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# The unprotecting effects of employment protection: the impact of the 2001 labor reform in Peru

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## Abstract

According to the National Household Survey (ENAHU), approximately three out of four employment relationships within the formal sector of the Peruvian economy are based on temporary contracts. This percentage is larger than that of any OECD country and also considerably larger to that of any other country of the Latin American region. This study aims to elucidate the role that the 2001 labor reform played on these results and the effect this has had on variables associated to Peruvian workers' well-being. To this end, we exploit the information on contract type and start date (identified by the employment duration), which are reported on the household surveys, to analyze the decision between using fixed-term contracts or indefinite-term contracts. The average impact obtained from a differences-in-differences estimation with matching, having workers with contract but with no health insurance as a control group, is a reduction of 41 percent in the probability of having contracts of indefinite duration in the short term (up to five years after the reform), whereas the long-term impact has been a drop by 70 percent. These results are consistent, and similarly large, as those found in a model of simple differences controlling for workers' characteristics, firms and economic context. The results are robust to placebo tests and estimations by activity sectors and firm size. These results mean that, due to the reform, by 2015 over 900,000 jobs that could have been of indefinite-term were fixed-term contracts instead. Estimates based on Mincer equations suggest that this meant a loss of around 1.5 billion dollars in workers' labor income in 2015. Also, 36,000 workers would have affiliated to a union, had such reform not been implemented. These figures suggest that, instead of increasing workers' protection, the reform implemented by the Constitutional Court left a large portion of them unprotected.

Key words: employment protection, labor reform, impact evaluation.

JEL codes: K31, J63, C52

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## 1. Introduction

Peruvian legislation seeks to promote long-term employment relationships, the main instrument in this direction being the indefinite-term contract. In the ideal employment relationship, as imagined by the Peruvian labor legislation, the worker gets a job and keeps it for life. The employer makes sure that the workers' skills are kept up to date and, if changes in the production technologies demand it, invests in their development of new skills. A whole set of restrictions and conditions for the interruption or termination of the employment relationship are built-in to secure this aim. According to the norm that regulates the employment contracts, the individual dismissal is admitted when a "just cause" exists, that is to say, if the worker has committed a serious offense or has lost competence in the performance of his tasks. In both cases the employer must prove the existence of such just cause. In all the other cases -except those in which the dismissal is void, where such cause is inadmissible- a severance indemnity is involved, which value is stipulated based on the length of service, at the rate of 1.5 salaries per worked year, with a cap of 12 remunerations, as the only reparation.<sup>2</sup> That is how the Law has enshrined the constitutional principle of "suitable protection against arbitrary dismissal".

In effect, until the year 2001, the interpretation of this principle was that the dismissed worker had to be compensated through an indemnity. That year Peru's Constitutional Court (TC) issued a resolution questioning this interpretation and establishing an alternative procedural route to fulfill the Constitution's mandate. Through such route the worker could ask for reinstatement. Presently, reinstatement has become the preferred route to compensate the worker for his dismissal, whenever he wishes that. This change constitutes the main labor contract reform in the last two decades.

Despite this protective fervor and the vocation for the long-term employment relationships, the legislation also provides flexibility at the margin through the use of modality contracts (*contratos por modalidad*), special contracts with different denominations, which in practice work as fixed-term or temporary contracts. These contracts may be entered for a term of up to five continuous years. Paradoxically, given the preference of the legislation for indefinite-time contracts, fixed-term contracts have become the main form of employment relationship. In 2015, this type of contract covered 72% of workers under contracts, whereas the indefinite contracts hardly covered 21% of the labor market.

In this document we analyze the effects of the contract reform promoted by the TC on the decisions regarding the type of contract used in the labor market and its consequences on workers' welfare variables. For this we compare contracts celebrated

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<sup>2</sup> In addition there is a Compensation for Time of Service (CTS), with the purpose of generating provisionary savings in an individual account for the worker, whose funds could be accessed on termination of the employment. Five remunerations must accumulate initially, after which any additional amount may be freely available. In order to constitute this individual worker's fund, the employer must transfer half remuneration, or the corresponding proportional part, to this account every six months, in May and November.

before and after the reform. As we will show, since 2001, year of the referred shift in the interpretation of the constitutional mandate, there is an increasing trend in the use of fixed-term contracts. Thus, whereas in the year 2000 the most used contract was the indefinite term one, by 2011 it had already been displaced of such position by the fixed-term contract. Through the implementation of both a difference-in-differences estimation and a comparison of the pre- and post-reform scenarios controlling for individual characteristics of the workers as well as for the economic context, we aim to establish here whether there is a causal link between both events. We use information from the employment module of national household surveys.

This analysis is quite relevant as the massive use of temporary contracts may have negative effects both on the welfare of workers as well as on productivity, due to the increase in labor turnover and the discouragement of investment in job-specific workers' training. Indeed, international literature suggests an association between greater protection of indefinite-term contracts, greater use of temporary contracts and losses in productivity (Blanchard & Landier, 2002; Boeri & Garibaldi, 2007; Boeri, 2011; Hijzen, Mondauto and Scarpetta, 2013). Thus, the protective fervor of the TC can, paradoxically, result in a greater loss of protection for the worker, whose access to an indefinite-term contract becomes less likely.

The main conclusion of the study is that the 2001 reform is responsible for a 20 percentage point reduction in the probability that a worker is hired with an indefinite-term contract in relation to the period previous to the reform. This is equivalent to the reduction of this probability by 70 percent of what it was before the TC's sentence, according to the local estimator of differences-in-differences, or 84 percent according to the simple differences estimator. This means that in absence of the reform, by 2015 there would have been between 926,000 and 936,000 more jobs with indefinite-term contracts than those existing at the time. As a result of this, we estimate that during that year workers received about 1.5 billion dollars less income than they would have otherwise. The unionization rate also fell, compared to the non-reform counterfactual scenario: approximately 36,000 workers did not affiliate to a Union because they could not access an indefinite-term contract.

The document is organized as follows. This introduction is followed by a revision of relevant literature (Section 2). Section 3 describes the institutional framework and the reform whose effects are the center of our analysis. Section 4 discusses the methodological approach used to identify these effects. Section 5 presents the results of the analysis, whereas in Section 6 the results are discussed and conclusions are drawn.

## **1. Literature review**

The effects of employment protection have been an important focus of labor economics studies in the last decades. From the point of view of Latin Labor Law, the asymmetric power in a labor relationship and the need to protect the weak side of such relationship, that is to say the workers, is the foundation and justification for such protection. The

argument against it is centered in the fact that, if a single type of employment contract is available, protection discourages hiring and increases unemployment (Lazear, 1990; Autor et al., 2006) or promotes outsourcing (Autor, 2003). Looking at the European situation at the beginning of the previous decade, Blanchard and Landier (2002) concluded that there is substantial evidence that high employment protection leads to a 'sclerotic' labor market (associated to lower levels of productivity and well-being), with low rates of separations but long unemployment spells. In the last two decades, much analysis has focused on the effects of potential policy solutions to this problem, among them facilitating the use of temporary contracts.

Indeed, the parallel use of open-ended (indefinite) and fixed-term (temporary) contracts has received considerable attention in the literature, particularly in European countries where the reforms have moved in the direction of introducing or making more flexible the use of temporary contracting arrangements. This has been a response to the political difficulties in undertaking a more comprehensive reform that reduces the costs of the termination of the employment relationship for all type of contracts (St. Paul, 2004). Although many particularities with national regulations exist, the critical difference between temporary and indefinite-term contracts is the low or zero cost of dismissal in the former, against the usually considerable cost of the latter. In this context, the temporary contract can fulfill two purposes. In the first place, it offers the necessary flexibility to the firm in a context of changing markets and recurrent technological shocks (i.e., a buffer). Also, it can be a 'screening' mechanism for new workers in circumstances in which the norm provides limited trial periods; in which case one expects that the temporary contract serves as a transition towards an indefinite-term contract for good worker-job matches.

Theoretical studies about labor protection institutions and contract use focus in modeling employees' and employers' behavior within the framework of a labor market where temporary and indefinite-term contracts coexist. These studies are in line with a tradition of analysis of the dynamics between unemployment and employment, focused on employment demand under uncertainty and adjustment costs (Nickell, 1987; Bertola, 1990; Bentolila and Bertola, 1990), as well as in job search models (Mortensen and Pissarides, 1999; Pissarides, 2000). The studies aim to explain the coexistence of these two types of contract, their relation with the institutional framework and its implications for different variables of the labor market, from the use of each type of contract to worker turnover (e.g., the flows from and towards unemployment and employment) and the effects on workers' wages and other well-being variables, and firm productivity.

The research line most closely related to our study is that which uses reforms as natural experiments to identify their effects on key variables of the labor market. In this direction, Hijzen, Mondauto and Scarpetta (2013) have exploited the variations in employment protection regulation in Italy near the threshold of 15 workers per firm, to identify their effects on workers' turnover. Using a *regression discontinuity design*, with data from a panel of firms, they show that greater employment protection in larger firms increases workers' turnover and, in this way, tends to reduce, rather than increase,

workers' employment security. The increase in turnover is in turn associated with the greater use of temporary contracts. An additional effect they identify is the reduction in labor productivity. Kugler and Pica (2008) exploit this same discontinuity around firms with 15 workers to analyze the Italian reform of 1990, which raised the termination costs for small firms but not for the larger ones. Using data from Italian Social Security and a difference-in-difference methodological design, they find that, as most theoretical models predict, the increase in dismissal costs reduces both entry and exit worker flows from permanent employment. Autor et al. (2006) arrived to similar findings for the United States after the introduction of limitations to the "fire at will" principle.

