Labour law violations in Chile

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Abstract. This empirical contribution to the quantification of labour law violation uses micro survey data to examine compliance with workers' statutory entitlements to a minimum wage, working time limits, a written contract, and pension coverage over the period 1990–2009. One-third of workers were denied at least one of these entitlements, albeit with significant variations in the incidence of violations over time, across laws and by worker and firm characteristics. The authors’ econometric analysis shows that compliance rates are lower for female, foreign-born, indigenous and less educated workers, and in smaller firms and agricultural regions. Further research, they argue, should focus on enforcement.

Reform of labour law is central to policy discourse in developing countries, and in Latin America in particular. Proponents of deregulation argue that overly stringent legislation feeds informality and serves to hold back efficiency and growth. Opponents of deregulation argue instead that these laws curtail the power of employers and protect workers.1 However, both proponents and opponents seem to argue equally from an assumption of effective enforcement of labour laws. At least, they do not focus on issues of enforcement or violation of laws. In the extreme case, if the laws are not enforced at all, then the deregulators have the outcome they want by default and their opposition to the current laws is somewhat tangential. Even if violation is partial, both proponents and opponents will have to modify their arguments accordingly.

But how much labour law violation is there? The question is at heart an empirical one, dependent on context and institutions. A growing body of literature has attempted to quantify compliance.2 The broad conclusion is that compliance is far from complete, and the incidence of violations varies across countries and across regions and sectors within countries.

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1 See World Bank (2012) for a recent review of the literature.

2 See, for example, Strobl and Walsh (2003), Maloney and Nuñez Mendez (2004), Kristensen and Cunningham (2006), Andalón and Pagés (2008), Ronconi (2010), and Bhorat, Kanbur and Mayet (2012a).
This article is a contribution to the empirical literature on quantification of labour law violation. It takes up the case of a relatively advanced developing/middle-income country, Chile, which has considerable administrative and bureaucratic capacity. Using micro survey data, the article establishes the basic facts of compliance with four dimensions of labour law: minimum wage, hours worked, having a contract, and pension coverage. On average over the period 1990–2009, we find that the laws were violated in at least one of these dimensions for one-third of workers. However, there are large and significant variations over time, across laws, and by worker and firm characteristics. Simple tabulation followed by econometric analysis shows that compliance rates are lower for female, foreign-born, indigenous, and less educated workers; in smaller firms and in agricultural regions.

The remainder of the article is organized into four sections. The first sets out the basic legislative frame of labour regulation in Chile. The second discusses the data used in the analysis. The third section presents the main results, and the fourth concludes with implications for policy and research directions.

### Legislation

According to Chilean legislation, employers must comply with a number of universally applicable regulations, including the signing of a written contract of employment, paying at least the minimum wage, providing a safe and healthy work environment, complying with collective agreement provisions, and contributing to the social security system. In this section, we briefly describe those regulations for which the available data allow for measurement of the extent of compliance.³

Employers must provide each worker with a signed copy of his or her contract of employment. Having a written contract does not provide any direct legal benefit to workers (e.g. workers are not required to have a written contract to enforce their rights in court). However, a written contract presumably helps workers to know their rights as it establishes pay, hours, and other expectations specific to the job. Furthermore, evidence suggests that the majority of workers in Latin America wrongly believe that they cannot enforce their rights without having a copy of the contract (Piza, 2009).

The monthly minimum wage is set by the Government and varies according to the age of the worker. There is, however, no variation across regions. The minimum wage is usually modified once a year. In July 2012, the full-time monthly minimum wage was 193,000 pesos (US$386) for workers aged 18 to 65 and 144,079 pesos (US$288) for those under 18 or older than 65. For

³ Chile's labour force survey (ENCLA) allows for measurement of the extent of violations of some health and safety regulations, but we have not been able to access the micro data. Aggregate figures provided by the Government show that 25.5 per cent of firms do not comply with the obligation of having a safe practices manual; and 31.7 per cent of firms with 25 or more employees violate the obligation of having a health and safety committee that includes workers’ representatives (Dirección del Trabajo, 2009).
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part-time workers, the minimum wage is proportional to the number of hours worked.

