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Introducing individual savings accounts for severance pay in Spain: An ex-ante assessment of the distributional effects

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Abstract

This report provides an *ex-ante* assessment of the distributional effects of introducing portable severance pay accounts in Spain based on micro-simulations. In the current system, permanent workers who are dismissed from their job are entitled to 20 days of severance pay per year of service, which is relatively high by OECD standards. The report considers a reform that replaces the current severance payment system with individual saving accounts financed through periodic contributions by employers and has featured prominently in the policy debate in Spain recently. The report focuses on two hypothetical versions of the reform that keep constant respectively the total compensation in case of dismissal ("constant benefit") or the expected costs for firms of employing a permanent worker ("constant-cost").

The analysis in the report points to potentially important distributional consequences of introducing portable severance pay accounts. The "constant-benefit" version of the reform entails a transfer from the average firm to the average worker, resulting in an increase in the expected costs for firms of 0.9% in the case of an annual contribution of 8 days per year and a one-off severance pay of 12 days of pay per year of service. In the "constant-cost" version of the reform, there is no transfer between the average firm and the average worker. For a one-off severance payment of 12 days per year of service, this can be achieved by lowering the annual contribution to 5 days per year.

Firms with a low layoff rate of permanent workers, such as large firms and firms in manufacturing and professional services, stand to lose more than firms with high layoff rates. Similarly, permanent workers with a low-risk of layoff, such as workers with tertiary education, stand to gain more than workers with a higher risk of layoff. The report discusses a number of design options and complementary measures that could help to mitigate the distributional effects of the reform.

Importantly, the analysis in the report does not take account of the behavioural responses of firms and workers to the reform. This means that the expected benefits due to increased career mobility for workers and the efficient allocation of resources in the economy are not considered in this report. Further analytical work is necessary to understand how changes in mobility decisions by firms and workers might alter the distributional implications of the reform and assess its implications for labour market duality, employment and productivity. The report, therefore, also discusses how these important additional channels could be taken into account in further modelling work.

Résumé

Ce rapport fournit une évaluation *ex-ante* des effets distributifs de l'introduction de comptes d'indemnités de licenciement transférables en Espagne, sur la base de micro-simulations. Dans le système actuel, les travailleurs permanents qui sont licenciés ont droit à 20 jours d'indemnités de licenciement par année de service, ce qui est relativement élevé selon les normes de l'OCDE. Le rapport envisage une réforme qui remplace le système actuel d'indemnités de licenciement par des comptes d'épargne individuels financés par des contributions périodiques des employeurs. Le rapport se concentre sur deux versions de la réforme qui maintiennent constantes respectivement l'indemnité totale en cas de licenciement ("prestation constante") ou les coûts prévus pour les entreprises qui emploient un travailleur permanent ("coût constant").

L'analyse du rapport souligne les conséquences potentiellement importantes en termes de répartition de l'introduction de comptes d'indemnités de licenciement transférables. La version "à prestation constante" de la réforme implique un transfert de l'entreprise moyenne vers le travailleur moyen, ce qui entraîne une augmentation des coûts attendus pour les entreprises de 0,9 % dans le cas d'une cotisation annuelle de 8 jours par an et d'une indemnité de licenciement unique de 12 jours de salaire par année de service. Dans la version "à coûts constants" de la réforme, il n'y a pas de transfert entre l'entreprise moyenne et le travailleur moyen. Pour une indemnité de licenciement unique de 12 jours par année de service, la cotisation annuelle peut être ramenée à 5 jours par an.

Les entreprises ayant un faible taux de licenciement de travailleurs permanents, telles que les grandes entreprises et les entreprises du secteur manufacturier et des services professionnels, risquent de perdre davantage que celles qui ont un taux de licenciement élevé. De même, les travailleurs permanents présentant un faible risque de licenciement, comme les travailleurs diplômés de l'enseignement supérieur, ont plus à gagner que les travailleurs présentant un risque de licenciement plus élevé. Le rapport examine un certain nombre d'options et de mesures complémentaires qui pourraient contribuer à atténuer les effets de la réforme sur la répartition.

Il est important de noter que l'analyse contenue dans le rapport ne tient pas compte des réactions comportementales des entreprises et des travailleurs à la réforme. Cela signifie que les avantages attendus grâce à une mobilité professionnelle accrue des travailleurs et à une allocation efficace des ressources dans l'économie ne sont pas considérés dans ce rapport. Un travail analytique complémentaire est nécessaire pour comprendre comment les changements dans les décisions de mobilité des entreprises et des travailleurs pourraient modifier les implications de la réforme en matière de répartition et pour évaluer ses conséquences sur la dualité du marché du travail, l'emploi et la productivité. Par conséquent, le rapport examine également comment des travaux de modélisation ultérieurs pourrait examiner ces facteurs importants.

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Introducing individual savings accounts for severance pay in Spain: An ex-ante assessment of the distributional effects

1 Introduction

Job mobility in Spain among permanent workers is among the lowest in the OECD (Causa, Luu and Abendschein, forthcoming[1]). This may reflect weak incentives among permanent workers to move to better jobs, possibly because this implies losing accumulated entitlements for severance pay, or the relatively high cost of firing permanent workers in a context where the use of temporary contracts of widespread. Importantly, low job mobility among permanent workers can reinforce labour market duality, by limiting opportunities temporary workers to move into permanent employment and slow the efficient allocation of workers across of firms, with potentially adverse effects for aggregate productivity growth. Reducing severance pay – which currently at 20 days per year of service is relatively high by OECD standards - would tend to promote labour mobility among permanent workers, but at a considerable costs for workers. This makes such reforms controversial and difficult to implement, suggesting a more balanced approach is needed.

To enhance overall labour market performance, an innovative proposal to provide stronger incentives for job mobility would balance a reduction in severance pay with at least a partial compensation in the form of annual contributions paid to portable accounts of workers. In case of dismissal, workers receive a lower one-off payment by the employer complemented with a withdrawal from the workers' savings account. This system makes severance pay partially portable between jobs, enabling workers to accumulate savings over their career, which can be converted into a pension at retirement. This proposed reform has featured prominently featured in the policy debate in Spain and is similar in spirit to flexicurity reforms in some OECD countries that consisted of replacing severance pay by unemployment insurance, but with the important difference that the Spanish proposal seeks to preserve individual entitlements for severance pay as much as possible, similar to the 2003 labour market reform in Austria.

The main objective of this report is to document the *ex-ante* distributional implications of the introduction of individual saving accounts for severance pay in Spain. The report considers two hypothetical versions of the reform that respectively keep the overall level of compensation constant in the case of dismissal (constant-benefit version) and the expected costs for the average firm (constant-cost version). The analysis makes use of micro-simulation techniques - building on previous work by Conde Ruiz (2011[2]) – to generate labour market trajectories for a large representative sample of individual workers based on *Muestra Continua de Vidas Laborales* (MCVL). The individual labour market trajectories of workers are based on pre-reform patterns in worker mobility patterns (e.g. layoff rates, quit rates) and hence do not take account of the behavioural responses of firms and workers to the reform. The simulated labour market trajectories are used to simulate the expected payoffs for different groups of workers and the expected cost for firms under different policy scenarios, and hence allow identifying the most important

distributional trade-offs (while abstracting from the behavioural responses to the reform by firms and workers).

The analysis provides important insights into the *ex-ante* distribution of costs and benefits of the reform among different workers and firms, and its possible consequences for the hiring and firing behaviour of firms and the mobility decisions of workers. Hence, the results offer ground for policy considerations to enhance the potential benefits of the reform and constitute a preliminary step for an evaluation of the wider implications of the reform for the labour market in terms of employment, labour market duality and productivity.

As mentioned above, the simulations in this report do not take account of the behavioural responses of firms and workers to the reform. Importantly, this means that the expected benefits due to increased worker mobility for the careers of workers and the efficient allocation of resources in the economy are not considered. While the report offers a qualitative discussion of how different assumptions on wage-setting might affect the main results of the analysis, further analytical work is necessary to understand how behavioural changes in response to the reform, notably in relation to the mobility decisions by firms and workers (e.g. layoffs, quits), might alter its distributional implications and assess its broader consequences for labour market duality, employment and productivity. The report, therefore, also discusses how these important additional channels could be taken into account in further modelling work.

The remainder of this report is structured as follows. Section 2 describes the current institutional set-up, presents different options for introducing portable severance pay accounts in Spain and discusses similar reforms in a number of other countries. Section 3 lays out the simulation approach that is used to provide an *ex-ante* evaluation of the distributional implications of the different reform scenarios, while Section 4 presents the results. Section 5 considers a number of design options that may help to alleviate the distributional effects of the reform. Section 6 discusses the potential implications of the reform for employment, labour market duality and productivity based on the available literature and how these could be analysed in an *ex-ante* assessment in the context of the present reform for Spain. Section 7 concludes.

Executive summary

This report provides an *ex-ante* assessment of the distributional implications of introducing individual savings accounts for severance pay in Spain based on micro-simulations while abstracting from the behavioural responses to the reform by firms and workers. In the current system, permanent workers who are dismissed from their jobs are entitled to 20 days of severance pay per year of service, which is relatively high by OECD standards. The reform considered in this report consists of the partial replacement of the current severance payment system by individual saving accounts financed by periodic contributions of employers. The report considers two versions of the reform:

- *Constant-benefit version*: combinations of one-off severance pay and annual contributions that keep that the overall value of severance pay at dismissal constant.
- *Constant-cost version*: combinations of one-off severance pay and annual contributions that keep the expected cost for firms and the expected payoffs for workers constant.

In both cases, the reform is limited to permanent workers. The analysis does not take account of the possible behavioural responses of firms and workers to the reform, notably in relation to wages, the hiring and firing behaviour of firms and the mobility decisions of workers. Importantly, this means that the expected benefits due to increased worker mobility for the careers of workers and the efficient allocation of resources in the economy are not considered in this report.

Distributional implications

Firms and workers. The constant-benefit version of the reform entails a transfer from the average firm to the average worker, resulting in an increase in the expected costs of employing permanent workers for firms and the expected payoff for permanent workers. The latter might be justified as a compensation for the increased risk in layoff due to the reduction in one-off severance pay. However, the increase in the expected cost of employing a permanent worker for firms might negatively affect employment and increase labour market duality. The constant-cost version of the reform addresses this issue, but leaves the average worker with no compensation for the potential increase in the risk of layoff due to the reduction in the one-off severance pay.

Groups of firms. The increase in the expected cost of employing a permanent worker is larger for firms with smaller layoff rates, such as large firms and firms in manufacturing and professional services. In the constant-benefit version of the reform, the increase in expected costs is positive for all firms, while in the constant-cost version, some firms face an increase in expected costs while others a reduction. Under both versions, the reform provides a competitive advantage to firms with high layoff rates, reinforcing its impact on the overall risk of layoff for workers and – to the extent that the layoff behaviour of firms is systematically related to a firm's productivity – generating potentially important aggregate productivity effects.

Groups of workers. The expected gain is larger for permanent workers with a low risk of layoff. In the constant-benefit version of the reform, all workers gain, whereas in the constant-cost version, there are both winners and losers. Under both versions, more educated permanent workers tend to gain more than their less educated counterparts. Differences between men and women are small. To the extent that low-risk workers already

tend to be better off than their high-risk counter-parts – in terms of higher incomes and better pensions -, this tends to increase inequality.

