

THE 2012 LABOUR MARKET REFORM IN SPAIN: A PRELIMINARY ASSESSMENT

December 2013



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FOREWORD

This report provides an initial evaluation of the comprehensive reform of the Spanish labour market undertaken in 2012. The report was commissioned to the OECD by the Spanish government and it complements the evaluation of the 2012 labour market reform undertaken by the Labour Ministry (Ministerio de Empleo y Seguridad Social (MEySS)) and presented in September 2013.

The evaluation presented in this report should be considered preliminary and mainly confined to the short-time impact of the reform, given the fact that only a short amount of time has passed since the reform was undertaken and the complexity of assessing the impact of such a comprehensive reform.

The objective of this report is to describe the key components of the 2012 reform and place them in the context of the evolution of labour market institutions in other OECD member countries, with a particular focus on collective bargaining and employment protection legislation. The report also assesses the impact of the reform on the ability of firms to adjust wages and working time to cope with demand shocks (so-called internal flexibility), as well as the flows in the labour market for different types of contracts and the overall duality of the Spanish labour market. The report also considers what complementary reforms would be required to improve the effectiveness of the labour market reform, in particular in the area of active labour market policies.

The work on this report was carried out by the Directorate for Employment, Labour and Social Affairs (ELS) of the OECD. The report was prepared by Andrea Bassanini and Josep Mestres, with statistical assistance from Thomas Manfredi. It benefited from the many useful comments by Stefano Scarpetta (ELS Director), Mark Keese (Head of the Employment Analysis and Policy Division) as well as by staff in the OECD Economics Department.

The co-operation of Spanish Authorities in providing the data used in this report is gratefully acknowledged. José Ignacio García Pérez kindly performed the estimations of competing-risk hazard models on social security data. Moreover, staff in the Spanish Labour Ministry provided useful comments on previous drafts. Nonetheless, the OECD Secretariat bears full and sole responsibility for this report.

This work is published on the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries.

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EXECUTIVE SUMMARY

This report provides an initial evaluation of the impact of the comprehensive reform of the Spanish labour market undertaken in 2012. This assessment is complementary to the evaluation performed by the *Ministerio de Empleo y Seguridad Social* (2013). Nonetheless, the findings presented here should be considered as preliminary, given the short amount of time that has elapsed since the reform was introduced and the complexity of assessing the impact of such an extensive reform.

The reform has promoted the internal flexibility of firms...

One of the key elements of the reform is the greater priority given to collective bargaining agreements at the firm level over those at the sectoral or regional level and the greater possibility given to firms to opt-out from a collective agreement and adopt internal flexibility measures to limit job destruction. In addition, the extension of collective bargaining agreements after their end date if no new agreement is reached is now limited to a maximum period of one year. Dismissal regulations have also been modified, redefining the conditions for fair dismissal, reducing monetary compensations in the case of unfair dismissal and eliminating the requirement of administrative authorisation in the case of collective redundancies. Moreover, a new permanent contract for full-time employees in small firms has been introduced with an extended trial period of one year.

...and reduced dismissal costs for permanent workers

The labour market reform has improved the *de jure* flexibility of the collective bargaining system in a way rarely found before the crisis both in Spain and in other countries of the Euro area. OECD indicators on employment protection legislation (EPL) indicate that the reform has significantly reduced the rigidity of the Spanish legislation on dismissals. Nevertheless, severance pay for permanent workers in Spain remains among the highest in OECD countries, despite the significant reduction in compensation for unfair dismissal brought about by the reform.

The reform has contributed to significant wage moderation...

The changes of internal-flexibility and collective-bargaining regulations have contributed to the significant wage moderation observed in Spain over the past year, even if part of this moderation is the result of protracted adverse cyclical conditions and public-sector wage cuts. While this wage moderation is affecting workers' living standards, there is already evidence that it has started yielding its dividends in terms of employment performance and has contributed to save jobs. Moreover, once growth is restored, the greater scope for firm-level collective bargaining could allow a better reflection of productivity gains into wages. Overall, the Spanish economy appears to have made substantial progress in achieving wage moderation, even if continuous monitoring of the effects of the reform in this area is advisable, and the government must be ready to implement further action if performance worsens. In addition, trends in income inequality should be monitored in order to guarantee that cost and benefits of the reform are equally shared.

