

**Law enforcement by courts:
Political economy and impact on firms**

Julia Shvets

London School of Economics and Political Science

Department of Economics

September, 2005

This dissertation is submitted for the degree of Doctor of Philosophy

UMI Number: U206308

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI U206308

Published by ProQuest LLC 2014. Copyright in the Dissertation held by the Author.
Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against
unauthorized copying under Title 17, United States Code.



ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

THESES

F

8482

10 68 755

Abstract

The subject of this thesis is judicial enforcement of contracts and property rights and its economic implications.

The first chapter introduces the topic, discusses the issues involved in empirical research on law enforcement, and surveys the literature. The second chapter develops an analytical method for empirical identification of relative policy preferences and competence of judges. The third chapter studies the impact of judicial selection on law enforcement. The fourth chapter analyses the effect of predictability of law enforcement on firms' finances.

In chapter two, I develop a model of judicial decision making in a two tier court system. It shows that relative preferences of the two courts can be identified by comparing appellate court reversal rates for different types of lower court decisions. I use this result to analyze the data on Russia's commercial courts which I collected for this purpose. The findings show that regional courts favour small firms relatively more than courts of appeal.

In chapter three, I compare selection of judges by the legislator with that by the executive branch. First, I analyze the differences in the incentives of the two offices theoretically. Second, I empirically exploit a natural experiment in judicial appointment procedures in Russian courts. I find that judges selected by the legislature favour small firms more than judges appointed by the executive.

In the fourth chapter, I show both empirically and analytically that greater predictability in law enforcement encourages credit to firms. The data from Russia indicates that more predictable courts stimulate lending by raising the number of firms that have access to bank financing. In contrast, trade credit is only weakly affected by court performance.

Table of contents

Acknowledgements	8
1 Introduction	10
1.1 Empirical identification	13
1.1.1 Characterising law enforcement	13
1.1.2 Identifying economic effects of law enforcement	16
1.2 Law enforcement and economy: The literature	18
1.2.1 Impact of courts on economic performance	19
1.2.2 Design of judicial institutions	21
1.2.2.1 Judicial discretion and mandate	22
1.2.2.2 Incentives and selection of judges: Independence vs. accountability	25
1.2.2.3 Endogenous judicial institutions	30
1.3 Concluding remarks	30
2 Judicial policy preferences in Russian commercial courts	33
2.1 Introduction	33
2.2 Analytical framework	37
2.2.1 Set up	37
2.2.2 Analysis	39
2.2.3 Discussion	42
2.3 Russian commercial (arbitrazh) courts	43
2.4 Data	44
2.5 Empirical analysis	49
2.5.1 Policy preferences	49
2.5.2 Court competence and regional characteristics	52
2.6 Concluding remarks	54
Appendix 2.A	56
Appendix 2.B	57
Appendix 2.C	59

3	Selection of judges and law enforcement	61
3.1	Introduction	61
3.2	The model	64
3.2.1	Set up	65
3.2.2	Analysis	68
3.2.3	Testable implications	71
3.2.4	Discussion	72
3.3	Background and data	74
3.3.1	Institutional background	74
3.3.2	Data	75
3.4	Empirical model	78
3.5	Empirical results	79
3.5.1	Other explanations?	81
3.5.1.1	Anti-government judges	81
3.5.1.2	Time of appointment	82
3.6	Concluding remarks	84
	Appendix 3.A	86
	Appendix 3.B	87
4	Courts and firms' access to credit	89
4.1	Introduction	89
4.2	Analytical framework	92
4.2.1	Set up	93
4.2.2	Analysis	94
4.3	Background and data	97
4.4	Empirical method and results	99
4.4.1	Basic results	100
4.4.2	Robustness	102
4.4.3	The rate of appeals as a proxy for other things	106
4.5	Concluding remarks	107
	Appendix 4.A	109
	Appendix 4.B	110
	Appendix 4.C	112

Concluding remarks	113
References	116

List of tables

Table 2.1	Volume of commercial court cases and reversal rates over time in Russia, 1995 – 2002	124
Table 2.2	Composition of cases and reversal rates by nature of dispute	125
Table 2.3	Participants of commercial disputes	126
Table 2.4	Dispute outcomes by party pair	127
Table 2.5	Litigant activity and reversal rates	128
Table 2.6	Characteristics of regions of 81 commercial courts	129
Table 2.7	Policy preferences of Russian commercial courts judges: 1995-2002	130
Table 2.8	Policy preferences of Russian commercial court judges: Robustness	131
Table 2.9	Regional determinants of court performance	132
Table 3.1	Breakdown of cases by dispute type	133
Table 3.2	Breakdown of cases by type of litigant	134
Table 3.3	Judicial selection and reversal rates	135
Table 3.4	Selection of judges: Basic results	136
Table 3.5	Selection of judges: Robustness	137
Table 3.6	Selected characteristics of autonomous and non-autonomous regions	138
Table 4.1	Descriptive statistics, 1995 – 2002	139
Table 4.2	Law enforcement and firm credit: 1995 – 2002	140
Table 4.3	Law enforcement and firms' access to bank credit	141
Table 4.4	Law enforcement and access to credit: controlling for time-varying factors	142
Table 4.5	Law enforcement and non-bank credit: Robustness	143

List of figures

Figure 1.1	Will your legal system uphold contract and property rights?	144
Figure 2.1	Variation in court performance across Russia's regions, 1995 – 2002	145
Figure 2.2	Court performance and freedom of media, by region	146
Figure 2.3	Court performance and natural resources	147
Figure 2.4	Frequency of firm wins	148
Figure 4.1	Proportion of firms with bank credit, 1995 – 2002, selected regions of Russia	149

Acknowledgements

There is a number of people who have played an important role in my work on this thesis, and whom I would like to thank here.

I am grateful Tim Besley, my supervisor, for sharing with me his insights and for showing me how to separate the important from the secondary, the relevant from the abstract, the doable from air-castles, for demonstrating to me the importance of empirical research, and for his patience while I tried and erred.

I would like to thank Mark Schankerman for many insightful discussions, for teaching me not to be afraid to ask big questions, and for believing in me when I myself did not.

I am grateful to Heski Bar-Isaac, Jordi Blanes i Vidal, Charles Goodhart, Richard Jackman, Shira Klien, Ellen Meade, Inger Munk, Elena Panova, Kwok Ton Soo, and Chenggang Xu all of whom provided useful comments on some parts of this thesis.

I would also like to thank David Whitten, my first microeconomics teacher, for his enthusiasm and support. Erik Berglöf and Richard Layard for early encouragement. Ksenia Yudaeva, for bringing the Legal Reform Project and myself together. And Oleg Kirsanov for his great help in putting together the litigation data.

In addition to the LSE's Department of Economics, I benefited from working and attending seminars at the Centre for Economic Performance (CEP), the Economic Organization and Public Policy Programme (EOPP), both at the LSE, the Centre for Economic and Financial Research (CEFIR) in Moscow, and, whilst writing chapter 4, Corpus Christi College and the Faculty of Economics at Cambridge University. I would like to say special thanks to the Industrial Organization group at the LSE for many stimulating workshops, for its open spirit and for making me feel a part of it, even though I could barely spell 'hedonic'.

I gratefully acknowledge financial support from the CEP and the LSE's Department of Economics, the Alfred Zauberman award and the Legal Reform Project.

I am also grateful to CEFIR for the data on Russian firms, and to the Supreme Arbitration Court of Russia for the commercial court statistics.

I would like to thank Martin, my most patient reader to date, for his help in unscrambling my sentences and occasionally my thoughts, and for his support in the last stages of this work.

My biggest debt of gratitude is to my parents. To my father, for showing me that there is nothing one cannot achieve. To my mother, for her unconditional love and care.

Chapter 1

Introduction

Secure property and contractual rights are paramount for economic growth. Investment critically relies on such rights for they protect entrepreneurs from having their returns expropriated (see for instance, Demsetz (1967)). Research by Mauro (1995), Keefer and Knack (1995), and others has shown that countries grow faster when property and contracts are more secure.

In most countries, property and contractual rights are enforced by the judiciary. Enterprises decide whether to enter transactions and make investment based on the amount of protection they expect to receive from courts should a dispute arise.

A survey of firms published recently by the World Bank reveals that there are dramatic differences in how well courts are perceived to cope with this task around the world (figure 1.1). For example, 97% of firms surveyed in Singapore believe that their legal system will uphold their rights. In contrast, only a quarter of Ukrainian respondents have a similar degree of confidence in their country's law enforcement¹.

Do these differences matter for countries' economic performance? If so, which specific features of law enforcement are important, and what are the channels through which they affect the economy? The research presented in this thesis contributes towards our understanding of these issues, and the growing literature on the link between law enforcement and economy.

This thesis makes three separate contributions. First, I show empirically that predictability of the court system has a significant impact on the economy through allocation of credit (chapter 4). Second, I demonstrate, both empirically and theoretically, that selection procedures for judges have a substantial effect on the way courts enforce property and contract rights (chapter 3). Third, I develop an approach that helps em-

¹ See World Bank (2000). The figures reported are the shares of firms who fully agree, agree in most cases and tend to agree with the statement that the legal system will uphold contract and property rights.

pirically identify relative preferences of judges (chapter 2), and use it to study selection procedures in chapter 3.

The empirical analysis is based on detailed data from Russian commercial courts, which I collected for this purpose. The dispute data, used in chapters 2 and 3, was put together by reading the texts of approximately 6,000 commercial court decisions and coding the variables of interest. The data on selection of individual judges, used in chapter 3, was collected by going through government publications. The statistics on annual performance of regional courts, used in chapter 4, was obtained through correspondence and meetings with officials from the Supreme Arbitration Court of Russia.

I now elaborate on each chapter of the thesis in greater detail.

It is not easy to measure the quality and characterise the performance of law enforcers empirically. Therefore, before tackling the issue of law enforcement and its economic implications, this thesis develops an approach to characterise performance of judges empirically. In chapter 2, I do so by building a model of judicial decision making in a two-tier court system. I allow the lower court judges to differ from appellate court judges along two dimensions: competence and policy preferences, both of which are precisely defined in the model. There are two results. First, when policy preferences of the lower and the appellate court judges differ, the probability that the latter reverses a decision of the former will be different for different types of lower court decisions. Second, if there are no differences between policy preferences of the two types of judges, the probability of a reversal falls in the competence of the lower court judge relative to that of the appellate court judge. I show that both results are true in presence of endogenous selection into litigation.

In the same chapter, I use this approach to analyze decisions of Russia's 81 regional commercial courts made between 1995 and 2002. The data reveals that regional courts favour small firms more than do courts of appeal. This pattern is highly significant in most types of disputes involving small firms, including cases against government branches as well as against large firms. The analysis also shows a substantial variation

in the quality of court performance across Russia. I link this variation to several regional factors, such as freedom of media and presence of oil and gas industries.

Chapter 3 asks whether differences in rules that govern the judiciary can help explain variation in law enforcement. I focus on the process of selecting judges, and contrast two methods of selection most commonly used around the world: selection by the executive and selection by the legislative branches of the government.

The chapter presents a model which analyzes differences in incentives of the legislator and the executive when each is in charge of appointing judges. It is based on a premise that politicians collect rents from large firms, and these rents can be affected by judges. When selecting judges, the optimal strategies of the executive and the legislator diverge because the decisions of the executive are typically subject to judicial review, while decisions of the legislator are not.

Again, the empirical analysis uses Russia, taking advantage of a rare natural experiment in judicial appointment procedures in its commercial courts. I find that judges appointed by the legislator tend to favour small firms more than judges appointed by the executive in disputes with government agencies. This finding is consistent with the implications of the proposed model. The results are robust to a number of controls, as well as to correction for unobserved regional fixed effects. I also test for a number of alternative explanations of obtained results, and reject them.

The fourth and final, chapter of the thesis comes back to the fundamental question of how differences in court performance affect firms that contract in the shadow of these courts. The chapter develops an analytical framework which shows that when a court system is less predictable, expected costs of contract enforcement rise, making lenders less willing to finance firms. The rate of appeals is shown to be a good proxy for predictability of the court system, even when the decision to litigate is endogenous.

I then investigate empirically how bank and trade credit received by individual firms in Russia depend on the predictability of commercial courts in the 81 regions where these firms operate. I find that predictability in law enforcement stimulates bank credit. This occurs through two channels: first, the number of firms that have access to bank

financing rises, and second, firms that already have credit enjoy bigger loans. However, the former effect is much greater than the latter, and its inference is more robust. In contrast to bank credit, trade credit is only weakly affected by court performance, and this effect is not robust to more demanding specifications.

The impact of court performance on access to bank credit continues to be significant even when firm-level fixed effects are taken out. It is also robust to controlling for all fixed and some time-varying regional factors, as well as to adjustment of standard errors for contemporaneous intra-regional correlation of residuals.

Taken together, the next three chapters of this thesis help show that the quality of law enforcement has significant implications for the economy, and that institutional design of the judiciary has a very real effect on how property rights are enforced. In each chapter an empirical model is informed by an analytical framework, and significant attention is paid to robustness of results.

The rest of this introduction is organized as follows. In section 1.1, I detail the issues of empirical identification which arise in analyzing economic implications of law enforcement, and ways in which my thesis addresses them. Section 1.2 surveys the literature on law enforcement and economic activity which has inspired this thesis, and to which I contribute. Section 1.3 concludes this chapter.

1.1 Empirical identification

1.1.1 Characterising law enforcement

Empirical analysis of law enforcement is complicated by several issues. Compared with government policies which are easily quantifiable (for example, taxes and spending), enforcement of property rights is harder to measure and describe.

The first papers to rigorously investigate the impact of law enforcement on economic performance across countries, such as Keefer and Knack (1995), used a rule-of-law index compiled by a team of experts for a credit rating service. A similar index, albeit for different years and different countries, was used to measure enforcement of

property rights in a number of subsequent papers, such as La Porta et al (1997), (1998) and Demirguc-Kunt and Maksimovic (1998).

These papers have become agenda setting by drawing economists' attention to the empirical link between law and economic development. However, the measure of law enforcement used in them has several drawbacks: expert ratings are typically subjective, hypothetical, and their exact ingredients are usually unknown. This makes it difficult to interpret such ratings and raises questions about what they really measure.

Surveys in which firms are asked to rate law enforcement alleviate some of these problems (see for, instance, Johnson et al (1999), Pistor et al (2000) and Frye (2004) for results based on such surveys). Still, some subjectivity remains and can cause problems when differences in law enforcement measured this way are mapped into variations in economic performance. If survey responses proxy for general confidence or optimism of respondents, a relationship between the perceived quality of law enforcement and economic outcomes may be spurious. In addition, survey questions typically only ask for a general assessment of law enforcement. This makes it difficult to be specific about the aspects of law enforcement that have economic impact and the mechanisms that transmit such effects².

To get a more objective measure of court performance, some surveys ask firms about their actual use of courts (for example, Koford and Miller (1995), and Frye and Zhuravskaya (2000)). Yet, it is not obvious whether differences in actual litigation rates reveal something about the quality of law enforcement. One could argue that low litigation rates are consistent either with courts being useless or with courts being very good.

An alternative approach is to analyze decisions of courts directly. A number of studies compare decisions of judges or courts with different characteristics or in different localities (among many others, Eisenberg and Johnson (1991), who look for effects

² Some surveys do include more detailed questions. For example, Frye and Zhuravskaya (2000) and Frye (2004) ask firms about their perceived chances of winning a law suit against a government office. Berkowitz and Clay (2005) ask US lawyers to give separate ratings to speed, fairness, predictability of courts, etc.; however, they only report aggregated results.

of political orientation of the US judges on their decisions, and Lambert-Mogiliansky et al (2000), who compare bankruptcy decisions of Russian courts located in regions with more or less powerful governors). Identification in such analysis is undermined by two major problems. First of all, the comparison of decisions in different cases inevitably omits some characteristics of cases on which decisions had been based. Secondly, since the parties' decision whether to settle a dispute out of court or to litigate is based on their expected ruling of the judge, the characteristics of litigated disputes depend on the attributes of the court where these disputes are litigated. Unless this problem of endogenous selection into litigation is addressed explicitly, the results are hard to interpret.

A number of studies have addressed this problem by taking advantage of a particular feature of the data or institutional structure. For instance, in employment disputes, a settlement can typically occur after the worker files charges with a court. Ichino et al (2003) and Marinescu (2004) ask whether judges favour workers more when unemployment is high. Both papers use charges filed to estimate a two stage model, where the probability of litigation equation is fitted in the first stage. Besley and Payne (2003) look for a pro-worker stance among courts where judges are subject to re-elections. They focus on the number of employment discrimination charges filed, after showing analytically that it increases in pro-worker predisposition of the court. Ashenfelter et al (1995) compare decisions of judges who belong to different political parties but work in the same US federal court, taking advantage of a random allocation of cases to judges in these courts.

Instead of using decisions, several studies look at other quantifiable outcomes that may capture judicial performance: Hanssen (1999) compares volumes of disputes litigated in courts with different judicial retention arrangements, Landes and Posner (1980), and Landes et al (1998) analyze citations of judges with different characteristics, Higgins and Rubin (1980), and Posner (2000) look for effects of judicial and court characteristics on the rates at which decisions of judges are reversed by higher courts. None of these papers, however, provide analytical foundations for processes that may

generate these outcomes.

I approach the issue of characterising judicial performance by building on the idea of using the rates at which judges' decisions are reversed on appeal. As already mentioned, in chapter 2 I build a model of judicial decision making and appellate review which allows me to analyze determinants of reversal rates³. The model predicts that when policy preferences of lower and appellate court judges are the same, then the probability that a particular decision is reversed at appeal is independent of who the decision favoured. The reversal rate then depends only on the (relative) noise with which the lower court observes characteristics of the case and, therefore, can be interpreted as the lower court's relative competence. On the other hand, when there are differences in policy preferences between the lower and appellate courts, the probability of a reversal of any particular lower court decision depends on its substance. In this way, I can identify differences in preferences of lower and appellate courts by comparing reversal rates for different types of decisions.

This approach has several attractive features. First, unobservable case characteristics do not cause a problem because the decisions of the two judges (lower and appellate) are compared for the same case every time. Second, I show that this identification strategy is robust to endogenous selection into litigation and appeal. Third, it is objective and derived from analytically using fairly simple assumptions. And finally, it does not rely on any particular characteristics of disputes or courts: it can be applied to any category of cases where the data on two levels of decisions are available.

1.1.2 Identifying economic effects of law enforcement

The second difficulty which arises in empirical study of law enforcement and its economic impact is common to much of research on institutions. Major differences in legal environments across economies make cross country comparisons a natural first step in such research. Yet, countries differ in many ways researchers cannot control for, and these differences may be correlated with both law enforcement practices

³ Analysis in chapter 2 is in part inspired by Spitzer and Talley (2000). See section 2.1 for more detail.

and economic performance. This can lead to identification problems, which may be aggravated when subjective measures of law enforcement are used.

In this thesis, I address the identification issue in three ways. First, I analyze performance of different regional courts located within one country. This helps limit variation in factors that I am not investigating. Second, I focus on specific outcomes. This helps restrict the number of factors that can interfere with identification. Third, in each chapter, I develop an analytical framework which, in addition to motivating the main relationship of interest, often gives other predictions that can be used as robustness tests.

Chapter 4, where I show that greater predictability of courts encourages bank lending, illustrates how concentrating on Russia helps. I collect court performance data for several years for 81 regional courts, in order to exploit both cross-regional and over time variation. The result then comes from comparing the dynamics of credit issued to firms in regions where over time courts have become more predictable with those regions where they have not. The fact that Russia's regions share the same policy, and institutional and macroeconomic environment alleviates the problem of unobservables. By controlling for all fixed regional factors using dummies I ensure that court performance does not proxy for regional initial conditions. This lends confidence that my results really do identify the impact of courts rather than other factors.

However, focusing on a particular country has its drawbacks. First, in doing so, I confine my research to the range of institutions which differ within Russia. This excludes a large number of interesting questions. For example, I cannot compare the effects of common law and civil law systems using this approach⁴. Yet, Russia has undergone some interesting changes in institutions. In chapter 3, I take advantage of changes in the Russian constitution to compare the effects of two judicial selection procedures: by the executive government and by the legislator. These are the two most common procedures for the final selection of judges around the world⁵. By gathering

⁴ What is not possible in Russia, may be possible in the US: Berkowitz and Clay (2005) analyze long term effects of civil and common law systems by looking at legal history of individual states.

⁵ To be precise, often applicants are pre-screened by other judges, and the final selection is either by a

data on individual judges, I am able to compare judges who had been selected by different methods but work in the same court at the same time, and face the same economic, political and institutional environment. This allows me to isolate the effect of judicial selection procedures in a way that would not have been possible if I had tried to compare countries where judges are appointed by the executive with those where they are appointed by the legislature.

The second drawback of limiting attention to one country is the potential difficulty of generalizing results to other environments. In fact, the example of Russia is highly specific. In particular, Russia's legal and democratic institutions are new, and politicians are often seen as active collectors of rents. Indeed, the model in chapter 3 suggests that the impact of judicial selection on law enforcement that I find in the data is predicated on politicians being interested in rents, not just the country's welfare. Yet, politicians in many societies care about perks, rents and lobby contributions at least to some extent. Russia can then be considered a benchmark case for these.

Similar issues arise in chapter 4, where I show that lack of predictability of the court system discourages banks from lending to firms. Before generalizing this beyond Russia, one needs to keep in mind that Russia's overall legal environment is likely to be particularly unpredictable relative to some other countries.

1.2 Law enforcement and economy: The literature

Economists have written extensively on importance of secure property rights for economic development. Empirically, along side cross-country comparisons already mentioned, papers such as Besley (1995) and Johnson et al (2002) show that poor protection of property rights discourages investment at the level of individual agents⁶.

The degree to which investor rights are protected depends on the laws the society adopts on the one hand and how well these laws are enforced on the other. This thesis,

political office (executive or legislative), or by a committee which includes the executive or the legislature, or sometimes both.

⁶ Specifically, Ghanaian farmers in the former case and Eastern European enterprises in the latter.

and the review of the literature below focus on the latter of these two determinants⁷.

The next section discusses the literature on the impact of law enforcement on economic development. I then turn to research on the effects of the institutional set up of the judiciary on its performance in section 1.2.2.

1.2.1 Impact of courts on economic performance

To start, I note that courts are not the only way of enforcing laws and contracts. Markets can provide private solutions to potential expropriation problem. For example, Clotfelter (1977) makes a theoretical case for private protection against crime. Around the world, there is evidence that reputational concerns which arise in repeated interactions or small communities can help enforce contracts (see, for instance, Greif (1993) on Maghribi traders, McMillan and Woodruff (1999) on firms in Vietnam, Fafchamps and Minten (1999) on agricultural traders in Madagascar, and Banerjee and Duflo (2000) on Indian software industry). Firms may also pay private protection agencies or racketeers for contract enforcement services (see Gambetta (1994) on Italy, Frye and Zhuravskaya (2000) on shopkeepers in Russia, Johnson et al (2000) on firms in transition economies).

These alternatives do not, however, make the court system irrelevant. In fact, deficiencies in the court system are often the very reason why alternative contract enforcement arrangements appear⁸. Klein and Leffler (1981) and de Meza and Goud (1992) model private enforcement of contracts and show that it is typically associated with higher costs for entrepreneurs and is often inefficient compared to courts. Empirically, Johnson et al (1999) demonstrate that firms that enforce contracts through repeated interaction are willing to turn down significantly discounted offers from unknown suppliers.

There is a growing body of empirical evidence linking legal enforcement of contracts and property rights to economic performance. Cross-sectional regressions show

⁷ For evidence on importance of law on books for investor protection see, for example, La Porta et al (1998) and Pistor et al (2000).

⁸ For example, Frye and Zhuravskaya (2000) show that shop owners who believe that courts are less effective are more likely to turn to racket for protection.

that countries with a better rule of law tend to grow faster (see, for example, Keefer and Knack (1995), Mauro (1995), and Barro (1997)). Yet, as discussed in section 1.1, determining whether this correlation represents a causal relationship is problematic since countries differ in many ways not captured by regressions. Economists have responded to this problem by focusing on more specific outcomes.

The market for loanable funds is an important example of transactions which rely a great deal on contract enforcement⁹. Analyzing data for 49 countries and using an expert rating of rule of law, La Porta et al (1997) show that better law enforcement is associated with more stock market listings, more IPOs, more minority share holdings and more loans extended to by firms. Pistor et al (2000) complement this research by linking the legal environment to financial market development in 26 transition economies. They find that law enforcement is not only associated with greater market capitalization and private credit, but also appears to have stronger links with them than law on books. Demirguc-Kunt and Maksimovic (1998) analyze data on individual firms located in 26 countries. Their results show a positive relationship between countries' law and order index on the one hand, and firm-level growth and proportion of investment financed by stock market borrowing on the other.

As already discussed, these results are obtained from cross country comparisons, where identification can be difficult. One way of addressing this problem is to use firm surveys in collecting information about law enforcement. Johnson et al (2002) asked firms in five transition economies whether they believed that courts could enforce agreements with customers or suppliers. They then link these responses to the share of profits that firms reinvest. They find that firms that do not believe that courts are useful invest significantly less than others, even after controlling for all country specific industry characteristics using a set of interacted dummy variables.

As the authors themselves point out, subjective assessment of law enforcement gives rise to the possibility that unobserved firm level characteristics, such as opti-

⁹ Loanable funds are important because they allow firms to invest: see, for example, Levine (1997) and Rajan and Zingales (1998) for evidence on the effect of financial market development on economic growth.

mism, drive results. A paper by Chemin (2004) addresses this issue by focusing on an objective measure of judicial performance in the context of India. Using cross state variation in the speed of courts, he finds that firms located in regions with faster courts are less likely to face breach of contract, more likely to make relationship specific investments, face a greater probability of receiving credit, and are less likely to have a dynastic ownership structure.

Put together, this jigsaw of papers shows that better courts lead to improved economic performance. Although causality has been difficult to establish, over time this young literature has achieved substantial progress in making the empirical results more convincing.

1.2.2 Design of judicial institutions

Having established a link between courts and economic performance, it is important to understand what determines the quality of law enforcement.

The literature on performance of politicians provides some useful insights. It suggests, both theoretically and empirically that organization of political institutions and government bureaucracy has real effect on behaviour of public officials (see Persson and Tabellini (2000) for a review of theoretical models; Persson and Tabellini (2003) and Besley and Case (2003) for cross-country and within country empirical evidence, respectively).

Economists have not analyzed the design of judicial institutions nearly as much, although there has been a substantial informal discussion of this in legal and political science literatures. First rigorous attempts to study the design of the court system were made by researchers working in the area of law and economics. Many of those results are summarized in Kornhauser (2000a), (2000b). Below I combine some of the more recent literature with major early findings in an attempt to take stock of economists' collective knowledge of how the structure of judicial institutions shapes their performance.

1.2.2.1 Judicial discretion and mandate

A casual look at legal systems around the world reveals two broad approaches to defining the mandate of judges vis-a-vis that of the legislators: common law and civil law. While under common law judges are meant to engage in law-making using the power of the precedent, in civil law countries, the legislator produces detailed codes to which the judges adhere in their disputes. Thus, civil law judges typically have less discretion than their common law counterparts, and do not have a formal mechanism which would elevate their decisions into a standard for subsequent referral.

Glaeser and Shleifer (2002) develop a model to compare the two systems. They argue that, relative to civil law, common law allows more flexibility and protects firms from undue interference from the government. On the other hand, under the system of civil codes judicial decisions are less susceptible to influence (bullying or corruption) from potential litigants. Therefore, which system is optimal for a particular society depends on whether it is the government or the individual litigants that are more likely to distort law enforcement relative to welfare optimum. Gennaioli (2005) extends this comparison by modelling contracting decisions of firms under each regime. In a similar spirit, he concludes that the choice of the legal system involves a trade off between potential legislative bias under civil law and potential judicial bias and incompetence under common law.

These theories suggest that societies may have chosen to adopt one of the two major legal systems depending on particular conditions that they faced. This endogeneity may complicate interpretation of empirical evidence on how legal origins affect economic performance. Comparison of countries reveals that common law systems are associated with lower level of labour regulation and smaller number of procedures necessary to register a new business than civil law ones (La Porta et al (2004)). La Porta et al (1998) construct indexes capturing various aspects of laws governing shareholder and creditor rights in 49 countries. They find that law on books of the civil law countries, particularly those of French origin, provides less protection to shareholders and creditors. Consistent with this, in their 1997 paper, the same authors find that countries

with the French civil law system have less developed debt and equity markets.

Enforcement also appears to be less effective under civil law of French origin than under common law. Djankov et al (2003) construct an index of formalities involved in first, collecting a check and second, evicting a tenant through courts in 109 countries, and show that countries with French and Socialist legal origins are more 'formalistic' than others. They proceed to demonstrate that higher judicial formalism is associated with slower judiciary and lower confidence in the court system among firms.

Berkowitz et al (2003) argue that the process of adoption of one of the four legal systems (English common law, French, German or Scandinavian civil law) has varied substantially across countries: some have put more thought and effort into adapting the borrowed legal system to local conditions than others¹⁰. In a cross-sectional comparison of 49 countries (same as those used in La Porta et al (1998)) they show that economies that poorly adapted the borrowed legal system to their specific environment tend to have a lower index of overall legality and lower output, after controlling for legal origin¹¹. This study complements the argument of Glaeser and Shleifer (2002) that the effectiveness of a particular legal system depends on specific conditions that prevail in the society.

