The Burden of Labour Costs in Mexico

Gabriel Montes Rojas — Mauricio Santamaría

Abstract. We analysed labour costs in Mexico and evaluated their impact in terms of firm performance. Using a new survey, we studied how firms chose to conduct a firing procedure (i.e. mandatory payment, negotiation, or legal dispute) and the actual costs derived from that decision. We found that firms that negotiate have, on average, lower costs. This may mean that workers subvaluate the legal benefits. Moreover, legal disputes may increase firing costs by 50 per cent. We contributed to the analysis of the impact of such costs on employment and found that, when firms negotiate or pay higher costs, this decreases the level of employment. We also analysed the impact of Social Benefits on employment using an industrial survey. We found that a 10 per cent increment in these benefits may have a negative long-term impact of 9 per cent on the level of employment.

1. Introduction

Job security provisions and benefits are often held responsible for the bad performance of labour markets. At this stage of analysis, given that different views coexist in the literature about the effect of such costs on employment and wages, empirical evidence is important for guiding future research on the topic.

There is no clear consensus regarding the effect of hiring and firing costs on employment. Bentolila and Bertola (1990) and Bertola (1990) show that different functional forms of the labour demand could create either a positive or negative effect on employment, and Freeman (2000) states that labour market regulations do not affect employment and have minimal effects on the overall performance of the market. In contrast, Heckman and Pagés (2000,

Gabriel Montes Rojas (author for correspondence) — Mauricio Santamaría, University of Illinois, Department of Economics, 484 Wohlers Hall, 1206 S. Sixth Street, Champaign, IL 61820, USA. Tel: 1 352 870 4025; E-mail: rmontes@uiuc.edu.

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2004) find that the effects on employment are negative and substantial. In terms of wages, standard theoretical models predict that higher firing costs increase the wage of insiders. However, severance payments also raise the *value* of the job and reduce workers' incentives to behave opportunistically and, as such, firms may be able to reduce wages (Staffolani, 2002).

The same ambiguity is found in terms of benefits. To the extent that these non-wage costs are quasi-fixed, they should decrease employment (see Hamermesh, 1993; Hart, 1984). Nevertheless, Hashimoto and Zhao (2000) show that, in the presence of strong cross-economies of scale, non-wage compensations also may increase average employment.

Labour market regulations and institutions also play an important role in the determination of productivity growth. By shifting the optimal level of employment, the adoption of technologies is also altered. Again, no clear consensus has emerged about the impact of these institutions on productivity growth. On the one hand, hiring and firing restrictions may raise the cost of labour adjustment, which is often required after a technological innovation. Cross-country evidence presented by Scarpetta and Tressel (2004) suggests a negative relationship between labour adjustment and Total Factor Productivity acceleration. On the other hand, if high labour costs produce outsourcing and the adoption capital-intensive technologies, the effects on productivity may reverse.

In developing countries, high labour costs create incentives for firms to operate in the informal sector, which, in turn, entails less efficient production in order to remain inconspicuous to tax and labour authorities (Kugler, 2004). This enlarges the duality of the labour market and reduces labour market turnover, which favours insiders against outsiders and promotes inequality. Montenegro and Pagés (2004) suggest that this biases formal employment against young and less educated workers.

A similar ambiguity is encountered in the empirical studies on the subject. For Organization for Economic Cooperation and Development (OECD) countries, Nickell and Layard (1998) and Nunziata and Staffolani (2001) find that labour market rigidities do not affect the level of employment, whereas when employment protection is high, labour demand adjusts less rapidly to shocks. In addition, Boeri *et al.* (2000) present empirical evidence suggesting a negative relationship between labour protection and unemployment, whereas Ross and Zimmermann (1993) find that non-wage costs have no impact on employment.

For Latin America, Heckman and Pagés (2000, 2004) constitute the obligatory reference. Using cross-country panel data, these authors find that job market regulations, measured by an index constructed based on comparative legislation, have a significant negative impact on the labour demand. Only a few studies estimated the effect of labour costs using country-specific information[1] and, to our knowledge, no empirical research has been performed for Mexico, even though other aspects of the Mexican labour market have been extensively studied. Through this paper, we use a new firm-level survey, the *Encuesta sobre Indemnización Legal* (EIL),[2] which was specifically designed to overcome this problem. This survey provides detailed information about the number of firings and their type (i.e. legally mandated severance payments, negotiation, or legal dispute).

The EIL shows that, for individual dismissals cases that were negotiated, firms obtained greater benefits, as the average payment was below the legally established amount. In 2002, payments were 12 per cent less than the law severance payment; this difference rose to 22 per cent in 2003. This means that workers subvaluate those benefits. For the cases that ignited legal disputes, the solution took an average of 4 months in 2002 and 8 months in 2003. The total costs were 1.53 times the amount that workers received in 2002, and 1.43 times in 2003. This 50 per cent represents a clear inefficiency for the economy, as both parties would have been better off if alternative solutions were available.

Our analysis shows that firms that are involved in negotiation or legal disputes have the poorest performance in terms of employment dynamics. In comparison, firms that decide to settle disputes in a way other than what is established by the law exhibit significant reductions in the level of employment. These findings contribute to the literature mentioned above that has documented a negative impact of firing costs on employment.

We also analysed the impact of non-wage costs on employment using a manufacturing survey, the *Encuesta Industrial Mensual* (EIM). In this case, a 10 per cent increment in the ratio of non-wage costs to total labour costs was found to have a long-term negative impact of 9 per cent on the level of employment. In both cases, our evidence suggests that labour costs are excessively high in Mexico. This conclusion is in line with other studies for Latin America, thus contributing to the understanding of the bad performance of the Mexican labour market.

The paper is organized as follows. Section 2 presents some measures of labour costs for different regions and countries and summarizes previous findings in the literature. Section 3 summarizes the main features of the EIL. Section 4 uses econometric techniques to investigate the effect of different firing procedures on firms' employment levels. Finally, Section 5 estimates the impact of mandatory contributions on employment, using industry level information. The last section draws conclusions on the actual burden of labour costs in Mexico.

2. Labour costs from an international perspective

To provide a better understanding of the magnitude of labour costs, Table 1 reports the 2004 values for the difficulty of hiring and firing indexes, constructed by the World Bank, based on the Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004) methodology. These indexes use heterogeneous sources of information to provide cross-country comparisons. Appendix A contains the details of how these indexes are constructed.

In nearly every item, hiring and firing costs in Mexico are higher than in other regions. Moreover, in comparison with other Latin American countries, Mexico has higher hiring costs than do countries of similar size, whereas Argentina and Brazil present higher firing cost values.

How expensive are firing costs? The same source mentioned above estimates the cost of firing, in 2004, a non-executive full-time worker who has worked in the same manufacturing company for 20 years (see Table 2; details of the complete set of assumptions used to calculate each component are found in Appendix A). Two different types of dismissals are considered: redundancy and firing without cause. Mexico and Argentina share the highest legally mandated notice period in case of a redundancy firing procedure. Brazil and Argentina have the highest severance payments, whereas the former has higher penalties in cases of redundancy. However, Mexico has the highest penalty in cases of a dismissal without cause.