...and increased hiring on permanent contracts...

The reform has contributed to promote hiring, in particular on permanent contracts. The empirical analysis in the report suggests that the reform could be considered responsible for about 25 000 new permanent contracts each month, with the effect concentrated in small and medium firms (those below 100

employees). The reform has also contributed to containing the duration of the unemployment spells, in particular due to faster transitions into permanent contracts for those workers entering unemployment after a temporary job. The analysis also shows some signs that separations decreased after the reform, especially for temporary contracts, possibly resulting from the greater use of internal flexibility measures as an alternative to contract termination. All these findings point to a positive effect of the reform in dampening the widespread segmentation of the Spanish labour market, although the impact is so far small and it will take time before the duality of the labour market is considerably reduced.

...even if, prior to the August 2013 legal change, it also led to a decline in collective dismissals

By contrast, the reform decreased collective dismissals more than any visible effect on individual dismissals, probably due to the increased procedural uncertainty that followed the elimination of the requirement for administrative authorisation – and the consequent increase in judicial uncertainty – as well as the extension of the circumstances in which companies making these dismissals have to pay a tax and carry out a special training and relocation plan. These factors are also probably one of the main drivers behind the lack of effect of the reform on hiring on permanent contracts by large employers. In that respect, the Government quickly reacted by addressing some of the key elements of procedural uncertainty through a new legislative changes in August 2013. It is too early to say, however, whether these changes will suffice to significantly reduce judicial uncertainty concerning collective dismissals in the future.

The reform has the potential to boost productivity growth and competitiveness...

Reforms of dismissal regulations, by enhancing labour reallocation, have the potential to boost productivity growth in the long-run. Drawing from a simulation exercise based on the experience of OECD countries over a long period of time, the report suggests that the reform could potentially boost labour productivity growth in the long run by about a ¼ of a percentage point annually in the business sector (excluding agriculture, mining, fuel and professional services).

...but should be accompanied by further effort to promote greater competition in product markets and efficient activation policies

The full impact of the reform on job creation will depend however on complementary reforms in other areas. In particular, reforms in product and service markets will not only increase competition and boost productivity, but also improve labour market performance. The effectiveness of active labour market policies is also very important in order to successfully place unemployed workers into jobs. The changes introduced recently in this area go in the right direction, but a careful evaluation of these recent reforms is necessary to ensure that the Spanish income support system to the unemployed and employment services are able to effectively and quickly encourage and help the unemployed to find work.

While a good step, further actions could be envisaged

Overall, the 2012 labour market reform appears to have brought more dynamism into the Spanish labour market and is a step towards the reduction of its widespread segmentation and the increase of the competitiveness of the Spanish economy in the medium term. Nevertheless, additional adjustments could be envisaged in order to ensure that the objectives of the labour market reform are fully attained.

In particular, the government could consider treating unlawful collective dismissals as any other type of unfair dismissal (as in most other OECD countries), limiting the possibility of ordering reinstatement to cases of discrimination and prohibited grounds. In addition, some of the specific, additional costs of collective dismissals for employers introduced by the reform could be rolled back.

The evidence presented in the report also suggests that the trial period is too short for firms that are not eligible for the *contrato emprendedores*. The duration of maximum trial periods for other permanent contracts could be made longer, particularly in those cases in which this duration is currently much shorter than in other OECD countries.

Finally, a greater convergence of employers' costs of termination for permanent and temporary contracts would be desirable. This will be already the case by 2015 for firms with less than 25 employees – for fair terminations – due to a severance-pay subsidy in place for these firms and the schedule of increases in severance pay for fixed-term contracts approved in 2010. Nevertheless, the government could consider deepening this convergence process, notably by reducing ordinary severance costs for large employers to align them closer to the OECD and European averages.