Another study in this line is that of Centeno, Centeno and Novo (2009) which measures the effect that increased employment protection in indefinite-term contracts had on job turnover in Portugal, during the implementation of a reform in this direction that only affected firms with 11 to 20 workers. Using a double-difference methodology, the authors find that the increase in protection generates a substitution effect between fixed-term contracts and indefinite contracts in the affected firms: more fixed-term jobs are created and, consequently, workers' turnover increases. Martins (2009) examines the effect of administrative procedures associated to dismissals for cause, exploiting the implementation of a norm that exonerates firms of less than 20 workers of a series of restrictions to separate a worker. Comparing firms of more and less than 20 workers with differences-in-differences methods, he finds positive effects on exonerated firms' performance variables and moderated effects on flows and hirings. Capellari et al. (2012), on the other hand, exploit variations in the implementation of reforms facilitating the use of two types of contracts (fixed-term and apprenticeship) between regions and sectors of the Italian economy in order to assess their effects on labor market flows, employment and productivity, finding that the reforms had contrasting effects. The reform of apprenticeship contracts was effective in motivating the use of this type of contract and allowed replacing external personnel with apprentices, which eventually increased productivity. The reform of fixed-term contracts had the opposite effects, inducing substitution with external workers and reducing productivity. This was apparently due to its generic wording, which, in case of disputes, left much room for the judges' interpretation of the norms.

In sum, some facts are already well established in the literature. First, while the effects of employment protection on stocks (e.g. unemployment rate) are very small or ambiguous, there are important effects on flows (inflows and outflows of employment and unemployment). In a context of contractual duality, the more stringent the employment protection rules in indefinite-term contracts, the greater the use of fixed-term contracts. This, in turn, causes a reduction in job duration and an increase in workers' turnover. Also, the role of temporary contracts as a gateway to indefinite-period contracts is reduced. Finally, the effects of employment protection on productivity tend to be negative: on the one hand, the reallocation of workers is repressed and, on the other hand, firms tend to invest less in training their workers. Still missing in the literature is empirical evidence for Latin America, where the legal

tradition is to impose significant costs upon the termination of employment contracts and informal labor relations are a large portion of the market. The purpose of this study is to contribute to filling this gap.

## **2. Institutional framework**

Fixed-term contracts are contemplated in Peruvian legislation since at least 1970. These contracts had employment benefits established by law, but did not entail employment security as provided by indefinite-term contracts. The Law Decree No. 18138 of that year indicated that such fixed-term contracts could only be used if the accidental or temporary nature of the service required it. They had limited initial use due to the restrictions imposed on their application since they were subject to the approval of the Ministry of Labor, which had to verify that the firms were effectively using this mechanism for the purposes stipulated by law. The maximum duration of employment under this type of contract was limited to two years.

At the beginning of the 1990s, amidst the country's deepest economic crisis of the century and the implementation of a macroeconomic stabilization program, the first important reform was introduced in the regulation of this type of contracts, through Ministerial Resolution 430-90-TR, eliminating the required approval from the Ministry of Labor. Thus, the Ministry of Labor's role in this matter was to register such contracts. In addition, it continued being in its power to carry out inspections to monitor the correct use of the contractual arrangements. It is, however, the 1991 labor legislation reform (Law Decree 728, "Ley de Fomento del Empleo") which really increased the possibilities for fixed-term employment, establishing new causes to justify them as well as extending its maximum duration to three years, which was later in 1995 extended to five years.

Presently, the current regulation for the labor contract in the private sector is included in the Consolidated Text of the Labor Productivity and Competitiveness Law (Law Decree 728), approved in 1997, whose origin is the aforementioned 1991 regulation. Article 4 of the mentioned regulation establishes that the employment contract is, by default, open-ended but that it can be fixed-term under the requirements stipulated by the Law. The conditions that justify a temporary contract (subject to modality, in the parlance of the law) are broad: market needs or increased production of the firm, or the temporary or accidental nature of the services (Article 53). Three types of temporary contract are considered: for new activities or new business, for market needs and for corporate restructuring; as well as three of accidental nature: occasional, substitution or emergency; and, in addition, contracts for a specific activity or service. In practice, the bulk of contracts subject to modality fall in the first type.

### *Termination of employment contract and employment protection*

That same norm regulates the termination of the contract in each case. For temporary contracts the expiration date extinguishes the contract, while for the specific project or



service contracts, the termination of the project or service or, in both cases, the fulfillment of the resolutive condition. In the case of the indefinite-term contract, the individual contract may end due to: death of the worker or the employer, if it is an individual; absolute permanent disability, retirement or resignation of the worker; mutual dissent between worker and employer; and for dismissal, provided there is "just cause" duly proven in court under the conditions established by law.

The just cause may be related to the worker's capacity or conduct, in both cases the employer bears the burden of proof. Capacity is associated to low performance, extremely difficult to prove and rarely ever tried by firms' lawyers. With regards to the conduct of the worker, fair causes are serious misconduct, the conviction for intentional crime and the disqualification by a judge or Administrative Authority for a period of three months or more. The dismissal is void or null when it is caused by the worker's affiliation to a union or workers' representation, pregnancy, or discrimination for reasons of sex, race, religion or opinion.

Dismissals require an administrative procedure: the worker must be notified in writing and given a period of 6 days to respond to the charges in the case of conduct-related causes or 30 days to show his capacity if this is the reason for the dismissal. In either case, the dismissal does not require any payment or compensation. If no cause is expressed (the so-called "arbitrary dismissal"), a payment equivalent to 1.5 monthly remunerations for each year of service up to a maximum of twelve (12) remunerations proceeds. If a claim for nullity of the dismissal is found to have merit, the payment of the remunerations not received from the date of dismissal shall apply. The decision to pay compensation or convince the labor judge of the existence of a "just cause" corresponds to the employer.

In sum, labor regulations allow the use of fixed-term contracts under fairly broad conditions. The cost of terminating an employment relationship in the case of this type of contract is zero if the contract reaches its end or 1.5 compensations per month not worked, if it is prematurely terminated. This means that in practice the term of the contract is certain, since the cost of waiting for its completion is less than that of terminating it anticipatedly, even if the worker is separated from his duties.<sup>3</sup> There are also no restrictions on the number of renewals of contracts, provided that the terms do not exceed five years as a whole. In the case of the indefinite-term contract, the specific norm establishes a severance indemnity as the way to protect the worker "as the only reparation for the damage suffered" (Law Decree 728, Art. 34) in the case when no cause is expressed. The amount of the compensation is a function of the worker's time in the firm, at a rate of 1.5 salaries per year of service, with a cap of 12 salaries. Hence, the regulation establishes a gap in the protection of employment between these two

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<sup>3</sup> This is different in most of Europe, where temporary contracts cannot be terminated before the stipulated date, except in exceptional cases (Cahuc et al., 2013). Exceptions are Spain and Portugal, where the termination procedures are the same as in open-ended contracts.

contractual forms: compensation of up to 12 monthly salaries for indefinite term contracts and zero for temporary contracts.

*The 2001 reform: the Constitutional Court's ruling TC STC-1124-2001-AA*

The ruling issued by the TC in 2001 regarding the entitled reinstatement of a dismissed worker constitutes a substantial reform of the described regulation. This ruling opens an additional reparation regime for a dismissal for no “just cause”, of procedural nature, through constitutional protective action (“*amparo*”). The purpose of this *amparo* procedure is to “restore things to the state prior to the violation or threat of violation of a constitutional right” (STC 00976-2001-AA), that is, to reinstate the worker in his job.

Before 2001, the position of the TC regarding no cause dismissals was that there was no room for reinstatement, since the Law was clear in that the only avenue of redress was compensation.<sup>4</sup> However, in 2001 this position changed with a case filed by the Telefónica del Perú SAA workers' Union (STC 1124-2001-AA). The Constitutional Court sentenced that dismissals without expression of cause are detrimental to the Constitution insofar as they violate the right to work and, therefore, give rise to the reinstatement of the employee to his workplace. Article 34 of Law Decree 728 was, hence, declared unconstitutional. In 2002, the TC further developed its argument and addressed criticisms of its previous sentence (STC 00976-2001-AA). These sentences determine a breaking point, from which no cause dismissals are considered unconstitutional. In this context, depending on the characteristics of the case, the worker has the option of choosing between substantive compensation through severance indemnity or taking the procedural avenue through the Constitutional Court for reinstatement in the post. An important change is that there is no further decision in the hands of the employer. The binding nature of this sentence for treatment of similar cases resulted in a considerable increase in the number of *amparo* proceedings filed with the TC due to dismissals. In this regard, attempts to limit the procedural burden of the TC have resulted in the facilitation of reinstatement claims through ordinary labor courts.

The 2001 TC’s sentence, better systematized a year later with sentence STC 00976-2001-AA, constitutes the most important reform to the regulatory framework of the individual labor contract in Peru of the last two decades. Conceptually, in terms of the issue at hand, its immediate effect is to widen the gap in the cost of employment protection between the indefinite and fixed-term contracts. Reintroducing the reinstatement, as the same ruling argument makes clear, is equivalent to declaring invalid Art. 34 of Law Decree 728. The purpose of this study is to establish the effects of such reform.

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<sup>4</sup> For example, see sentence STC 1052-1997-AA, cited by Toyama (2003).