Heckman and Pagés' (2000) Job Security Index[3] has Mexico just above the Latin American average in 1999, ranking 23rd out of 36 OECD and Latin American countries. Surprisingly, these authors find higher values for Chile, Colombia, and Peru, which reverses the order in Table 2. These differences reflect the natural inconsistencies that may arise when cross-country measures are used.

Table 1. Labour costs in international perspective

Region and country	Difficulty of hiring index	Rigidity of hours index	Difficulty of firing index	Rigidity of employment index	Firing costs (weeks)
East Asia and Pacific	20	30	22	24	52
Europe and Central Asia	31	51	42	41	38
Latin America and Caribbean	44	53	34	44	70
Middle East and North Africa	22	52	40	38	74
OECD: high income	26	50	26	34	40
South Asia	37	36	53	42	84
Sub-Saharan Africa	53	64	50	56	59
Argentina	44	80	30	51	94
Brazil	67	80	70	72	165
Chile	17	20	20	19	51
Colombia	72	60	20	51	49
Mexico	**67**	**60**	**90**	**72**	**83**
Peru	44	60	60	55	56

Source: The World Bank and International Finance Corporation (2004) (http://rru.worldbank.org/DoingBusiness/). See Appendix A.

Table 2. Labour costs in Latin America

Type of dismissal/country	Legally mandated notice period (weeks)	Severance payment (in number of months for which full wages are payable)	Legally mandated penalty (weeks of pay)
Redundancy			
Argentina	8	20	0
Brazil	4	31	28
Chile	4	11	0
Colombia	2	11	0
Mexico	**8**	**17.33**	**0**
Peru	4	12	0
Without cause			
Argentina	—	20	60
Brazil	—	31	28
Chile	—	n.a.	n.a.
Colombia	—	n.a.	n.a.
Mexico	**—**	**16.33**	**70**
Peru	—	12	0

Source: The World Bank and International Finance Corporation (2004) (http://rru.worldbank.org/DoingBusiness/). See Appendix A.
—, no data; n.a., not applicable.

Table 3. Literature findings

Study	Mean	SE	Employment rate
Saavedra and Torero (2004)	–0.406	0.06	Employment in large firms
Mondino and Montoya (2004)			
High estimate	–0.684	0.0145	Employment in large firms
Low estimate	–0.305	0.0060	Employment in large firms
Pagés and Montenegro (1999)	–0.1198	0.2440	Wage employment/population
Heckman and Pagés (2000), FE	–0.0516	0.0318	Total employment/population
Heckman and Pagés (2000), RE	–0.0502	0.0168	Total employment/population
Heckman and Pagés (2000), OLS	–0.0502	0.0168	Total employment/population

Source: Table 3 of Heckman and Pagés (2000).

The impact of job security provisions on employment varies, depending on the methodology used and the countries and period used for estimation. However, with different levels of statistical significance, a negative effect is attached to all Latin American countries. Table 3 (taken from Heckman and Pagés, 2004) summarizes some of the findings in the literature in regard to long-term elasticities (after a 10 per cent increment in the Job Security Index). Studies that use firm-level information have greater effects, ranging from 30 up to 60 per cent, whereas using aggregate employment reduces the effects to below 10 per cent. In any case, employment levels seem to be highly responsive to changes in firing/hiring costs.

3. Firing costs in Mexico

The legal severance payment in case of firing a worker is established in the 123rd article of the Mexican Constitution, in which a payment equivalent to 3 months of salary is established. On top of that, the *Ley Federal del Trabajo* (LFT) adds 20 days of payment for each year of service in the firm. According to the law, those payments are necessary in the case of an *unjustified firing*, which includes any firing procedure except those corresponding to misbehaviour and/or severe incompetence of the employee. Lay-offs (retrenchment, redundancy, or termination for economic reasons) are catalogued as unjustified causes. However, these payments do not apply if the worker quits.

For a justified firing, the worker and a third party (arbitrage commission or court, *Junta de Conciliación y Arbitraje*) must be notified within 5 days; otherwise, the firing procedure is automatically considered as unjustified. If the employer solicits a *justified* firing, the worker may dispute it in the arbitrage commission, which initiates a long trial to determine the nature of the dismissal. If the employer does not provide enough evidence to justify the firing, the firm has two options: rehire the worker[4] or conform to the legal severance payment. In either case, the employer must pay the worker the salary corresponding to the time spent in the trial. The employer and the fired employee may also negotiate an alternative solution. In this case, the settlement payment might be below what corresponds to LFT, as long as both parties agree.

The EIL studies this phenomenon in depth. (A detailed description of this survey is provided in Appendix B.) This survey covers small, medium, and large firms (both tradable and non-tradable) for Mexico City (Distrito Federal and surrounding areas), asking specific questions about firing procedures. It classifies firing cases as LFT if the firm pays the legal severance payment, *negotiation firing cases* (NFC) if the firm and the worker negotiated an alternative settlement, and *dispute firing cases* (DFC) if the worker requests the intervention of the *Junta de Conciliación y Arbitraje*. In addition, firing procedures are classified as *individual* (the firm announces to each worker individually) and *massive* (a group of workers face the dismissals). However, the latter classification does not have a legal counterpart (i.e. the law makes no distinction).

The proportion of firing cases that corresponds to what is specified by law may provide a measure of the adequacy of the law to the economic reality. If firms choose to negotiate or start legal disputes instead of providing the payments mandated by the law, mandatory severance payments may be too high. Any cost that arises as a result of the negotiation process can be considered an efficiency loss, in the sense that alternative procedures may produce a greater surplus, which can be split between the parties.

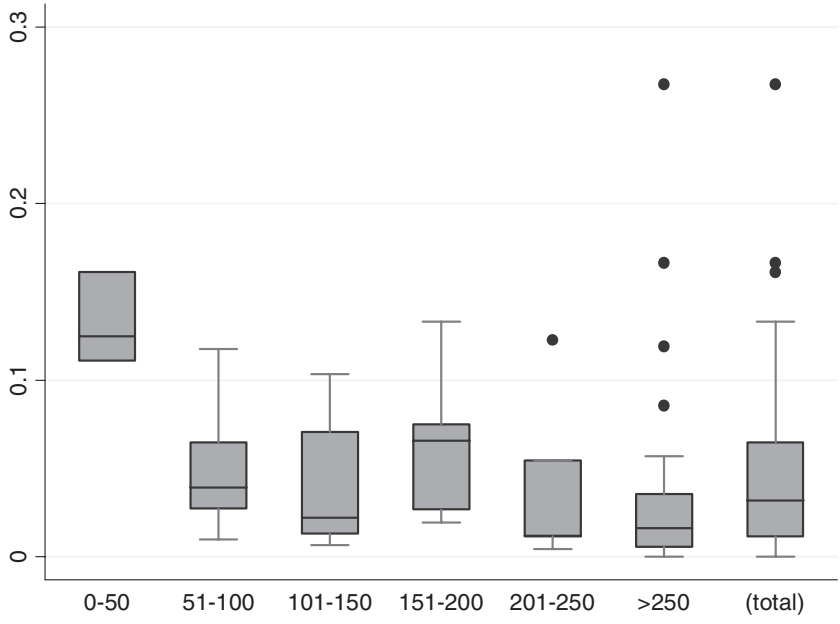
Table 4 summarizes the information obtained from the EIL for 2002 and 2003. Of a total of 277 firms, 28.5 per cent (79 firms) and 36.5 per cent (101 firms) faced firing decisions in 2002 and 2003, respectively, and 24 per cent (68 firms) fired employees in both years. In addition, Figures 1 and 2 show boxplot statistics with whiskers and outliers for firing rates in 2002 and 2003 by firm size (including only those firms that faced dismissals). Firing rates are defined as the number of fired workers divided by the total number