Courts are not the only agencies engaged in enforcement of law: so are regulators. There is a growing literature investigating which of these two institutions does a better job. Economists have long argued that regulatory process is often captured by interest groups (see Stigler (1971) among others). However, when analyzing relative incentives of judges and regulators, Glaeser et al (2001) and Glaeser and Shleifer (2003) argue that regulators may perform better because they can be incentivised to act in public interest¹². Judges, by design, do not face performance related incentives,

¹⁰ A study by Pistor et al (2003) further illustrates these differences. It describes the process of 'transplantation' of corporate law from three legal families in six countries (Spain, Chile, Columbia, Israel, Malaysia and Japan) and contrasts evolution of corporate law in these economies to that in countries where the transplants had originated.

¹¹ Identification may be particularly difficult here since both legality and receptiveness of transplant are subjective variables, and the distinction between them can be rather fine. However, authors do control for countries being a member of the OECD, and experiment with different definitions of an 'unreceptive' transplant.

¹² However, the roles of the regulator and the judge are not exactly symmetric: in most countries deci-

and therefore, are less likely to invest costly effort and are more susceptible to capture by litigants than regulators (more on this in section 1.2.2.2)¹³.

Xu and Pistor (2002) complement this research with the observation that when law is incomplete, the functions of the regulator and the judiciary differ in a fundamental way: regulators often intervene preemptively, while judges only enforce laws after a violation has occurred. They argue that such failure to deter is a weakness of law enforcement by courts, and is especially costly when violations lead to significant harm (for example when they result in externalities). Similar to Glaeser et al (2001) they show that the drawbacks of regulation is overzealousness and stifling of harmless activities. They conclude that adjudication should be preferred to regulatory enforcement in areas of law where harm does not involve large externalities and violations follow a predictable pattern.

The relationship between judges and the legislator deserves a further comment. The theory of common vs. civil law, such as that in Glaeser and Shleifer (2002), and that of incomplete law (Xu and Pistor (2002)) implicitly view the roles of the legislature and the judiciary as substitutes (albeit imperfect). In absence of detailed laws, judges use discretion to make decisions; when laws become more specific, this discretion is removed, at least partly.

There is some evidence to support this notion. Using case study evidence for Poland, Russia and Germany, Pistor and Xu (2002) illustrate how courts fill in gaps left by the legislation in the area of conflicts between management and shareholders of firms. Kessler and Piehl (1998) analyze how judicial decisions are affected by a new Californian law providing for higher sentences for certain types of crimes. They find that judges increase sentences not only for crimes covered by the provision, but also for other similar type crimes¹⁴. Turning to interest groups, Shapiro (1995) describes

sions of regulators are subject to a judicial review.

¹³ Glaeser et al (2001) illustrate this by contrasting enforcement of securities laws in Poland and Czech republic. They argue that Poland has been more successful in preventing shareholder rights violations because it adopted more stringent requirements on informational disclosure of firms and used a regulator rather than judiciary to monitor compliance with securities laws.

¹⁴ Cooter and Ginsburg (1996) also find evidence in the US that of more powerful legislatures are associated with lower degree of judicial discretion.

that in the US they increasingly view legislation and adjudication as alternative means of achieving preferred outcomes.

The stock of literature discussed above identifies issues which are important in deciding how much powers to give to judges vis-a-vis legislators and regulators. Taken together, these papers show that ultimately, the optimal judicial mandate depends on particular circumstances prevailing in the society (e.g. top-level vs. low-level corruption), and the specific policy that is being implemented. One of the important implications of this literature is that the optimal design of the judicial mandate depends on other institutions that are in place. For example, those shaping behaviour of the legislature and regulators. There is scope for exploring this issue more explicitly, both theoretically and empirically.

1.2.2.2 Incentives and selection of judges: Independence vs. accountability

Several theoretical papers discussed above assume that judges may ‘underperform’ because of particular incentives that they face. This section summarizes what we know about rules that govern judges and the effects these rules have on judicial performance.

Most countries built their judicial system around the idea that in order to be impartial it must be independent. That is the well-being of judges must not depend on decisions they make. This principle has been deeply imbedded in philosophy of law, going back to the work of Montesquieu (1748).

Typically, arrangements that ensure independence, at the same time make it difficult to hold judges accountable for their decisions. Thus independence can backfire when objectives of judges do not coincide with social welfare. This conflict has been discussed at great length in legal literature (see, for instance, Cappelletti (1985)).

Maskin and Tirole (2004) model the trade-off between accountability and independence of judges. They contrast a system in which judges face re-elections after some period to one in which they have permanent tenure from the start. They show that when judges do not face a review by the electorate, the system can generate inefficient outcomes if preferences of judges are not congruent with social welfare. Elections

help alleviate this by providing judges with the right incentives if electorate is well informed. However, when electorate is uninformed, the judges who face reelections may pander to voters instead of making welfare maximizing choices.

La Porta et al (2004) look for empirical evidence on effects of judicial independence on legal environment. They code provisions for judicial tenure and power of judges to create legal precedent into an index of judicial independence for 71 countries. They find that countries with higher measure of judicial independence have a higher index of property right protection against government interference, controlling for per-capita income, geography, and ethnic fragmentation.

The use of cross-country variation here with somewhat subjective indexes on both sides of the regression equation raises standard identification issues. The search for institutional variation within a relatively homogeneous setting has led economists to the United States. The presence of alternative arrangements for judicial retention across American state courts have become the focus of a number of papers investigating the effect of judicial (in)dependence on law enforcement.

Only three of the US states appoint judges for life. The rest use one of five different retention methods: partisan elections (candidates are put forward by parties and campaigning allowed), non-partisan elections (anyone can run), merit plan elections (population votes to retain the judge: 'yes' or 'no'), gubernatorial reappointment, and legislative reappointment (see Hanssen (2004b) for a detailed account of these procedures and how they emerged)¹⁵. Although effects of these procedures have not been modelled formally, legal scholars argue that they differ substantially in the ease with which a judge can be removed.

In an early paper comparing criminal proceedings across state courts, Elder (1987) shows that courts that subject judges to partisan re-elections generate more criminal trials and less guilty pleas than other courts. He argues that although settlement by a guilty plea is often more socially desirable, in the states with re-elections judges are

¹⁵ Appointment methods also fall under these five categories, but there is a significant number of states that use different methods to appoint and retain judges.

less inclined towards them because they are less visible than trials which can be used to communicate information to the voters.

Besley and Payne (2003) group the five retention methods into two categories: reappointment by politicians and re-election. Using both cross-sectional and over time variation, they analyze the effects of these two procedures on employment discrimination charges filed by workers with state courts. They find that courts where judges face re-election attract more filings, and show analytically that this is consistent with judges in such courts favouring workers more than judges who work in courts with reappointment.

In a cross-sectional comparison, Hanssen (1999) finds that the number of disputes is higher in states where judges are appointed, which he shows is consistent with there being more uncertainty associated with decisions of these judges. In a 2000 paper he also shows that in states where judges are appointed administrative agencies tend to hire more staff than in states where judges are elected.

Taken together, these papers show that judges who face elections behave differently from those who are reappointed by politicians. The rare natural experiment in retention procedures across the US state courts has made this powerful insight possible. However, a look at how judges are retained across the world reveals that elections constitute an exception rather than common practice. In countries where judges do not have a permanent tenure, they are usually re-appointed by the government and/or by a special committees (see, for instance, Skordaki (1991) and Thomas (1997) for surveys of judicial appointment and retention methods around the world).

How incentives of judges who face reappointment by politicians differ from those of judges with permanent contracts is more of an open question. These differences have not been modelled theoretically¹⁶. Empirical evidence is also not extensive: Besley and Payne (2003) show that significantly less employment discrimination charges are filed with courts where judges are appointed for life. At the same time, Landes and

¹⁶ When politicians fully represent the electorate, appointment of judges by politicians is equivalent to direct election. However, the results summarized above show that the effects of the two procedures differ.

Posner (1980) do not find any effects of tenure of judges on their citations.

Some insight into how political re-appointment affects judicial behaviour can be gained by looking at empirical evidence on promotion of judges. Ramseyer and Rasmusen (1997) analyze which judges get promoted in Japan, where, they argue, the government controls promotion decisions. They show that judges who belong to professional organizations with leftist views are less likely to get prized jobs in late career. They also find some evidence that judges who have ruled against the government are less likely to get promoted, although this effect is not entirely robust to the definition of promotion. Cohen (1991) analyzes 200 decisions of the US district court judges on constitutionality of the US Sentencing Commission, which gave the government more control over criminal sentences. He finds that judges who faced exogenously higher number of positions for potential promotion voted against the Sentencing Commission significantly less frequently than their colleagues with lower promotional opportunities¹⁷. Blanes i Vidal and Leaver (2005) follow careers of 54 High Court judges in the UK and find evidence that the probability of promotion is lower for judges who rule against the government more frequently.

When politicians have the powers to appoint judges, they can also influence law enforcement by selecting judges with certain characteristics. Around the world judges are appointed by a variety of methods, typically involving the legislative or executive branches of the government or both. Selection procedures for judges have been subject to recent policy debates in a number of countries (see, for example, Kendall (1997) and Malleson (1997)).

Empirical evidence on the effect of selection procedures has again been focused on the United States, where these procedures vary in state courts. The evidence on differences between legislative and executive appointment of judges is limited to very few early papers, such as Canon (1972), and Glick and Emmert (1987). These compare characteristics of judges selected by different methods using association tables.

¹⁷ Promotional potential, measured as the quota of appellate court seats reserved for district judges, varies by state, and not by judge. Therefore, the significance of the reported coefficient may be overstated (see Moulton (1990)).

They find that the legislature typically chooses judges with different professional backgrounds compared to those selected by the executive branch (or elected by a popular vote). Ashenfelter et al (1995) ask whether the political affiliation of appointing president has an effect on judicial decisions, and do not find one in the data from two federal courts. At the same time, Revesz (1997) shows that judges appointed by Republican presidents find in favour of industry more frequently than judges appointed by Democrats in environmental disputes heard in the D.C. Circuit¹⁸. Besley and Payne (2003) look at state courts that changed their selection method from elections to political appointment or vice versa. They do not find differences in the volumes of employment disputes these courts attract before and after the change.

Insights into the potential of selection procedures to influence law enforcement can be provided by studying the impact of individual characteristics of judges (such as political affiliation) on their decisions. However, most of such studies have not addressed the issue of endogenous selection into litigation which can severely undermine identification. The exception is Ashenfelter et al (1995), who compare decisions of judges who work in the same court but belong to different political parties: they find no statistically significant differences between them.

The presence of ideology behind judicial decisions is shown in Ichino et al (2003) and Marinescu (2004). Their analyses of employment disputes in Italy and in the UK, respectively, show that judges exhibit a tendency to side with litigants that are disadvantaged by macroeconomic conditions^{19,20}.

To summarize, the analysis of judicial selection procedures has been rather limited. To my knowledge, there is no theoretical literature on how differences in appointment procedures affect law enforcement. Empirical evidence, summarized above is also rather restricted and somewhat contradictory. The two most widespread meth-

¹⁸ Specific rules governing disputes considered in both papers help alleviate selection concerns (see section 1.1).

¹⁹ Marinescu (2004) finds that not only workers win more often when unemployment is high, but also firms win more often when bankruptcy rate is high and the worker involved in the dispute already has a new job.

²⁰ For details of how Ashenfelter et al (1995), Ichino et al (2003) and Marinescu (2004) deal with endogenous selection see section 1.1.

ods of judicial selection, by executive government and by legislature, have hardly been compared. The use of committees to appoint judges, a recent policy issue in several countries, has not been studied rigorously so far.

1.2.2.3 Endogenous judicial institutions

Ultimately, if the rules that govern courts, such as those of retention and selection can affect the way laws are enforced, politicians can influence judges by virtue of being able to design these rules. In their early paper, Landes and Posner (1975) argue that since judges can affect the rents collected by politicians, the latter will select institutional features of the judiciary strategically. They then show that politicians may still choose the judiciary to be independent, for the fear that a controlled judiciary may overrule their policies once a new government comes to power.

Hanssen (2004a) develops this idea further. He argues that when political incumbents face strong competition from other contenders with divergent political views, they will choose the judges to be independent, in line with Landes and Posner (1975). However, if authorities feel that they are unlikely to be unseated by competition, they will choose rules that help them control judges. Empirical analysis relates both cross-sectional and over time differences in how states retain judges to variations in political competition in these states. The results show that states where the ruling party has a low majority in the legislature and has interests that substantially diverge from those of the opposition are more likely to switch to the merit plan — a reappointment rule which, the author argues, makes it most difficult to remove judges.

1.3 Concluding remarks

The literature summarized above leaves little doubt that judiciary plays an important role among institutions affecting economic development. Summarizing, the following four observations emerge.

First, there is a significant link between the quality of the judiciary, and economic development. Better court performance is associated, in particular, with more lending

and investment.

Second, different legal systems grant the judiciary different degrees of influence vis-a-vis legislators and regulators. How much discretion should be given to judges depends on the particular issue which is at stake as well as on the incentive structures in place for judges, politicians and regulators. An important insight here is that the optimal design of judiciary depends on other institutions, such as those controlling politicians and bureaucrats. Empirically, cross country comparisons show that countries where judges enjoy more freedom have better developed financial markets.

Third, evidence from the US on retention procedures for judges unambiguously shows that judges respond to incentives. This casts a very strong doubt on the idealistic view that judges are motivated purely by considerations of social welfare.

Fourth, there theoretical findings and some empirical evidence suggesting that politicians actively try to influence law enforcement, whether through retention and promotion, or by designing judicial institutions in ways that benefit their interests. There is scope for making this evidence more precise and extending it to other contexts, as well as for a deeper theoretical understanding of how different political offices can affect law enforcement when given access to a particular instrument of controlling judges.

Most of the research discussed above is rather young. The first empirical papers on implications of property right enforcement for economic performance are barely ten years old. Interpretation of initial results in these papers as well as early papers on organization of courts has been hindered by identification issues. However, recent contributions have made progress towards more robust estimation.

As discussed in the first paragraphs of this chapter, this thesis contributes to the existing literature on law, institutions and economy in the following ways. Chapter 4 lends new evidence to the view that law enforcement has a real impact on economy. It focuses on the effect of court predictability on decisions of banks and suppliers to lend to firms, models it analytically and then estimates it using new data on credit received by individual firms and on performance of Russian courts in regions where these firms locate.

Chapter 3 contributes to our understanding of how politicians may influence law enforcement through selection of judges. It compares two procedures most often used across countries: appointment by the legislature and appointment by the executive government. I model theoretically incentives of the legislator on the one hand and the executive on the other when each is in charge of appointing judges. I collect data on decisions of individual judges selected by different methods in Russian commercial courts. The study analyzes these data to show that judges selected by the legislator tend to favour small firms more than those selected by the executive.

Finally, chapter 2 develops an approach which allows me to characterise performance of judges in an objective way that is robust to some of the problems surrounding assessment of law enforcement. Since subsequent chapters draw on this approach, chapter 2 opens this thesis, followed by the study of judicial selection in chapter 3, and the impact of courts on firms' access to finance in chapter 4.

Chapter 2

Judicial policy preferences in Russian commercial courts

2.1 Introduction

When the World Bank asked Swedish firms to evaluate their country's judiciary, seventy percent said it was reliable. In contrast, in Kazakhstan only fifteen percent of respondents felt the same way²¹. Large differences in perceived quality of law enforcement are observed around the world, as well as within its regions and within individual countries²².

There is a growing body of empirical literature that relates disparities in countries' economic performance to differences in law enforcement and shows that the two are strongly linked. These papers have put legal institutions firmly on the agenda of economic research.

These studies measure law enforcement using expert ratings or survey opinions. Since such measures are often subjective, hypothetical, and unspecific there is concern that they proxy for other factors, and that their relationship with economic development is spurious.

This chapter addresses the issue of measuring quality of law enforcement in a more objective and precise manner. I develop a model of judicial decision making in a two-tier hierarchy of courts, based on the premise that lower courts may differ from courts of appeal along two dimensions: policy preferences and competence. The model shows that relative policy preferences of a lower court can be identified by comparing

²¹ See The World Bank (2000).

²² For example, a Wall Street Journal index of rule of law for Eastern and Central European countries varies from 1 (the worst, in Tajikistan) to 9 (Hungary and Poland) (see Pistor et al (2000)).

reversal rates of decisions favouring different types of litigants. The residual reversal rate then measures the competence of the lower court relative to the court of appeal.

I then use this approach to analyze performance of commercial courts in Russia, where the lack of reliability of the legal system is often seen as a major obstacle to growth (see, for instance, Krueger (2002)). This investigation is based on a new dataset I collected of approximately 5,700 decisions by regional commercial courts made between 1995 and 2002. These data were matched with the size of firms involved in disputes, and characteristics of regions where the courts are located.

The main empirical finding is that, relative to appellate courts, Russian regional courts display a preference in favour of *small* firms, both in disputes with government branches and large enterprises. This result sheds a new light on the debate about whether Russian legal system is controlled by the government and large firms. My findings show that if such influences exist, they primarily work through the law on books and the top courts, while regional courts are relatively friendly to small enterprises.

I also show that the degree of competence of Russian commercial courts varies substantially across regions. Relating this variation to regional factors, I find that court performance is better in regions with freer media and is worse in regions with oil or gas production. There is scope for making identification of these links more precise should more detailed data become available.

This chapter has been inspired by and contributes to research on relationship between the legal environment and economic performance, much of which was already discussed in chapter 1 of this thesis. Keefer and Knack (1995) was one of the first papers to find a link between institutional features of countries, including the rule of law, and economic growth. Focusing on a more specific aspect of economic performance, La Porta et al (1997), and Demirguc-Kunt and Maksimovic (1998) show a connection between the legal environment and the development of financial markets. All three papers use a rule of law index, compiled by International Country Risk Guide, a service for investors.

Johnson et al (1999, 2002) survey firms in five post-communist countries and find a positive relationship between firm-level external finance and investment and firms' reported confidence in courts. Pistor et al (2000) show a link between legal environment and country-level external finance in transition economies. They measure law enforcement using the EBRD legal effectiveness rating, and the World Bank firm survey responses.

As already mentioned, it can be difficult to draw further implications from these results, because they use subjective measures of law enforcement. First, it can be hard to disentangle what the ratings and surveys are actually measuring. Survey evidence on confidence of firms or experts in legal system can proxy for general trust in the way the society is governed, or the innate pessimism of respondents²³. The empirical link between perceived quality of courts and economic outcomes may then stem from such factors rather than law enforcement. Second, interpretation of obtained regression coefficients on law enforcement ratings is not always clear. Third, because ratings and survey questions are often very general, they make it hard to identify specific mechanisms that underlie the link between courts and economy, and to draw precise policy implications.

A number of studies have considered more objective measures of law enforcement. Linking courts to trade credit, Johnson et al (2002) asked firms whether they used courts to resolve their last dispute. Koford and Miller (1995) ask the same question in Bulgaria, Frye and Zhuravskaya (2000) – in Russia. Lambert-Mogiliansky et al (2000) show a link between bankruptcy decisions of Russian courts and the power of regional governors. Chemin (2004) finds that firms receive more financing and make more relationship-specific investments in Indian states where courts work faster.

Whether such objective measures reflect the true performance of courts depends critically on the subset of disputes that reach litigation²⁴. Since selection of disputes

²³ The latter is often referred to as 'kvetch factor' (see Kaufmann and Wei (1999)).

²⁴ Survey evidence indicates that a large fraction of disputes are settled out of court. Simachev (2003) reports that half of Russian firms say they use litigation, while 80% say they use negotiation to resolve economic disputes. Across five transition economies, Johnson et al (2002) show that the share of firms that had used a court in their last dispute varies between 30% (Romania) and 67% (Ukraine).

for litigation is endogenous to court quality, without explicit treatment of such selection process, it can be difficult to interpret these measures.

In this study, I directly address the issue of selection. I show that relative preferences of regional court judges can be identified even in presence of endogenous selection such as that generated by divergent expectations of parties about the outcome of the case.

In developing a theory of judicial decisions and their reversal by higher courts, I have been inspired by a theoretical paper by Spitzer and Talley (2000) on judicial hierarchies. I use a somewhat simpler framework, and introduce endogenous selection of disputes into litigation, which is the main contribution of my model in relation to theirs. To analyze selection, I build on the idea of Priest and Klein (1984) that two parties litigate when both face enough uncertainty about the outcome of a potential court case. I show that the data on Russian commercial disputes is consistent with such model of selection.

Empirically, reversal rates have been used as a proxy for quality of judges by Higgins and Rubin (1980) and Posner (2000), in the context of the US courts. However, they do not analyze theoretically how reversal rates are determined, and why they can serve as a measure of lower court performance²⁵.

Several empirical studies have previously touched upon the attitudes of Russian judges. Surveys by Frye and Zhuravskaya (2000), Simachev (2003), and Frye (2004) have asked Russian firms about their chances of winning in courts. In all three studies, more firms trust the courts to protect them in disputes with other firms than in disputes with the government. This chapter presents the evidence on revealed behaviour of courts and firms, thus helping make our understanding of the interaction between firms, the government and the legal system in Russia more precise.

The chapter is organized as follows: Section 2 develops the analytical approach

²⁵ Higgins and Rubin (1980) ask whether the age and experience of judges have an effect on quality of their decisions, and do not find one, using the data on district court judges of the 8th circuit court in 1974. Posner (2000) compares reversal rates for the circuit courts of appeal to argue that the 9th circuit systematically performs worse than the rest.

for characterising judicial preferences and competence using reversal rates. Section 3 provides background on Russian commercial courts. The data are described in Section 4. Section 5 presents empirical analysis. Section 6 concludes.

2.2 Analytical framework

In this section, I develop a model of judicial decision making with two levels of courts: lower and appellate. It is based on the premise that lower court judges differ from appellate ones along two dimensions: *policy preferences* and *competence*. The model treats the selection of disputes into litigation as endogenous to these judicial characteristics. It assumes that both sides of a dispute face uncertainty about the outcome of the potential court case.

There are two results: first, differences in policy preferences of lower and appellate court judges can be identified by comparing the reversal rates of the lower court decisions in favour of different outcomes. Second, when the two courts have the same policy preferences, the rate at which decisions of the lower court are reversed is a decreasing function of the lower court's competence.

2.2.1 Set up

Consider a dispute between a firm and a government agency. The latter believes the firm owes it an amount V , and threatens the firm with a court case. Let Y be the true strength of the government's case against the firm (that is, the impact on welfare of letting the government win). I assume that Y is random with mean \bar{Y} . Neither party observes Y directly. Instead, the firm and the government receive signals $Y + \phi$ and $Y + \gamma$ respectively, where ϕ and γ are noise with the same symmetric distribution around the mean of zero. In response to the government's threat of litigation, the firm makes a take-it-or-leave-it settlement offer. The government decides either to accept the settlement or to litigate. Assume that if the parties litigate in the lower court, they do not update their priors about Y after the lower court decision. Let c be each party's total costs of litigation, both in lower and appellate courts. I assume that these costs

are the same for both parties.

There are two tiers in the court system: the lower court and the appellate court. The lower court judge, if called upon to resolve the dispute, also does not observe the true case against the firm, but instead receives a signal $Y + \nu$. Assume that noise ν has a distribution $f(\nu)$ with mean 0. The lower is the variance of noise ν , the better the judge is at assessing the true circumstances of the case. I will, therefore, say that the judge is *more competent* when the variance of the noise component of his signal is lower.

Let d be a decision standard of the lower court judge. It is equal to the minimum strength of the case against the firm the judge must observe to decide in favour of the government. Thus, he decides in favour of the government if $Y + \nu \geq d$, and in favour of the firm if $Y + \nu < d$. Interpret d as capturing law on books on the one hand, and preferences of the lower court judge regarding government intervention with firms on the other. The more *laissez-faire* the law, the more evidence the judge needs to see to decide favour of the government. Keeping the law fixed, the judge that has a less interventionist stance will require more evidence against the firm in order to uphold the government's claim.

The appellate court judge, if faced with the dispute, observes the true case against the firm Y . This assumption embodies the notion that appellate courts are typically more competent than lower courts.

Let the decision standard of the appellate court judge be called D . The appellate court judge makes a decision in the same way as the lower court: by comparing the case against the firm with his decision standard. Since both courts face the same set of laws, the difference between their standards captures divergence in their *policy preferences*: when $d - D > 0$, the lower court judge favours the government less than the appellate court judge, and vice versa.

Define *reversal* as an instance when the decision of the lower court judge in favour of the firm is overruled by the appellate court's decision in favour of the government, or vice versa.

Here is the timing of the model (also depicted in Appendix 2.A):

1. In response to the government's threat of litigation, the firm makes a take-it-or-leave-it settlement offer. The government decides either to accept the settlement or to litigate.
2. If the case is litigated, the lower court judge makes a decision in favour of one of the parties.
3. After the lower court decision, the loser threatens the winner with appeal. The winner makes a settlement offer, which the loser either accepts or rejects and goes to appeal instead.
4. In the latter case, the appellate court judge makes a decision in favour of one of the parties.

2.2.2 Analysis

The firm and the government use their respective signals to independently estimate the probability that the firm will win the court case. Based on this probability, the firm makes a settlement offer to the government to prevent litigation. Its maximum offer is its expected loss from litigation. The minimum offer that the government accepts is its expected gain from going to court. The settlement talks breakdown and the dispute is litigated when the latter is greater than the former²⁶.

Since the same information is available to the parties before and after the lower court decision, if a dispute is litigated in the lower court, it will also be subsequently litigated in the court of appeals. Therefore, the only decision that matters for the expected payoffs of the two parties is that of the appellate court. Therefore, expected loss of the firm is

$$[1 - p(Y < D|Y + \phi)]V + c, \quad (2.1)$$

whereas expected gain of the government is

$$[1 - p(Y < D|Y + \gamma)]V - c. \quad (2.2)$$

²⁶ This is based on Priest and Klein (1984).

Thus, the dispute is litigated when (2.2) > (2.1), which simplifies to

$$p(Y < D|Y + \phi) - p(Y < D|Y + \gamma) > \frac{2c}{V}. \quad (2.3)$$

Since the noise with which each party observes the true case against the firm is symmetrically distributed around 0, the probability that (2.3) is satisfied is the same for any two disputes with Y 's symmetrically located around D . Thus, the probability of litigation for every Y is distributed symmetrically around D .

If the dispute is litigated, the lower court decision may be reversed at appeal for two reasons: either because the lower court judge made an error regarding the true strength of the government's case against the firm, or because he has a policy preference which differs from that of the appellate court judge²⁷. The following assumption gives the condition under which reversals driven by differences in preferences can be separated from reversals driven by errors, using only the information on decisions of the two courts.

Assumption 2.1 $f(\nu)$ is independent of Y .

It states that the probability distribution of errors of the lower court judge is independent of the true strength of the government's case against the firm.

Proposition 2.1

If the lower court judge favours firms in disputes with the government more than the appellate court judge (i.e. $d > D$), the probability that the decision of the lower court judge is reversed at appeal is higher if this decision were in favour of the firm than if it were in favour of the government, i.e. $p(Y > D|Y + \nu < d) > p(Y < D|Y + \nu > d)$, and vice versa, as long as the variance of noise faced by the litigating parties is not too large relative to $1/|D - \bar{Y}|$.

²⁷ This analysis has been inspired by Spitzer and Talley (2000) paper on judicial hierarchies.

The proof of Proposition 2.1 is in Appendix 2.B. The intuition is the following. Let the lower court judge favour firms more than the appellate court judge. When the decision of the lower court is in favour of the government, the only reason for it to be reversed on appeal is if the lower court judge mistakenly overestimated the case against the firm from the observed evidence (this occurs when $Y < d$, but $Y + \nu > d$). If, however, the decision of the lower court is in favour of the firm, it may be reversed for one of two reasons, depending on the value of Y : either the lower court judge made a mistake in interpreting the evidence and underestimated the true government's claim against the firm (i.e. $Y > d$, but $Y + \nu < d$) or the appellate court's policy preferences imply that the government's case is strong enough to let it win, while the lower court's policy preferences do not (i.e. $D \leq Y < d$ and $Y + \nu < d$). Since the distribution of the lower court's errors is independent of the true strength of the government's claim (assumption 2.1), the probability of a reversal is greater if the lower court's decision is in favour of the firm.

Thus, empirically differences in policy preferences of the lower and the appellate court judges can be identified by comparing reversal rates for decisions in favour of firms to those for decisions in favour of the government.

The relative degree of competence of the lower court judge is also reflected in the reversal rate of his decisions:

Proposition 2.2

When preferences of the two courts are the same ($d = D$), the probability that the lower court decision is reversed is lower for more competent judges, i.e. for those with a lower variance of signal noise ν .

To see this note that when the preferences of the two courts are the same, the probability that a case is reversed is

$$p[(Y > D) \cap (Y + \nu < D)] + p[(Y < D) \cap (Y + \nu > D)]. \quad (2.4)$$

For $Y > D$, higher variance of the lower court signal leads to a higher probability that the lower court will make the wrong decision, $p(Y + \nu < D)$. Symmetrically, for $Y < D$, higher variance of ν leads to higher $p(Y + \nu > D)$. Thus, when $d = D$ the reversal rate falls as the lower court competence increases.

Empirically, this implies that once we control for differences in preferences of lower and appellate court judges, the level of competence of the lower court can be measured by the residual reversal rate.

2.2.3 Discussion

In the past, studies have compared decisions made by different judges in attempts to understand how characteristics of judges or courts affect judicial policy preferences (for example, Eisenberg and Johnson (1991) and Lambert-Mogiliansky et al (2000) among others).

The approach I develop here is also based on comparing decisions of two types of judges: those of the lower court and those of the court of appeals. Yet, it differs from the earlier studies in two important ways.

First, when decisions of different judges (or courts) are compared for different sets of cases, it may be difficult to identify differences in policy preferences of judges from differences in unobserved characteristics of cases handled by them. In the approach developed here, the lower and appellate court decisions are compared for the same case. Therefore, differences in decisions are not due to unobserved case characteristics, as those are the same.