INTRODUCTION

The global financial and economic crisis hit the Spanish labour market particularly hard. The harmonised unemployment rate in Spain reached 26.7% in October 2013, the second highest in the OECD area (only exceeded by Greece) and more than three times the OECD average (7.9%). Since the start of the crisis, the number of unemployed has increased by more than 4 million persons in Spain. Even more worryingly, long-term unemployment – defined as those unemployed for 12 months or more – as a share of all unemployment has risen from 19.1% in the fourth quarter of 2007 to 50.4% in the third quarter of 2013. Despite this massive increase in unemployment, the wage component of unit labour costs in the business sector was slow to adjust. It did not decline in the first four years of the crisis, and its level at the end of 2011 was above that at the onset of the crisis.

The deterioration of the competitiveness of the Spanish economy dates back to the beginning of the 2000s, but the further decline during the early phases of the crisis and the upsurge of unemployment led to a reaction by the Spanish government with a series of structural reforms. A first labour reform in 2010 – among other provisions – increased severance pay for temporary contracts (fully effective by January 2015 only) and generalised the severance pay subsidy scheme to all employers and types of dismissal for permanent contracts signed after the date of approval of the reform.¹ A second major reform was undertaken in February 2012. This reform consisted of two main elements. First, it gave priority to collective bargaining agreements at the firm level over those established at the sector or regional level and made it easier for firms to opt-out from a collective agreement and implement internal flexibility measures as an alternative to job destruction. In addition, the previous practice of extending collective bargaining agreements after their end date in the case that no new agreement could be signed by the social partners was limited to a maximum period of one year. Second, the provisions of Spain's Employment Protection Legislation (EPL hereafter) were significantly modified, reshaping the definition of fair economic dismissal, reducing monetary compensations for unfair dismissal and eliminating the requirement of administrative authorisation for collective redundancies. In addition, a new permanent contract for full-time employees in small firms was introduced, entailing an extended trial period of one year.

The objective of this study is to evaluate the labour market impact of the 2012 reform. In particular, this report makes a threefold contribution. First, it places the reforms of the Spanish labour market in the context of reforms in other OECD member countries. Second, it assesses the impact of the reform on wage moderation and labour costs, in particular by looking at the way it appears to have shaped the evolution of labour costs in the business sector. Finally, it evaluates the impact of the reform on labour market flows and duality, by looking at hiring, separations, tenure on the job and duration of unemployment spells. As far as the labour market duality is concerned, special attention is devoted to flows to and from permanent contracts. To the extent that certain provisions included in the reform apply only to firms below certain size thresholds (notably 50 and 25 employees), whenever possible, the effects are estimated separately for firms above and below these thresholds.

Almost paradoxically, the comprehensive nature of the 2012 reform makes its evaluation a difficult task. In fact, the inclusion of a large number of provisions, sometimes explicitly targeted at different groups, does not allow the identification of a suitable control group. The reform also occurred in the

1. This provision was, however, never fully implemented and partially withdrawn in 2012 (see Section 1).

middle of a double-dip recession, at a time when the economic juncture restarted to deteriorate after a short recovery that was so hesitant that employment continued to fall. More importantly, this evaluation comes only after a short time since the reform was implemented, and in many cases only short time series are available.² In addition, several amendments and implementation decrees were made at different dates after the approval of the reform in February 2012. For all these reasons, the evaluation exercise provided in this report should be considered as very preliminary and mainly limited to the short-time impact of the reform.

The report is organised as follows: Section 1 describes the main features of the 2012 reform. Section 2 places these features into an international perspective by comparing the Spanish institutions of collective bargaining and employment protection legislation with those of other European and OECD countries, documenting the country's progress vis-à-vis those of other countries. Section 3 summarises the results of several econometric exercises evaluating the impact of the reform on unit labour costs and various types of worker flows, disentangling the effects by firm size whenever possible. The full details of the econometric estimations are provided in the Annex. A simulation of the likely long-run impact of the reform on productivity growth is also presented in this section. Section 4 briefly discusses interactions with other policies, with particular attention to active labour market policies, stressing the potential role of other institutions in maximising the employment dividend of the reform. The last section provides some concluding remarks and sets forth a few recommendations for further action in this area.

