THE REGULATION OF LABOR*

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We investigate the regulation of labor markets through employment, collective relations, and social security laws in 85 countries. We find that the political power of the left is associated with more stringent labor regulations and more generous social security systems, and that socialist, French, and Scandinavian legal origin countries have sharply higher levels of labor regulation than do common law countries. However, the effects of legal origins are larger, and explain more of the variation in regulations, than those of politics. Heavier regulation of labor is associated with lower labor force participation and higher unemployment, especially of the young. These results are most naturally consistent with legal theories, according to which countries have pervasive regulatory styles inherited from the transplantation of legal systems.

I. Introduction

Every country in the world has established a complex system of laws and institutions intended to protect the interests of workers and to help assure a minimum standard of living for its population. In most countries, in addition to some basic civil rights protections, this system encompasses three bodies of law: employment law, collective relations law, and social security law. Employment laws govern the individual employment contract. Collective or industrial relations laws regulate the bargaining, adoption, and enforcement of collective agreements, the organization of trade unions, and the industrial action by workers and employers. Social security laws govern the social response to needs and conditions that

have a significant impact on the quality of life, such as old age, disability, death, sickness, and unemployment.

In this paper we examine these laws in 85 countries through the lens of three major theories of institutional choice: the efficiency theory, the political power theory, and the legal theory. The *efficiency* theory holds that institutions adjust to serve the needs of a society most efficiently. Each society chooses a system of social control of business that optimally combines market forces, dispute resolution in court, government regulation, and corrective taxes and subsidies [Djankov et al. 2003a]. Under the *political power* theory, institutions are shaped by those in power to benefit themselves at the expense of those out of power. Both voting and interest group politics allow the winners to benefit at the expense of the losers, with checks and balances on the government limiting the extent of redistribution. Under the *legal* theory, a country's approach to regulation is shaped by its legal tradition. Most countries in the world have inherited their basic legal structures from their colonizers, such as the English, the French, the Germans, the Portuguese, or the Spanish, or their conquerors, such as Napoleon or the Soviets. The laws of the different colonizers and occupiers belong to different legal traditions, which significantly influenced the legal systems of conquered countries [Zweigert and Kotz 1998; La Porta et al. 1997, 1998]. In broad terms, common and civil law traditions utilize different strategies for dealing with market failure: the former relying on contract and private litigation, the latter on direct supervision of markets by the government. Under this theory, the historical origin of a country's laws shapes its regulation of labor and other markets.[1]

Our focus on labor laws might be particularly helpful in distinguishing political power and legal theories. Roe [2000] and Pagano and Volpin [2001] argue that the political power of labor has been central to legal and regulatory design of the twentieth century. Using data on OECD countries, these authors challenge the observation of La Porta et al. [1997, 1998] that the differences in financial development among common and civil law countries are best understood in terms of legal theories. Roe [2000] maintains that civil law is simply a proxy for social democracy. An

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1. In footnotes, we also consider the cultural theory, under which regulations are shaped by a country's cultural history, such as the dominance of particular religious groups. The data do not support this theory, so we keep its discussion to a minimum.

analysis of labor laws gives these political theories their best shot, for two reasons. First, we expect leftist governments to regulate labor markets to benefit their supporters. Second, because labor laws are relatively recent, we would not expect a profound influence of legal tradition on their structure.

To assess these theories, we collect data on employment, collective relations, and social security laws as of 1997 for the Djankov et al. [2002] sample of 85 countries, and code them to measure worker protection. We combine these data with existing (and some newly collected) information on economic development, leftist orientation of governments, union power, political constraints on government action, and legal origins to examine the determinants of the regulation of labor. We also examine data on the unofficial economy, labor force participation, unemployment, and relative wages to consider who benefits and who loses from the regulation of labor.

The available research on labor regulations is more extensive than that on most other laws. The Organization of Economic Cooperation and Development has sponsored the creation of a database of labor regulations in member countries [Nicoletti, Scarpetta, and Boylaud 1999; Nicoletti and Pryor 2001]. The World Bank has assembled a database of International Labor Office certifications for 119 countries, which provide a partial view of the labor laws as well [Forteza and Rama 2000]. Heckman and Pages-Serra [2000] examine an extensive data set of job security regulation for Latin American and Caribbean countries. Mulligan and Sala-i-Martin [2004] assemble and analyze data on social security systems. What distinguishes our data from previous efforts is a combination of a significant coverage of countries and a comprehensive approach to labor market regulations.[2]

In the next section we briefly describe the theories of the determinants of labor regulations. In Section III we describe the data. In Section IV we illustrate the data by comparing New Zealand and Portugal. In Section V we examine the determinants of labor market regulations. In Section VI we compare patterns of labor regulation to those of other activities. In Section VII we look at the consequences of regulation. Section VIII concludes.

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2. There is also an extensive literature on the consequences of regulation of labor, including Lazear [1990], Besley and Burgess [2003], Fonseca, Lopez-Garcia, and Pissarides [2000], Heckman and Pages-Serra [2000], and Ichniowski, Freeman, and Lauer [1989].

II. Hypotheses

II.A. Background

Why do governments intervene in the labor market? The theory underlying most interventions is that free labor markets are imperfect, that as a consequence there are rents in the employment relationship, and that employers abuse workers to extract these rents, leading to both unfairness and inefficiency. For example, employers discriminate against disadvantaged groups, underpay workers who are immobile or invest in firm-specific capital, fire workers who then need to be supported by the state, force employees to work more than they wish under the threat of dismissal, fail to insure workers against the risk of death, illness or disability, and so on. In response to the perceived unfairness and inefficiency of the free market employment relationship, nearly every state intervenes in this relationship to protect the workers.

Regulation of labor markets aiming to protect workers from employers takes four forms. First, governments forbid discrimination in the labor market and endow the workers with some "basic rights" in the on-going employment relationships, such as maternity leaves or the minimum wage. Second, governments regulate employment relationships by, for example, restricting the range of feasible contracts and raising the costs of both laying off workers and increasing hours of work. Third, in response to the power of employers against workers, governments empower labor unions to represent workers collectively, and protect particular union strategies in negotiations with employers. Finally, governments themselves provide social insurance against unemployment, old age, disability, sickness and health, or death. The basic question addressed in this paper is what determines these choices of government intervention in the labor market. We consider three broad theories along these lines.

II.B. Efficiency

Demsetz [1967] and North [1981] propose that the choice of institutions is dictated primarily by efficiency considerations. In the present context, this approach broadly implies that countries choose a combination of labor market interventions to maximize social welfare. The standard interpretation of this objective is curing market failures. More recent research has focused on identifying public interventions that are themselves cheapest and

least vulnerable to subversion [Glaeser and Shleifer 2002, 2003; Glaeser, Scheinkman, and Shleifer 2003; Djankov et al. 2003b]. For example, countries would choose heavier intervention when employer abuse of employees in the market is greater (to cure market failures), and lighter intervention when distortions associated with government interference are more severe (to cut social enforcement costs).

By itself, the efficiency theory is too broad to have strong implications for the extent and consequences of regulation, and as such is difficult to reject. We examine two of its plausible, but not unambiguous, implications. First, if government intervention in the labor market in the form of worker protection is efficient, then it should not have *large* adverse consequences, such as unemployment, withdrawal of people from the labor force, and the growth of the unofficial economy. Of course, it is possible that the benefits of regulation to protected workers are higher than these distortions, making the overall welfare assessment indeterminate. Second, if efficiency is the correct model, political factors such as the power of the left or constraints on government would not shape regulatory choices. Again, it is possible that some divided societies efficiently require more regulations to preserve social peace, and efficiently pick leftist governments to enact them. We show, however, that, if anything, divided societies regulate less (see footnote 14). The relationship between efficiency and legal theories is even more complex, and we discuss it below.

II.C. Political Power

According to political power theories, institutions are designed to transfer resources from those out of political power to those in power, as well as to entrench those in political power at the helm [Marx 1872; Olson 1993; Finer 1997]. In the context of labor markets, these theories imply that labor regulations are more protective of workers when leftist governments are in power. Such protection can restore efficiency if in a free market workers are "abused," or in lower efficiency if government intervention leads to expropriation of capital by labor.

Political power theories come in two varieties. The first holds that the principal mode of political decision making is elections, and that the parties that win them shape laws. The second variety, which applies to both democracies and dictatorships, holds that laws are shaped by the influence of interest groups [Olson 1965; Stigler 1971; Posner 1974; Becker 1983].

Political power theories are by far the leading explanation of the choice of labor regulations. In the electoral version, they hold that regulations protecting workers (or at least employed workers) are introduced by socialist, social-democratic, and more generally leftist governments to benefit their political constituencies [Esping-Andersen 1990, 1999; Hicks 1999]. In the interest group version, these theories hold that labor regulations respond to the pressure from trade unions, and should therefore be more extensive when the unions are more powerful, regardless of which government is in charge.

Political theories also hold that the ability of those in power to use regulations to benefit themselves is limited by checks and balances on the government [Buchanan and Tullock 1962]. Dictatorships are less constrained than democratically elected governments, and therefore will have more redistributive laws and institutions. Constitutions, legislative constraints, and other forms of checks and balances are all conducive to fewer regulations. This theory found some empirical support in our previous work on the regulation of entry [Djankov et al. 2002].

II.D. Legal Theory

Legal theory has received considerable attention in the discussions of institutional evolution. This theory emphasizes the emergence of two very distinct legal traditions in Western Europe as far back as the twelfth century, namely common law and civil law, and the transplantation of these traditions both within Europe and to the new world through conquest and colonization. Importantly, because most countries in the world received their basic legal structures in this involuntary way, these structures are exogenous to their economies.

Common law emerged in England and is characterized by the importance of decision-making by juries, independent judges, and the emphasis on judicial discretion as opposed to codes. From England, common law was transplanted to its colonies, including Ireland, the United States, Canada, Australia, New Zealand, India, Pakistan, and other countries in South and East Asia, East Africa, and the Caribbean.

Civil law evolved from Roman law in Western Europe through the middle ages, and was incorporated into civil codes in France and Germany in the nineteenth century. Civil law is characterized by less independent judiciaries, the relative unimportance of juries, and a greater role of both substantive and

procedural codes as opposed to judicial discretion. Through Napoleonic conquest French civil law was transplanted throughout Western Europe, including Spain, Portugal, Italy, Belgium, and Holland, and subsequently to the colonies in North and West Africa, all of Latin America, and parts of Asia.