Table 4. *Encuesta sobre Indemnización Legal* (summary)

	2002	2003	Both in 2002 and 2003
No. firing firms (total 277)	79 (28.5 per cent)	101 (36.5 per cent)	68 (24 per cent)
At least one LFT	63	66	43
At least one NFC	29	30	19
At least one DFC	5	7	1
At least one LFT and one NFC	5	1	1
At least one LFT and one DFC	3	1	0
At least one NFC and one DFC	0	0	0
No. workers fired (pooled)	2,020	3,629	5,649
LFT	1,087 (54 per cent)	1,962 (54 per cent)	3,049 (54 per cent)
NFC	923 (46 per cent)	1,577 (43 per cent)	2,500 (44 per cent)
DFC	10 (<1 per cent)	90 (2 per cent)	100 (<2 per cent)
Cases reinstalled	*39*	*158*	*197*
Average payment[a] (pooled, per worker, in $)	16,003	20,211	
LFT	17,164	6,119	
NFC	5,325	14,548	
DFC	22,500	3,000	

Source: Authors' calculations using EIL.
Note: [a] Individual firings only. LFT: firing case solved according to *Ley Federal del Trabajo*; NFC: negotiation firing case; DFC: dispute firing case.

Figure 1. Firing rates by firm size, 2002



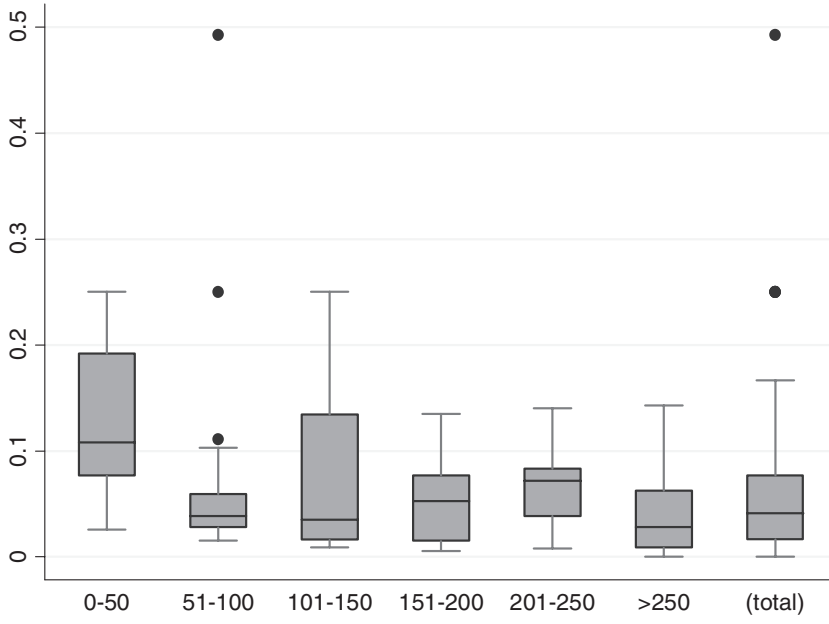
Source: Authors' calculations using EIL.

Notes: Only firms that fired at least one employee in 2002. The shaded region shows the inter-quartile range and the median for each firm size category. The upper (bottom) horizontal line is the maximum (minimum) value that is just below (above) the cut-off point Q3 + 1.5 * (Q3 – Q1)[Q1 + 1.5 * (Q3 – Q1)], where Q1 and Q3 are the first and the third quartile, respectively. The points are outliers lying above or below those cut-off lines.

of employees.[5] Except for small firms (less than 50 employees), we observe similar rates across firm size. Moreover, we observe outliers for firms with more than 250 employees in 2002, and for the 50–100 range in 2003.

As Table 4 shows, most firms pay only the legal severance payment: 55 in 2002 and 64 in 2003.[6] Moreover, for both years a similar number of firms negotiated (29 in 2002 and 30 in 2003) or faced disputes (5 in 2002 and 7 in 2003) at least once. Considering 2002 and 2003 in a two-way (3 × 3) contingency table with possible outcomes in {No Firing, LFT only, At least one NFC or DFC}, a Pearson's χ^2 test for independence rejects the null hypothesis of row-column independence [$\chi^2(4) = 204.99$, p-value = 0.000]. In other words, what a firm does in one year affects the future firing decisions. However, this conclusion can only be applied to firms

Figure 2. Firing rates by firm size, 2003



Source: Authors' calculations using EIL.

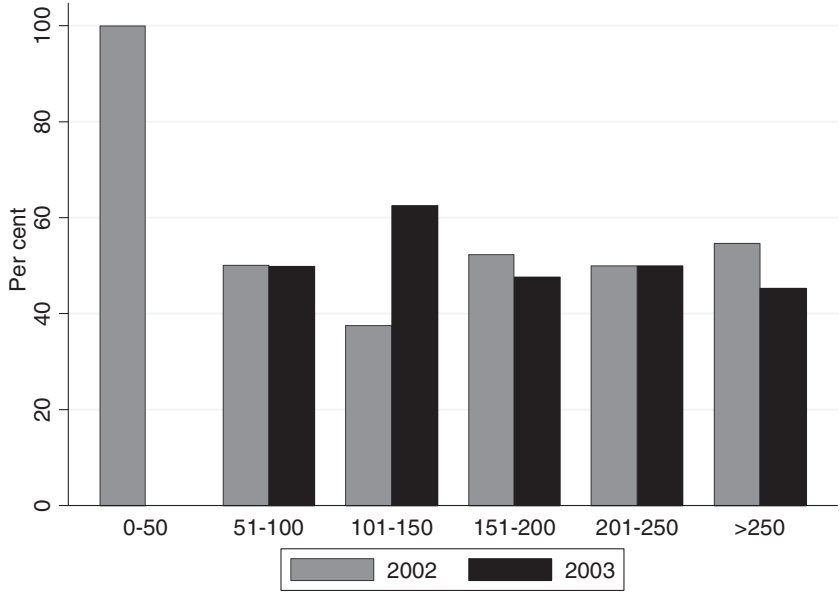
Notes: Only firms that fired at least one employee in 2003. The shaded region shows the inter-quartile range and the median for each firm size category. The upper (bottom) horizontal line is the maximum (minimum) value that is just below (above) the cut-off point Q3 + 1.5 * (Q3 – Q1)[Q1 + 1.5 * (Q3 – Q1)], where Q1 and Q3 are the first and the third quartile, respectively. The points are outliers lying above or below those cut-off lines.

with more than 50 employees. As Figure 3 shows, the range 0–50 employees is marked by opposite extreme values in both years: in 2002 three firms fired employees, none of whom were LFT; in 2003 eight firms fired workers and all of whom were LFT. Nevertheless, firms with more than 50 employees show some stability across years.