### 3. Empirical strategy

This section describes the methodology used to measure the effect of the 2001 labor reform on the use of temporary contracts. First, we discuss the econometric strategy. Then we describe the data used for the estimations.

#### 3.1. Identification strategy

Like the empirical research referred to in the literature review, our study takes advantage of an unexpected change in Peruvian legislation as a natural experiment to identify the effects of the norm on the choice of contract. However, unlike other countries' reforms, the ruling issued by the TC does not discriminate by firm's size or type. Neither do, therefore, the resolutions of cases resulting from the reinterpretation<sup>5</sup>. Since it applies to all workers, it is not straightforward to define an adequate control group that, working in the same labor market, has not been affected by the norm.

In the absence of a control group that naturally derives from the normative process and its implementation, two possible identification strategies of the effects are used. The first strategy involves comparing the situation before the reform with the situation post-reform, controlling for a set of variables of the economy and the labor market that have presumably changed from one period to another and that could confuse the effects of the intervention. The second strategy requires to define a group that, although it has not been exonerated from the norm, in reality functions outside of it. An informal employer, for example, should not change his behavior in the face of changes in the regulation of contracts, as he works outside the law. Therefore, the reform should not affect informal employers. In this context, we can exploit the information of workers in our sample (that is, workers with a contract) who report having informal employers, which are identified as those who do not contribute to the mandatory social insurance. By law, any employee with a contract must be affiliated to social insurance (Essalud), so that a worker who reports not being affiliated with insurance is considered outside the formal sector.<sup>6</sup>

One of the key assumptions for an adequate identification is that the reform was not anticipated. In this direction, the reinterpretation of the constitutionality of Article 34 of Law Decree 728, and its sentenced inapplicability, were the product of a ruling issued by the Constitutional Court that marked a change from its previous position. As argued in the previous section, this 2001 ruling was the first one to question the aforementioned article and to expand the reinstatement argument based on a reinterpretation of the right to work, as the argument for the implementation of a new procedure to challenge a dismissal (Blancas, 2002). This turn was unexpected (Toyama, 2003). In fact, if we look at the number of dismissal cases admitted by the TC in the years prior to this ruling,

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<sup>5</sup> As stated by the First of the General Provisions of the Organic Law of the Constitutional Court: "The Judges and Courts interpret and apply the law, or any norm with the rank of law, and the regulations following the Constitutional precepts and principles put forth in the resolutions issued by the Constitutional Court in all kinds of processes." (Law N° 26435).

<sup>6</sup> While this concept may seem surprising, it is part of the reality of the Peruvian labor market: according to INEI, in 2015, "17% of the employed labor force has an informal employment in the formal sector".

there is no increasing trend; nor do we observe an increasing previous trend in the presumed impacted variable, namely, the proportion of temporary contracts, which, if anything, seems to follow a slightly decreasing trend. Moreover, the average of cases related to dismissals or reinstatement increased considerably after 2001, from an average of 95 yearly cases in the three previous years to 162 in the subsequent years.

The identification of the norm effects on the use of temporary contracts also involves verifying that its increase is not a simple continuation of a trend that had already been taking place. This is particularly relevant because, as we have seen in the previous section, TC's reinterpretation in 2001 has not been the only reform that has affected the use of indefinite-term contracts in Peru's recent history. Indeed, the labor reform of 1991 included a 'flexibilization at the margin', which facilitated the use of temporary contracts.

In order to clarify the trends in the use of different types of contracts, the longest possible series has been constructed. This is only viable for Metropolitan Lima, since data at the national level only exist for temporary contracts starting in 1993, through the records of the Ministry of Labor.<sup>7</sup> To make the graph we took data from household surveys from the period 1986-2015.<sup>8</sup> It should be noted that the question that allows capturing the contractual status of the worker changed from the year 1992. Indeed, during the period 1986-1991 the question in the survey refers to the nature of the work and asks the worker to report if it is a permanent or temporary worker, while in subsequent years the question refers specifically to the type of contract. Strictly, then, the information is not identical for both periods. To limit the potential problems of comparability between these two sections of the series, for the period 1986-1991 we report all workers with a contract as it is the best approximation to the population of formal workers (although not perfect, as noted above). We identify here as formal those workers who are affiliated to a pension system, to social security in health or belong to a union.

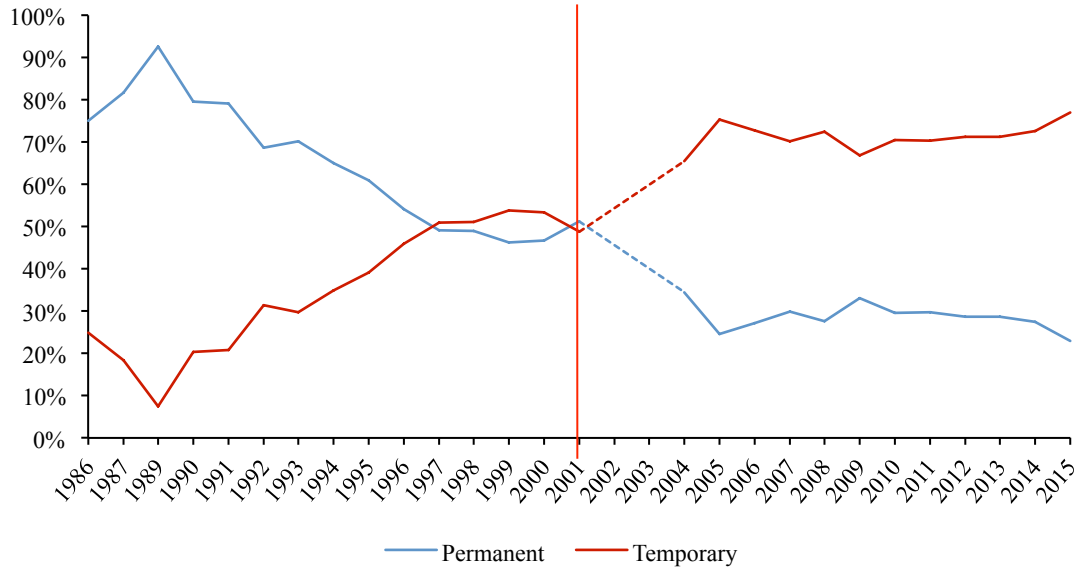
As can be seen in Figure 1, in Peru, as in other countries in the region, the flexibilization followed an increase in the use of temporary contracts. Prior to this reform, temporary contracts were a relatively small proportion of total labor contracts. After this, the temporary contracts began to grow and the open-ended ones to decline proportionally. However, by the middle of the decade (1997), both modalities had stabilized by dividing the labor market into two parts of a similar proportion. In fact, according to ENAHO, the proportion of temporary contracts in 2001 was slightly lower than in 1997. However, unlike other countries in the region, temporary hiring in Peru received a new boost in the following decade. As shown in the graph, after a period of relative stability in the proportion of temporary contracts between 1997 and 2001, after the sentence of the TC, the use of temporary contracts initiates a new growing trend.

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<sup>7</sup> The figure with the information of the records of the Ministry of Labor can be found in Appendix 1. The trends of both figures are consistent.

<sup>8</sup> Pascó-Font and Saavedra (2001) built a series for the period 1986-2000 with the same sources of information. This series is qualitatively coincident with ours in the period in which they overlap.

**Figure 1**  
**Metropolitan Lima: temporary contracts versus permanent contracts, 1986-2015**



Source: MTPS, Household Surveys, 1986-1995; INEI-MTPS, National Household Surveys, 1996-2001; INEI, National Household Survey, 2004-2015.  
Own elaboration.

### 3.1.1. Simple differences model

The hypothesis put forth is that the 2001 labor reform caused a sharp growth in the use of temporary contracts and, therefore, a reduction in the probability of accessing an indefinite-term contract. To implement the first strategy described at the beginning of this section, a simple differences model is estimated. This model estimates the probability of obtaining an indefinite-term contract through a *probit* specification:

$$\Pr(y_i = 1 | X_i, Ley_i, M_t) = F(\beta'X_i, \alpha Ley_i, \gamma M_t) \quad (1)$$

Where  $y$  is a binary variable that takes the value of 1 if the contract type is indefinite-term, and 0 if it is temporary or any other type.  $X$  is a matrix of the individuals' personal and work characteristics, including educational level, gender, age, whether the individual works in Lima, the economic sector to which each one belongs and the size of the firm in which each work.  $Ley$  is a binary variable that takes the value of 1 if the year in which the type of contract started was after the legislation changed and 0 if it started before the change. Finally,  $M$  is a matrix of macroeconomic characteristics, such as the sector and regional GDP growth trends and the variation in non-traditional exports.

Secondly, we predict the probability of obtaining an indefinite-term contract for both moments in time: before (1997-2001) and after the reinterpretation (2004-2015) of the

law. The difference of the predicted probabilities constitutes the effect of our interest (*Dif*).

$$Dif = \widehat{\Pr}(y_i = 1 | Ley_i = 1) - \widehat{\Pr}(y_i = 1 | Ley_i = 0) \quad (2)$$

### 3.1.2. Difference-in-differences estimation model (DID)

The difference-in-differences estimation exploits the fact that there are workers with contracts who do not contribute to social security to produce a local estimator, that is, valid for workers on the edge of formality. It is presumed that workers who do not contribute to social security, being already outside the reach of the law, are not affected by the sentence; therefore, it constitutes a natural control group to estimate the effects of the normative change. An additional difficulty is that our treated and control groups do not necessarily have similar characteristics, so they are not perfectly comparable. In this context, it is necessary to limit the comparison to workers with similar characteristics, who differ only by having a social insurance or not. For this purpose we use the "*propensity score matching*" method to match those workers with a similar set of characteristics. We estimate a *logit* model where the treatment allocation variable (social insurance or not) is the dependent variable and the rest of variables related to worker characteristics are independent variables. From this estimation we obtain the predicted probability of having insurance and we match workers with insurance and without insurance that have a very similar predicted probability. When comparing these two groups we obtain a local estimator, valid for those workers in the margin of formality and informality.