In addition to common law and French civil law, three legal traditions play some role in parts of the world. The German code became accepted in Germanic Western Europe, but also was transplanted to Japan and from there to Korea, and Taiwan. Socialist law was adopted in countries that came under the influence of U.S.S.R. Finally, an indigenous Nordic or Scandinavian legal tradition developed in Sweden, Norway, Denmark, and Finland.

The legal theory holds that countries in different legal traditions utilize different institutional technologies for social control of business [Djankov et al. 2003b]. Common law countries tend to rely more on markets and contracts, and civil law (and socialist) countries on regulation (and state ownership).[3] As argued by Glaeser and Shleifer [2002], there were efficiency reasons for the choice of different legal systems in mother countries. However, since most countries in the world received their legal structures involuntarily, their approach to social control of business may be dictated by the history of transplantation rather than indigenous choice.

Legal theory may be consistent with efficiency when one recognizes enforcement costs. Suppose that a country inherits its broad legal tradition from its conquerors or colonizers. When it does so, its basic laws, the institutions for enforcing the laws, and human capital of the law enforcers, are all shaped by that legal tradition. Suppose that now a country decides to regulate a previously unregulated activity, such as work. Even if it does not wish to borrow the regulations themselves from anywhere in the world, the marginal cost of adopting an approach similar to that of the mother country is lower than starting from scratch, since both people and rules are shared across regulatory activities [Mulligan and Shleifer 2003, 2005]. It might then be efficient to

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3. Legal theories have been tested in other areas. Compared with civil law and particularly French civil law countries, common law countries have better legal protection of shareholders and creditors [La Porta et al. 1997, 1998], lighter regulation of entry [Djankov et al. 2002], less formalized legal procedures for resolving disputes [Djankov et al. 2003b], and securities laws more focused on private contracting than regulation [La Porta, Lopez-de-Silanes, and Shleifer 2003].

adopt the same regulatory approach to the new area of regulation as is used elsewhere. In this way, path dependence in the legal and regulatory styles emerges as an efficient adaptation to the previously transplanted legal infrastructure.

The legal theory predicts that patterns of regulation of labor markets should follow the general styles of social control utilized by each legal system more generally. It implies that civil and socialist law countries would regulate labor markets more extensively than do common law countries, which preserve the freedom of contract to a greater extent [Deakin 2001]. The legal theory also predicts that common law countries should have a less generous social security system, because they are more likely to rely on markets to provide insurance. Finally, the legal theory predicts that patterns of regulation of different activities are correlated across countries.

Legal theories have been challenged by advocates of political power theories, such as Roe [2000] and Pagano and Volpin [2001], who argue that at least in Western Europe, the civil law tradition has often coincided with the political pressure to regulate, usually coming from the left. By combining extensive data on political orientation and legal origins for a sample of 85 countries, we attempt to distinguish the pure political power from the pure legal theory.

III. Measures of Labor Regulation

We constructed a new data set that captures different aspects of the regulation of labor markets in 85 countries. Our measures of labor regulation deal with three broad areas: (i) employment laws, (ii) collective relations laws, and (iii) social security laws. In addition, we assembled some data on civil rights laws in different countries. We describe these data and summarize the results in footnotes, but do not treat this area of law as systematically as the others because there is extensive disagreement among the legal scholars as to what constitutes civil rights. For each of the three areas of law, we examine a range of formal legal statutes governing labor markets. We then construct subindices summarizing different dimensions of such protection, and finally aggregate these subindices into indices. We construct all measures so that higher values correspond to more extensive legal protection of workers.

As in our previous work, we measure formal legal rules.

There are two concerns with this approach. First, it has been argued that the quality of enforcement of rules varies tremendously across countries, and therefore formal rules themselves provide little information for what happens "on the ground" or outcomes. We cannot measure enforcement directly. However, here as elsewhere, we can roughly control for enforcement quality. In addition, despite the broad-brush criticism that formal rules do not matter, we show below that here, as elsewhere, formal rules matter a lot (see La Porta et al. [1997, 1998, 2003, 2004] and Djankov et al. [2002, 2003b]).

Second, it has been argued that the focus on formal rules is misleading because, *formally* distinct legal systems can and do achieve the same *functional* outcome, only through different means. In the extreme form, the argument holds that in the French civil law tradition, the practice is just to "write it down," leading to greater measured formalism and interventionism. In the present context, this argument would hold that the greater protection of workers in civil law countries that we might identify is fictitious—the common law countries regulate just as much through court decisions which are never "written down" in statutes.[4] For example, Autor [2003] and Krueger [1991] describe how common law courts in the United States have systematically deviated from the employment at will doctrine even absent a statutory basis for such deviations.

To us, this critique is not convincing. First, virtually all of labor law is statutory, even in common law countries, and deviations from statutes are an exception not the rule. Second, and more importantly, we construct several of our indices, such as the cost of raising working hours and the cost of firing workers, to reflect actual economic costs and not just statutory language. For these variables, the distinction between what is written down and what it actually costs to do something is minimized. At least with some key variables, then, we are measuring the economic costs of worker protection—*functional* differences—and not pure formalism.

To codify our measures of worker protection, we used a range of sources. Table I presents brief definitions and sources of the

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4. Bertola, Boeri, and Cazes [2000] examine the enforcement of employment protection by courts in a few rich economies, and find that courts in the United States and Canada (common law countries) are less likely to rule for workers than courts in Spain and France (French civil law countries). This bit of data suggests that court enforcement, if anything, widens the differences between the French civil law and the common law that we document below.

TABLE I
THE VARIABLES

This table presents brief definitions of the variables used in the paper. For a full description of all variables and the data refer to the on-line appendix posted at ⟨http://iicg.som.yale.edu/⟩. Unless otherwise specified, the sources for the variables are the laws of each country. We also relied on secondary sources to confirm our data, including the *International Encyclopedia for Labor Law and Industrial Relations* [Blanpain 1977], the *International Handbook on Contracts of Employment* [Cox and Jeffers 1988], the ILO's *Conditions of Work Digest* [1994, 1995], and the U. S. Social Security Administration's *Social Security Programs Throughout the World* [1999]. Unless otherwise specified, higher values indicate higher worker protection. All dummy variables are equal to one or zero. All normalized variables lie between 0 and 1, where 0 (1) is the minimum (maximum) actual value in our sample.

Variable	Description
	Employment laws
Alternative employment contracts	Measures the existence and cost of alternatives to the standard employment contract, computed as the average of (1) a dummy variable equal to one if part-time workers enjoy the mandatory benefits of full-time workers, (2) a dummy variable equal to one if terminating part-time workers is at least as costly as terminating full-time workers, (3) a dummy variable equal to one if fixed-term contracts are only allowed for fixed-term tasks, and (4) the normalized maximum duration of fixed-term contracts.
Cost of increasing hours worked	Measures the cost of increasing the number of hours worked. We start by calculating the maximum number of "normal" hours of work per year in each country (excluding overtime, vacations, holidays, etc.). Normal hours range from 1,758 in Denmark to 2,418 in Kenya. Then we assume that firms need to increase the hours worked by their employees from 1,758 to 2,418 hours during one year. A firm first increases the number of hours worked until it reaches the country's maximum normal hours of work, and then uses overtime. If existing employees are not allowed to increase the hours worked to 2,418 hours in a year, perhaps because overtime is capped, we assume that the firm doubles its workforce and each worker is paid 1,758 hours, doubling the wage bill of the firm. The cost of increasing hours worked is computed as the ratio of the final wage bill to the initial one.
Cost of firing workers	Measures the cost of firing 20 percent of the firm's workers (10 percent are fired for redundancy and 10 percent without cause). The cost of firing a worker is calculated as the sum of the notice period, severance pay, and any mandatory penalties established by law or mandatory collective agreements for a worker with three years of tenure with the firm. If dismissal is illegal, we set the cost of firing equal to the annual wage. The new wage bill incorporates the normal wage of the remaining workers and the cost of firing workers. The cost of firing workers is computed as the ratio of the new wage bill to the old one.
Dismissal procedures	Measures worker protection granted by law or mandatory collective agreements against dismissal. It is the average of the following seven dummy variables which equal one: (1) if the employer must notify a third party before dismissing more than one worker, (2) if the employer needs the approval of a third party prior to dismissing more than one worker, (3) if the employer must notify a third party before dismissing one redundant worker, (4) if the employer needs the approval of a third party to dismiss one redundant worker, (5) if the employer must provide relocation or retraining alternatives for redundant employees prior to dismissal, (6) if there are priority rules applying to dismissal or layoffs, and (7) if there are priority rules applying to reemployment.
Employment laws index	Measures the protection of labor and employment laws as the average of (1) Alternative employment contracts, (2) Cost of increasing hours worked, (3) Cost of firing workers, and (4) Dismissal procedures.

Collective relations laws

Labor union power	Measures the statutory protection and power of unions as the average of the following seven dummy variables which equal one: (1) if employees have the right to unionize, (2) if employees have the right to collective bargaining, (3) if employees have the legal duty to bargain with unions, (4) if collective contracts are extended to third parties by law, (5) if the law allows closed shops, (6) if workers, or unions, or both have a right to appoint members to the Boards of Directors, and (7) if workers' councils are mandated by law.
Collective disputes	Measures the protection of workers during collective disputes as the average of the following eight dummy variables which equal one: (1) if employer lockouts are illegal, (2) if workers have the right to industrial action, (3) if wildcat, political, and sympathy/solidarity/ secondary strikes are legal, (4) if there is no mandatory waiting period or notification requirement before strikes can occur, (5) if striking is legal even if there is a collective agreement in force, (6) if laws do not mandate conciliation procedures before a strike, (7) if third-party arbitration during a labor dispute is mandated by law, and (8) if it is illegal to fire or replace striking workers.
Collective relations laws index	Measures the protection of collective relations laws as the average of (1) Labor union power and (2) Collective disputes.

