

**Mandatory Severance Pay in Peru:  
An Assessment of its Coverage and Effects using Panel Data \***

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**Abstract**

In Peru, like in many other developing countries, employers have the legal obligation to pay severance to workers who are dismissed due to no fault of their own. Is this a cost-effective mechanism to provide income support to the unemployed? This paper seeks an answer to this question using individual records from three rounds of a household panel. Relying on five coverage indicators, the paper shows that roughly 20 percent of private sector workers are legally entitled to severance pay, but only half of those covered are likely to get it in the event of dismissal. Legal coverage, and especially actual coverage, are more prevalent among wealthier workers. Few among the unemployed get severance, which suggests that those covered are less likely to lose their jobs. Combining several empirical strategies, the paper also shows that covered workers do not “pay” for their severance through lower wages, although their wages are not significantly higher either. Finally, consumption among unemployed workers who received severance is 20 to 30 percent higher than among those who did not.

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\* This paper was written for a broader World Bank study on the management of economic insecurity in Latin America and the Caribbean. The views in this paper are those of the authors. They should not be attributed to the World Bank. Correspondence related to the paper should be sent to [mrma@worldbank.org](mailto:mrma@worldbank.org).

## 1. Introduction

In Peru, like in many other developing countries, employers have the legal obligation to pay severance to workers who are dismissed due to no fault of their own. The amount to be paid is based on a formula involving seniority in the job and the last monthly salary. The specific formula has been modified several times over the last decade, but it has often involved a minimum seniority, a maximum severance pay, and various discontinuities or kinks. Depending on seniority, the total amount received by the worker represents a few months to one year of salary. Compliance is complaint-driven, as a dismissed worker who is denied severance can report the problem to the Ministry of Labor, and possibly get his or her due. Handling these complaints is actually one of the main tasks of labor inspectors.

Mandatory severance pay of this sort could be seen as a convenient substitute for unemployment insurance, especially in countries with low administrative capacity. Workers do not need to be enrolled with the social security administration to be entitled to severance pay; employers do not need to make contributions; and the social security administration does not need to pay benefits or monitor whether the beneficiaries are indeed unemployed. Because compliance is complaint-driven, rather than based on enrollment, the share of the labor force covered by the scheme is potentially larger than the share of the formal sector. And because there are no taxes or administrative costs, other than those related to ex-post enforcement, the burden on the rest of the economy should not be too heavy.

Mandatory severance pay could also encourage workers to put effort on their job while at work, and on their job search while unemployed. Workers who lose their jobs because of misconduct are not entitled to severance pay. As a result, shirking at work carries an explicit

penalty in addition to the implicit “unemployment” penalty considered by efficiency wage models. In principle, a contingent deferred payment of this sort could provide an incentive for workers to work harder. Moreover, the amount of severance received by workers who do lose their jobs is independent from the time they stay unemployed. Therefore, severance pay does not create an incentive for workers to remain on the dole.

Mandatory severance pay is no doubt popular in Peru, at least among urban workers. In November 1996, in the context of its policy dialogue with multilateral organizations, the government gave the impression that it wanted to slash mandatory severance pay by half. As a draft regulation containing this change made it to the news one evening, there was a public opinion uproar, forcing an immediate reaction. The day after, the government announced that the publicized draft contained an unfortunate typo, its true intention being to raise severance pay by half. This effectively happened (Saavedra, 1999). Since then, there have been no further changes to the (now more generous) severance pay formula.

In spite of its apparent popularity, mandatory severance pay could also have adverse effects. In the Latin American context, it has been claimed to be one of the most important labor market distortions (Márquez and Pagés, 1998). The resulting increase in separation costs is a potential deterrent to job creation, resulting in a lower demand for labor. Employers in the formal sector face an incentive to hire workers on temporary contracts, whereas those in the informal sector could be discouraged from legalizing their activities. Workers who possess little more than their labor are thus constrained to remain in short-term or low-paying jobs with little prospect for improvement. From this perspective, mandatory severance pay can be seen as a transfer from the poor to relatively privileged urban workers.

Based on the literature, mandatory severance pay could indeed have a substantial impact on resource allocation. While earlier simulations using models calibrated for industrial countries found a small impact on employment (Bentolila and Bertola, 1990), more recent exercises report costs to society ranging from sizable (Hopenhayn and Rogerson, 1993) to extravagant (Parente and Prescott, 1999). Analyses using cross-country data from the industrial world show a lower employment-to-population ratio in countries with higher severance pay (Lazear, 1990; Addison and Grosso, 1996) or higher job protection (Nickell, 1997). Studies using plant-level data from Europe and the US conclude that job protection leads to more reliance on hours adjustment (Abraham and Houseman, 1994) and to smaller flows in and out of unemployment (Blanchard and Portugal, 2000). In a similar spirit, a study using plant-level data from India and Zimbabwe shows a drop in labor demand after job security regulations were made more stringent (Fallon and Lucas, 1991). And a paper using household-level data from Chile claims that turnover rates are lower for workers entitled to more generous severance pay (Pagés and Montenegro, 1999).

In the specific case of Peru, there is some evidence based on plant-level data suggesting that mandatory severance pay does reduce labor demand. Saavedra and Torero (1999) measure firing costs for a panel of roughly 500 firms in the formal sector based on the average severance these firms would have to pay if they fired all their workers. Controlling for average wage costs, firing costs appear to have a negative impact on labor demand in the late 1980s and early 1990s. The impact becomes statistically insignificant in the mid-1990s. The results could be questioned on methodological grounds, as a lagged value of the endogenous variable is included among the explanatory variables, thus making the estimates inconsistent, given the chosen econometric technique. However, other results presented by Saavedra and Torero also point in the direction of a negative impact of mandatory severance pay on labor demand.

In spite of its potentially detrimental impact on job creation, mandatory severance pay could be effective at smoothing the consumption of workers who lose their jobs. In principle at least, the insurance benefits could outweigh the allocation costs in a social welfare function that attaches a strong weight to the well-being of urban, formal sector workers and their families (see Basu *et. al.*, 1996). The apparent popularity of mandatory severance pay in Peru gives some credibility to this hypothesis. And even if the overall welfare effects were negative, they could still be preferable to those of other, more inefficient income support schemes for the unemployed. Put differently, mandatory severance pay could be a lesser evil, compared to the alternatives. But this is only a theoretical possibility, as relatively little is known about the actual costs and benefits of mandatory severance pay in developing countries.