By having a categorical variable it is not possible to make a linear estimation of the model, unlike the typical DiD models; so we must perform the estimation for a *probit* non-linear estimation model, as in the previous section. Thus, the probability of having an indefinite-time contract is estimated as follows:

$$\Pr(y_i = 1 | X_i, Ley_i, SS_i, M_t) = F(\beta'X_i + \alpha Ley_i + \delta SS_i + \vartheta SS_i * Ley_i + \gamma M_t) \quad (4)$$

Following Puhani (2012), the equation that determines the size of the effect is the following:

$$Efecto = E[y_i^1 | Ley_i = 1, Formal_i = 1, X_i, M_t] - E[y_i^0 | Ley_i = 1, Formal_i = 1, X_i, M_t] \quad (5)$$

Where  $y^1$  and  $y^0$  are the predicted probabilities of having an indefinite-term contract with and without TC's 2001 sentence for formal workers with a contract, respectively. Although these probabilities can not be observed, they can be predicted from equation (4).

### 3.2.Data

A peculiarity of our approach is that we use data from household surveys. In fact, the bulk of the empirical literature discussed is based on information from longitudinal databases of matched employers and employees. Unfortunately, in Peru this type of information does not exist for our analysis period. However, what we do have are employment modules from the National Household Survey (ENAHO), where workers report data on the characteristics of their employment relationship, including the type of contract under which they were hired and the duration of employment, which allows us to identify the job start date. Such data allow us to make comparisons in contract-type use for the entire formal labor market before and after the reform.<sup>9</sup> Since significant changes occurred between one period and another, we use a set of covariates to make the comparison as strict as possible, as detailed below.

ENAHO allows us to construct indicators on well-being, poverty, and living conditions both at the household and individual levels. It works with a probabilistic type sampling, stratified, multi-staged and independent for each one of the 24 national regions studied. It collects information from around 30 thousand households a year. From this survey we obtain data on the demographic characteristics of individuals, the start date of their contracts (which serves to determine whether it was initiated before or after the reform) and the type of contract under which they work (our outcome variable).<sup>10</sup> Unfortunately, we have an information gap regarding the use or type of contracts between 2002 and 2004 as this question was not administered in surveys during that period. The analysis sample includes all salaried workers in the private sector from urban areas who report having a labor contract<sup>11</sup>.

## 4. Results

Our presentation of results starts by providing descriptive information about the evolution in the use of temporary and indefinite-term contracts. Following that, we present the results of the estimations using three referential time horizons. Then we present the results of the sensitivity analysis and the estimated effects of the reform for specific populations. The section closes with an analysis of the effects of the reform on two key variables for workers' welfare: remunerations and unionization.

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<sup>9</sup> There are annual panels from the ENAHO at two moments of time: from 2007 to 2011 and from 2011 to 2014. But, unfortunately, these surveys do not cross the reform and therefore do not serve the purpose of this investigation.

<sup>10</sup> The application of the survey has always been the responsibility of the National Institute of Statistics and Informatics (INEI), although between 1997-2001 the employment module was commissioned by the Labor Ministry and was called Encuesta de Niveles de Empleo ('Survey of Employment Levels') or ENIVE. Under this denomination is that the databases are found on the INEI website. From now on we refer to them as ENAHO-ENIVE.

<sup>11</sup> It should be noted that the TC has a different criterion for public sector workers, for whom reinstatement in the workplace is not legal (STC 05057-2013-PA/TC).

### 5.1. *The use of temporary contracts*

To motivate the analysis, we present the evolution of employment by type of contract between 1998 and 2015. At the beginning of the last decade there was an important change in relation to the use of different types of contracts.<sup>12</sup> At the end of the 1990s, open-ended contracts prevailed, but then, as of 2001, the trend is reversed and it is rather the temporary contract that begins to prevail. Currently, among those workers with a contract, three quarters work with a temporary contract (fixed-term) or other much less frequent contract modalities. This proportion is high compared with other countries in the region or globally. According to Eurostats reports (*European Statistics*), the average of temporary contracts in Europe in 2016 was 14%. Some countries, such as Poland, Spain and Portugal, deviate from the average, with around 25% of temporary jobs. In Latin America, in general, the scenario is not very different. According to an ILO study, with data updated up to 2013, the percentage of temporary jobs in the formal sector is 3% in Argentina, 1% in Brazil and 19% in Chile. The country that most closely resembles ours is Ecuador, where the percentage of temporary contracts in the formal sector is 27% (Maurizio, 2016).<sup>13</sup>

What drives this growth? The growing trend in the use of temporary contracts can be observed worldwide (Cazes and de Laiglesia, 2014). However, Peru has a more accelerated growth, trending towards a labor market almost entirely made up of temporary contracts. Can the labor reform be responsible for this disproportionate expansion in temporary contracts? We subsequently address this question.

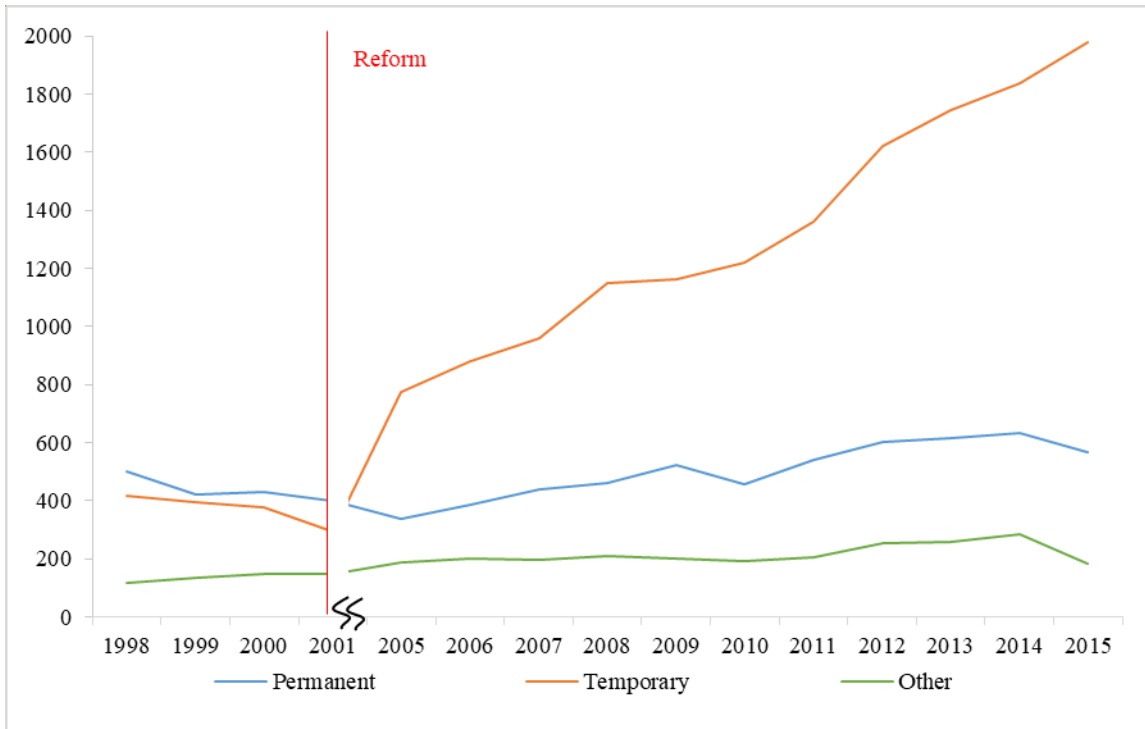
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<sup>12</sup> The gap in the graph is explained because there is no contract type data for the period 2002-2004, as explained above.

<sup>13</sup> The data is calculated based on the household surveys of each country up to 2013. For this last year, the estimate of temporary jobs in the formal sector that they obtain from Peru is 58%. Value that matches the data shown in Figure 2.



**Figure 2**  
**Employment by type of contract, 1998-2015**  
**(thousands of contracts)**



Note: there are no contract data between 2002 and 2004 because the survey does not collect the information for those years.

Source: ENAHO-ENIVE 1996-2001; 2005-2015

Own elaboration

## 5.2. Econometric results

### 5.2.1. Simple differences model

In this section we use the *probit* methodology detailed in section 3 to analyze the causal impact of the reform on the probability of having an indefinite-term contract. The estimates show the difference between the probabilities of obtaining this type of contract during the period prior to the reform of 2001 and the subsequent period. In addition, we are interested in analyzing whether this difference has lasted throughout the post-reform period. According to the literature, the effect of employment protection reforms through the facilitation of the use of temporary contracts is more important during the period immediately following the reform, what the authors call a “honeymoon effect” (Boeri and Garibaldi, 2007). We try to confirm this observation in our estimates. To do so, we compare the pre-reform period against three different periods indicated below:

- Short term: period between 2004 and 2008
- Long term: period from 2009 to 2015
- Years 2014 and 2015

Table 1 reports the marginal effects of the reform on the probability of having obtained a permanent contract in each of the periods chosen. In addition, in the first column we present the initial probabilities of having a permanent job, that is, the probability in the pre-reform period. This allows us to contextualize the effect with respect to its initial situation. Furthermore, to understand the magnitude of the effect, in the third column we report for each period what percentage of the initial probability of having a permanent job has changed in response to the reform.