Second, when judicial policy preferences are known to potential litigants, they will use this information to decide whether to litigate or to settle a dispute. Therefore, characteristics of disputes dealt with by different judges depend on their policy stance. This undermines substantially a researcher's ability to identify relative policy preferences of judges by comparing their decisions. Appendix 2.C gives an example of how such identification can breakdown. In contrast, identification of judicial preferences

using reversal rates is robust to court cases being endogenously selected²⁸.

The limitation of the present approach is that policy preferences of the lower court judge are characterized in relation to those of the appellate court, rather than in relation to what is socially optimal. Therefore, one should exercise great caution before drawing welfare implications from such analysis. Any such conclusions would critically depend on whether policy preferences of lower courts or those of appellate courts were more aligned with social welfare.

2.3 Russian commercial (*arbitrazh*) courts²⁹

Economic disputes between firms, individual entrepreneurs and the state fall under the jurisdiction of Russian *arbitrazh* courts. These are professional courts organized in a three-tier structure: courts of first instance (regional courts), appellate courts (*okrug* courts), and the Supreme Arbitration Court.

Regional courts were created in 1991 in 81 of Russia's 89 administrative regions. They replaced the Soviet system of arbitration tribunals which had dealt with conflicts between state-owned enterprises under central planning. Although the old name was kept, the new system was set up quite differently from the Soviet one³⁰.

The jurisdiction of each regional *arbitrazh* court coincides with the administrative borders of the region³¹. The plaintiff is required to file his suit in the *arbitrazh* court of the region where the *defendant* is officially registered, preventing 'venue shopping'. Each case is heard by a single judge, with the exception of bankruptcy suits and suits to invalidate a government sanction. By law, these are heard by at least three judges

²⁸ I only focus on one model of selection, that of divergent expectations. Its main assumption of double-sided uncertainty seems more appropriate in commercial disputes than that of asymmetric information, the main alternative model. Furthermore, the divergent expectation model has an easily testable limiting implication: as uncertainty goes to zero, plaintiffs win in 50% of litigated cases. In section 2.4, I show that my data conform closely to this prediction. Studies analyzing commercial disputes in other countries also find a similar pattern (for example, Siegelman and Waldfogel (1999)).

²⁹ This section contains the description of Russian commercial courts prior to 2003, the period relevant to this study. In 2003, Russian government introduced a number of changes to the system. I do not discuss them here.

³⁰ See, for instance, Hendley (1998).

³¹ The exceptions are eight regions which do not have an 'own' court.

together.

Litigants unhappy with a decision of the regional court can appeal it to a corresponding okrug court of appeals, of which there are ten in total^{32,33}. These courts were established in 1995. The jurisdiction of each appellate court includes from 7 to 11 regional arbitrazh courts³⁴. In contrast with regional courts, all cases filed with courts of appeal are tried by at least three judges. There are no restrictions on the types of cases that can be appealed. Between 1995 and 2002, litigants took roughly 5% of all regional court decisions to appellate courts³⁵.

Litigants can appeal decisions of okrug courts further to the Supreme Arbitration Court of Russia. Yet, it selects and reviews only a small fraction of suits filed with it.

In an effort to isolate arbitrazh courts from the influence of regional and local authorities, arbitrazh court system is officially financed solely from the federal budget. Once a judge has been appointed to an arbitrazh court, he has tenure until he retires. The salary of a judge cannot be reduced throughout his career. Although initial appointment procedures for arbitrazh judges differ across regional courts and between regional and okrug courts, most of the time the final selection is done by a federal office from a shortlist of candidates compiled by a committee of judges³⁶. Deciding which judges get promoted is the prerogative of the presidential office, again after a committee of judges had short-listed the candidates.

2.4 Data

The data set combines three types of data. First, the texts of court decisions were obtained from Kodeks, a company supplying legal information. Second, for each case, the litigating firms were matched with their size as given by the Gnozis/Alba database

³² An 'okrug' is a large geographical division in Russia which includes several regions.

³³ Before a decision of a regional court comes into force, a litigant who is unsatisfied with it can also request a re-consideration by a three judge panel of the same regional court.

³⁴ The exception is Moscow okrug court which only covers two regional courts.

³⁵ See The Supreme Arbitration Court (2002).

³⁶ Chapter 3 describes selection procedures for arbitrazh judges in greater detail.

and the Federal Securities Commission³⁷. Third, decisions of each court were matched with selected characteristics about the region in which the court operates, taken from Russian State Statistical Service (Goskomstat) and other sources.

The sample contains 5,760 decisions of 81 regional arbitrazh courts made between 1995 to 2002. All of these decisions had been reviewed by an appellate court. They account for about 4% of all cases heard by appellate courts in this period.

For each dispute, the following information was coded by reading the text of the decision: the identities of plaintiff and defendant, the nature of the dispute, locations of regional and appellate courts, the winner in the regional court, the winner in the court of appeals, and several other variables³⁸. A ‘reversal’ was defined as an instance when a regional court decision in favour of the plaintiff was overruled by a decision in favour of the defendant by the appellate court, and vice versa³⁹.

Table 2.1 shows the number of cases and the average reversal rates over the eight year period covered by the sample. For comparison, it also lists the total number of cases considered by appellate courts in Russia (‘population’) and the corresponding reversal rates for each sample year⁴⁰. Both the sample, and the population data show a downward trend in reversal rates, suggesting that judges are learning over time.

Types of disputes covered by my data are in table 2.2. I group all cases into five broad categories: contract (the biggest category), tax, regulation (customs, environmental, antitrust, price controls, licensing, etc.), ownership (mostly privatisation), and ‘other’ (bailiff actions, bankruptcy, liquidation, damage, etc.). The composition of the sample is close to that of the population of disputes litigated in courts of appeal.

Reversal rates do not differ significantly across types of disputes: only decisions in ownership cases have a rate of reversals significantly higher than the sample mean.

³⁷ A more detailed description of Gnozis/Alba data can be found, for example, in Bessonova et al (2003). Federal Securities Commission, (FKTsB) is Russian security market regulator. For access to its data see <http://www.fcsm.ru>.

³⁸ These include information on whether the parties were present at appeal, whether they took the regional decision to a three judge panel of the same court prior to appeal, and whether one judge or a three judges made the initial regional court decision.

³⁹ Cases in which regional court awarded partial relief were classified as reversed if the appellate court substantially changed the award. The number of such partial relief cases is very small.

⁴⁰ Aggregate statistics is obtained from The Supreme Arbitration Court (2002).

For four out of five listed categories the fraction of plaintiff victories in the lower court is not statistically significantly different from 50%. This coincides with the limiting prediction of Priest and Klein (1984) model. This points at the fact that divergent expectation process is likely to be driving selection into litigation here⁴¹.

Table 2.3 lists participants of these disputes, including government offices of the three levels of Russian state hierarchy: federal, regional and local⁴². *Federal government* category includes all state offices and departments which are a part of or report to the executive branch of the federal government in Moscow. These include tax authorities, anti-trust regulators, environmental regulators, etc. Litigants classified as *regional government* are those which are a part of or report to the executive branch of a regional government of each of 89 Russia's regions. These include regional governor's office, regional ministries of finance and economy, regional registration chambers, etc. Similarly, the *local government* category is defined to include all offices of city or village authorities.

I divided all firms that participated in disputes into small, medium and large. This was done by matching the disputes to enterprise employment data drawn from Gnozis/Alba database, which covers medium and large size enterprises, and financial reports for publicly traded companies published by the Federal Securities Commission. I was able to match approximately 1/4 of all businesses to employment data, with smaller firms not covered by either source. For the rest of the firms, I used their legal classification to determine their size category⁴³.

The small firm category includes all companies with less than 150 employees (the bottom quartile of employment distribution among litigants that were matched to employment numbers), as well as all individual entrepreneurs, solo proprietorships, cooperatives, farms and full partnerships. Large firms include all publicly traded companies except those with less than 250 employees as well as all other firms with more than

⁴¹ In appellate court decisions, the fraction of plaintiff wins varies between 0.43 (regulation) and 0.53 (tax).

⁴² In cases where more than one litigant is involved on either side of the suit, only the first litigant is listed in the table. Such cases account for approximately 1% of the sample.

⁴³ Legal classifications were obtained from texts of court decisions.

3000 employees (the top quartile of the size distribution). The rest of the firms are classified as ‘other’⁴⁴.

Table 2.4 shows the breakdown of disputes by the pair of litigants involved. Focusing on disputes between firms and government officials, the fraction of firms that win against authorities is not far from 50% for most categories, once again consistent with selection into litigation being driven by divergent expectations. The unconditional reversal rate does not significantly differ from the sample average of 23% for any pair of litigants.

Differences emerge once reversal rates are conditioned on the party that won in the regional court. Table 2.4 shows that in disputes between small firms and local or regional governments, decisions are reversed significantly more often when they are in favour of the firm. This is not true for disputes between large firms and government agencies.

Table 2.5 summarizes the information on activity of litigants during court cases. From the texts of decisions I know whether each litigant (or a representative) attended the appellate court hearing. I also know if the party that had lost in regional court took the case to the three judge panel of the same court. A look at reversal rates in table 2.5 suggests that litigants that lost in the region are more likely to get the decision reversed in their favour at appeal when they are more active: attending appellate court hearing raises their chances of winning by 7%, and appealing the decision to a three judge panel of the same court raises the probability that they win the final appeal by 8%. Both effects are significant at 1% level.

When reversals are aggregated to court level, they reveal a great degree of variation across regions: from 4% (Vladimirskaya oblast) to 67% (Evreiskii autonomous region). Figure 2.1 shows the fraction of reversed decisions for ten regional arbitrazh courts with the lowest (panel a) and the highest (panel b) reversal rates.

To analyze these differences in court performance, the reversal rates were matched

⁴⁴ Alternative definitions of ‘small’ and ‘large’ have also been tested: this does not significantly affect the results.

with a number of regional characteristics. These are summarized in table 2.6 and include the output per capita, the presence of gas and oil production, the proportion of higher education graduates and the freedom of media. Output and education data are published by Goskomstat. The freedom of media index is compiled by Proekt "Obshchestvennaya Ekspertiza" (Public Expertise Project). Information on whether the court participated in a 1997-8 experiment with juries was also included⁴⁵. I also introduce a dummy variable which is equal to one when the region is 'autonomous'. These are 25 regions with a high share of ethnic minorities, that enjoy greater political independence from the federal government. Economic development of these regions has typically been slower than in the rest of Russia.

Figure 2.2 plots regional reversal rates against the freedom of media index, and shows a negative relationship between the two. This is in line with suggestions that the media disciplines judges⁴⁶. The relationship appears to be non-linear suggesting that regions with low media freedom would benefit the most from increasing it⁴⁷.

Figure 2.3 compares court performance in regions with natural resource production and those without. For all years of the sample except 1995 and 1996, where there are few observations, courts located in oil or gas producing regions have higher reversal rates than the rest. Averaged over the years, the difference is 6%, and is significant at 1% significance level.

Before moving to empirical estimation, I would like to describe how the sample of decisions was put together. I used the Kodeks bank of decision texts to construct a stratified sample along two dimensions: regions and type of litigants involved. Within each region and type of litigant combination, the sample was drawn randomly.

The Kodeks bank contains roughly half of all disputes considered by appellate courts since their creation in 1995. These texts had been submitted to Kodeks by appellate courts themselves. Therefore, it is possible that cases withheld by appellate

⁴⁵ This was obtained from documents passed by the Duma, the lower house of the Russian parliament.

⁴⁶ See, for instance, Cappelletti (1985).

⁴⁷ Note that the figure presents total reversal rates, i.e. they include reversals due to differences in preferences as well as competence of regional and appellate courts.

courts are more controversial than those submitted to Kodeks. This concern is reinforced by comparing the average rate of decision reversal in the population of cases, 35%, to that in my sample, 23%. The fact that my sample may be skewed towards less controversial cases suggests that my empirical results may underestimate differences in preferences and competence of the lower and appellate courts.

2.5 Empirical analysis

In this section I first analyze decisions of commercial court judges of regional and appellate courts for differences in policy preferences between them. Second, after controlling for these differences, I look at potential determinants of relative competence of regional courts.

2.5.1 Policy preferences

My econometric analysis is based on panel data regressions of the following form:

$$p(R_{krt} = 1) = \Phi(\alpha_t + \beta_r + \sum_{ij} \mu_{ij} W_{ij} l_{ij} + \sum_{ij} \gamma_{ij} l_{ij} + \delta x_{krt}). \quad (2.5)$$

Here, $R_{krt} = 1$ when decision k in regional court r in year t is reversed, and zero if it is upheld. For a pair of litigants of type i and type j , l_{ij} is a dummy variable for every pair of party types i and j . There are N such pairs in total. $W_{ij} = 1$ if type i won against type j in regional court, and zero otherwise. Finally, α_t is a set of year effects, β_r are regional fixed effects, and x_{krt} are other controls. Year effects control for aggregate changes in the environment where regional courts operate. Regional fixed effects capture factors specific to each region that did not change over the sample period, such as geographical location, cultural background and any initial conditions.

If μ is significantly non-zero, regional and appellate judges have systematically different preferences: a positive μ implies that regional courts favour i more than courts of appeal.

Table 2.7 presents the results of fitting equation (2.5) to data on disputes between firms and government agencies. The regression in column 1 tests for presence of a

pro-firm preference among regional judges in disputes with local, regional and federal governments. Here i is a firm, j is a government office, $N = 3$, and the omitted category are disputes between firms. The results show that when firms litigate against local or regional governments a regional court decision is significantly more likely to be reversed if it is in favour of a firm, rather than a government branch.

The method of estimation is conditional (fixed effects) logit. Column 2 reports estimation of the same parameters using a linear probability model. The results of the two estimations are consistent with each other. The estimates in column 2 imply that a decision of a regional court in a case between a local government and a firm is 14% more likely to be reversed if it is in favour of the firm. The size of the effect in disputes with regional governments is similar. These effects are significant at the 1% level. These results show that regional courts favour firms more than do courts of appeal in disputes with local and regional governments. Conversely, courts of appeal favour government agencies more than do regional courts.

In columns 3 and 4 of table 2.7, I look at whether regional courts favour both small and large firms in a similar fashion. From each of the three dispute categories used in regressions in columns 1 and 2, two further subgroups are constructed: first, disputes between *large* firms and government agencies, and, second, disputes between *small* firms and government agencies. Disputes between large firms and small firms are also included as a separate category. In cases between large and small enterprises, $W_{ij} = 1$ when a small firm wins.

Conditional logit estimation of this model reported in column 3 shows that regional courts display a relative preference in favour of firms only when *small* firms are involved. When large enterprises litigate against authorities, regional courts do not tend to side with firms any more than courts of appeals. Moreover, in cases between firms of asymmetric size, regional court decisions again reveal a tendency to favour small firms.

These results are confirmed by estimating a linear probability model, reported in column 4. It shows that in disputes between small firms and local governments, the

probability that a decision is reversed increases by 26 percentage points if it is in favour of a small firm rather than a local authority. This difference is significant at 1% level. In disputes between small firms and regional government offices, the probability of a reversal goes up by 16 percentage points for decisions that favour a small firm. When small firms litigate against large companies, the probability that a regional court decision is reversed increases by 15 percentage points if it is in favour of a small firm. There is also a weaker result suggesting pro-small firm preferences of regional courts in disputes involving federal governments as well. Again, no tendency to favour large firms is found in disputes with authorities, with the exception of weak evidence in cases with local governments (significant at 10% level).

Taken together, the results in table 2.7 suggest that there is a significant preference in favour of small firms among regional arbitrazh courts relative to courts of appeal. These differences in preferences are revealed both in disputes with government branches – primarily local and regional ones – and large firms.

Table 2.8 presents robustness tests. The model introduced in columns 3 and 4 of table 2.7 is now estimated including a set of interactions between region and year effects. They allow me to control for over time changes in region-specific variables (for example, regional output and development) which may potentially affect reversal rates. A set of dummy variables controlling for the type of dispute is also included. Finally, regressions include two dummy variables identifying whether the loser and the winner of the regional court case were present at appeal.

The results of conditional logit and linear estimations reported in columns 1 and 2 of table 2.8 confirm my findings so far. A significant tendency of regional courts to favour small firms relative to courts of appeal is now found in disputes with all three levels of the government. The size of the effect is similar to that reported in the previous table. In disputes between small and large firms, a tendency to favour small companies is also identified, but it is now significant only at 10% level. Analysis of disputes between government offices and large firms reveals no relative preferences in favour of large enterprises among regional courts. This confirms that regional courts

tend to favour small firms only.

Taken as a whole, the results reveal that regional courts side with small firms significantly more often than courts of appeal. This is true for cases between small firms and all three government levels, as well as for cases between small and large firms. Thus, for small enterprises, regional courts are less of a problem than courts of appeal⁴⁸. For a given set of laws, regional courts are shown to be relatively less supportive of government agencies of all levels than courts of appeal.

Recent surveys of Russian firms have shown that the share of firms that trust the court system to uphold their interests against the government is smaller than the share of firms who trust that it would do so against another firms (Frye and Zhuravskaya (2000) and Simachev (2003)), also among small enterprises (Frye (2004)). The authors have interpreted their survey findings as evidence of the state's 'grabbing hand' in Russian law enforcement⁴⁹.

The results presented in this study further illuminate such survey evidence. The findings here unambiguously show regional courts support small firms more in disputes with government than courts of appeal. This implies that if the government's 'grabbing hand' is indeed present in Russian law enforcement, it operates mainly through the law on books and top level courts rather than regional courts. The findings of this paper argue strongly against the view that it is the lower courts that are particularly heavily pressured by the government and large firms (see, for instance, Black and Tarassova (2003) and Lambert-Mogiliansky et al (2000)).

2.5.2 Court competence and regional characteristics

As discussed in section 2.2, when differences in preferences of lower and appellate

⁴⁸ Judicial tendency to side with those who they see as disadvantaged has received substantial attention in philosophy of law. Two recent papers by economists study evidence of this type of behaviour in employment disputes. They show that judges find in favour of workers more often when unemployment is high (Ichino et al (2003) and Marinescu (2004)).

⁴⁹ Koford and Miller (1995), who asked firms in Bulgaria similar questions and then looked at actual litigation experiences of firms conclude: "Although our sample is not large enough to verify this, there appears to be a gap between the low subjective probability which managers place on being compensated through court action and the actual facts."

court judges are controlled for, the residual probability of a reversal is a decreasing function of the relative competence of the regional court. Below I take a brief look at the factors that may affect regional court competence, including dispute and regional characteristics.

First, I do not find any systematic differences in relative competence of regional courts' decisions across different types of disputes: dummy variables controlling for these are jointly insignificant (table 2.8). Other observable differences between cases, such as the involvement of more than one defendant, a government branch or a public prosecutor also do not affect competence of regional court decisions. Coefficients of the year dummies show that over time regional court competence improved significantly⁵⁰.

I turn to the effects of regional factors on court performance in table 2.9. The dependent variable is the reversal rate attributed to region-specific dynamic effect. It was estimated in a regression reported in column 4 of table 2.8. Results reported in column 1 of table 2.9 indicate that courts work better in regions with freer media. A one point increase in the freedom of media index, which varies between 15 and 50, reduces the rate at which regional court decisions are reversed by 0.6 percentage points. This effect is significant at 1% level. Inclusion of a dummy variable controlling for 'non-autonomous region' in column 2 makes the effect of freedom of media harder to identify, but it is still present at the 10% significance level⁵¹.

Both columns 1 and 2 suggest that the quality of regional courts is higher in regions where education is better, but the effect is only significant at 10% level. Within the same confidence interval, the results indicate that courts in regions with oil or gas production face higher reversal rates

Table 2.9 results also show that having a jury in a regional commercial court reduces the competence of the court's decisions. This is consistent with view in legal literature

⁵⁰ These results are not included in the tables, but are available from the author.

⁵¹ Media tends to be less independent in 'autonomous' regions (i.e. those with greater political autonomy and a high share of ethnic population). These regions also tend to be less developed economically than the rest.

that juries are unlikely to perform better than professional judges in disputes where technical knowledge maybe necessary⁵².

The results in Table 2.9 are exploratory, and should be interpreted with caution. I cannot control for all regional factors, some of which maybe affecting both the reversal rate, and explanatory variables. Thus, there is scope for making this part of investigation more precise should more detailed data be available.

2.6 Concluding remarks

In this chapter, I model the decision making of judges in a two-tier hierarchy of courts. I examine the implications of relative differences in policy preferences and competence levels of judges on reversal rates of their decisions in presence of endogenous selection of disputes into litigation.

The model shows, first, that when the lower court judge favours certain litigants more than the appellate court judge, the decisions of the former in favour of such litigants will be reversed more often than decisions against them. Second, when policy preferences of the two courts are the same, the reversal rate of the lower court decisions falls when the lower court is more competent.

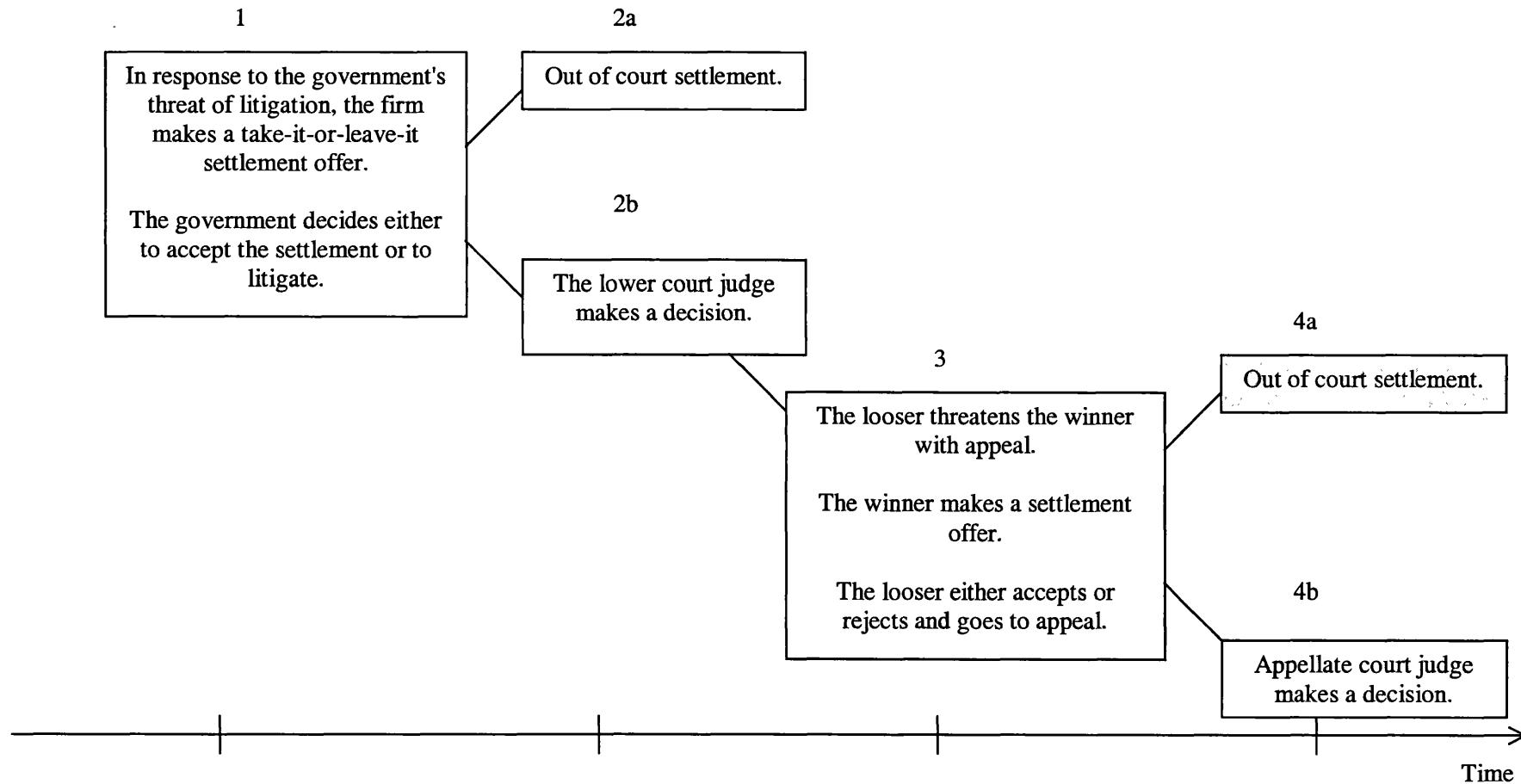
Since reversal rates of judicial decisions are observable, the implications of this model allow me to characterize judicial performance empirically independently of unobserved case characteristics and robustly with respect to selection into litigation.

I use this approach to analyze decisions of Russian commercial courts between 1995 and 2001 using the data I collected for this purpose. I find that, relative to courts of appeal, Russian regional courts tend to favour *small* firms. This pattern is revealed both in their disputes with government offices as well as with larger firms. It is highly significant and robust to a number of controls as well as to inclusion of region specific time effects. The study also explores the effects of regional factors on competence of judicial decisions.

⁵² Here, the negative effect of juries is likely to be underestimated since regions with better performing courts were the ones selected for the jury experiment.

The approach developed in this paper can be used to describe relative preferences and competence of lower court judges in other settings. It does not rely on particular data or institutional structure, except presence of at least two tiers of courts. It can be particularly useful when studying implications of different institutional arrangements on law enforcement, as shown in chapter 3 (which tries to explain some of the variation in regional court performance found in this study). At the same time, the approach I develop in this study does not allow to draw immediate welfare implications from its results. Any conclusions about the effects of observed differences in policy preferences on welfare must rely on additional assumptions about which tier of judicial hierarchy is more likely to make decisions that are more socially optimal.

Appendix 2.A Timing of the model



Appendix 2.B

Proof of Proposition 2.1

I need to show that the probability of a reversal is higher when the lower court decision is in favour of the firm, than when it is in favour of the government

$$p(Y > D | Y + \nu < d) > p(Y < D | Y + \nu > d) \quad (2.6)$$

given that a) the lower court favours firms more $d > D$, b) the distribution of signal errors of the lower court judge is independent of Y (assumption 2.1), and c) the variance of noise faced by the litigating parties is not too large relative to $1/|D - \bar{Y}|$.

When the last condition is satisfied, the selection process implies that the distribution of Y among disputes which are litigated is symmetric around D regardless of the distribution of Y in the population⁵³. Let $g(Y)$ denote this distribution.

For a given value of Y , $p(Y + \nu < d) = \int_{-\infty}^{d-Y} f(\nu) d\nu$.

Denote $F(d - Y) \equiv \int_{-\infty}^{d-Y} f(\nu) d\nu$.

Thus, to prove that $p(Y > D | Y + \nu < d) > p(Y < D | Y + \nu > d)$, I need to show that

$$\frac{\int_D^\infty F(d - Y)g(Y)dY}{\int_{-\infty}^\infty F(d - Y)g(Y)dY} - \frac{\int_{-\infty}^D [1 - F(d - Y)]g(Y)dY}{\int_{-\infty}^\infty [1 - F(d - Y)]g(Y)dY} > 0. \quad (2.7)$$

Inequality (2.7) is satisfied iff

$$\begin{aligned} \int_D^\infty F(d - Y)g(Y)dY - \int_{-\infty}^D g(Y)dY \int_{-\infty}^\infty F(d - Y)g(Y)dY + \\ + \left[\int_{-\infty}^D F(d - Y)g(Y)dY \right]^2 - \left[\int_D^\infty F(d - Y)g(Y)dY \right]^2 > 0 \end{aligned}$$

Since $g(Y)$ is symmetric around D , $\int_{-\infty}^D g(Y)dY = 1/2$, the inequality above sim-

⁵³ When the distribution of Y in the population is itself close to being symmetric around D , i.e. $1/|D - \bar{Y}|$ is very large, then proposition 2.1 holds regardless of variances of ϕ and γ .

plifies to

$$\begin{aligned} & \frac{1}{2} \left[\int_D^\infty F(d-Y)g(Y)dY - \int_{-\infty}^D F(d-Y)g(Y)dY \right] + \\ & + \left[\int_{-\infty}^D F(d-Y)g(Y)dY - \int_D^\infty F(d-Y)g(Y)dY \right] \times \\ & \times \left[\int_{-\infty}^D F(d-Y)g(Y)dY + \int_D^\infty F(d-Y)g(Y)dY \right] > 0 \end{aligned}$$

and further to

$$\int_{-\infty}^\infty F(d-Y)g(Y)dY > \frac{1}{2}. \quad (2.8)$$

Since $d > D$, the symmetry of $g(Y)$ around D is a sufficient condition for inequality (2.8) to be satisfied. QED

Appendix 2.C

Judicial decisions and selection: Example

This example illustrates how comparison of judicial decisions can lead to incorrect inferences about their preferences in presence of selection.

Compare decisions of lower court judges 1 and 2 in cases between firms and government agencies. Assume that all disputes are drawn from the same bell-shaped distribution. Let selection of disputes into litigation, and judicial decision making process (in the lower court) be described by the model in section 2.2. In addition, assume that Judge 1 is a bigger supporter of government intervention than Judge 2, that is $d_1 < d_2$. Assume that potential litigants cannot choose the judge. They, however, know which judge they would face in court, and his decision standard before they decide to litigate. To simplify the analysis, if the case goes to court, let both judges observe Y , the true strength of the government's case against the firm.

Assume that the researcher, who does not observe d_1 and d_2 , sets out to identify relative preferences of the two judges empirically from the data on their decisions. His working hypothesis is that if the firm wins more often with Judge 2 than with Judge 1 (i.e. $p(Y < d_2) > p(Y < d_1)$ for litigated disputes), it must be that Judge 2 is more pro-firm and Judge 1 is more pro-government.