The aim of this paper is to assess the coverage and effects of mandatory severance pay in the case of Peru, using household-level data. Coverage is not a trivial issue in a developing country, as programs that are efficient on paper (such as unemployment insurance) may only reach a small fraction of the labor force, whereas more inefficient programs (like severance pay) may be easier to implement. In this paper, coverage is assessed at the aggregate level but also by quintiles, based on the countrywide distribution of per capita consumption. This breakdown is justified because the weight attached to the wellbeing of households in different quintiles varies with the objectives that are being pursued. Depending on whether the government is concerned about the poor, the median voter, or the most vocal interest groups, the focus would be on the bottom, the middle or the top quintiles respectively.

The effects of mandatory severance pay considered in this paper refer to labor costs and consumption. The employment effects of mandatory severance pay could be modest, or even negligible, if covered workers “paid” for their income support when unemployed through lower

wages while employed. They could also be low if the shirking penalty created by severance pay reduced the wage level needed to entice workers to put effort on their jobs. On the other hand, mandatory severance pay could allow covered workers to bargain for higher wages, as replacing them would be more expensive. In this case, employment would drop both because of high (anticipated) separation costs and high (current) labor costs.

As regards consumption, severance pay provides separated workers with enough cash to spread the negative impact of job loss over several months or years. The amount received could even be large enough to lead to an increase in consumption. However, severance pay would have no impact on consumption if it were just displacing self-insurance mechanisms. If workers had unrestricted access to credit, an unemployment spell would not modify their permanent income much, and neither would severance pay. The impact could also be small or negligible if lack of coverage enticed workers to save more.

An assessment of the coverage and effects of severance pay in Peru along these lines is made possible by the availability of a high-quality household survey with a panel structure, known as *Encuesta Nacional de Hogares Sobre Medición de Niveles de Vida* (ENNIV, 1995). This is basically a Living Standards Measurement Survey, or LSMS for short (Grosh and Glewwe, 1998). The data used in this paper are from the 1991, 1994 and 1997 rounds. Several thousands of individuals can be found in two consecutive rounds. The availability of panel data is key to address the potential endogeneity of coverage. If coverage were associated with unobservable worker characteristics, such as more talent or better connections, it would be difficult to disentangle whether differences in earnings, or in consumption, are due to coverage or rather to those unobservable characteristics. With panel data it is possible to “remove” the effect of unobservable characteristics.

## 2. Regulations

Peru combines a heavy regulation of its labor market with very limited compliance, as reflected by the large size of its informal sector. It is often claimed that these two characteristics are related, as heavy regulation increases the cost of playing by the rules (De Soto, 1989; Loayza, 1996). However, it has also been argued that the implicit, dualistic view of the labor market is not supported by the data (Maloney, 1999; Saavedra and Chong, 2000). And causality could very well go in the opposite direction, as the irrelevance of regulations would allow the government to appear socially “generous” on paper, without having to bear large economic costs in practice. In any event, some of most stringent labor regulations of Peru were removed, or eased, during the 1990s.

A potentially important change was the abolition of job security for new hires, in 1991. Until then, dismissals had to be approved by the government. If they were deemed “unjustified”, the separated workers could choose between getting severance pay or being reinstated in their jobs. The 1991 reform removed the need for government approval. In 1995, job security was formally abolished for all workers. However, it must be noted that job security regulations had been in place since 1970, giving employers enough time to find ways to bypass them. Workers were often hired on short-term contracts, dismissed before they reached the minimum seniority needed for job security, and then re-hired. Those on longer contracts were sometimes required to sign an undated resignation letter. The regulatory framework itself contained important loopholes. In 1971, the minimum seniority requirement was raised to three years, substantially reducing the legal coverage of job security provisions. In 1986 minimum seniority was set at

three months only, but an emergency employment program was launched allowing employers to hire workers without providing social security benefits, or stability (Saavedra, 1999).

While job security regulations lost much of their teeth during the 1990s, mandatory severance pay regulations were not substantially eased. The definition of “unjustified” dismissal was made more restrictive in 1991. The formula setting the amount to be paid in the event of unjustified dismissal was modified four times over the decade, but its basic structure remained the same, as shown in Table 1. This table also displays the timing of the three LSMS rounds that are used in this paper, so as to identify the specific formula that was in force when the survey interviews took place. These interviews were usually carried out within two or three months of the launching date reported in the table.

In addition to severance pay, dismissed workers are entitled to an end-of-service gratuity, known as *Compensación por Tiempo de Servicio*. This entitlement was created in 1963. The gratuity amounts to half a month of salary per year of service and it is payable to all workers at the termination of their contracts, regardless of whether they are dismissed or they just quit or retire. Since 1991, the gratuity has to be deposited twice a year in a Bank account under the worker’s name. Because these deposits are not contingent on any event other than employment, the end-of-service gratuity can be seen as a delayed compensation, rather than an additional severance payment. It is safe to assume that workers who are covered (not covered) by severance pay regulations are also entitled (not entitled) to the end-of-service gratuity.

### 3. Data

The design and methodology of the three LSMS rounds were similar, despite the fact that only the first two were supported and monitored by the World Bank. In particular, all three rounds tried to provide a comprehensive picture of the poorest households, whose active members are seldom concerned by job security regulations. Thus, the 1994 and 1997 surveys had a national coverage, including both urban and rural areas. In 1991, the survey did not reach the whole country, but rather focused on urban areas and the rural *sierra* (highlands). This choice was justified on the grounds that most of the Peruvian population lives in the former, whereas many among the poor live in the latter. However, some provinces were excluded from the survey because terrorist activities made them dangerous for the interviewers.

The number of households in the sample has increased over time, from 2,308 in 1991, to 3,623 in 1994, to x,xxx in 1997. Whenever possible, the person answering the questionnaire was the household head. While some of the information collected refers to the household as a whole, the survey also inquired about each of its members. In particular, questions related to employment, unemployment, cash earnings and job-related benefits were asked at the individual level. Information on variables such as age, gender or educational attainment was also collected at the individual level. On the other hand, information on housing or expenditures is reported at the household level.