The pattern of answers is consistent for firms that did not face dismissals in the period of analysis. When asked about the potential decision if the firm has to fire an employee,[7] 65.5 per cent reported they would provide severance payments according to the law, 30 per cent would opt for negotiation, 0.64 per cent (only one firm) would dispute, less than 2 per cent do not know, and another less than 2 per cent would find an alternative solution (not specified).

We also consider the (pooled) number of workers fired by type of settlement (see also Table 4, middle rows): more than half of

Figure 3. Percentage of firms that negotiate or dispute by firm size



Source: Authors' calculations using EIL.
Notes: Only firms that fired at least one employee.

the sample conforms to the legal severance payment (54 per cent). We note similar percentages across years. As mentioned earlier, the firm may agree to reinstall the employee. This decision corresponds to the case in which the expected discounted value of firing costs that the firm may incur outweighs the profit derived from that employee's work. The sample shows that a higher proportion of cases were reinstalled in 2003 (more than 4 per cent) than in 2002 (2 per cent).

We observe an enormous variation in terms of the average payment by type of firing settlement[8] (again Table 4, bottom rows). This may be due to the fact that the EIL does not provide information about tenure or skills of the fired workers; only total costs are reported. Firms do not report the costs associated with massive dismissals, and therefore only individual cases are used in the table. Nevertheless, specific questions about negotiation and dispute cases were included in the EIL. For NFC, the EIL contains a question asking what percentage the actual payment was with respect to what corresponds to the LFT.[9] For individual firing cases, firms

usually obtain greater benefits as the average payment is below the legally established amount: in 2002 payment resulted in 12 per cent less than the law severance payment, whereas it increased up to 22 per cent less in 2003. For massive cases, the payments were only 3 per cent below the LFT amount.

The severance payment may not be the only disbursement that the firm has. In some cases the firm may start a legal dispute with the employees, whose costs depend on the duration. In certain cases, legal disputes in courts may start an exponential increment in costs because of legal fees and other expenses. For DFC, the EIL asks about the (average) number of months required to get a solution and the total cost (including legal fees, etc.). On average, a DFC solution took 4 months in 2002 and 8 months in 2003. The total cost (which includes the severance payment and any other legal fees involved in the case) was 1.53 times the amount that workers received as payment in 2002 and 1.43 times the next year. This 50 per cent represents a clear inefficiency for the economy as both parties would have been better off if alternative solutions were available.

Table 5 classifies the causes of the reported individual firing cases (in general massive cases are not reported). We analyse several alternatives that depend on the responsibility of the firm and the worker in the firing procedure. The EIL classifies firing procedures as: (a) NA: the firm provides no explanation about the cause of the dismissal; (b) Cessation: the firm ends the contract before its conclusion; (c) Contract ends (severance payment applies in this case), (d) Lay-offs: the firm announces a reduction in the number of employees; (e) Capital goods: the firm replaces employees by machinery. It is worth noticing that the greatest costs are associated with firing for economic reasons (Lay-offs and Capital goods). Moreover, cases in which the worker violates certain aspects of the contract are also expensive for the firm. Again, the EIL reports average payments, which might be affected by seniority and qualifications of the fired employee.

It is worth mentioning that the option to rehire is mostly associated with cases type (c). In developing countries, it is common for firms to partially avoid the burden of severance payments by hiring workers with temporary contracts and rehiring them after these expire. In that case, seniority would not increase, which causes the cost of an eventual lay-off to be smaller. This may be considered a loophole of the law, which provides an intermediate case between formal and informal hiring procedures.

Table 5. What was the cause of the firing? (individual firing)

Concept	NA	Cessation	Contract ends	Violation	Lay-offs	Capital goods	Other
2002							
No. cases without payment	0	2	1	0	2	0	3
No. cases rehired	0	0	15	0	23	0	0
No. cases with payment	5	192	131	3	521	139	137
No. cases with payment that report it	5	43	72	3	314	124	58
Average payment by case (in $)	8,000	10,800	3,472	10,000	20,176	22,137	10,827
2003							
No. cases without payment	3	36	0	1	0	3	0
No. cases rehired	2	0	113	0	14	0	28
No. cases with payment	3	768	292	3	606	102	660
No. cases with payment that report it	3	583	202	3	412	62	97
Average payment by case (in $)	4,000	5,106	2,905	28,000	30,817	9,870	9,195

Source: Authors' calculations using EIL.

Notes: NA: the firm provides no explanation. Cessation: the contract is ended before it expires. Violation: the worker violates some aspects of the contract. Lay-offs: the firm announces a reduction in the number of employees. Capital goods: the firm announces a replacement of labour by machinery or adopts a new technology that reduces the labour input requirements.

Table 6 reports individual and massive firing cases (number of workers) by industry for 2002 and 2003 (the number of firms by industry can be obtained from Appendix B). Massive cases show considerable clustering in certain industries, which does not correspond to what is observed in individual cases. Moreover, no DFC is observed for massive lay-offs. Certain industries show a greater proportion of negotiation cases (e.g. Financial Services, Textiles, etc.) that may be induced by the existence of industry-specific labour unions. Taking each industry as an observation, the correlation coefficient corresponding to the proportion of individual NFC by industry for 2002 and 2003 is considerably high, 0.67, which shows that industries that negotiated in 2002 were more prone to do so in 2003. However, no clear pattern emerges regarding individual DFC: the correlation coefficient constructed in the same way is –0.17.

4. Econometric analysis of firing costs: what is the effect on employment?

A recurrent topic in the literature is the impact of firing costs on the level of employment. As we saw in Section 2, a consensus emerged about the negative sign of this effect, although the differences in magnitude were considerable. The previous section showed that significant differences exist in the costs involved in the different types of firings. As such, we may ask the following question: Are there differences in terms of employment dynamics between firms that opted for negotiation or dispute and those that followed what the law dictates? The importance of the last question arises immediately if we consider that the effect on employment can be interpreted as market inefficiency.

Unfortunately a major limitation comes from the information available in the EIL. Although it asks a specific question about the number of employees in 2004, the corresponding information from 2003 is not available. Nevertheless, the EIL has a qualitative question about the evolution of employment.[10] We may therefore use an Ordered Probit Maximum Likelihood (OPML) model to estimate the impact of firing costs on employment. In particular, we create an index that has a value –1 if the number of employees decreased over the period 2003–4, 0 if it stayed the same, and 1 if it increased.[11]

A main concern is that firing employees (and the type of settlement) might be correlated with certain unobserved firm

Table 6. Individual and massive lay-offs by industry

Sector	2002			2003		
	Law's severance payment	Negotiation	Dispute	Law's severance payment	Negotiation	Dispute
Automobiles	8	15	0	24 [43]	12	0
Beverages	35	0	0	35	0	0
Books and magazines	20	0	0	15	0	0
Commerce	110 [10]	6	1	74	15	2
Communications	26	0	0	118	0	0
Construction	11	0	1	4	2	0
Drugs	67	0	2	142 [16]	0 [4]	0
Education	3	10	0	7	0	1
Financial	15	70	0	13	50	0
Food	36 [208]	5	1	135 [321]	66	0
Graphic arts	0	5	0	0	3	0
Hotel	0	7	0	0	19	0
Industrial	78	95	0	96 [75]	2	0
Movies	30	0	0	75	0	5
Others	66	47 [500]	0	130	92 [600]	0
Services	219	20	5	235	30 [10]	2
Storage	3	3	0	0	3	0
Textile	66 [50]	39 [100]	0	62 [300]	553 [100]	80
Tourism	0	0	0	0	0	0
Transport	26	1	0	42	16	0
Total	819 [268]	323 [600]	10	1,207 [755]	863 [714]	90