1. Key components of the 2012 reform

The 2012 Spanish labour market reform was approved by the government in February 2012 as a *Real Decreto Ley 3/2012* and confirmed with no substantial modifications as the *Ley 3/2012 de medidas urgentes para la reforma del mercado laboral*³ by the Spanish Parliament in July 2012. Subsequently, several legal provisions were introduced in order to implement the reform. This comprehensive reform modified several aspects of the Spanish labour market regulation, including collective bargaining rules and collective and individual redundancy procedures and costs.

The objective of the reform of collective bargaining was to restore competitiveness by aligning labour costs more closely with productivity and allow employers to exploit more easily internal flexibility measures as an alternative to dismissals in the presence of adverse company shocks, thereby preserving jobs and reducing employment losses in bad times (see Section 2.1 below). The reform gave priority to collective bargaining agreements at the firm level over those at the sector or regional level, so that collective agreements could adjust more closely to the specific needs of a firm. In addition, firms can now opt-out more easily from a collective agreement and pursue internal flexibility measures. For example employers can introduce unilaterally changes in working conditions (wages, working hours, work schedules) whenever there are objective economic, technical, production or organisational reasons.⁴ In addition, in the absence of an agreement with workers' representatives, the employer willing to opt out may now unilaterally refer the matter to arbitration by a public tripartite body ("*Comisión Consultiva Nacional de Convenios Colectivos*", CCNCC hereafter). Once settled by arbitration, this kind of dispute is not fully reviewable by labour courts, since arbitration decisions may be challenged before a court only on very limited grounds (see Gomez-Abelleira, 2012). Finally, collective bargaining agreements can now be

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2. The analysis contained in this report is based on data that were available in early September 2013. It covers therefore time series up to July 2013.
 3. The full text of the Decreto Ley 3/2012 is available at www.boe.es/boe/dias/2012/02/11/pdfs/BOE-A-2012-2076.pdf and the one of the Ley 3/2012 at www.boe.es/boe/dias/2012/07/07/pdfs/BOE-A-2012-9110.pdf.
 4. More precisely, this possibility existed also in the previous legislation but was extended by the 2012 reform.

prolonged for a maximum period of only one year after their end date (the so-called period of *ultra-activity*), in order to provide incentives to social partners to renegotiate rapidly new agreements adapted to any changes in economic conditions.

Substantial changes were also introduced with respect to dismissal legislation, with the objective of making the labour market more dynamic and less segmented, thereby increasing productivity growth and reducing the share of precarious jobs (see Section 2.2 below). The reform redefined the conditions for a fair dismissal, improving further upon the greater clarity already introduced by the 2010 reform. While actual or expected losses or loss of competitiveness remain fair reasons for an economic dismissal, the new law specifies that a dismissal is always justified if the company faces a persistent decline (over three consecutive quarters) in revenues or ordinary income.⁵ In addition, and perhaps more important, the firm does not have to prove that the dismissal is essential for the future profitability of the firm.⁶

Monetary compensation for unfair dismissal was reduced to 33 days' wages per year of seniority up to a maximum of 24 months, compared to the previous severance pay of 45 days up to a maximum of 42 months' wages.⁷ At the same time, the reform removed a worker's right to interim wages between the effective date of dismissal and the final court ruling (except in the case when the worker is reinstated). This made redundant the option employers often used before the reform of declaring a dismissal unfair even before a conciliatory procedure took place and paying upfront the corresponding severance payment (the so-called "*despido exprés*", which was de facto the most commonly-used dismissal mechanism by employers prior to the reform),⁸ which was therefore removed.