Since March 2011, the same standards also apply to domestic workers.

Since the standard workweek is 45 hours and overtime cannot exceed 12 hours per week, the maximum number of hours that people can work per week is 57. Before 2005, the maximum number of hours was 60: an ordinary workweek of 48 hours and overtime of 12 hours. Workers are required to receive overtime pay at a rate not less than time-and-a-half of their regular rate of pay.

Finally, employers and employees are required to contribute to the social security system. Social security benefits include pension, unemployment insurance, health insurance, and workers’ compensation insurance. The total contribution amounts to approximately 24 per cent of the wage, and the contribution to the pension scheme is, on average, 12.4 per cent (Aguila, Attanasio and Quintanilla, 2010).

Chile’s legislation also specifies the level of fines for violations of employment, social security, occupational safety and health, and labour relations regulations. Fines usually depend on the size of the firm and, in some cases, recidivism. Table 1 presents the values of fines in July 2012.

### Data and methodology

The main source of data for this article is Chile’s “National Socioeconomic Characterization Survey” (CASEN), which is a repeated cross-sectional...
household survey. The survey is funded by the Chilean Social Development Agency and administered by the University of Chile, the Ministry of Planning and Cooperation, the National Institute of Statistics and the Inter-American Centre for the Teaching of Statistics (CIENES). The survey was administered every two years from 1990 to 2000 and every three years thereafter. It is designed to be representative at the national, regional and geographic stratification (urban vs rural) levels. The sampling unit is the household, and sampling is based on census data. Interviews are conducted in person. The scope of the survey was gradually expanded in order to be representative of smaller communities and also to include more questions. The CASEN contains question modules on health, education, work characteristics, home characteristics, and a variety of other socioeconomic variables of interest. The interviews are conducted in November and December of each survey year.

This survey is ideal for measuring labour law violations for two reasons. First, employees are more likely than employers to report their actual working conditions since they are not fined in case of non-compliance. Second, the survey asks respondents detailed questions about their personal characteristics and the characteristics of their jobs. This allows us to match workers with the labour standards they are subject to. It also allows us to evaluate which characteristics of workers and firms are associated with a higher incidence of labour standard violations. Respondents are asked questions about their current work status, the number of hours they usually work per week (or month), and the number of days. They are also asked to provide detailed industry code information and details about their place of employment and position, and to answer basic questions about working conditions, including whether they have a contract with their employer, if that contract is signed, if they have a pension, and what type of pension plan they have.

The population of interest for this article consists of workers who identify themselves as employees – rather than employers, bosses, or the self-employed – and who do not work in domestic service, since such employment is subject to a slightly different set of labour laws. We measure violation of the hourly minimum wage by calculating each worker’s hourly wage based on her or his self-reported hours and income and then classifying the worker as paid under the minimum wage if that wage is less than the hourly minimum wage once the monthly minimum is scaled for the standard workweek of 45 or 48 hours depending on year. One potential problem with this method is that self-reported hours and wages can lead to measurement error due to recall bias or rounding, which can result in mis-categorizing workers as between compliance and non-compliance with the minimum wage. An alternative strategy is to look only at full-time workers and violations of the monthly minimum wage. However, while this often does estimate a slightly higher level of compliance,

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8 The number of individuals included in the survey increased from 105,189 in 1990 to 246,670 in 2009.
9 Only 5 per cent of the workers in the sample are in domestic service.
the increase in compliance is usually less than 1 percentage point. Additionally, the high incidence of hours violations leads us to believe that violation of the hourly minimum wage is what matters, regardless of whether the violation derives from workers working more hours than their wage covers or from being paid less than their hours legally require.