Source: Authors' calculations using EIL.
Note: Individual firing cases except numbers in brackets that indicate *massive* firing cases. Others correspond to firms having more than one classification.

characteristics. Unfortunately, the fact that we only observe variation in employment for the 2003–4 period does not allow us to use panel data strategies to control for unobserved heterogeneity. Instead, our strategy consists of a two-step estimation procedure. In the first step, we estimate a random effects probit model where the dummy variable FIRED_{it} denotes whether or not the firm i fired employees in year t, where each year is considered a different observation. This allows us to introduce individual heterogeneity in the form of a firm-specific random component[12] that controls for unobserved heterogeneity. We consider the following model:

$$\Pr\left[\text{FIRED}_{it}\right] = \Phi\left(\beta X_{it} + \mu_i + \delta_t + \varepsilon_{it}\right)$$

where i identify firms and t 2002 and 2003, X denotes a set of covariates of (observable) firm characteristics, μ is the firm-specific random component, δ is the time-specific component, and ε is the independent identically distributed (i.i.d.) error component. The estimated probability of firing in 2003 is used in the second step. The same procedure for the different types of settlements (NFC or DFC) produced an extremely poor model in terms of the explanatory power of its covariates, and therefore, we opt to omit this estimation procedure.

The second step consists of estimating the mentioned OPML model. Two specifications are used. The first contains the same set of covariates X used in the first step, adding the dummy variable FIRED_{03}, which stands for whether or not the firm fired any employees in 2003, and NFC_{03} and DFC_{03}, specifying if any of those firings correspond to a negotiation or dispute case, respectively.[13] By construction, NFC_{03} and DFC_{03} are interacted with FIRED_{03}. The second specification replaces FIRED_{03} with the estimated probability obtained from the first step. If the first step controls for firm-specific heterogeneity, we expect to correct for potential biases in the second step.

As small firms have significantly more heterogeneity than big firms, we restrict the sample to firms with at least 50 employees. Therefore, the number of firms used in both steps drops to 230. As covariates X, we consider a set of dummies indicating the firm's size (available only in 2004, see above), its employees' maximum level of schooling and average wage, a dummy variable indicating if the firm reports to face considerable competition, and a variable measuring the firm performance, such as sales per worker. Dummy variables by industry and year were included but not reported.

Table 7. Probability of firing

Dependent variable: 1: if the firm faced at least one firing; 0: otherwise	**(1)**
Competition	0.236***
	(0.463)
Firm size (number of employees)	
100–150	–0.152***
	(0.057)
151–200	0.230
	(0.637)
201–250	–0.256
	(0.782)
>250	0.201
	(0.427)
Workforce's maximum schooling level	
Primary	0.253
	(0.622)
Secondary	0.358**
	(0.067)
More	0.120
	(0.734)
Log sales per worker	–0.136***
	(0.045)
Log average wage	0.015*
	(0.008)
Observations	460
Wald χ^2 (p-value)	0.050

Notes: Significance levels: * 10 per cent, ** 5 per cent, *** 1 per cent. Robust standard errors in parenthesis. The sample has firms with 50 employees or more. Competition, firm size, and workforce maximum schooling level are only reported for 2004, and therefore they do not vary by year.

Table 7 reports the first step model results (the marginal effect on the probability is reported). Note that in this case the total number of observations is 460 (= 230 × 2). In general, the variables used in the model have the *a priori* expected sign. Firms that report having significant competition have a higher likelihood of firing employees (the probability increases by 0.236 if the firm faces competition). The same occurs for firms with conditionally high wages and low productivity (as measured by sales per worker). In the first case a 10 per cent increase in wages results in a 0.0015 increase in the probability of firing, whereas a similar increment in productivity reduces

Table 8. Ordered probit estimation

Dependent variable: Change in employment between 2003 and 2004	**(1)**	**(2)**
Fired at least one employee in 2003	0.321*	
	(0.194)	
Probability of firing at least one worker in 2003[a]		0.356*
		(0.112)
At least one negotiation (NFC) in 2003	–0.331*	–0.320*
	(0.178)	(0.165)
At least one dispute (DFC) in 2003	–0.701	–0.678
	(0.502)	(0.498)
Competition	–0.297	–0.213*
	(0.197)	(0.125)
Firm size (number of employees)		
100–150	0.417	0.517
	(0.358)	(0.370)
151–200	0.258	0.237
	(0.268)	(0.212)
201–250	0.389	0.396
	(0.454)	(0.498)
>250	0.236	0.250
	(0.179)	(0.187)
Workforce maximum schooling level		
Primary	0.658	0.658
	(0.698)	(0.698)
Secondary	0.335**	0.349**
	(0.153)	(0.176)
More	0.364	0.345
	(0.345)	(0.301)
Log sales per worker in 2003	0.265***	0.351***
	(0.106)	(0.128)
Log average wage in 2003	0.257***	0.356***
	(0.080)	(0.097)
Observations	230	230
Wald χ^2 (*p*-value)	0.056	0.070

Notes: Significance levels: * 10 per cent, ** 5 per cent, *** 1 per cent. Robust standard errors in parenthesis.
[a] Fitted value obtained from the model presented in Table 7. The sample has firms with 50 employees or more.
Competition, firm size, and workforce maximum schooling level are only reported for 2004.

the probability by 0.0136. The maximum education level of its employees does not have a clear pattern, and neither does firm size.

Table 8 presents the estimation results for the OPML model (coefficients reported). Column (2) differs from column (1) in the use of the estimated probability of firing in 2003, instead of the

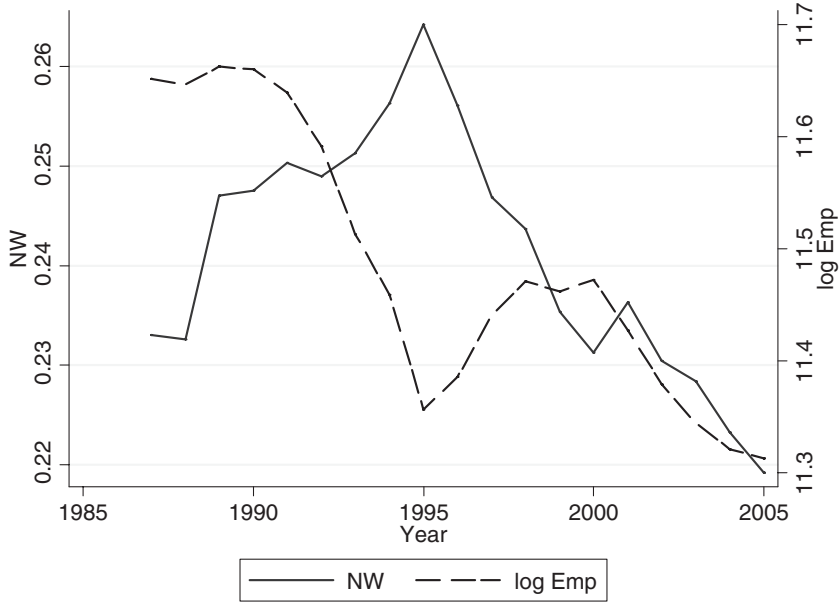
corresponding dummy variable. The correction for firms' heterogeneity using the estimated probability has some effect on the coefficient estimates, but it does not change their sign or statistical significance. Surprisingly, firms that fired employees in 2003 have a higher likelihood of increasing the number of employees, even when we use the predicted probability of firing (column 2). This may be the result of greater flexibility in adjusting to demand shocks. In addition, the fact that the coefficient estimate increases after replacing the estimated probability may be due to a negative correlation between $FIRED_{03}$ and the unobserved firm heterogeneity. Firms that faced NFC_{03} or DFC_{03} increase their chances of reducing the number of employees the following year, although only the former is statistically significant. This means that if firing procedures are too expensive and firms use alternative solutions to what is mandated by the law, employment is ultimately negatively affected.

