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ARTICLE

# Fear of Labor Rigidities: The Role of Expectations on Employment Growth in Peru

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## Abstract

The impact of employment protection legislation has been thoroughly analyzed in varied contexts. Most studies highlight the potential harm of the legislation on labor outcomes, although evidence remains inconclusive. However, the literature has focused primarily on ex post impacts, analyzing the regulation's effect after implementation. This article departs from that analysis to focus on anticipated or ex ante effects of labor regulation. More specifically, we study the role of firms' expectations in future stricter labor legislation related to employment and income in Peru's formal and informal labor market. To account for expectations, we used the number of news items related to the approval of a proposed law—the General Labor Law—to increase labor rigidities in Lima's most important business newspaper. Using the Peruvian labor survey, we find a negative but decreasing relationship between firms' expectations of a future stricter labor market and employment and average income. We also collect evidence that bigger news items and ones closer to the front page have a negative relationship with formal employment and income.

**Keywords:** expectations; news; firing cost; unemployment

## Resumen

El impacto de la legislación de protección del empleo ha sido minuciosamente analizado en varios contextos. La mayoría de estos estudios destacan el daño potencial que esta legislación inflige en los resultados laborales, aunque la evidencia sigue sin ser concluyente. Sin embargo, la literatura se ha centrado principalmente en los impactos ex post, analizando el efecto de la regulación una vez que ha sido implementada. Este artículo parte de este análisis para centrarse en los efectos anticipados o ex ante de la regulación laboral. Más específicamente, estudiamos el papel de las expectativas de las empresas hacia una futura legislación laboral más estricta sobre el empleo y los ingresos en el mercado laboral formal e informal peruano. Para dar cuenta de las expectativas, se utilizó el número de noticias relacionadas con la aprobación de un proyecto de ley destinado a aumentar las rigideces laborales, el proyecto de Ley General del Trabajo, en el diario de negocios más importante de Lima. Usando la encuesta laboral peruana, encontramos una relación negativa pero decreciente entre las expectativas de las empresas hacia un futuro mercado laboral más estricto y tanto el empleo como el ingreso promedio. Recopilamos algunas evidencias que respaldan el hecho de que las noticias más importantes y más cercanas a la primera plana tienen una relación negativa con el empleo formal y los ingresos.

**Palabras clave:** expectativas; noticias; costo de despido; desempleo

The role of employment protection legislation (EPL) has been widely studied in the theoretical and empirical literature. Theory provides straightforward predictions of the effect of EPL in the labor market in the medium and long run (e.g., Bertola, 1990; Hopenhayn and Rogerson, 1993). Likewise, most empirical studies emphasize the negative impacts of such regulation on several outcomes for developed and emerging economies.

For instance, several studies of developed economies have shown that stronger employment protections lead to lower productivity growth (Bassanini, Nunziata, and Venn 2008), employment (Micco and Pages 2006; Di Tella and MacCulloch 2005), job turnover (Kugler and Pica 2008; Autor, Kerr, and Kugler 2007), and wages (Leonardi and Pica 2007), as well as higher levels of informality (Lehmann and Muravyev 2012). Similarly, studies of emerging economies also show a negative impact of labor regulation on outcomes such as firm output, employment, and wages (e.g., Heckman and Pages 2000; Besley and Burges 2004; Ahsan and Pages 2009). Furthermore, some studies point to negative impacts of employment protection, particularly for the most vulnerable groups, namely youth, women, and nonnative or nonskilled workers. (For developed countries, see Kahn 2007; Heckman and Pages 2000. For emerging economies, see Montenegro and Pages 2004.)

The vast majority of empirical studies that have examined the role of employment protection regulation have focused on the ex post impact of labor regulation. However, very few studies have explicitly considered the implications of ex ante impacts, that is, consequences even before implementation. In this regard, Garz (2013) found an asymmetrical impact of quantity for news in Germany: negative news coverage translated into more pessimistic unemployment expectations. However, evidence for anticipated impacts in developing economies is less prominent.

In this article, we fill this gap and focus on ex ante impacts of labor regulation. We examine the role of firms' expectations of future stricter labor regulation in the evolution of employment and wages in the Peruvian labor market. The norms incorporated in the General Labor Law proposal are strict because they seek to protect workers against dismissals, thus increasing firing costs for companies. This discourages labor hiring, especially for formal firms, affecting employment and formal employment rates. A law can also have impacts even before it is approved: because workers and firms are rational agents, they might react earlier if they have evidence that strongly supports changes in the future. As a result, media discussions of a law's approval and repercussions can modify firms' expectations, even if the law is never approved. Providing evidence that expectations affect firms' decisions is crucial to better understanding policy making.

Peru is an interesting country to study these effects because it combines some of the strictest labor regulations in Latin America and the Caribbean with a largely informal labor market, characteristic of developing economies in the region. This combination leads to intriguing labor-market outcomes. For instance, more than 95 percent of firms are considered small or microenterprises, usually with fewer than ten workers. More importantly, in 2001, the Peruvian Congress proposed implementing the General Labor Law, intended to increase firing costs, among other labor rigidities. This law was thoroughly discussed in the following years and resonated in the media; however, more than a decade later, it was not approved.

We take advantage of this context in Peru to account for firms' expectations, which we measure by number of news items on the General Labor Law that appeared in Lima's most important business newspaper (*Gestión*). We assume that more news items are positively related to firms' perceptions of a stricter labor market in the future.