Based on Bhorat, Kanbur and Mayet (2012a), we use three measures of minimum wage violation, all of which take the form:

\[ V_\alpha = E \left\{ \left( w^m - w \right) / w^m \right\}^{\alpha} \text{ if } w^m - w > 0; 0 \text{ if } w^m - w \leq 0 \]

The first measure, \( \alpha = 0 \), is the standard headcount measure of violation. The other two measures of minimum wage violation are measures of depth: \( \alpha = 1 \) measures the shortfall depth and all \( \alpha > 1 \) places more emphasis on larger gaps. We report \( \alpha = 2 \) as a measure of the severity of minimum wage violation. We also report \( V_1 / V_0 \) which measures the average percentage shortfall below the minimum wage for all sub-minimum wage workers.

Measuring contract and hours violations is more straightforward. Workers are classified as having no contract of employment if they report either that they do not have a contract, or that their contract has not been signed by an employer. The alternative definition, counting only workers who report directly that they do not have a contract (excluding those whose contract is unsigned), does not change the results in any meaningful way. Workers are classified as working more than the maximum number of hours if they report weekly hours above the threshold (60 until 2004 and 57 as from 2005) or if they report monthly hours above 4.2 times the applicable weekly threshold. Workers are classified as not having a pension if they report that they are not covered by any of the available pension systems (public or private). Finally, an overall measure of labour law violation is computed, as the share of workers employed in violation of at least one of the four statutory entitlements analysed here.

**Results**

Table 2 shows how the incidence of minimum wage violations evolved from 1990 to 2009. On average, almost 20 per cent of the workers covered by the minimum wage were paid less during the period under study. The incidence of violation increased from 1990 to 2006 (except in 1994). Table 2 also shows that the minimum wage initially remained relatively flat compared to the average wage of prime-age workers in jobs covered by the minimum wage, but that it increased in relative terms as from 1998. Between 2006 and 2009, however, there was a significant reduction in the incidence of non-compliance that coincides with a reduction in the minimum wage relative to the average wage. The depth of violation follows a similar trend: workers paid below the minimum wage were paid 25 per cent less on average, with a high of 26 per cent in 1990 and a low of 22 per cent in 1998.

Table 2 also presents measures of violations of the other labour standards we study. The percentage of workers without a contract increased during the 1990s,
peaking at 23.9 per cent in 1998, but it declined thereafter. The percentage of those without a pension follows a similar pattern: it increased during the 1990s – peaking at 22.1 per cent in 1998 – and declined during the 2000s. Unlike contract violations, however, pension violations experienced a sharp drop between 2006 and 2009, similar in magnitude to the reduction observed in minimum wage violations. In contrast, maximum hours violations display a negative trend over the entire period that was only interrupted in 2006, presumably on account of the introduction of a new law in 2005 that reduced the maximum number of hours from 60 to 57.

Figure 1 shows the evolution of the overall measure of labour law violations. Following a trend increase between 1990 and 2006, there was a sharp reduction between 2006 and 2009. This recent improvement is most likely due to stronger enforcement: the number of labour inspections increased from an average of 102,802 per year in 2002–06 to 126,310 per year in 2007–09 (Dirección del Trabajo, 2011).

The following subsections focus on differences in the incidence of non-compliance according to worker, firm and geographic characteristics. Although the incidence of violations changes over time, the relative intensity of violation based on these characteristics does not. For ease of interpretation, we focus on pooled measures across all waves of the survey.

**Worker characteristics**

We divided workers into four age groups: the two groups subject to the lower minimum wage level (15–17 and 65+), younger workers (18–25) and prime-

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10 Pensions violations are heavily tied up with contract violations: two-thirds of the workers without contracts do not have pensions either, compared to only 6 per cent for those with contracts.
age workers (25–65). Table 3 shows that despite their lower minimum wage, teenagers (15–17) exhibit a higher incidence of minimum wage violation and a greater depth of violation: 32 per cent are paid below the minimum wage and the average deviation is 31 per cent below the minimum, as compared with an overall average shortfall of 25 per cent. Nearly two-thirds of them have neither contract nor pension. Over 9 per cent of these extremely young workers reported working more than the maximum number of hours per week. Overall, nearly 80 per cent of these teenagers are subject to some form of labour standards violation. Workers aged 18–25 are more like their older counterparts than teenagers, although they too experience a higher incidence of labour standards violations than prime-age workers. They have a higher incidence of minimum wage violations and a greater depth of violation. Prime-age workers are also 10 percentage points more likely to have a pension than younger workers.