Social security laws

Old-age, disability, and death benefits	Measures the level of old-age, disability, and death benefits as the average of the following four normalized variables: (1) the difference between retirement age and life expectancy at birth, (2) the number of months of contributions or employment required for normal retirement by law, (3) the percentage of the worker's monthly salary deducted by law to cover old-age, disability, and death benefits, and (4) the percentage of the net preretirement salary covered by the net old-age cash-benefit pension.
Sickness and health benefits	Measures the level of sickness and health benefit as the average of the following four normalized variables: (1) the number of months of contributions or employment required to qualify for sickness benefits by law, (2) the percentage of the worker's monthly salary deducted by law to cover sickness and health benefits, (3) the waiting period for sickness benefits, and (4) the percentage of the net salary covered by the net sickness cash benefit for a two-month sickness spell.
Unemployment benefits	Measures the level of unemployment benefits as the average of the following four normalized variables: (1) the number of months of contributions or employment required to qualify for unemployment benefits by law, (2) the percentage of the worker's monthly salary deducted by law to cover unemployment benefits, (3) the waiting period for unemployment benefits, and (4) the percentage of the net salary covered by the net unemployment benefits in case of a one-year unemployment spell.
Social security laws index	Measures social security benefits as the average of (1) Old-age, disability, and death benefits, (2) Sickness and health benefits, and (3) Unemployment benefits.

TABLE I
(CONTINUED)

Variable	Description
	Political variables
Chief executive and largest party in congress have left or center political orientation	Measures the percentage of years between 1928 and 1995, and, alternatively, between 1975 and 1995, during which both the party of the chief executive and the largest party in congress had left or center orientation. If the country was not independent in the initial year of the period, we use the independence year as the first period. For countries that were part of a larger country in the initial year of the period and subsequently broke up, we include in calculations the political orientation of the political parties in the mother country in the prebreakup period. In the case of military regimes, where political affiliations are unclear, we classify the regime based on its policies. Source: Authors' calculations based on: *Political Handbook of the World, Europa Yearbook, World Encyclopedia of Political Systems and Parties, Cross-National Time-Series Data Political Parties of the Americas: Canada, Latin America, and the West Indies, Encyclopedia of Latin American Politics, Political Parties of Europe, Political Parties of Asia and the Pacific, Statesmen database:* ⟨http://www.worldstatesmen.org⟩, *Country Reports History:* ⟨http://www.countryreports.org⟩, *Rulers database:* ⟨http://rulers.org/⟩, *various regional and country sources.*
Union density	Measures the percentage of the total workforce affiliated to labor unions in 1997. Source: *ILO, Key Indicators of the Labor Market, Laborsta:* ⟨http://laborsta.ilo.org⟩, *and The World Bank [2001].*
Autocracy	This variable classifies regimes based on their degree of autocracy. This variable ranges from zero to two, where higher values equal a higher degree of autocracy. Democracies are coded as zero, dictatorships with a legislature are coded as one, and dictatorships without a legislature are coded as two. Transition years are coded as the regime that emerges afterwards. This variable is measured as the average from 1950 through 1990. Source: *Alvarez et al. [2000].*
Proportional representation	Equals one if legislators were elected based on the percentage of votes received by their party; equals zero otherwise. This variable is measured as the average from 1975 through 1995. Source: *Beck et al. [2001].*
Divided government	This variable measures the probability that two randomly chosen deputies will belong to a different party in a given year. It is missing if there is no parliament or if there are no parties in the legislature; and zero if there are no opposition party seats. This variable is measured as the average from 1975 through 1995. Source: *Beck et al. [2001].*
Democracy	A measure of the degree of democracy in a given country based on (1) the competitiveness of political participation, (2) the openness and competitiveness of the chief executive recruitment, and (3) the constraints on the chief executive. The variable ranges from zero to ten, where higher values represent a higher degree of institutionalized democracy. The starting period is either 1950 or the country's independence date, whichever is later. The variable is measured as the average from the initial period through 1995. For countries that are breakup nations, we include in the calculations the democracy score of the mother country in the prebreakup period. Source: *Authors' calculations using the data in Jaggers and Marshall [2000].*

Outcomes

Size of the unofficial economy	Size of the unofficial economy as a percentage of GDP (varying time periods). Source: *Authors' calculations based on averaging all estimates reported in Schneider and Enste [2000] for any given country, as well as Sananikone [1996] for Burkina Faso, Chidzero [1996] for Senegal, Turnham et al. [1990] for Indonesia and Pakistan, and Kasnakoglu and Yayla [1999] for Turkey.*
Employment in the unofficial economy	Share of the total labor force employed in the unofficial economy in the capital city of each country as a percent of the official labor force. Figures are based on surveys and, for some countries, on econometric estimates. Source: *Schneider and Enste [2000] and the Global Urban Indicators Database [2000].*
Male (Female) participation rate in the labor force 1990–1994	Male (Female) participation rate as a percentage of the total male (female) population aged 15 to 64. Based on population censuses or household surveys. Source: *Forteza and Rama [2000].*
Unemployment rate 1991–2000	Average unemployment rate as a percentage of the total labor force during 1991–2000. Source: *ILO, Key Indicators of the Labor Market, Laborsta ⟨http://laborsta.ilo.org⟩.*
Unemployed males (females) 20–24 years old/active males (females) 20–24 years	Unemployed males (females) aged 20 to 24 as a percentage of the total active male (female) population of the same age during 1991–2000. Source: *ILO, Key Indicators of the Labor Market, Laborsta ⟨http://laborsta.ilo.org⟩.*
Wages of machine operators/wages of clerks and craft and related trades workers 1990–1999	Ratio of the average wage of machine operators across industries to the average wage of clerks and workers in craft and related trades. This variable is measured as the average for the period 1990 to 1999. Source: *Authors' calculations based on data in Freeman and Oostendorp [2001].*

TABLE I
(CONTINUED)

Variable	Description
	Other variables
Log of GNP per capita	Natural logarithm of GNP per capita in 1997, Atlas method, expressed in current US dollars. *Source: World Bank, World Development Indicators [2001].*
Legal origin	Identifies the legal origin of the company law or commercial code of each country (English, French, Socialist, German, or Scandinavian). *Source: La Porta et al. [1999].*
Court formalism index for the eviction of a nonpaying tenant	The index measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts in a case for evicting a tenant who has not paid rent. Higher values represent more statutory control or intervention in the judicial process. *Source: Djankov et al. [2003a].*
Court formalism index for the collection of a bounced check	The index measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts in a case for collecting on a bounced check. Higher values represent more statutory control or intervention in the judicial process. *Source: Djankov et al. [2003a].*
Log number of steps to start a business	Natural logarithm of the number of different procedures that a start-up business has to comply with to obtain a legal status, i.e., to start operating as a legal entity. *Source: Djankov et al. [2002].*
Log number of days to start a business	Natural logarithm of the number of days required to obtain legal status to operate a firm in 1999. *Source: Djankov et al. [2002].*
Log cost to start a business/GDP per capita	Natural logarithm of the cost of obtaining legal status to operate a firm as a share of per capita GDP in 1999. *Source: Djankov et al. [2002].*
Average years of schooling	Years of schooling of the total population aged over 25. Since there are no data for 1997, we use the average of 1995 and 2000. The only exception is Nigeria for which only 1992 data exist. *Source: Barro and Lee [2000]* ⟨*http://www.cid.harvard.edu/ciddata/ciddata.htm*⟩ *and, for Nigeria, Human Development Report [1994, 1997].*

variables used in the paper. The unpublished appendix, available at *http://iicg.som.yale.edu/ /,* describes all data sources and full details of variable construction (including civil rights[5]). To ensure comparability and consistency across countries, we consider a "standardized" male worker and a "standardized" employer.[6]

III.A Employment Laws

Employment laws regulate the individual employment relation, including the alternatives to the standard employment contract, the flexibility of working conditions, and the termination of employment. To capture all of these aspects, we calculate four subindices: (i) alternative employment contracts, (ii) cost of increasing hours worked, (iii) cost of firing workers, and (iv) dismissal procedures. Our index of employment laws, more so than other indices, reflects the incremental cost to the employer of deviating from a hypothetical rigid contract, in which the conditions of a job are specified and a worker cannot be fired. This index is thus an economic measure of protection of (employed) workers, and not just a reflection of legal formalism.

An employer can reduce his costs by hiring part-time labor or through temporary contracts if such practices reduce benefits or termination costs. The first subindex captures the strictness of

5. Civil rights laws seek to stop employment discrimination against vulnerable groups. Our index reflects five such mandates: prohibition of discrimination on the basis of a) race or b) gender, c) the statutory duration of paid maternity leave, d) minimum age of employment of children, and e) the existence of a statutory or broadly applied minimum wage determined by law or mandatory collective agreements. The ostensible logic behind the last variable is that the minimum wage protects disadvantaged persons against exploitation by those with more power.

6. The standardized male worker has the following characteristics: (i) he is a nonexecutive full-time employee who has been working in the same firm for twenty years; (ii) his salary plus benefits equal the country's GNP per worker during the entire period of employment; (iii) he has a nonworking wife and two children, and the family has always resided in the country's most populous city; (iv) he is a lawful citizen who belongs to the same race and religion as the majority of the country's population; (v) he is not a member of the labor union (unless membership is mandatory); and (vi) he retires at the age defined by the country's laws. We also assume a "standardized" employer with the following characteristics: (i) it is a manufacturing company wholly owned by nationals; (ii) its legal domicile and its main place of business is the country's most populous city; (iii) it has 250 workers; and (iv) it abides by every law and regulation, but does not grant workers more prerogatives than are legally mandated. Whenever both a standard duration or payment and a possible extended period of time or payment is provided by law, we choose the standard one. These assumptions ensure comparability across countries, but they are not critical for the results of the paper as variations in the overall level of labor protection are by far greater across countries than across industries within a country. We collected information for a worker who has been employed for three years, and the results do not change materially.

protection against such alternative employment contracts. We measure whether part-time workers are exempt from mandatory benefits of full-time workers and whether it is easier or less costly to terminate part-time workers than full-time workers. We also measure whether fixed-term contracts are only allowed for fixed-term tasks and their maximum allowed duration.

The second subindex measures the cost of increasing working hours. We assume that our hypothetical firm in each country has each employee working at 1758 hours per year initially (Denmark's maximum considering all regulations before overtime), and it wants to increase these numbers by 660 hours per year per worker due to increased demand (which would bring it to 2418 hours per year per worker, Kenya's legal maximum before overtime). We assume that the firm in each country meets the increased need for labor by first asking its workers to work up to the country's legal maximum, then asking them to work overtime at the statutory wage premiums. If neither proves sufficient, we assume that the firm must instead hire another complete duplicate set of workers each working the initial 1758 hours (i.e., workers are complements and each job must be filled with an extra worker to meet the increased demand). Under these assumptions, we can calculate the cost of accommodating increased demand relative to the firm's previous wage bill, a measure of how strictly employment laws protect workers from being "forced" to work more.