Policy considerations

To deal with these difficult distributional trade-offs, policy makers may consider combinations of one-off severance pay and annual contribution that yield some increase in the expected cost for firms and benefit for workers, without keeping the overall level of compensation in the case of dismissal constant. The effectiveness of the reform can be enhanced and its *ex-ante* distributional trade-offs mitigated by making use of complementary measures to compensate possible losers, differentiating the design across firms and taking account of broader implementation issues in relation to temporary workers and unfair dismissals. The following measures are particularly relevant in this context:

- *Reducing social security contributions*. Any residual increase in the expected labour cost for firms could at least partially be offset through a reduction in employer social security contributions, provided that this can be achieved without reducing entitlements for the unemployed by using the large and persistent surplus of the unemployment insurance system before COVID-19.
- *Tenure-dependent severance pay*. Lowering annual contributions for workers with long tenure could mitigate the increase in expected labour costs for firms (and the need to reduce social security contributions), while limiting the regressive nature of the reform across groups of workers. Setting annual contributions to zero for workers with more than six years of tenure could reduce the expected increase in the cost of employing permanent workers by more than half.
- *Increasing severance pay for temporary workers*. An increase in the cost of temporary workers might be desirable to prevent the reform from increasing labour market duality. Extending the reform to temporary workers, however, would increase the expected cost more for firms that are more likely to convert temporary contracts into permanent ones and would benefit more workers who are more likely to have their contract converted. To keep incentives for conversion unchanged, the reform could simply introduce an annual contribution for temporary workers, while leaving the one-off severance pay unchanged at its current level. Alternatively, one could increase one-off severance pay for temporary workers. This strengthen incentives for conversion and concentrate severance pay on the most vulnerable.
- *Adjusting compensation for unfair layoffs*. The version of the reform considered in this report increases the payoff for a worker in case of unfair dismissal relative to that of a worker dismissed for economic reasons. This generates further increases in expected cost for firms and strengthens the incentives for workers to challenge economic dismissals in court. To prevent this and ensure that the difference in compensation between unfair and fair dismissals remains the same, the compensation for unfair dismissal should be reduced by the same amount as the one-off severance payment for economic dismissal.

2 Introducing individual savings accounts for severance pay

This section briefly describes the current system of employment protection in Spain, presents the reform scenarios that are assessed in this report and takes stock of the presence of portable savings accounts for severance pay in other countries.

2.1. Institutional background

Severance pay for permanent workers in the case of economic dismissal is relatively high in Spain compared with other OECD countries (Figure 2.1). Severance pay in Spain is 20 days of pay per year service up to a maximum of 18 years. As a result, permanent workers dismissed after 4 years of services are entitled to 80 days of pay, the fifth highest in the OECD, and those dismissed after 20 years to 360 days, the third highest in the OECD. This implies that both the annual increase in severance pay entitlements and the cap at 18 years are relatively high by OECD standards. At the same time, probation periods are relatively short and notification requirements limited. The OECD has recommended in the past to reduce severance pay requirements, while increasing the length of probation and notification periods (OECD, 2013[3]).

The scope of fair dismissals for economic reasons depends to a large extent on the freedom that judges have in their decision. In Spain, dismissals for economic reasons can only be challenged if the reason for the dismissal was false or patently irrational (OECD, forthcoming[4]). If a layoff is declared unfair by a court, the worker receives a total compensation of 33 days of pay per year of service. Reinstatement cannot be imposed on the employer, except in the case of prohibited grounds, such as discrimination. A reform introduced in 2012 has clarified the circumstances under which a layoff can be justified for economic reasons, but judges continue to retain a certain degree of discretion in assessing different cases (Jimeno, Martínez-Matute and Mora-Sanguinetti, 2020[5]). Insufficient performance, without unsuitability, is not a fair reason for dismissal in Spain. Instead, workers should be trained to avoid a dismissal for insufficient qualification (OECD, forthcoming[4]).

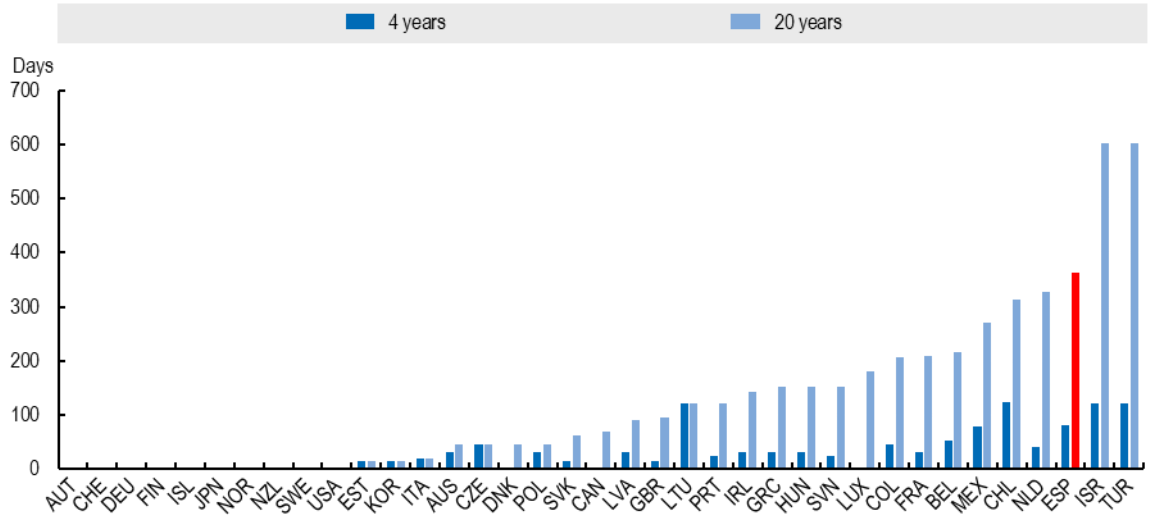
Temporary workers are also entitled to severance pay in Spain if their contract is not renewed or converted into a permanent one. In some countries, such as Chile, Finland and Portugal, employers are required to give workers an advance notice of their intention not to renew a temporary contract, but are not required to make severance payments. In Spain, severance pay for temporary workers amounts to 12 days of pay per year of service instead of 20 for permanent workers, similar to the system in France. In Slovenia and, since 1 January 2020, the Netherlands, severance pay is the same for temporary and permanent workers.[1] In most other countries, terminating a temporary contract at its end date does not entail any legal requirements related to either notification or severance pay.

For the purposes of the *ex-ante* assessment of different reform options, the current situation will be described as follows: one-off severance payment in the case of fair dismissal equal to 20 days of pay per year of service (capped at 18 years) for permanent workers and 12 days of pay per year of service for temporary workers.

[1] In Italy, employers must pay a layoff tax equal to one month of unemployment insurance contribution in the case of both permanent and temporary contracts.

Figure 2.1. Severance pay in case of fair dismissal for permanent workers

In days at respectively 4 and 20 years of tenure



Source: OECD Indicators of Employment Protection database.

2.2. Introducing individual saving accounts for severance pay

The report offers an analysis of the *ex-ante* distributional implications of the introduction of individual saving accounts for severance pay in Spain. The report considers two broad versions of the reform (see Box 2.1 for a formal discussion).

- **Constant-benefit version.** This version of the reform maintains the overall level of compensation for permanent workers who are laid off constant at 20 days per year of service. Hence, workers continue to receive the same total severance pay in the case of dismissal as in the current situation. The main concern is that this increases the expected costs of employing a permanent worker for firms, with potentially adverse consequences for employment and labour market duality. The objective of the simulations is to quantify by how much. The simulations use three different combinations of the annual contribution rate and the one-off severance payment in case of economic dismissal that keep the total value of severance pay constant.
- **Constant-cost version.** This version of the reform maintains the *expected* cost of employing a permanent worker for the average firm constant and therefore does not raise the concern of negative effects on employment and labour market duality. However, setting the expected cost to zero for the *average* firm generates winners and losers among workers (and firms) – as some workers experience a decline in their expected payoff from a job (and some firms an increase in the cost of a permanent job). The analysis identifies the combinations of one-off severance pay and annual contributions that keeps the expected costs of firms constant. To allow comparing the results with those obtained in the constant-benefit version of the reform it focuses on the same reductions in one-off severance pay.

The reforms considered in this report are limited to permanent workers. Section 5.2.2 discusses the possible implications of the reform for the incentives of firms for using temporary workers and the desirability of extending the reform to temporary workers. Moreover, the reforms do not consider any changes in the level of compensation that is due in the case of unfair dismissals.

Section 5.1.2 discusses how the compensation for unfair dismissal must be adjusted to prevent further increases in costs for firms, while maintaining the level of compensation for unfairly dismissed workers unaltered.

Box 2.1. The distributional implications of introducing individual saving accounts for severance pay in theory

To assess the *ex-ante* distributional effects of introducing portable severance pay accounts, it is useful to focus on the value of a permanent job to workers and its cost to firms. The change in the expected payoff for a worker (wages and severance pay entitlements) is identical to the change in its expected cost for firms (i.e. wages and severance pay requirements). Abstracting from any behavioural responses, these changes are formally (see Annex B for a more detailed exposition):

(1) $$E[V_1] - E[V_0] = x_1 + \lambda(z_1 - z_0)$$

where the suffixes 1 and 0 refer to the post-reform and pre-reform period respectively, E[V] is the annualised expected payoff from a new permanent job (equal to the annualised expected cost of employing a permanent worker for firms), x the annual contribution rate by employers to the portable savings accounts of workers and z is the rate of one-off payments due in the case of layoff. λ is the ratio between the expected time of lay-off and the expected overall duration of the job.

The constant-benefit version of the reform requires that the newly introduced annual contribution equals to the reduction in the one-off payment due in case of dismissal, such that $x_1 = (z_0 - z_1)$. Consequently, the change in the expected annualised payoff $E[V_1] - E[V_0]$ becomes $x_1(1 - \lambda)$. Since jobs do not end with a layoff with certainty, i.e. $\lambda<1$, the reform increases the expected cost for all firms and the expected payoff for all workers. This happens because the reform replaces part of an uncertain payment (generating a saving of λx_1) with a payment that is made with certainty (generating an increase in cost of x_1). The increases in cost for firms (and the gain for workers) increases with the size of the annual contribution and the corresponding the reduction in the one-off severance payment. Hence, in choosing the parameters of a constant-benefit reform, policy makers face a trade-off between a reduction in the cost of a lay off (z) and the operating cost of a permanent job.

The constant-cost version of the reform requires that $x_1 = -\lambda(z_1 - z_0)$ so that the average worker and the average firm see no change in their expected payoff and cost. The condition implies that for a reduction of one day of pay in the one-off severance pay, the annual contribution increases by less than one day of pay ($\lambda<0$). Hence, in choosing the parameters of a constant-cost reform, policy-makers face a trade-off between reducing the cost of a lay-off and reducing the overall compensation for dismissed workers.

In both versions of the reform, the distributional implications between groups of workers and groups of firms hinge crucially on the likelihood that a job ends with dismissal. The increase in expected cost is larger for firms with lower layoff rates and the increase in expected payoff higher for workers at lower risk of layoff (i.e. lower λ). The important difference between the two versions of the reforms is that in the constant-benefit set-up all

workers are made better off (and firms worse off), while the constant-cost version entails winners and losers.

Importantly, the unequal impact of the reform also varies with a policy parameter: larger reductions in the one-off severance pay (z) lead to larger inequality in the changes in outcomes between groups of firms and workers in both versions of the reform. Intuitively, reducing the one-off severance payment in case of dismissal has a larger impact on workers who are more likely to be dismissed and on firms that are more likely to lay off workers. Hence, policy-makers face another traded-off in choosing the level of one-off severance pay: pursuing lower firing costs might enhance labour mobility but will result in a more unequal impact of the reform across different groups of firms and workers.

2.3. Portable severance pay accounts in other countries

The reform considered in this report shares features with systems adopted in other countries. In Austria and Colombia, employers pay annual contributions into the individual savings accounts of their workers, but do not incur extra costs at the time of dismissal. In both of these countries, the current systems were introduced to replace standard severance pay systems similar to that currently in place in Spain. A system that combines annual contributions with a one-off payment in case of dismissal – is in place in Brazil (See Box 2.2).