As regards collective dismissals, the reform eliminated the requirement of administrative authorisation for collective redundancies while maintaining the obligation of good-faith negotiations with unions before serving individual notice, in line with the current legislation in most OECD countries. In addition, the new law specifies more precisely the objective reasons under which an employer can undertake a collective redundancy. In exchange, the firm has to carry out a special training and relocation plan for those workers that have been dismissed if the collective dismissal affects over 50 workers. Moreover, the reform has enlarged the set of cases in which the employer must pay a tax if the collective dismissal involves workers aged 50 years or more. In addition, in March 2013, the *Real Decreto Ley 5/2013*, made liable to this contribution, under certain circumstances, not only firms making profits in the period preceding the dismissal, but also those that end up making profits in at least two of the four years following the dismissal, thereby making this contribution dependent on future performance.⁹ In August 2013, further legislative changes were made in order to reduce uncertainty regarding collective dismissal procedures. The *Real Decreto Ley 11/2013*¹⁰ clarifies how the negotiating committee must be established

5. The new law specifies that extraordinary income should not be taken into account.
6. Case law seems to confirm that the *de jure* relaxation of the definition of fair economic dismissal also holds *de facto*. See for example the decision of the *Sala de lo Social del Tribunal Supremo* dated 20 September 2013 (STS 20-9-13, Rec. 11/2013) that specifies that judges have to establish that the economic reasons alleged by the employer are truthful and serious, but must not assess whether the employer's decision is an appropriate managerial decision.
7. In the case of fair dismissal, however, severance pay remains at 20 days' wages per year of seniority up to 12 months' wages.
8. In fact, before the reform, workers were not eligible to backpay in the case of *despido exprés*. This was the only advantage of choosing this procedure for the employer.
9. The full text available at www.boe.es/boe/dias/2013/03/16/pdfs/BOE-A-2013-2874.pdf. However, this decree also restricts the application of this tax only to those firms where the share of dismissed workers aged 50 years or more is higher than the share of workers over 50 in the firm.
10. The full text is available at www.boe.es/boe/dias/2013/08/03/pdfs/BOE-A-2013-8556.pdf.

and the documentation that the employer has to provide at the beginning of the negotiation round. Perhaps more importantly, the same decree sets unambiguous limits to the power of courts to declare void the collective redundancy procedure, thereby ordering reinstatement of workers (with backpay) with no possibility for employers to opt for additional compensation in lieu of reinstatement (as in the case of unfair individual dismissal, see above). Furthermore, it limits the cases where workers can individually challenge collective dismissal agreements.

A new full-time permanent contract for small firms (under 50 employees) was created (*Contrato de Apoyo a Emprendedores*) that allows an extended trial period of one year for firms that have not engaged in collective or unfair dismissals in the 6 months before the starting date of the contract. This “*contrato emprendedores*” includes several hiring incentives and fiscal rebates for firms under 50 employees. In addition, the reform extended the existing subsidy equivalent to 40% of ordinary severance pay (8 days per year of service, paid by a wage guarantee fund – FOGASA) to all cases of fair dismissal in the case of firms with less than 25 workers.¹¹ As the 2010 reform raised severance pay for fixed-term contracts to 12 days per year of service (from 2015), small employers will be soon liable for disbursing the same amount for open-ended and temporary contracts, in the case of fair dismissal.

Other changes introduced by the reform include the re-instatement of the two-year maximum period for extension of standard fixed-term contracts (which was temporarily suspended in August 2011), an increased flexibility to use part-time contracts and the *Contrato de formación y aprendizaje* as well as new regulations for training provision and the authorisation given to private temporary placement agencies to operate in the domain of placement of unemployed workers, alongside the public employment system.

2. The labour market reform in international perspective

At first glance, the 2012 reform summarised in the previous section touches upon a number of key aspects of the Spanish labour legislation. However, its depth and effectiveness must be rigorously assessed on two main grounds by: i) comparing the new Spanish institutions with those prevailing in other OECD countries (in particular, European countries); and ii) assessing the effects of the reform on labour market performance. This section provides a comparison of the evolution of Spanish labour legislation against those prevailing in other countries, by looking first at institutions regulating collective bargaining and internal flexibility and then at EPL. The empirical analysis of the effect of the 2012 reform on the performance of the labour market is then developed in the following section.