The third subindex captures the economic cost of firing workers. We construct a scenario where our standardized firm with 250 workers fires 50 of them: 25 for redundancy and 25 without cause. The cost of firing workers is computed as the equivalent in pay of the sum of the notice period, severance payment, and any other mandatory penalty directly related to the dismissal of the worker.[7] Because many rules govern when a redundancy or no cause dismissal is allowed, we make assumptions to make the scenario comparable across countries.[8] If the laws of a country do

7. For the cost of firing workers subindex, we report results for an employee with three years of seniority. We also calculated the relevant data for a worker with two and twenty years of seniority with no significant change in results.

8. In particular, we assume that (i) there is no discrimination and all procedures regarding notice periods and social conditions for firing are followed (this includes last-in first-out rules as well as seniority and "social need" criteria); (ii) the negative demand shock puts the firm in "manifest unprofitability" and therefore redundancy dismissal is allowed whenever the law permits it for economic reasons less stringent than outright bankruptcy; (iii) whenever permission from a

not allow the firm to fire a worker, the cost is set equal to his full year's salary.

The fourth subindex summarizes the restrictions on employers for firing workers; whether individually or collectively. These may include notifications, approvals, mandatory relocation or retraining, and priority rules for reemployment. Their effect is to raise the costs of dismissal of existing workers beyond those already captured in the previous subindex.

III.B. Collective Relations Laws

Collective relations laws seek to protect workers from employers through collective action. They govern the balance of power between labor unions and employers and associations of employers.[9] We deal with two subareas of these laws: (i) the power granted by the law to labor unions and (ii) the laws governing collective disputes.

The subindex of labor union power measures the power of labor unions over working conditions. Many countries protect by law the right to unionization, the right to collective bargaining, and the obligation of employers to engage in it. In some countries collective agreements are extended to third parties as a matter of public policy at the national or sectoral levels, whereas in others they only extend to nonsignatory workers at the plant level, or only bind the parties to the agreement. Laws in some countries mandate closed shops, and even give unions the right to appoint some directors of firms. Finally, many countries require by law the creation of workers' councils to look after the best interests of employees.

The second subindex measures protection of employees engaged in collective disputes. Some countries enshrine the right of workers to engage in collective action in their constitutions, and allow wildcat strikes (not authorized by the labor union), political strikes (to protest government policy on nonwork-related issues),

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third party (courts, government regulators, worker councils, or labor unions) is required prior to dismissing a worker, third party consents to the dismissal; (iv) if permission from a third party is required for a dismissal without cause, the third party does not allow it; (v) if dismissal without cause is not allowed but the law establishes a clearly defined penalty for firing the worker (which does not include mandatory reinstatement), the employer fires the employee and pays the fine.

9. Some provisions aim to protect workers from other workers. For instance, "right-to-work" laws in the United States protect workers from unions by prohibiting the exclusive hiring of union labor. Such cases are rare, and the bulk of collective relations provisions protect workers from employers.

and sympathy strikes (to support the claims of workers other than the striking workers). Others do not. Procedural restrictions on the right to strike may include majority voting, advance notice requirements, prohibitions on strikes while a collective agreement is in force, and the obligation to go through conciliation procedures before the strike may take place. Employer defenses may include bans on lockouts and on employers' retribution against strikers, such as the termination of employment of striking workers and the hiring of replacement labor during a lawful strike. Finally, in many countries, one (normally the employer) or both of the parties may be subject to arbitration against their will.

III.C. Social Security Laws

The bulk of social security expenditure across countries addresses old-age pensions, sickness and health care coverage, and unemployment. Following the design of the decommodification index of Esping-Andersen,[10] our variables cover the risks of (i) old age, disability, and death; (ii) sickness and health; and (iii) unemployment. For each, we code four variables to measure the generosity of the social security system.

The construction of each subindex is slightly different, but all capture the generosity of benefits by measuring the percentage of the net previous salary covered by net benefits. This measure approximates the living standard a worker would enjoy considering the effects of the tax structure and the duration for which benefits are received.[11] A second driver of generosity is the cost borne by the worker for the privilege of social security coverage. We approximate this by measuring the required months of contribution or of covered employment required by law to qualify for a standard pension or to enjoy unemployment and sickness benefits as well as the percentage of the worker's monthly salary deducted by law to cover these. Finally, we consider the length of the waiting period before receiving benefits.

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10. Esping-Andersen used the share of the relevant population covered as a weight for the variables in his index for eighteen developed countries. This information is not available for a large sample of countries, so we present the unweighted data. The correlation between the Esping-Andersen index and our index of social security laws for the eighteen countries in his sample is 0.38.

11. Countries vary in the type of pension system they have, including lump-sum systems, private systems, and systems that provide fixed benefits to everyone. Table I and Appendix 1 (available on-line at http://iicg.som.yale.edu//) describe the details of our calculations.

III.D. Aggregation

For each of our three areas of law, we construct an aggregate index by averaging the subindices for the particular area. This is not the only possible aggregation procedure, but it is transparent. Table II presents the correlations between the various subindices and indices of labor regulation. The table shows, for example, that the four subindices of the employment laws index are highly correlated with each other, as are the two subindices of the collective relations law index, and the three subindices of the social securities law index. The correlations between employment and collective relations indices and subindices are high and significant as well, inconsistent with the notion of substitution between different kinds of regulation.

III.E. Independent Variables

We assemble data on a number of potential determinants of labor regulations, as well as some labor market outcomes. We measure development using the (logarithm of) per capita income in 1997 (the year the regulations are measured), and the average years of schooling of the population over 25 years of age from Barro and Lee [2000].

To measure politics, we expand back to 1928 the World Bank data recording the fraction of years between 1975 and 1995 that each country's chief executive or the largest party in the legislature or both was rightist, leftist, or centrist. We present results for the fraction of years during 1928–1995 and 1975–1995 when the chief executive AND the legislature were of left or centrist orientation (these variables yield the strongest results for the political theories). We use union density to proxy for the influence of labor interest groups. To measure political constraints, we take average "autocracy" between 1950 and 1990 from Alvarez et al. [2000], and the 1975–1995 averages of proportional representation and divided government from Beck et al. [2001].[12]

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12. We have gathered additional variables that measure political orientation as well as political and economic constraints. Additional measures of political orientation include the fraction of years when the chief executive was of left and centrist orientation, the fraction of years when the legislature was of left or centrist political orientation, and the percentage of the labor force covered by collective agreements. Alternative measures of political constraints are the effectiveness of the legislature and constraints of the executive. We also used alternative measures of proportional representation and divided government from various sources including plurality rules in the legislature chambers, and the sum of the square of the total share of the congress controlled by each party. Finally, our measures for economic constraints are actual trade openness in 1985, geographic openness, and factor accumulation openness from Frankel and Romer [1999].

TABLE II

CORRELATION BETWEEN INDICES AND SUBINDICES

This table presents pairwise correlations between our various measures of regulation of labor.
All the variables are described in Table I.

	Employment laws index	Alternative employment contracts	Costs of increasing hours worked	Cost of firing workers	Dismissal procedures	Collective relations laws index	Labor union power	Collective disputes	Social security laws index	Old-age, disability, and death benefits	Sickness and health benefits
Alternative employment contracts	0.4702[a]										
Cost of increasing hours worked	0.7948[a]	0.1411									
Cost of firing workers	0.6590[a]	0.2514[b]	0.3170[a]								
Dismissal procedures	0.6868[a]	0.1996[c]	0.2891[a]	0.3877[a]							
Collective relations laws index	0.4894[a]	0.2792[a]	0.2911[a]	0.2466[b]	0.5109[a]						
Labor union power	0.3772[a]	0.2160[b]	0.2859[a]	0.1336	0.3404[a]	0.7568[a]					
Collective disputes	0.3401[a]	0.1932[c]	0.1360	0.2321[b]	0.4125[a]	0.7100[a]	0.0770				
Social security laws index	0.2339[b]	0.1765	0.3011[a]	0.0931	−0.0165	0.2275[b]	0.2277[b]	0.1017			
Old-age, disability, and death benefits	0.1732	0.2206[b]	0.1749	−0.0238	0.0707	0.1338	0.0738	0.1246	0.5825[a]		
Sickness and health benefits	0.1432	0.1063	0.1313	0.1924[c]	−0.0283	0.1643	0.1172	0.1244	0.8443[a]	0.3742[a]	
Unemployment benefits	0.2382[b]	0.1475	0.3699[a]	0.0142	−0.0324	0.2232[b]	0.2863[a]	0.0321	0.8795[a]	0.3649[a]	0.5418[a]

a = significant at 1 percent level; b = significant at 5 percent level; c = significant at 10 percent level.

To test legal theories, we use legal origin of commercial laws from La Porta et al. [1999], which classifies close to 200 countries. Labor market outcomes include the size of the unofficial economy, labor force participation, unemployment including that of the young, and a crude measure of relative wages of protected and unprotected workers.

IV. A Look at the Data

A comparison of New Zealand and Portugal, two countries of roughly similar income level can serve to illustrate our indices. In the area of employment laws, neither country exempts part-time workers from mandatory benefits of full-time workers, and neither makes it easier or less costly to terminate them. Fixed term contracts can be entered in New Zealand for any reason, and there is no maximum duration provided by the law. In Portugal, such contracts are allowed for a maximum of three years, are granted for specific situations (such as substitution for another worker or seasonal activity), and are therefore temporary in nature. The alternative employment subindex for New Zealand is 0.50, while for Portugal it is 0.91.

The Portuguese Constitution regulates working times and leaves, remuneration, and working conditions, matters that in New Zealand are normally regulated by collective bargaining or left to the individual employment contract. The premium for overtime work in Portugal is 50 percent for the first six hours per week and 75 percent for every hour thereafter; there are 24 days of paid annual leave; and there is a cap of 200 hours of overtime per year. New Zealand mandates no premium for overtime work, has no quantitative restrictions on night work, and grants only fifteen days of paid leave. The result of this is that the cost of increasing working hours in Portugal is equal to the maximum in our sample (1.00) while the cost in New Zealand is the lowest in our sample (0.00).

In New Zealand, notice period and severance pay are not regulated by statute, while in Portugal the minimum notice period and severance period that may be paid are strictly regulated; for example, a worker with three years seniority fired for redundancy in Portugal is entitled to one month of notice and three months of severance pay. Dismissal without cause is allowed in New Zealand, but constitutionally forbidden in Portugal. These

factors explain why New Zealand has the lowest cost of dismissal in our sample (0.00), while Portugal has one of the highest (0.61).