5. Non-wage costs and employment

We now turn to the effect of non-wage costs (i.e. social benefits and others) on employment. For Mexico, we are not able to reproduce a policy change experiment as in other studies. Moreover, as firms can avoid regulations by hiring workers informally, the net effect of a labour reform cannot be fully accounted for. To overcome these obstacles we will consider the ratio of non-wage costs (*Prestaciones Sociales*, which include vacations, extra bonuses, pensions and health contributions, and other benefits) to total remuneration (NW) as a measure of the incidence of social benefits on total labour costs. We use the *Encuesta Industrial Mensual* (EIM) that provides information about the whole manufacturing industry (capturing medium and big firms). We use yearly data from 1987 to 2005, and we aggregate to nine sectors (Food, Apparel, Wood, Paper, Chemicals, Non-metal, Metal, Machinery and Equipment, and Others).

Figure 4 presents average values for NW and logarithm of employment. The period of 1987–93 (pre-NAFTA; Mexico entered the North American Free Trade Agreement (NAFTA) in 1 January 1994) was marked by a constant increase in NW and a decline in the employment level. The 1995 economic crisis (known as the Tequila Crisis) produced different effects in each series; employment fell drastically as the result of the recession, whereas, at the same time, non-wage costs increased. This can be explained by the fact that

Figure 4. Non-wage costs and employment, 1987–2005



Source: Authors' calculations using Encuesta Industrial Mensual, 1987–2005.

firms fire informal (and unskilled) workers, provided that the firing costs are considerably lower, as compared with costs for those hired formally. Thus, on average, firms end up paying higher non-wage costs as a fraction of their total labour costs. As the economy recovers, both series follow opposite paths until 1999. From 2000 to the present, both series decline simultaneously.

As is common in dynamic panel data labour demand specifications, we start with an autoregressive specification. Moreover, the fact that the variables considered are strongly correlated with the value 1 year ago but less with contiguous months suggests that yearly averages should be used. Therefore, we consider an autoregressive process of order 1 [AR(1)] type specification in annual differences. Our basic specification is

$$\Delta \mathrm{EMP}_{it} = \alpha_1 \Delta \mathrm{EMP}_{i,t-1} + \beta_0 \Delta \mathrm{lW}_{it} + \beta_1 \Delta \mathrm{lW}_{i,t-1} + \delta_0 \Delta \mathrm{NW}_{it} + \delta_1 \Delta \mathrm{NW}_{i,t-1} + \gamma_0 \Delta Y_{it} + \gamma_1 \Delta Y_{i,t-1} + \mu_i + \phi_t + \varepsilon_{it},$$

where Δ denotes the annual difference operator, EMP denotes the log of employment, lW denotes log of average real wages (deflated by the general consumer price index), NW is defined above as the ratio benefits/remuneration, Y is a measure of output, μ and ϕ capture the industry-specific and year-specific effects, respectively, and ε is random error component, assumed i.i.d. In our case we have $i = 1, 2 \ldots 9$ and $t = 1987, 1988, \ldots 2005$. The parameter of interest is given by the long-run effect of a change in NW: $\frac{\delta_0 + \delta_1}{1 - \alpha_1}$.

Using this variable to measure the effect of non-wage costs on employment has two main disadvantages. First, it is clearly endogenous, as firms may be able to adjust this ratio by hiring formal or informal workers (information not provided in the EIM). Moreover, employment adjustment is generally made for workers whose firing costs are the lowest, which correspond to young and less skilled employees. These workers receive on average fewer benefits as a proportion of their gross wage. Consequently, variations in employment would eventually affect NW. To overcome this problem we use a fixed effect dynamic specification (to control for industry heterogeneity) and lags of the explanatory variables as instrumental variables (see below). Second, we need to account for changes in gross and net wages (i.e. with and without non-wage costs). We provide alternative specifications in which gross and net wages are used for lW. Different interpretations on the coefficient of NW arise for each case. On the one hand, by using gross wages, we work under the assumption that an increase (decline) in non-wage costs will be counterbalanced by a decline (increase) in net wages. In this case, the firms' labour costs remain the same, and workers face a substitution between benefits and wages. On the other hand, when net wages are used, we assume that gross wages increase by the same amount of non-wage costs, such that net wages remain constant. In this case, firms face a full increase in labour costs. Therefore, *a priori* we speculate that the effect of the latter is bigger than the former.

An additional concern is that wages will be both in lW and NW. Therefore, imposing the above assumptions might be incompatible with changes in NW. For instance, an increment in NW, assuming that gross wages remain the same, imposes a non-linear restriction on lW. For that reason, we define $\mathrm{NW}^*_{i,t} = \mathrm{NW}_{i,t} \big/ \frac{1}{9} \sum_{i=1}^{9} \mathrm{NW}_{i,t}$ as our measure of the impact of non-wage costs, which relaxes the mentioned non-linear restriction. This measure shows how the sector differs with respect to the average of the manufacturing industries

in each year. When taking differences into account, it captures sector-specific changes in the burden of non-wage costs.

We also compute our estimates using two measures of employment: total hours worked and number of employees. Thus, if non-wage costs are proportional to the number of employees, but less so to total hours worked, we expect larger effects for the former.

Our exercise differs from estimating labour demand elasticity. The wage elasticity may not fully capture the total effect of an increase in non-wage costs because net wages may be reduced to absorb that change. Moreover, its effect will be different, depending on whether the sector can substitute informal for formal workers. NW* is constructed as an index that measures the relative burden of non-wages costs on total labour costs and, as such, it is intended to capture the effect of a hypothetical industry-specific increase in non-wage costs.

Using autoregressive specifications in panel data has a small disadvantage: including a lag of the dependent variable in the model generates a downward bias of order 1/T. Following Arellano and Bond (1991) and Arellano and Bover (1995), we use instruments for the lag of the dependent variable, wages, output, and NW. In particular, we use twice lagged values in levels of the dependent and the explanatory variables as instruments.