In the first thought experiment, suppose all disputes are litigated. This case is illustrated in panel a) of figure 2.4. It shows that indeed the frequency of firm wins for Judge 1 is smaller than that for Judge 2. Thus, the researcher's hypothesis works well to identify judicial preferences.

In the second thought experiment, we allow for selection, as described in section 2.2. Now, disputes are litigated only when the firm's and the government's expectations about winning differ enough. This difference falls as Y moves away from the judge's decision standard. Thus, only disputes near respective standards will be litigated. Panel b) of figure 2.4 illustrates this. Now, the frequency of firm wins is greater for Judge 1 than for Judge 2, despite the fact that Judge 2 is the one that favours

firms relatively more. The researcher's method would now draw incorrect conclusions about judicial preferences.

More generally, the difference in frequencies of firm wins in decisions of the two judges depends on the locations of each decision standard relative to the mean of Y . Since these are unobserved, it is often impossible to correctly identify preferences of a judge from the frequency of his decisions in favour of a certain litigant or concept.

Chapter 3

Selection of judges and law enforcement

3.1 Introduction

In the first chapter of this thesis, I discussed a number of studies which demonstrate a large variation in property right protection across countries. Many of these also show that countries with better law enforcement enjoy better economic performance.

Given the significance of law enforcement for economic development, it is important to understand why some court systems are more effective than others. In particular, does the organization of judiciary affect performance of judges, and, through it, economic growth?

This chapter studies the impact of selection procedures for judges on law and policy enforcement with implications for firms. Different countries entrust judicial appointments to different political offices, typically either the executive or the legislative branches of the government, or the combination of the two⁵⁴. During the last fifty years, several Western countries have introduced substantial changes in the process of selection and appointment of judges⁵⁵. Yet, whether these differences in organization of judicial selection affect the process of law enforcement remains an open question.

This chapter offers two main contributions. First, I empirically contrast law enforcement by judges appointed by the executive on the one hand and the legislature on the other. To do so, I take advantage of a natural experiment in Russian commercial courts. There, due to an exogenous constitutional change, the way judges had been selected varies both across courts and over time.

Second, I develop a model which contrasts incentives of the legislator to those of the

⁵⁴ See Skordaki (1991) and Thomas (1997) for cross-country surveys of judicial appointment procedures.

⁵⁵ In 1990s, proposals for reforms of judicial appointment procedures were also discussed in the UK and Australia.

executive when each is in charge of selecting judges. The model is based on a premise that politicians are (at least partly) interested in rents. It classes all firms into those that are able to pay rents ('large firms') and those that are not ('small firms'). Judges differ in their preferences in favour of small firms. Through their decisions judges can affect rents politicians collect from large firms. Therefore, politicians select judges strategically.

The differences in incentives faced by the legislator and the executive when selecting judges arise because the executive's decisions are typically subject to a judicial review, while the legislator's are not. The executive who collects rents from large firms will not select judges who protect interests of small firms. In contrast, the legislator writes laws for the judges he selects. When laws are incomplete, large firms may view litigation a substitute for legislation, and the legislator may find himself competing against the judiciary for rents⁵⁶. To dampen this competition, the legislator has an incentive to increase the costs of litigation for large firms by selecting judges who favour small guys.

The empirical analysis focuses on Russia, where restructuring of the judicial system has been named one of the top reform priorities. There, frequent institutional changes have given rise to a variation in selection procedures in commercial (arbitrazh) courts. Depending on the region and year of appointment, commercial court judges working side-by-side today have been selected by three different political bodies: the federal legislature, the executive government and regional assemblies.

I matched the method of appointment of individual judges to their decisions made between 1995 and 2002. Sizes of firms which participated in each court case were obtained from a separate database of enterprise statistics. I analyze whether judges appointed by different methods display different policy preferences in their decisions. In doing so, I use an identification method based on reversal rates of judicial decisions developed in the previous chapter.

⁵⁶ Shapiro (1995) writes interest groups in the US: "...lobbying of courts by interest groups bent on winning in court what they cannot win in the political process ... is the stuff of judicialization."

My results show that judges appointed by the federal legislature tend to favour small firms in disputes with government offices more than judges appointed by the executive. This is consistent with predictions of the model. Several alternative hypotheses are tested and rejected. The results are robust to a number of controls and to inclusion of court fixed effects. The identification method is also robust to endogenous selection of disputes into litigation.

This study contributes to, and has been inspired by, a growing body of research on design of institutions and their economic impact. As discussed in chapter 1, political economy literature shows that specific institutional arrangements are important for government performance (see, for example, Persson and Tabellini (2000) and Besley and Case (2003)).

Judicial institutions have been analyzed to a much lesser extent. The consequences of re-electing judges instead of giving them permanent tenure are modelled by Maskin and Tirole (2004) who show that popular elections generate incentives to pander to the views of the electorate. Besley and Payne (2003) find empirical support for this in the US state courts. They show that more workers file employment discrimination cases with courts where judges are re-elected than with courts where judges are reappointed.

The issue of judicial selection received relatively little attention. To my knowledge, there is no theoretical work modelling the consequences of different selection procedures. Empirical evidence on such procedures is limited to the US. The early work of Canon (1972) and Glick and Emmert (1987) links appointment procedures to judicial characteristics using association tables. They find that judges selected by the legislature tend to come from a different professional background than elected judges and those appointed by the executive. There have been very few attempts to link selection procedures of judges to their performance, and they do not paint a consistent picture. Besley and Payne (2003) show that whether judges are initially elected or appointed by a politician does not matter for the number of employment discrimination charges they attract. Ashenfelter et al (1995), analyzing two US courts, do not find a relationship between judges' decisions and the party of the president that appointed

them. Revesz (1997), however, does find that judges chosen by Republican presidents tend to side with industry more often in environmental disputes.

This chapter analyzes judicial selection both empirically and theoretically. My model of judicial selection has been influenced by political economy literature already mentioned above, as well as by several papers on law and economics. In particular, the observation that judges affect politicians' rents and therefore, politicians have a strategic interest in how judiciary is organized was first made by Landes and Posner (1975). The concept of incomplete law, which has inspired my view of the roles of judges and the legislature vis-a-vis each other, is developed in Xu and Pistor (2002).

This study has also been influenced by the literature linking variation in court performance to the economic and financial development of countries. Countries with better judicial institutions have been shown to have better property rights protection and more developed financial markets (La Porta et al (1997), La Porta et al (2004), and Pistor et al (2000)), a smaller unofficial economy (Johnson et al (1998)), and more investment (Johnson et al (2002)). The findings of this study contribute to this literature by shedding light on possible sources for the observed differences in court performance.

The chapter is organized as follows: section 3.2 presents a theoretical model of legislative and executive appointment of judges. Institutional features of Russian commercial courts and the data are described in section 3.3. Section 3.4 lays out the empirical model, and section 3.5 presents empirical results. Concluding remarks are in section 3.6.

3.2 The model

The model contrasts incentives of the legislator to those of the executive when selecting judges. It is based on a premise that both the legislator and the executive collect rents. Judges, through their decisions, can affect these rents, and, therefore, politicians select judges strategically.

After judicial selection is complete, the executive allocates a resource to potential

beneficiaries. I divide all policy beneficiaries into two types: those that can pay rents to politicians ('large firms') and those that cannot ('small firms'). The legislator writes a law which governs allocation of resources by the executive. The judge scrutinizes the allocation (made by the executive) for its consistency with the law (stipulated by the legislator), with social welfare, and with his own preferences vis-a-vis the beneficiaries of the two types.

Since the executive is interested in rents, he allocates the resource to those who pay, and receives less rent when the chances of the court striking down his policy are higher. The executive shares rent with the legislator to secure a law favourable to the executive and to those who pay rent.

The decisions of the judge (selected by either the legislator or the executive) may be appealed to a higher court. To keep in line with Russia's institutions, which are the focus of the empirical investigation in section 3.5, I assume that the appellate court judge is appointed by the executive. I draw empirical implications from the model by linking the selection of judges to reversal rates of their decisions.

3.2.1 Set up

Let the economy consist of two firms, a small and a large one, and three government branches: the executive, the legislator, and the judiciary. The latter has two-tiers: the lower court judge and the appellate court judge. The executive selects the appellate court judge. Under what I call *regime 1* he also selects the lower court judge. Under *regime 2* the legislator selects the lower court judge instead.

The *large firm* pays rents to the executive in return for a favourable policy. I assume that the *small firm* cannot pay rents, but can take the executive to court if his policy is unfavourable to it.

The *executive* decides on a policy, which entails allocating a resource of value V between the two beneficiaries. Let Y be the net welfare benefit from allocating the resource to the large firm as opposed to the small one. Ex ante, let Y have a bell-shaped probability distribution $g(Y)$. For simplicity, I assume that the executive cares

only about rents. Therefore, he transfers all of V to the large firm. If the executive is taken to court by the small firm, he invests effort e to persuade the lower court judge that the allocation of the resource to the large firm is justified on the grounds of social welfare.

The *legislator* writes the law P , which specifies rules for how the executive can allocate the resource. This law is characterized by how much it favours allocation to the large firm vis-a-vis that to the small one. Assume that the legislator can choose between two values of $P = \{0, v\}$, where $v > 0$ is more favourable to the large enterprise. To secure $P = v$, the executive pays the legislator some of the rent that he collects from the large firm. I assume that the legislator, just like the executive, only cares about rents, and, therefore always chooses $P = v$ in equilibrium.

The two judges are characterized by their preferences vis-a-vis the small firm. Let z capture the extent to which the *lower court judge* favours the small firm. I assume that z is drawn from an interval with the lower bound z_0 .

The lower court judge observes $Y + \varepsilon$ where ε is noise distributed independently of Y with mean zero. Let d denote a decision standard of the lower court judge, which measures the minimum net welfare benefit from allocating the resource to the large firm that the judge must observe to uphold the executive's allocation. Hence, the lower court judge rules in favour of the executive if $Y + \varepsilon \geq d$ and in favour of the small firm if $Y + \varepsilon < d$. The decision standard of the judge is affected by three factors: the law on the books P , the effort e that the executive invests into persuading the judge that it is optimal to allocate V to the large firm, and the extent of the judge's preferences in favour of the small firm z . For simplicity, let $d = z - P - e$.

Let Z capture the preferences of the *appellate court judge* in favour of the small firm, drawn from the same range as z . Let the appellate judge observe Y directly. I assume that the executive cannot successfully invest effort into litigation at appeal. Let D be the appellate judge's decisions standard, so that the executive wins the appeal if $Y \geq D$, while the small firm wins it if $Y < D$.

The appellate court judge reviews the lawfulness of the lower court decision, but

does not reexamine the facts of the case. Instead, he takes these facts as given by the lower court judge. I capture this by letting $D = (1 - \alpha)Z + \alpha(z - e) - v$, where $\alpha \in [0, 1]$ measures the degree to which preferences of the lower court judge influence the appellate judge's decisions through the fact finding stage.

The dispute between the executive and the small firm does not necessarily go to court. After the small firm threatens the executive with litigation, the latter makes an out-of-court *settlement* offer to the former. I assume that the small firm has the bargaining power, and gets the maximum the executive is willing to pay⁵⁷. The executive and the small firm estimate their respective chances of winning litigation based on signals Γ and Φ of Y that each of them receives, respectively. Define γ and ϕ as noise being drawn from identical distributions $f(\gamma)$ and $f(\phi)$ independent of Y and with mean zero, and let $\Gamma \equiv Y + \gamma$ and $\Phi \equiv Y + \phi$. Assume that each party bases its beliefs about Y only on its own signal.

The dispute goes to the lower court only if the small firm rejects the executive's offer. After the decision of the lower court, the small firm and the executive negotiate on whether to take the case to appeal. Assume that they do not update their information after the lower court decision. Let c be the total costs of litigating in the lower and appellate courts, borne by each party.

The timing of the model is the following:

$t = 0$: The executive (under regime 1) or legislator (under regime 2) selects the lower court judge out of a pool of candidates with different z . The executive also selects the appellate court judge from the same pool.

$t = 1$: The executive allocates V to the large firm in exchange for a payment determined by Nash bargaining between the executive and the large firm. The legislator selects $P = v$ in exchange for a payment π_L from the executive. The size of π_L is determined by Nash bargaining between the executive and the legislator.

$t = 2$: Y is realized. The small firm threatens the executive with litigation. They bargain to decide whether to litigate or to settle out of court. If they settle, the game

⁵⁷ This assumption is without loss of generality, but it allows to simplify the exposition.

ends.

$t = 3$: If the case goes to the lower court, the executive invests e into litigation. The lower court judge makes a decision in favour of either the executive or the small firm.

$t = 4$: The loser threatens the winner with appeal. The case is either settled or goes to the appellate court. If it is settled, the game ends.

$t = 5$: If the case goes to the court of appeals, the appellate judge makes a decision which either upholds or reverses that of the lower court.

3.2.2 Analysis

In regime 1 the executive government is in charge of judicial selection. The executive chooses the lower court judge and the appellate court judge to maximize the payment he receives from the large firm net of expected litigation costs. This amounts to optimizing z and Z .

In order to write down the executive's expected payoff, I first analyze the decision of the small firm and the executive to litigate at $t = 2$ and $t = 4$.

At $t = 2$, after being threatened with litigation, the executive makes a settlement offer to the small firm which is equal to his expected loss from litigation. The minimum that the small firm is willing to accept is its expected gain from litigation. The two parties estimate their expected loss/gain based on their subjective probabilities of winning the law suit, calculated using their respective signals Γ and Φ . The small firm rejects the settlement offer if its expected gain from litigation is higher than the expected loss of the executive. This occurs when Γ and Φ lead to predictions which substantially differ from each other⁵⁸. No updating of signals occurs after the lower court decision. Thus, if the decision is litigated in the lower court, it will also be litigated in the court of appeals. Therefore, only the probability of winning in the court of appeals matters for the parties' ex-ante payoffs.

Given a signal Γ , denote the executive's estimated probability of winning at appeal

⁵⁸ This is based on divergent expectations model by Priest and Klein (1984).

as $p(Y > D|\Gamma)$. Thus, at $t = 2$ the executive's out-of-court settlement offer to the small firm is

$$[1 - p(Y > D|\Gamma)]V + c + e, \quad (3.1)$$

which the small firm rejects if

$$p(Y > D|\Gamma) - p(Y > D|\Phi) > \frac{2c + e}{V}. \quad (3.2)$$

Since the small firm has the bargaining power in settlement, the executive's expected payoff is the same whether the dispute is litigated or not. Therefore, at $t = 0$, before Y , Γ , and Φ are realized, the executive's payoff is

$$\pi_X = \frac{1}{2}V \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} p(Y > D|\Gamma) f(\gamma) g(Y) d\gamma dY - c - e. \quad (3.3)$$

As one would expect, it is increasing in the probability that the court system will support his allocation of the resource to the large firm.

Proposition 3.1

The executive's expected payoff is monotonically decreasing in the preferences of judges in favour of small firms.

The proof of Proposition 3.1 is in Appendix 3.A. It follows from the fact that the expected payoff of the executive falls with the probability that the judiciary overrules his allocation of the resource to the large firm. The more the judges favour the small firm, the more likely they are to invalidate the executive's policy. This is true for both the appellate and the lower court judges. The preferences of appellate court judge affect the final decision directly, while the preferences of the lower court judge affect the decision at appeal through the fact finding stage.

Proposition 3.1 implies that when the executive is in charge of appointing judges he will choose both the lower and the appellate court judges which favour the small firms the least, i.e. those with $z = z_0$ and $Z = z_0$.

In *regime 2*, the legislator is in charge of selecting the lower court judge. The legislator chooses z to maximize the payment he receives from the executive in return for $P = v$, the law that favours the allocation of the executive's resource to the large firm. The maximum that the executive would be willing to pay the legislator is the difference between the executive's payoffs under the two types of laws, $P = v$ and $P = 0$. Assuming Nash bargaining, the legislator's payoff is

$$\pi_L = \frac{1}{2}[\pi_X(P = v) - \pi_X(P = 0)]. \quad (3.4)$$

When the legislator adopts the law in favour of the executive, he increases the probability that the executive's allocation to the large firm will be upheld by the court system. Both the legislator's policy $P = v$ and the effort the executive invests into litigation e shift the decision standard of the lower court (and subsequently the appellate court) in favour of the executive's chosen policy. Therefore, the two are substitutes in the eyes of the executive.

Assumption 3.1 *There exists $z^* > z_0$ such that when $P = v$,*

$$\arg \max_e \pi_X \begin{cases} = 0 \forall z \in [z_0, z^*) \\ > 0 \forall z \geq z^* \end{cases}$$

This assumption states that when the judge does not favour small firms too much ($z < z^*$), the legislator's policy v increases the probability of a judicial decision in favour of the executive by a substantial enough amount so that the executive does not invest any more effort into litigation. Thus, when $z < z^*$, the legislator's policy v allows the executive to save e , the amount he would have otherwise had to spend to influence judicial decision. The more the judge favours the small firm, the more the executive needs to spend on persuading the judge to uphold his allocation, and the more the executive pays to the legislator to avoid having to do this.

Therefore, the legislator's payoff increases with judicial preferences in favour of small firm, as long as $z < z^*$. This gives rise to the following proposition.

Proposition 3.2

When assumption 3.1 holds, the legislator maximizes his payoff by choosing judges with $z \geq z^$.*

Proof of Proposition 3.2 is in appendix 3.B.

The driving force behind proposition 3.2 is the substitutability of the roles of the legislator and the judiciary in the eyes of the executive when the latter wants to ensure enforcement of his policy. The legislator perceives this competition for rents from the judge, and strategically appoints a judge who is relatively favourable to the small firm to reduce the outside option of the executive.

3.2.3 Testable implications

I now map predictions of this model onto observables. Recall that under both regimes 1 and 2, the appellate court judge is appointed by the executive. Thus, the model predicts that he favours small firms the least, so $Z = z_0$. Under regime 1, the lower court judge is also appointed by the executive, and, therefore, has the same preference as the appellate court judge, so $z = Z = z_0$.

Under regime 2, the lower court judge is appointed by the legislator and, therefore, has $z \geq z^* > z_0$. Thus, under regime 2, the lower court judge favours small firms relative to the appellate court judge.

Although judicial preferences z are not observed directly, differences in policy preferences of the lower and appellate court judges can be identified from the court of appeals reversals of the lower court decisions. A model developed in chapter 2 of this thesis shows this. In particular, if the lower court judge sympathizes more with small firms relative to the appellate court judge, the decisions of the former in favour of small firms will be reversed more often than his decisions against them. If, however, there are no differences between preferences of the lower and appellate court judges, then the reversal probability is independent of who won in the lower court.

Thus, there are three testable implications. First, when a judge is appointed by

the legislator, the probability that his decision is reversed on appeal is higher if it is in favour of a small firms. Second, when a judge is appointed by the executive, the probability that his decision is reversed at appeal does not depend on who the decision is in favour of. Third, as long as judges selected by different methods have the same variance of signal noise ϵ , decisions in favour of small firms by the legislator's judge will be reversed more often than decisions in favour of small firms by the executive's judge. The converse is true for decisions against small firms.

3.2.4 Discussion

In this section I discuss the main assumptions of the model. I begin with those concerning interactions between politicians and courts. The differences in incentives of the executive and the legislator arise because I assume that the decisions of the executive are subject to judicial review, while the decisions of the legislator are not. This is indeed the case in most countries. The exception are constitutional courts, which typically review legislation for its consistency with the country's founding principles. Therefore, my theory is not relevant for such courts.

In the model, the welfare consequences of the executive's allocation Y are realized after the legislator passes his law, and laws are (implicitly) assumed to be incomplete. In other words, the legislator cannot tell the judge what to do for every Y , giving rise to judicial discretion. Therefore, the judge fills in the gaps in laws with his decisions. This notion has been implicitly employed in much of the literature on legal systems, and is confirmed by several empirical studies discussed in chapter 1, section 1.2.2 of this thesis⁵⁹.

A critical assumption of the model, not made explicit thus far, is that those who pay rents cannot capture judicial selection in the same way as policy decisions. This assumption reflects the substantially larger free-rider problems that face firms or lobbies who want to capture judicial appointments: judges typically differ along some

⁵⁹ Shapiro (1995), for example, writes "The <US> government agencies ... sometimes use litigation as a vehicle to acquire amendments to their governing laws by judicial statutory interpretation that they cannot get out of Congress by requesting formal amendment."

broad dimensions (for example, pro-industry vs. pro-government), while policy can often be tailored to a particular lobbyist. Further, capital constraints may make the ‘purchase’ of judicial appointments difficult since the legislator would demand now the discounted value of rents he expects to receive in the future.

The assumption that the executive rather than the large firm transfers rents to the legislator is for simplicity. Relaxing it does not change the results.

I make two assumptions on the organization of the appeals process. First, the appellate court does not re-examine the facts of the litigation, but takes them as given by the lower court. This is consistent with the mandate of appellate courts in most countries. If instead I assumed that decisions of the lower and appellate courts were unconnected, the preferences of the lower court judges, if perfectly observed, would not have an effect on outcomes, since only final judicial decisions matter. Second, I assume that the executive cannot successfully invest effort into litigation at appeal. This assumption captures that appellate courts typically have higher professional standards than lower courts. A weaker assumption that investment at appeal is sufficiently less productive than at the lower court is enough for the results to hold.

I also make several simplifying assumptions regarding the preferences of the legislator, executive and judges. Although above I suppose that both political offices only care about rents, the results continue to hold if I allow social welfare to enter their utility. For simplicity, the judges in the model are concerned only with social welfare (Y) and their own policy preferences. The results remain robust if judges are allowed to be partial rent-seekers. This can be easily shown by reinterpreting the executive’s investment into litigation as rents for the judge.

Several assumptions are used to derive testable implications. In the data, the ability of firms to pay rents is not observable. Empirically, I take size to be an indicator of this ability and, in line with it, in the model I assume that only large firms can pay rents (see also section 3.3.2). Second, I assume that the executive branch selects the appellate court judge. This is what happens in Russia, and assuming it in the model helps me draw testable results. The model can be easily generalized to allow the appellate court

judge to be appointed by the legislator or more than one method.

3.3 Background and data

To identify the differences in behaviour of judges selected by the legislator on the one hand and the executive on the other, I take advantage of a natural experiment in judicial selection which occurred in Russian commercial courts in 1990s. This section provides the background on procedures for selecting judges in these courts, and then describes the data.

3.3.1 Institutional background⁶⁰

Ineffective court system is widely considered a major deterrent to investment and economic growth in Russia⁶¹. The arbitrazh (commercial) court system, its functions, hierarchy and main institutional features have already been described in chapter 2, section 2.3. Here, I focus on procedures for selecting judges for these courts.

Between 1992 and 2002, Russian regional commercial courts experienced three different procedures for the final selection and appointment of judges. First, by the federal legislature, second, by the federal executive (the president of Russia), and third, by regional legislative assemblies⁶².

Legislature. By constitution, the federal legislature is in charge of writing commercial law that the arbitrazh courts enforce. When regional arbitrazh courts were created in 1992, the federal legislature, the Supreme Soviet, was given the powers to select and appoint judges in 56 out of 81 of these courts⁶³.

⁶⁰ This section describes the organization of Russian commercial courts between 1992 and 2002. In 2003, several changes were introduced into the system. These are beyond the scope of the current study.

⁶¹ Relative to other transition economies, Russian firms give very low scores to effectiveness, fairness and reliability of Russian judiciary (Hellman et al (2000)). A recent survey of businesses named legal reform the number two priority in Russia, second only to reduction of corruption in public sector (Biletsky et al (2002)).

⁶² Initial short-listing of applicants is done by 'qualifying committees', which consist of other judges. This is similar to procedures used in many other countries.

⁶³ That was the first democratically elected legislature of Russia's post-Soviet period. Inside the Supreme Soviet, three committees were put jointly in charge of selection of judges.

Regional assemblies. Regional assemblies are elected bodies in charge of producing regional laws. They generally do not legislate in the area of commerce, which is the prerogative of the federal legislature. In 1992, regional assemblies were put in charge of selecting judges in 25 regional commercial courts, those not covered by the federal legislature.

The 25 regions where these courts are located have an official status of ‘autonomous.’ This reflects a greater political autonomy from Moscow that had been granted to them because of their high share of ethnic population. The power to appoint arbitrazh court judges was one small feature in a package of political privileges these regions enjoyed. Comparison of these regions with the rest of Russia shows that they have lower levels of economic development and more pro-communist politics (see table 3.6).

Executive. Towards the end of 1993, Russia adopted a new constitution which drastically increased the powers of the president vis-a-vis the legislature across a wide range of policy issues. The new powers granted included rights to veto legislation, dissolve parliament and appoint ministers with minimal parliamentary involvement⁶⁴. One of the powers transferred to the president by the constitution is that of appointing judges to all regional and appellate commercial courts. Thus, from 1994 onwards, the executive government has been responsible for judicial selection in commercial courts⁶⁵.

These different procedures have led to a situation where judges appointed by two different methods work side-by-side in every regional commercial court. In 56 non-autonomous regions, each judge is an appointee of either the federal legislature or the president. In 25 autonomous regions, each judge had been appointed either by the regional assembly or by the president.

3.3.2 Data

My data come from three main sources. First, I put together the data on judicial rulings

⁶⁴ See, for example, McFall (2002) for a historical analysis of how Russia’s 1993 constitution was created.

⁶⁵ In 1995, an amendment was introduced requiring the judicial candidates to be approved by regional assemblies prior to a final presidential selection.

by coding the texts of commercial court decisions made between 1995 and 2002, as described in chapter 2, section 2.4. Second, the disputes were matched with sizes of firms that participated in them. The size data are from the Gnozis/Alba database and the registry of the Federal Committee for Securities (again as in chapter 2). Third, the method of appointment for each judge was obtained from the documents published by the Supreme Soviet and the president of Russia.

The disputes used here are a subset of those analyzed in chapter 2: they include the 2633 decisions made by 759 regional judges working in 56 out of 81 regional commercial courts. The study is limited to these courts because the rest do not supply names of judges in texts of decisions⁶⁶.

All of these decisions were made in the period from 1995 to 2002, and all were subsequently reviewed by one of the appellate courts. The sample here constitutes 1.3% of the population of commercial disputes reviewed by appellate courts between 1995 and 2002. The data on each dispute contains the names and types of the parties to the suit (firm, government office), the name(s) of regional court judge(s), the type of dispute, the decision of the regional court and the subsequent decision of the appellate court.

Table 3.1 provides the breakdown of court cases in the sample by the type of dispute. Breach of contract cases dominate with 40% of the sample, followed by tax disputes (25%), regulatory disputes (14%), ownership disputes (8%), and other disputes which include enforcement of court decisions by bailiffs, liquidation of firms, etc.

For each type of dispute, table 3.1 also presents the mean reversal rate of the lower court decision by the court of appeals. With the exception of regulation, reversal rates do not significantly differ across dispute categories, staying close to the 19% sample average.

Table 3.1 also shows win rates of plaintiffs in lower courts for each category of

⁶⁶ Withholding of names may be associated with certain characteristics of courts. I will hope to minimize contamination of my results by such selection by using of variation in appointment procedures within each court.

dispute. In four out of the five categories, as well as in the sample overall, the average probability that the plaintiff wins the case is not significantly different from 50%. This matches the predicted plaintiff win rates when selection into litigation is characterized by divergent expectations, which I used to model the decision to litigate in section 3.2.

To get the measure of sizes of firms involved in these court cases, I merged litigation data with employment figures from accounting reports of Russian enterprises (Gnozis/Alba and FKTSB databases). I also used legal classification of each enterprise, available from the texts of court cases and FKTSB database. The resulting size measure was rather crude, so I subdivided all litigating firms into three groups: small enterprises, large enterprises, and the rest. Small enterprises include individual entrepreneurs, solo proprietorships, full liability partnerships and all companies with less than 150 employees⁶⁷. Large enterprises include firms with more than 650 employees⁶⁸, as well as publicly traded joint stock companies with more than 250 employees. Cases involving enterprises that fall between these categories were not used in my estimations⁶⁹.

Table 3.2 shows the composition of all disputes in the sample according to the types of litigants involved. There are no significant differences in reversal rates between cases involving different litigant pairs.

There are very few disputes between small and large firms, with the bulk of enterprise against enterprise cases being between firms of similar size. Therefore, my empirical identification of judicial selection effects focuses on law suits involving government offices, whose disputes with small and large enterprises comprise 35% of the sample.

As discussed in chapter 2, the Russian government hierarchy consists of three main levels: federal, regional and local governments. Among the disputes between a firm

⁶⁷ These latter firms make up the bottom quartile of employment distribution among litigating firms which were matched with employment data from accounting reports.

⁶⁸ These comprise the upper half of the matched employment distribution.

⁶⁹ I have experimented with alternative definitions of 'small' and 'large'. The results reported in the next section are robust to these alternative classifications. They are also robust to leaving only individual entrepreneurs in the 'small' category, which helps address a concern that large Russian firms may hide behind a small enterprise facade.

and a government office, 52% involve an office of the federal government (usually, tax authorities, anti-trust authorities, etc.). Regional governments and local governments are parties to 22% and 26% of the suits between firms and authorities respectively. Regional governments are typically represented by regional ministers of finance and the governor's offices, while local governments – by their main office (the office of the mayor, etc.). All of these are executive offices of the corresponding levels of the government⁷⁰.

Using the name of the regional court judge published in the text of each decision, I matched the case data to the political office which had selected the regional judge in each case. I gathered this information from documents published by the Supreme Soviet and the office of the president. Three dummy variables were created corresponding to each method of selection. $L = 1$ if the regional court judge was appointed by the federal legislature, and 0 otherwise; similarly, for judges selected by the executive (X) and by regional assemblies (RA). Table 3.3 presents the breakdown of reversal rates of lower court decisions by the category of appointment and types of litigants who participated and who won in the lower court.