In New Zealand, a reasonable advance notice is generally considered a fair reason for termination for redundancy. Portugal, on the other hand, has a public policy list of fair grounds for termination and stringent procedural limitations on dismissal, such as mandatory notification of the government, permission in the case of collective dismissal, and priority rules for reemployment of redundant workers. These differences are reflected in the dismissal procedures subindex, where New Zealand scores a 0.14 and Portugal a much higher 0.71.

These differences add up to the employment laws index of 0.16 for New Zealand (one of the lowest in the world), and 0.81 for Portugal (one of the highest).

In collective relations laws, the Portuguese Constitution guarantees the rights to form trade unions and to engage in collective bargaining. Employers have a legal duty to bargain with unions, collective agreements are extended to third parties by law, and workers' councils allowing workers to participate in management are mandatory. In New Zealand, these issues are not regulated by law. For example, once a bargaining agent has established its authority to represent an employee, the employer must recognize his authority, but there is no obligation upon the employer to negotiate with this agent. In New Zealand, as in Portugal, the law does not allow closed shops. These differences explain why the subindex of labor union power for New Zealand is 0, the lowest possible, while Portugal's is 0.71, the highest in our sample.

Regarding collective disputes, the two countries are similar. The right to strike is protected in both countries, but while it is a mere freedom in New Zealand, it is a constitutional right in Portugal. Employer lockouts are allowed in New Zealand, but not in Portugal. New Zealand does not mandate a waiting period or notification before strikes can occur, while Portugal requires employers to be notified before the strike. In both countries, employers are not allowed to fire or replace striking workers; there is no mandatory conciliation procedure before a strike; and compulsory third-party arbitration during a labor dispute is not mandatory. The overall collective disputes subindex is 0.58 in Portugal and 0.50 in New Zealand; the overall collective relations laws index is 0.65 for Portugal compared with 0.25 for New Zealand.

Although social security is regulated by the Constitution in Portugal but not in New Zealand, the two countries have similar—and generous—systems. In the case of old-age, disability, and death insurance, workers in New Zealand are not only obliged to contribute less to their retirement, but can also expect to enjoy their benefits for 13.4 years while those in Portugal only expect 10.5 years. The percentage of the previous net wage covered by net benefits is 76 percent in New Zealand and only 58 percent in Portugal. For the overall old-age, disability, and death benefits subindex, New Zealand scores a 0.84, and Portugal only 0.60.

Sickness and health benefits in Portugal require six months of contributions before benefits can be claimed, 3.17 percent of the workers' monthly pay is deducted to pay for insurance, and there is a waiting period of three days between the time the employee falls ill and payments begin. New Zealand has no minimum contribution conditions, no waiting period, and does not deduct pay from workers to cover for insurance. Net benefits in Portugal cover approximately 65 percent of the net previous wage, while benefits in New Zealand are income tested and our model worker falls above the threshold. These differences roughly cancel each other out: New Zealand has a sickness and health benefits subindex of 0.75, and Portugal of 0.70.

For unemployment benefits, New Zealand has no minimum contribution period, while Portugal mandates eighteen months. However Portugal has no waiting period from the time an employee is fired and when he can claim benefits, while a worker in New Zealand must wait for 70 days. The benefits received are also more generous in Portugal: the net benefit is 77 percent of net previous wages, while only 25 percent in New Zealand. The results of this are that the subindex of unemployment benefits is 0.56 for New Zealand and a much higher 0.90 for Portugal.

The three measures of social security translate into a slightly higher score in the social security laws index of 0.74 for Portugal than 0.72 given to New Zealand.

Table III presents, for each country, the indices of employment, collective relations, and social security laws, as well as the logarithm of GDP per capita in 1997, the fraction of years during 1928–1995 when the chief executive and the legislature were of left or centrist orientation, and the legal origin. The table also presents the means and medians of the data across income

TABLE III

MAIN INDICATORS BY COUNTRY

Panel A of this table shows the indices of employment laws, collective relations laws, and social security laws, as well as the log of GNP per capita for 1997, the percentage of years between 1928 and 1995 during which both the party of the chief executive and the largest party in congress had left or center orientation, and the legal origin of each country. Panels B, C, and D present summary statistics for the cross section of countries by GNP per capita, degree of left/center political orientation, and legal origin, respectively. All variables are described in Table I, and the data can be found at http://iicg.som.yale.edu/.

	Employment laws index	Collective relations laws index	Social security laws index	Log GNP per capita 1997	Chief executive and largest party in congress have left or center political orientation (1928–1995)	Legal origin
Panel A: Data						
Argentina	0.3442	0.5774	0.7154	9.0070	0.4559	French
Armenia	0.6017	0.5179	0.7337	6.2538	1.0000	Socialist
Australia	0.3515	0.3720	0.7820	10.0110	0.3529	English
Austria	0.5007	0.3601	0.7139	10.2481	0.2353	German
Belgium	0.5133	0.4226	0.6240	10.1988	0.0882	French
Bolivia	0.3728	0.4613	0.3702	6.8773	0.4412	French
Brazil	0.5676	0.3780	0.5471	8.4638	0.2206	French
Bulgaria	0.5189	0.4435	0.7610	7.0648	0.7059	Socialist
Burkina Faso	0.4396	0.5268	0.1447	5.4806	0.9429	French
Canada	0.2615	0.1964	0.7869	9.9179	0.6912	English
Chile	0.4735	0.3810	0.6887	8.5112	0.3824	French
China	0.4322	0.3304	0.7643	6.5511	0.6765	Socialist
Colombia	0.3442	0.4851	0.8131	7.8241	0.3676	French
Croatia	0.4879	0.4524	0.6797	8.3802	0.6765	Socialist
Czech Republic	0.5205	0.3393	0.6981	8.5698	0.8382	Socialist
Denmark	0.5727	0.4196	0.8727	10.4406	0.7353	Scandinavian
Dominican Republic	0.5972	0.2715	0.4876	7.4384	0.1176	French
Ecuador	0.3966	0.6369	0.6542	7.3588	0.3971	French
Egypt	0.3683	0.4107	0.7550	7.0901	0.8382	French
Finland	0.7366	0.3185	0.7863	10.1511	0.7941	Scandinavian
France	0.7443	0.6667	0.7838	10.1601	0.3382	French
Georgia	0.7713	0.5685	0.4491	6.3456	1.0000	Socialist
Germany	0.7015	0.6071	0.6702	10.2608	0.2941	German
Ghana	0.2881	0.4821	0.1576	5.9662	0.7368	English
Greece	0.5189	0.4851	0.7386	9.4222	0.2059	French
Hong Kong	0.1696	0.4554	0.8050	10.1382	0.2794	English
Hungary	0.3773	0.6071	0.7275	8.4141	0.6618	Socialist
India	0.4434	0.3839	0.4003	6.0403	1.0000	English
Indonesia	0.6813	0.3929	0.1772	7.0121	0.1957	French
Ireland	0.3427	0.4643	0.7144	9.8924	0.0000	English
Israel	0.2890	0.3095	0.8068	9.7238	0.7660	English
Italy	0.6499	0.6310	0.7572	9.9311	0.3235	French
Jamaica	0.1628	0.2262	0.1677	7.5229	0.4242	English
Japan	0.1639	0.6280	0.6417	10.5545	0.0147	German
Jordan	0.6977	0.3810	0.2099	7.3840	0.0000	French
Kazakhstan	0.7796	0.6815	0.2778	7.2298	1.0000	Socialist
Kenya	0.3687	0.2262	0.3114	5.8579	1.0000	English
Korea	0.4457	0.5446	0.6774	9.3405	0.4000	German
Kyrgyz Republic	0.7459	0.4613	0.7678	6.1527	0.9412	Socialist
Latvia	0.7211	0.5327	0.7023	7.7407	0.7647	Socialist

Lebanon	0.5024	0.4137	0.3948	8.1197	0.1923	French
Lithuania	0.6233	0.4970	0.7458	7.7053	0.7941	Socialist
Madagascar	0.4749	0.4643	0.2003	5.5215	1.0000	French
Malawi	0.1833	0.2470	0.0000	5.3471	0.1290	English
Malaysia	0.1885	0.1875	0.1950	8.4338	0.0000	English
Mali	0.6674	0.3929	0.1658	5.5607	0.3429	French
Mexico	0.5943	0.5774	0.5063	8.2188	1.0000	French
Mongolia	0.3256	0.2292	0.7383	6.0403	0.9706	Socialist
Morocco	0.2616	0.4881	0.5165	7.1309	0.0000	French
Mozambique	0.7946	0.5804	0.4452	5.1930	1.0000	French
Netherlands	0.7256	0.4643	0.6282	10.2128	0.2647	French
New Zealand	0.1607	0.2500	0.7188	9.6909	0.4559	English
Nigeria	0.1929	0.2054	0.3447	5.5984	0.5429	English
Norway	0.6853	0.6488	0.8259	10.5018	0.7059	Scandinavian
Pakistan	0.3433	0.3095	0.4714	6.2344	0.4375	English
Panama	0.6246	0.4554	0.7431	8.0163	0.5000	French
Peru	0.4630	0.7113	0.4167	7.7832	0.4265	French
Philippines	0.4762	0.5149	0.4941	7.1148	0.3469	French
Poland	0.6395	0.5655	0.6459	8.1775	0.9118	Socialist
Portugal	0.8088	0.6488	0.7352	9.3281	0.0882	French
Romania	0.3273	0.5565	0.7411	7.2442	0.9265	Socialist
Russian Federation	0.8276	0.5774	0.8470	7.8633	0.9412	Socialist
Senegal	0.5099	0.5744	0.3835	6.2729	1.0000	French
Singapore	0.3116	0.3423	0.4618	10.2198	0.3000	English
Slovak Republic	0.6571	0.4524	0.7284	8.2584	0.8824	Socialist
Slovenia	0.7359	0.4851	0.7755	9.1973	0.7353	Socialist
South Africa	0.3204	0.5446	0.5753	8.2134	0.0147	English
Spain	0.7447	0.5863	0.7660	9.6382	0.3088	French
Sri Lanka	0.4685	0.5060	0.1945	6.6720	0.8298	English
Sweden	0.7405	0.5387	0.8448	10.2306	0.8529	Scandinavian
Switzerland	0.4520	0.4167	0.8151	10.6782	0.6912	German
Taiwan	0.4534	0.3155	0.7478	9.2519	0.0000	German
Tanzania	0.6843	0.3244	0.0880	5.3471	1.0000	English
Thailand	0.4097	0.3571	0.4707	7.9302	0.0735	English
Tunisia	0.8158	0.3810	0.7063	7.6401	0.9744	French
Turkey	0.4026	0.4732	0.4777	8.0678	0.5441	French
Uganda	0.3530	0.3810	0.1088	5.7683	0.9697	English
Ukraine	0.6609	0.5774	0.8499	6.9177	1.0000	Socialist
United Kingdom	0.2824	0.1875	0.6915	9.9763	0.2794	English
United States	0.2176	0.2589	0.6461	10.3129	0.7059	English
Uruguay	0.2762	0.3542	0.6778	8.7641	0.5000	French
Venezuela	0.6509	0.5357	0.7299	8.1662	0.5441	French
Vietnam	0.5401	0.4821	0.5198	5.8290	1.0000	Socialist
Zambia	0.1480	0.2914	0.1055	5.9135	1.0000	English
Zimbabwe	0.2513	0.4435	0.1623	6.5793	0.5000	English
Sample mean	**0.4876**	**0.4451**	**0.5690**	**8.0213**	**0.5646**	
Sample median	**0.4749**	**0.4554**	**0.6774**	**8.0163**	**0.5441**	