Some of the households were interviewed in more than one round of the survey. As a result, a relatively large number of individuals can be traced from one round to the next. These individuals form the panels used in the paper. There are x,xxx individuals in the 1991-1994 panel, and 3,493 in the 1994-1997 panel. But many among them were economically inactive in

at least one round of the survey. As a result, the regression analyses below involve fewer individuals. In principle at least, a panel could be constructed for the three years. That was not attempted in this paper, as the resulting number of valid observations would be small.

From the point of view of this paper, the key variables in the survey are those referring to employment status and to coverage by severance pay regulations. Following the standard practice, anyone who worked for a wage or salary, was self-employed, or worked in a family business in the seven days preceding the survey, was considered employed. Those who declared to have a job, even if they were out of work in the week preceding the survey, were also considered employed. On the other hand, anyone who was not employed according to this definition and was actively searching a job in the week preceding the survey, was considered unemployed. Those who were not employed, and were not actively seeking a job because they were sick, or discouraged, were also counted among the unemployed.

Coverage by severance pay regulations is more difficult to assess, as these regulations may not always be enforced. To address this difficulty, this paper does not rely on a single variable but rather on five coverage indicators, summarized in Table 2. The “legal” indicator is set equal to one for employed individuals who meet the formal requirements for coverage. These requirements combine the salaried status with some minimum seniority, as described in Table 1. Consequently, the legal indicator is set equal to zero for the self-employed, family workers, and salaried workers who have only been in their jobs for a short period of time (how short depends on the regulations in force at the time of the survey). Each of the other four coverage indicators focuses on a job characteristic that makes compliance with severance pay regulations more likely. The characteristics considered are: having a written contract with the employer (“contract”), being enrolled with the social security system (“pension”), working in a firm where

at least one trade union operates (“trade union”), and working in an establishment with employing at least 21 persons in all (“large firm”). When the person is legally entitled to severance pay and, in addition, his or her job has one of these characteristics, the corresponding coverage indicator is set equal to one. It is set equal to zero otherwise.

These five coverage indicators can be combined to generate a coverage score. The score is defined as the sum of the five indicators, so that by construction it varies between zero and five. Given the way the last four coverage indicators were defined, a score of one means that the worker is legally entitled to severance pay but his or her job has none of the characteristics that make compliance more likely. As the score goes up, the likelihood that the worker will get severance pay in the event of unjustified dismissal increases. For someone who gets a score of five, the likelihood gets close to certainty.

Unfortunately, not all the coverage indicators can be computed in all three rounds of the survey. The most detailed questionnaire in this respect is the one administered in 1994, and it is therefore the one used hereafter to assess coverage. The 1991 round does not report whether the worker had a contract, and does not provide information on the total personnel of the employer. The 1997 survey, in turn, does not ask about unionization at the workplace. Because of these limitations, the analyses using the 1991-94 and 1994-97 panels focus only on coverage indicators which are available for the two years each covers.

Coverage can also be assessed, ex-post, for the unemployed. In principle, the survey questionnaire allows to construct coverage indicators and scores for the last job held by the respondent over the previous 12 months. This information could be used to infer whether those who were unemployed at the time of the survey did receive severance pay. But there are two problems with this approach. First, the survey does not report information on whether job loss

was voluntary or involuntary and, in the latter case, whether it was “unjustified” or not. (Even if it did, few respondents could be expected to declare that their employer was right to fire them.) Second, answering questions related to the last job involves a substantial recall effort by the respondent. Not surprisingly, information on the previous job is altogether missing for many among the unemployed. As a result, it is not possible to identify who, among the unemployed, are first-time job seekers.

The approach used in this paper to infer coverage among the unemployed is based on information about other income sources of the household over the previous 12 months. The questionnaire inquires about a large number of income sources, such as interest payments, rent, alimonies, remittances, bequests and lottery prizes. It also asks about payments related to old-age pension or end-of service gratuity (lumped together) and to compensation (without further detail). Some households report receiving income from one of the last two sources once, and only once, over the previous 12 months. The paper assumes that some (unidentified) member of those households did get severance pay.

This severance pay indicator is potentially misleading in the early 1990s, when Peru embarked in a large public sector downsizing program, involving more than a quarter million job separations (Haltiwanger and Singh, 1999). As a result, the end-of-service gratuity or compensation reported by some households could bear no relation with the mandatory severance pay scheme for private sector workers. Since separation packages for public sector workers were based on a different formula, the estimates of the consumption impact of severance pay would be biased. Because of this potential bias, the severance pay indicator is constructed for the 1994-1997 panel only.

Other relevant variables for the analysis refer to labor earnings and consumption per capita. Labor earnings were calculated for the main occupation, including payments both in cash and in kind. The survey questionnaire is quite detailed concerning the latter. As regards the former, it refers explicitly to “net” payments, which means that contributions in the name of the worker to the social security administration, or towards the end-of-service gratuity, are not counted as labor earnings. Data on consumption per capita were taken from other studies dealing with poverty in Peru. A detailed description of the methodology used in those other studies to calculate consumption using expenditure data can be found in World Bank (1999). Both the earnings and the consumption figures are measured at June 1994 prices.

#### 4. Coverage and Beneficiaries

Approximately one in five private sector workers is legally entitled to severance pay in Peru. This figure is not as low as it may appear as a first glance, as many private sector workers are self-employed or work in household enterprises. The salaried relationship is certainly not as common in a country at that development level as it is in industrial countries. Moreover, many salaried workers do not have the minimum seniority to be entitled to severance pay. However, salaried jobs and longer tenures are more common among relatively wealthier workers. Table 3 presents a breakdown of coverage indicators by consumption quintiles, based on the distribution of consumption per capita among all Peruvians (and not just among private sector workers). In this table, the share of private sector workers who are legally entitled to severance pay increases monotonically with the consumption level, from roughly 15 percent in the bottom quintile to almost 30 percent in the top quintile.