2.1. Collective bargaining

In most of continental Europe, wages are typically bargained collectively and most workers are covered by collective agreements through administrative extension (cf. Table 1). The rationale for collective bargaining arises from the asymmetry in contracting between individual workers and employers regarding both access to information and bargaining power. Labour laws provide framework conditions for collective bargaining to emerge so as to rebalance the bargaining power between employers and workers. Hence, all else equal, compared with a situation in which only individual contracts prevail, the more developed the collective-bargaining system is, the higher the bargaining power of workers is likely to be.

11. In principle, a transitory norm contained in the 2010 reform, had already extended this 8-day-per-year subsidy to all firms, including even in the case of unfair dismissal (for contracts stipulated after June 2010). However, another transitory norm of the same reform that was planned to enter into force in 2012 also established that higher social security contributions would have been levied on contracts eligible for the severance pay subsidy. These transitory norms were cancelled by the reform.

Table 1. **Structure of collective bargaining systems in Europe before the crisis**

Bargaining levels and coordination in the second half of the 2000s

Dominant level		Central (1)	Sectoral (2)	Extension	Derogations	Local (3)	Change in dominant level since 1990	Coordination
Central	BEL	***	**	***	*	*		***
	IRL ^a	***	*	*	***	**		***
Sectoral	AUT		***	*		*		***
	DEU		***	*	***	**		***
	ESP ^a	*	***	***	*	*		*
	FIN		***	**	*	*	2→1, 1→2,3	*
	GRC ^a	*	***	**	*	*		*
	ITA ^a		***	*	*	*		***
	NLD		***	***	**	*		***
	NOR	*	***	*	*	*		***
	PRT ^a		***	***		*		*
Local	CZE		**	**		***		*
	DNK		**			***	2→3	**
	FRA ^a	*	**	***	*	***	2→3	*
	GBR		*			***		
	HUN	*	*	*	*	***		*
	POL	**	*		*	***		
	SVK		**	*		***	1,2→3	*
	SWE		**			***	2→3	**

Notes: 1 refers to central level of bargaining, 2 to sectoral and 3 to local. * = low ; ** = medium ; *** = high, qualifying the relative importance for bargaining levels and the importance of coordination. The table should be read by line, as it describes the relative importance of the various bargaining levels and of the extension of, and derogation from, sectoral agreements within each country. It is not meant to provide an assessment of the relative importance of a given bargaining level across countries.

a) Collective bargaining systems incurred significant changes in Greece, France, Ireland, Italy, Portugal and Spain after the start of the global financial crisis; they are not included here as the available information is not systematic for all other countries.

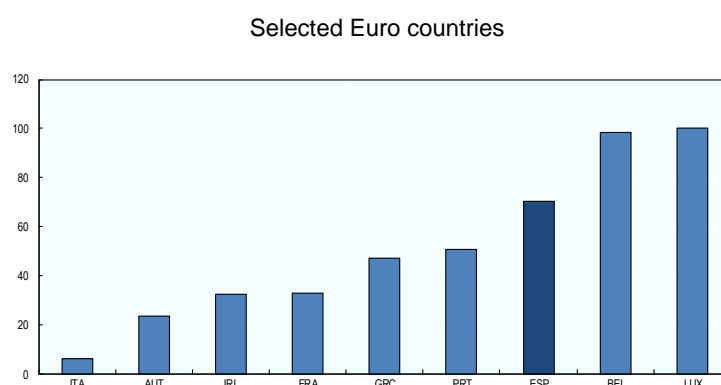
Source: OECD (2012), Du Caju et al. (2008), van Klaveren (2011).