The impact of this General Labor Law proposal might have an interesting effect in a country like Peru, which is largely characterized by its informal sector. Literature usually associates informality with lower economic growth. According to Loayza (2007), informality is the distorted response to excessive regulation of an economy, which leads to a suboptimal resource allocation. It shrinks firms' potential not only because it entails

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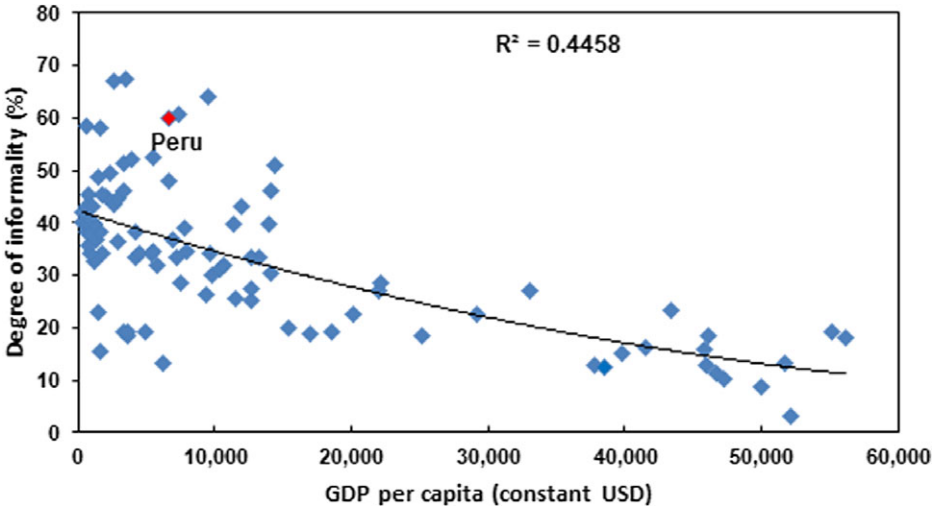


**Figure 1.** Informality and GDP per capita, 2012.

the loss of certain benefits such as police protection, access to loans, or international markets but also because it forces firms to employ extra resources to avoid government monitoring. As a result, informality hinders economic transactions. From a country perspective, informality prevents efficient public policy by presenting policy makers with a distorted image of the country due to misreporting. Figure 1 depicts this negative relation, as countries with higher GDP per capita usually have lower informality rates.

Peru is an interesting case. It has the fifth-highest informality rate, only below Georgia, Bolivia, Panama, and Azerbaijan. However, its per capita gross domestic product (GDP) is significantly higher than in those countries. Peru's level of informality is around 20 percentage points more than its GDP per capita predicts. This context can be mostly explained by its strict labor regulation.

Our empirical analysis uses the Peruvian labor survey (Permanent Employment Survey) and news taken from *Gestión* between 2001 and 2012, when debate over the General Labor Law was most heated. Our data for employment and income is set at a national level, as there is no cross-sectional variability regarding our news variable. We construct three cohort pseudopanels (for gender, age, and educational attainment) to increase our sample size. We use this data to examine the role of firms' expectations on the evolution of formal and informal employment and wages. Our results are representative of metropolitan Lima and the province of Callao, the scope of our two sources of information.

Our conclusions go in the same direction as most literature analyzing ex post impacts. We find that, while firms' expectations of a stricter future labor market do not imply reduced overall employment, they do trigger a shift from formal to informal jobs, which are free from the higher firing costs in the proposed regulation. Our estimates point to a monthly reduction of formal employment between 0.9 percent and 2.2 percent per news item released two months earlier. As for income, we find a negative impact on overall income and a negligible short-term impact on formal wages, which we attribute to the wage rigidities (e.g., contracts) in the formal sector.

Moreover, we find evidence that expectations have a stronger negative impact on employment in periods with low economic growth than in periods of higher growth, although the effect is not robust in our three pseudopanels. Our findings also support the fact that news credibility is decreasing: the impact of an additional news (we defined news as those sections covering the Project Law) item is weaker when there is a large

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quantity of accumulated news from previous months. Finally, we find weak evidence pointing to bigger news and news items closer to the front page having a stronger impact on employment and income.

## Empirical evidence of the impact of EPL

Employment Protection Legislation (EPL) refers to the part of the labor code, current legislation, and norms that focus primarily on hiring and firing workers. They govern all matters related to individual and collective dismissals, severance payments, notice periods, the design of permanent and temporary contracts, and work agencies. In this section, we review some of the main empirical studies on the role of EPL. Even though the effects of regulation are not certain, most of these studies highlight the negative impacts of EPL on several macroeconomic and microeconomic outcomes for developed and emerging economies.

There is consistent evidence that EPL could reduce employment and unemployment turnover. For instance, Autor, Kerr, and Kugler (2007) estimated the impact of a stricter wrongful-discharge protection law (WDP) in the United States, finding a reduction in job turnover and firm entry and exit rates, with a more pronounced effect on capital-intensive sectors. The results obtained by Kugler and Pica (2008) were in the same direction. They examined a 1990 Italian reform that increased firing costs for small firms (especially those with fewer than fifteen workers), finding a decline in permanent accessions and separations for smaller firms. As for unemployment turnover, Bentolila and Bertola (1990) found that EPL caused a more static unemployment pool, with fewer workers entering unemployment and fewer unemployed workers getting jobs.

As for the level of employment, the evidence is more ambiguous. In developed economies, most studies point to a negative impact of EPL (see Nicoletti and Scarpetta 2004; Di Tella and MacCulloch 2005; Micco and Pages 2006). However, other studies (e.g., Kugler and Pica 2008) found a nonsignificant impact of EPL on employment. Evidence for developing economies is equally mixed. On the one hand, evidence from Colombia (Kugler 2004) and Peru (Saavedra and Torero 2000) shows that the substantial reduction in dismissal costs during labor reforms in the 1990s led to higher levels of employment as well as higher accessions and separations for the formal sector, benefiting younger and more educated workers. Similarly, Heckman and Pages (2000), using a cross-country study of Latin American countries, found a negative association between higher firing costs and employment or output. Likewise, Besley and Burges (2004) and Ahsan and Pages (2009) showed that, in India, revisions to make the Industrial Disputes Act (IDA) more flexible were related to higher employment, output, and even wage growth. Conversely, other studies analyzing labor reforms in Chile (Montenegro and Pages 2007) and Brazil (Barros and Corseuil 2001) found nonsignificant relations between EPL and employment.