Legal coverage does not guarantee that severance will be paid in the event of separation. Actual payment is much more likely if the worker has a written contract that can be used to substantiate his or her claim. It is also more likely in firms that are affiliated with social security, or whose workers are unionized, as the cost of non-compliance is potentially higher in their case. Finally, compliance may be higher in firms that are more “visible” to labor inspectors, because of their size. Table 3 shows that all of the attributes that make compliance more likely are highly correlated with wealth. For instance, the share of private sector workers who are legally entitled to severance and in addition are enrolled with social security varies from half of one percent in the bottom quintile to more than 16 percent in the bottom quintile.

The picture is similar when coverage scores are considered instead, as shown in Table 4. A score of one is equivalent to legal coverage. A score of two indicates that the job has one, and only one, additional characteristic that makes compliance more likely. But it does not matter which specific characteristic this is. The score increases with the number of coverage indicators associated with the job. Table 4 reveals that very few private sector workers have a high coverage score, even in the top quintiles. On the other hand, almost 10 percent on them have a score of two or higher. Given that slightly more than 20 percent with a score of one or higher, roughly half of the private sector workers who are legally covered could actually get their severance pay if they were dismissed. However, this ratio ranges from one tenth in the bottom quintile to almost two thirds in the top quintile.

The fraction of the unemployed who actually received severance pay appears to be much lower than the fraction of private sector workers who are covered by it. The distribution of the unemployed by consumption quintile is displayed in Table 5. The average unemployment rate in the sample is around 7 percent. The unemployment rate is highest in the third and fourth quintile

and lowest in the bottom quintile. Receiving severance pay is also more common among the middle class and quite uncommon among the poor. But overall, few unemployed persons do actually receive severance pay. This is partly explained by the fact that the unemployed include many first-time job seekers, who obviously have not entitled to severance. Unfortunately, it is not possible to identify the first-time job seekers, as information on previous activity is missing for too many respondents.

Another reason why few among the unemployed actually received severance pay is that covered workers are less likely to lose their jobs. Table 6 shows the changes in employment status for respondents of the 1994 round who were surveyed again in 1997.

## 5. Impact on Earnings

Three econometric techniques, each relying on different identifying assumptions, are used in what follows to assess the effects of mandatory severance pay. Since opinions on the validity of those assumptions may vary, focusing on only one, “preferred” technique could always lead to criticism. On the other hand, results that are consistent across the three techniques should carry some credibility. The first technique is ordinary least squares. Its main advantage is that it makes use of all the observations available in the panel; its main inconvenient is that it does not “remove” unobservable individual-specific characteristics and, therefore, is subject to self-selection bias. For instance, those covered by mandatory severance pay could also be the most talented workers. When using ordinary least squares, some of the effect of talent on labor earnings would be attributed to severance pay coverage. The second technique is fixed effects, which is equivalent to ordinary least squares with an individual-specific intercept. These

intercepts allow removing unobservable heterogeneity. However, only those individuals who have earnings in the two years can be considered in the regression, so that the number of observations is smaller than before. Moreover, observable characteristics that are relevant to explain labor earnings but are invariant over time become perfectly collinear with the individual-specific intercept, and have to be dropped from the analysis. The third technique is random effects, which also removes unobservable heterogeneity and also relies on a smaller sample. Its advantage over fixed effects is that it allows taking into account all of the observable, time-invariant characteristics that are relevant to explain labor earnings. Its disadvantage is that the determinants of labor earnings and the individual-specific error term need to be uncorrelated for the estimates to be consistent, and this is a strong assumption.

When assessing the impact of severance pay coverage on labor costs, the preferred cost indicator is the hourly labor earnings of private sector workers. The log of this indicator is the left-hand-side variable considered in the first column of Tables 7 to 9. The second column in these tables considers the log of monthly earnings instead. The dependent variable in this case does not take into account the number of hours worked. The latter is not included among the explanatory variables either, as it is clearly endogenous. The last two columns in Tables 7 to 9 replicate the analysis for a broader sample, including workers who have a job in the public sector in any of the two years of the panel. A dummy variable is included in the specifications in these two columns to account for the possible earnings gap between the public and the private sector.

The other right-hand side variables in Tables 7 to 9 are standard in the analysis of labor earnings. These variables control for gender, schooling, experience, position in the household, year and region. The regressions also take the cultural background of the respondent into account. In a country with a large indigenous population, mainly *Quechua*, fluency in the

official language (Spanish) cannot be taken for granted. The inclusion of a dummy variable for Spanish as the mother tongue substantially reduces the estimated returns to schooling, and blurs the comparison with other studies on this issue. However, the focus of this paper is on the impact of coverage indicators, not on returns to schooling.

The results in Table 7 to 9 show that workers do not “pay” for their severance pay coverage through lower labor earnings. None of the coverage indicators has an impact on labor earnings in the fixed effects regressions. And none of them is negative when using the other two econometric techniques. Mandatory severance pay can thus be seen as an income support program for the unemployed financed through a “tax” on employers. The burden of this tax, or contingent liability, increases with the probability that workers will become redundant. In principle, it could be positive even in the absence of redundancy risk, if mandatory severance pay allowed workers to negotiate higher wages. However, the results in Tables 7 to 9 suggest that workers who are entitled to severance pay do not earn (substantially) more than those who are not. Because this interpretation is potentially controversial, it is worth looking in more detail at the coefficient multiplying each of the coverage indicators.

Being legally covered by severance pay regulations does not affect labor earnings when unobservable worker heterogeneity is taken into account, as in Tables 8 and 9. And only in one of the eight regressions in these two tables displays a (marginally) significant coefficient for the contract indicator. The legal and contract indicators are statistically significant only when using ordinary least squares. Because this technique is subject to self-selection bias, statistical significance in its case could merely be reflecting that more productive workers are more likely to be covered by severance pay.

At a first glance, the results are somewhat more ambiguous concerning enrollment with social security and employer's size. None of these two variables gets a significant coefficient when using fixed effects. With the other two econometric techniques, the pension indicator has a significantly positive effect on monthly earnings, but no effect on hourly earnings. It follows that those who are enrolled with social security also tend to work longer hours, not that they are more costly to their employers. On the other hand, the coefficient multiplying the size indicator is positive and significant in all of the regressions in Tables 7 and 9. Interpreted literally, this coefficient implies that those who work for large firms earn, on average, 30 to 40 percent more than those who do not. However, the interpretation of this result is not straightforward. The impact of employer's size on labor earnings is well documented in the US, where there is no mandatory severance pay (Brown and Medoff, 1989). Similar wage effects have been reported for Peru (Schaffner, 1998). The positive coefficient multiplying this indicator could therefore be reflecting a true "size" effect, rather than a coverage effect.