Table 9 presents estimates for model (1), when (adjusted) NW and hours worked are used. For each specification, we present fixed effects (FE) and instrumental variables (IV) estimates. Columns FE(1) and IV(1) use gross wage, and the last two columns [FE(2) and IV(2)] use net wages. Considering the effect of a 10 per cent increase in NW, we observe that FE(1) contains a non-significant contemporaneous effect, a negative lagged effect of 2.9 per cent, and a negative long-term effect of 5 per cent. Because IV(1) estimates a larger coefficient for the lag of employment, even though the immediate effect of a change in NW is smaller, it has a long-term effect of –6.8 per cent. As expected, when we use net wages, the effect of NW is larger. FE(2) and IV(2) specifications have –8.1 per cent and –11 per cent long-term effects, respectively.[14] IV specifications pass the Sargan test for overidentified restrictions and fulfil the requirements that errors are AR(1), but not AR(2) (see Arellano and Bond, 1991).

Table 10 repeats the same exercise with the number of employees as the measure of employment. For all specifications, we find larger effects of a 10 per cent increment in NW, ranging from –6.6 per cent to –15 per cent. However, we find evidence that the error term in the

Table 9. Dynamic panel data estimates

ΔEMP_t	FE(1)	IV(1)	FE(2)	IV(2)
ΔEMP_{t-1}	0.424***	0.894***	0.417***	0.893***
	(0.079)	(0.018)	(0.080)	(0.018)
ΔlW_t	–0.990***	–0.994***	–0.989***	–0.994***
	(0.005)	(0.039)	(0.044)	(0.033)
ΔlW_{t-1}	0.431***	0.890***	0.424***	0.890***
	(0.079)	(0.019)	(0.080)	(0.018)
ΔNW_t	–0.005	0.080	–0.381***	–0.316***
	(0.072)	(0.055)	(0.074)	(0.057)
ΔNW_{t-1}	–0.287***	–0.143***	–0.091	0.198***
	(0.068)	(0.054)	(0.073)	(0.056)
ΔY_t	0.001	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
ΔY_{t-1}	0.023**	0.020	0.022	0.019
	(0.010)	(0.016)	(0.010)	(0.013)
Observations	153	153	153	153
Groups	9	9	9	9
R^2	0.9993		0.9991	
NW long-run effect	–0.506**	–0.685***	–0.809***	–1.103***
(p-value)	(0.0240)	(0.0145)	(0.0168)	(0.0001)
Sargan test of overidentified restrictions: p-value		0.000		0.000
Arellano–Bond test for AR(1): p-value		0.003		0.003
Arellano–Bond test for AR(2): p-value		0.784		0.394

Notes: * 10 per cent, ** 5 per cent, *** 1 per cent significance level. EMP is the log of total hours worked. (1): lW = gross wage; (2): lW = net wage.

first difference specification follows an AR(2) process. This means that the coefficient estimate of the lag of the dependent variable is upward biased, and therefore the long-run estimates of NW may also be upward biased.

Heckman and Pagés (2004) predict that 'a 10 per cent increase in non-wage labor costs can lead to a decline in employment rates ranging between 0.6 and 4.8 per cent, with most of the evidence shaded toward the high end of this spectrum' (p. 43). Our results confirm the negative impact of an increase in non-wage costs in the level of employment, although our estimates start at the upper end of that range. Moreover, evidence for Mexico shows that increasing social security taxes reduce net wages by 43 per cent of the tax increase, whereas increasing benefits decreases wages by 57 per cent

Table 10. Dynamic panel data estimates

ΔEMP_t	FE(1)	IV(1)	FE(2)	IV(2)
ΔEMP_{t-1}	0.472***	0.917***	0.480***	0.910***
	(0.079)	(0.021)	(0.079)	(0.020)
ΔlW_t	–0.323***	–0.221***	–0.316***	–0.221***
	(0.082)	(0.066)	(0.083)	(0.065)
ΔlW_{t-1}	0.117	0.135**	0.115	0.147**
	(0.080)	(0.059)	(0.081)	(0.059)
ΔNW_t	–0.160***	–0.137***	–0.282***	–0.216***
	(0.061)	(0.048)	(0.060)	(0.047)
ΔNW_{t-1}	–0.186	0.027	–0.129**	0.079*
	(0.057)	(0.044)	(0.056)	(0.043)
ΔY_t	0.002	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
ΔY_{t-1}	0.026**	0.023*	0.022	0.018
	(0.011)	(0.013)	(0.010)	(0.011)
Observations	153	153	153	153
Groups	9	9	9	9
R^2	0.8104		0.8097	
NW long-run effect	–0.655***	–1.325***	–0.790***	–1.522***
(p-value)	(0.0016)	(0.0027)	(0.0004)	(0.0018)
Sargan test of overidentified restrictions: p-value		0.000		0.000
Arellano–Bond test for AR(1): p-value		0.037		0.043
Arellano–Bond test for AR(2): p-value		0.012		0.014

Notes: * 10 per cent, ** 5 per cent, *** 1 per cent significance level. EMP is the log of number of employees. (1): lW = gross wage; (2): lW = net wage.

of the value of benefits (Marrufo, 2001 cited in Heckman and Pagés, 2004). In that case, the correct estimate of the effect of non-wage costs could be better approximated by the average of the long-run estimates in Table 9. In other words an increase of 10 per cent in the ratio of non-wage costs to total labour costs has a negative long-run effect on employment of about 9 per cent.

We speculate that these differences with respect to other findings in the literature may be due either to a different estimation methodology or to particular characteristic of the Mexican labour market. On the one hand, we evaluate the impact of an index that measures the relative incidence of non-wage costs, in contrast to the estimation of wage elasticity. As wage variations may be positively correlated with employment variations in labour markets, subject to considerable

economic reforms and technological changes, estimating the effect of wages on employment may be misleading. In contrast, the NW* index is expected to be less responsive to those shocks and to capture only the sector-specific burden of non-wage costs. On the other hand, the incidence of non-wage costs was particularly important in the Mexican labour market, and this motivated the introduction of a significant reform in the social security system in 1997.

6. Conclusions and policy implications

In comparison with OECD and Latin American countries, Mexico shows consistently high labour costs across methods and studies. We contribute to the evaluation of the actual burden of such costs for individual firms. The findings reported in this paper imply that firing costs might be excessively high, as firms might be able to negotiate and to settle with lower average payments than what it is established by law. Moreover, legal disputes generate a 50 per cent increase in the firms' costs and significant delays for achieving a solution to the firing procedure.

If the labour costs are set too high, labour market turnover declines and firms cannot adjust to demand shocks. Our findings reflect the fact that the level of employment is also affected by these costs, in line with results reported in Heckman and Pagés (2004) for several other Latin American countries. In particular, firms that settle firing procedures by negotiation face the increased chance of reducing employment in the future. A weaker negative result is also found for legal disputes.

We also consider the impact of non-wage costs (which include vacations, extra bonuses, pensions and health contributions, and other benefits) on employment. We found a negative impact: greater benefits in a given industry significantly decrease the level of employment. In particular, we found that an increment of 10 per cent in the burden of non-wage costs on total labour costs may reduce the long-run employment level by 9 per cent. This estimate is higher than other findings in the literature for Latin America, such as those reported in Heckman and Pagés (2004).

Appendix A

Source: The World Bank and International Finance Corporation (2005) (http://rru.worldbank.org/DoingBusiness/) and Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004).