We also find interesting results for older workers. Since 65 is the standard retirement age in Chile, selection into the labour market for those over 65 is likely to be different from what it is at other ages. This is borne out by the data. While only 15 per cent of prime-age workers do not have pensions, nearly 40 per cent of workers who are still employed after 65 do not have pensions. This suggests that workers without pension coverage stay employed longer. They are also much more likely not to have a contract. Conversely, these workers are also the least likely to face minimum wage violations (only 16.5 per cent of these workers were underpaid); however, the depth of violation is almost

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11 This is likely to be partly attributable to the fact that older workers have a lower minimum wage than prime-age workers.
as high as for teenagers: those of them who are paid below the minimum wage make on average 30 per cent less than the already discounted minimum wage. Older workers are also much more likely than prime-age workers to incur at least one violation, with 57 per cent of older workers affected versus only 35 per cent of prime-age workers.

Panel B of table 3 presents the measures of violation by sex. The results are very similar: about 20 per cent of both men and women are paid below the minimum wage and the depth of violation is almost identical. The strongest difference is that women are less likely to work more than the maximum number of hours, partly because they are more likely to be part-time workers.\textsuperscript{12} We show below, however, that after controlling for education, women are more likely to suffer labour law violations.

The results for education are the most striking: workers with more years of schooling are less likely to be subject to labour standards violations. Figures 2 and 3 show the relationships between years of education and minimum

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline
 & Minimum wage violations & & & Hours & & & & & \\
 & $V_0$ & $V_1$ & $V_2$ & $V_1/V_0$ & No contract & No pension & Any violation & \\
\hline
\textbf{Panel A – Age} & & & & & & & & & \\
15–17 & 32.47 & 0.1014 & 0.0499 & 31.22 & 9.34 & 59.49 & 65.05 & 79.27 & \\
18–25 & 24.26 & 0.0588 & 0.0238 & 24.24 & 7.95 & 24.87 & 23.67 & 46.28 & \\
25–65 & 17.10 & 0.0411 & 0.0161 & 24.02 & 9.05 & 16.93 & 14.64 & 35.02 & \\
65+ & 16.46 & 0.0489 & 0.0231 & 29.68 & 8.62 & 34.88 & 38.57 & 57.30 & \\
\hline
\textbf{Panel B – Sex} & & & & & & & & & \\
Male & 18.72 & 0.0453 & 0.0181 & 24.18 & 10.46 & 19.48 & 17.35 & 39.03 & \\
Female & 18.05 & 0.0439 & 0.0175 & 24.35 & 5.54 & 17.79 & 16.22 & 34.95 & \\
\hline
\textbf{Panel C – Education} & & & & & & & & & \\
<8 years & 34.46 & 0.0921 & 0.0392 & 26.73 & 10.00 & 31.67 & 30.05 & 57.45 & \\
8–12 years & 25.68 & 0.0610 & 0.0237 & 23.76 & 11.22 & 24.16 & 21.90 & 47.80 & \\
12–16 years & 13.60 & 0.0299 & 0.0112 & 21.95 & 8.38 & 14.40 & 12.25 & 31.11 & \\
16+ years & 2.44 & 0.0061 & 0.0025 & 25.11 & 5.19 & 8.44 & 7.15 & 17.30 & \\
\hline
\textbf{Panel D – Immigration status} & & & & & & & & & \\
Native & 22.44 & 0.0544 & 0.0221 & 24.24 & 9.32 & 18.28 & 11.39 & 39.15 & \\
Foreign Born & 15.58 & 0.0370 & 0.0137 & 23.75 & 10.85 & 17.87 & 12.40 & 38.17 & \\
\hline
\textbf{Panel E – Ethnicity} & & & & & & & & & \\
Non indigenous & 20.16 & 0.0479 & 0.0187 & 23.75 & 8.42 & 18.86 & 14.96 & 37.72 & \\
Indigenous & 31.32 & 0.0809 & 0.0337 & 25.82 & 9.70 & 21.94 & 18.06 & 48.06 & \\
\hline
\end{tabular}
\caption{Labour law violations by worker characteristics}
\end{table}

Note: Due to data limitations, immigration status is based on years 2006 and 2009 only, and ethnicity is based on years 1996, 2000, 2003 and 2009 only.