Panel B: Data by GNP per capita

Below median:	Mean	0.4889	0.4408	0.4481	6.6285	0.6846
	Median	0.4657	0.4613	0.4471	6.6256	0.8120
Above median:	Mean	0.4862	0.4493	0.6872	9.3817	0.4473
	Median	0.5007	0.4554	0.7154	9.6382	0.4000

Panel C: Data by left/center political orientation

Below median:	Mean	0.4378	0.4345	0.5504	8.4929	0.2676
	Median	0.4277	0.4330	0.6350	8.4875	0.2971
Above median:	Mean	0.5361	0.4554	0.5873	7.5607	0.8546
	Median	0.5205	0.4732	0.7063	7.2442	0.8824

TABLE III
(CONTINUED)

		Employment laws index	Collective relations laws index	Social security laws index	Log GNP per capita 1997	Chief executive and largest party in congress have left or center political orientation (1928–1995)
Panel D: Data by legal origin						
English legal	Mean	0.2997	0.3313	0.4236	7.8045	0.5204
origin:	Median	0.2886	0.3170	0.4311	7.7266	0.4779
Socialist legal	Mean	0.5944	0.4925	0.6923	7.3650	0.8646
origin:	Median	0.6233	0.4970	0.7337	7.2442	0.9118
French legal	Mean	0.5470	0.4914	0.5454	7.9034	0.4484
origin:	Median	0.5161	0.4792	0.5855	7.9202	0.3750
German legal	Mean	0.4529	0.4787	0.7110	10.0557	0.2725
origin:	Median	0.4527	0.4807	0.6957	10.2545	0.2647
Scandinavian legal	Mean	0.6838	0.4814	0.8324	10.3310	0.7721
origin:	Median	0.7110	0.4792	0.8354	10.3356	0.7647

groups, degrees of leftist political orientation, and legal origins. At first glance, the data suggest that richer countries have more generous social security systems than poorer ones but otherwise similarly protective labor laws, that countries with more left-wing governments have more protective laws than those with less leftist ones, and that common law countries protect labor less than do those from the four civil law traditions. Below we examine these data systematically.

V. TESTING THE THEORIES

In Table IV we examine the relationship between the protection of workers and two of its potential determinants: income per capita and legal origin. There is no evidence that employment laws or collective relations laws vary with the level of economic development. This result is inconsistent with the implication of the efficiency hypothesis that rich countries should regulate less because they have fewer market failures. In contrast, there is clear evidence that richer countries have more generous social security systems, both as measured by the aggregate index and for old-age, health, and unemployment benefits separately.

The results in Table IV also show that legal origin matters for several areas of labor law. In employment laws, all categories of civil law countries have higher values of the index than do the common law countries, and the differences are quantitatively large for French, socialist, and Scandinavian legal origins. The explanatory power of legal origins is high: the R^2 of the regression is 44 percent. Differences among legal origins are also large for collective relations laws, with common law countries being less protective of workers than civil law countries. The R^2 here is 31 percent. With social security laws, the picture is more complex. Socialist, Scandinavian, and French legal origin countries, but not German legal origin countries, have more generous systems than do the common law countries. Since income is so important for social security laws, the R^2 of this regression rises to a somewhat unbelievable 64 percent. In short, legal traditions are a strikingly important determinant of various aspects of statutory worker protection, with French and socialist legal origin countries being most interventionist, consistent with the evidence on regulation of other aspects of economic life [La Porta et al. 1999; Djankov et al. 2002].

Panel D of Table IV focuses on Roe's [2000] hypothesis that civil law is a proxy for social democracy by rerunning the regressions for the three aggregate law indices using the subsample of nondemocracies during 1950–1995. Even in nondemocracies, legal origin remains an important determinant of employment, collective relations, and social security laws, inconsistent with the view that it proxies for social democracy. This result is robust to a variety of definitions of nondemocracy we have tried.

Table V examines the effect of politics on labor laws, holding per capita income constant. Countries with longer histories of leftist or centrist governments between 1928 and 1995, as well as between 1975 and 1995, have heavier regulation of labor markets, as measured by employment, collective relations, and social security laws (five out of six coefficients are statistically significant).[13] Higher union density is also associated with stronger worker protection. These results support political theories, which hold that worker protection comes from their political power, although the explanatory power of the political variables is

13. These results also hold mostly, although at lower levels of statistical significance, if we use the pure leftist government variables (rather than the combination of leftist and centrist governments), or if we use the executive or the legislative branch separately.

TABLE IV

REGULATION OF LABOR AND LEGAL ORIGIN

Ordinary least squares regressions of the cross section of countries. The dependent variables are (1) the employment laws index and its components (in Panel A), (2) the collective relations laws index and its components (in Panel B), and (3) the social security laws index and its components (in Panel C). In Panel D we repeat regressions for the three aggregate indices for countries classified as "nondemocracies" during the period 1950–1995. Using democracy scores from Jaggers and Marshall [2000], we classify as nondemocracies countries with the 1950–1995 average democracy score below 8. The 21 countries classified as democracies, and left out of the sample in Panel D are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, India, Ireland, Israel, Italy, Jamaica, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States. Robust standard errors are shown in parentheses. All the variables are described in Table I and the data can be found in http//iicg.som.yale.edu/.

Dependent variables	Log GNP per capita	Socialist legal origin	French legal origin	German legal origin	Scandinavian legal origin	Constant	N [R^2]
Panel A: Employment laws and legal origin							
Employment laws index	−0.0010	0.2943[a]	0.2474[a]	0.1553[b]	0.3865[a]	0.3072[a]	85
	(0.0116)	(0.0453)	(0.0381)	(0.0702)	(0.0462)	(0.1038)	[0.44]
Alternative employment contracts	0.0123	0.1219[b]	0.2514[a]	0.1490[c]	0.1404[c]	0.3728[a]	85
	(0.0095)	(0.0536)	(0.0351)	(0.0824)	(0.0810)	(0.0840)	[0.31]
Cost of increasing hours worked	0.0436	0.5935[a]	0.3335[a]	0.3515[c]	0.7746[a]	−0.2248	85
	(0.0299)	(0.1012)	(0.0901)	(0.1896)	(0.0713)	(0.2566)	[0.34]
Cost of firing workers	−0.0241	0.2067[a]	0.2091[a]	0.0883	0.2553[a]	0.5168[a]	85
	(0.0172)	(0.0552)	(0.0599)	(0.1065)	(0.0640)	(0.1462)	[0.24]
Dismissal procedures	−0.0357[c]	0.2550[a]	0.1955[a]	0.0327	0.3758[a]	0.5641[a]	85
	(0.0186)	(0.0840)	(0.0679)	(0.0881)	(0.1029)	(0.1740)	[0.21]
Panel B: Collective relations laws and legal origin							
Collective relations laws index	0.0063	0.1639[a]	0.1594[a]	0.1332[b]	0.1342[c]	0.2824[a]	85
	(0.0077)	(0.0332)	(0.0295)	(0.0590)	(0.0713)	(0.0629)	[0.31]
Labor union power	0.0055	0.1822[a]	0.1672[a]	0.2475[a]	0.3174[a]	0.2445[b]	85
	(0.0120)	(0.0516)	(0.0468)	(0.0872)	(0.0799)	(0.0973)	[0.27]
Collective disputes	0.0070	0.1456[a]	0.1517[a]	0.0189	−0.0490	0.3203[a]	85
	(0.0124)	(0.0477)	(0.0416)	(0.0589)	(0.1029)	(0.1060)	[0.19]

Panel C: Social security laws and legal origin

Social security laws index	0.1029[a]	0.3139[a]	0.1116[a]	0.0557	0.1488[a]	−0.3798[a]	85	
	(0.0104)	(0.0470)	(0.0406)	(0.0512)	(0.0430)	(0.0865)	[0.64]	
Old-age, disability, and death benefits	0.0489[a]	0.0325	0.0449	−0.0026	0.1306[a]	0.1529	85	
	(0.0111)	(0.0381)	(0.0364)	(0.0386)	(0.0434)	(0.0980)	[0.38]	
Sickness and health benefits	0.0977[a]	0.3684[a]	0.1817[b]	0.0389	0.1943[a]	−0.3049	85	
	(0.0216)	(0.0940)	(0.0781)	(0.0904)	(0.0728)	(0.1986)	[0.34]	
Unemployment benefits	0.1623[a]	0.5409[a]	0.1084	0.1307	0.1214	−0.9874[a]	85	
	(0.0152)	(0.0673)	(0.0698)	(0.0855)	(0.0790)	(0.0996)	[0.63]	

Panel D: Regulation of labor and legal origin for nondemocracies

Employment laws index	−0.0043	0.2841[a]	0.2217[a]	0.1476[a]	n.a.	0.3419[b]	64
	(0.0164)	(0.0505)	(0.0459)	(0.0447)	n.a.	(0.1290)	[0.34]
Collective relations laws index	0.0138	0.1332[a]	0.1212[a]	0.0441	n.a.	0.2577[a]	64
	(0.0099)	(0.0384)	(0.0354)	(0.0921)	n.a.	(0.0721)	[0.25]
Social security laws index	0.0964[a]	0.3553[a]	0.1653[a]	0.1895[a]	n.a.	−0.3727[a]	64
	(0.0149)	(0.0545)	(0.0523)	(0.0647)	n.a.	(0.1024)	[0.63]

a = significant at 1 percent level; b = significant at 5 percent level; c = significant at 10 percent level, "n.a." not applicable.