From a theoretical point of view, the level at which collective bargaining takes place can yield substantially different outcomes. In general, aggregate flexibility brought about by centralised or coordinated bargaining allows wage-setters to internalise externalities associated with wage increases and delivers better outcomes in terms of unemployment, inflation and innovation by incumbent firms. Conversely, relative flexibility associated with firm-level bargaining typically spurs innovation by entrants and allows a better adjustment of wage growth to firm-level productivity growth, thereby allowing to save jobs in the presence of idiosyncratic shocks. By contrast, in the case of bargaining at the sectoral or regional level, cross-sector imitation often pushes wages upwards in times of boom and delays the required wage-adjustments in times of crisis, particularly in the presence of heterogeneous firm performances (see e.g. OECD, 1994, 2006, Flanagan, 1999, Haucap and Wey, 2004, Jimeno and Thomas, 2013).

In the 1990s, in a number of European countries where sectoral bargaining was playing a major role, governments pressed for national-level agreements. In this case, the key objective was often to limit the automatic indexation of wages to inflation. In fact, monetary integration ruled out external adjustment via the

exchange rate to compensate for losses in national competitiveness, and, starting from 1999 for EMU countries, the use of monetary policy instruments to adjust to asymmetric shocks. As a result, the burden of adjustment to economic imbalances and shocks shifted increasingly onto the labour market. The outcome of this process was that, in most countries of the Eurozone for which data are available (see Figure 1), less than 50% of companies had an automatic indexation of wages at the onset of the crisis – and, in many countries, automatic indexation was not imposed by collective agreements but the result of independent company policies. In that respect, Spain was among the countries where indexation was more frequent – covering about 70% of firms – which contributed to the erosion of Spanish competitiveness before the crisis, as shown by the pre-crisis evolution of its unit labour costs in comparison with other Euro countries (see Figure 2).¹²

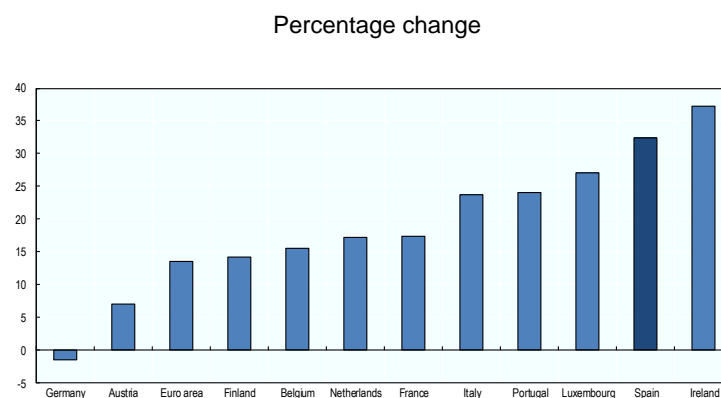
Figure 1. **Percentage of firms subject to a mechanism of adjusting base wages to inflation before the crisis**



Note: Countries are selected on the basis of available data. Data refer to 2007-2008

Source: Eurosystem's WDN Survey (Druant et al., 2009, European Central Bank, 2010).

Figure 2. **Evolution of unit labour costs in Euro countries, 2000Q1-2008Q1**



Note: Only countries that joined the Euro before 2007 are included. Data for Greece are not available.

Source: Eurostat.

At the same time, in most OECD countries, the role played by collective negotiations at the firm/establishment level has increased, leading to a significant decentralisation of collective bargaining

12. However, other structural factors – such as the dynamics of the sectoral composition of the economy – are also responsible for this trend in unit labour costs.

systems since 1990. While this process often started in the 1980s for bargaining over working-time reduction, it has since extended to matters of pay. Decentralisation has taken place in two main ways: i) instead of setting standard wage increases, sectoral agreements increasingly provide a framework for firm-level agreements; and ii) sectoral agreements increasingly include derogation clauses, allowing firm-level agreements to depart from sectoral agreements in specified cases.¹³