Impacts on other outcomes have been more thoroughly studied in developed countries. For instance, Bassanini, Nunziata, and Venn (2008) used a cross-country study of Organisation for Economic Co-operation and Development (OECD) countries to find that higher firing costs are closely related to lower productivity growth in industries where EPL is more binding.[1] Similarly, Lehmann and Muravyev (2012) analyzed the relationship between EPL and informality rates in twenty-seven countries in Central Europe and Asia and also twenty-five countries in Latin America, finding that economies with stricter employment protections have higher levels of informality. Moreover, Leonardi and Pica (2007) used the same 1990 Italian reform as Kugler and Pica (2008) to examine impact

[1] An industry was classified as EPL binding if its layoff rate was high compared to other industries.

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on wages, finding that workers in small firms—those affected by stricter regulation—had between 0.7 percent and 1.5 percent less income than employees in big firms.

There is greater agreement in the literature on the heterogeneous impacts of EPL on different demographic groups in developed and emerging countries. Several studies point to stronger negative effects on the younger and female population (on OECD countries, see, e.g., Kahn 2007; Di Tella and MacCulloch 2005; Dolado, Jansen, and Jimeno 2005; on developing countries, see Heckman and Pages 2000; Montenegro and Pages 2004). Moreover, some of these studies also identify a larger impact on nonnative (Kahn, 2007) and low-skilled workers (Montenegro and Pages 2004). Other studies (Grubb and Wells 1993; Bentolila et al. 2010; Costain, Jimeno, and Thomas 2010) found that, for developed economies, EPL encourages temporary over permanent jobs.

The literature presented thus far has examined ex post impacts of EPL, that is, the impact of employment protection regulation once implemented. Studying the ex ante effect of EPL is very challenging, as the data requirements and identification strategy are very strong (we need a source of exogenous variation even before the law is approved). As a result, few studies have focused on this channel, all in developed economies.

Even though their study is not specific to firing costs, Pierre and Scarpetta (2004) examined how firms in OECD perceive labor regulations and react when those perceptions constrain their growth. They draw firms' perceptions from the World Bank Environment Survey and compare responses to actual labor legislation.[2] They found that employer responses are closely related to rigidity of the country's labor regulations. Moreover, results indicate that restrictive legislation most affects medium and large firms, as well as innovative firms. Small firms react by increasing temporary jobs, whereas bigger firms tend to invest more in on-the-job training when firing costs are high.

Studies that have used news to account for expectations are scarce. Ramey (2009) used news to analyze the effectiveness of public spending in the United States. She constructed an index that accounted for news on government spending from 1939 to 2008 to examine effect on consumption and real wages. She found that the timing of news and agents' expectations played a big role in the evolution of macroeconomic aggregates such as GDP, consumption, investment, and wages.[3] Likewise, Soroka (2006), using aggregate-level time-series data for the United Kingdom, analyzed the link between news coverage and real-world economic indicators, and the relationship of the economy, media coverage, and public opinion. On the one hand, an increase in unemployment or inflation has a greater effect on media coverage than a decrease does. On the other hand, increases in negative media content have a significant effect while decreases have no effect (Soroka 2006).

In another relevant study, Hollanders and Vliegenthart (2011) examined the relationship of the real economy, consumer confidence, and economic news coverage in national newspapers for the Netherlands during the period 1990–2009. They found that negative news has real economic consequences for consumer confidence. They suggest that the mechanisms that account for the effect of news coverage on individuals' attitudes and behavior are agenda setting and framing. Agenda setting suggests that the importance people attribute to a particular issue is influenced by the media attention it receives; framing explains that media directly influences people's attitudes and evaluations of an issue by emphasizing certain aspects. Hence, both mechanisms combined predict that focusing on negative aspects of the economy will lead to increased awareness of economic problems and consequently lower confidence.

In a similar study, Jonkman, Boukes, and Vliegenthart (2019) analyzed the link between negative news coverage and consumer confidence across all twenty-eight European Union

[2] More specifically, "Please judge on a four point scale how problematic are these different regulatory areas for the operation and growth of your business (Please do not select more than 4 obstacles)."

[3] Ramey (2009) used primarily military expenditure in her analysis.

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member states for the period 2005–2017. They demonstrated that negative news coverage is negatively associated with consumer confidence. Compared to previous researchers, they explained their results with the media system dependency theory, defined as "a relationship in which the capacity of individuals to attain their goals is contingent upon the information resources in the media system" (Ball-Rokeach 1985, 487). Thus, as the media is the only source of information available for a topic, people become more dependent on and more affected by it.

In the labor-market field, Garz (2012) investigated the impact of media coverage on individual perceptions of job insecurity in Germany, finding that perceptions increase in years with more news reporting. He also grounded results in media dependency theory. Subsequently, Garz (2013) examined the link between economic news coverage and pessimism in German unemployment expectations, working with monthly series from 2001 to 2009. Taking an extraordinarily large quantity of news from Media Tenor International and unemployment expectations from the European Business and Consumer Surveys, he found that, even though news items do not seem to have an impact in the short run, the cumulative effect of repeated news can affect long-term behavior. Moreover, Garz (2013) obtained a quantity-driven asymmetrical reaction in unemployment expectations, as the number of negative news items was substantially greater than positive news.

There is evidence that expectations can play an important role with real impact on the economy. In this article, we go one step beyond Garz (2013) and establish a link not only between news and expectations but also between employment and income. Thus, we fill this gap by studying the relationship of expectations on employment and income via news coverage of a proposed law that, though never approved, was thoroughly discussed and had a great impact on media.