## 6. Impact on Consumption

While coverage by mandatory severance pay regulations concerns individual workers, consumption is determined at the household level. Therefore, an empirical analysis of the impact of severance pay on consumption has to take into account household characteristics, and not just individual characteristics. Two of the most relevant household characteristics are its size and age composition. Other things equal, consumption can be expected to be lower when there are more mouths to feed with the same income. A third relevant characteristic is the households' ability to smooth consumption on its own. In the LSMS survey this ability can be captured through the

household's access to credit (as revealed by the possession of at least one credit card), or through its possession of a bank account in the 12 months preceding the survey.

The individual characteristics to consider are also slightly different from those used in the earnings analysis. Severance pay regulations can affect the consumption level of workers, depending on whether they are covered, but their most important effect is likely to be on the consumption level of the unemployed, depending on whether they actually got severance pay. Consequently, the sample has to include both the employed and the unemployed, and the specification has to consider appropriate severance pay indicators for each group. The regressions presented in this section include among their right-hand-side variables both the coverage indicators used in the earnings analysis and the dummy variable for actual severance pay used in the coverage analysis.

Results using the same three econometric techniques as in the earnings analysis can be found in Tables 10 to 12. The impact of household characteristics, reported in the third panel of Tables 10 and 12, is relatively uncontroversial. At the sample mean, adding a person of working age to the household reduces consumption per capita by 7 to 8 percent. The drop in consumption is more than twice as large if this person is less than 15 or more than 64 years old. The size of the coefficients is similar in both tables. On the other hand, having access to credit or previous savings boosts consumption by 15 to 25 percent. In this case, the estimates are higher when using ordinary least squares, which suggests that households which are relatively more productive (in unobservable ways) also tend to have better possibilities to smooth their consumption.

From the point of view of this paper, the most interesting results in Tables 10 to 12 are those concerning the impact of severance pay on consumption. Based on those results, it is

difficult to claim that coverage by severance pay has a significant impact on consumption among those who have a job. When using fixed effects, all the coefficients multiplying the coverage indicators are statistically insignificant. With the other two techniques, consumption appears to be substantially higher for those who work in large firms or in the public sector, but this is consistent with the results in Tables 7 and 9, where these two indicators are associated with substantially higher earnings. Consumption is also higher among those who are enrolled with social security, despite the fact that their net hourly earnings are not necessarily higher. However, enrollment with social security often entitles the worker to an old-age pension, thus reducing the need to save for retirement. Therefore, a positive coefficient could be expected for the pension indicator, even in a country with no mandatory severance pay. On the other hand, the coefficients on the legal and the contract indicator are statistically insignificant with all three econometric techniques.

Conversely, actually receiving severance pay has a substantial impact on consumption. Those who are unemployed and received no severance pay consume, on average, 10 to 20 percent less than those who are employed. The magnitude of this effect is in line with similar results for the US. Gruber (1997) estimates that job loss would entail a 20 percent drop in food consumption if the replacement rate of the unemployment insurance system were set equal to zero. In the case of Peru, the effect of job loss should be even higher, as the unemployed include both separated workers and first-time job seekers, and the latter should not experience any drop in consumption. On the other hand, those who are unemployed and received severance pay consume, on average 20 to 30 percent more than those who did not. The coefficient multiplying the severance pay variable is larger than the coefficient multiplying the unemployment variable regardless of the econometric technique and specification used.

Finally, the regressions in Table 10 and 12 interact the unemployment and the severance pay variables with access to credit. The impact of unemployment on consumption could be expected to be smaller for households who can smooth consumption on their own, and the impact of severance pay should be smaller as well. However, the coefficients multiplying the interactive terms in Tables 10 and 12 do not conform to the expected pattern. Access to credit does not appear to mitigate the consumption loss of the unemployed. And it seems to boost the consumption level of those who get severance, as if the latter was a windfall.

## 7. Conclusion

[To be completed]

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Table 1

## Severance Pay in the Event of “Unjustified” Dismissal

Date	Regulation	Severance pay formula (W = monthly wage and T = years of service)	Household survey
June 1986	L. 24514	$0$ if $T < 0.4$ $3 \times W$ if $0.4 \leq T < 1$ $6 \times W$ if $1 \leq T < 3$ $12 \times W$ if $T \geq 3$	
October 1991			Yes
November 1991	D.L. 728	$0$ if $T < 1$ $3 \times W$ if $1 \leq T < 3$ $T \times W$ if $3 \leq T < 12$ $12 \times W$ if $T \geq 12$	
April 1994			Yes
July 1995	L. 26513	$T \times W$ if $T < 12$ $12$ if $T \geq 12$	
November 1996	D.L. 855	$1.5 \times T \times W$ if $T < 8$ $12$ if $T \geq 8$	
September 1997			Yes

Notes: Since 1963, all workers are entitled to an end-of-service gratuity, regardless of the reasons for job termination. The gratuity, which is paid in addition to severance pay, amounts to half a month of salary per year of service. The date reported for the household surveys corresponds to the first month of field work. Interviews usually took place within a quarter. L. stands for ley and D.L. for decreto legislativo.

Source: Constructed by the authors based on Saavedra (1999).

Table 2

**Indicators of Severance Pay Coverage  
In each of the Household Surveys**

Indicator	Household survey		
	1991	1994	1997
Legal	Wage earner in private sector Tenure in job $\geq$ 3 months	Wage earner in private sector Tenure in job $\geq$ 12 months	Wage earner in private sector Any tenure
Contract	Not available	Legally covered Has a signed contract	Legally covered Has an open-ended contract
Social security	Legally covered Worker is enrolled with IPSS or military pension plan	Legally covered Worker is enrolled with IPSS, police or military pension plan	Legally covered Worker is enrolled with IPSS, police or military pension plan
Trade union	Legally covered Firm is unionized	Legally covered Firm is unionized	Not available
Large firm	Not available	Legally covered Firm's employment $\geq$ 21	Legally covered Firm's employment $\geq$ 21
Maximum score	3	5	4

Notes: These indicators are set equal to one when the corresponding criterion is met, and equal to zero otherwise. They are necessarily equal to zero for self-employed and unpaid family workers, as well as for public sector workers. The maximum score is the highest possible figure for the sum of severance pay coverage indicators in each of the surveys. IPSS stands for Instituto Peruano de Seguridad Social.