3.4 Empirical model

I shall now investigate empirically whether judges appointed by the legislator favour small firms relative to judges appointed by the executive. I use the method for identifying policy preferences of judges developed in chapter 2 of this thesis. I take advantage of the fact that appellate court judges in Russia are all selected by the executive.

The model in section 3.2 of this chapter suggests that the legislator's judges are more sympathetic towards small firms than the executive's judges. If this is the case, the model of judicial decision making developed in chapter 2 makes three predictions. First, the probability that a decision of a legislator's judge is reversed will be greater if this decision is in favour of a small firm. Second, if selection is the only factor responsible for different preferences of appellate and lower court judges, the probability that

⁷⁰ Legislative branches do not litigate in commercial courts.

a decision of a lower court judge appointed by the executive is reversed will be independent of who the decision favoured. Third, if the main impact of selection methods is on policy preferences rather than on competence of lower court judges, the probability that a decision of a legislator's judge in favour of a small firm is reversed will be greater than the probability that a decision of an executive's judge in favour of a small firm is reversed. The opposite will be true for a decision in favour of a government branch.

Let $R = 1$ if the decision of a lower court judge is reversed on appeal, and 0 otherwise; $W = 1$ if a small firm won in the lower court, and 0 otherwise; let L and X be dummy variables that capture appointment of the judge by the legislator and the executive respectively, and $L \times W$ and $X \times W$ interaction terms between the appointment variable and W ; let x be a set of controls, and Φ a probability distribution. I estimate the following model

$$p(R = 1) = \Phi[\alpha + \lambda(L \times W) + \xi(X \times W) + \beta L + \delta x]. \quad (3.5)$$

If the first of the three predictions above holds, then $\lambda > 0$. If the second prediction also holds it further constraints the data to $\xi = 0$. The third one further implies that $\lambda + \beta > \xi$ and $\beta < 0$. The first two are necessary conditions for establishing that the legislator's appointees favour small firms more than those of the executive. The third one is a sufficient condition, but not a necessary one.

3.5 Empirical results

Table 3.4 contains basic results of estimating the model in (3.5). Robustness checks are in table 3.5.

Column 1 in table 3.4 reports the results of estimating (3.5) for disputes between small firms and government offices. First, λ is positive and significant at 1% level, indicating that judges appointed by the legislator have their decisions reversed significantly more often if they are in favour of small firms rather than a government agency. This implies that lower court judges appointed by the legislator favour small firms

more than appellate court judges appointed by the executive.

Second, ξ is not significantly different from zero, implying that when the lower court and the appellate court judge are appointed by the same method, there is no difference in their policy preferences. This confirms that divergence in preferences between lower and appellate court judges captured by λ is caused by selection procedures rather than some other differences between the two tiers of courts.

Third, $\lambda + \beta$ is significantly greater than ξ , and β is significantly less than zero. This means that the lower court judges appointed by the legislator have their pro-small firm decisions reversed more often than the lower court judges appointed by the executive, and the reverse is true for pro-government decisions. This confirms once more the result that judges appointed by the legislator favour small firms more than those selected by the executive. It further says that the main impact of selection procedures is on policy preferences of judges rather than their competence.

In column 2, I estimate the same model controlling for changes over time using year dummies, for the location of the court in a non-autonomous region, and for attendance of appellate court hearing by the litigants. Year dummies help control for over time increases in the share of executive's appointees among the lower court judges. Autonomous regions had never experienced legislative appointments. Controlling for this helps rule out a possibility that special characteristics of these regions are driving comparison between executive's and legislature's judges.

The results show that all three findings obtained in the first estimate are robust to inclusion of these controls. Column 2m reports marginal effects of explanatory variables. When a lower court judge selected by the executive is replaced by that selected by the legislature, the probability that his decision in favour of a small firm is reversed at appeal increases by 29 percentage points ($\lambda + \beta - \xi$ in column 2m). This difference in policy preferences of judges selected by the two methods is substantial, given the average probability of a reversal in the sample of 19%.

The mix of judges selected by different methods varies by court. Although judicial selection procedures changed exogenously and simultaneously for all regions, I am

concerned that regional characteristics may have affected the composition of judges. To check whether such characteristics rather than selection methods are generating my results, I introduce dummies controlling for regional fixed effects.

Column 3 and 4 report estimates of conditional logit and linear probability models, both with regional fixed effects. These regressions confirm the greater tendency among judges selected by the legislator to favour small firms relative to judges selected by the executive. This is despite the source of identification having been reduced to the differences in reversal rates for judges appointed by different methods that work within the same court. The magnitude of the effect of legislative selection is similar in the linear model to that estimated by the probit regression earlier.

A word on control variables. In all regressions, regional as well as year effects are highly significant, the latter picking up a strong downward trend in overall reversal rates, possibly because lower court judges improve with time. Regression in column (2) shows that courts located in non-autonomous regions have lower reversal rates. Controlling for case categories does not contribute significant explanatory power⁷¹.

The results of table 3.4 unambiguously indicate that judges selected by the legislature behave very differently from judges selected by the executive government. In disputes between small firms and government offices, the legislator's judges tend to favour small firms more than the judges appointed by the executive. Moreover, this difference in preferences is quite large.

3.5.1 Other explanations?

3.5.1.1 Anti-government judges

So far, the results have been based on the subset of disputes between small firms and government agencies. Thus, my findings could also be consistent with the hypothesis that the legislator's judges favour government less than do the executive's judges, regardless of the type of firm that litigates with it. To distinguish between

⁷¹ The results of regressions with case category dummies are not reported here, but are available from the author.

these two conjectures about the preferences of legislator's judges (pro-small firms vs. anti-government), I estimate the same regression model as before on disputes between large firms and government offices, letting $W = 1$ when a large firm wins.

Table 3.5 has the results in columns 2 (conditional logit) and 3 (linear probability). For comparison, column 1 repeats the last regression of table 3.4 for small firms. All regressions include regional fixed effects.

In the subsample of disputes between large firms and the government, both λ and ξ are not significantly different from zero. This indicates that judges appointed by the legislature do not favour large firms any more than judges appointed by the executive. Thus, the findings here indeed show that the legislator's judges are more favourable to small firms, rather than against the government in general, compared to the executive's judges.

3.5.1.2 Time of appointment

Although I observe the legislator's and the executive's judges at the same time, the former had been selected in 1991-1992, while the latter – in 1993 or after. If the pool of judicial candidates changed over time, selection variables used above may proxy for such change. In particular, suppose that older Soviet school judges are more oriented towards redistribution of resources from have to have-nots. If their share among job candidates fell over time and some of this fall coincided with the switch in selection procedures, this could generate my results even if selection procedures did not affect judicial preferences.

I take advantage of the history of Russian judicial appointments to identify the effect of time from the effect of the method of appointment. Recall, that in 1992-1993 the legislature appointed judges to 51 of 81 regional courts, while regional assemblies appointed judges in remaining 25 regions. If time rather than method of appointment is responsible for my findings, judges appointed by regional assemblies will exhibit the same preferences as those selected by the legislature.

Unlike the federal legislature, regional assemblies in Russia do not legislate in the

area of commerce and economics⁷². The theory developed in this study (section 3.2) predicts that when the office in charge of selection does not write laws for the judges, the incentives to choose judges that favour small firms disappear. Therefore, if the observed differences between legislative and executive appointees are due to the method of appointment, judges appointed by regional assemblies should not favour small firms relative to executive's judges.

Let $RA = 1$ if the judge was appointed by a regional assembly. I estimate the model in (3.5), modified to include RA alone and interacted with the indicator of a small firm win W . I include regional dummies, restricting my identification to comparison of judges that were appointed by different methods but work within the same court.

Columns 4 and 5 present the results of a conditional logit and a linear probability estimations. The coefficient on the interaction term $RA \times W$ is not significantly different from zero. The sum of the coefficients on RA and $RA \times W$ is not statistically different from zero and from ξ . This indicates that judges appointed by regional assemblies in 1992-1993 have policy preferences that do not differ from those of judges appointed by the executive from 1993 onwards. Therefore, I confirm that it is not the time, but the method of appointment that has the effect on judicial preferences. The size of the gap between the preferences of the legislator's and the executive's appointees is similar to that obtained before: decisions in favour of small firms made by the legislator's judges are 21 percentage points more likely to be reversed than decisions made by the executive's judges⁷³. For further comparison, column 6 reports the estimate of this model on disputes between large firms and government agencies. Again, I do not find that selection method has any effect there.

⁷² In rare cases that regional assemblies do pass economic legislation, arbitrazh courts are called upon to check its legality relative to the federal law. This has resulted in a number of cases in which laws of regional assemblies were disregarded by courts as contradictory to the federal law. This makes the relationship between regional assemblies and commercial courts in Russia similar to that between the executive office and the courts.

⁷³ Autonomous regions, where regional assemblies appointed judge, are less developed and more 'pro-soviet' than the rest of Russia (see table 3.6). Thus, it is unlikely that regional characteristics were responsible for the less 'soviet' judges in these regions compared to the rest in 1992-1993.

Thus, the effect of selection procedures on judicial preferences is robust to these two tests. These results lend further confidence first, to the fact that judges chosen by the legislator favour *small firms* more than do judges appointed by the executive, and second to the fact that these differences in policy preferences of judges are indeed the result of how these judges were selected, rather than some other coincidental change.

3.6 Concluding remarks

The chapter examines the impact of judicial selection procedures on law enforcement. Around the world, the process of selecting judges typically involves either a legislative or an executive branch of the government. I develop a model which compares these two types of procedures by contrasting incentives of the legislator to those of the executive when appointing judges. It is based on a premise that both political offices collect rents from firms. The differences in incentives between the two offices arise because the executive's policy is a subject to judicial review, while the legislator's is not. The model shows that, compared to the executive, the legislator selects judges who are more favourable towards litigants that cannot pay rents.

The implications of the model are tested on performance of Russian commercial court judges, exploiting variation in judicial appointment procedures across time and regions, and using the reversal rate method developed in chapter 2 of this thesis.

Empirical findings show that judges appointed by the legislature favour small firms in disputes with government offices more than judges appointed by the executive. These results are consistent with the predictions of the theoretical model. They are robust to controlling for court fixed effects and to tests of two important alternative hypotheses.

The theory and empirical evidence presented here are a step towards understanding how institutional arrangements governing the judiciary can shape the process of law enforcement. A rare natural experiment in Russia has allowed me to compare the two judicial selection methods most commonly used around the world, and to show that they can produce very different results.

At the same time, the example of Russia is highly specific. In particular, the results of the model here rely on the assumption that politicians are sufficiently interested in rents.

Therefore, one broad implication of this study is that the effect of a society's judicial institutions depends on institutional arrangements that govern its politicians. This suggests that there is scope for further research on how different types of political, judicial and regulatory institutions interact and the effects of these interactions on economic performance.

Appendix 3.A

Proof of proposition 3.1

Here I show that the expected payoff of the executive monotonically declines with z .

To do so, I argue that $\partial\pi_x/\partial z < 0 \forall z$.

Recall that the executive's expected payoff is

$$\pi_X = \frac{1}{2}V \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} p(Y > D | \Gamma) f(\gamma) g(Y) d\gamma dY - c - e(z). \quad (3.6)$$

Denote $\hat{p} \equiv \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} p(Y > D | \Gamma) f(\gamma) g(Y) d\gamma dY$. Differentiating π_X with respect to z gives

$$\frac{\partial\pi_X}{\partial z} = \frac{\partial\pi_X}{\partial e} \frac{\partial e(z)}{\partial z} + \frac{\partial\pi_X}{\partial \hat{p}} \frac{\partial \hat{p}}{\partial z}. \quad (3.7)$$

To sign this, first consider the first term of (3.7). Since the executive chooses e optimally, it is zero. Second, the executive's expected profit is increasing with the probability that he will win in court, i.e.

$$\frac{\partial\pi_X}{\partial \hat{p}} = \frac{1}{2}V > 0 \quad (3.8)$$

To differentiate expected probability of winning at appeal, expand the latter to

$$p(Y > D | \Gamma) = \int_{-\infty}^{\Gamma - \alpha z - (1-\alpha)Z + e^* + P} f(\gamma) d\gamma. \quad (3.9)$$

Thus,

$$\frac{\partial \hat{p}}{\partial z} = -\alpha \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(\Gamma - \alpha z - (1-\alpha)Z + e^* + P) f(\gamma) g(Y) d\gamma dY < 0 \quad (3.10)$$

for all z . That is, the estimated probability that the executive wins the court case falls when the lower court favours the small firm more. Therefore,

$$\frac{\partial\pi_X}{\partial z} = -\frac{1}{2}V\alpha \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(\Gamma - \alpha z - (1-\alpha)Z + e^* + P) f(\gamma) g(Y) d\gamma dY < 0 \quad (3.11)$$

for all z . Similarly, $\partial\pi_X/\partial Z < 0$. QED.

Appendix 3.B

Proof of Proposition 3.2

I show here that the legislator maximizes his payoff (the payment received from the executive for $P = v$) by selecting the lower court judge with $z \geq z^*$. Recall that the legislator's expected payoff is

$$\pi_L = \frac{1}{2}[\pi_X(P = v) - \pi_X(P = 0)]. \quad (3.12)$$

Differentiating with respect to z gives

$$\frac{\partial \pi_L}{\partial z} = \frac{1}{2} \left[\frac{\partial \pi_X}{\partial z}(P = v) - \frac{\partial \pi_X}{\partial z}(P = 0) \right] \quad (3.13)$$

From appendix 3.A we have that

$$\frac{\partial \pi_X}{\partial z} = -\frac{1}{2}V\alpha \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(\Gamma - \alpha z - (1 - \alpha)Z + e(z) + P)f(\gamma)g(Y)d\gamma dY < 0. \quad (3.14)$$

Substituting this into (3.13) gives

$$\begin{aligned} \frac{\partial \pi_L}{\partial z} = \frac{1}{2}V\alpha \{ & \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} [f(\Gamma - \alpha z - (1 - \alpha)Z + \alpha e(z, P))f(\gamma)g(Y)d\gamma dY \\ & - \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(\Gamma - \alpha z - (1 - \alpha)Z + v + \alpha e(z, P))f(\gamma)g(Y)d\gamma dY \} \end{aligned}$$

By assumption 3.1, when $z < z^*$,

$$e(z, P) \begin{cases} = 0 \text{ if } P = v \\ > 0 \text{ and } < v/\alpha \text{ if } P = 0. \end{cases}$$

By optimality of $e(z, P)$, $\partial \pi_X^2 / \partial e^2 < 0$. This implies $\partial f(\Gamma - \alpha z - (1 - \alpha)Z + \alpha e(z, P)) / \partial \gamma < 0$. Thus,

$$f(\Gamma - \alpha z - (1 - \alpha)Z + \alpha e(z, P)) > f(\Gamma - \alpha z - (1 - \alpha)Z + v). \quad (3.15)$$

Therefore,

$$\frac{\partial \pi_L}{\partial z} > 0. \quad (3.16)$$

When $z \geq z^*$, $e(z, P = 0) = v/\alpha + e(z, P = v)$, and, therefore

$$\frac{\partial \pi_L}{\partial z} = 0. \quad (3.17)$$

Thus, the legislator's payoff is maximized when $z \geq z^*$. QED.

Chapter 4

Courts and firms' access to credit

4.1 Introduction

Bank lending to private firms in Russia averaged 13% of GDP between 1995 and 2002. This is in stark contrast to the rest of the industrialized world: among G7 countries this ratio was 86% in the same period. Among Russian medium and large size firms, less than half hold bank loans. For those who do, these loans amount to 10% of total assets. This is about a third of the proportion reported by firms in G7 economies⁷⁴. Given the role of financial intermediation in promoting investment and economic growth, it is important to explain such differences⁷⁵.

This chapter studies the role of law enforcement in explaining the pattern of credit received by firms in Russia. As I had already discussed in this thesis, the poor state of Russia's judiciary is often named one of the top reasons for the country's economic problems⁷⁶. According to a World Bank survey, only 18% of Russian respondent firms believe that commercial court system in Russia is consistent and reliable⁷⁷.

This chapter links credit received by Russian firms to quality of commercial courts in regions where these firms locate. I match data on firm-level credit received by approximately 20,000 large and medium size enterprises with statistics on performance of 81 regional commercial courts for eight consecutive years, from 1995 to 2002.

Less than half of firms in the sample receive bank loans, but almost all the firms

⁷⁴ See IMF International Financial Statistics, Rajan and Zingales (1995) on external financing in G7 countries, and Huang et al (2002) on Russia's bank credit.

⁷⁵ For links between financial markets and economic growth, see Levine (1997) and Rajan and Zingales (1998).

⁷⁶ See, for instance, Black et al (2000) who argue that lack of 'decent legal and enforcement infrastructure' was largely responsible for the many failures of Russian privatisation. See also Gray and Hendley (1997), Kreuger (2002), and Biletsky et al (2002).

⁷⁷ See World Bank (2000). The number includes firms that reported that courts are 'frequently', 'mostly' and 'always' consistent and reliable. The rest of the firms chose 'sometimes', 'seldom' or 'never'. These results put Russia in the 22nd place among 80 countries surveyed.

have trade credit. During the sample period, which includes the 1998 financial crisis, the share of firms with access to either type of credit declined. At the same time, the amount of credit received by enterprises who continue to have access to it increased. Behind these aggregate trends lie substantial differences in external financing of firms located in different regions of Russia, which, this study argues, can in part be explained by different performance of commercial courts in these regions.

I develop an analytical framework to analyze how courts may affect lending decisions. It is based on the premise that, if there is a dispute between a lender and a firm, litigation is more costly than an out-of-court settlement. The model then shows that lender's costs of contract enforcement increase when lower courts are less *reliable* predictors of higher courts decisions⁷⁸. I also show that the rate of appeal of lower court decisions rises when the lower court is less reliable. This allows me to use the rate of appeal of lower court decisions as a proxy for court reliability in my empirical estimations.

My empirical results show that when commercial courts are more reliable, banks lend more to firms located in these courts' jurisdictions. First, I find that improvements in reliability of commercial courts increase the number of firms to which banks are willing to lend. Second, the amount of bank credit received by firms also rises with court reliability. The results also show that the latter effect is significantly smaller and potentially less robust than the former. Court performance also influences trade credit, but this effect is notably smaller in magnitude and the inference is less robust. Improvements in court performance are not found to increase credit received by firms from other enterprises with whom they have ownership links.

This evidence in this study lends new support to the view that legal environment is important for economic and financial development. As discussed in the literature review of chapter 1, among the first studies to show a positive relationship between rule of law and countries' growth rates were Keefer and Knack (1995) and Mauro

⁷⁸ Subsequently, I call the court system less *predictable*, when its lower courts are less reliable predictors of higher court decisions.

(1995). Yet, causality between quality of law enforcement and development proved notoriously difficult to establish: a positive relationship may be observed, for instance, because more advanced economies are able to build more reliable court systems. La Porta et al (1997) refine this approach by looking separately at various aspects of law on books on the one hand, and quality of law enforcement on the other, and linking them to external financing. In their 1998 paper, they show that a relationship exists between legal origin, law on books and concentration of ownership. Demirguc-Kunt and Maksimovic (1998) also show a positive relationship between the rule of law and the use of external financing in different countries.

Pistor et al (2000) focus on external finance in transition economies. Their results again point at the existence of a strong link between law and finance: for example, they show that improving legal environment from Russia's level to that of Poland increases market capitalization by 20% and private credit by 25%. They find that law enforcement has a larger impact on external finance than law on the books. Turning to trade credit in transition countries, survey evidence by Johnson et al (1999) shows that firms who have more confidence in courts are more willing to extend credit to customers. This effect is weaker for those suppliers that have had a relationship with a customer for some time.

As already discussed earlier in this thesis, in cross-country studies, identification of the effect of law enforcement is usually hindered by difficulty of controlling for country characteristics. Sub-national studies help improve identification: Chemin (2004) compares the speed of courts across Indian states and shows that in states with faster courts firms have more external financing and undertake more specific investment. Within five Eastern European countries, Johnson et al (2002) show that firms who report that courts perform better are also more likely to invest, although they are no more likely to receive bank financing than other firms.

In this study, both time and cross-regional variation in court quality is utilized. Much of the policy and macroeconomic environment is common across Russia's regions, making it easier to separate the effect of law enforcement from other factors.

Credibility of the results is improved by using an objective measure of reliability of courts. The study also establishes a specific mechanism through which reliability and predictability of the court system affects the willingness of banks to extend credit.

The chapter is organized as follows. In section 4.2, I develop an analytical framework to show how reliability and predictability of the court system affects lending decisions. Section 4.3 describes the data. Section 4.4 develops an empirical model and reports results of the estimations. Section 4.5 concludes.

4.2 Analytical framework

This section develops a simple model to understand how law enforcement by courts may affect lending to firms. It is based on a premise that, if a dispute arises, litigation is a more costly option than a settlement. I define the *reliability* of a (lower level) court as the extent to which its decision reduces uncertainty about what is lawful, and in particular, what a higher court would consider lawful in the case at hand. I refer to a court system as more *predictable* when the reliability of the lower courts is higher. The model shows that the expected contract enforcement costs of lenders fall when courts are more reliable.

First, I show that when lower courts are less reliable, lenders are more likely to litigate rather than settle their disputes with borrowers. This raises the expected costs of contract enforcement for lenders and therefore discourages credit. Lenders who face a higher probability of a default on a loan are more affected by reliability of courts.

Second, the model demonstrates that lower court reliability leads to a higher probability that a court's decision is appealed. This allows me to use the rate of appeals as a proxy for otherwise unobserved reliability of the lower court in subsequent empirical estimation.

Finally, the developed framework shows which other factors may impact both the rate of appeal and bank lending, and how. These findings help interpret the results in section 4.4.

4.2.1 Set up

To help follow the model, Appendix 4.A lays out its timing.

Consider a bank that decides whether to extend a loan of amount L to a firm. For simplicity set the bank's costs of loanable funds to zero.

With some probability d the bank expects the firm to default on the loan. If default occurs, the bank threatens to sue the firm in the lower court, and then in the court of appeals, if necessary. Suppose that the bank knows with certainty that it will win in the court of appeals.

The firm faces uncertainty and attaches probability ϕ to the bank winning the appeal. Although ϕ is not observable to the bank, it is known to be uniformly distributed on a $[0, 1]$ interval⁷⁹. The firm makes an offer of an out-of-court settlement to the bank. Assume a Nash bargaining solution with the bank keeping α share of surplus generated by the settlement. Let s denote the total amount that the bank keeps in case of a settlement. Let λ denote the probability that out-of-court bargaining between the firm and the bank breaks down, and the case goes to the lower court⁸⁰. Let c be the costs of litigating in lower court, borne by each party.

Assume that the lower court makes a decision in favour of the bank with probability ρ . In other words, ρ captures the frequency with which the lower court correctly anticipates the decision of the court of appeal.

After the lower court decision, the party that lost in the lower court threatens the other with appeal. The firm updates its expectations and arrives at Φ , a posterior probability that the bank will win the appeal. The firm and the bank then bargain over a settlement to avoid appeal. Let S denote the amount received by the bank if they settle. Again I use the Nash bargaining solution here. If bargaining breaks down, the dispute goes to the court of appeals. Let Λ denote the probability that the case goes to appeal given that it has been litigated in the lower court. Let C be the costs of

⁷⁹ If there is no uncertainty about the decision of the appellate court, then all disputes are settled out of court when litigation is costly. Here, I assume that the bank does not face any uncertainty for simplicity. Relaxing this assumption does not affect the results.

⁸⁰ The idea of out of court bargaining in presence of uncertainty over potential court decision is due to Priest and Klein (1984).

litigating in appellate court for each side.

4.2.2 Analysis

At time $t = 0$ the bank decides whether to extend a loan. It has the following expected profit function

$$\Pi = (1 - d)L + d[(1 - \lambda)s + \lambda[(1 - \Lambda)S + \Lambda(L - C) - c]]. \quad (4.1)$$

At $t = 1$, the firm defaults on the loan with probability d . If default occurs, the bank threatens with litigation. Since litigation is costly, it is efficient to settle out of court. The firm makes an offer of a settlement to the bank.

The firm and the bank will settle as long as the minimum settlement that the bank asks for does not exceed the maximum expected loss from litigation for the firm

$$L - c - C < \phi L + c + C^{81}. \quad (4.2)$$

This inequality holds with probability

$$p(\phi > 1 - \frac{2(c + C)}{L}) = \frac{2(c + C)}{L}. \quad (4.3)$$

If the settlement occurs, the bank receives

$$s = L - C - c + \alpha[(E(\phi \mid \phi > 1 - \frac{2(c + C)}{L})L + 2(C + c)], \quad (4.4)$$

where $E(\phi \mid \phi > 1 - 2(c + C)/L) = 1 - (c + C)/L$ and $E(\cdot)$ is the expectations operator.

If agreement on a settlement is not reached, at $t = 2$ the bank and the firm litigate in the lower court. The latter decides in favour of the bank with probability ρ .

At $t = 3$, the firm updates its estimated probability of the bank winning the appeal using new information contained in the lower court's decision. Using Bayes' rule, the

⁸¹ At $t = 1$, prior to the lower court decision, the firm (the bank) knowing the value of ρ and ϕ (distribution of ϕ in the bank's case), can calculate the probability of settlement at $t = 3$. Thus, the firm's maximum offer of settlement (the bank's minimum accepted settlement) at $t = 1$ is somewhat smaller (greater) than $\phi L + c + C$ ($L - c - C$). For simplicity I ignore this secondary effect, which would increase the probability of litigation at $t = 1$.

firm's posterior estimate of this probability is

$$\Phi = \begin{cases} \frac{\phi\rho}{\phi\rho+(1-\phi)(1-\rho)} & \text{if the bank wins in the court of first instance} \\ 1 - \frac{(1-\phi)\rho}{(1-\phi)\rho+\phi(1-\rho)} & \text{if the bank loses} \end{cases} \quad (4.5)$$

The firm updates more, i.e. its posterior Φ is further away from ϕ , when the lower court decision contains more information about what will happen at appeal. More precisely, Φ is further away from ϕ when ρ is further away from $1/2$ ⁸². Thus, the lower court decisions reduce uncertainty more when $|\rho - 1/2|$ is higher. To use the definition introduced in the beginning of section 4.2, the lower court is a more *reliable* predictor of appellate court's judgements when $|\rho - 1/2|$ is higher⁸³.

The firm and the bank then bargain over a settlement S to be received by the bank if appeal is to be avoided. Settlement occurs as long as

$$\Phi > 1 - 2C/L. \quad (4.6)$$

The probability of a settlement given that dispute had been litigated in the lower court is given by

$$1 - \Lambda = \rho[1 - \min(\frac{p(\phi < \phi^*)}{2(c+C)/L}, 1)] + (1 - \rho)[1 - \min(\frac{p(\phi < \phi^{**})}{2(c+C)/L}, 1)] \quad (4.7)$$

where $\phi^* = (1 - \frac{2C}{L})(1 - \rho)/\{(1 - \frac{2C}{L})(1 - 2\rho) + \rho\}$ and $\phi^{**} = (1 - \frac{2C}{L})\rho/\{(1 - \rho) - (1 - \frac{2C}{L})(1 - 2\rho)\}$.

Proposition 4.1

The probability of appeal to a higher court, Λ , falls with reliability of lower court decisions, $|\rho - 1/2|$.

The proof of proposition 4.1 is in Appendix 4.B. The intuition is the following: when the lower court is more reliable, the firm's estimated probability of the bank winning the appeal increases more (i.e. moves closer to the true value of 1). Consequently,

⁸² The firm makes no updating at all when $\rho = 1/2$.

⁸³ If I assume that lower court's decisions are more consistent with appellate court's view than random guesses, ($\rho > 1/2$), then ρ captures reliability of lower court decisions.

the firm offers more to the bank to settle the dispute out of court. This reduces the ex ante probability of appeal for any initial value of ϕ .

If dispute is settled, the bank receives a settlement

$$S = L - C + \alpha[(E(\Phi|\phi < 1 - 2(c + C)/L, \Phi > 1 - 2C/L) - 1)L + 2C]. \quad (4.8)$$

If, on the other hand, the bargaining at $t = 3$ breaks down, the two parties go on to litigate in the court of appeals, which returns a verdict in favour of the bank. Substituting (4.7) and (4.8) in (4.1), we can express the bank's profit in terms of exogenous variables. This gives rise to the following:

Proposition 4.2

Lender's expected profits rise fall with court reliability, $|\rho - 1/2|$.

The proof of Proposition 4.2 is in Appendix 4.C. This proposition contains the basic insight into how reliability of court decisions affects lending. When the lower court is more reliable, the firm receives more information from its decision about the would-be outcome of the case at appeal. When the firm better anticipates the decision of the appellate court, it is willing to offer more to the bank in a settlement, and the litigation at appeal is less likely. Since litigation is costly, this lowers the expected costs of enforcing the loan contract for the lender, and, therefore, makes the lender more likely to extend the loan⁸⁴.

The impact of court reliability on the bank's costs, and, therefore, lending, is larger when the probability of a default is larger. This implies that lenders that have access to better selection or monitoring technology will be less influenced by the quality of courts in their lending decisions.

Propositions 4.1 and 4.2 provide motivation for the empirical analysis of section 4.4. In practice $|\rho - 1/2|$ is not directly observable. It affects lending by reducing the

⁸⁴ Note that this framework is agnostic as to whether the court of appeals or the lower court makes a fairer decision. Here, less reliable courts are costly because they lead to more inefficient litigation.

probability of litigation in the appellate court. Therefore, the impact of court reliability on lending decisions can be empirically identified by estimating the relationship between loans extended and the probability of appeal.