Box 2.2. Individual saving accounts for severance pay in other countries

Brazil

The Guarantee Fund for Length of Service (*Fundo de Garantia po Tempo de Servico*, FGTS) combines mandatory savings accounts with a firing penalty upon unjustified dismissal (Hijzen, 2011[6]). The FGTS - established in 1967 – represents a fund that can be used for special occasions, including dismissal without just cause; the acquisition of a home; and retirement. Every Brazilian worker with a formal employment contract is eligible to FGTS. To constitute this fund, the employer deposits 8% of the worker's monthly earnings into a savings account in the worker's name (2% for fixed-term workers). Moreover, dismissed workers with more than three months of tenure are entitled to an additional indemnity equal to 40% of the total amount deposited by the employer in the FGTS. In 2001, a 10% firing penalty payable to the government was introduced.

Austria

In 2003, Austria switched from a standard severance payment system to an occupational pension account system. Under the old system, employees were entitled to 2 months of severance pay at three years of tenure in case of dismissal – similar to the 60 days in the current system in Spain - which increased gradually to 12 months after 25 years of tenure - compared with 12 months in Spain after 18 years. If employees left a job voluntarily, they would lose their entitlement to severance pay entirely. Under the new system, employers pay an untaxed contribution into a saving account every month from the start of the job equal to 1.53% of gross earnings (about 5-6 days of pay per year). In case of dismissal, workers with three years of tenure or more can choose to withdraw their severance pay from their saving accounts or to take their accumulated balance to the next jobs. Upon

retirement, employees can claim a cash payment or convert their entitlements into an annuity.

Colombia

In 1990, Colombia replaced its system of severance pay with individual severance accounts (OECD, 2019[7]). Employers make an annual deposit equivalent to one month of salary into a severance fund run by an independent financial institution. In addition, employers pay 12% of interest on the annual amount of severance pay into the employee's severance account. Workers can withdraw money for a variety of reasons, including to finance education, purchase a house or undertake house renovations. Over the years, this has limited the ability of the fund to provide income protection during unemployment despite the absence of a separate unemployment insurance system. To disincentive withdrawals, the government introduced in 2013 a bonus proportional to the savings amount for those who keep at least 10% of their savings in the fund (25% for those who earn more than twice the minimum wage).

3 Simulation methodology

To provide an *ex-ante* assessment of the distributional implications of introducing individual savings accounts for severance pay in Spain under different policy scenarios, this report makes use of standard stochastic microsimulation techniques. The simulation methodology draws on Conde Ruiz et al. (2011[2]) and consists of the following four steps (described in more detail below)[2]:

Step 1. Estimating the annual probability of workers to change labour market state.

Step 2. Simulating the individual labour market trajectories of workers.

Step 3. Applying the policy parameters corresponding to different severance pay regimes.

Step 4. Computing the expected payoffs for firms and (permanent) workers.

3.1. Estimating transition probabilities

Simulating the individual labour market trajectories requires modelling for all workers the probability of transiting between labour market states (permanent employment, temporary employment and unemployment) and whether the transition that takes place triggers the payment of severance pay for a given individual. For example, it is necessary to identify workers who leave permanent jobs as a result of a layoff and whether temporary contracts are terminated or converted. In practice, this means that the analysis has to model several possible transitions from each possible state. Since estimating all these transitions in one model is computationally too demanding, this is done in a series of successive steps as described in Box 3.1.

The estimations are based on Spain's Continuous Sample of Employment Histories (*Muestra Continua de Vidas Laborales*, MCVL) for the years 2015 to 2017. The MCVL is a longitudinal

[2] Similar microsimulation methods have been used to assess the feasibility of individual savings accounts for unemployment insurance (see for example Feldstein and Altman (1998[17]) for the United States).

dataset derived from various administrative sources (social security, income tax, and census) consisting of a 4% random sample of persons affiliated with the social security system (i.e. employed persons or persons receiving social security benefits). For the purposes of the estimations, the sample is restricted to individuals aged 20-60 in 2017 who are either in (dependent) employment in the private sector or unemployed.[3]

Box 3.1. Estimating the transition probabilities of workers

To overcome computational limits, the transition probabilities of workers are computed in the following steps:

1. For all workers, the probabilities of changing labour market status (permanent employment, temporary employment and unemployment) from one year to the next are estimated using a multinomial logit model with the following specification: an interaction term between current status and dummies for the length of time spent in that status, dummies for industry and firm size for the employed, and interaction terms between year fixed effects and fixed effects for gender, education level, age, and current status. As detailed below, movements from employment to unemployment and from permanent to temporary employment are assumed to trigger severance pay in the policy simulations.

2a. For workers who remain in permanent employment from one year to the next, the probabilities of: i) staying with the same employer; ii) moving to a different employer following a quit by the worker; and iii) moving to a different employer following a dismissal by the firm, are estimated using a multinomial logit model with the same explanatory variables as in the previous step.

2b. For workers who remain in a temporary job from one year to the next, the probability of changing employer is estimated using a probit model as a function of tenure, gender, education, and age.[4] Movements between temporary jobs with different employers are assumed to trigger severance pay (except for exempt contracts).[5]

2c. For workers who move from temporary to permanent employment, the probability of changing employer is estimated using a probit model with tenure, gender, education, and age as explanatory variables. This allows distinguishing between workers whose temporary contract is converted with a given employer (and does not trigger severance pay) and workers who move to a permanent job with a different employer (after receiving severance pay from their previous employer).

3. For all workers starting a new job, the probability that the new job is in a given industry or - in a separate model - in a firm of a given size is estimated using multinomial logit models with the same explanatory variables as above.

In all cases just described, the statistical models are used to predict the probability of each possible outcome for *each individual in each year* in the sample. In the final step, then, the probabilities of a given outcome for a given individual are averaged across all years. This set of averaged predicted probabilities are then applied to simulate labour market trajectories as described Section 3.2.

[3] The analysis does not model transition into the public sector, self-employment and retirement.

[4] This is equivalent to assuming that if a worker is on a temporary contract and chooses to change employer, he or she will wait until the expiration of the contract to do so – hence receiving the termination pay.

[5] For workers who move into a new temporary job, the probability of holding a specific temporary contract with no entitlement to termination pay is also estimated.

3.2. Simulating labour market trajectories for each individual worker

Individual labour market trajectories are simulated for all workers starting from the 2017 sample using the following three-step procedure. First, the estimates from the empirical models described above are used to calculate the predicted probabilities for each individual and each year based on their characteristics. Second, each individual is randomly assigned to their labour market state in the following year (i.e. permanent employment, temporary employment, unemployment), and, if starting a job for a new employer, to the industry and its firm size. Similarly, workers who remain employed in either a permanent or a temporary job from one year to the next are divided into job stayers and job movers, which in the case of permanent workers may follow either a quit or a layoff. Workers are assigned randomly across states, stayer and mover types and jobs, conditional on their observable characteristics by comparing their predicted individual probabilities with a sequence of random draws for each individual from a uniform distribution.[6] Third, time-varying individual and job characteristics (i.e. age and time spent in a given status) are updated and the procedure is repeated to simulate labour market trajectories over a number of years.

3.3. Applying the policy rules for the severance pay for economic dismissals

The value of severance pay and accumulated savings in days of pay is calculated for each worker in each year by applying the policy rules that correspond to the current situation (one-off severance payment at dismissal equal to 20 days of pay for each year of service) as well as the constant-benefit and constant-cost version of the reform for a number of different combinations of the reduction in one-off severance pay and the annual contribution. All reform scenarios are subject to the same maximum limit on severance pay of 12 months of pay as in the current situation. This means that severance pay entitlements and savings for severance pay stop accumulating after 18 years of tenure. Severance pay entitlements for temporary workers are assumed to remain identical to the current situation.

3.4. Estimating the outcomes of interest

The constant-benefit version of the reform focuses on the change in expected payoff for a worker on a permanent contract, which corresponds to the change in expected cost of a permanent job for a firm. The analysis is therefore restricted to workers who start a new permanent job at the beginning of the simulation period. The changes in the expected payoffs and costs are estimated in three steps. First, for each worker and policy regime, the cumulative payoff over the job spell is computed and then annualised by dividing it by the length of the spell (with spells censored at 15 years). Second, for each worker, the change in the annualised payoff between the reform scenarios and the current situation is calculated. Third, the differences in payoffs are averaged across the entire subsample of workers who start a new permanent job at the beginning of the simulation period. The result is an estimate of the change in expected payoff for a worker on a permanent contract, which, as emphasised above, corresponds to the increase in cost of a permanent worker for the firm.

[6] For example, in a two-outcome case, if the predicted probability of outcome A for a given individual is 40%, then this individual is assigned outcome A if their random draw is less or equal to 0.4.

In the constant-version of the reform, the outcome of interest is the annual contribution that keeps the expected cost for firms and the expected payoff for workers constant for a given reduction in one-off severance pay (or alternatively the reduction in one-off severance pay for a given annual contribution. The annual contribution for a given reduction in one-off severance pay is calculated by retrieving λ from the constant-benefit simulations, setting the change in expected costs in Equation 1 to zero and solving for the annual contribution for a given reduction in one-off severance pay.

4 An *ex-ante* assessment of the distributional effects

This section presents the *ex-ante* assessment of the distributional effects of introducing individual savings accounts for severance pay in Spain between firms and works, different groups of firms and different groups of workers while abstracting from the behavioural responses to the reform by firms and workers. The analysis considers two different versions of the reform, each using a number of different parameters. The first version of the reform keeps the overall level of severance pay for dismissed workers unchanged at 20 days per year of service (constant-benefit version). The second version maintains the average cost for firm (and the average payoff for workers) constant using different combinations of the annual contribution and the one-off severance payment (constant-cost version). The analysis does not account for possible changes in behaviour by firms and workers, notably in relation to wages, the hiring and firing behaviour of firms and the mobility decisions of workers. To address this issue to some extent, Box 4.1 provides a discussion of how changes in wages in response to the reform might affect the main results. The section starts by presenting the distributional effects for firms and permanent workers (Section 4.1), then proceeds with the distributional implications between different groups of firms and workers (Section 4.2), and concludes by providing an integrated overview of the key distributional trade-offs and the corresponding choices for policy-makers (Section 4.3).

4.1. Distributional effects between firms and permanent workers

4.1.1. Constant-benefit version

When the overall level compensation for workers is left unchanged at 20 days per year of service, the reform represents a direct transfer from firms to permanent workers: it increases the expected cost of employing a permanent worker for a firm and the payoff for a permanent employee (Figure 4.1).[7] The increase in cost for firms comes from the fact that an uncertain one-off payment that is only due in the case of dismissal is replaced by a certain annual contribution. The transfer from firms to permanent workers increases with the amount of the annual contribution and the corresponding reduction in the one-off payment at dismissal. For example, the annual increase in the expected cost of employing a permanent worker is 0.7% when the new annual contribution paid to all workers is 6 days of pay and the one-off severance payment for laid-off workers is reduced to 14 days

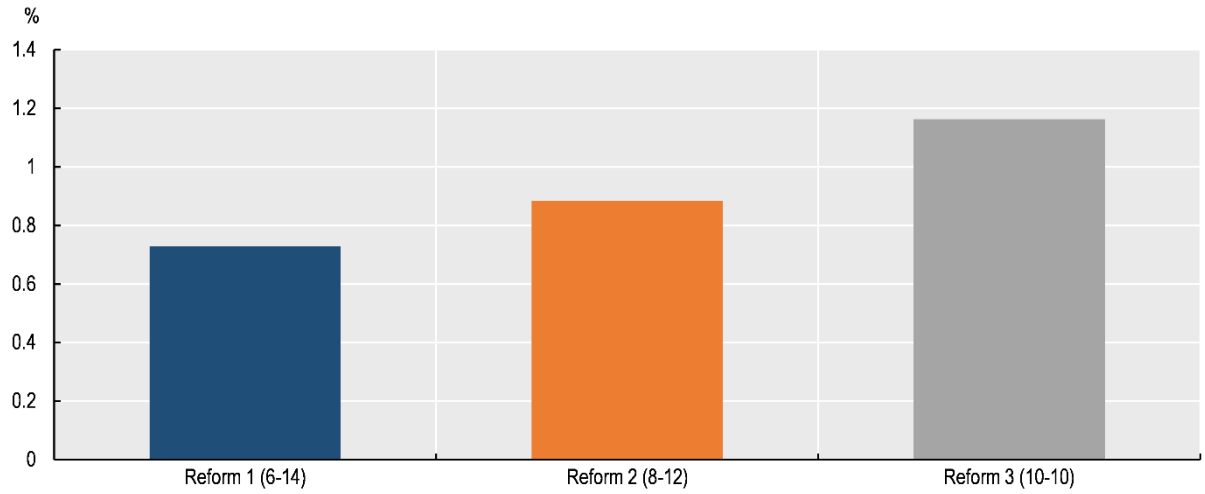
[7] The analysis focuses on the costs and benefits for firms and workers over a given spell. The analysis therefore does not take account of the costs and benefits associated with subsequent spells.