Every economy has established a complex system of laws and institutions intended to protect the interests of workers and to guarantee a minimum standard of living for its population. The data on hiring and firing workers are based on a detailed survey of employment and social security regulations. The survey is completed by local law firms.

To make the data comparable across countries, several assumptions about the worker and the business are used.

Assumptions about the worker:

- Is a non-executive, full-time male employee who has worked in the same company for 20 years.
- Earns a salary plus benefits equal to the country's average wage during the entire period of his employment.
- Has a wife and two children. The family resides in the country's most populous city.
- Is a lawful citizen who belongs to the same race and religion as the majority of the country's population.
- Is not a member of the labour union, unless membership is mandatory.

Assumptions about the business:

- Is a limited liability company.
- Operates in the country's most populous city.
- Is 100 per cent domestically owned.
- Operates in the manufacturing sector.
- Has 201 employees.
- Abides by every law and regulation but does not grant workers more benefits than what is legally mandated.
- Is subject to massive bargaining agreements in countries where massive bargaining covers more than half the manufacturing sector.

Indexes

The rigidity of employment index is the average of three subindices: a difficulty of hiring index, a rigidity of hours index, and a difficulty of firing index. All the subindices have several components. And all take values between 0 and 100, with higher values indicating more rigid regulation. The difficulty of hiring index measures: (i) whether term contracts can be used only for

temporary tasks; (ii) the maximum duration of term contracts; and (iii) the ratio of the mandated minimum wage (or apprentice wage, if available) to the average value added per worker. A country is assigned a score of 1 if term contracts can be used only for temporary tasks, and a score of 0 if they can be used for any task. A score of 1 is assigned if the maximum duration of term contracts is 3 years or less; 0.5 if it is between 3 and 5 years; and 0 if term contracts can last more than 5 years. Finally, a score of 1 is assigned if the ratio of the minimum wage to the average value added per worker is higher than 0.75; 0.67 for a ratio between 0.50 and 0.75; 0.33 for a ratio between 0.25 and 0.50; and 0 for a ratio less than 0.25.

The rigidity of hours index has five components: (i) whether night work is unrestricted; (ii) whether weekend work is allowed; (iii) whether the workweek can consist of 5.5 days; (iv) whether the workday can extend to 12 hours or more (including overtime); and (v) whether the annual paid vacation days are 21 or fewer. For each of these questions, if the answer is no, the country is assigned a score of 1; otherwise a score of 0 is assigned.

The difficulty of firing index has eight components: (i) whether redundancy is not considered fair grounds for dismissal; (ii) whether the employer needs to notify the labour union or the labour ministry to fire one redundant worker; (iii) whether the employer needs to notify the labour union or the labour ministry for group dismissals; (iv) whether the employer needs approval from the labour union or the labour ministry for firing one redundant worker; (v) whether the employer needs approval from the labour union or the labour ministry for group dismissals; (vi) whether the law mandates training or replacement before dismissal; (vii) whether priority rules apply for dismissals; and (viii) whether priority rules apply for re-employment. For each question, if the answer is yes, a score of 1 is assigned (for questions i and iv, a score of 2); otherwise a score of 0 is given. Questions i and iv, as the most restrictive regulations, have double weight in the construction of the index.

Cost of firing

The firing cost indicator measures the cost of advance notice requirements, severance payments, and penalties due when dismissing a redundant worker, expressed in weekly wages.

Appendix B

Encuesta sobre Indemnización Legal (EIL)

This survey is intended to capture small, medium, and big firm in the Distrito Federal and metropolitan area (Ciudad de Mexico and surroundings). The universe of these enterprises was obtained from the *Sistema de Información Empresarial Mexicano* (SIEM), provided by the *Secretaria de Economía*. From this source 62,390 firms were obtained. The sample was selected from 6,319 firms:

Concept	
No. firms in the directory	6,319
No. firms in the sample	820
No. firms without interview	478 (57.9 per cent)
No. firms with interview	342 (41.4 per cent)
No. firms that answer the questionnaire	277
No. firms provide all the information	165

The rate of participation in the survey varies across subindustries:

Sector	**No. firms that answer**	**No. firms that did not answer**
Others	42	5
Services	41	7
Food	38	13
Commerce	32	8
Textile	28	5
Industrial	26	11
Education	11	1
Drugs	11	3
Automobile	9	2
Construction	7	2
Transport	7	2
Financial	4	1
Hotel	4	0
Graphic arts	3	1
Communications	3	3
Books and magazines	3	1
Movies	3	0
Storage	2	0
Beverages	2	0
Tourism	1	0
Total	277	65

Notes

[1] For Argentina, Mondino and Montoya (2004) find that job security negatively affects employment. For Chile, Montenegro and Pagés (2004) find a negative effect of security provisions, although it is statistically insignificant. For Colombia, non-wage costs have a significant explanatory power in explaining the increment in the unemployment rate (see Cárdenas and Bernal, 2004). However, severance payments and dismissal costs have no effect on labour demand. On the other hand, Kugler (2004) finds a significant effect of job security provisions for this country. In Peru, Saavedra and Torero (2004) find mixed evidence about the effect on the labour market.

[2] This survey is property of the World Bank and it is available from authors upon request. See Appendix B for a description.

[3] 'This measure computes the expected future cost, at the time a worker is hired, of dismissing her in the future due to unfavorable economic conditions. The index is constructed to include only firing costs that affect firm's decision at the margin and therefore it does not include the full cost of regulation on labor demand. It includes the cost of providing statutory advance notice and severance pay conditional on each possible level of tenure that a worker can attain in the future' Heckman and Pagés (2000, p. 6).

[4] This option applies only to fired workers with at least 1 year of seniority at the firm.

[5] Only the number of employees for 2004 is provided by the EIL. The values for 2002 and 2003 were constructed by prorating the number of fired workers in those years. This construction has the restriction that the number of employees in 2002 and 2003 cannot be smaller than that in 2004.

[6] From Table 4, in 2002: $55 = 63 - 5 - 3$ and in 2003: $64 = 66 - 1 - 1$.

[7] 'In the case the firm has to fire a worker, what would be your decision?'

[8] Constructed as the total cost associated with each type of procedure (severance payments plus legal costs) reported by the respondent firm divided by the number of workers fired.

[9] 'For the firing procedures negotiated during the year (2002, 2003): what percentage was paid according to what is established in the Law? (Separate individual and massive dismissals).'

[10] The question is: '(. . .) the number of employees with respect to the actual number is: same, lower, greater?'.

[11] These models are invariant to the choice of the index number if the order of the different choices is preserved.

[12] Given that we only have two observations per firm individual fixed effects estimation is not a feasible option for a probit model. Moreover, in a fixed effect model we would not be able to use some of the firms' characteristics that do not vary by year. In particular, competition, firm size, and workforce maximum schooling level are only reported for 2004.

[13] We use a dummy variable instead of the ratio of cases with a given settlement to the total number of firings, because as the following table shows, this variable can be approximated by a 0–1 dichotomous variable:

Per cent negotiated 2002	No.	Per cent negotiated 2002	No.
0	197	33	2
10	1	90	1
13.3	1	100	26
14.2	1	Total	230
20	1		

[14] In an earlier version of the paper we used the non-standardized NW, which resulted in implausible high effects of non-wage costs (ranging from 20 to 40 per cent). These results are available from the authors upon request.

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