**Table 1**  
**Urban Peru: Effects of the reform on use of permanent contracts by period**

	Obs.	Mean before the reform	Effect (percentage points)	Effects (percentage change)
	(1)	(2)	(3)	(4)
Permanent contract: short term	8,836	0.310***	-0.198*** (0.0107)	-64%
Permanent contract: long term	12,201	0.385***	-0.322*** (0.0127)	-84%
Permanent contract: years 2014-2015	7,489	0.278***	-0.248*** (0.0123)	-89%

Note: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Standard errors in parentheses. Each row represents a separate estimate. Coefficients reported in columns (3) and (4) are marginal effects of probit estimation. Column (1) reports the observations used in each estimate that includes the observations for the pre-reform period and the observations for the analyzed period. Column (2) reports the estimated probability of having a permanent contract in the pre-reform period for each subgroup. It is controlled by educational level, gender, age, workplace, geographical domain, variation in exports, GDP growth, sector of the economy, size of the company and years' fixed effects. Different versions of this regression were estimated, for example, excluding the agricultural sector. However, results were qualitatively identical.

The results show that the increase in employment protection has a negative effect on the use of indefinite-term contracts. The probability of having an indefinite-term contract is reduced in any of the three periods analyzed. Our estimates are significant in all cases. The short-term effect is 20 percentage points. Thus, as a result of the reform, the probability of being hired under an indefinite-term contract was reduced by more than half (-64%). Interestingly, the 2001 reform had greater effects in the long term, from 2009 onwards, where the effect is 32 percentage points. This persisted between 2014 and 2015 by 25 percentage points. Thus, as a consequence of the reform, the probability of having an indefinite contract has been reduced to one fifth of what it was before the reform.<sup>14</sup>

In general, the results suggest that the impact of the reform becomes more pronounced over time. Unlike what was predicted in Boeri and Garibaldi (2007), the effect on the Peruvian labor market does not dissipate over time; on the contrary, it becomes stronger. This suggests that the reform may be inducing changes not only in the hiring strategy, but also in the firm's selection of activities. As hiring for an indefinite period

<sup>14</sup> Full results of the regressions may be found in Appendix 3. The control variables have the expected signs and are consistent throughout the different reference periods.

becomes more expensive, companies can opt for activities that can be carried out efficiently in scenarios of high turnover of personnel; that is, activities that are not intensive in human capital specific to the company. If this is the case, the consequences for the evolution of productivity are quite negative.

### 5.2.2. *Difference-in-differences results*

In the same way as for the previous model, we produce three difference-in-differences (DiD) estimates of the reform's effects. Since we obtained different effects for different periods in the previous section, we are interested to know whether this is also the case for these estimates. Table 2 shows the results. In addition to the effects on percentage points and percentage variation, the average probability without reform can be observed in the second column.<sup>15</sup>

**Table 2**  
**Urban Peru: Differences-in-differences estimates results**

	Obs.	Mean without the reform	Effect (percentage points)	Effects (percentage change)
	(1)	(2)	(3)	(4)
Permanent contract: short term	2,978	0.195***	-0.0808** (0.03782)	-41%
Permanent contract: long term	3,594	0.205***	-0.1441*** (0.03427)	-70%
Permanent contract: years 2014-2015	2,301	0.149*	-0.1292* (0.07283)	-87%

Note: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Standard errors in parentheses. Coefficients in column (3) report the differences in the predicted probabilities with and without the reform. Column (1) reports the observations used in each estimate that includes the observations for the pre-reform period and the observations for the analyzed period. Column (2) presents the predicted probability if there was no reform. It is controlled by educational level, gender, age, workplace, geographical domain, variation in exports, GDP growth, sector of the economy, size of the company and years' fixed effects.

The results are consistent with those of the simple differences model, showing a significant reduction in probability for all periods. For the short-term period, the reduction is 8 percentage points, while for the long-term period and the years 2014-2015 the effect is 14 and 13 percentage points respectively. These changes represent high percentages of the probability without reform: the reductions in probability meant a reduction of 41%, 70% and 87% in the short term, long term and the years 2014-2015, respectively. Although slightly lower, they are very close to those obtained in the estimation of the previous model. Thus, under more rigorous methodological requirements, we obtain results consistent with those above: the increase in labor protection, through the sentence of the TC in 2001, has caused a reduction in the use of indefinite-term contracts.

<sup>15</sup> As mentioned in the methodology section, these probabilities were estimated using the coefficients from equation (4). These coefficients can be seen in Appendix 4.

### 5.3. Robustness checks

To evaluate how robust the previous results are, in this section we present the results of a set of additional estimates. These include a placebo test and estimates by sector of activity and by firm size.

#### *Placebo test*

The placebo test consisted in changing the year of treatment in the statistical analysis and observing if this new analysis has similar results to the one analyzed. To that end, we use only the periods prior to the reform and introduce a date of "treatment" prior to 2001. Then we estimate the difference in the probability that a contract is for an indeterminate period between the periods separated by this artificial treatment. Thus, we used the years 1997, 1997-1998 and 1997-1999 as alternative dates of treatment and 1998-2000, 1999-2000 and 2000 as post-treatment periods. If there is indeed a decreasing trend in this probability, the differences should be significant. The results of these estimations, however, did not present statistically significant values, so we cannot infer a significant change in this probability within the pre-reform period.

#### *Estimations by activity sector and firm size*

We estimate the model for different subgroups of the sample to test whether the effect is consistent and homogeneous among them. Thus, in the first place, the effect of the reform in sectors is estimated to rule out that the increase in the use of fixed-term contracts over permanent contracts is the effect of the growth of a more temporary contracts' intensive sector. Then the effect for different sizes of firms is also estimated to rule out that the heterogeneity of preferences for temporary contracts by size of firm is what causes the growth in fixed-term contract use. The procedure of the exercise is described in the following equation:

$$Dif_{sensibilidad} = \widehat{\Pr}(y_i = 1 | Ley_i = 1, x_t = \bar{x}_t) - \widehat{\Pr}(y_i = 1 | Ley_i = 0, x_t = \bar{x}_t) \quad (3)$$

Where the result of the sensitivity exercise ( $Dif_{sensibilidad}$ ) is the difference between the predicted probability of obtaining a contract for an indefinite term given some characteristic  $x_i$  fixed before and after the reform.

To test the sensitivity of the results among activity sectors, we estimate the effects of the reform in four sectors of the economy that, altogether, represent more than three quarters of private-sector wage employment covered by a contract: manufacturing, construction, trade and services. The following table (Table 3) presents the results of this exercise. The coefficients show remarkable homogeneity across the four sectors. Indeed, the effects for the different sectors are kept within a limited range and are very similar to those found for the entire sample's estimates. Thus, the long-term effects are between 80 and 87 percent reductions for the four sectors.

**Table 3**  
**Urban Peru: Effects of the reform on permanent contracts by periods, according to economic sector**

	Manufacturing			Construction			Trade			Services		
	Mean before the reform	Effect (percentage points)	Effect (percentage change)	Mean before the reform	Effect (percentage points)	Effect (percentage change)	Mean before the reform	Effect (percentage points)	Effect (percentage change)	Mean before the reform	Effect (percentage points)	Effect (percentage change)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Short term	0.334***	-0.214*** (0.0244)	-64%	0.220***	-0.157*** (0.0187)	-71%	0.384***	-0.257*** (0.0290)	-67%	0.264***	-0.141*** (0.0245)	-53%
Long term	0.417***	-0.363*** (0.0246)	-87%	0.293***	-0.244*** (0.0318)	-83%	0.449***	-0.360*** (0.0354)	-80%	0.337***	-0.277*** (0.0274)	-82%
Years 2014-2015	0.300***	-0.273*** (0.0232)	-91%	0.160***	-0.135*** (0.0277)	-84%	0.311***	-0.220*** (0.0489)	-71%	0.265***	-0.242*** (0.0260)	-91%

Note: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Standard errors in parentheses. Coefficients reported in columns (2), (3), (5), (6), (8), (9), (11) and (12) are marginal effects of probit estimation for each period and sector. Columns (1), (4), (7) and (10) report the estimated probability of having a permanent contract in the pre-reform period for each subgroup. It is controlled by educational level, gender, age, workplace, geographical domain, variation in exports, GDP growth, size of the company and years' fixed effects.

Likewise, to test the idea of a potential bias stemming from the differentiated growth of business segments, we estimate the effects of the reform for three firm size categories: small, of 10 or less workers; medium, with more than 10 and up to 100 workers; and large, with more than 100 workers. Table 4 shows the results of the estimates. As for the different sectors, the effects of the reform go in the same direction throughout the three categories of firms. Thus, the long-term effect varies between -80 (small firms) and -87 percent (large firms) for the different segments of firms.

As it has been shown, the decrease in the probability of having an indefinite-term contract crosses all the sectors. This voids the hypothesis that the effects can be explained by changes in the relative importance of more or less intensive sectors making use of temporary contracts. We also find results in the same direction regarding firm size, which voids the hypothesis that the effects may come from a greater growth of firms that, due to their size, are more intensive in temporary labor. Therefore we conclude that the effects identified are attributable to the labor reform and not to changes in the structure of the economy.