(6-14 scenario). The cost increase is 0.9% when the annual contribution is 8 days of pay and the one-off severance pay is reduced to 12 days of pay per year of service, and reaches 1.2% when the annual contribution is 10 and the one-off severance payment is reduced to 10 days as well (10-10 scenario).[8]

Hence, in choosing between different scenarios that keep the total compensation for workers constant, policy makers face a trade-off between reducing the cost of a layoff and increasing the overall cost of employing a permanent worker. The transfer from firms to workers may be justifiable as a compensation for the potential increase in the risk of layoff due to the reduced cost of dismissal. Firms may be able to afford the increase in costs if the increase in flexibility induces a more efficient allocation of jobs across firms and hence promotes average productivity. However, if the increase in average labour costs is too large, this risks undermining employment and deepening labour market duality by further reinforcing incentives for the use of temporary contracts, especially if wages do not respond to the reform (see Box 4.1).

Figure 4.1. The constant-benefit version of the reform represents a direct transfer from firms to permanent workers

Change in annualised expected cost of employing a permanent worker for firms (or equivalently annualised expected payoff to work for permanent employees) due to the reform under different reform scenarios (% of gross wage)



Source: Author's calculations based on *Muestra Continua de Vidas Laborales* (MCVL).

4.1.2. Constant-cost version

In the constant-cost version of the reform, the parameters of the reform are set to ensure no change in the average cost for firms and payoff for workers. This requires reducing the one-off severance pay by approximately 1.5 days of pay for every day of pay of the new annual

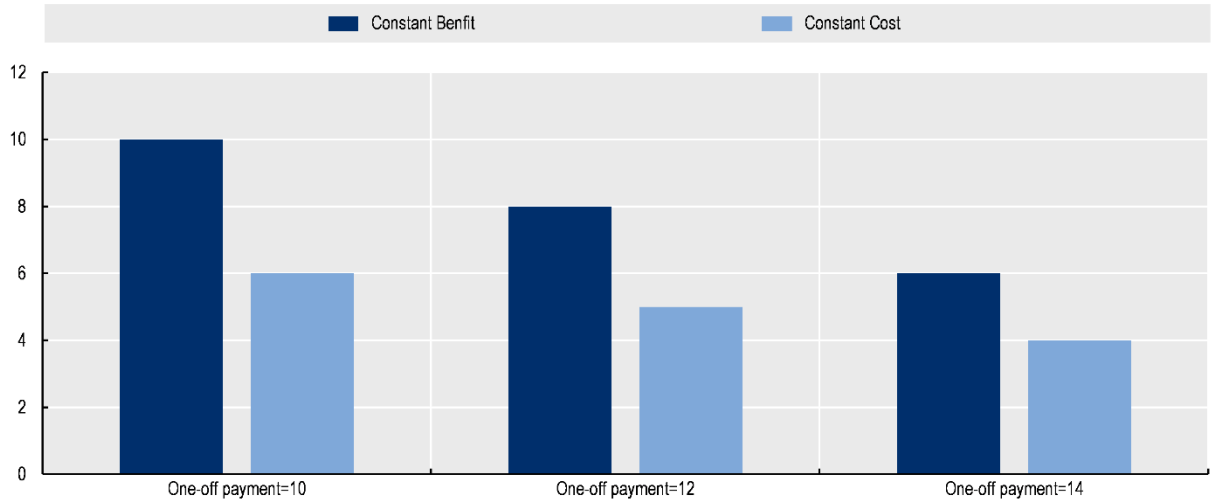
[8] The apparent non-linearity in the increase of the cost as a function of the annual contribution (and decline in one-off severance pay) is due to rounding. In general, the cost increases by approximately 0.2 percentage points for every 2 days of the annual contribution and reduction in one-off severance pay.

contribution. Since the reduction in one-off severance pay exceeds the new annual contribution, the level of compensation at dismissal is lower than under the existing system. For levels of one-off severance pay of 14, 12 and 10 days of pay (as considered in the constant-benefit version of the reform above), the annual contributions have to be set at 4, 5, and 6 days of pay respectively to keep the average cost and payoff approximately constant (Figure 4.2). Similarly, for a given annual contribution of 6, 8, 10 days per year, the levels of one-off severance pay are approximately 10, 7, and 3 days per year of service respectively.

When choosing among the possible combinations of policy parameters that keep expected outcomes constant, policy-makers have to confront a difficult trade-off. A lower level of the one-off severance payment for permanent workers may reinforce the beneficial effects of the reform on labour mobility, but comes at the cost of a lower level of overall compensation for dismissed workers. Moreover, unlike in the constant-benefit scenario, workers receive no compensation for the potential increase in the risk of layoff arising from the reduction in the firing cost, as the average change in expected payoff is zero by design.

Figure 4.2. Keeping cost constant for firms requires lower annual contributions

Annual contribution in days of pay under the constant-benefit and constant-cost versions of the reform



Source: Author's calculations based on *Muestra Continua de Vidas Laborales (MCVL).*

4.2. Distributional effects among different firms and workers

Both the constant-benefit and the constant-cost versions of the reform have unequal effects on firms and workers, depending on their layoff behaviour and risk. This happens because firms that are more likely to fire a worker or workers who less likely to be laid off benefit more from the reduction in one-off severance payment due in case of dismissal. Importantly, the unequal impact of the reform is directly affected by a key policy choice: the larger the reduction in one-off severance pay, the more unequal the impact of the reform on different groups of firms and workers. Consequently, policy-makers face a trade-off between supporting greater mobility through a reduction in one-off severance pay and generating more unequal outcomes across groups of firms and workers. Importantly, the

constant-benefit set-up increases the expected cost for all firms and the expected benefit for all workers, while the constant-cost version of the reform entails winners with positive changes in expected payoffs and losers with negative ones.

4.2.1. Distributional effects among firms

Larger firms tend to see larger increases in expected costs than smaller firms (Figure 4.3). For a reduction in one-off severance pay to 12 days per years of services, the increase in costs in firms with 250 or more is 0.3 percentage points larger than in firms with 2-9 employees. In the constant-benefit version of the reform (Panel A), the expected cost increases by 1.2% for larger firms and 0.9% for small firms, while in the constant-cost set-up the respective figures are 0.4 and 0.1% (Panel B).[9] These differences reflect differences in the average layoff rate for permanent workers, which equals 4% for large firms and 7% for small ones. Choosing scenarios with larger reductions in one-off severance pay increases the difference in the change in cost between small and large firms: 0.2 percentage points in the case of a reduction to 14 days of pay per year of service and 0.4 percentage points in the case of a reduction to 10 days of pay per year of service. [10]

Similarly, low-layoff industries tend to see larger expected costs increases than high-layoff industries. For a reduction in one-off severance pay to 12 days per years of services, the increase in expected costs in low-layoff industries such as manufacturing and professional services (with an average layoff rate of 6%) is 0.3 percentage points higher than in high-layoff industries such as agriculture, utilities and construction (with an average layoff rate of 10%). In particular, the expected cost increases are 0.9% and 0.6% respectively for low and high-layoff firms in the constant-benefit version of the reform, and 0.1% and -0.2% in the constant-cost version of the reform. As in the case of small and large firms, the impact of the reform across industries is more unequal the larger the reduction in one-off severance pay.

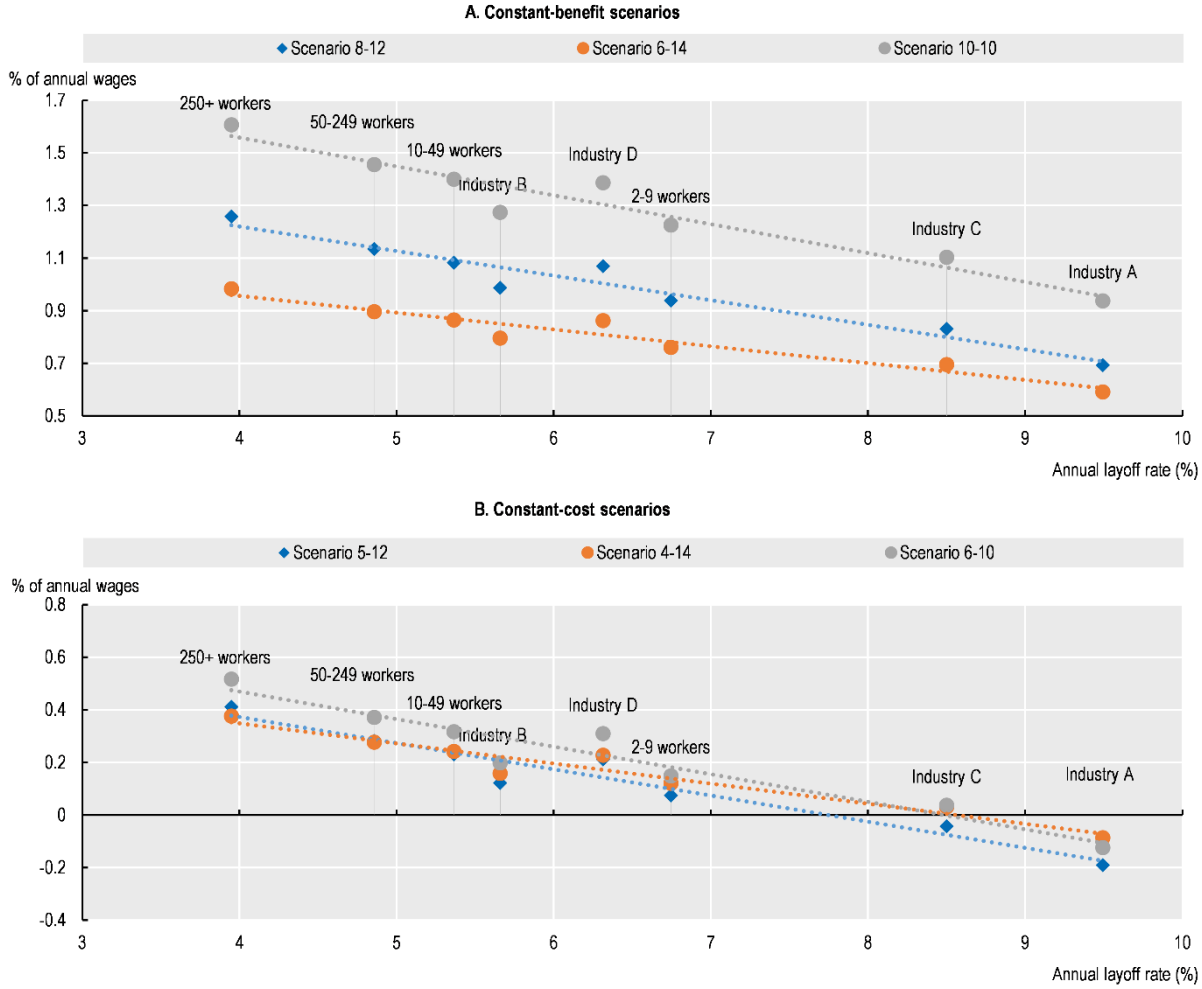
The reform provides firms with high lay-off rates with a competitive advantage. This is likely to reinforce the impact of the reform on the average risk of layoff for workers. To the extent that the layoff behaviour of firms is systematically related to productivity, it may also have potentially important implications for the efficient allocation of resources across firms and aggregate productivity. To the extent that large firms not only have low-layoff rates but also higher levels of productivity, this would tend to reduce aggregate productivity. The overall impact of the reform on productivity, however, would depend on how firms and workers change their behaviour – an aspect that future analysis should fully incorporate, as discussed in Section 6.