The framework above also identifies three other factors that affect both the probability of appeal and the lender's expected profits⁸⁵. First, the size of loan L influences the probability of appeal. The sign of the effect of L on Λ depends on the values of other variables (ρ , c and C).

Second, both the probability of appeal and expected profits of the lender are affected by how good the firm is at estimating its chances of winning in court. In the framework above, this corresponds to the range of the firm's prior ϕ around the bank's true chances of winning at appeal. Reducing this range increases both the probability of appeal and expected profits of lenders.

Finally, the probability of appeal and expected profits are both affected by costs of litigation (c and C). The sign of this effect is uncertain, and depends on ρ .

These influences are further discussed in section 4.4.3, after empirical results are presented.

4.3 Background and data

In Russia, between 1995 and 2001, 63% of all cases resolved by regional commercial courts were disputes between enterprises, including banks. The vast majority of these were breach of contract suits.

As discussed in chapter 2, section 2.3, the system of commercial courts consists of three levels: 81 regional courts of first instance, 10 okrug courts of appeal and the Supreme Arbitration Court. Litigation fees are set by a federal law, the same for all courts of each tier.

When a dispute is initially brought to court, the law requires the plaintiff to file it in the court of first instance of the region where the *defendant* is registered. Therefore, if a firm defaults on a loan, the lender will be suing it in the commercial court of

⁸⁵ Derivations for these three effects are not shown here, but are available from the author.

the region where the firm is registered. This implies that lending to firms should be affected by the quality of the court where these firms are registered, rather than the court in the region where the lender is registered.

Table 4.1 provides the descriptive statistics for the main variables used in this study. The data on annual activity of each regional commercial court is has been obtained from the Supreme Arbitration Court of Russia. The firm level data on credits and loans received were taken from the Alba/Gnozis collection of accounting reports of medium and large size Russian enterprises. Regional characteristics, used as control variables, were taken from annual publications of Goskomstat (the state statistical committee) and the Ministry of Finance.

External credit is observed for each of approximately 15,600 medium and large size enterprises every year between 1995 and 2002⁸⁶. The sample accounts for approximately 1% all registered firms in Russia, and about 16% of total employment. Just under half of all firms are industrial firms, and about a third are providers of services. Construction firms make up 11% of the sample, transport firms – 8%, and agricultural firms – 3%. Outlier firms with credit to assets ratio in the top 1/2% of the distribution in any of the years were removed from the sample.

Trade credit is the single most important source of lending received by Russian firms: across the eight sampled years, it accounts, on average, for 51% of the stock of debt held by them (or 23% of firms' total assets). As in other countries, it is also the most common one: 97% of firms receive at least some trade credit from their suppliers.

In contrast, just 41% of firms report having bank credit. Among firms that do receive bank loans, they accounts for 19% of all external debts (or 10% of assets), and represent the second most important source of credit after that from suppliers.

Between 1995 and 1998, the sample average of bank credit to assets fell, hitting the low of 5% in the year of Russia's banking crisis. It then saw a gradual recovery in post-crisis years to 10% in 2002. This pattern is consistent with the aggregate figures published by the Central Bank of Russia.

⁸⁶ This is an unbalanced panel.

This trend masks two opposing effects: continuous expansion of bank credit by firms that have access to it counteracted by a fall in the number of such firms. Evolution of the share of firms with bank credit varies significantly from region to region, and some examples are shown in figure 4.1. In some regions, this first fell, and then rose again over time. Steady declines were observed, for example, in Chukotsky region and Dagestan.

The court data covers 81 regional arbitrazh courts over the same period of eight years, 1995-2002. The rate of appeals was calculated by dividing the number of regional court decisions appealed by the number of all cases completed in the same court in the same year⁸⁷. As shown in table 4.1, the mean rate of appeal in the sample is 5%⁸⁸. Average rates for individual courts vary from 3% (Bashkortostan) to 11% (Moscow city).

4.4 Empirical method and results

The econometric analysis is based on a panel data model of the form

$$y_{irt} = f(\beta(1 - \Lambda_{rt}) + \delta x_{irt} + u_{irt}), \quad (4.9)$$

where y is the credit of firm i located in region r at time t , and Λ_{rt} is the rate of appeals in regional commercial court r and time t . Thus, $1 - \Lambda_{rt}$ captures reliability of the regional court. Other exogenous variables are denoted by x_{itr} . If more reliable courts have a positive effect on lending, β should be positive and significant.

Three issues arise when estimating and interpreting the parameters of this model. First, many firms in the sample have no bank credit. Since bank credit cannot be negative, the appropriate model for describing its behaviour is $y_{irt} = \max(0, \beta(1 - \Lambda_{rt}) + \delta x_{irt} + u_{irt})$. Thus, a linear estimation of the relationship between y_{irt} and $1 - \Lambda_{rt}$ would produce inconsistent coefficients. Therefore, I estimate a non-linear tobit model in subsection 4.4.1.

⁸⁷ An alternative definition, where the number of cases appealed was divided by all cases completed in the previous year, was also tested: this does not significantly affect the conclusions.

⁸⁸ For comparison, in the US, the rate of appeal of district court decisions was 13.5% in 2000. This includes all civil cases, not only commercial disputes.

The second concern is the nature of unobserved elements (u_{irt}) in equation (4.9). When the error term includes firm or region specific characteristics, these are common to several observations, and residuals for these observations will be correlated. This requires standard errors of estimators to be adjusted accordingly.

Third, if we believe these unobserved characteristics (u_{irt}) to be correlated with the law enforcement variable $1 - \Lambda_{rt}$, estimators that ignore this correlation will be inconsistent. Unfortunately, non-linear estimation procedures have significant limitations in dealing with such omitted variables. In section 4.4.2, I argue that my results using tobit model indicate that a discrete choice model may capture well the main effect of law enforcement on credit here. I, therefore, use discrete choice models for robustness checks in section 4.4.2.

Throughout this empirical section, I try to be explicit about the assumptions I make on u_{irt} . I start with most innocuous ones in subsection 4.4.1, and then relax them in the robustness discussion in 4.4.2.

Finally, subsection 4.4.3 focuses on further interpretation of obtained results. It comes back to the issue that the rate of appeals might proxy for variables other than reliability of courts, raised earlier in the chapter.

4.4.1 Basic results

Table 4.2 summarizes the results of estimating the effect of reliability of courts on credit received by firms using (4.9).

Column 1 looks at bank credit, measured as a fraction of the firm's total assets. I find a highly significant and positive effect of court reliability on bank credit. The model is estimated using tobit, with the marginal effects given in columns 1a and 1b. The effect of court reliability on the size of loans to firms that are receiving them is positive and significant (column 1a). So is the effect of court reliability on the probability that a firms receives a loan (column 1b). The latter is significantly greater than the former. This suggests that improvements in law enforcement mostly work through broadening access to credit for firms who have not been borrowing before,

rather than increasing the size of loans to firms that are already borrowing.

In terms of magnitude, a one percentage point reduction in the rate of appeals increases the probability that a firm receives bank credit by 1.2%. This suggests, for example, that replacing Chukotsky commercial court (one of the courts with the highest appeal rates), with that from Vladimirskaia oblast, should increase the number of firms who receive bank credit by about 8%⁸⁹.

Turning to trade credit, column 2 shows that the coefficient on reliability of law enforcement is also positive and significant. However, it is notably smaller than the coefficient on bank credit. Since only 4% of observations in the sample report zero trade credit, the non-linear effects are likely to be small. Accordingly, a linear model is estimated in column 3. Its results are consistent with the tobit model.

Column 4 looks at credit received by enterprises from dependent firms. It is not affected by law enforcement. In columns 5 and 6, I test for impact of court reliability on trade credit extended by the sampled firms to their customers, and find no effect. Since the lender must sue the borrower in the borrower's region, this is consistent with firms extending credit to customers located in other regions.

Altogether, these results make sense: The number of firms receiving bank credit increases when regional courts are more reliable. The loan amounts also rise but the effect is smaller. This is consistent with contract enforcement costs being largely fixed. Credit from suppliers is notably less sensitive to court performance. This is consistent with major theories of trade credit, that suggest that suppliers have better access to information and monitoring of their clients than banks⁹⁰. This result also agrees with Johnson et al (1999) who show that Eastern European suppliers respond more to perceived court quality when the customer is new. Finally, lending from firms who are connected to the borrower through ownership links, and, therefore, largely protected from the borrower's default, is not affected by court performance.

⁸⁹ This is a slight abuse of interpretation, since in a tobit regression the marginal effect is not constant with respect to independent variables. In the next section, I show that a linear estimate of the effect of court reliability is almost exactly the same in magnitude, and, therefore, the example above is valid.

⁹⁰ See, for instance, Petersen and Rajan (1997).

4.4.2 Robustness

The next task is to assess the robustness of these findings. The tobit model assumes that the error terms, u_{irt} are independently normally distributed, and uncorrelated with the law enforcement variable. However, because the empirical model does not account for all firm and regional factors affecting credit, a more realistic form of the error term allows for interdependence across observations i.e.

$$u_{irt} = \nu_r + \mu_i + \varepsilon_{itr}. \quad (4.10)$$

Here ν_r captures a region specific effect common to all firms located in one region (for example, physical infrastructure), and μ_i captures a firm effect (for instance, managerial ability), under the assumption that both of these stay the same for the sample period.

This has two implications. First of all, the true variance-covariance matrix of u_{irt} will now have non-zero off-diagonal elements for observations from the same region and for the same firm. Ignoring these will underestimate the standard errors of regression coefficients. In my data, this effect is aggravated because the law enforcement variable is measured at the level of region, and does not vary across observations for firms located in the same region for any given year (see Moulton (1990)).

Secondly, if either ν_r or μ_i are correlated with law enforcement, a model that does not account for this will produce inconsistent estimates. As discussed in more detail below, some of regional factors may be correlated with reliability of court decisions. It is less likely that individual firm characteristics have an impact on regional rate of appeals at courts. Still, this cannot be ruled out since the sample includes large firms.

If data generating process were linear, the issue of correlation between ν_r , μ_i and explanatory variables could have been addressed by taking advantage of panel structure of the data and estimating a ‘fixed effects’ regression. In a non-linear framework, introducing regional or firm dummies does not solve the problem. In tobit type models, this problem is especially difficult to deal with when the common factors are unob-

servable⁹¹.

My findings so far suggest that the dominant effect of better court performance is on the probability of a firm receiving a loan. Focusing on this, I redefine the dependent variable as a binary (discrete choice) indicator which equals to 1 if the firm has a loan, and 0 otherwise. Table 4.3 estimates a logit (column 1) and a linear probability (column 2) models using this binary outcome. The results confirm the highly significant positive effect of court reliability on bank lending found in the tobit model. The marginal effect of reducing the rate of appeal on the probability of receiving a bank loan is 1.1%, which is almost the same as that obtained from the tobit model.

Shifting the focus to the probability of getting a loan allows me to tackle the problem of fixed unobserved effects. Column 2 demonstrates that the estimates remain robust when all fixed regional level effects are controlled for by dummies in a linear model. To address a further issue of unobserved firm level effects, a firm fixed effects model is estimated using conditional logit (column 3) and linear probability (column 4). The coefficient on court reliability remains positive and significant at 1% level. However, the magnitude of the marginal effect reported in the linear regression is now 0.4%, significantly below the 1.1% obtained earlier.

It so happens that no firms in the sample moved from one region to another: this implies that allowing for firm fixed effects also controls for regional level effects. When unobserved effects are given by (4.10), the error term reduces to ε_{itr} after inclusion of firm level dummies. This means that the firm fixed effects model in column 4 provides correct estimates of standard errors.

This is no longer the case if instead we posit that unobserved regional factors vary over time. Then the error term becomes

$$u_{irt} = \nu_{rt} + \mu_i + \varepsilon_{itr}. \quad (4.11)$$

Now, even when firm fixed effects are controlled for, the residuals of observations for

⁹¹ If the factors affecting credit and law enforcement were all observable, a two stage procedure proposed by Smith and Blundell (1986) could be followed to obtain consistent estimates for law enforcement coefficients. For more on estimation of tobit models with unobservable effects see Honore and Kyriazidou (2000).

firms located in the same region in the same year are correlated. The standard errors of fixed effects coefficients will be understated, aggravated since law enforcement does not vary across firms. Furthermore, if elements of ν_{rt} are correlated with the law enforcement variable, fixed effects estimates may be inconsistent⁹².

Estimations reported in table 4.4 address these issues. I control for some omitted factors whose over time changes may be affecting both court reliability and bank credit.

So far, dynamic regional factors, such as the level of regional development and regional government policies, have not been included. Yet, there are no obvious channels through which such factors could influence court reliability: as discussed in section 2.3 of this thesis, regional commercial courts are financed and organized by the federal government, who appoints judges taken from the national pool of candidates.

Using the same logic, court quality is likely to be correlated with assistance from the federal centre to a particular region. Such assistance may also affect lending to firms in its own right. I control for federal support using three measures of government subsidies: first, direct subsidies from the federal government to the regional government; second, subsidies to individual firms, and third, the amount individual firms owe in tax arrears⁹³. In addition, I control for changes in regional infrastructure over time by including the fraction of the population with access to telephones. Finally, I include court case load per judge to control for the possibility that increases in regional economic activity raise both bank credit and the number of law suits, affecting court performance. Results in column 1 show that inclusion of these controls does not affect the estimated impact of court reliability on access to credit.

I now introduce controls for changes in firm level factors. Current assets proxy for the firm's demand for short term financing. The fraction of finished goods in inventory measures the ease with which creditors can liquidate short term assets in case of a default. Column 2 shows that the coefficient on court reliability remains positive and significant when these controls are included. Both controls are significant

⁹² Similarly, fixed effects may not lead to consistency if ε_{itr} and law enforcement are correlated.

⁹³ Subsidies to firms and tax debts may also include those from/due to regional governments.

and have expected positive signs.

The regression shown in column 3 addresses contemporaneous correlation of residuals potentially caused by omitting time varying regional factors. Standard errors of coefficients in column 3 are adjusted for this using a procedure outlined in Rogers (1993), and usually referred to as ‘clustering.’ Although the standard error of the estimated impact of court reliability has now risen, the effect is still positive and significant at the 5% level.

I now perform the most stringent robustness test by adding region specific time trends to control for changes in omitted variables over time. The effect of court reliability can no longer be identified. This is not entirely surprising: inclusion of regional time trends reduces the variation from which the effect of law enforcement is identified to deviations from the regional trend.

Coming back to the size of bank loans that firms receive, the effect of courts on it does not seem to disappear when region specific trends are used. The estimation in column 5 uses bank credit to assets ratio as a dependent variable in a linear model. In column 6, the same equation is estimated only for observations where bank credit is positive. Despite inclusion of region specific trends, the effect of court reliability is positive and significant. However, these estimation must be viewed with caution, since bank credit data is, by nature, non-linear.

Finally, table 4.5 revisits the relationship between predictability of the court system and credit from sources other than banks, now using a firm fixed effects specification. The effect of courts on trade credit received can no longer be identified. The impact of court reliability on credit from firms connected through ownership has a negative sign. This suggests that as courts’ performance improves, firms switch from internal to external sources of funding.

To summarize, the positive effect of court reliability on the proportion of firms receiving bank credit is robust to controlling for regional and firm fixed effects. This effect remains highly significant also when a number of important regional level and firm level controls are included. It is robust to adjustment of the standard errors for

intra-firm and contemporaneous intra-regional correlation. However, the effect of law enforcement on access to bank credit can no longer be identified when region specific time trends are included.

4.4.3 The rate of appeals as a proxy for other things⁹⁴

A remaining concern is that one minus the rate of appeals might proxy for something other than reliability of the lower court's decisions. Section 4.2 showed that court reliability $|\rho - 1/2|$ directly affects the rate of appeals Λ and through it, bank's profits⁹⁵. However, it is also influenced by three other factors: first, average amount at stake; second, the parties' ability to assess legality of their claim; and third, costs of litigation. Since my regressions do not control for these explicitly, I shall now consider how the interpretation of my results may be affected by omission of these three variables.

First, the average amount at stake is likely to be positively correlated with the size of credit received by firms. This may affect interpretation of estimations with size of loan as a dependent variable. From the model in section 4.2, the stake's impact on the rate of appeals is ambiguous. If it is negative, omission of the average amount at stake will underestimate the effect of court reliability on size of bank loans, and vice versa. Yet, omission of the stake variable should not influence estimations where the probability of getting a loan is used as a dependent variable, since there is no obvious correlation between such probability and dispute stake. Thus, the interpretation of my finding that higher court reliability increases the number of firms that get bank credit should not be affected.

Second, when the firm's ability to anticipate the decisions of appellate court improves (range of ϕ shrinks around the true probability of bank winning appeal), this reduces the expected bank's costs of enforcing loan contracts. At the same time, it also increases the rate of appeals⁹⁶. Therefore, omitting the degree of sophistication

⁹⁴ In this section, I rely on several effects derived from the model in section 4.2 which are not shown here explicitly, but are available on request.

⁹⁵ At extremes, when $\rho = 1/2$, $\Lambda = 1$; when $\rho = 1$, $\Lambda = 0$; and when $\rho = 0$, $\Lambda = 1$.

⁹⁶ This follows from the framework in section 4.2. As the range of firm's expectations shrinks around the bank's true chances of winning, the probability that the suit is litigated in the lower court falls. However,

of litigating parties from regressions biases the coefficient on court performance downwards. This implies that my results underestimate the true effect of court performance on external finance.

Third, the costs of litigation can be broken down into court fees, and other firm specific costs (such as lawyer fees, reputation effects etc.). The former do not vary across Russian courts, and their effects are controlled for by year dummies. All fixed components of firm specific costs and reputation effects are controlled for by firm dummies. Yet, if such costs have a dynamic firm specific component, it is possible that the coefficient on $1 - \Lambda$ picks up some of their effect. From section 4.2, costs of litigation have an ambiguous effect on the rate of appeals and the expected total costs of enforcing repayment by lenders (it depends on ρ). When the costs move these two variables in opposite directions, my empirical findings may understate the impact of court consistency on lending. When these two variables change in the same direction in response to changes in litigation costs, my results may indeed overstate the effect of court performance on external financing.

4.5 Concluding remarks

This chapter examines the link between law enforcement and credit extended to firms. Empirical evidence indicates that reliability of commercial court decisions is an important determinant of lending to firms. I have shown that improvements in court performance lead to a rise in the number of firms to which banks issue credit. They also tend to increase the size of loans that banks extend. In contrast, the impact of court performance on trade credit is much weaker and less robust.

The study focuses on a particular aspect of court performance: the reliability of the judicial decisions as predictors of what is lawful. It also identifies a channel through which law enforcement effect operates: when law enforcement is more predictable, this encourages early settlement between disputing parties, helps avoid costly litigation and therefore reduces expected costs of contract enforcement for banks and other

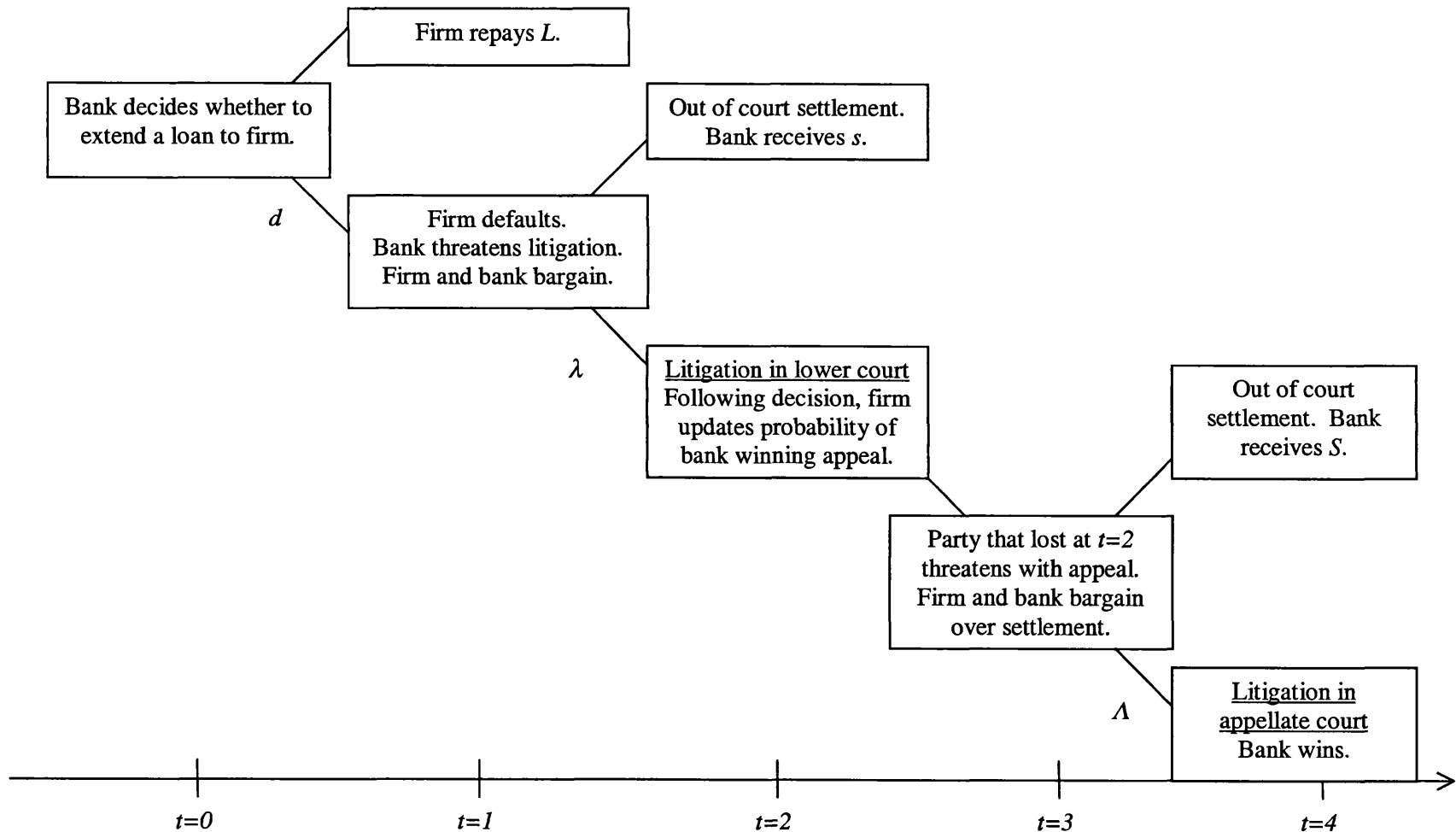
the probability that the suit appealed *given that it had been litigated in the lower court* rises.

lenders⁹⁷.

The analysis provides new evidence that the legal environment is important for financial and economic development. Furthermore, it shows that the specific ways in which courts enforce laws have a substantial impact, even when law on the books remains the same. This suggests, that looking at differences in the process of law enforcement and not just laws themselves is important for understanding why different legal systems are associated with different patterns of economic development.

⁹⁷ In particular, such a mechanism may help explain existing evidence that countries which spent less time adapting laws borrowed from other legal systems to local circumstances have experienced slower economic development (see Berkowitz et al (2003)).

Appendix 4.A Timing of the model



Appendix 4.B

Proof of Proposition 4.1

Here I show that the probability that the lower court decision is appealed conditional on the dispute being litigated in the lower court Λ , falls in court reliability, $|\rho - 1/2|$.

This is equivalent to showing that $\partial\Lambda/\partial\rho < 0$ when $\rho > 1/2$, $\partial\Lambda/\partial\rho > 0$ when $\rho < 1/2$, and $\partial\Lambda/\partial\rho = 0$ when $\rho = 1/2$.

First, I derive the expression for Λ . Second, I find the intervals of ρ for which $\Lambda = 1$. Third, when $\Lambda < 1$, I find the sign of $\partial\Lambda/\partial\rho$.

Given the result in (4.7) and that ϕ is uniformly distributed on $[0, 1]$

$$\Lambda = \rho \min\left(\frac{\phi^*}{1 - 2(c + C)/L}, 1\right) + (1 - \rho) \min\left(\frac{\phi^{**}}{1 - 2(c + C)/L}, 1\right) \quad (4.12)$$

where

$$\phi^* = \left(1 - \frac{2C}{L}\right)(1 - \rho) / \left\{\left(1 - \frac{2C}{L}\right)(1 - 2\rho) + \rho\right\} \quad (4.13)$$

and

$$\phi^{**} = \left(1 - \frac{2C}{L}\right)\rho / \left\{\left(1 - \rho\right) - \left(1 - \frac{2C}{L}\right)(1 - 2\rho)\right\}. \quad (4.14)$$

I solve $\phi^*/\{1 - 2(c + C)/L\} < 1$ and $\phi^{**}/\{1 - 2(c + C)/L\} < 1$ for critical values of ρ which make these inequalities hold. Let $\bar{\rho}$ and $\underline{\rho}$ denote these critical values respectively. They are equal to

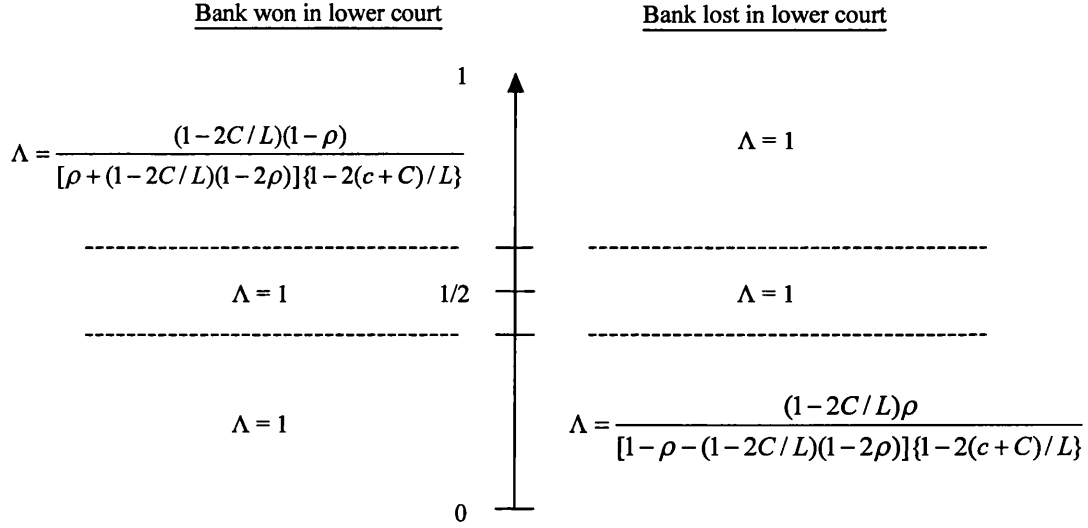
$$\begin{aligned} \bar{\rho} &= 1/2 + 1/2\delta \\ \underline{\rho} &= 1/2 - 1/2\delta \end{aligned} \quad (4.15)$$

where

$$\delta \equiv \frac{\frac{2c}{L}}{2\left(1 - \frac{2C}{L}\right)\left(\frac{2C}{L} + \frac{2c}{L}\right) - \frac{2c}{L}}. \quad (4.16)$$

Since $\frac{2C}{L} + \frac{2c}{L} < 1$, $0 < \delta < 1$. Therefore, $\bar{\rho} > 1/2$ and $\underline{\rho} < 1/2$.

This gives rise to the following schedule of Λ :



From this we have the following:

- When $\rho > \bar{\rho}$,

$$\frac{\partial \Lambda}{\partial \rho} = \frac{\phi^*}{1 - 2(c + C)/L} + \rho \frac{\partial \phi^*}{\partial \rho} \frac{1}{1 - 2(c + C)/L} - 1. \quad (4.17)$$

where

$$\frac{\partial \phi^*}{\partial \rho} = \frac{(1 - \frac{2C}{L})^2 - (1 - \frac{2C}{L})}{\{(1 - \frac{2C}{L})(1 - 2\rho) + \rho\}^2}. \quad (4.18)$$

Since $0 < 1 - 2C/L < 1$, $\partial \phi^*/\partial \rho < 0$. Thus, and since $\phi^*/\{1 - 2(c + C)/L\} < 1$, $\partial \Lambda/\partial \rho < 0$.

- When $\rho < \underline{\rho}$,

$$\frac{\partial \Lambda}{\partial \rho} = 1 - \frac{\phi^{**}}{1 - 2(c + C)/L} + (1 - \rho) \frac{\partial \phi^{**}}{\partial \rho} \frac{1}{1 - 2(c + C)/L} \quad (4.19)$$

where

$$\frac{\partial \phi^{**}}{\partial \rho} = \frac{(1 - \frac{2C}{L}) - (1 - \frac{2C}{L})^2}{\{(1 - \rho) - (1 - \frac{2C}{L})(1 - 2\rho)\}^2}. \quad (4.20)$$

Since $0 < 1 - 2C/L < 1$, $\partial \phi^{**}/\partial \rho > 0$. Thus, and since $\phi^{**}/\{1 - 2(c + C)/L\} < 1$, $\partial \Lambda/\partial \rho > 0$.

- When $\underline{\rho} \leq \rho \leq \bar{\rho}$, which includes $1/2$, $\Lambda = 1$ (at its maximum). Thus, $\partial \Lambda/\partial \rho = 0$.

Therefore, $\partial \Lambda/\partial \rho = 0$ when $\underline{\rho} \leq \rho \leq \bar{\rho}$, $\partial \Lambda/\partial \rho < 0$ when $\rho > \bar{\rho}$ and $\partial \Lambda/\partial \rho > 0$ when $\rho < \underline{\rho}$. Since $\bar{\rho} > 1/2$ and $\underline{\rho} < 1/2$, this implies that Λ falls in court reliability, $|\rho - 1/2|$. QED.