**Table 4****Urban Peru: Effects of the reform on permanent contract by periods, according to firm size**

	10 or less workers			Between 11 and 100 workers			More than 100 workers		
	Mean before the reform	Effect (percentage points)	Effect (percentage change)	Mean before the reform	Effect (percentage points)	Effect (percentage change)	Mean before the reform	Effect (percentage points)	Effect (percentage change)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Short term	0.334***	-0.214*** (0.0244)	-64%	0.220***	-0.157*** (0.0187)	-71%	0.384***	-0.257*** (0.0290)	-67%
Long term	0.417***	-0.363*** (0.0246)	-87%	0.293***	-0.244*** (0.0318)	-83%	0.449***	-0.360*** (0.0354)	-80%
Years 2014- 2015	0.300***	-0.273*** (0.0232)	-91%	0.160***	-0.135*** (0.0277)	-84%	0.311***	-0.220*** (0.0489)	-71%

Note: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Standard errors in parentheses. Coefficients reported in columns (2), (3), (5), (6), (8) and (9) are marginal effects of probit estimation for each period and firm size. Columns (1), (4) and (7) report the estimated probability of having a permanent contract in the pre-reform period for each subgroup. It is controlled by educational level, gender, age, workplace, geographical domain, variation in exports, GDP growth, sector of the economy and years' fixed effects.

#### 5.4. Effects on specific socio-demographic groups

The identified effects are averages over a heterogeneous population. An additional exercise that we implemented is to analyze whether different segments of the working population are differentially affected by the labor reform. In particular, we are interested in knowing if the reform has heterogeneous effects along the following categories: gender, location (the capital city Lima versus other urban areas), education and age. Table 5 summarizes the results of the exercise. It is important to emphasize that these results do not necessarily imply a causal effect of the reform. The exercise shows what the probability of having a permanent job would be if any of the characteristics analyzed were fixed, for example, women or outside Lima.

**Table 5**  
**Estimated probabilities and effects for the period 2014-2015, according to socio-demographic characteristics**

	Probability before the reform	Probability after the reform	Effect (percentage points)	Effect (percentage change)
	(1)	(2)	(3)	(4)
Gender				
Women	0.267	0.028	-0.239	-90%
Men	0.283	0.031	-0.252	-89%
Workplace				
Lima	0.390	0.053	-0.337	-86%
Outside Lima	0.226	0.019	-0.207	-92%
Educational level				
Incomplete secondary or less	0.220	0.019	-0.202	-92%
Complete secondary	0.242	0.022	-0.220	-91%
Incomplete non univ.	0.254	0.024	-0.230	-91%
Complete non univ.	0.328	0.039	-0.289	-88%
Incomplete univ.	0.255	0.024	-0.231	-90%
Complete univ.	0.351	0.045	-0.306	-87%
Post-graduate	0.414	0.063	-0.351	-85%
Age groups				
17-25	0.232	0.020	-0.212	-91%
26-35	0.265	0.026	-0.240	-90%
36-45	0.303	0.033	-0.270	-89%
46-55	0.342	0.042	-0.300	-88%
56-65	0.384	0.053	-0.331	-86%

Note: Coefficients reported in column (3) are marginal effects of probit estimation. Column (1) reports the estimated probability of having permanent contracts for the pre-reform period for each subgroup and column (2) does the same for the post-reform period. It is controlled by educational level, gender, age, workplace, geographical domain, variation in exports, GDP growth, sector of the economy, size of the company and the year of the interview.



Workers who have a higher educational level, belong to a more advanced age group, and work in Lima, are more likely to have an indefinite-term contract both before and after the reform. We find that for all groups of workers the probability has suffered a drastic drop. Groups that were previously very likely to have an indefinite-term contract, such as those with a university degree or graduate degree, now have less than 10% probability. In other groups, although the fall is not among the largest, it is very significant. For workers who have incomplete secondary education or a lower level, the probability of having an indefinite-period contract falls by 20 percentage points, from having had a probability of 22 percent before the reform to a close to null 2 percent.

In general, the groups most negatively affected are those that were already less likely to be employed under an indefinite-term contract. If we focus on educational level and age variables, it is the youngest and the least educated who have observed the largest drops, that is, two of the most vulnerable groups in the labor market. The most extreme difference within groups is seen within the age group. For the subgroup of youth between 17 and 25 years old, the reform reduces their probability of having a permanent job by 21 percentage points. Initially, the probability of this group was 23%, which is then reduced to a probability of 2%. For the subgroup of older adults between 56 and 65 years of age, the reform reduces the probability of having an indefinite-term contract by 33 percentage points, going from a 38% probability in the pre-reform period to a 5% probability in the post-reform.

### *5.5. Effects on workers' welfare*

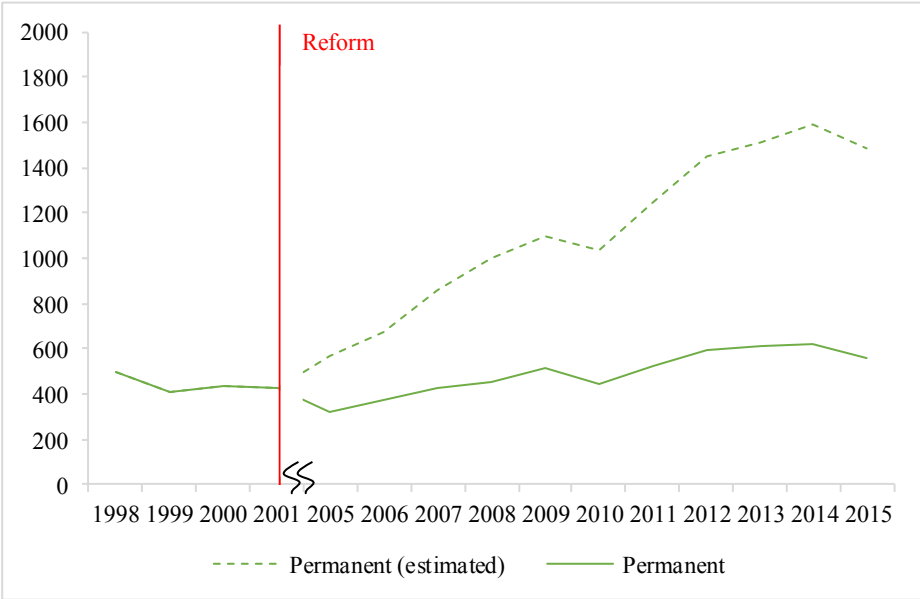
As we have shown, the reform has had perverse effects on the job security of Peruvian workers. There is a significant loss in the probability of having an indefinite-term contract for all wage workers, but this is not the only variable affected by the reform. In this sub-section we focus on two indicators of workers' welfare: salaries and unionization.

To estimate the effect of the reform on these variables, we use the same model with which we identified the effect of the reform on the probability of having an indefinite-term contract, using data for the entire period 1998-2015. A first step is to use the coefficients of this regression to predict the distribution of contracts by type. To find the number of indefinite-term and temporary contracts for this scenario, we multiply the estimated distribution by the total number of contracts. Figure 3 presents the results of this exercise, where the dotted lines represent the trajectory that the two types of contract would have followed had the reform not occurred.

The estimated number of indefinite-term contracts that would have been entered into in 2015 in the absence of the reform is around 1.4 million contracts (more precisely, between 1'492,236 and 1'481,667), while the actual number of indefinite-term contracts

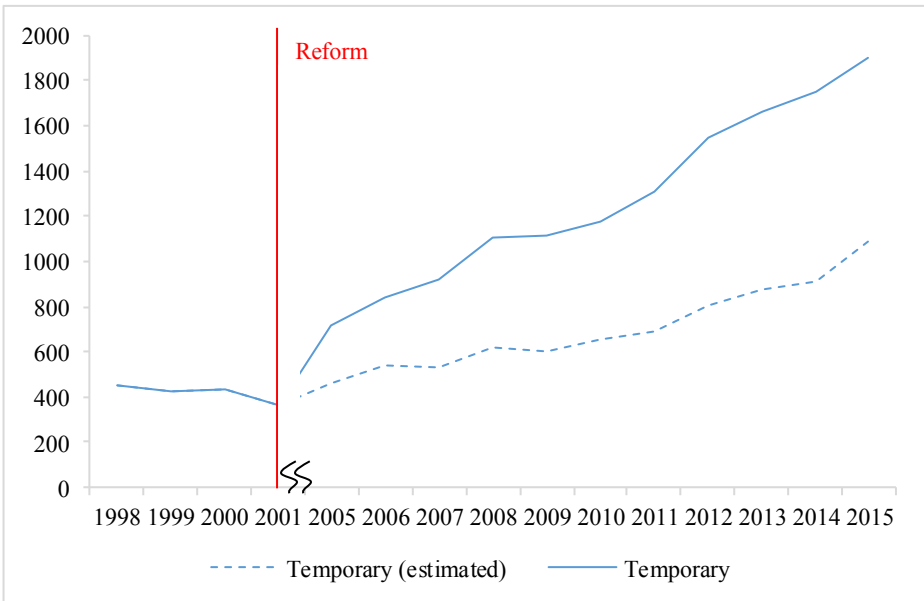
generated was 0.5 million (more precisely, 555,395). That is to say, the reform generated a substitution of between 936,841 and 926,272 indefinite-time contracts for temporary contracts.

**Figure 3**  
**Permanent contracts**  
**(thousands of contracts)**



Note: there are no contract data between 2002 and 2004 because the survey does not collect the information for those years.  
Source: ENAHO-ENIVE 1998-2001; 2005-2015  
Own elaboration

**Temporary contracts**  
**(Thousands of contracts)**



Note: There are no contract data between 2002 and 2004 because the survey does not collect the information for those years.