[9] The reported estimates by firm size are all above the average for the full sample, because firms with missing information on size are included in these computations as a stand-alone category. In practice, small firms are likely to experience a decline in the cost of employing a permanent worker in the constant-cost scenario.

[10] Note that this implies that *for a given level of the annual contribution*, the constant-cost scenario will tend to impact firms (and workers) more unequally. This is because, for the same annual contribution, a constant-cost scenario will reduce the one-off payment by more relative to the existing regime.

Figure 4.3. Firm with lower layoff rates experience higher increases in labour costs

Change in the annual expected cost of employing a permanent worker (% of gross wages)



Note:
A. Agriculture, Energy and Water, Construction, Domestic services; B. Manufacturing; C. Trade, Transport, Accommodation and food services; D. Information, Finance, Insurance, Administration, Education, Health, Professional activities, Other services.

Source: Author's calculations based on *Muestra Continua de Vidas Laborales* (MCVL).

4.2.2. Distributional effects among permanent workers

High-education workers gain more from the introduction of portable severance pay accounts than low-education workers (Figure 4.4). For a reduction in one-off severance pay to 12 days of per year of service, the difference in the expected gain between workers with tertiary education and those with less than secondary education amounts to 0.4 percentage points. These differences reflect an average annual layoff rate for workers with tertiary education of 6% compared with 9% for those with less than secondary education. In the constant-benefit version, this translates into annual expected gains of 1.1% of gross wages for highly educated workers and 0.7% for those with less than secondary education (Panel A). In the constant-cost version, workers with tertiary education can expect an

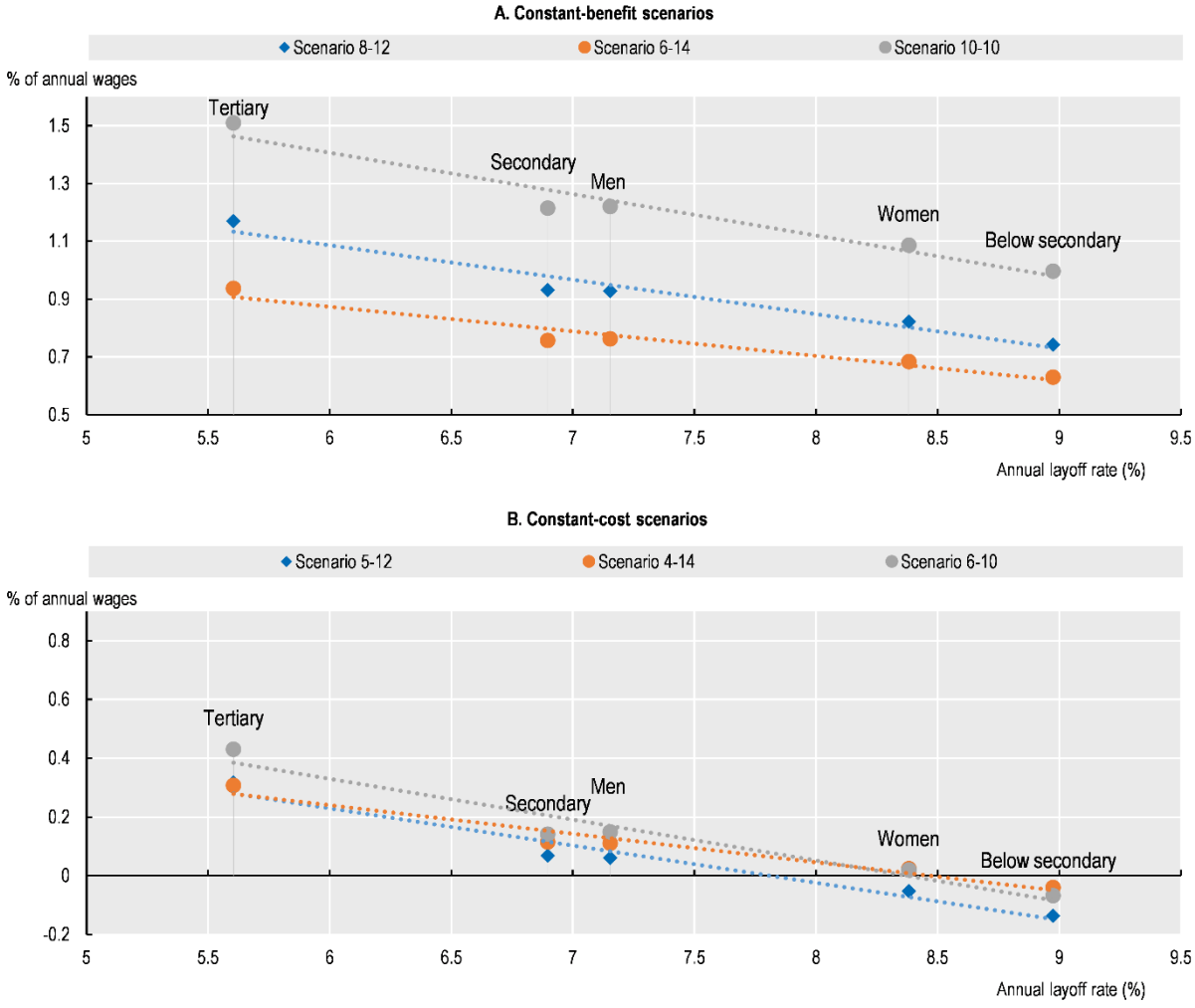
annual gain equal to 0.3 % of wages, whilst those with less than secondary education see a reduction in their expected payoff of -0.1% (Panel B). Larger reductions in the one-off severance payment increase the differences in gains between workers with different educational levels: reducing the new one-off severance payment from 14 to 10 days per year of service increases the difference in gains between the two groups from 0.3% to 0.5%.

The difference in the expected benefits of portable severance pay accounts between genders is small, reflecting a small difference in the probability of dismissals between men and women (7% vs 8%).

The *ex-ante* distributional effects of the reform across workers with different levels of education are likely to make it somewhat regressive. To the extent that highly educated workers already tend to be better off – have higher incomes and better pensions - than their less educated counter-parts, this increases inequality, as more highly educated risk workers will have higher savings in their personal accounts at retirement.

Figure 4.4. Workers with low layoff rates experience larger gains

Change in the annual expected payoff for a permanent worker (% of gross wages)



Source: Author's calculations based on *Muestra Continua de Vidas Laborales* (MCVL).

4.3. An overview of the *ex-ante* distributional trade-offs and some of the policy choices

This sub-section summarises the key *ex-ante* distributional trade-offs and proposes a simplified procedure to help policy-makers determine the most appropriate combination of one-off severance pay and annual contributions.

The *constant-benefit* version of the reform increases the expected payoff for the average worker and the expected cost for the average firm by an amount proportional to the reduction in the one-off severance pay (and the corresponding new annual contribution). The increase in the expected payoff for permanent workers might be justified as a compensation for the increased risk in layoff due to the reduction in one-off severance pay. However, the increase in the expected cost of employing a permanent worker for firms might negatively affect employment and labour market duality. Limiting the reduction in the one-off severance payment (and the corresponding annual contribution) would reduce the increase in expected cost for firms, but potentially undermine the policy objective of stimulating labour mobility.

The *constant-cost* version of the reform reduces the one-off severance payment without increasing the expected cost for the average firm or the expected payoff for the average worker. This means that in contrast to the constant-benefit version of the reform the average worker receives no compensation for the increased risk in layoff due to the reduction in one-off severance pay. It also implies a reduction in the overall compensation for dismissed workers, making workers at higher risk of layoff worse off. In practice, this means that workers with lower levels of education and earnings are more likely to lose out from this version of the reform.

To deal with these difficult distributional trade-offs, policy makers may consider combinations of one-off severance pay and annual contribution that yield some increase in the expected cost for firms and benefit for workers, without keeping the overall level of compensation in the case of dismissal constant. Figure 4.5 shows the combinations of parameters that fall in the space delimited by the constant-benefit and the constant-cost versions of the reform. Choosing among the many possible combinations of one-off severance pay and annual contributions within this space is a complex task. To simplify, the problem can be broken down into two (inter-dependent) steps:

1) ***Determine the appropriate increase in the expected payoffs for workers and the acceptable increase in the expected costs for firms.***

   This effectively amounts to choosing one of the iso-cost curves in Figure 4.5 along which the increase in the expected costs for firms and the expected payoffs for workers is constant. Smaller increases in cost (and therefore in workers' payoffs) alleviate the concern that the reform might reduce employment and increase duality. In addition, they might be easier to offset through complementary measures, such as a reduction in social security contributions.[11] However, smaller increases in payoffs also limit workers' compensation for the increased risk of layoff and increase the share of workers at higher risk of dismissal who experience expected losses unless the total compensation for dismissed workers is kept constant.

2) ***Choose the level of the new one-off severance payment and the corresponding annual contribution that achieve the accepted change in expected cost and payoff from step 1.***

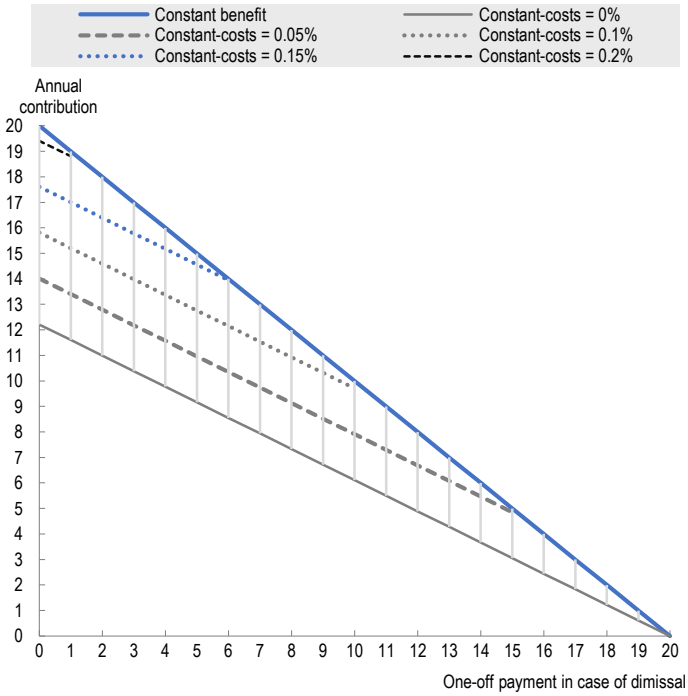
   This effectively amounts to choosing one of the parameter combinations of one-off severance pay and annual contribution along a given iso-cost curve. Combinations with a lower severance payment are expected to stimulate labour market mobility, with potentially beneficial effects for the career progression of workers and the reallocation of jobs across firms. However, they also imply sharper reductions in the overall compensation for dismissed workers compared to the existing system. This leads to a more unequal impact of the reform, with workers at higher risk of dismissal experiencing losses (and firms with higher layoff rates seeing declines in cost). In practice, combinations with lower severance payment would tend to boost the expected gains for highly educated workers and increase losses for low educated workers - potentially increasing inequality– and to amplify the competitive advantage that the reform provides to small firms and those in agriculture, construction and services. The desirable level of the one-off severance payment might also depend on the increase in expected costs and payoffs selected in step 1: higher increases in expected payoffs for workers may be seen as compensations for the increase in risk of layoff and therefore might leave more scope for larger reductions in the one-off severance payment.

This illustrative procedure can help policy-makers navigate the various trade-offs they face in choosing the parameters of the reform. In addition, they can consider alternative designs of the reform that depart from dual premise that first a unique set of parameters must be applied to all firms and workers at all times – as will be discussed in Section 5.1 -; and second that the reform is limited to economic dismissals of permanent workers – as will be discussed in Section 5.2.