## The General Labor Law proposal

Congress first proposed the General Labor Law in March 2001. There were then three major milestones up to 2012. The first draft was discussed in 152 congressional sessions between 2002 and 2005, when 72 percent of the 468 items in the law were approved. In 2006, another debate took place to discuss the remaining 131 items. However, this discussion was unsuccessful, and the proposal became less relevant in the following years. However, the debate was reactivated in 2011, when the executive power transferred the bill to a council of experts for a cost-benefit analysis. At the same time, Congress's Working Committee, created in 2001, took advantage of the momentum to resurrect the proposal.

By 2012, 85 percent of the proposal's articles were approved, but the remaining 15 percent were generating strong debate between business associations and union power. These disagreements centered on four key points: increased compensation for unfair dismissal, reduced types and shorter duration of temporary contracts, the high cost of incorporation as a cause of wrongful dismissal cases referred to the Constitutional Court, and the establishment of compensation for collective dismissal for economic or technological reasons.

The current labor scheme sets compensation for unfair dismissal to forty-five days per year of service (pys), restricting the maximum severance pay to twelve salaries. Conversely, the General Labor Law proposed increasing that compensation as follows: forty-five days pys for the first eight years, then thirty days pys for the next four years, and fifteen days pys for the last four years, setting the maximum severance pay to eighteen salaries. As for temporary jobs, in the current system there are nine types of temporary contracts with a maximum length of sixty months, whereas Congress proposed a reduction in contract types and duration, down to six types and twenty-four months, respectively.

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The third point that caused controversy was the possibility of incorporating workers' unjustified cases, determined by the Constitutional Court, as groundless dismissal, fraudulent, and against fundamental rights. This would mean giving workers jobs and wages during court proceedings even while they were not working during that period. Finally, the General Labor Law proposed establishing severance pay for collective dismissal for economic or technological reasons following the structure of twenty-two days pys for the first eight years, ten days pys for the next four years, and seven days pys for the last four years. Overall, the General Labor Law was intended to protect workers from dismissal by increasing firms' firing costs. This would discourage labor hiring, especially for formal companies, and affect employment and formality rates.

In this context, news is fundamental to capturing an ex ante association between the proposed law regardless of its approval and employment and wages; it gives evidence of stricter future labor regulation that could change employers' behavior. Taking into account media dependency theory and agenda setting and framing, this could be because the information transmitted by news media affects employers' perceptions more extensively and increases their awareness of this issue.

## Data description

We use two sources of information. Labor-market indicators and worker characteristics were taken from the Permanent Employment Survey (EPE), Peru's monthly labor survey. We use the Peruvian newspaper *Gestión* to construct our "expectations index," based on the monthly news items related to the proposed General Labor Law published during our estimation sample (2001–2012). The main scope of both sources of information is metropolitan Lima and the province of Callao, so our results are representative of these regions only.

### *News data: The expectations index*

To account for firms' expectations, we use the monthly news items related to the General Labor Law in the local business newspaper *Gestión*, from January 2001 to May 2012. The General Labor Law proposal, first developed in 2001, was never approved but continued to resonate as late as a decade later. To analyze this proposal's role in the evolution of Lima's employment and income in the 2001–2012 period, we approached it via firms' expectations. Namely, we built an expectations index that captures firms' expectations regarding the likelihood of the proposed legislation's approval and, in turn, the likelihood of stricter future hiring and firing legislation based on news. We rely on the reasonable assumption that more news items are positively related to firms' perceptions of a stricter future labor market. These news items were prompted by various members of the Work and Social Security Committee, organizations such as the Labor Ministry, the National Labor Council, the International Labour Organization (ILO), the Confederation of Private Business Institutions (known as CONFIEP), and the Lima Chamber of Commerce (CCL).

We decided to work with *Gestión* because it is Lima's main economic and business newspaper. It has a trajectory of twenty-two years and belongs to *El Comercio*, the leading newspaper business in the country. Furthermore, *Gestión* was the second most read newspaper during our sample period, according to the XI Annual Executives Survey executed by the Lima Chamber of Commerce in November 2011, only behind *El Comercio*. We must consider that *Gestión* is mostly read by businesspeople in the formal sector, which means that any effect we capture may be attributed to that. Although *Gestión* is not a neutral news provider, using news from other newspapers is not likely to change the result. Both

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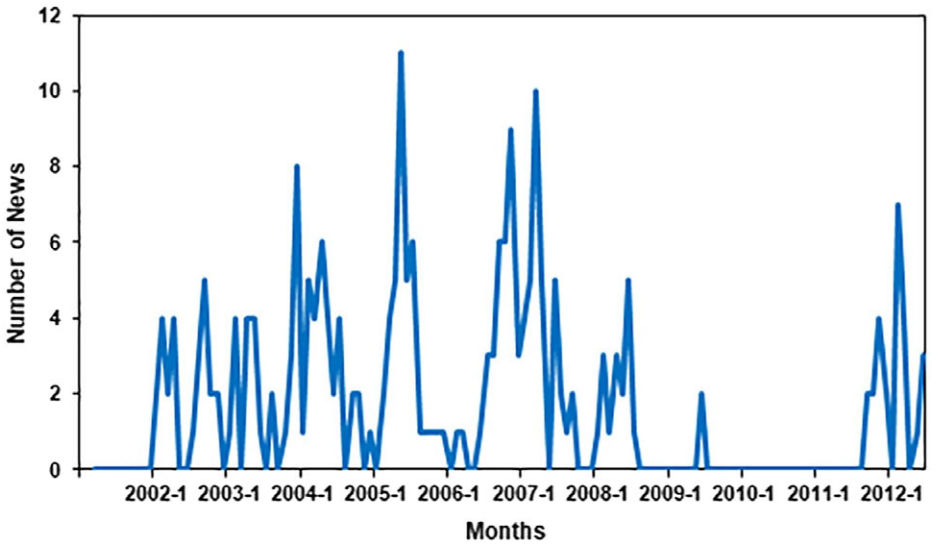


**Figure 2.** Expectations Index, 2001–2012.

*El Comercio* and *Gestión*, the most read newspapers by firms according to the survey, belong to the same editorial group. Hence, most firms perceive the negative positions regarding the General Labor Law proposal in any case. On the other hand, another nonneutral newspaper that might be in favor of the proposal could be *La República*. However, according to the survey, only 8 percent of companies in Lima subscribe to it. Moreover, even if the news favors the proposal, the labor demand (e.g., firms) will perceive it as something negative. Although there may be nonlinearities in the news (qualified as positive, negative, or neutral), our objective is not to look for asymmetries but to estimate the association between approval of the General Labor Law and employment and wages by approximating reaction via number of news items.