TABLE V

REGULATION OF LABOR, LEFT POWER, AND POLITICAL CONSTRAINTS

Ordinary least squares regressions of the cross section of countries. The dependent variables are (1) the employment laws index, (2) the collective relations laws index, and (3) the social security laws index. Robust standard errors are shown in parentheses. All the variables are described in Table I, and the data can be found in http://iicg.som.yale.edu/.

Dependent variables	Log GNP per capita	Chief executive and largest party in congress have left or center political orientation		Union density 1997	Autocracy 1950–1990	Proportional representation 1975–1995	Divided government 1975–1995	Constant	N [R^2]
		1928–1995	1975–1995						
Employment laws index	0.0189	0.1812[b]						0.2335	85
	(0.0149)	(0.0693)						(0.1419)	[0.08]
	0.0216		0.1934[a]					0.2088	85
	(0.0141)		(0.0553)					(0.1295)	[0.12]
	−0.0051			0.2275[b]				0.4545[a]	70
	(0.0150)			(0.0869)				(0.1140)	[0.08]
	0.0216				0.0295			0.2640	70
	(0.0198)				(0.0613)			(0.1913)	[0.02]
	−0.0136					0.1431[a]		0.5310[a]	84
	(0.0140)					(0.0486)		(0.1074)	[0.08]
	−0.0055						0.1892[b]	0.4354[a]	83
	(0.0153)						(0.0946)	(0.1116)	[0.06]

Collective relations laws index

0.0130	0.0651						0.3039[a]	85
(0.0101)	(0.0459)						(0.0941)	[0.03]
0.0160[c]		0.0908[b]					0.2669[a]	85
(0.0093)		(0.0342)					(0.0810)	[0.07]
−0.0002			0.1091[c]				0.4177[a]	70
(0.0110)			(0.0643)				(0.0862)	[0.04]
0.0255[c]				0.0586			0.1875	70
(0.0131)				(0.0404)			(0.1266)	[0.05]
−0.0124					0.1436[a]		0.4755[a]	84
(0.0099)					(0.0386)		(0.0719)	[0.16]
−0.0001						0.1052[c]	0.3923[a]	83
(0.0105)						(0.0583)	(0.0748)	[0.04]

Social security laws index

0.1130[a]	0.2311[a]						−0.4680[a]	85
(0.0108)	(0.0582)						(0.1068)	[0.50]
0.1115[a]		0.1962[a]					−0.4329[a]	85
(0.0104)		(0.0519)					(0.1020)	[0.50]
0.0791[a]			0.1871[c]				−0.1142	70
(0.0135)			(0.0951)				(0.1146)	[0.43]
0.0953[a]				−0.0322			−0.2027	70
(0.0191)				(0.0596)			(0.1944)	[0.52]
0.0846[a]					0.0549		−0.1372[b]	84
(0.0134)					(0.0541)		(0.1076)	[0.41]
0.0902[a]						0.0709	−0.1962[c]	83
(0.0124)						(0.0981)	(0.1016)	[0.43]

a = significant at 1 percent level; b = significant at 5 percent level; c = significant at 10 percent level.

sharply lower than that of legal origins, as reflected in the lower R^2 of these regressions.[14]

In addition, Table V presents mixed evidence on the importance of constraints on government. Countries with proportional representation have more protective employment and collective relations laws, suggesting that constraints on the executive lead to more protection. But the result does not hold for other variables. These results offer mixed support for the view that constraints on government lead to less intervention in markets. However, they do provide some support for the Alesina-Glaeser [2004] theory that proportional representation as a form of democracy is a reflection of labor power, as are the laws protecting labor.[15]

Table VI presents the results of a horse race between legal origins and politics. We exclude socialist legal origin countries from the sample because of extremely high correlations between leftist variables and socialist origin, but all the results hold on a larger sample as well. Legal origin wins out and accounts for the bulk of the R^2. In six out of nine regressions, the proxies for politics lose their consistent influence on the regulation of labor. In contrast, the difference between common law and French legal origin countries is always statistically significant. The average French legal origin country has employment and collective relations laws scores 50 to 100 percent higher than the average common law country. German and Scandinavian legal origin countries continue to be more protective than common law countries, although the results are not quite as consistent as in Table V for Scandinavian legal origin. We conclude that the effects of

14. We ran regressions with more variables that are related to the political view of regulation. The results show that the Gini coefficient has a significant *negative* effect on all but collective relations laws. Measures of ethnic, linguistic, and religious heterogeneity from Alesina et al. [2003] also have a *negative* effect, inconsistent with the theory that labor laws are efficiently more protective of workers when social divisions are greater. Tax efficiency affects negatively collective relations laws only. Finally, public old-age pensions/GNP (1960–1995) has significant positive effects on employment and social security laws. Once we control for legal origin, however, all these go away, except the effect of public pensions on employment and collective relations laws at the 10 percent significance level.

15. Other measures of political constraints impact labor regulation without legal origin control, but not once we control for legal origin. Economic constraints on government, measured by proxies for trade openness from Frankel and Romer [1999], have a weak impact on employment laws and collective relations laws, but do affect social security laws when controlling for legal origin.

legal origin on the regulation of labor are larger and different from those of politics.[16]

This evidence does not suggest that politics does not matter, but it is inconsistent with the extreme hypothesis that law is just a proxy for social democracy. The importance of legal origin—and the unimportance of per capita income—is also difficult to reconcile with the efficiency theory of regulation of labor, except for the version that sees the efficiency of regulatory schemes stemming largely from their compatibility with the country's broader legal framework.[17]

VI. Regulation in Different Domains

One of the strongest implications of the legal theory is that societies have regulatory styles shaped in part by their legal systems, and that therefore societies that regulate one activity are also expected to regulate others, which might be totally unrelated. We have already shown in earlier work that French civil law countries regulate entry of new firms, dispute resolution in courts, and other activities more heavily than do common law countries [La Porta et al. 1999; Djankov et al. 2002, 2003b]. The findings of this paper are broadly consistent with this research.

Table VII presents the correlations between our measures of regulation of labor and the measures of regulation of entry from Djankov et al. [2002] and of legal formalism from Djankov et al. [2003b]. The data show that all these aspects of regulation go together, even though the methodologies of data collection differ tremendously across the three studies. The correlation between the employment laws index and the judicial formalism index is 0.33 for one case, and 0.41 for the other. The correlation between the employment laws index and the logarithm of the number of steps required to start a business is 0.34. These correlations fall by about 0.05 if we exclude socialist countries, but remain highly statistically significant. The numbers are even higher for the

16. We also considered the effects of the religious composition of the population in 1900 and in 1980—our proxy for culture—on contemporary labor laws. There are no statistically significant effects of religious variables measured in 1900. For 1980 measures, we find that catholic countries have more protective collective relations and social security laws, but the significance is small and typically does not survive a control for legal origin.

17. Our index of civil rights laws, described in footnote 6, does not depend on income per capita, is higher in socialist countries, but does not otherwise depend on legal origins. It is strongly correlated with leftist government measures, even controlling for legal origin.

TABLE VI

REGULATION OF LABOR, POLITICAL VARIABLES, AND LEGAL ORIGIN

Ordinary least squares regressions of the cross section of nonsocialist countries. The nineteen countries excluded from this table are Armenia, Bulgaria, China, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Mongolia, Poland, Romania, Russian Federation, Slovak Republic, Slovenia, Ukraine, and Vietnam. The dependent variables are (1) the employment laws index (in Panel A), (2) the collective relations laws index (in Panel B), and (3) the social security index (in Panel C). Robust standard errors are shown in parentheses. All the variables are described in Table I, and the data can be found in http://iicg.som.yale.edu/.

Left power variables	Log GNP per capita	Left power variables	French legal origin	German legal origin	Scandinavian legal origin	Constant	N [R^2]
Panel A: The dependent variable is the employment laws index							
Chief executive and largest party in congress have left or center political orientation 1928–1995	0.0034 (0.0124)	0.0711 (0.0656)	0.2521[a] (0.0377)	0.1631[b] (0.0695)	0.3575[a] (0.0561)	0.2360[a] (0.1178)	66 [0.46]
Chief executive and largest party in congress have left or center political orientation 1975–1995	0.0090 (0.0121)	0.1196[b] (0.0554)	0.2525[a] (0.0368)	0.1542[b] (0.0694)	0.3395[a] (0.0502)	0.1729 (0.1118)	66 [0.49]
Union density	−0.0066 (0.0156)	0.0827 (0.1109)	0.2283[a] (0.0408)	0.1422[b] (0.0690)	0.3318[b] (0.0689)	0.3513[b] (0.1354)	57 [0.43]
Panel B: The dependent variable is the collective relations laws index							
Chief executive and largest party in congress have left or center political orientation 1928–1995	0.0079 (0.0093)	0.0384 (0.0495)	0.1617[a] (0.0302)	0.1380[b] (0.0601)	0.1212 (0.0760)	0.2512[a] (0.0914)	66 [0.33]
Chief executive and largest party in congress have left or center political orientation 1975–1995	0.0118 (0.0080)	0.0696[c] (0.0360)	0.1624[a] (0.0292)	0.1331[b] (0.0621)	0.1075 (0.7240)	0.2063[a] (0.0704)	66 [0.36]
Union density	−0.0001 (0.0104)	0.0649 (0.1015)	0.1608[a] (0.0326)	0.1337[b] (0.0626)	0.1025 (0.0936)	0.3253 (0.0843)	57 [0.33]

Panel C: The dependent variable is the social security laws index

Chief executive and largest party in congress have left or center political orientation 1928–1995	0.1242[a] (0.0122)	0.1333[b] (0.0657)	0.1191[a] (0.0399)	0.0408 (0.0546)	0.0615 (0.0481)	−0.6151[a] (0.1230)	66 [0.72]
Chief executive and largest party in congress have left or center political orientation 1975–1995	0.1214[a] (0.0122)	0.0928 (0.0604)	0.1146[a] (0.0400)	0.0307 (0.0535)	0.0852[c] (0.0469)	−0.5675[a] (0.1221)	66 [0.71]
Union density	0.1061[a] (0.0127)	−0.0674 (0.1111)	0.0806[c] (0.0445)	0.0232 (0.0539)	0.1506[b] (0.0730)	−0.3582[a] (0.1090)	57 [0.63]

a = significant at 1 percent level; b = significant at 5 percent level; c = significant at 10 percent level.