[11] While this seemed reasonable before the COVID-19 crisis since the unemployment insurance system in Spain has been characterised in the recent past by a large and persistent surplus, the scope for this may be more limited now. Surpluses in the unemployment insurance system are likely to shrink rapidly as a result of the rise of unemployment. Moreover, using funds that were earmarked to support unemployed workers for a reform that benefits mostly workers at lower risk of unemployment may also be seen as unfair. This suggests that it might be preferable to implement a limited reduction in employer contributions to offset the increase in cost from the reform only partially.

Figure 4.5. Choosing combinations of annual contributions and one-off severance pay

Combinations of annual contributions and one-off severance payments that keep the total level of compensation for workers constant (constant-benefit) and yield the same expected increase in cost for firms (constant-cost = x%)



Source: Author's calculations based on *Muestra Continua de Vidas Laborales* (MCVL).

Box 4.1. The role of wage shifting

The estimated *ex-ante* distributional implications of the reform will be affected quantitatively in the case of wage shifting, but are unlikely to change qualitatively. Wage shifting in the present context refers to the possibility that firms shift part of the increase in labour cost onto workers in the form of lower wages.

Firms and workers. Wage shifting is likely to be more important the higher the valuation by workers of savings as a result of annual contributions relative to wages (Bozio, Breda and Grenet, 2017[8])and the greater the flexibility of wages (OECD, 2018[9]). The valuation of annual contributions is likely to depend on the ease with which workers can make withdrawals from their accounts. When withdrawals can be made for many reasons other than severance pay (e.g. holidays, buying a house, education) the valuation of savings may be higher than when withdrawals are limited to severance pay (and pensions) only. The valuation of savings is also likely to depend on their financial management. It may be lower when the returns on savings are low due to poor management or restrictive rules for investment. The scope for wage shifting is further likely to be more important the greater the flexibility of wages, as in countries where wage-setting institutions are weak (e.g. pervasive collective bargaining is absent) or compliance with minimum wage floors is weakly enforced. In Colombia, a country where compliance with minimum wages tends to be weak and withdrawals from savings accounts can be made for many reasons wage shifting may be relatively high. Kugler (2005[10]) reports that the introduction of personal saving accounts *in lieu* of severance pay in Colombia in 1990 lowered wages by between 60% and 80% of the total severance payment contributions. In countries with stronger wage-setting institutions and where withdrawals are strictly limited to severance pay (or pensions) wage shifting is likely to be less important.

Groups of workers. The impact of wage shifting on the distribution implications of the reform across different groups of workers is *a priory* ambiguous. Wage shifting might reinforce the unequal impact of the reform among workers if wage shifting is more significant among workers with a higher risk of layoff, i.e. workers who stand to benefit less from the reform. Indeed, existing evidence from Norway suggests that wage-shifting of labour taxes is more prevalent among low-skilled workers, presumably due to their lower bargaining power despite the prevalence of collective bargaining Stokke (2015[11]). To the extent that firms shift the average increase in labour costs disproportionately onto workers with a weak bargaining position in the firm, it is even possible that some workers end up losing from the reform. However, there are also factors that are likely to mitigate the unequal impact of the reform across workers. Statutory or collectively-agreed minimum wages might be more binding for lower-skilled workers, hence limiting the extent to which firms are able to adjust their wages. In addition, the workers who benefit the most from the reform might be more willing to accept some wage moderation to mitigate the potential negative implications of the increase in cost for the firm on employment.

Groups of firms. Wage-shifting is more likely when the increase in costs is broadly shared across many firms – such as in the constant-benefit version of the reform - and hence more likely to affect market wages. Cost increases that are limited to low-layoff firms are less likely to result in wage-shifting. The reason for this is that a reduction of wages in a firm makes it more difficult to retain workers as it may induce workers to move from low layoff to high layoff firms. The scope for wage shifting individual firms is likely to be larger the more limited the outside options of their workers.

5 Policy considerations

This section discusses a number of implementation issues in relation to the possible introduction of portable severance pay accounts in Spain. Section 5.1 discusses possible reform designs that can help to mitigate some of the *ex-ante* distributional trade-offs discussed above by moving away from the premise that the parameters of the reform must be the same for all firms and workers. Section 5.2 discusses a number of broader implementation issues regarding the adjustment of compensation for unfair dismissal and the possible extension of the reform to temporary workers.[12]

5.1. Alternative designs of the reform

This sub-section discusses the role of respectively tenure-dependent annual contributions, experience-rated annual contributions, and differentiating the parameters of the reform across sectors.

5.1.1. Declining contribution schedules over the job spell

Policy-makers can limit the increase in cost for firms by adopting lower combinations of the annual contribution and one-off severance payment (Section 4). However, this implies a lower overall compensation for all dismissed workers leading to a more unequal impact of the reform and to expected losses among workers with higher risk of dismissal.

A system with a declining annual contribution over tenure can achieve smaller average increases in cost without generating losses among workers at a higher-risk of dismissal. In fact, declining contributions over the spell restricts the fall in the overall compensation to workers with longer tenure, who on average face a lower risk of dismissal over the spell. Hence, scenarios with declining annual contributions also lead to a less unequal impact of the reform across workers with different probabilities of layoff.

As an illustration of the *ex-ante* distributional implications of tenure-dependent annual contributions, consider an example in which all new permanent jobs start with an annual contribution of 8 days of pay and a one-off severance payment of 12 days of pay per year of service. In the simulations reported in Figure 5.1, the annual contribution falls to 4 days or zero after 6 years of tenure (the average level of tenure in Spain).

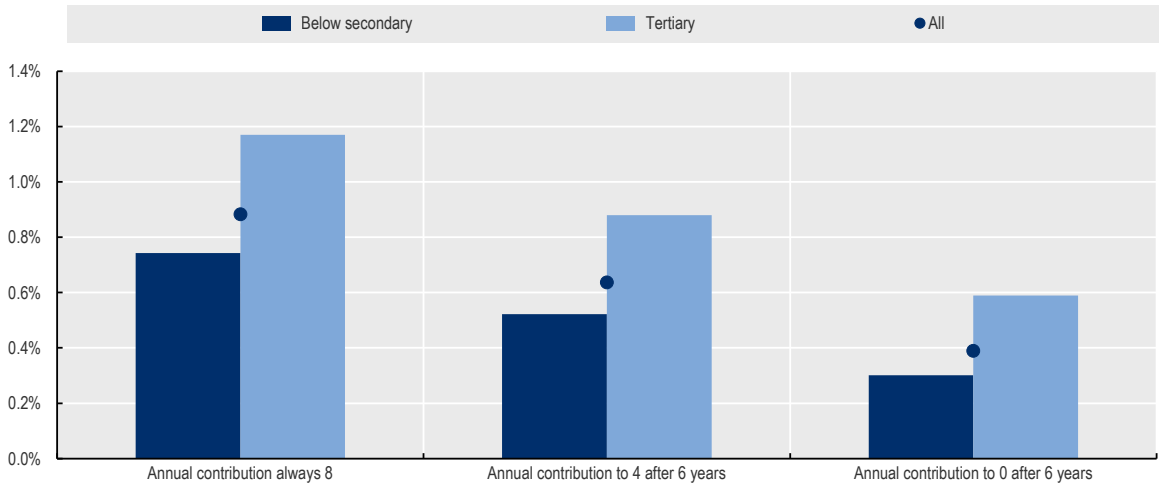
The savings from declining tenure contributions can be substantial compared to maintaining the 8-12 scenario throughout the spell. The average increase in cost due to the reform declines by a third (from 0.9% to 0.6%) if the annual contribution is halved to 4 days of pay and to 0.4% if set to zero. [13]

[12] One implementation issue not covered in this report is how the reform is introduced, i.e. whether it applies to only existing contracts or only to newly signed contracts ("grandfathering"). In the event of grandfathering the distributional implications of the reform are likely to diverge in the short-term.

[13] Higher tenure cut-offs limit the impact of lower annual contributions later in the spell: when the cut-off is 8 years, the increase in cost is 0.7% with a contribution of 4 days and 0.5% when the contribution drops to zero. Rather than imposing a single threshold as done in the simulations, the annual contribution could decline more gradually over the spell. For an equal overall reduction in

Highly educated workers (who are at lower risk of layoff) see a larger reduction in their gains than low-educated workers, but both groups continue to gain from the reform. The difference in gains between the two groups declines from 0.43 to 0.36 percentage points if the contribution is reduced to 4 days of pay after 6 years of tenure, and to 0.30 percentage points if the contribution is set to zero.

Figure 5.1. Tenure-dependent annual contributions reduce differences in the impact of the reform on workers with different layoff probabilities



Source: Author's calculations based on *Muestra Continua de Vidas Laborales* (MCVL).

5.1.2. Experience-rating employer contributions for severance pay

The reform entails a reduction in firing costs that may reduce overall job security and provide a competitive advantage to high-layoff firms. This is likely to be a controversial aspect of the reform. One possibility to mitigate this issue would be to experience-rate employer contributions for severance pay, while preserving the portability of severance pay and its effects on the voluntary mobility of workers between firms.

Experience-rating in this context implies making employer contribution dependent on their layoff behaviour in the recent past, similar to the system for unemployment insurance in the United States. Firms with high layoff rates during the reference period would pay higher contributions, while those with low layoffs rates would be pay lower contributions. This would mitigate the *ex-ante* distributional implications of the reform across firms that differ in their layoff behaviour. As the annual contribution depends on the layoff behaviour of the firm, this would effectively increase the marginal cost of firing, and partially undo the reduction in the marginal cost of firing compared with the current situation. The one-off severance payment would remain identical for all firms as in the main reform scenarios.

The use of experience-rating in the present context raises a number of implementation issues. A first issue is about the implications of experience-rating for the benefits of workers in the case of dismissal. If firms pay their contributions directly in the savings

contribution, this would lead to larger increase in cost and payoffs than in the simulations presented here.

accounts of workers, workers in high-layoff firms accumulate more savings than their counterparts in low-layoffs firms. An alternative could be to keep the benefits of workers unchanged with respect to the baseline scenario by making use of a clearing system that partially delinks firm contributions from the savings of workers (and their withdrawals in the case of layoff). Instead of paying contributions directly into the personal savings accounts of workers, firms would pay them into a collective fund and the collective fund would subsequently make a uniform transfer to the savings accounts of workers (as in the baseline scenario).[14] A second issue is whether such a system can be implemented without requiring an increase in the average level of contributions. An increase in average costs may be needed to ensure that sufficient funds are available at the time withdrawals are made. To the extent that experience-rating reduces layoffs and hence the need for making withdrawals, and persons make withdrawals at different points of time, this may mitigate this issue, but may not solve it completely.[15]

5.1.3. Differentiating severance pay regimes across firms and workers

A more equal impact of the reform on the firms might be desirable to avoid distortions to competition and a more equal distribution of expected benefits across workers might be preferred on equity grounds. Differentiating the reform parameters across firms and workers can make the impact of the reform across workers and firms more equal.

In particular, different splits between one-off severance payments and annual contributions may be applied across different industries, and possibly even across firms of different sizes, reflecting average differences in layoff behaviour. To ensure equal treatment of all dismissed workers, the relevant combinations of parameters can be chosen among a set that guarantees that all workers (regardless of their firm) receive the same overall compensation in case of dismissal. From within this set, the combinations with lower one-off severance payments and higher annual contributions would apply to firms with higher layoff rates.

The differentiation of parameters across firms can ensure a more homogenous distribution of changes in costs for different firms and can also be used to achieve a lower increase in cost in the economy overall. Workers with higher risk of layoff would receive higher contributions in their account, which can be seen as a compensation for the higher risk they face. This inequality in contributions (and firing costs) is the key to achieving more equality in expected outcomes or, equivalently, in cumulative payoffs over the lifetime.