\textsuperscript{12} In Argentina also, the extent of minimum wage violation is almost identical for men and women, while hours violations are more prevalent among men (Ronconi, 2010).
wage and contract violations, respectively. The incidence of violations clearly slopes downwards as education increases.

This pattern is also reflected in Panel C of table 3. Workers with very low educational attainment (fewer than 8 years) have a much higher incidence of minimum wage, contract and pension violations than any of the other educational categories, and a greater depth of minimum wage violation. Among
workers with more than 16 years of education, minimum wage violations are almost non-existent (3 per cent), and the incidence of pension and contract violations is also low compared to the population as a whole.

Finally, the incidence of violations also varies by national origin and ethnicity. Panels D and E of table 3 show that the ethnically indigenous population is less likely than the non-indigenous population to enjoy any of the legally mandated entitlements. The difference is particularly large in regard to minimum wage compliance, with 31 per cent of violations among indigenous workers as against 20 per cent among the rest. The simple difference by country of birth suggests that foreign-born workers are less likely to experience violations than native citizens, but we show below that this difference reverses after controlling for education and other factors.

**Firm characteristics**

We look at two dimensions of firm characteristics, namely, firm size and industry. As shown in table 4 (panel A), the nature and incidence of violations differ greatly across industries. In agriculture, 40 per cent of workers are paid below the minimum wage as compared with only 6 per cent of those in mining. Agricultural workers generally display the highest incidence of violations across categories, with 36 per cent working without contracts and 33 per cent without pensions. Overall, 63 per cent of agricultural workers are subject to some form of labour law violation. Construction also has above-average levels of violations, with 41 per cent of workers subject to a violation.

Violations also differ by firm size. Small firms have a higher incidence of violation across all four labour standards: 47 per cent of their workers incur violation of at least one standard. The difference is most notable for pensions and contracts. Workers in small firms are over twice as likely not to have a contract or pension as workers in medium-sized and large firms. However, there appears to be very little difference in the incidence of violation between

<table>
<thead>
<tr>
<th>Panel A – Industry</th>
<th>Minimum wage violations</th>
<th>Hours</th>
<th>No contract</th>
<th>No pension</th>
<th>Any violation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$V_i$</td>
<td>$V_j$</td>
<td>$V_k$</td>
<td>$V_l$</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>39.90</td>
<td>0.1060</td>
<td>0.0454</td>
<td>26.57</td>
<td>8.90</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>15.30</td>
<td>0.0332</td>
<td>0.0123</td>
<td>21.73</td>
<td>7.50</td>
</tr>
<tr>
<td>Mining</td>
<td>6.10</td>
<td>0.0156</td>
<td>0.0065</td>
<td>25.50</td>
<td>12.10</td>
</tr>
<tr>
<td>Construction</td>
<td>16.60</td>
<td>0.0378</td>
<td>0.0145</td>
<td>22.75</td>
<td>9.30</td>
</tr>
<tr>
<td>Services</td>
<td>12.40</td>
<td>0.0521</td>
<td>0.0113</td>
<td>41.99</td>
<td>5.80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B – Size (No. of employees)</th>
<th>Minimum wage violations</th>
<th>Hours</th>
<th>No contract</th>
<th>No pension</th>
<th>Any violation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 49</td>
<td>23.36</td>
<td>0.0591</td>
<td>0.0241</td>
<td>25.30</td>
<td>9.53</td>
</tr>
<tr>
<td>50 to 199</td>
<td>14.08</td>
<td>0.0307</td>
<td>0.0115</td>
<td>21.82</td>
<td>7.71</td>
</tr>
<tr>
<td>200 or more</td>
<td>13.32</td>
<td>0.0303</td>
<td>0.0116</td>
<td>22.71</td>
<td>8.40</td>
</tr>
</tbody>
</table>
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large and medium-sized firms (see panel B of table 4). The firm size categories are based on the rules governing fines for violations of labour standards. Larger firms are subject to harsher penalties if they are found to be in violation of labour law.

