weak has to choose the strategy played before knowing who is going to be the insider among them. Each player has two possible strategies. The dominant can either discriminate (d) or not discriminate (nd) against the insider, who can fight against discrimination (f) or surrender (nf). The outsider, although not directly harmed by the dominant's discriminating action, can fight in support of the insider (f) or surrender (nf).⁵ Each of the two weak matched with the dominant has a fixed probability θ to be the insider.

The normal form of this game is given by the following matrices, where the first value is the pay-off for the weak insider, the second is the pay-off for the dominant and the third is the pay-off for the weak outsider. If the outsider plays f , the payoffs are

		dominant	
		d	nd
weak (insider)	f	α, A, F	β, B, F
	nf	$\gamma, \Sigma + g, F$	σ, Σ, F

⁵Since the two weak do not know who is going to be the insider, the insider's f strategy belong to the same information set of the outsider's f strategy.

(weak outsider plays nf)	dominant	
	d	nd
weak (insider)	f	$\alpha + \delta, A, N$
	nf	$\beta + \delta, B, N$
		$\gamma + \xi, \Sigma + g, N$
		$\sigma + \xi, \Sigma, N$

Given random matching, the dominant is matched with an insider that plays f with probability n_W and nf with probability $1 - n_W$. Then, for players in the dominant group the expected payoffs from d and nd strategies are, respectively $\Pi_D^d = An_W + (1 - n_W)(\Sigma + g)$ and $\Pi_D^{nd} = Bn_W + (1 - n_W)\Sigma$, which, rearranging terms, become

$$\Pi_D^d = \Sigma + g + (A - \Sigma - g)n_W \quad (1)$$

$$\Pi_D^{nd} = \Sigma + (B - \Sigma)n_W \quad (2)$$

It's easy to see that if we set $\Sigma = K_D$, $(A - \Sigma - g) = -b_1$ and $(B - \Sigma) = -b_2$, the payoff functions (1) and (2) can be rewritten in the following way.

To obtain the expected payoff for the weak, recall that each weak individual will play the role of the insider with probability θ and to be an outsider with probability $(1 - \theta)$. Probability θ represents a measure of the insider/outsider ratio. We name Π_W^f the payoff earned by a member of the weak group if she plays f , and Π_W^{nf} her payoff if she plays nf .

$$\Pi_W^f = \theta \left\{ \begin{array}{l} [\alpha n_W + (1 - n_W)(\alpha + \delta)] n_D \\ + (1 - n_D) [\beta n_W + (1 - n_W)(\beta + \delta)] \end{array} \right\} + (1 - \theta) F$$

$$\Pi_W^{nf} = \theta \left\{ \begin{array}{l} [\gamma n_W + (1 - n_W)(\gamma + \xi)] n_D \\ + (1 - n_D) [\sigma n_W + (1 - n_W)(\sigma + \xi)] \end{array} \right\} + (1 - \theta) N$$

Rearranging terms

$$\Pi_W^f = [\theta(\beta + \delta) + (1 - \theta)F] - \theta\delta n_W - \theta(\beta - \alpha)n_D \quad (3)$$

$$\Pi_W^{nf} = [\theta(\sigma + \xi) + (1 - \theta)N] - \theta\xi n_W - \theta(\sigma - \gamma)n_D \quad (4)$$

Assuming that $[\theta(\beta + \delta) + (1 - \theta)F] = [\theta(\sigma + \xi) + (1 - \theta)N] = K_W$ and substituting into (3) and (4), and defining $-\theta\delta = h_1$, $-\theta\xi = h_2$, $\theta(\beta - \alpha) = c_1$ and $\theta(\sigma - \gamma) = c_2$ we obtain a pair of linear function with network effect at the population level that define the pay-off associated to each strategy.

$$\Pi_W^f = K_W + h_1 n_W - c_1 n_D \quad (5)$$

$$\Pi_W^{nf} = K_W + h_2 n_W - c_2 n_D \quad (6)$$

Just by looking at the form of equations 1, 2, 5 and 6 it is easy to recognize that the pay-off associated to any possible strategy is just a function of the share of the members of the weak and dominant groups that adopt a certain strategy.

3 Conclusions

In this short note we have provided an example of a 3-player's game where the individual expected pay-off functions display network effects. We think this kind of game could be a useful tool to model job market discrimination. On this basic structure different equilibrium concepts could be applied. For example in Carbonara and Pasotti (2010) and in Pasotti (2011), starting from a couple of pay-off functions with network effects, a replicator dynamics had been used to find evolutionary stable equilibria.

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