A more equal distribution of costs and gains among firms and workers, however, might not be economically optimal. As discussed in Section 4for the constant-benefit set-up, the choice between the different parameters combinations that ensure a given level of total compensation entails a trade-off between a reduction in the marginal firing cost (which declines with the one-off payment) and the expected cost of a permanent job (which increases with the annual contribution). The optimal combination of marginal firing cost and operating cost might well vary even across firms with similar layoff behaviour. Similarly, workers might have different preferences regarding the trade-off between receiving larger contributions which they can keep if the move voluntarily and having a lower protection from firing costs. An alternative approach is to let firms and workers

[14] Workers would be allowed to make withdrawals at the time of dismissal based on their tenure with the firm.

[15] A further issue is that the use of experience-rating will increase the complexity of the system. This creates challenges for its administration, but may also undermine its readability and its ability to influence the firing behaviour of firms.

choose the combination of annual contributions and firings costs most suited to their specific needs and preferences through collective bargaining.

For example, legislation could set the overall level of compensation and indicate a default level for the annual contribution allowing collective bargaining to deviate from it (possibly setting minimum and maximum levels). Firms and workers in sectors facing stronger competitive pressure might then opt for regimes with lower contributions (and lower operating costs) to minimise the potential negative impact on employment and wages. In sectors where workers are more likely to move voluntarily and firms attach particular value to the ability to adjust employment easily, collective bargaining might lead to the adoption of a regime with higher contributions and lower firing costs.

5.2. Broader implementation issues

This sub-section discusses how to adjust the compensation for unfair dismissal if the reform is implemented and the possibility of adjusting the severance pay system of temporary workers as well.

5.2.1. Adjusting the compensation for unfair dismissals

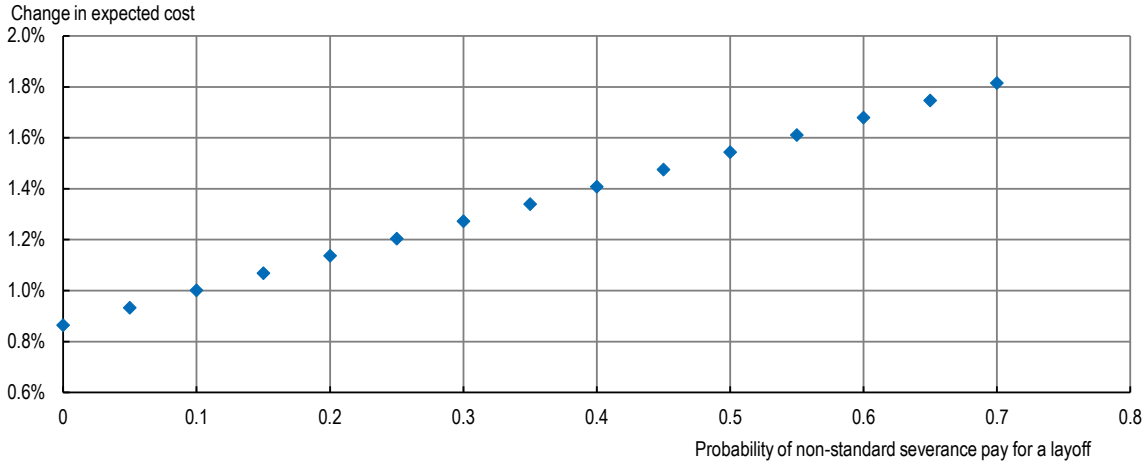
The simulations presented in this Section 4assume that all layoffs are considered economic layoffs and that the reform only changes one-off severance pay in the case of economic dismissal. In practice, however, some layoffs trigger a different level of severance pay, because they are ruled unfair in a court or because of an extra-judicial settlement between the worker and the firm. If this non-standard level of severance pay does not fully adjust following the reform, the increase in expected cost of a permanent worker is larger than estimated in the simulations in Section 4. This is because firms effectively benefit less from the reduction in the one-off severance payment formally introduced by the reform, but still fully bear the increase in cost arising from the introduction of the annual contribution.

Further simulations show that even a relatively low incidence of non-standard dismissals leads to significantly larger estimates of the increase in expected cost for firms (Figure 5.2).[16] For example, the increase in expected cost under the constant-benefit version of the reform that reduces one-off severance pay to 12 days of pay per year of services (8-12 scenario) would increase from 0.9% to 0.95% with a probability of non-standard severance pay as low as 5%. For a probability of 20%, the estimated increase in cost is around 1.1%. Compared to the 0.9% increase when all layoffs end with the standard severance pay for economic dismissals, this represents a proportional increase of over 30%.

[16] These calculations are obtained using the formula in Annex B. Reliable data on the incidence of layoffs that end with higher severance payments either because of a judicial decision or an agreement between the parts are not readily available. According to Jimeno et al. (2020[5]), about 2% of all layoff ends up in court and over 75% of these are decided in favour of the worker, presumably resulting in a higher level of compensation than in the case of economic dismissal. However, the share of layoffs ending with a higher severance payment is likely to be greater since disputes between workers and firms can be resolved with an agreement before the case reaches a court. In this case, the level of negotiated severance pay is likely to depend at least to some extent on the mandatory level of severance pay in the case of economic dismissals.

Figure 5.2. The cost increase for firms is larger the larger the share of dismissals with a non-standard severance pay

Annualised expected increase in the cost of employing a permanent worker by the share of dismissals for non-economic reasons (%)



Source: Author's calculations based on *Muestra Continua de Vidas Laborales* (MCVL).

To mitigate this additional increase in expected cost, two possible policy levers are available: i) adjusting the compensation for unfair dismissal in a way similar to that for economic dismissals; and ii) lowering the probability that an economic layoff is challenged in court.

The reform considerably increases the payoff for a worker in case of unfair dismissal relative to that of a worker dismissed for economic reasons. This is because the reform lowers the one-off payment for economic dismissals, but leaves unchanged the compensation for unfair dismissal at 33 days of pay per year of service. Maintaining the difference in compensation between unfair and fair dismissal constant at 13 days of pay per year of service requires lowering the one-off compensation for unfair dismissal by the reduction in the one-off severance payment brought about by the reform. For example, when the one-off severance payment is set to 12 days of pay, the compensation for unfair dismissal should decline from 33 to 25 days of pay per year of service. Importantly, keeping the difference in compensation between fair and unfair dismissal constant prevents strengthening incentives for challenging economic layoffs in court.

An alternative possibility would be to complement the reform with measures that reduce incentives to challenge economic dismissals in court. This would reduce the probability that an economic dismissal is considered unfair and limit the increase in cost for firms. Clarifying and restricting the definition of unfair dismissal would lower the uncertainty surrounding the possible outcome of a trial and therefore reduce the scope for extra-judicial agreements on higher levels of severance pay (OECD, 2018[9]). The 2012 reform already did this to some extent, but the evolution of judicial decisions in labour tribunals suggests that considerable uncertainty remains (Jimeno, Martínez-Matute and Mora-Sanguinetti, 2020[5]).

5.2.2. Adjusting severance pay for temporary workers

To mitigate the increase in the costs of permanent relative to temporary workers and hence the incentives for using temporary workers, one could, in principle, extend the reform to all workers, including those with temporary contracts. The annual contribution and one-off severance payment for temporary workers could be chosen to ensure that the subsequent increase in the expected cost of a temporary worker is similar to that of a permanent worker. The application of the reform to temporary contracts would have similar distributional implications as that for permanent workers. In particular, the cost would increase more for firms that are more likely to convert temporary contracts into permanent ones (and therefore less likely to pay severance pay), and the benefits for workers would be higher the more likely they are to have their contract converted.

Alternatively, the reform could be extended to temporary workers by introducing an annual contribution, while leaving their one-off severance pay unchanged. The increase in cost would therefore be the same for all workers on a temporary contract and would not affect incentives for conversion for different firms. The main advantage of this approach is that temporary workers would also be able to benefit from portable severance pay accounts.

Yet a third possibility would be increase severance pay for temporary workers without introducing an annual contribution for temporary workers. For small increases in the expected costs of permanent workers, this could be calibrated to ensure a comparable increase in expected cost for temporary workers. For example, to achieve an increase in the expected cost of a temporary worker of around 0.1%, the severance pay for temporary workers should increase from 12 to 16 days per year of service.[17] Alternatively, the severance pay for temporary workers could be aligned with the new total compensation for permanent workers under the reform, along the lines of a recent reform in the Netherlands. In some scenarios, notably those with constant benefits, this would imply an increase in the expected cost of temporary workers relative to permanent ones.

Increasing severance pay for temporary workers would ensure that the cost increases more for firms which are more likely to use temporary contracts and less likely to convert temporary contracts into permanent ones and the benefits would entirely accrue to workers whose contract is not converted. In addition, the change could generate further incentives for conversion.

Regardless of how it is pursued, the increase in the cost of temporary employment through adjustments in their severance pay regime presents two potential issues. First, firms might find it easier to adjust wages of temporary workers to offset any increase in expected cost due to the relatively weak bargaining position (see Box 4.1 on wage shifting). Second, to the extent that the costs of temporary contracts increase due to the reform, this would further increase the overall labour costs for firms, with potentially negative consequences for labour demand. Consequently, containing the increase in the costs of permanent workers might be a better way of limiting labour market duality and supporting employment.

[17] This is computed based on the assumption that 80% of temporary contracts end after one year with severance pay.

6 Beyond distributional effects

The analysis so far has focused on the distributional implications of introducing portable severance pay accounts while abstracting from the behavioural responses to the reform by firms and workers. While this provides useful insights into the political economy and the appropriate design of the reform, it does not assess the rationale of the reform itself in terms of improved labour market performance, inclusive growth and well-being. This section draws on the available literature to discuss how a more general welfare analysis could be conducted for Spain that takes account of the behavioural responses of firms and workers.

6.1. Evidence from other countries

From a theoretical point of view, the implications of the reform for productivity and employment could go either way. Its positive effects mainly derive from its expected effects on the voluntary mobility of workers to more productive jobs. Under the current system, workers lose their entire entitlement to redundancy pay if they voluntarily move to a different employer. The reform alleviates this problem as the part of redundancy pay that is paid into their personal accounts is made portable. Economic theory suggests that the resulting increase in worker mobility leads to a rise in average labour productivity, with positive effects on job creation and unemployment. In addition, by lowering the cost of a layoff, the reform may raise layoff rates and promote hiring, intensifying flows in and out of unemployment, lowering labour market duality and enhancing the efficiency of job reallocation. However, these positive effects need to be balanced against the possible impact of the reform on the expected costs of employing permanent workers, which may reduce employment, increase unemployment and deepen labour market duality. The importance of these different effects is ultimately an empirical question.

The empirical evidence on the introduction of portable severance pay accounts is largely limited to the case of Austria, which replaced severance pay with annual savings accounts for severance pay in 2003. Given the relevance of worker mobility for the welfare effects of the reforms, this has been the main focus of empirical studies. An early study by Hofer et al. (2011[12]) offer a descriptive analysis that points to a limited impact of the reform on labour mobility. More recently, Kettemann et al. (2017[13]) show that reform promoted labour mobility among employees in distressed firms. Distressed firms are defined as firms that engage in mass layoffs to 3 to 4 years later. The analysis is based on a regressions discontinuity (RD) design, which involves comparing individuals who enter a distressed firm right before and after the implementation of the 2003 reform.

To analyse the aggregate implications of the reform, Kettemann et al. (2017[13]) use their evidence on labour mobility to structurally estimate a search-and-matching model. The model captures the relevant features of the Austrian system of severance pay (vesting period, severance pay amount) and allows for on-the-job search. The calibrated model is able to replicate the observed changes in mobility patterns and notably the substantial increase in job-to-job mobility. The model is used to perform various counterfactual exercises. In one of these exercises, the authors simulate the effects of the reform in a dual labor market with stringent employment protection such as Spain. This suggests that the reform could reduce unemployment rates by as much as five percentage points.