Geography

As shown in table 5, the incidence of violation differs widely between urban and rural areas: 39 per cent of rural workers are paid below the minimum wage compared with 16 per cent of urban workers; and the depth and severity of violation are higher for rural workers. Rural workers are also twice as likely as urban workers not to have a contract or pension. This pattern may partly be a reflection of industrial differences between urban and rural areas, since agricultural workers exhibit the highest incidence of violations.

There are also regional differences in violations. The highest incidence of minimum wage violations is observed in the regions in the middle of the country, which are more agricultural (excluding Santiago and Valparaiso which are more industrial), while the lowest are observed in the northern and southern regions, which are less populated. The incidence of minimum wage violations ranges from 11 per cent in the southernmost region of Magallanes

<table>
<thead>
<tr>
<th>Table 5. Labour violations by geographical location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum wage violations</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Panel A - Region</td>
</tr>
<tr>
<td>1. Tarapacá</td>
</tr>
<tr>
<td>2. Antofagasta</td>
</tr>
<tr>
<td>3. Atacama</td>
</tr>
<tr>
<td>4. Coquimbo</td>
</tr>
<tr>
<td>5. Valparaíso</td>
</tr>
<tr>
<td>6. O’Higgins</td>
</tr>
<tr>
<td>7. Maule</td>
</tr>
<tr>
<td>8. Bío Bío</td>
</tr>
<tr>
<td>9. La Araucanía</td>
</tr>
<tr>
<td>10. Los Lagos</td>
</tr>
<tr>
<td>11. Aysén</td>
</tr>
<tr>
<td>12. Magallanes</td>
</tr>
<tr>
<td>13. Región Metropolitana</td>
</tr>
<tr>
<td>14. Los Ríos</td>
</tr>
<tr>
<td>15. Arica y Parinacota</td>
</tr>
<tr>
<td>Panel B - Urban/Rural</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

Note: Regions 14 and 15 are only administrative divisions in the 2009 data.
to 32 per cent in the agricultural region of Maule in the middle of the country. Santiago has some of the lowest levels of violations, with only 11.5 per cent of workers paid below the minimum wage, 16 per cent without contracts, and 15 per cent without pensions. The incidence of violation is also lower in the north of Chile, where mining and manufacturing are more important industries. Finally, the region of Los Lagos, where most of the country’s fish farming industry is located, has some of the highest levels of violation, with 30 per cent of workers paid below the minimum wage and 21 per cent working without contracts. This region also has the second highest incidence of hours violations in the country.

**Econometric evidence**

The previous sections descriptively presented simple differences in the extent of labour law violations across worker and firm categories and geographical regions. In this section, we compute correlations controlling for the other variables. We estimate the following equation using the pooled sample:

$$LV_i = \beta X_i + \delta Z_i + \epsilon_i$$

where $LV$ (*Labour Violation*) is equal to 1 if worker $i$ does not enjoy at least one of the four entitlements (i.e. minimum wage, pension, contract and hours) and 0 otherwise; $X$ is a vector of the worker’s characteristics that includes age, age-squared, sex, years of schooling, ethnicity, and nationality; and $Z$ is a vector of the characteristics of the firm employing worker $i$, namely, size, geographic location, and industry.

The results are presented in table 6. In column 1, we only include age, sex, and years of education; in column 2, we add nationality and ethnicity; and in column 3, we add firm size and a set of dummies for region, industry, and rural sector. All models include year dummies and are estimated using a probit model. We report the marginal effects (dF/dx).