Appendix 4.C

Proof of Proposition 4.2

I need to show that the bank's expected profits increase in court reliability $|\rho - 1/2|$. This is equivalent to showing that $\partial\Pi/\partial\rho > 0$ when $\rho > 1/2$, $\partial\Pi/\partial\rho < 0$ when $\rho < 1/2$, and $\partial\Pi/\partial\rho = 0$ when $\rho = 1/2$.

First, I express the profit given by (4.1) in terms of ρ , for each the three ranges of ρ : $\underline{\rho} \leq \rho \leq \bar{\rho}$, $\rho > \bar{\rho}$ and $\rho < \underline{\rho}$, where $\bar{\rho}$ and $\underline{\rho}$ have been derived in appendix 4.B. Second, I calculate $\partial\Pi/\partial\rho$ for each of these.

From (4.1), (4.8), and the schedule of Λ derived in appendix 4.B, the profit function is

$$\Pi = \begin{cases} (1-d)L + d\{(1-\lambda)s + \lambda[\rho((1-\Lambda)\bar{S} + \Lambda(L-C)) + (1-\rho)(L-C) - c]\} & \text{when } \rho > \bar{\rho} \\ (1-d)L + d\{(1-\lambda)s + \lambda[\rho(L-C) + (1-\rho)[(1-\Lambda)\underline{S} + \Lambda(L-C)] - c]\} & \text{when } \rho < \underline{\rho} \\ (1-d)L + d[(1-\lambda)s + \lambda(L-c-C)] & \text{when } \underline{\rho} \leq \rho \leq \bar{\rho} \end{cases} \quad (4.21)$$

where

$$\bar{S} = L - C + \alpha[(\int_{\phi^*}^1 \Phi(\phi)d\phi - 1)L + 2C] \quad (4.22)$$

and

$$\underline{S} = L - C + \alpha[(\int_{\phi^{**}}^1 \Phi(\phi)d\phi - 1)L + 2C]. \quad (4.23)$$

From this we have the following:

- When $\rho > \bar{\rho}$,

$$\frac{\partial\Pi}{\partial\rho} = d\lambda\{(1-\Lambda)[\bar{S} - (L-C)] - \rho\frac{\partial\Lambda}{\partial\rho}[\bar{S} - (L-C)] + \rho(1-\Lambda)\frac{\partial\bar{S}}{\partial\rho}\} \quad (4.24)$$

where

$$\frac{\partial\bar{S}}{\partial\rho} = \alpha L[\int_{\phi^*}^1 \frac{\partial\Phi(\phi)}{\partial\rho}d\phi - \Phi(\phi^*)\frac{\partial\phi^*}{\partial\rho}] \quad (4.25)$$

and

$$\frac{\partial\Phi(\phi)}{\partial\rho} = \frac{\phi - \phi^2}{[\phi\rho + (1-\phi)(1-\rho)]^2} > 0 \quad (4.26)$$

when the bank wins in the lower court (from (4.5)).

To sign $\partial\Pi/\partial\rho$: First $\bar{S} > L - C$. Second, $\partial\Lambda/\partial\rho < 0$ when $\rho > \bar{\rho}$ (see appendix 4.B). Third, $\partial\bar{S}/\partial\rho > 0$ since $\partial\Phi(\phi)/\partial\rho > 0$ and $\partial\phi^*/\partial\rho < 0$ when $\rho > \bar{\rho}$ (see appendix 4.B). Thus, $\partial\Pi/\partial\rho > 0$.

- When $\rho < \underline{\rho}$,

$$\frac{\partial\Pi}{\partial\rho} = d\lambda\{(1-\Lambda)[(L-C)-\underline{S}] - (1-\rho)\frac{\partial\Lambda}{\partial\rho}[\underline{S}-(L-C)] + (1-\rho)(1-\Lambda)\frac{\partial\underline{S}}{\partial\rho}\} \quad (4.27)$$

where

$$\frac{\partial\underline{S}}{\partial\rho} = \alpha L \left[\int_{\phi^{**}}^1 \frac{\partial\Phi(\phi)}{\partial\rho} d\phi - \Phi(\phi^{**}) \frac{\partial\phi^{**}}{\partial\rho} \right] \quad (4.28)$$

and

$$\frac{\partial\Phi(\phi)}{\partial\rho} = \frac{\phi^2 - \phi}{[\phi(1-\rho) + (1-\phi)\rho]^2} < 0 \quad (4.29)$$

when bank loses in the lower court.

To sign $\partial\Pi/\partial\rho$: First $\underline{S} > L - C$. Second, $\partial\Lambda/\partial\rho > 0$ when $\rho < \underline{\rho}$ (see appendix 4.B). Third, $\partial\bar{S}/\partial\rho < 0$ since $\partial\Phi(\phi)/\partial\rho < 0$ and $\partial\phi^{**}/\partial\rho > 0$ when $\rho < \underline{\rho}$ (see appendix 4.B). Thus, $\partial\Pi/\partial\rho < 0$.

- When $\underline{\rho} \leq \rho \leq \bar{\rho}$, from (4.3) and (4.4), $\lambda = 1 - 2(C + c)/L$ and $s = L + (\alpha - 1)[C + c]$. Thus, $\partial\Pi/\partial\rho = 0$.

Therefore, $\partial\Pi/\partial\rho = 0$ when $\underline{\rho} \leq \rho \leq \bar{\rho}$, $\partial\Pi/\partial\rho > 0$ when $\rho > \bar{\rho}$ and $\partial\Pi/\partial\rho < 0$ when $\rho < \underline{\rho}$. Since $\bar{\rho} > 1/2$ and $\underline{\rho} < 1/2$, this implies that Π rises in court reliability $|\rho - 1/2|$. QED.

Concluding remarks

This thesis studies the relationship between judicial institutions and the economy. The empirical analysis is based on new data that I collected for this purpose. The thesis makes three contributions.

First, it shows empirically that quality of courts has a significant impact on economic development through allocation of credit to firms (chapter 4). Using detailed micro level data from Russia and exploiting variation in commercial court performance across regions and over time, I find that predictability of the court system increases bank lending to firms. The results also indicate that trade credit is not nearly as responsive to court performance as bank credit. The findings are robust to inclusion of firm fixed effects and controls. The focus on predictability, a specific dimension of court performance which is measured objectively, lends further confidence to the results. The study in chapter 4 also complements existing literature by analytically deriving a mechanism through which predictability of courts affects firms.

Second, the thesis demonstrates, both empirically and theoretically, that judicial selection procedures have a substantial effect on the way that property and contract rights are enforced (chapter 3). Although appointment of judges has been subject to recent policy debates in a number of countries, there is almost no rigorous analysis of how selection procedures influence law enforcement. Chapter 3 contrasts selection of judges by the executive on the one hand and the legislature on the other, the two common ways of appointing judges around the world. I develop a model which shows that these two political offices have incentives to select different types of judges. I then empirically contrast law enforcement by judges appointed using these two methods. The empirical investigation exploits changes in Russian laws in 1990s that led to variation in how commercial court judges had been appointed. My findings, based on decisions of individual judges appointed by different methods, show that the legislator selects judges who protect small firms against government intervention more than judges selected by the executive.

Third, the thesis models judicial decision making by judges in a two-tier hierarchy

of courts (chapter 2). The model gives rise to an empirical approach for characterising performance of judges using reversal rates of their decisions on appeal. This approach addresses several problems endemic in empirical assessment of law enforcement and its economic implications. It is independent of case characteristics and robust to endogenous selection into litigation.

Overall, the analysis presented in this thesis reinforces the growing view that legal environment is important for economic prosperity. In doing so, it emphasises the role of the judiciary vis-a-vis law on books. By focusing on one country, I show that organization and performance of courts have real effects on markets even when law on books remains the same. The thesis also makes a step towards further understanding of specific channels through which the court system influences the economy.

While focusing research on within country variations in law enforcement has its advantages, the example of Russia is very specific, and care must be taken before generalizing implications of empirical research presented in this thesis. Further research into experience of other individual countries would provide new insights and help better understand existing evidence from cross country comparisons.

This thesis has focused on very specific dimensions of judicial institutions and court performance. Many organizational features of judiciary (for example, judicial tenure, mandate, promotions, etc.) and aspects of performance (for instance, fairness, speed) have not been touched upon here. There is much scope for further research, focusing on precise aspects of court performance and mechanisms through which they affect particular economic decisions.

Interactions between judicial and political institutions have not yet been explored, although have been hinted at in some of the literature. These are important in analyzing the roles of political offices in appointing and rewarding judges, the processes critical in striking the right balance between independence and accountability of judiciary. Finally, research on rules governing the judiciary can benefit from and contribute to the insights from the literature on organization of public sector and incentives for public servants in general.

References

Ashenfelter, O., T. Eisenberg and S. Schwab (1995) "Politics and the Judiciary: the Influence of Judicial Background on Case Outcomes," *Journal of Legal Studies*, Vol. 24

Banerjee, A. and E. Duflo (2000) "Reputation Effects and the Limits of Contracting: a Study of the Indian Software Industry" *Quarterly Journal of Economics*, Vol. 115, No. 3

Barro, R. (1997) *Determinants of Economic Growth: A Cross-Country Empirical Study*, Cambridge, MA: MIT Press

Berkowitz, D. and K. Clay (2005) "The Effect of Judicial Independence on Courts: Evidence from the American States," mimeo, University of Pittsburgh

Berkowitz, D., K. Pistor and J. Richard (2003) "Economic Development, Legality, and the Transplant Effect," *European Economic Review*, Vol. 47, No. 1

Besley, T. (1995) "Property rights and Investment Incentives: Theory and Evidence from Ghana," *Journal of Political Economy*, Vol. 103, No. 5

Besley, T. and A. Case (2003) "Political Institutions and Policy Choices: Evidence from the United States", *Journal of Economic Literature*, Vol. 1, No. 41

Besley, T. and A. Payne (2003) "Judicial Accountability and Economic Policy Outcomes: Evidence from Employment Discrimination Charges," mimeo, LSE

Bessonova, E., K. Kozlov, and K. Yudaeva (2003) "Trade Liberalization, Foreign Direct Investment, and Productivity of Russian Firms," CEFIR working paper

Biletsky, S., J. D. Brown, J. Earle, J. Khaleeva, I. Komarov, O. Lazareva, K. Sabirianova, and C. Sprenger (2002), "Inside the Transforming Firm: Report on a Survey of Manufacturing Enterprises in Russia," CEFIR working paper

Black, B., R. Kraakman and A. Tarassova (2000) "Russian Privatisation and Corporate Governance: What Went Wrong?" *Stanford Law Review*, Vol. 52, No. 5

Black, B. and A. Tarassova (2003) "Institutional Reform in Transition: A Case Study of Russia" *The Supreme Court Economic Review*, Vol. 10

Blanes i Vidal, J. and C. Leaver (2005) "Judicial Promotion Tournaments in the

English High Court," mimeo, Oxford University

Canon, B. (1972) "The Impact of Formal Selection Process on the Characteristics of Judges—Reconsidered," *Law and Society Review*, Vol. 6

Cappelletti, M. (1985) "Who Watches the Watchmen? A Comparative Study of Judicial Responsibility," in S. Shetreet and J. Deschenes (eds.), *Judicial Independence: The Contemporary Debate*, Martinus Nijhoff Publishers

Chemin, M. (2004) "Does the Quality of the Judiciary Shape Economic Activity? Evidence from India," mimeo, LSE

Clotfelter, C. (1977), "Public Services, Private Substitutes and the Demand for Protection against Crime," *American Economic Review*, Vol. 67, No. 5

Cohen, M. (1991) "Explaining Judicial Behavior or What's 'Unconstitutional' about the Sentencing Commission?" *Journal of Law, Economics, and Organization*, Vol. 7

Cooter, R. and T. Ginsburg (1996) "Comparative Judicial Discretion: An empirical Test of Economic Models," *International review of law and economics*, Vol. 16

De Meza, D., and J. R. Gould (1992) "The Social Efficiency of Private Decisions to Enforce Property Rights," *Journal of Political Economy*, Vol. 100, No. 3

Demirguc-Kunt, A. and V. Maksimovic (1998) "Law, Finance and Firm Growth," *Journal of Finance*, Vol. 52, No. 6

Demsetz, H. (1967) "Towards a Theory of Property Rights" *American Economic Review, Papers and Proceedings*, Vol. 57, No. 2

Djankov, S., R. La Porta, F. Lopez de Silanes and A. Shleifer (2003), "Courts," *Quarterly Journal of Economics*, Vol. 118 No. 2

Elder, H. (1987) "Property Right Structures and Criminal Courts: An Analysis of State Criminal Courts," *International Review of Law and Economics*, Vol. 7

Eisenberg, T. and S. Johnson (1991) "The Effects of Intent: Do We Know How Legal Standards Work?" *Cornell Law Review*, Vol. 76

Fafchamps, M. and B. Minten (1999) "Relationships and Traders in Madagascar," *The Journal of developments studies*, Vol. 35, No. 6

Frye, T. (2004) "Credible Commitment and Property Rights: Evidence from Rus-

sia," *American Political Science Review*, Vol. 98, No. 3

Frye, T. and E. Zhuravskaya (2000) "Rackets, Regulation and the Rule of Law," *Journal of Law, Economics and Organization*, Vol. 16, No. 2

Gambetta, D. (1994) *The Sicilian Mafia: The Business of Private Protection*, Cambridge, MA: Harvard University Press

Gennaioli, N. (2005) "Contracting in the Shadow of the Law," mimeo, Institute for International Economic Studies, Stockholm University

Glaeser, E., S. Johnson and A. Shleifer (2001) "Coase vs the Coasians," *Quarterly Journal of Economics*, Vol. 116, No. 3

Glaeser, E. and A. Shleifer (2002), "Legal Origins," *Quarterly Journal of Economics*, Vol. 117, No. 4

Glaeser, E. and A. Shleifer (2003), "The Rise of the Regulatory State," *Journal of Economic Literature*, Vol. 41. No. 2

Glick, H. and C. Emmert (1987) "Selection Systems and Judicial Characteristics: The Recruitment of State Supreme Court Justices," *Judicature*, Vol. 70

Goodhart, C. and E. Meade (2003) "Central Banks and Supreme Courts," mimeo, LSE

Gray, C. and K. Hendley (1997) "Developing Commercial Law in Transition Economies: Examples from Hungary and Russia," in *The Rule of Law and Economic Reform in Russia*, K. Pistor and J. Sachs, eds., Boulder: Westview Press

Greif, A. (1993) "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Trader's Coalition," *American Economic Review*, Vol. 83, No.3

Hanssen, F. A. (1999) "The Effect of Judicial Institutions on Uncertainty and the Rate of Litigation: The Election versus Appointment of State Judges," *Journal of Legal Studies*, Vol. 1, No. 28

Hanssen, F. A. (2000) "Independent Courts and Administrative Agencies: An Empirical Analysis of the States," *Journal of Law, Economics, and Organization*, Vol.16, No. 2

Hanssen, F. A. (2004a) "Is There A Politically Optimal Level Of Judicial Indepen-

dence?" *American Economic Review*, Vol. 94

Hanssen, F. A. (2004b) "Learning about Judicial Independence: Institutional Change in the State Courts," *Journal of Legal Studies*, Vol. 33

Hellman, J., G. Jones, D. Kaufmann and M. Schankerman (2000) "Measuring Governance and State Capture: the Role of Bureaucrats and Firms in Shaping the Business Environment," EBRD working paper No. 51

Hendley, K. (1998) "Remaking an Institution: The Transition in Russia from State Arbitrazh to Arbitrazh Courts," *The American Journal of Comparative Law*, Vol. 46

Higgins, R. and P. Rubin (1980) "Judicial Discretion," *Journal of Legal Studies*, Vol. 9

Honore, B. and E. Kyriazidou (2000) "Estimation of Tobit-type Models with Individual Specific Effects," *Econometric Reviews*, Vol. 19, No. 3

Huang, H., D. Marin and C. Xu (2002) "Financial Crisis, Economic Recovery and Banking Development in Former Soviet Union Economies," IMF mimeo

Ichino, A., M. Polo, and E. Rettore (2003) "Are Judges Biased by Labour Market Conditions?" *European Economic Review*, Vol. 47 No. 5

Johnson, S., D. Kaufmann, J. McMillan, and C. Woodruff (2000) "Why Do Firms Hide? Bribes and Unofficial Activity after Communism," *Journal of Public Economics*, Vol. 76, No. 3

Johnson, S., D. Kaufmann, and P. Zoido-Lobaton (1998) "Regulatory Discretion and the Unofficial Economy," *American Economic Review*, Vol. 88, No. 2

Johnson, S., J. McMillan, and C. Woodruff (1999) "Contract Enforcement in Transition," CEPR Discussion Paper No. 2081

Johnson, S., J. McMillan and C. Woodruff (2002) "Property Rights and Finance," *American Economic Review*, Vol. 92, No. 5

Kaufmann, D. and S. Wei (1999) "Does Grease Money Speed up the Wheels of Commerce?" NBER Working paper 7093

Keefer, P. and S. Knack (1995) "Institutions and Economic performance: Cross-country Tests Using Alternative Institutional Measures," *Economics and Politics*, Vol.

Kendall, C. (1997) "Appointing Judges: Australian Judicial Reform Proposals In Light Of Recent North American Experience," *Bond Law Review*, Vol. 9

Kessler, D. and A.M. Piehl (1998) "The Role of Discretion in the Criminal Justice System," *The Journal of Law, Economics and Organization*, Vol. 14, No. 2

Klein, B. and K. Leffler (1981) "The Role of Market Forces in Assuring Contractual Performance" *Journal of Political Economy*, Vol. 89, No. 4

Koford, K. and Miller J. (1995) "Contracts in Bulgaria: How Firms Cope When Property Rights are Incomplete," University of Delaware Department of Economics Working Paper No. 95-04

Kornhauser, L. (2000a) "Judicial Organization & Administration," in Bouckaert, Boudewijn and De Geest, Gerrit (eds.), *Encyclopedia of Law and Economics, Volume V. The Economics of Crime and Litigation*, Cheltenham, Edward Elgar

Kornhauser, L. (2000b) "Appeal and Supreme Courts," in Bouckaert, Boudewijn and De Geest, Gerrit (eds.), *Encyclopedia of Law and Economics, Volume V. The Economics of Crime and Litigation*, Cheltenham, Edward Elgar

Krueger, A. (2002) "Growth and Reform in Russia," Address, Conference on Post-Communist Economic Growth, Moscow

La Porta, R., F. Lopez-de-Silanes, C. Pop-Elches, and A. Shleifer (2004) "Judicial Checks and Balances," *Journal of Political Economy*, Vol. 112, No. 2

La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1998) "Law and Finance," *Journal of Political Economy*, Vol. 106, No. 6

La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1997) "Legal Determinants of External Finance," *Journal of Finance*, Vol. 52, No. 3

Lambert-Mogiliansky, A., K. Sonin, and E. Zhuravskaya. (2000) "Capture of Bankruptcy: Theory and Evidence from Russia," CEFIR Working Paper

Landes, W., L. Lessig, and M. Solimine (1998) "Judicial Influence: A Citation Analysis of Federal Courts of Appeals Judges," *Journal of Legal Studies*, Vol. 27, No.

- Landes, W. and R. Posner (1975) "Independent Judiciary in an Interest-group Perspective," *Journal of Law and Economics*, Vol. 18
- Landes, W. and R. Posner (1980) "Legal Change, Judicial Behaviour and the Diversity Jurisdiction," *Journal of Legal Studies*, Vol. 9
- Levine, R. (1997) "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature*, Vol. XXXV
- Malleson, K. (1997) "The Use of Judicial Appointments Commissions: A Review of the US and Canadian Models," in *Judicial Appointments Commissions: The European and North American Experience and the Possible Implications for the United Kingdom*, Lord Chancellor's Department Research Series, No.6/97
- Marinescu, I. (2004) "Dismissal Law Enforcement and Employment Flexibility: Are Judges Sensitive to Economic Conditions?" mimeo, LSE
- Maskin, E. and J. Tirole (2004) "The Politician and the Judge: Accountability in Government," *American Economic Review*, Vol. 94, No. 4
- Mauro, P. (1995) "Corruption and Growth," *Quarterly Journal of Economics*, Vol. 110, No. 2
- McFaul, M. (2002) "Evaluating Yeltsin and His Revolution," in A. Kuchins (ed.), *Russia After the Fall*, Carnegie Endowment for International Peace
- McMillan, J. and C. Woodruff (1999) "Dispute Prevention without Courts in Vietnam," *Journal of Law, Economics, and Organization*, Vol. 15, No. 3
- Montesquieu, C. (1748) "The Spirit of Laws"
- Moulton, B. (1990) "An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units," *The Review of Economics and Statistics*, Vol. 72, No. 2
- Persson, T. and G. Tabellini (2000) *Political Economics: Explaining Economic Policy*, The MIT Press
- Persson, T. and G. Tabellini (2003) *The Economic Effects of Constitutions*, The MIT Press
- Petersen, M. and R. Rajan (1997) "Trade Credit: Theories and Evidence," *The*

Review of Financial Studies, Vol. 10, No. 3

Posner, R. (2000) "Is the Ninth Circuit Too Large? A Statistical Study of Judicial quality," *Journal of Legal Studies*, Vol. 29

Pistor, K., Y. Keinan, J. Kleibheisterkamp, and M. West (2003) "Legal Evolution and Transplant Effect: Lessons from Corporate Law Development in Six Transplant Countries," *World Bank Research Observer*, Vol. 18, No. 1

Pistor, K., M. Raiser, and S. Gelfer (2000) "Law and Finance in Transition Economies," *Economics of Transition*, Vol. 8

Pistor, K. and C. Xu (2002) "Fiduciary Duty in Transitional Civil Law Jurisdictions: Lessons from Incomplete Law Theory," European corporate governance institute, Law working paper No. 01/2002

Priest, G. and B. Klein (1984) "The Selection of Disputes for Litigation," *Journal of Legal Studies*, Vol. 13

Rajan, R. and L. Zingales (1995) "What Do We Know about Capital Structure? Some Evidence from International Data," *Journal of Finance*, Vol. 50, No. 5

Rajan, R. and L. Zingales (1998) "Financial Dependence and Growth," *American Economic Review*, Vol. 88, No. 3

Ramseyer, J. and E. Rasmusen (1997) "Judicial Independence in a Civil Law Regime: The Evidence from Japan," *Journal of Law, Economics, and Organization*, Vol. 13, No. 2

Revesz, R. (1997) "Environmental Regulation, Ideology and the D.C. Circuit," *Virginia Law Review*, Vol. 83

Shapiro, M. (1995) "Western Common Law Democracies: The United States," in C.N. Tate and T. Vallinder (eds), *The Global Expansion of Judicial Power*, New York University Press, New York and London

Siegelman, P. and J. Waldfogel (1999) "Toward a Taxonomy of Disputes: New Evidence through the Prism of the Priest/Klein Model," *Journal of Legal Studies*, Vol. 28

Simachev, Yu. (2003) "Arbitrazh Kak Instrument Uregulirovania Sporov v Kor-

porativnoi Sfere: Faktory Sprosa so Storony Kompaniy, Masshtaby i Effektivnost,"
Institute for Complex and Strategic Studies, mimeo

Skordaki, E. (1991) "Judicial Appointments," The Law Society, Research Study 5

Smith, R. and R. Blundell (1986) "An Exogeneity Test for a Simultaneous Equation
Tobit Model with an Application to Labour Supply," *Econometrica*, Vol. 54

Spitzer, M. and E. Talley (2000) "Judicial Auditing," *Journal of Legal Studies*, Vol.
28

Stigler, G. (1971) "The Theory of Economic Regulation," *Bell Journal of Eco-
nomics and Management Science*, Vol. II

The Supreme Arbitration Court of Russian Federation (2002), "Rezultaty Raboty
Arbitrazhnyh Sudov RF v 1992-2001 Godah," www.arbitr.ru

The World Bank (2000), "World Business Environment Survey,"

<http://www.ifc.org/ifcext/economics.nsf/Content/ic-wbes>

Thomas, C. (1997) "Judicial Appointments in Continental Europe," in *Judicial Ap-
pointments Commissions: The European and North American Experience and the Pos-
sible Implications for the United Kingdom*, Lord Chancellor's Department Research
Series, No.6/97

Xu, C. and K. Pistor (2002) "Law Enforcement under Incomplete Law: Theory &
Evidence from Financial Market Regulation," STICERD Discussion paper TE/02/442

**Table 2.1 Volume of commercial court cases and reversal rates over time in Russia,
1995 -- 2002**

Year	<u>Sample</u>		<u>Population</u>	
	N	Fraction of these reversed	Considered by appellate courts	Fraction of these reversed
1995	29	0.31	1,224	0.40
1996	46	0.41	12,084	0.40
1997	191	0.37	16,741	0.37
1998	644	0.23	20,274	0.36
1999	1,439	0.22	27,718	0.35
2000	1,576	0.25	35,732	0.34
2001	1,458	0.21	47,028	0.32
2002	366	0.09	n/a	n/a
Total	5,760	0.23	160,801	0.35

Notes: 2002 data is for January-August only.

Table 2.2 Composition of cases and reversal rates by nature of dispute

Case type	N	Share of total sample	Fraction of decisions reversed on appeal	SE	Fraction of plaintiff wins	SE
Contract	2,182	0.38	0.23	0.01	0.53	0.01
Tax	1,362	0.24	0.22	0.01	0.53	0.01
Regulation	801	0.14	0.21	0.01	0.44	0.02
Ownership	757	0.13	0.26	0.02	0.51	0.02
Other	655	0.11	0.20	0.02	0.47	0.02
Total	5,760	1	0.23	0.01	0.51	0.01

Notes: Cases where the plaintiff was awarded 'partial relief' are not included in calculating plaintiff wins. There are 374 such cases.

Table 2.3 Participants of commercial disputes

	Number of cases	Average number of employees*
Government		
Local	1,267	
Regional	1,141	
Federal	2,055	
Firms		
<i>by size</i>		
Small	1,429	71
Large	2,054	6,289
Other	3,349	337
<i>by type</i>		
Individual entrepreneurs	864	
Solo proprietorships, co-operatives, farms and full partnerships	289	
Limited liability partnerships	1,702	746
Privately held companies	921	1,108
Publicly traded companies	1,952	5,144
Other types	1,104	1,643

* For those firms where data were available.

Notes: 'Other types' includes non-profit organizations, wholly government owned enterprises, consumer and producer associations and enterprises for which no legal classification was available.

Table 2.4 Dispute outcomes by party pair

		Fraction of regional decisions in favour of:		Fraction of regional decisions reversed when initial decision was favour of:			
	N	small firm	large firm	unconditional	small firm	government office	large firm
<i>Small firm v</i>							
Local government	158	0.44	-	0.20	0.37	0.06	-
Regional government	121	0.41	-	0.31	0.40	0.24	-
Federal government	576	0.53	-	0.23	0.25	0.20	-
Large firm	121	0.39	0.61	0.21	0.30	-	0.16
<i>Large firm v</i>							
Local government	234	-	0.54	0.27	-	0.22	0.31
Regional government	185	-	0.49	0.27	-	0.25	0.29
Federal government	459	-	0.60	0.19	-	0.20	0.18
Other firms v government office*	1,697		0.50	0.23		0.21	0.27
Two firms of similar size	1,540	-	-	0.21	-	-	-
Two government offices	381	-	-	0.22	-	-	-

* Entries in 'large firm' column for this category should be read as 'other firm'.

Table 2.5 Litigant activity and reversal rates

	N	Fraction of decisions reversed
Initial loser		
present at appeal	2,948	0.26
absent	2,807	0.19
Initial winner		
present at appeal	2,926	0.23
absent	2,830	0.22
Initial loser appeals to regional court panel		
yes	3,721	0.25
no	2,039	0.17

Table 2.6 Characteristics of regions of 81 commercial courts

	Mean	Std. Dev.	N	Min	Max
Output per capita, 1995 roubles (1994-2000)	7,504	4,795	648	1,526	45,899
Oil and gas production (1994-2000)	0.43	0.50	648	0	1
Higher education graduates, per 1000 people (1992)	4.3	2.3	81	1	16.1
Freedom of media (2000)	34.2	8.2	81	14.6	50.2
Jury experiment	0.17	0.38	648	0	1
Autonomous region	0.32	0.47	81	0	1

Table 2.7 Policy preferences of Russian commercial court judges: 1995-2002

Dependent variable: Probability of reversal					
	(1)	(2)		(3)	(4)
	Conditional logit	Linear prob		Conditional logit	Linear prob
<i>Firm won against:</i>			<i>Small firm won against:</i>		
Local gov	0.80** (0.16)	0.14** (0.03)	Local government	2.09** (0.54)	0.26** (0.06)
Regional gov	0.74** (0.17)	0.14** (0.03)	Regional government	0.80+ (0.43)	0.16* (0.07)
Federal gov	0.06 (0.13)	0.01 (0.02)	Federal government	0.37+ (0.21)	0.06+ (0.03)
			Large firm	0.92** (0.48)	0.15* (0.07)
			<i>Large firm won against:</i>		
			Local government	0.47 (0.31)	0.09+ (0.05)
			Regional government	0.33 (0.35)	0.06 (0.06)
			Federal government	-0.01 (0.26)	-0.00 (0.04)
<i>Party pair dummies:</i>			<i>Party pair dummies:</i>		
Firm v local gov	-0.18 (0.13)	-0.03 (0.02)	Small firm v local gov	-1.45** (0.47)	-0.14** (0.04)
Firm v regional gov	0.03 (0.14)	0.00 (0.02)	Small firm v regional gov	0.17 (0.30)	0.03 (0.05)
Firm v federal gov	-0.00 (0.11)	-0.00 (0.02)	Small firm v federal gov	0.00 (0.17)	-0.00 (0.03)
			Small firm v large firm	-0.42 (0.34)	-0.06 (0.05)
			Large firm v local gov	0.21 (0.25)	0.03 (0.04)
			Large firm v regional gov	0.27 (0.25)	0.04 (0.04)
			Large firm v federal gov	-0.05 (0.21)	-0.00 (0.03)
Year effects	Y	Y		Y	Y
Region fixed effects	Y	Y		Y	Y
N	5,674	5,675		3,784	3,789
R ²	0.02	0.02		0.03	0.03

Notes: Standard errors in parentheses; + significant at 10%, * significant at 5%; ** significant at 1%.