Source: Constructed by the authors based on Table 1 and LSMS questionnaires.

Table 3

**Coverage Indicators among Private Sector Workers  
By Consumption Quintile, in 1994**

Coverage indicator in current job		Consumption quintile (based on entire population)					
		1	2	3	4	5	All
Legal	No	84.84	84.04	79.99	73.83	70.86	78.85
	Yes	15.16	15.96	20.01	26.17	29.14	21.15
Contract	No	99.51	99.39	97.00	94.15	89.91	96.07
	Yes	0.49	0.61	3.00	5.85	10.09	3.93
Social security	No	99.45	97.44	94.58	89.53	83.89	93.12
	Yes	0.55	2.56	5.42	10.47	16.11	6.88
Trade union	No	99.75	99.12	98.73	97.38	95.66	98.17
	Yes	0.25	0.88	1.27	2.62	4.34	1.83
Large firm	No	99.26	98.45	95.41	92.29	88.64	94.90
	Yes	0.74	1.55	4.59	7.71	11.36	5.10
Private sector workers		21.35	19.46	20.56	19.03	19.60	100.00

Notes: Refers to the LSMS sample, without applying factors of expansion. Private sector workers include wages earners, but also the self-employed and unpaid family workers. For a definition of the severance pay coverage indicators, see Table 2.

Source: Authors' calculations based on LSMS data.

Table 4

**Coverage Score among Private Sector Workers  
By Consumption Quintile, in 1994**

Job score	Severance pay coverage based on current job's score	Consumption quintile (based on entire population)					
		1	2	3	4	5	All
1	Below score	84.84	84.04	79.99	73.83	70.86	78.85
	Equal or higher	15.16	15.96	20.01	26.17	29.14	21.15
2	Below score	98.47	95.89	91.97	85.95	80.15	90.66
	Equal or higher	1.53	4.11	8.03	14.05	19.85	9.34
3	Below score	99.57	98.86	95.98	92.01	86.97	94.78
	Equal or higher	0.43	1.14	4.02	7.99	13.03	5.22
4	Below score	99.94	99.66	98.22	96.35	93.18	97.52
	Equal or higher	0.06	0.34	1.78	3.65	6.82	2.48
5	Below score	100.00	100.00	99.55	99.04	97.79	99.29
	Equal or higher	0.00	0.00	0.45	0.96	2.21	0.71
Private sector workers		21.35	19.46	20.56	19.03	19.60	100.00

Notes: Refers to the LSMS sample, without applying factors of expansion. Private sector workers include wages earners, but also the self-employed and unpaid family workers. The score is the sum of the severance pay coverage indicators. For a definition of these indicators, see Table 2.

Source: Authors' calculations, based on LSMS data.

Table 5

**Unemployed and Severance Pay Beneficiaries  
By Consumption Quintile, in 1994**

Severance pay indicators (refer to last job)		Consumption quintile (based on entire population)					
		1	2	3	4	5	All
Got severance	No	98.88	98.00	95.65	95.17	95.80	96.45
	Yes	1.12	2.00	4.35	4.83	4.20	3.55
Unemployed		15.06	16.92	23.35	24.53	20.14	100.0
Unemployed	No	94.82	93.69	91.92	90.92	92.63	92.81
	Yes	5.18	6.31	8.08	9.08	7.36	7.19
Labor force participants		20.90	19.28	20.76	19.42	19.64	100.0

Notes: Refers to the LSMS sample, without applying factors of expansion. To be counted as unemployed a person had to be actively searching a job in the 7 days preceding the survey, or be a discouraged job seeker. First-time job seekers are included among the unemployed. When the household of the unemployed person received one, and only one, indemnity or social payment in the 12 months preceding the survey, it is assumed that the unemployed member got severance pay.

Source: Authors' calculations based on LSMS data.

Table 6

## Employment Transitions from 1994 to 1997

Employment status in 1994		Employment status in 1997							
		Public sector job	Private sector job				Unemployed		Out of the labor force
			Score > 2	Score = 2	Score = 1	Score = 0	Got severance	No severance	
Public sector job									
Private sector job	Score > 2								
	Score = 2								
	Score = 1								
	Score = 0								
Unemployed	Got severance								
	No severance								
Out of the labor force									

Notes: Refers to the LSMS sample, without applying factors of expansion. Private sector workers include wages earners, but also the self-employed and unpaid family workers. For a definition of the severance pay coverage indicators, see Table 2.

Source: Authors' calculations based on LSMS data.



Table 7

**Labor Earnings by Coverage Indicator**  
**OLS Estimates, 1994 and 1997 Combined**

Explanatory variables	Dependent variable: Log of earnings, in nuevos soles at June 1994 prices			
	Private sector jobs		All the employed	
	Hourly earnings	Monthly earnings	Hourly earnings	Monthly earnings
Legal (yes = 1)	0.1554 ** (2.402)	0.1161 ** (2.065)	0.1430 *** (2.144)	0.1170 ** (2.100)
Contract (yes = 1)	0.0980 (0.921)	0.1897 ** (2.193)	0.1007 (0.790)	0.1898 ** (2.220)
Social security (yes = 1)	0.0505 (0.553)	0.4010 *** (5.246)	0.0650 (0.577)	0.4145 *** (5.513)
Large firm (yes = 1)	0.3256 *** (3.467)	0.2815 *** (4.022)	0.3297 *** (2.961)	0.2784 *** (4.024)
Public sector job (yes = 1)			0.5263 *** (6.505)	0.5294 *** (9.464)
Female (yes = 1)	-0.1951 *** (-2.923)	-0.3614 *** (-6.123)	-0.1841 *** (-3.017)	-0.3410 *** (-6.388)
Schooling (in years)	0.0270 *** (3.517)	0.0370 *** (5.194)	0.0222 *** (3.285)	0.0334 *** (5.350)
Spanish is mother tongue (yes = 1)	0.3668 *** (4.843)	0.3536 *** (5.172)	0.3630 *** (5.167)	0.3701 *** (5.835)
Work experience (in years)	0.0105 (1.374)	0.0377 *** (5.292)	0.0100 (1.427)	0.0389 *** (5.900)
Work experience squared	-0.0002 (-1.438)	-0.0006 *** (-4.826)	-0.0002 (-1.474)	-0.0006 *** (-5.223)
Household head (yes = 1)	-0.1393 * (-1.836)	0.0363 (0.530)	-0.1485 ** (-2.143)	0.0243 (0.395)
Year 1997 (yes = 1)	-0.1296 ** (-2.342)	-0.1520 *** (-2.987)	-0.0841 * (-1.730)	-0.0966 ** (-2.163)
Regional dummies	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.063	0.146	0.076	0.159
F test	10.74	32.08	15.11	37.02
Number of observations	1945	1956	2201	2213