The econometric results tend to confirm the evidence based on the simple differences described above. Indigenous and less educated workers are more likely to suffer a violation of their labour rights, after controlling for other determinants. The strength of the effects is substantial: an additional year of schooling reduces the probability of a labour law violation by approximately 8 per cent, and indigenous workers are between 8 and 10 per cent more likely to suffer a violation. By contrast, differences by sex and national origin appear to be relevant in the econometric results but not in the descriptive analysis based on simple differences. After controlling for education and other factors, women are approximately 10 per cent less likely to enjoy their statutory entitlements than men, while immigrants are 15 per cent more likely to suffer a labour violation than natives.\(^\text{13}\)

\(^{13}\) Similar results are obtained for each component of the overall measure of labour law violations. These results are available from the authors upon request.
Conclusion

This article has taken a first look at the extent and pattern of labour law violations in Chile over the period 1990–2009. It has found a rising trend in violations from 1990 until 2006, when the trend was checked sharply and government enforcement improved significantly. Despite the recent improvement, however, one-third of workers are still excluded from at least one of the four legally mandated entitlements considered in our analysis (namely, a written contract, minimum wage, maximum hours and pension coverage).

While violations have been relatively minor in regard to hours of work, they have been significant for minimum wages, having a contract and pension arrangements. There are also significant regional variations around national averages – for example, the average incidence of minimum wage violation is around 20 per cent but the range goes from 12 per cent in Santiago to 33 per cent in Maule and agricultural regions.

Smaller firms, which face lower fines and could be harder to reach by the enforcement agency, have higher rates of labour law violation. Compliance is also lower among women, foreign born, indigenous, and less educated workers.

These trends and patterns raise a number of research and policy questions. A key issue, which bridges research and policy, is how enforcement can change the degree of compliance. There are some suggestions in the literature that enforcement can indeed improve compliance, but econometric difficulties in controlling for the endogeneity of resource allocation for enforcement make

Table 6. Labour law violations and worker characteristics

<table>
<thead>
<tr>
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<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schooling</td>
<td>−0.102***</td>
<td>−0.094***</td>
<td>−0.075***</td>
</tr>
<tr>
<td></td>
<td>(0.0010)</td>
<td>(0.0021)</td>
<td>(0.0023)</td>
</tr>
<tr>
<td>Age</td>
<td>−0.064***</td>
<td>−0.048***</td>
<td>−0.050***</td>
</tr>
<tr>
<td></td>
<td>(0.0017)</td>
<td>(0.0034)</td>
<td>(0.0035)</td>
</tr>
<tr>
<td>Age squared</td>
<td>0.0006***</td>
<td>0.0005***</td>
<td>0.0006***</td>
</tr>
<tr>
<td></td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
</tr>
<tr>
<td>Female</td>
<td>0.047***</td>
<td>0.084***</td>
<td>0.085***</td>
</tr>
<tr>
<td></td>
<td>(0.0079)</td>
<td>(0.0147)</td>
<td>(0.0164)</td>
</tr>
<tr>
<td>Foreign born</td>
<td>—</td>
<td>0.152*</td>
<td>0.155*</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>(0.0837)</td>
<td>(0.0888)</td>
</tr>
<tr>
<td>Indigenous</td>
<td>—</td>
<td>0.101***</td>
<td>0.080***</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>(0.0262)</td>
<td>(0.0275)</td>
</tr>
<tr>
<td>N</td>
<td>390,896</td>
<td>120,645</td>
<td>120,645</td>
</tr>
<tr>
<td>pseudo R2</td>
<td>0.082</td>
<td>0.069</td>
<td>0.093</td>
</tr>
</tbody>
</table>

***, ** and * indicate significance at the 1, 5, and 10 per cent levels.

Notes: The dependent variable is the overall measure of labour violations. All models include year dummies. Column 3 also includes firm size, region, industry and rural dummies. Robust standard errors are in parentheses.
this a challenging identification problem. In addition to enforcement, variations in compliance across worker characteristics, firm characteristics and regional location present a rich and potentially fruitful research agenda.

References


14 Bhorat, Kanbur and Mayet (2012b) and Ronconi (2010) compute two-stage least squares estimates of the effects of enforcement on compliance in South Africa and Argentina using, respectively, the number of non-inspectors and election years as instrumental variables for labour law enforcement.