Pseudo R² for logit, adjusted R² for linear regression.

Omitted category of dispute is firm vs. firm (1) and (2), and firm vs. firm of similar size (3) and (4).

Table 2.8 Policy preferences of Russian commercial court judges: Robustness

Dependent variable: Probability of reversal		(1)	(2)
		Conditional logit	Linear prob
<i>Small firm won against:</i>	Local government	1.92** (0.55)	0.24** (0.07)
	Regional government	0.83+ (0.46)	0.17* (0.08)
	Federal government	0.46* (0.22)	0.08* (0.04)
	Large firm	0.88+ (0.50)	0.15+ (0.08)
<i>Large firm won against:</i>	Local government	0.36 (0.34)	0.07 (0.05)
	Regional government	0.34 (0.37)	0.06 (0.06)
	Federal government	0.13 (0.28)	0.03 (0.04)
<i>Party pair dummies:</i>	Small firm v local gov	-1.38** (0.48)	-0.14** (0.05)
	Small firm v regional gov	0.13 (0.32)	0.02 (0.05)
	Small firm v federal gov	0.03 (0.24)	0.00 (0.04)
	Small firm v large firm	-0.32 (0.36)	-0.04 (0.05)
	Large firm v local gov	0.18 (0.27)	0.07 (0.05)
	Large firm v regional gov	0.17 (0.27)	0.03 (0.04)
	Large firm v federal gov	-0.13 (0.25)	-0.02 (0.04)
	Looser present at appeal	0.46** (0.10)	0.07** (0.02)
Winner present at appeal		-0.02 (0.10)	-0.00 (0.02)
Dispute type dummies		Y	Y
Region*year effect		Y	Y
N		3,210	3,782
R ²		0.03	0.02

Notes: Standard errors in parentheses; + significant at 10%, * significant at 5%; ** significant at 1%. Pseudo R² for logit, adjusted R² for linear regression.

Table 2.9 Regional determinants of court performance		
Dependent variable: Probability of a reversal, region*year effect		
	(1)	(2)
	OLS	
Output per capita	-0.00 (0.00)	-0.00 (0.00)
Oil or gas production	0.05 ⁺ (0.03)	0.05 ⁺ (0.03)
Education	-0.0002 ⁺ (0.0000)	-0.0002 ⁺ (0.0000)
Freedom of media	-0.006** (0.002)	-0.005 ⁺ (0.003)
Jury	0.05* (0.02)	0.05 ⁺ (0.03)
Non-autonomous		-0.05 (0.05)
Year effects	Y	Y
N	2,360	2,360
Adjusted R ²	0.16	0.16

Notes: Standard errors in parentheses; ⁺ significant at 10%, * significant at 5%;

** significant at 1%.

Standard errors adjusted for intra-region correlation of residuals.

Table 3.1 Breakdown of cases by dispute type

Case type	N	Decision reversal at appeal		Plaintiff win rate	
		(1=reversed, 0=upheld)		(1=plaintiff won, 0=defendant won)	
		Mean	SE	Mean	SE
Contract	1,084	0.19	(0.01)	0.52	(0.02)
Tax	673	0.20	(0.02)	0.51	(0.02)
Regulation	365	0.15	(0.02)	0.39	(0.03)
Ownership	212	0.22	(0.03)	0.50	(0.03)
Other	299	0.17	(0.02)	0.45	(0.03)
Total	2,633	0.19	(0.01)	0.49	(0.01)

Table 3.2 Breakdown of cases by type of litigant

		N	Decision reversal by appellate court (<i>R</i>) (1=reversed, 0=upheld)	
			Mean	SE
Enterprise vs. government	All enterprises	1,825	0.20	(0.01)
	Small enterprises	507	0.19	(0.02)
	Large enterprises	426	0.20	(0.02)
Enterprise vs. enterprise	Small vs. large	64	0.17	(0.05)
	Similar size enterprises	744	0.16	(0.01)
Total		2,633	0.19	(0.01)

Table 3.3 Judicial selection and reversal rates					
<i>Percent of decisions reversed by appellate court</i>					
	(1)	(2)	(3)	(4)	(5)
Judge appointed by	All cases	All cases w/ small firms	Small firm won	Small firm lost	(3) - (4)
Federal legislature (<i>L</i>)	0.17 (0.01)	0.16 (0.03)	0.32 (0.05)	0.056 (0.02)	0.26 (0.06)**
President (<i>X</i>)	0.18 (0.01)	0.18 (0.03)	0.20 (0.04)	0.16 (0.03)	0.04 (0.05)
Regional assembly (<i>RA</i>)	0.23 (0.02)	0.24 (0.04)	0.25 (0.06)	0.23 (0.05)	0.02 (0.09)
<i>N</i>	2,633	571	240	331	571

Notes: * significant at 5%; ** significant at 1%.

Table 3.4 Selection of judges: Basic Results

<i>Probability of a reversal in disputes between small firms and government</i>					
	Probit	—— Probit ——		Conditional logit	Linear probability
	Coeff	Coeff	ME	Coeff	Coeff
	(1)	(2)	(2m)	(3)	(4)
$L \times W$ (λ)	1.26** (0.26)	1.32** (0.27)	0.41** (0.09)	2.35** (0.58)	0.29** (0.06)
$X \times W$ (ξ)	0.14 (0.20)	0.09 (0.21)	0.02 (0.05)	0.12 (0.40)	0.04 (0.05)
L (β)	-0.68** (0.25)	-0.49+ (0.27)	-0.11+ (0.06)	-0.81 (0.59)	-0.10* (0.05)
Non-autonomous region (0 = autonomous, 1 = not)		-0.42* (0.22)	-0.11* (0.06)		
Loser present at appeal		0.19 (0.19)	0.05 (0.04)	0.55 (0.36)	0.03 (0.05)
Winner present at appeal		0.13 (0.20)	0.03 (0.05)	0.35 (0.37)	0.03 (0.05)
Constant	-0.99** (0.13)	-0.87** (0.34)			0.00 (0.26)
Year dummies	N	—— Y ——		Y	Y
Regional fixed effects	N	—— N ——		Y	Y
N	400	—— 395 ——		326	399

Notes: Standard errors in parentheses; + significant at 10%, * significant at 5%; ** significant at 1%
 $L = 1$ if judge selected by legislator; $X = 1$ if judge selected by executive; $W = 1$ if decision in favour of small firm

Table 3.5 Selection of judges: Robustness

<i>Probability of a reversal in disputes with government</i>						
	Small	Large	Large	Small	Small	Large
	Linear probability	Conditional logit	Linear probability	Conditional logit	Linear probability	Linear probability
	(1)	(2)	(3)	(4)	(5)	(6)
$L \times W$ (λ)	0.29** (0.06)	0.94 (0.61)	0.09 (0.06)	2.28** (0.57)	0.30** (0.06)	0.08 (0.06)
$X \times W$ (ξ)	0.04 (0.05)	-0.25 (0.48)	-0.05 (0.06)	0.18 (0.38)	0.03 (0.05)	-0.04 (0.06)
$RA \times W$				-0.00 (0.51)	0.02 (0.07)	-0.01 (0.09)
L (β)	-0.10* (0.05)	-0.88 (0.62)	-0.11 ⁺ (0.06)	-0.85 (0.59)	-0.07 (0.05)	-0.10 (0.07)
RA				0.57 (0.55)	0.03 (0.07)	-0.10 (0.09)
Loser present at appeal	0.03 (0.05)	0.5 (0.39)	0.07 (0.04)	0.65* (0.30)	0.07 ⁺ (0.04)	0.07 ⁺ (0.04)
Winner present at appeal	0.03 (0.05)	0.13 (0.39)	0.01 (0.04)	0.25 (0.30)	0.05 (0.04)	0.03 (0.04)
Constant	0.00 (0.26)		0.64** (0.18)		0.07 (0.27)	0.41 ⁺ (0.24)
Year dummies	Y			Y		
Regional fixed effects	Y			Y		
N	399	221	342	426	506	425

Notes: Standard errors in parentheses; ⁺ significant at 10%, * significant at 5%; ** significant at 1%.

Table 3.6 Selected characteristics of autonomous and non-autonomous regions

	Non-autonomous regions	Autonomous regions
	Federal legislature	Regional assembly
Judge appointed by (1992-93)		
Output per capita (Roubles, 1995)	7843 (668)	6149 (1098)
Infant mortality (per 1000 of people, 1998)	16.4 (0.4)	19.8 (1.3)
Freedom of media (index, 2000)	36.9 (0.9)	25.9 (1.4)
Votes in favour of communist candidates (%, 1993 parliamentary elections)	12.1 (0.6)	15.6 (2.4)
Votes in favour of the new constitution (%, 1993 referendum)	58.8 (1.4)	55.8 (3.4)
Regional commercial court decisions reversed (%, present sample, 1995-2002)	16.6 (0.8)	22.1 (1.3)
Number of regions	56	25

Notes: Standard errors are in parentheses. The differences between the two types of regions are significant for all characteristics at least at 5% level, with the exception of votes in favour of the new constitution. The characteristics were chosen at the earliest post-1991 year for which the data is available. Sources include Goskomstat, Proekt "Obschestvennaia Ekspertiza" (Public expertise project, <http://www.freepress.ru/>), and FTsI TsIK (Federal Centre for Information of the Central Elections Committee <http://www.fci.ru/>), and author's calculations

Table 4.1 Descriptive statistics, 1995 - 2002

		<i>N</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Median</i>	<i>Min</i>	<i>Max</i>	<i>% zero</i>
Firm	Bank credit, ratio to assets	125,000	0.04	0.12	0.00	0	2.4	64
	Trade credit received, ratio to assets		0.25	0.35	0.12	0	9.8	4
	Credit from subsidiaries and dependent firms, ratio to assets		0.01	0.03	0.00	0	0.7	91
	Trade credit extended, share of assets		0.18	0.20	0.09	0	1.0	8
	Current assets, share of assets		0.57	0.31	0.55	0	1.0	0
	Finished goods, share of inventory		0.33	0.34	0.21	0	1.0	14
	Government subsidy, ratio to assets		0.01	0.05	0.00	0	0.9	75
	Owed to government, ratio to assets		0.10	0.18	0.04	0	3.2	2
Regional	Court decisions appealed, % of litigated	590	5	3	5	0.1	31	
	Case load, applications per judge		323	421	238	31	5,286	
	Federal transfers to region, thousands of 1998 roubles		841	2,061	426	0	39,449	
	Persons with access to phone lines in region, per 1000		125	104	74	9	462	

Notes: Column N gives the average number of observations for the list of variables. The actual number varies slightly for each particular indicator due to missing observations.

Number of judges used in calculating caseload is the author's estimate based on judicial appointment data used in chapter 3.

Table 4.2 Law enforcement and firm credit: 1995-2002

	(1)	(1a)	(1b)	(2)	(2a)	(2b)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	Bank credit, % of assets			Trade credit received from suppliers				Credit from dependent firms	Trade credit extended to customers	
<i>Method</i>	Tobit			Tobit			OLS	Tobit	Tobit	OLS
	Coeff	Marginal effect given BC>0	Marginal effect on prob(BC>0)	Coeff	Marginal effect given TC>0	Marginal effect on prob(TC>0)	Coeff	Coeff	Coeff	Coeff
Court reliability (1 - rate of appeals)	0.007** (0.000)	0.002** (0.000)	0.012** (0.001)	0.002** (0.000)	0.001** (0.000)	0.002** (0.001)	0.002** (0.001)	0.000 (0.001)	-0.000 (0.011)	0.001 (0.002)
Year dummies	_____	Y	_____	_____	Y	_____	Y	Y	Y	Y
Regional dummies	_____	Y	_____	_____	Y	_____	Y	Y	Y	Y
Industry dummies	_____	Y	_____	_____	Y	_____	Y	Y	Y	Y
N	_____	116,534	_____	_____	126,687	_____	126,687	117,950	117,542	118,190
R ²	_____	0.12	_____	_____	0.16	_____	0.13	0.14	0.00	0.00

Notes: Standard errors in parentheses; * significant at 10%, * significant at 5%; ** significant at 1%.

Pseudo R² for tobit, adjusted R² for linear regression.

Standard errors in linear regressions are heteroskedasticity adjusted.

Table 4.3 Law enforcement and firms' access to bank credit

	(1)	(2)	(3)	(4)
<i>Dependent variable</i>	Access to bank credit (binary)			
<i>Method</i>	Logit	Linear probability model	Conditional logit	Linear probability model with firm fixed effects
Court reliability	0.044** (0.005)	0.011** (0.001)	0.027** (0.007)	0.004** (0.001)
Year dummies	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>
Regional dummies	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>
Industry dummies	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>
N	118,121	118,121	42,175	123,940 (41,971)
R ²	0.08	0.10	0.08	0.54

*Notes: Standard errors in parentheses; + significant at 10%, * significant at 5%; ** significant at 1%.*

Pseudo R² for conditional logit, adjusted R² for linear regression.

Number of firms, not observations, is reported for conditional logit.

Table 4.4 Law enforcement and access to credit: controlling for time-varying factors

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	Access to bank credit (binary)				Bank credit, % of assets	
<i>Method</i>	Linear probability model				All OLS	Positive OLS
Court reliability	0.005** (0.001)	0.004** (0.001)	0.004* (0.002)	0.001 (0.001)	0.0014** (0.0005)	0.002* (0.001)
Central government's transfers to region	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)			
Government subsidies to firm	-0.006 (0.006)	-0.010 (0.010)	-0.009 (0.010)			
Owed to government by firm	-0.000** (0.000)	0.000** (0.000)	0.000** (0.000)			
Regional telephone coverage	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)			
Judicial caseload	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Current assets		0.060** (0.013)	0.053** (0.014)	0.052** (0.014)	0.074** (0.008)	0.16** (0.014)
Finished goods in inventory		0.080** (0.011)	0.085** (0.011)	0.085** (0.011)	0.016** (0.003)	0.007 (0.008)
Year dummies				Y		
Firm fixed effects				Y		
Region-specific time trends	N	N	N	Y	Y	Y
SE adjusted for contempora- neous intra-region correlation	N	N	Y	Y	Y	Y
N	108,449	96,934	96,934	99,609	100,031	40,534
R ²	0.55	0.55	0.55	0.55	0.51	0.60

Notes: Standard errors in parentheses; + significant at 10%, * significant at 5%; ** significant at 1%.

Pseudo R² for conditional logit, adjusted R² for linear regression.

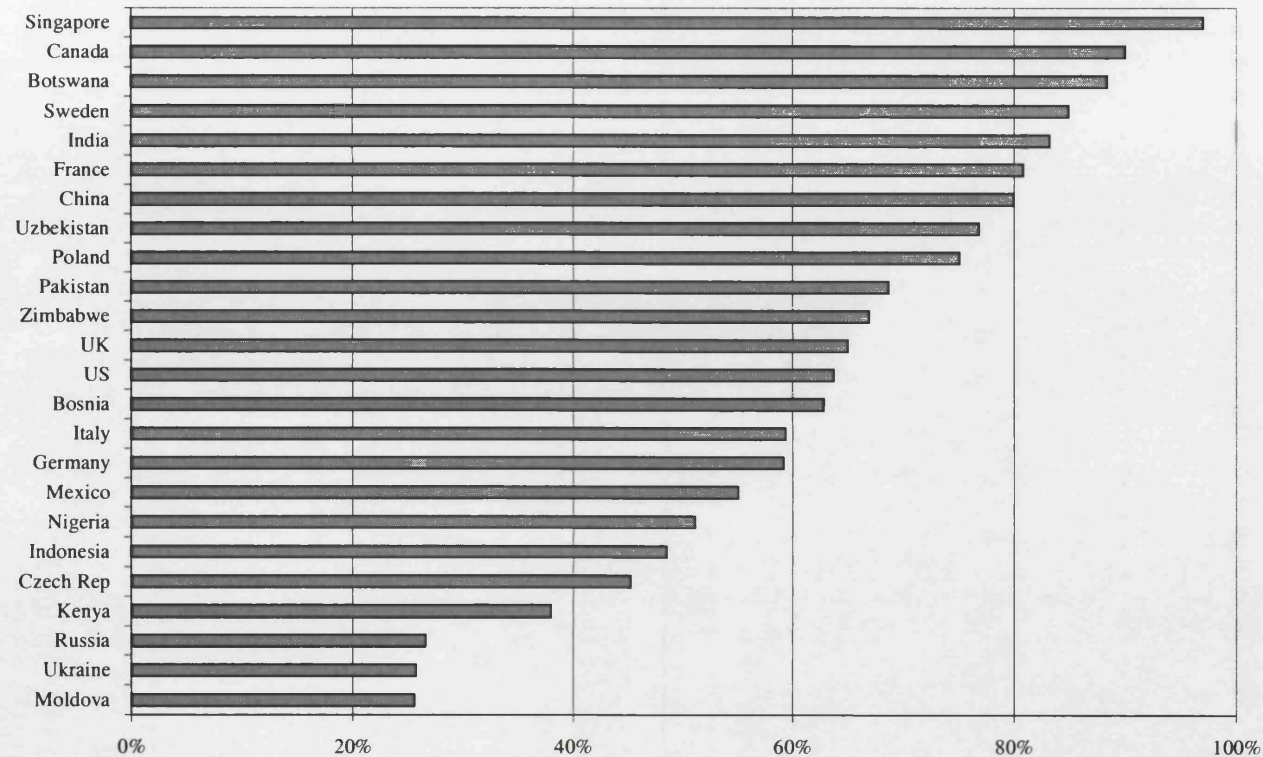
Standard errors in linear regressions have been adjusted for heteroskedasticity.

Table 4.5 Law enforcement and non-bank credit: Robustness

	(1)	(2)	(3)
<i>Dependent variable</i>	Trade credit received, % of assets	Credit from dependent firms, binary	Trade credit extended, % of assets
<i>Method</i>		OLS	
Court reliability	0.003 (0.002)	-0.002* (0.001)	0.004 (0.003)
Central government's transfers to region	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Government subsidies to firm	0.060+ (0.004)	0.001 (0.003)	0.155** (0.000)
Owed to government by firm	-0.000** (0.000)	0.000 (0.000)	-0.000** (0.000)
Regional telephone coverage	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Current assets	0.428** (0.021)	0.021** (0.008)	
Finished goods in inventory	0.038** (0.011)	0.007 (0.007)	
Year dummies	Y	Y	Y
Regional dummies	N	N	N
Industry dummies	N	N	N
Firm fixed effects	Y	Y	Y
Standard errors adjusted for contemporaneous intra-region correlation	Y	Y	Y
N	101,357	90,564	109,639
Adjusted R ²	0.61	0.52	0.25

Notes: Standard errors in parentheses; + significant at 10%, * significant at 5%; ** significant at 1%.

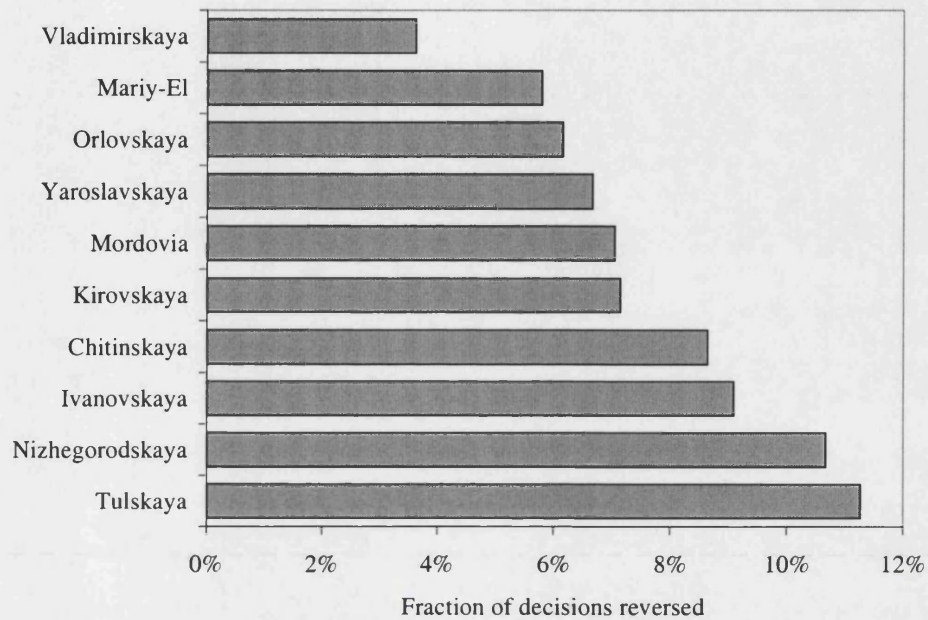
Figure 1.1 Will your legal system uphold contract and property rights?
Firms that agree, % of surveyed



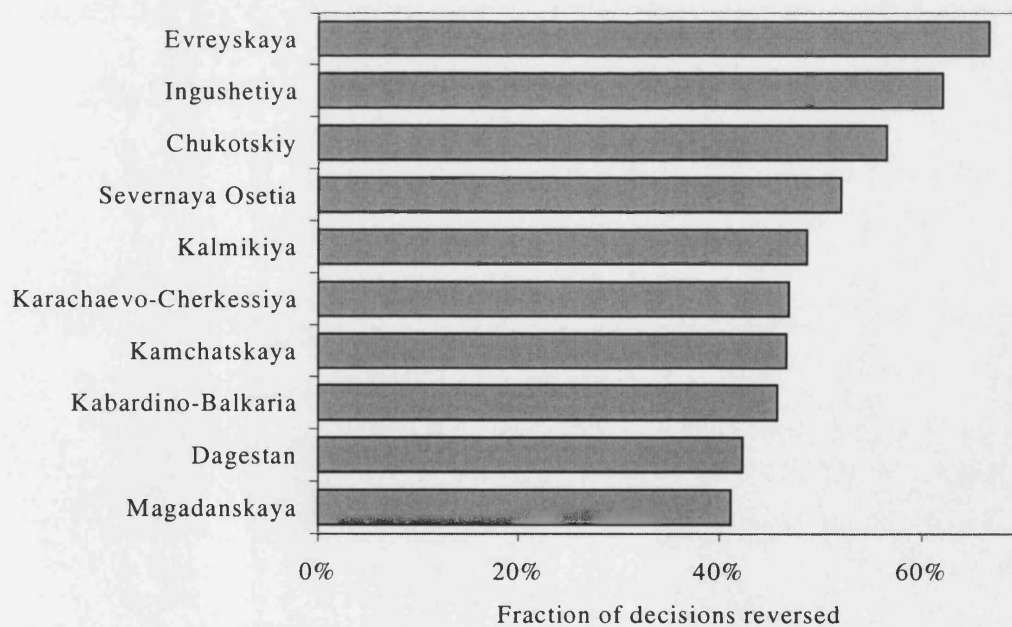
Notes: World Bank (2002), selected countries

**Figure 2.1 Variation in court performance
across Russia's regions, 1995-2002**

a) Regional arbitrazh courts with lowest reversal rates



b) Regional arbitrazh courts with highest reversal rates



**Figure 2.2 Court performance and freedom of media,
by region**

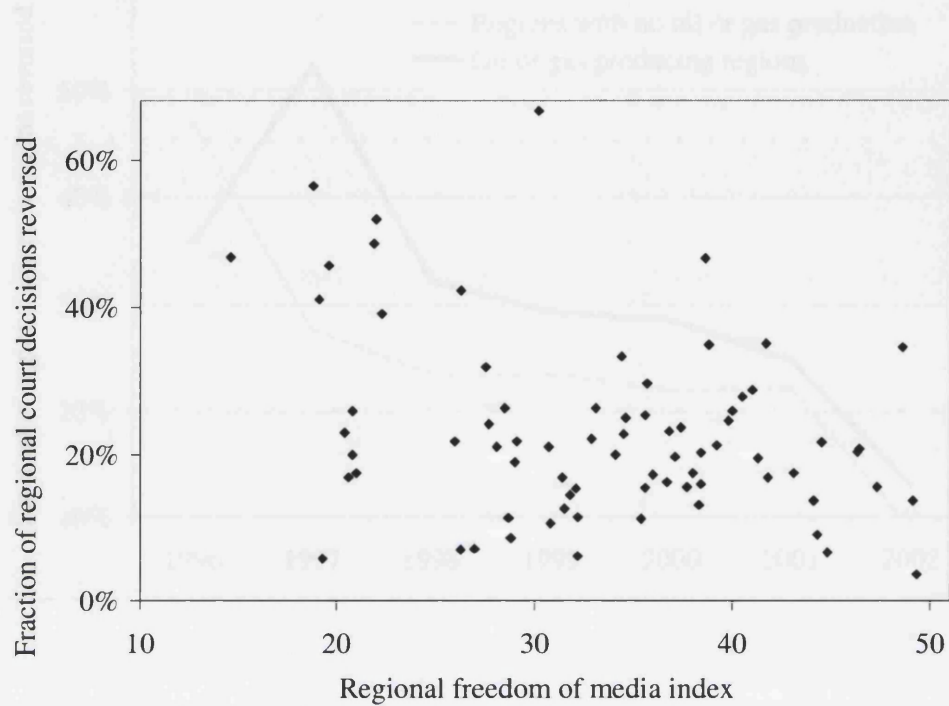


Figure 2.3 Court performance and natural resources

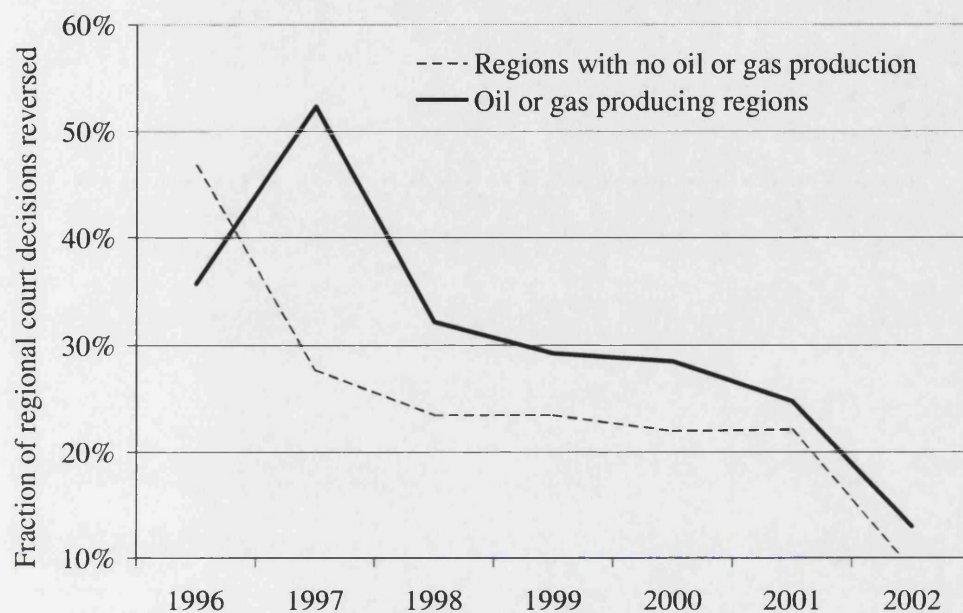
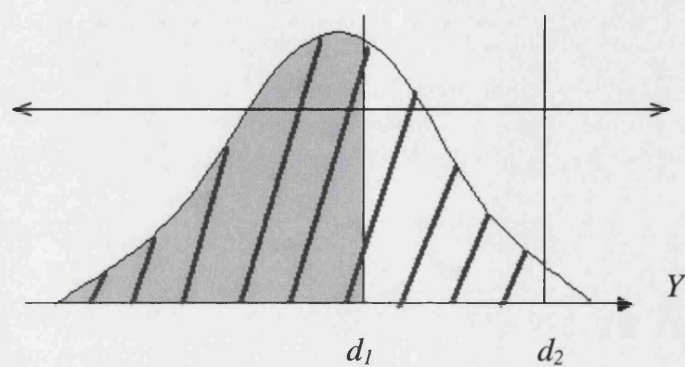
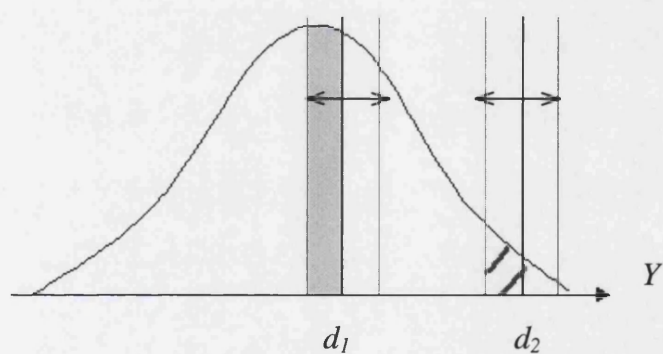


Figure 2.4 Frequency of firm wins

a) Without selection



b) In presence of selection



■ $p(Y < d_1)$

▨ $p(Y < d_2)$

↔ disputes litigated

**Figure 4.1 Proportion of firms with bank credit,
1995 – 2002, selected regions of Russia**