While the analysis conducted by Kettemann et al. (2017[13]), including that for countries with dual labour markets, is very interesting, it does not necessarily provide a good indication of the effects of the reform considered in this paper for Spain. There are two reasons for this. The first is that the model is based on the behavioral responses of firms and workers using data for Austria. The second is that the analysis is based on a hypothetical reform that fully replaces severance pay with a system of individual savings accounts rather than a partial one as considered in this report. Amongst others, this means that the estimated effects on unemployment of the reform considered in this paper are likely to be considerably smaller than suggested by Kettermann et al. (2017[13]).

6.2. Extending the analysis for Spain

An *ex-ante* evaluation of the wider labour market implications of the reform in terms of employment and labour market duality requires the use of a structural model, which incorporates the potential behavioural responses by firms and workers.

In the last ten years, several studies have used structural approaches based on search-and matching-models to study: i) the impact of Spain's system of employment protection on the volatility of employment over the business cycle; and ii) how various labour market reforms could improve economic and labour market outcomes (Bentolila et al., 2012[14]; Ignacio García Pérez and Osuna, 2014[15]; Silva and Vázquez-Grenno, 2013[16]). These models can also be used to study the aggregate labour market implications of introducing portable accounts for severance pay in the long-term as well as in the transition phase.

The search-and-matching model in Kettemann et al. (2017[13]), with temporary and permanent jobs, provides a natural starting point for developing a structural model of portable severance pay accounts that can be calibrated to Spain. The main challenge is to adapt the institutional setting of the model to that in Spain. In the model by Kettemann et al. (2017[13]), the system of redundancy pay in Austria is captured by two parameters, which respectively capture the vesting period and the fixed redundancy payment. This representation is not appropriate for Spain, since it does not capture the dependence of severance pay on tenure. This can be addressed by building on García-Pérez and Osuna (2014[15]) who account for tenure-related severance pay in a search-and-matching model.

The model can be calibrated to the situation in Spain using a combination of standard parameters from the literature (e.g. preferences, cost of vacancies, matching elasticities) and parameters that are of key policy interest and can be measured or estimated specifically for Spain (e.g. unemployment rate, incidence of temporary work). One important parameter that needs to be specific to Spain is the tenure profile of quit rates since this depends importantly on the presence of tenure-dependent severance pay. One option is to use the same estimated quit rates as used for the micro-simulations in this report. Another option could be to follow the approach of Kettemann et al. (2017[13]) and use *Muestra Continua de Vidas Laborales* data to estimate quit rates in the years preceding a mass layoff. Finally, assuming that the reform only applies to newly created matches, the transition path to the new long-run steady-state can be simulated.

7 Conclusions

This report provides an *ex-ante* assessment of the distributional implications of introducing individual savings accounts for severance pay in Spain based on micro-simulations while abstracting from the behavioural responses to the reform by firms and workers. In the current system, permanent workers who are dismissed from their jobs are entitled to 20 days of severance pay per year of service, which is relatively high by OECD standards. The reforms considered in this report consist of the partial replacement of the current severance payment system by an individual saving accounts system for severance pay, financed by periodic contributions of employers, which can be accessed in the case of dismissal. The report focuses on two versions of the reform that keep constant respectively the total compensation in case of dismissal ("constant benefit") or the expected costs for firms of employing a permanent worker ("constant-cost"). An important limitation of the analysis is that it does not take account of any behavioural responses of firms and workers in response to the reform.

The reform yields important distributional effects between firms and workers, different groups of firms and different groups of workers.

- **Firms and workers**. The constant-benefit version entails a transfer from the average firm to the average worker, resulting in an increase in the expected costs for firms of 0.9% in the case of an annual contribution of 8 days per year (and one-off severance pay set of 12 days of pay year of service). The transfer results from the fact that the annual contributions have to be made in all cases, while the one-off severance payment only at dismissal. To avoid an increase in expected costs for the level of one-off severance pay, the annual contribution would need to be lowered to 5 days per year.
- **Groups of firms.** The increase in the annual expected cost of employing a permanent worker varies considerably across firms, depending on their layoff behaviour. Firms that lay off permanent workers at lower rates see larger increases in annual expected costs because they face lower severance pay obligations in the current system. As a result, larger firms and firms manufacturing and professional services tend to see above average increases in costs.
- **Groups of workers**. Permanent workers who are less likely to be laid off gain more from the introduction of portable severance pay accounts because they are less likely to receive severance pay at dismissal in the current situation. This implies that more educated permanent workers would gain more than less their less educated counterparts. Differences between men and women are small.

To deal with these difficult distributional trade-offs, policy makers may consider combinations of one-off severance pay and annual contribution that yield some increase in the expected cost for firms and benefit for workers, without keeping the overall level of compensation in the case of dismissal constant. The effectiveness of the reform can be enhanced and its distributional trade-offs mitigated by making use of complementary measures to compensate possible losers, differentiating the design across firms and taking account of broader implementation issues in relation to temporary workers and unfair dismissals:

- **Compensating potential losers of the reform**. Any residual increase in expected cost for firms could be at least partially offset through a reduction in employer social security contributions, provided that this can be achieved without reducing entitlements for the unemployed by using the large and persistent surplus of the unemployment insurance system before COVID-19.
- **Differentiating the parameters of the reform between firms and workers.** A promising design option in this regards is to make severance pay tenure-dependent. Lowering annual contributions for workers with long tenure could mitigate the increase in expected labour costs for firms (and the need to reduce social security contributions), while limiting the regressive nature of the reform across groups of workers. Other ways of differentiating the parameters of the reform are to experience-rate annual contributions by making annual contributions dependent on the layoff history of individual firms or to determine by law or collective bargaining different combinations of the parameters for different sectors.
- **Increasing severance pay for temporary workers**. An increase in the cost of temporary workers might be desirable to prevent the reform from increasing labour market duality. Extending the reform to temporary workers, however, would increase cost more for firms that are more likely to convert temporary contracts into permanent ones and would benefit more workers who are more likely to have their contract converted. Instead, simply increasing the severance pay for temporary workers from its current level of 12 days per year would strengthen incentives for conversion and concentrate severance pay on the most vulnerable.
- **Adjusting compensation for unfair layoffs**. The version of the reform considered in this report increases the payoff for a worker in case of unfair dismissal relative to that of a worker dismissed for economic reasons. This generates further increases in cost for firms and strengthens the incentives for workers to challenge economic dismissals in court. To prevent this and ensure that the difference in compensation for an unfair and a fair dismissal remains the same, the compensation for unfair dismissal should be reduced by the same amount as the one-off severance payment for economic dismissal.

All in all, this report makes clear that designing a reform that introduces portable severance pay accounts is complex. The reform versions considered in this report provide a useful starting point for analysing the possible distributional implications of the reform. However, they should by no means be seen as a template for the reform to be implemented. Indeed, the report already offers a number of useful avenues that can improve the design and implementation of the reform. An analysis of the reform that assess its implications for employment, labour market duality and productivity by taking account of its possible behavioural effects on firms and workers would no doubt yield additional insights that can improve the design and implementation of the reform. The introduction of portable savings accounts also raises important questions about the way the individual accounts are administered, their financial management and the exact rules for withdrawal that would need to be addressed. The possible implications of the reform for pensions and the pension system more generally also would need to be analysed.

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Annex A. The MCVL data

The analysis uses the 2017 Spain's Continuous Sample of Employment Histories (*Muestra Continua de Vidas Laborales* or MCVL).

The MCVL is an administrative dataset with longitudinal information obtained by matching social security, income tax, and census records for a 4% non-stratified random sample of the population who in a given year have any relationship with Spain's Social Security (individuals who are working, receiving unemployment benefits, or receiving a pension).

The unit of observation in the social security data contained in the MCVL is any change in the individual's labour market status or any variation in job characteristics (including changes in occupation or contractual conditions within the same firm). The data record all changes since the date of first employment, or since 1980 for earlier entrants. On each date, we know the individual's labour market status and, if working, the occupation and type of contract, the establishment's sector of activity at the NACE three-digit level, and the establishment's size.

The main advantage of this dataset is that it gives accurate information on employment spells, with precise dates of entry and exit into and out of jobs/unemployment. Firm and worker identifiers also allow for the study of job-to-job transitions. However, it can't track anyone who has no formal relationship with the Social Security Agency. As such, it does not track people outside of the labour force.

The data allow to keep track of the working history of each person registered with the Spanish Social security in 2017. By exploiting the panel dimension, we can construct precise measures of tenure and experience, calculated as the actual number of days the individual has been employed, respectively, in the same establishment and overall.

The MCVL also provides individual characteristics contained in social security records, such as age and gender, and also matched characteristics contained in Spain's Continuous Census of Population (Padrón Continuo), such as country of birth, nationality, and educational attainment.

Caveats and limits

The data on establishment size refer to the date of data extraction. Therefore, when looking at the working history, this information may not be available if the enterprise is not active anymore.

It should also be noted that the quality of the information on education is not satisfactory. Indeed, the level of education is not regularly updated. The last comprehensive update was in 1996.and the information will only be updated if the INE has received new data from the Ministry of Education and of the municipalities, or if the person concerned has communicated a change.

Annex B. Technical background

Calculating payoffs for workers and firms

The assessment of the distributional effects of introducing portable severance pay accounts focus on the value of a permanent job to workers and its cost to firms. The expected payoff for a permanent worker of a single job is equal to the expected cost of that job to the firm. Payoffs include the sum of wage, severance payment and savings in each year, weighted by the probability that these payments are due. Under the reform, the firm has to pay annual contributions at the rate x and one-off payments in case of dismissal at the rate z. Hence, the annualised expected cost of a firm employing a permanent worker can be written as:

(A1) $E[V] == \frac{1}{E[tenure]} \sum_{t=1}^{T} [1 + x + zt * \Pr(Layoff_t | tenure_t = t)] * \Pr(tenure_t = t)$

where $\Pr(tenure_t = t)$ is the probability that a job that a job still exist at time t, conditional on having survived till time t-1 (because a worker can only have tenure t if the worker had tenure t-1 at time t-1). $E[tenure]$ is the expected tenure of the job which is the sum of $\Pr(tenure_t = t)$ for all t. $\Pr(Layoff_t | tenure_t = t)$ is the probability that the job which has survived till time t ends with a layoff.

As a result, the change in annualised expected cost of employing a permanent worker between the reform $E[V_1]$ and the existing situation $E[V_0]$ can be written as:

(A2) $E[V_1] - E[V_0] = (1 + x_1 + \lambda z_1) - (1 + \lambda z_0) = x_1 + \lambda(z_1 - z_0)$

where x_1 is the contribution rate by employers to the portable savings accounts and $z_1$and z_0 are the rate of the one-off payment in case of layoff in the post and pre-reform periods respectively. λ is the ratio between the expected time of layoff and the expected tenure, which is less than 1 unless the spell ends with a lay-off with certainty. λ also depends on the time profile of the probability of layoff. The increase in expected cost is larger for firms that tend to lay off workers earlier in the spell.

Accounting for layoffs without standard severance pay

The reform do not consider any changes in the level of compensation that is due in the case of unfair dismissals, while for the purposes of the simulations it is assumed that all layoffs take the form of economic dismissal involving mandatory severance pay. In practice, however, layoffs may be challenged by workers resulting in negotiated settlements or compensation if the court rules the dismissal is unfair or alternatively firms may fail to comply with mandatory severance pay requirements in the case of dismissal.

To see the implications of this for the payoffs of the reform for different workers and firms consider the case in which z is not paid with certainty in case of layoff but only with some probability $p < 1$ (which does not vary over time). In this case, the change in the expected cost for the firm (and the payoff for the worker) can be written as:

(A3) $E[V_1] - E[V_0] = x_1 + \lambda p(z_1 - z_0)$

In the constant-benefit version of the reform, the incidence of non-compliance, dismissals for disciplinary reasons, unfair dismissals and, to some extent, also negotiated severance

pay increase the costs of the reform to firms and the payoff to workers. In the constant-cost version of the reform, this reduces the annual contribution for a given reduction in z. These consequences follow from the fact that firms benefit less from the reduction in z brought about by the reform if the probability of paying this amount is lower than one, while they continue to bear the full increase in cost arising from the introduction of x_1.