Notes: Estimated by ordinary least squares, using White heteroskedasticity-corrected errors. Figures in parentheses are t-statistics. Significant coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Source: Authors' calculations based on LSMS data.

Table 8

**Labor Earnings by Coverage Indicator**  
**Fixed Effects Estimates, 1994-1997 Panel**

Explanatory variables	Dependent variable: Log of earnings, in nuevos soles at June 1994 prices			
	Private sector jobs		All the employed	
	Hourly earnings	Monthly earnings	Hourly earnings	Monthly earnings
Legal (yes = 1)	-0.0456 (-0.385)	0.1037 (1.030)	-0.0221 (-0.199)	0.1148 (1.239)
Contract (yes = 1)	-0.0127 (-0.065)	0.0630 (0.381)	-0.0189 (-0.106)	0.0169 (0.114)
Social security (yes = 1)	-0.2541 (-1.227)	0.0109 (0.063)	-0.1715 (-0.938)	0.0003 (0.002)
Large firm (yes = 1)	0.2997 (1.506)	0.2532 (1.510)	0.2197 (1.226)	0.1936 (1.296)
Public sector job (yes = 1)			0.2505 (1.273)	0.1577 (0.961)
Year 1997 (yes = 1)	-0.0537 (-0.940)	-0.0363 (-0.754)	-0.0102 (-0.204)	0.0179 (0.431)
Overall R <sup>2</sup>			0.017	0.064
F test	0.79	1.31	0.67	0.98
Number of observations	1282	1282	1546	1546

Notes: Fixed-effect estimates, with t-statistics reported in parentheses. There are two observations per person. Significant coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Source: Authors' calculations based on LSMS data.

Table 9

**Labor Earnings by Coverage Indicator**  
**Random Effects Estimates, 1994-1997 Panel**

Explanatory variables	Dependent variable: Log of earnings, in nuevos soles at June 1994 prices			
	Private sector jobs		All the employed	
	Hourly earnings	Monthly earnings	Hourly earnings	Monthly earnings
Legal (yes = 1)	0.0599 (0.724)	0.0390 (0.517)	0.0673 (0.868)	0.0528 (0.758)
Contract (yes = 1)	0.1586 (1.061)	0.2226 * (1.655)	0.0967 (0.712)	0.1529 (1.267)
Social security (yes = 1)	0.0038 (0.026)	0.2987 ** (2.260)	0.0884 (0.677)	0.3492 *** (2.992)
Large firm (yes = 1)	0.4157 *** (2.957)	0.3566 *** (2.788)	0.3377 *** (2.633)	0.3032 *** (2.637)
Public sector job (yes = 1)			0.4932 *** (5.460)	0.4495 *** (5.341)
Female (yes = 1)	-0.1974 ** (-2.028)	-0.4068 *** (-4.292)	-0.1590 * (-1.876)	-0.3477 *** (-4.286)
Schooling (in years)	0.0105 (1.062)	0.0070 (0.786)	0.0060 (0.732)	0.0042 (0.576)
Spanish is mother tongue (yes = 1)	0.3583 *** (4.117)	0.3121 *** (3.802)	0.3404 *** (4.355)	0.3193 *** (4.404)
Work experience (in years)	0.0244 ** (2.472)	0.0454 *** (4.770)	0.0220 ** (2.517)	0.0449 *** (5.409)
Work experience squared	-0.0004 *** (-2.654)	-0.0007 *** (-4.976)	-0.0004 *** (-2.685)	-0.0007 *** (-5.555)
Household head (yes = 1)	-0.1757 * (-1.697)	-0.0970 (-0.964)	-0.1989 ** (-2.196)	-0.0974 (-1.126)
Year 1997 (yes = 1)	-0.1323 ** (-2.100)	-0.1226 ** (-2.257)	-0.0569 (-1.064)	-0.0498 (-1.092)
Regional dummies	Yes	Yes	Yes	Yes
Overall R <sup>2</sup>	0.066	0.133	0.076	0.140
Wald Chi <sup>2</sup>	73.64	144.39	102.58	183.63
Number of observations	1282	1282	1546	1546

Notes: Random-effect GLS estimates, with z-statistics reported in parentheses. There are two observations per person. Significant coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Source: Authors' calculations based on LSMS data.