The aforementioned General Labor Law was first proposed around the last quarter of 2001, when an active discussion had emerged on potential benefits and damages. On the one hand, those in favor argued that the law could protect employees from unjustified layoffs; detractors claimed that a rise in firing costs could discourage firms from hiring native workers and even affect firms' investments. This law was the center of debate regarding labor regulation for almost six years, until 2007. After this year, the relevance of this law slowly decreased until it had fallen off the political spectrum. However, in early 2011, the proposal was renewed, coinciding with the presidential and congressional elections. This evolution can be captured in the expectations index (Figure 2).

An important point to take into account is that during our estimation period, two presidential elections took place: April 2006 and April 2011. During these elections, labor regulation, particularly the General Labor Law, was a topic of great controversy, often addressed by candidates and media. This positive relation between news and the political cycle is shown in Figure 2: the number of news items in months closer to the elections (before and after) is usually higher than in other periods. This is something we must deal with, and we explain this in our estimation strategy.

### *Permanent Employment Survey (EPE)*

The Permanent Employment Survey (from now on, EPE, in Spanish) is the Peruvian labor survey administrated by the National Statistics Office (INEI) since March 2001. It provides

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monthly labor indicators and basic household and individual characteristics, presented on a moving quarter basis—hence, the first moving quarter is January–March 2001. The survey is representative of only metropolitan Lima and the province of Callao, accounting for forty-nine predominantly urban districts, covering up to almost 20,000 households annually and quarterly around 4,500 households.

Even though the labor survey is not nationally representative, we decided to use it instead of the National Household Survey (ENAHO, in Spanish) because it provides more detailed information, allowing for better tracking of the labor-market performance. Moreover, the labor survey's data is monthly rather than ENAHO's quarterly information for some regions, which better fits our monthly expectations index. Moreover, the news index was taken from the main business newspaper in Lima, so information specific to the region was a better fit than national information, especially taking into account the substantial differences between Lima and other Peruvian regions in terms of development and economic activity.

Overall, there are fifty-six questions in the questionnaire on household characteristics (twelve questions), individual employment and income (twenty-six questions), and household income such as occupational wages (eighteen questions). Respondents are family members, domestic workers who live in the household, and people in the household during the previous thirty days older than fourteen years old. This survey offers the possibility to obtain aggregated indicators of economically active population (EAP), occupied EAP, average income or number of hours worked, among other labor variables, by both firm and individual characteristics.

We use this survey primarily to retrieve individuals' occupational status and income information. We also aim to differentiate the expectation's impact on formal and informal employment. For this purpose, we developed a definition of formality based on enrollment in health insurance. We defined a worker as formal if he or she was enrolled in public health insurance (ESSALUD) or private health insurance.

Our working sample matches our expectations index from January–March 2001 to June–August 2012. However, two issues should be mentioned. First, income information was not collected until January–March 2003. Second, the period from October–December 2006 to December–February 2007 was not considered in our estimations because we did not have enough information regarding health insurance enrollment, which prevented our identification of formal and informal employment. According to the National Statistics Office (INEI), during the moving quarter October–December 2016, there was an intention to replace EPE for another survey, which meant a change in the questionnaire. Nevertheless, this attempt was not successful, so they returned to EPE. However, INEI advised us not to use enrollment in health insurance for the next two moving quarters, until December–February 2017. As a result, the final number of moving quarters available was 133 and 113 for employment and income, respectively.

### *Descriptive analysis*

A very simple and preliminary analysis of the relationship between employment and income and the expectations index already reveals evidence of their relationship. Figure 3 shows the evolution of the expectations index together with occupied EAP or average income. Despite substantial economic growth in the Peruvian economy during that decade, it appears that periods of higher news are the ones with lower employment levels and, to a lesser extent, income. For instance, when there is almost no news, occupied EAP and income show greater growth despite effects of the global financial crisis (Table 1).

Table 1 also suggests there may be significant differences in periods with higher than lower news. The period with more news (2001–2003 to 2006–2010) shows lower levels of