Source: ENAHO-ENIVE 1998-2001; 2005-2015

Own elaboration

The type of employment contract can have important consequences on the wage received. A simple comparison between the two types of contract shows that the wage gap is large: in 2015 a worker with an indefinite-term contract earned, on average, twice as much as one with a temporary contract. However, this gap hides differences in attributes characteristic of each type of workers. A better approximation to this gap must control for these characteristics (education, age, sex, among others).

Thus, based on Mincer's equations, and controlling for different variables, we estimate the hourly wage gap between workers who have an indefinite-term contract and those with a different type of contract. The estimations are conditioned on being employed and having a contract. We ran these estimations for two periods: the pre-reform period and the 2014-2015 period. Results can be found in Appendix 5.

Our results indicate that in both periods the type of contract is a determinant of the worker's wage and that the difference between periods is not large. In the pre-reform period, a worker under temporary contract had a wage penalty equivalent to one third of his wage in relation to that of a worker with identical observable characteristics who had an indefinite-term contract. In the period 2014-2015, the relationship is similar, although the penalty to the temporary contract is smaller: a worker under temporary contract received 28% less than an identical worker, but with an indefinite-term contract. This reduction may be associated with the widespread use of temporary contracts in the latter period.

These data allow us to obtain the total wage income loss of workers who, because of the TC reform, instead of having an indefinite-term contract have a temporary contract. If having a temporary contract versus an indefinite-term contract meant in 2015 a difference of 28% of the wage, considering current wage trends, then, on average, workers who currently have a temporary contract but would have had an indefinite contract had it not been for the reform, would have received a higher wage of S / . 467 (US \$ 142). Therefore, the total workers' loss due to the reform - loss per worker multiplied by the total of jobs that were replaced - has been between S / . 438 million (US \$ 132 million) and S / . 433 million (US \$ 131 million). These are the loss of monthly income costs that the reform has produced for Peruvian workers. Thus, the annual loss of income for workers amounts to about 5,200 million soles (1.5 billion USD).

Equally affected has been the likelihood of a formal worker being affiliated to a union. Indeed, belonging to a union depends critically on having an indefinite-term contract. Appendix 6 shows a regression of determinants of union membership. Having a temporary contract reduces the probability of affiliation by 4 percentage points, which represents more than half of the affiliation rate estimated from the household survey

data. This means that about 36,000 workers did not affiliate to a union because of the reform.

## **6. Conclusions**

Within the formal sector of the Peruvian economy, four out of five employment relationships are based on temporary contracts. This proportion is grossly larger than that of any OECD country, an organization Peru aspires to join, and also considerably larger than that of any of the countries in the Latin American region. This has potential consequences on the immediate well-being of the workers, affecting their job security, and also indirectly, through effects on the productivity of the firms in which they work. Although the use of temporary contracts in the Peruvian labor market is not new, it has had a vertiginous rise after 2001. This study aims to elucidate the role that the 2001 labor reform had on these results and the effect that this has had on variables associated to the workers' well-being.

Three are the central findings of the study. First, the 2001 reform implemented by the Constitutional Court has caused a drastic reduction in the probability of having an indefinite-term contract for any worker in the Peruvian labor market. The differences-in-differences local estimator, valid for those workers in the margin between formality and informality, indicates a 50 percent reduction in this probability in the short-term (up to five years after the reform), whereas the long-term impact has been a drop of 70 percent. This means that up to 2015, due to the reform, over 900,000 jobs that would have been open-ended were instead fixed-term.

Second, in contrast to international experience in the flexibilization of the use of temporary contracts, which resulted in greater short-term effects than long-term ones, in Peru's case the reform has had greater long-term effects as labor courts implemented the new rules in relation to the termination of indefinite-term employment contracts. That is, the nature of the effects of the flexibilization at the margin seems substantially different than the tightening at the margin. Third, the effects are strong regardless of workers' or firms' characteristics, even though they are more so for vulnerable workers such as young people or those with low educational levels. Finally, the indirect effects on variables associated with workers' well-being are negative and large. According to our estimates, due to the reform the Peruvian formal wage workforce received about 5,200 million soles less income in 2015. Likewise, 36,000 workers did not join a union for the same reason.

This reform is another example of the long tradition of public policies full of good intentions and devoid of attention to evidence. The reform was established with the aim of increasing employee's protection, but ended up having the opposite effect: workers are nowadays less protected due to the reform. If legislation is there to serve society, serious consideration should be given to revising this reform that clearly has negative effects on the welfare of workers and, potentially, on the productive development of the country.

Finally, the results clearly show the risks of implementing policies without considering the evidence on their potential effects. The TC decision, which establishes a public policy regarding the termination of the employment contract, was based on entirely doctrinal aspects. Its negative consequences on the well-being of workers, however, leave little room for doubts about its undesirability in terms of the welfare of society.

## References

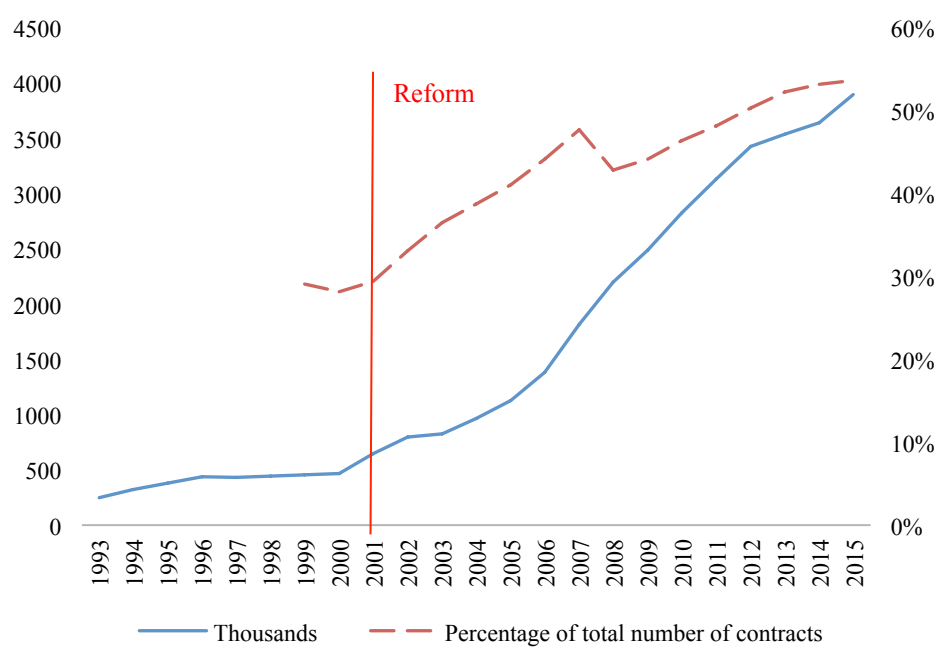
- Autor, D. H. (2003), "Outsourcing at will: The contribution of a just dismissal doctrine to the growth of employment outsourcing", *Journal of Labor Economics*, 21 (1), 1-42.
- Autor, D. H., Donohue III, J. J., & Schwab, S. J. (2006), "The costs of wrongful-discharge laws", *The Review of Economics and Statistics*, 88 (2), 211-231.
- Bentolila, S., & Bertola, G. (1990), "Firing costs and labor demand: how bad is eurosclerosis?", *The Review of Economic Studies*, 57(3), 381-402.
- Bertola, G. (1990), "Job security, employment and wages", *European Economic Review*, 34(4), 851-879.
- Blancas, C. (2002), El derecho al trabajo y el despido arbitrario. *Ius et veritas*, 25, 268-280.
- Blanchard, O., & Landier, A. (2002), "The perverse effects of partial labour market reform: fixed-term contracts in France", *The Economic Journal*, 112(480).
- Boeri, T., & Garibaldi, P. (2007), "Two tier reforms of employment protection: A honeymoon effect?", *The Economic Journal*, 117(521).
- Boeri, T. (2011), "Institutional reforms in European labour markets", *Handbook of Labor Economics*, 4, 1173-236.
- Cahuc, P., Carcillo, S., Rinne, U., & Zimmermann, K. F. (2013), "Youth unemployment in old Europe: the polar cases of France and Germany", *IZA Journal of European Labor Studies*, 2(1), 18.
- Cazes, S., & de Laiglesia, J. R. (2014), "Temporary contracts, labor market segmentation and wage inequality", *International Labor Organization, Geneva*.
- Centeno, L., Centeno, M., & Novo, Á. A. (2009), "Evaluating job-search programs for old and young individuals: Heterogeneous impact on unemployment duration", *Labour Economics*, 16(1), 12-25.
- Eurostats (European Statistics). (2017), European Comission: Temporary employment in the EU. In: <http://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170502-1>
- Hijzen, A. & Mondauto, L. and Scarpetta, S. (2013), "The Perverse Effects of Job-Security Provisions on Job Security in Italy: Results from a Regression Discontinuity Design", IZA Discussion Paper No. 7594.
- INEI (2017), "Producción y Empleo Informal en el Perú, Cuenta Satélite de la Economía Informal 2007-2016. Lima, INEI.