Table 10

**Consumption per Capita by Employment Status**  
**OLS Estimates, 1994 and 1997 Combined**

Explanatory variables	Dependent variable: Log of consumption, in nuevos soles at June 1994 prices			
	Unemployed (yes = 1)	-0.1605 *** (-2.615)	-0.1722 ** (-2.564)	-0.1605 *** (-2.616)
Unemployed x Savings or access to credit		0.0435 (0.595)		-0.1344 (-1.184)
Got severance (yes = 1)	0.2916 *** (3.813)	0.2818 *** (3.720)	0.2218 ** (2.561)	0.1873 * (1.943)
Got severance x Savings or access to credit			0.1410 (1.556)	0.2715 * (1.908)
Legal (yes = 1)	-0.0148 (-0.525)	-0.0148 (-0.523)	-0.0147 (-0.522)	-0.0148 (-0.525)
Contract (yes = 1)	0.0834 (1.442)	0.0837 (1.446)	0.0839 (1.450)	0.0836 (1.445)
Pension (yes = 1)	0.2362 *** (4.347)	0.2361 *** (4.345)	0.2359 *** (4.342)	0.2359 *** (4.340)
Size (yes = 1)	0.1574 *** (2.925)	0.1575 *** (2.927)	0.1578 *** (2.931)	0.1577 *** (2.930)
Public sector job (yes = 1)	0.2008 *** (5.751)	0.2012 *** (5.759)	0.2015 *** (5.770)	0.2010 *** (5.751)
Household size (all persons)	-0.0730 *** (-12.297)	-0.0730 *** (-12.298)	-0.0731 *** (-12.324)	-0.0732 *** (-12.339)
Dependents (below 15 and over 64)	-0.1042 *** (-12.796)	-0.1041 *** (-12.788)	-0.1040 *** (-12.777)	-0.1040 *** (-12.784)
Savings in bank or access to credit (yes = 1)	0.2263 *** (10.388)	0.2227 *** (9.731)	0.2185 *** (9.718)	0.2225 *** (9.723)
Year 1997 (yes = 1)	-0.0578 ** (-2.563)	-0.0572 ** (-2.530)	-0.0566 ** (-2.508)	-0.0574 ** (-2.541)
Individual characteristics (as in Table 7)	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.391	0.391	0.391	0.391
F test	114.42	108.32	108.64	103.57
Number of observations	3251	3251	3251	3251

Notes: Estimated by ordinary least squares, using White heteroskedasticity-corrected errors. Figures in parentheses are t-statistics. Significant coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Source: Authors' calculations based on LSMS data.

Table 11

**Consumption per Capita by Employment Status**  
**Fixed Effects Estimates, 1994-1997 Panel**

Explanatory variables	Dependent variable: Log of consumption, in nuevos soles at June 1994 prices			
Unemployed (yes = 1)	-0.1797 *** (-3.131)	-0.1906 *** (-2.718)	-0.1783 *** (-3.113)	-0.1819 *** (-2.596)
Unemployed x Savings or access to credit		0.0293 (0.271)		0.0097 (0.089)
Got severance (yes = 1)	0.2451 *** (3.165)	0.2430 *** (3.121)	0.0836 (0.832)	0.0834 (0.828)
Got severance x Savings or access to credit			0.4018 ** (2.510)	0.4008 ** (2.496)
Legal (yes = 1)	-0.0024 (-0.059)	-0.0021 (-0.052)	-0.0099 (-0.248)	-0.0098 (-0.245)
Contract (yes = 1)	0.0594 (0.794)	0.0601 (0.803)	0.0699 (0.935)	0.0701 (0.937)
Pension (yes = 1)	0.0291 (0.400)	0.0290 (0.399)	0.0362 (0.499)	0.0361 (0.498)
Size (yes = 1)	0.0213 (0.312)	0.0210 (0.307)	0.0157 (0.230)	0.0156 (0.229)
Public sector job (yes = 1)	-0.0491 (-0.670)	-0.0483 (-0.659)	-0.0466 (-0.637)	-0.0463 (-0.634)
Savings in bank or access to credit (yes = 1)	0.0757 *** (2.795)	0.0739 *** (2.639)	0.0634 ** (2.307)	0.0628 ** (2.221)
Year 1997 (yes = 1)	0.0771 *** (4.222)	0.0771 *** (4.221)	0.0775 *** (4.253)	0.0775 *** (4.252)
Overall R <sup>2</sup>	0.039	0.039	0.035	0.035
F test	7.41	6.67	7.33	6.66
Number of observations	2502	2502	2502	2502

Notes: Fixed-effect estimates, with t-statistics reported in parentheses. There are two observations per person. Significant coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Source: Authors' calculations based on LSMS data.

Table 12

**Consumption per Capita by Employment Status**  
**Random Effects Estimates, 1994-1997 Panel**

Explanatory variables	Dependent variable: Log of consumption, in nuevos soles at June 1994 prices			
	Unemployed (yes = 1)	-0.0859 *	-0.0764	-0.0883 *
	(-1.866)	(-1.352)	(-1.921)	(-1.345)
Unemployed x Savings or access to credit		-0.0261		-0.0342
		(-0.291)		(-0.381)
Got severance (yes = 1)	0.2625 ***	0.2639 ***	0.1539 *	0.1549 *
	(4.098)	(4.108)	(1.842)	(1.852)
Got severance x Savings or access to credit			0.2643 **	0.2664 **
			(2.016)	(2.030)
Legal (yes = 1)	-0.0005	-0.0007	-0.0036	-0.0039
	(-0.015)	(-0.021)	(-0.116)	(-0.126)
Contract (yes = 1)	0.0700	0.0696	0.0745	0.0745
	(1.147)	(1.141)	(1.228)	(1.221)
Pension (yes = 1)	0.1723 ***	0.1724 ***	0.1746 ***	0.1747 ***
	(3.021)	(3.022)	(3.064)	(3.066)
Size (yes = 1)	0.1324 **	0.1325 **	0.1295 **	0.1296 **
	(2.441)	(2.442)	(2.390)	(2.391)
Public sector job (yes = 1)	0.1945 ***	0.1942 ***	0.1945 ***	0.1941 ***
	(4.488)	(4.478)	(4.489)	(4.477)
Household size (all persons)	-0.0797 ***	-0.0797 ***	-0.0801 ***	-0.0801 ***
	(-10.568)	(-10.650)	(-10.710)	(-10.701)
Dependents (below 15 and over 64)	-0.0956 ***	-0.0957 ***	-0.0953 ***	-0.0955 ***
	(-9.351)	(-9.354)	(-9.322)	(-9.329)
Savings in bank or access to credit (yes = 1)	0.1595 ***	0.1611 ***	0.1515 ***	0.1535 ***
	(7.242)	(7.101)	(6.791)	(6.697)
Year 1997 (yes = 1)	0.0205	0.0206	0.0206	0.0207
	(1.069)	(1.074)	(1.078)	(1.085)
Individual characteristics (as in Table 7)	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes
Overall R <sup>2</sup>	0.380	0.380	0.380	0.380
Wald Chi <sup>2</sup> (RE)	1180.94	1180.69	1183.08	1182.88
Number of observations	2502	2502	2502	2502

Notes: Random-effect GLS estimates, with z-statistics reported in parentheses. There are two observations per person. Significant coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Source: Authors' calculations based on LSMS data.