TABLE VII

CORRELATIONS BETWEEN REGULATION INDICES

The table shows pairwise correlations between various indices of regulation for the cross section of 85 countries. All the variables are described in Table I.

	Employment laws index	Collective relations laws index	Social security laws index	Court formalism index for the eviction of a nonpaying tenant	Court formalism index for the collection of a bounced check	Log (number of steps to start a business)	Log (number of days to start a business)
Collective relations laws index	0.4894[a]						
Social security laws index	0.2339[b]	0.2275[b]					
Court formalism index for the eviction of a nonpaying tenant	0.3292[a]	0.5134[a]	0.1283				
Court formalism index for the collection of a bounced check	0.4103[a]	0.4430[a]	0.0448	0.8506[a]			
Log (number of steps to start a business)	0.3439[a]	0.4041[a]	−0.2309[b]	0.5036[a]	0.5675[a]		
Log (number of days to start a business)	0.3335[a]	0.3663[a]	−0.2949[a]	0.5274[a]	0.5525[a]	0.8263[a]	
Log (cost to start a business/GDP per capita)	0.1722	0.1721	−0.4737[a]	0.3667[a]	0.4309[a]	0.6354[a]	0.6147[a]

a = significant at 1 percent level; b = significant at 5 percent level; c = significant at 10 percent level.

collective relations laws, although generosity of social security systems is negatively correlated with entry regulation (because income matters for both in opposite directions). Regulatory style is pervasive across activities—consistent with the legal theory.

VII. Outcomes

Finally, we consider some of the consequences of the regulation of labor. This is of interest for two reasons. First, efficiency theories predict that heavier regulation of labor markets should be associated with better, and certainly not worse, labor market outcomes. This prediction has been contradicted by a variety of empirical studies from Lazear [1990] to Besley and Burgess [2003], and here we confirm their findings. Second, if the regulation of labor is damaging at least to some workers, then who benefits from it? Put differently, is there political support for the heavier regulation of labor, or does legal origin simply provide a politically unsupported "technology" for the social control of labor markets?

We look at several potential consequences of labor regulation. These include the size of and the employment in the unofficial economy, male and female participation in the labor force, and unemployment computed separately for everyone, and for male and female workers aged 20–24. In addition, as a crude measure of relative wages of protected and unprotected workers, we consider the average wage of machine operators relative to that of clerks and workers in craft and related trades. All of these variables have measurement problems, particularly for the developing countries, where some employment is informal and not recorded in official statistics. Still, by looking at the various dimensions of the data, we hope to get a general picture.

Table VIII presents the results. In all specifications, we control for average years of schooling (which is less likely to be itself caused by regulations than income per capita) as a proxy for the quality of law enforcement.[18] The strength of the results varies across specifications, but in general they show no benefits, and some costs, of labor regulation. There is some evidence that more

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18. As alternative enforcement measures, we used the length of court proceedings in collecting a bounced check and evicting a tenant from Djankov et al. [2003b], with no change in results.

TABLE VIII
REGULATION OF LABOR AND OUTCOMES

Ordinary least squares regressions of the cross section of countries. Robust standard errors are shown in parentheses. All the variables are described in Table I, and the data can be found in http://iicg.som.yale.edu/.

Dependent variables	Average years of schooling	Employment laws index	Collective relations laws index	Social security laws index	Constant	N [R^2]
Size of the unofficial economy	−2.8030[a] (0.3665)	3.5502 (7.0070)			48.7084[a] (4.4941)	85 [0.31]
	−2.8685[a] (0.3763)		19.1262[c] (9.6501)		42.369[a] (5.0447)	85 [0.33]
	−2.3368[a] (0.5009)			−8.6085 (7.2730)	52.1915[a] (3.4650)	85 [0.31]
Employment in the unofficial economy	−3.7368[a] (0.8193)	−5.2811 (11.7934)			65.5531[a] (6.3751)	46 [0.37]
	−4.1016[a] (0.7008)		33.4761[b] (14.1319)		49.7917[a] (6.8795)	46 [0.42]
	−3.9765[a] (0.9858)			3.0795 (10.4304)	62.5621[a] (4.6112)	46 [0.37]
Male participation in labor force 1990–1994	−0.7144[a] (0.1519)	−6.1870[a] (1.8148)			91.3752[a] (1.4274)	78 [0.30]
	−0.6782[a] (0.1468)		−9.4694[a] (2.5269)		92.3725[a] (1.5015)	78 [0.31]
	−0.4918[a] (0.1774)			−4.2943[c] (2.3415)	89.3289[a] (1.1189)	78 [0.26]
Female participation in labor force 1990–1994	−0.2810 (0.7163)	10.4136 (10.0358)			52.7763[a] (6.8501)	78 [0.02]
	−0.2066 (0.7677)		−12.1189 (14.6474)		62.6992[a] (7.9967)	78 [0.01]
	0.1450 (0.9509)			−7.5902 (11.8392)	59.2293[a] (6.0495)	78 [0.01]

	(1)	(2)	(3)	(4)	Constant	N	R²
Unemployment rate 1991–2000							
	−0.3530	5.7617[b]			8.7263[a]	65	[0.11]
	(0.2511)	(2.8478)			(2.9019)		
	−0.3864		3.6447		10.1519[a]	65	[0.06]
	(0.2402)		(3.8279)		(3.0622)		
	−0.5299[b]			3.9441	10.3762[a]	65	[0.06]
	(0.2536)			(3.5397)	(2.5577)		
Unemployed males 20–24 years old/active males 20–24 years old 1991–2000							
	−0.0435	14.6331[a]			7.9778[c]	52	[0.13]
	(0.4329)	(4.4582)			(4.5509)		
	−0.1017		11.4341[c]		10.4372[b]	52	[0.04]
	(0.4372)		(6.6775)		(5.1096)		
	−0.5567			11.5683	11.7265[c]	52	[0.04]
	(0.5194)			(10.2300)	(6.2166)		
Unemployed females 20–24 years old/active females 20–24 years old 1991–2000							
	−1.7850[b]	18.0146[a]			23.5590[a]	52	[0.21]
	(0.7247)	(6.5874)			(7.6256)		
	−1.8788[b]		8.7493		29.2557[a]	52	[0.14]
	(0.7552)		(11.6417)		(10.7692)		
	−2.3658[a]			12.7964	28.7286[a]	52	[0.14]
	(0.8754)			(16.9366)	(10.1868)		
Wages of machine operators/wages of clerks and craft and related trades workers 1990–1999							
	0.0015	0.2202			0.8521[a]	52	[0.07]
	(0.0070)	(0.1520)			(0.0856)		
	0.0021		0.0418		0.9357[a]	52	[0.01]
	(0.0073)		(0.1756)		(0.1056)		
	−0.0208[c]			0.4084[a]	0.8789[a]	52	[0.15]
	(0.0110)			(0.1343)	(0.0537)		

a = significant at 1 percent level; b = significant at 5 percent level; c = significant at 10 percent level.

protective collective relations laws (but not others) are associated with a larger unofficial economy, that more protective employment, collective relations, and social security laws lead to lower male (but not female) participation in the labor force, and that more protective employment laws lead to higher unemployment, especially of the young. Finally, there is some evidence that more generous social security systems are associated with higher relative wages of privileged workers. The evidence on the unemployment of the young is most consistent with the political view that the privileged and older incumbents support more stringent labor laws, a finding broadly consistent with other research [Blanchflower and Freeman 2000].

As an additional way to examine enforcement, we divide the sample into countries with per capita income above and below the median, and replicate the analysis in Table VIII. The results hold among the richer, but generally not the poorer, countries. This evidence is consistent with the view that labor laws have adverse consequences in countries where they are more likely to be enforced, namely the richer ones. This evidence sheds further doubt on the efficiency theory, since it confirms the damage from regulation precisely when the laws have a bigger bite.

We also reestimated the regressions in Table VIII with instrumental variables, using legal origins (either just the common law dummy or all of them) as instruments. The results for male labor force participation, and the unemployment rates, particularly of the young, remain statistically significant in most cases, and many coefficients rise in magnitude. The results on the relative wages of privileged and less privileged workers become stronger.

All of this evidence does not provide much support for the efficiency theory, namely that labor regulations cure market failures, although of course it is possible that the adverse outcomes we measure are unavoidable to alleviate capitalist abuse of workers. The results are consistent with the view that legal origins shape regulatory styles, and that such dependence has adverse consequences for at least some measures of efficiency.

VIII. Conclusion

There are three broad theories of government regulation of labor. Efficiency theories hold that regulations adjust to effi-

ciently address the problems of market failure. Political theories contend that regulations are used by political leaders to benefit themselves and their allies. Legal theories hold that the patterns of regulation are shaped by each country's legal tradition, which is to a significant extent determined by transplantation of a few legal systems. We examined the regulation of labor markets in 85 countries through the lens of these theories.

As we indicated, the efficiency theory is difficult to reject, but we do not find much support for conventional versions. In particular, we find that heavier regulation of labor has adverse consequences for labor force participation and unemployment, especially of the young. There is some support for the view that countries with a longer history of leftist governments have more extensive regulation of labor, consistent with the political theory. There is, finally, strong evidence that the origin of a country's laws is an important determinant of its regulatory approach, in labor as well as in other markets. Moreover, legal origin does not appear to be a proxy for social democracy—its explanatory power is both independent and significantly larger. This evidence is broadly consistent with the legal theory, according to which patterns of regulation across countries are shaped largely by transplanted legal structures.

These results do not mean that efficiency forces in regulation are unimportant, and indeed our focus on a large sample of developing countries, as opposed to just the rich ones where the law evolves more quickly, predisposes our findings against the efficiency hypothesis. These findings also do not mean that politics is unimportant, and indeed we find evidence that it matters. Still, the main factor explaining labor laws in our data is legal origin.

This evidence echoes our earlier results on the regulation of entry and on the formalism of judicial procedures. Those findings also showed that countries from different legal origins rely on different institutional technologies for social control of business. A key result in the present paper is the high correlation among our measures of regulation of different activities across countries: countries that regulate entry also regulate labor markets and judicial proceedings. The bottom line of this research is the centrality of institutional transplantation: countries have regulatory

styles that are pervasive across activities and shaped by the origin of their laws.

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