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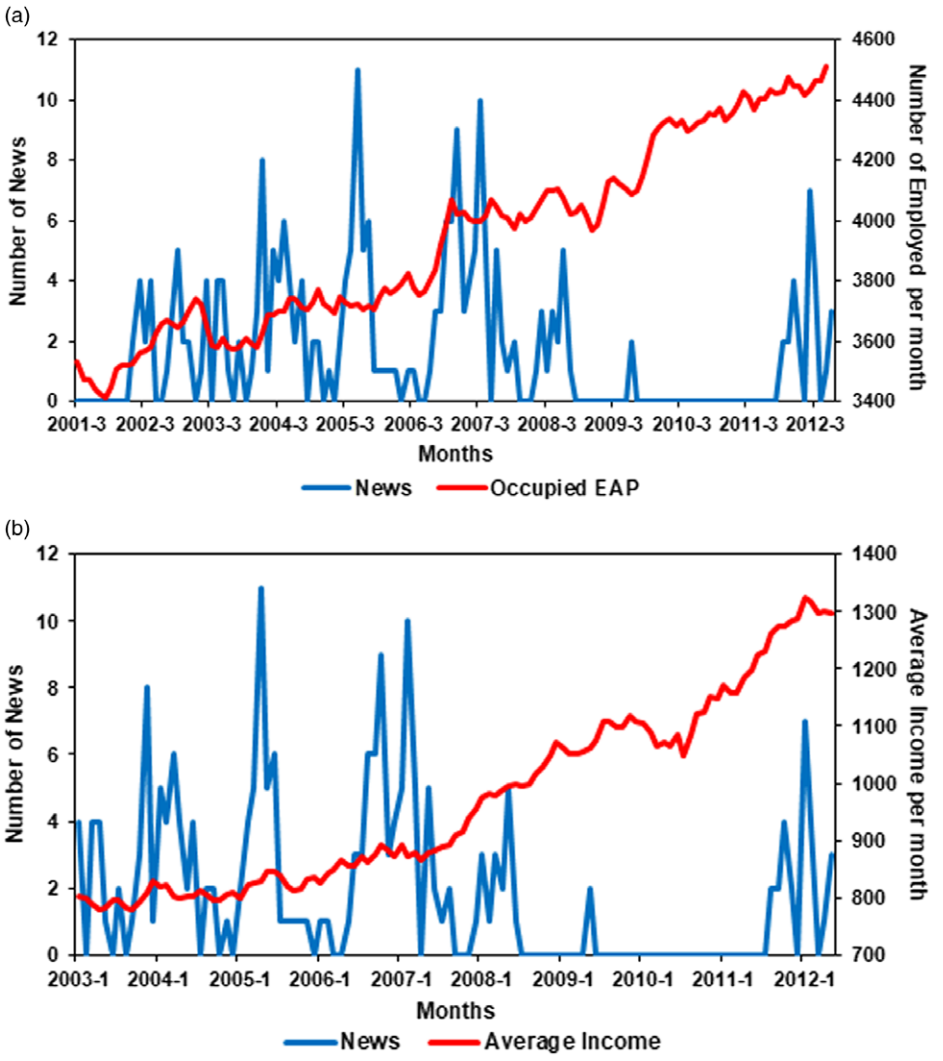


**Figure 3.** Relation of expectations index and key variables. (a) Expectations index and occupied EAP. (b) Expectations index and average income.

employment and income than the period with less news (2007–2011 to 2012–2015). Interestingly, there is a higher correlation if we restrict analysis to formal employment and income. Namely, firm expectations about the proposal's approval could partially explain the evolution of employment and income between 2001 and 2012.

## Estimation strategy

As the General Labor Law proposal was never approved, it is impossible to identify its direct impact on employment and income, as most of the literature does. However, approaching firm expectations through the news index allows us to capture an indirect or ex ante impact regardless of the law's approval. Employer behavior (e.g., hiring, firing, investments) is highly dependable on perceptions of the labor market—in this case, how strict a market is. Each firm would act very differently in a country where employment

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**Table 1.** Sample characteristics

| Full Sample (1): 2001-3 to 2012-5 | | 2001-3 to 2006-10 (2) | 2007-11 to 2012-15 (3) |
|---|---|---|---|
| Occupied EAP | 3940.09 | 3664.103 | 4220.26 |
| | (316.39) | (115.80) | (177.35) |
| Average Income | 976.55 | 818.64 | 1084.22 |
| | (165.91) | (25.86) | (130.76) |
| Formal Occupied EAP | 1170.14 | 959.74 | 1383.74 |
| | (252.05) | (24.69) | (190.88) |
| Formal Average Income | 1121.304 | 977.12 | 1267.68 |
| | (171.63) | (56.83) | (115.54) |
| Expectations Index | 1.61 | 2.05 | 1.17 |
| | (2.19) | (2.23) | (2.03) |

*Source*: EPE and Gestión.
*Note*: No information is presented from October–December 2006 to December–February 2007. Column 2 covers the period in which the expectations index is different from 0 in each month (2.05 news per month, on average); Column 3 covers a period with significantly less news (1.17 news per month, on average).

protection is high relative to a country with weaker regulation or enforcement. In this regard, the media plays a key role in forming these perceptions. News pointing to stricter or looser future labor regulations could have an important effect on firm expectations and, in turn, on their hiring and firing and investment decisions, which could also be reflected in employment or informality rates, especially for big firms. We aim to capture this transmission channel by using the expectations index.

As seen in the previous section, there seems to be a negative relationship between news index and employment and income. However, a more rigorous analysis is needed to measure accurately the extent to which expectations of a stricter future labor market played a role in Lima in the previous ten years.

Nevertheless, we have several data limitations. First, we decided to work with aggregates of employment and income because our news index did not have individual variation, which left us with 133 observations for employment and 113 for income (one for each available moving quarter in EPE). To overcome this problem, we decided to work with cohort pseudopanels to increase our available observations. We selected three pseudopanels to check the robustness of our results: by gender ($N = 2$), by age ($N = 3$), and by education level ($N = 4$). We also tried with a panel by economic sectors (construction, manufacturing, services, and commerce, which represent almost 90 percent of employment in Lima), but results were unsatisfactory. The categories for each panel were the following. For the gender panel, we use men and women. For the age panel, data allowed us to analyze only employees age 14–24 years (young workers), age 25–44 years (medium workers), and older than 45 years (older workers). Finally, for the education panel, the four (mutually exclusive) groups were workers with at most a primary education, workers with at most secondary education (but more than primary), workers with at most nonuniversity superior studies, and workers with some university studies.

Our dependent variables were employment and income. We measured employment as the aggregate number of occupied workers and income as the average income in each moving quarter. As we distinguish formal from informal employment, we have four dependent variables: occupied EAP, formal occupied EAP, average income, and formal average income.