- Kugler, A., & Pica, G. (2008), "Effects of employment protection on worker and job flows: Evidence from the 1990 Italian reform", *Labour Economics*, 15(1), 78-95.
- Lazear, E. P. (1990), "Job security provisions and employment", *The Quarterly Journal of Economics*, 105(3), 699-726.
- Martins, P. S. (2009), "Dismissals for cause: The difference that just eight paragraphs can make", *Journal of Labor Economics*, 27(2), 257-279.
- Maurizio, R. (2016), "Formas atípicas de empleo en América Latina: incidencia, características e impactos en la determinación salarial". OIT, Serie Condiciones de Trabajo y Empleo (76).
- Mortensen, D. T., & Pissarides, C. A. (1999), "New developments in models of search in the labor market", *Handbook of labor economics*, 3, 2567-2627.
- Nickell, S. J. (1987), "Dynamic models of labour demand", *Handbook of labor economics*, 1, 473-522.
- Pissarides, C. A. (2000). "Equilibrium unemployment theory", MIT press.
- Puhani, P. A. (2012). "The treatment effect, the cross difference, and the interaction term in nonlinear "difference-in-differences" models", *Economics Letters*, 115(1), 85-87.
- Saint-Paul, G. (2004). "Macroeconomic Fluctuations and the Timing of Labour-Market Reform." In: *Structural Reform and Economic Policy* (pp. 119-129). Palgrave Macmillan UK.
- Toyama, J. (2003). "El Tribunal Constitucional y los supuestos de reposición laboral: el caso Telefónica". *Asesoría Laboral*, (146).

## Appendixes

### Appendix 1

#### Temporary contracts in thousands and percentages, 1993-2015



Source: Statistical Yearbooks of the Ministry of Labor 1993-2015.

Note: the source does not provide data on total contracts before 1999.

Own elaboration



## Appendix 2

### Descriptive statistics

	Pre-reform (1997-2001)					Post-reform (2004-2015)				
	Obs. (1)	Mean (2)	St. Dev. (3)	Min. (4)	Max. (5)	Obs. (6)	Mean (7)	St. Dev. (8)	Min. (9)	Max. (10)
Permanent contract (Yes=1   No=0)	8614	0.405	0.491	0	1	49198	0.237	0.426	0	1
Educational level	8614	3.237	1.823	1	6	49193	3.563	1.816	1	7
Incomplete secondary or less	8614	0.182	0.386	0	1	49198	0.125	0.331	0	1
Complete secondary	8614	0.327	0.469	0	1	49198	0.284	0.451	0	1
Incomplete non univ.	8614	0.056	0.229	0	1	49198	0.073	0.260	0	1
Complete non univ.	8614	0.149	0.356	0.00	1	49198	0.193	0.395	0	1
Incomplete univ.	8614	0.080	0.272	0.00	1	49198	0.099	0.299	0	1
Complete univ.	8614	0.206	0.404	0	1	49198	0.194	0.396	0	1
Post-graduate	8614	0.000	0.000	0	0	49198	0.030	0.172	0	1
Gender	8614	0.277	0.448	0	1	49198	0.332	0.471	0	1
Age	8614	35.234	11.371	14	91	49198	35.791	11.897	14	89
Lima/Outside Lima	8614	0.306	0.461	0	1	49198	0.355	0.478	0	1
Variation of non-traditional exports	8572	0.118	0.188	-0.46	1.29	49163	0.129	0.162	-0.46	1.29
GDP Growth	8572	3.221	4.501	-12.31	12.31	49163	5.206	3.312	-12.31	12.31
Employment in the manufacturing sector	8614	0.215	0.411	0	1	49198	0.198	0.398	0	1
Employment in the construction sector	8614	0.204	0.403	0	1	49198	0.162	0.369	0	1
Employment in the trade sector	8614	0.156	0.363	0	1	49198	0.169	0.375	0	1
Employment in the transport sector	8614	0.102	0.302	0	1	49198	0.119	0.324	0	1
Employment in the services sector	8614	0.202	0.401	0	1	49198	0.222	0.416	0	1
Firm size (1=Less than 10 work.   2=Between 10 and 100   3=More than 100)	8602	2.325	0.761	1	3	49198	2.383	0.732	1	3
Number of workers in firm	7020	478.903	1086.734	2	9000	46571	660.464	1308.315	2	9700

Note: We consider only jobs with contracts. The division is made by survey years, unlike the regressions that are made per contract year.

Source: ENAHO-ENIVE.

Own elaboration.

### Appendix 3

#### Urban Peru: Simple differences models of the probability of obtaining an indefinite-term contract

	Probability of permanent contract		
	Short term (1)	Long term (2)	Years 2014-2015 (3)
Reform	-0.198*** (0.0107)		
Reform		-0.322*** (0.0127)	
Reform			-0.248*** (0.0123)
Complete secondary	0.0249** (0.0126)	0.0179* (0.00952)	0.0180 (0.0130)
Incomplete non univ.	0.038** (0.0183)	0.007 (0.0134)	0.028 (0.0194)
Complete non univ.	0.091*** (0.0150)	0.075*** (0.0114)	0.0897*** (0.0159)
Incomplete univ.	0.054*** (0.0175)	0.044*** (0.0132)	0.0290 (0.0179)
Complete univ.	0.115*** (0.0150)	0.107*** (0.0118)	0.110*** (0.0157)
Post-graduate	0.194*** (0.0387)	0.124*** (0.0302)	0.164*** (0.0472)
Gender (women=1)	-0.006 (0.00950)	-0.013* (0.00724)	-0.013 (0.0101)
Age	0.003*** (0.000423)	0.003*** (0.000315)	0.003*** (0.000438)
Exports	0.287*** (0.0602)	-0.0338 (0.0412)	0.103 (0.0736)
GDP growth	-0.003 (0.00285)	0.009*** (0.00239)	0.006 (0.00362)
Additional controls			
Sectors of the economy	Yes	Yes	Yes
Firm size	Yes	Yes	Yes
Geographical domain	Yes	Yes	Yes
Years	Yes	Yes	Yes
Observations	8,836	12,201	7,489

## Appendix 4

### Urban Peru: difference-in-difference models of the probability of obtaining an indefinite-term contract

	Probability of permanent contract		
	Short term (1)	Long term (2)	Years 2014-2015 (3)
Law	-0.429** (0.171)	-0.541** (0.222)	-0.546 (0.494)
Social security	1.253*** (0.101)	1.248*** (0.0992)	1.246*** (0.103)
Law*Social security	-0.386** (0.176)	-0.804*** (0.148)	-1.144*** (0.331)
Complete secondary	0.00379 (0.131)	0.103 (0.118)	0.0781 (0.144)
Incomplete non univ.	-0.0589 (0.194)	-0.302 (0.194)	-0.144 (0.234)
Complete non univ.	-0.0943 (0.158)	-0.169 (0.143)	-0.0637 (0.178)
Incomplete univ.	0.220 (0.168)	0.000730 (0.158)	0.0867 (0.198)
Complete univ.	0.228 (0.144)	0.0643 (0.135)	0.155 (0.166)
Post-graduate	0.190 (0.576)	0.190 (0.535)	0.0697 (0.737)
Gender (women=1)	0.116 (0.0890)	0.0812 (0.0825)	0.104 (0.105)
Age	0.00778* (0.00449)	0.0109*** (0.00388)	0.00977* (0.00521)
Exports	0.212 (0.602)	-0.0593 (0.485)	0.202 (0.834)
GDP growth	0.00600 (0.0281)	0.0199 (0.0289)	0.00915 (0.0418)
Constant	-2.428*** (0.413)	-1.849*** (0.306)	-2.055*** (0.409)
Additional controls			
Sectors of the economy	Yes	Yes	Yes
Firm size	Yes	Yes	Yes
Geographical domain	Yes	Yes	Yes
Years	Yes	Yes	Yes
Observations	2,978	3,594	2,301

## Appendix 5

### Wage determinants by period

	Wage logarithm	
	Pre-reform (1)	2014-2015 (2)
<b>Temporary contracts</b>	<b>-0.333***</b> <b>(0.014)</b>	<b>-0.283***</b> <b>(0.019)</b>
Years of education	-0.033*** (0.008)	-0.064*** (0.009)
Years of education squared	0.005*** (0.000)	0.007*** (0.000)
Employment duration	0.022*** (0.002)	0.0225*** (0.003)
Employment duration squared	-0.000*** (0.000)	-0.000*** (0.000)
Gender (Women=1)	-0.338*** (0.011)	-0.336*** (0.018)
Constant	7.281*** (0.048)	6.480*** (0.052)
Observations	11,159	7,048
R2	0.307	0.284

Note: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Standard errors in parentheses. The sample has been limited to workers who work 30 hours or more and have a positive wage. Coefficients reported in the column are percentage changes in wages.

## Appendix 6

### Determinants of union membership

	Probability of union membership (1)
Has a temporary contract	-0.039*** (0.000)
Education	
Complete secondary	-0.018*** (0.000)
Incomplete non univ.	-0.054*** (0.001)
Complete non univ.	-0.026*** (0.000)
Incomplete univ.	-0.002*** (0.001)
Complete univ.	-0.049*** (0.000)
Experience	0.003*** (0.000)
Sectors	
Mining	0.036*** (0.001)
Manufacturing	-0.021*** (0.001)
Construction	-0.024*** (0.001)
Trade	-0.063*** (0.001)
Transport	-0.043*** (0.001)
Services	-0.035*** (0.001)
Age	0.001*** (0.000)
Work with 100 workers or less	-0.093*** (0.000)
Observations	4,991

Note: \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Standard errors in parentheses. The questions referring to union membership were only asked in the surveys of ENAHO third trimester 1998-2001 (pre-reform period). Therefore, the sample for this estimate only includes observations of the pre-reform period. Coefficients reported in the column are percentage points of the probability of being unionized.