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To ensure the robustness of our estimations, we included some control variables. Because employment and average income are determined as a supply-demand equilibrium, a labor supply shock is needed to identify the real effect of firm expectations—captured by news—in their hiring and firing decisions. We used two supply shocks: the monthly stock of universities and population. The former captures the growth of skilled labor and can be understood as a proxy of graduation rate. On the other hand, population accounts for growth in labor supply. Unfortunately, this variable was available only annually, and we lacked data for all categories for the education panel, so we used the same aggregate for each one. As a third covariate, we included GDP (millions of 1994 nuevo soles) to control for the employment and income growth driven by Peru's economic growth.

Finally, we control for the Peruvian presidential cycle. The aforementioned similarity between presidential elections and the expectations index might prevent accurate identification of the correlations between news and labor-market outcomes. To be sure that the expectations index captures the effect of news and is not driven by the political context, we included a variable that accounts for this electoral period.

In Peru, presidential elections have two stages. First, there is an election in April, when the two candidates with the most votes qualify for the next stage. The second stage is another election in June of the same year. The elected president is the candidate with more than 50 percent of the votes.[4] Taking into consideration this election system, we created a dummy variable that takes the value of 1 for three months before and after the 2006 and 2011 presidential elections: from January to September 2006 and from January to September 2011.

Taking all this into consideration, our baseline model is as follows:

$$Y_{it} = \beta_0 + \sum_{j=0}^{3} \beta_j News_{t-j} + \lambda elec_t + X_{it}\gamma + \sum_{j=2}^{12} \delta_j m_{jt} + e_{it} \quad (1)$$

where $Y_{it}$ is the natural logarithm of the dependent variable (whether aggregate employment or average income) of cohort $i$ (according to each panel) in moving quarter t, $News_t$ is the expectations index in period $t$, $elec_t$ is the variable that captures the election cycle, and $X_{it}$ indicates the control variables: GDP, the number of universities and population according to the corresponding panel category (note that the expectations index does not have the $i$ suffix, as it does not vary for each panel category). We also included monthly fixed effects in all the specifications, captured by the $m_{jt}$ dummy variables, indicating whether the observation in period $t$ is in month $j$.

In this model, our parameter of interest is $\beta_j$. We assume that more news feeds firms' perceptions of stricter future labor regulation; that is, news and perceptions are positively related. As a consequence, a negative estimate for $\beta_j$ means that stronger firm expectations hinder employment and income; this would confirm the ex ante negative relationship with the General Labor Law and its approval.

We decided to include lags of the expectations index because firms might not react in the same month that news is released if it takes time to absorb enough evidence of a future change in the labor market and react. Thus, we allow for a reaction in aggregate employment even three months later. We estimated the model using panel fixed effects to identify the expectations effect.[5]

Finally, even though we denote news and the dependent variable with the suffix $t$, we must clarify what this $t$ means for the expectations index in terms of the dependent

[4] Strictly speaking, this is not necessarily true; according to Peruvian regulations, if one candidate manages to get more than 50 percent of votes, he or she is declared winner. However, this was not the situation in the 2006 and 2011 elections.

[5] It is worth noting that our expectations index does not have cross-section variability, so the marginal help of a bigger $N$ in terms of identification would be small, but it would help in terms of efficiency.

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variable. The contemporaneous value of the expectations index is that of the previous month relative to the first month of the moving quarter of the dependent quarters. That is, the contemporaneous value of the expectations index is lagged one month to aggregated employment and average income. For example, if the *t* of the dependent variable is the moving quarter February–April 2012, the contemporaneous value of the expectations index ($News_t$) is that of January 2012. In the same way, one lag of the expectations index ($News_{t-1}$) is the value for December 2011, and so on.

## Results

We analyzed the association between expectations and both formal and informal employment and average income. Our results point to a negative relation between the number of news items related to potential approval of the General Labor Law and aggregated employment as well as labor income. However, the impact differs according to formality, affecting formal jobs and wages more than informal ones.

For employment, the estimations reveal that expectations of a stricter future labor market have a strong negative relationship primarily with formal employment, whereas for overall employment—which includes both formal and informal jobs—the association is not statistically significant. For instance, Table 2 shows the results of the general model for the gender panel. As can be seen, news has a significant negative correlation with formal employment and no association with overall employment. This finding remains robust for the age and education panel (see supplementary file).

The explanation of this result can be attributed to a *substitution effect* between formal and informal employment. The nonsignificant relationship between news and overall employment and its negative association with formal jobs means that, even though expectations do not undermine the number of total jobs (formal and informal) in the labor market, they shrink formal employment, thereby increasing informal jobs. That is, expectations regarding a stricter labor market affect mostly formal workers who are forced (or encouraged) to migrate to the informal sector, where laws usually do not have an effect because of lack of enforcement.[6]

To understand the timing and magnitude of the estimated impact, recall that the contemporaneous value of the expectations index is lagged one month to aggregated employment and average income. So, using the gender panel in Table 2, our estimates should be interpreted as follows: one more news item related to the approval of the General Labor Law in month t − 1 ($News_t$) implies an average reduction in formal employment of about 0.47 percent in the moving quarter t, t + 1, t + 2 in each category—in this case, for each of the two genders. Analogously, if a news item is released in month t − 2 ($News_{t-1}$) implies a decline of 0.5 percent on average in moving quarter t, t + 1, t + 2 in each category.

As a result, the average effect of a new on the next moving quarter ranges from 0.9 percent to 2.2 percent, depending on the selected panel.[7] For instance, if we take the month with the greatest number of news items (eleven in April 2005), the model predicts reduced formal employment in the moving quarter of May–July 2005, from 10 percent to 22 percent. Likewise, if there is a news item in four consecutive months, the total decrease in formal employment ranges between 4.4 percent and 7.6 percent for the moving quarter t, t + 1, t + 2.

As for labor income, the results suggest a negative relationship between income and news, albeit evidence is inconclusive. Moreover, unlike employment, our results establish that the association between expectations is greater with overall workers than formal workers. For instance, Table 2 shows that one more news item related to the General

[6] Lack of enforcement is a very big problem in Peru and one of the reasons informality is so widespread.

[7] This quantities come from multiplying $\beta News_t$ by number of groups, which is the estimated effect of each news item and the number of categories in that panel.

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**Table 2.** Gender panel: Employment and average income

| Overall employment | | Formal employment | Overall income | Formal income |
|---|---|---|---|---|
| (1) | | (2) | (3) | (4) |
| News | −0.019 | −0.466 | 0.190 | −0.051 |
| (0.034) | | (0.06)*** | (0.01)*** | (0.084) |
| News {1} | −0.001 | −0.436 | −0.108 | 0.057 |
| (0.033) | | (0.019)*** | (0.001)*** | (0.083) |
| News {2} | 0.008 | −0.454 | −0.258 | −0.020 |
| | (0.032) | (0.034)*** | (0.041)*** | (0.003)*** |
| News {3} | −0.038 | −0.848 | −0.524 | −0.228 |
| | (0.062) | (0.072)*** | (0.002)*** | (0.118)* |
| Elections | −0.008 | −0.080 | −0.019 | −0.006 |
| | (0.002)*** | (0.006)*** | (0.006)*** | (0.014) |
| GDP | 0.0001 | 0.001 | 0.001 | 0.001 |
| | (0.0001) | (0.0002)*** | (0.0003)*** | (0.0001)*** |
| Universities | 0.001 | 0.006 | 0.003 | 0.002 |
| | (0.0002)*** | (0.0008)*** | (0.0006)*** | (0.00005)*** |
| Population | 0.109 | 0.125 | 0.198 | 0.19 |
| | (0.007)*** | (0.039)*** | (0.03)*** | (0.022)*** |
| *N* $R^2$ | 260 | 260 | 222 | 260 |
| | 0.941 | 0.959 | 0.958 | 0.929 |

*Note*: All dependent variables (employment and income) are in logarithms. The notation News *j* indicates the *j*th lag of the number of news items in each month. The coefficients of the news variables have been multiplied by 100, so they can be read as percentages. All columns include dummies for month. Robust standard errors calculated by clusters for each of the two categories in the gender pseudopanel are reported in parentheses.
*$p < .10$. **$p < .05$. ***$p < .01$.

Labor Law released in t – 2 ($News_{t-1}$) is associated with an average decline in overall income of 0.11 percent in the moving quarter t, t + 1, t + 2 in each category. Furthermore, the impact of expectations is lagged for the formal income, having an impact around two months later. These results are robust in our three cohort pseudopanels.

These findings can be explained using a simple analysis of demand and supply movements. As seen before, news reduces mainly formal employment, resulting in an increase in the informal sector. This situation increases the demand for informal workers since they are less expensive for the firm. At the same time, the supply of informal workers has also increased due to the substitution effect. The resulting drop in wages indicates that the change in the supply is greater than the change in the demand for informal employment. Formal workers' income does not change so quickly for several reasons. First, employers should be confident about the stricter future labor market to reduce wages, which is closely related to news credibility. On the other hand, contracts and other wage rigidities prevent firms from timely and freely adjusting labor income.

## Conclusions

As studied in the literature, the implementation of regulations is far from neutral. Until recently, literature has focused mainly on the direct or ex post impact of stricter employment protection legislation, with interesting results in copious macroeconomic and microeconomic outcomes. However, most studies have omitted that firms are rational agents

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that react not only after regulations take place but also before their implementation if they have strong evidence in support of future changes. In this article, we have focused on this indirect, ex ante channel of firms' expectations.

For this purpose, we exploit the context in Peru, where the General Labor Law, a proposal to increase labor-market rigidities, has been discussed for a decade but never approved. This law aims to increase compensation for unfair dismissal, reduce the duration of temporary contracts, and increase the cost of incorporation as a cause of wrongful dismissal cases referred to the Constitutional Court. To measure firms' expectations, we used the number of news items related to the approval of the law in the most important business newspaper in Lima (*Gestión*).

Our findings give us little doubt that firm expectations played a significant role in firm decisions in Lima over the past decade. We found that stronger expectations of a stringent future labor market have a nonnegligible impact on employment and average income. First, it reduces formal employment, encouraging a *substitution effect* from formal to informal jobs, as the latter would be less affected by the stricter regulation if approved. On the other hand, it reduces mainly informal labor income due to expansion in informal supply, whereas formal income usually remains constant in the short term. We attribute the latter effect to wage rigidities.

Moreover, we find evidence that the role of expectations differs between periods of high versus low growth, although the results are not as conclusive. This may be because a sharper contrast between high and low growth is not possible in Peru because of the extraordinary economic growth experienced during our estimation period. Our results also support that news has a decreasing relationship with formal employment and income. This is due to credibility: an additional news item in a month that has many news items would have less impact, as credibility would not be as strong for later items as for the first item. Finally, we also find weak evidence that bigger news and those closer to the front page have a stronger impact on employment.

This analysis reinforces that government regulations do not always meet their intended goals. When implementing employment protection, policy makers usually aim to protect workers and promote their security when the economic context is not optimistic. However, they do not always consider different indirect consequences of legislation that prevents a law from being successful. There are many channels through which stricter labor rigidities can have an important impact on agents' behavior. As we have shown, legislation can have an impact before its implementation and even if never approved. Although it is almost impossible for policy makers to account for all these transmission channels, they must be more cautious when making important decisions and discussions. Future research involving other ex ante channels will be of considerable help for understanding the impact of labor regulations.

**Supplementary material.** For supplementary material accompanying this paper visit https://doi.org/10.1017/lar.2023.19

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