The substance of sectoral agreements has been changing in many countries, leaving much more room for firm-level bargaining on wages. In some cases, the determination of average wage increases still takes place at the sectoral level, but the decision on how to distribute wage increases among employees is left to firm-level bargaining.¹⁴ However, at least before the onset of the crisis, in most countries, including Spain, firms covered by a multi-employer agreement were bound to observe what is called the “*favourability principle*”, meaning that firm level agreements had to be more favourable to employees than higher-level agreements. As a result, firm-level bargaining resulted often in higher wages with respect to minima bargained at the sector level. For example, exploiting transitions from one regime to another, wages negotiated at the firm level are found to be higher in Denmark than those negotiated under sectoral agreements, even though significantly more dispersed (Dahl *et al.*, 2011). Similar results are found by Gørtzen (2010) and Rusinek and Rycx (2013) for Germany and Belgium.¹⁵

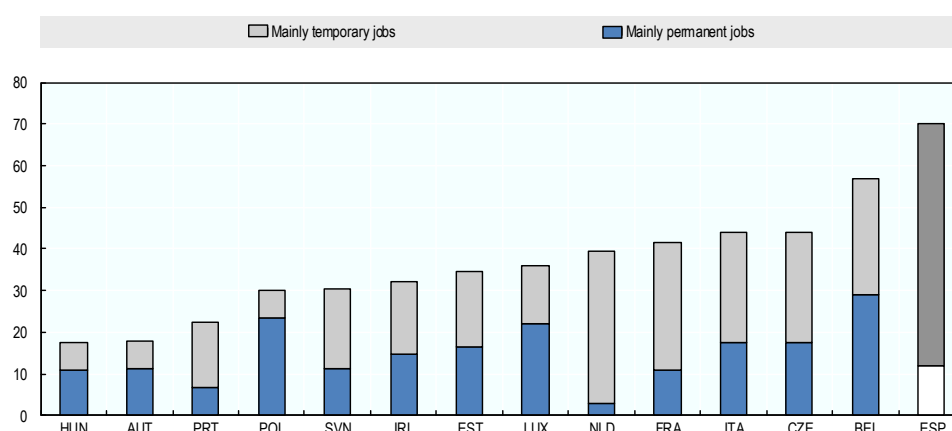
The inclusion of derogation clauses in sectoral, regional or national collective agreements, allowing firms to opt-out of higher-order agreements, has become more frequent, especially in Germany and Ireland. From a theoretical viewpoint, Jimeno and Thomas (2013) show that sectoral bargaining systems can deliver similar labour market performances as decentralised systems, if firms and workers are not prevented from agreeing to opt out of higher-level agreements. Derogation clauses are typically of two types: “hardship” or “inability-to-pay” clauses, which allow temporary deviations from higher-level agreements for firms facing economic difficulties; and “opening” or “opt-out” clauses, which can be invoked either by firms that cannot afford to meet the general standard, especially small and medium-sized enterprises, or by firms facing threats to future competitiveness and possible relocations of investment and production sites (Visser, 2004). In most countries, the use of derogation clauses remained limited before the crisis (see Table 1), with few exceptions. The “inability-to-pay” clause included in the central agreements since 2003 was regularly used in Ireland (van Klaveren, 2011). But, of particular note, actual use of these clauses expanded significantly in Germany.¹⁶ In this country, industries covered by sectoral agreements allowing derogation clauses experienced greater net employment growth and lower job destruction (Brändle and Heinbach, 2010). This trend can be considered one of the most important factors that restrained the growth of unit labour costs in Germany before the crisis (see Figure 3).¹⁷

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13. In addition, the share of variable pay, by definition negotiated at the firm level, has been growing.
 14. This is a very common practice in Denmark and Sweden, and exists in Austria, Belgium, Germany and Italy. In the Netherlands, a large share of employees are covered by sectoral agreements which allow for choices between pay and working time to be decided at the firm level. In the Czech Republic, Denmark, and the Slovak Republic, industry-level agreements increasingly tend to set minima while actual wage increases for the rest of the pay scale are negotiated at the firm level (see OECD, 2012).
 15. In Germany, however, administrative extension of collective agreements is limited and occurs almost on a voluntary basis, except when automatic extension to all workers and companies of an industry is imposed by the Federal Ministry of Labour. Many employers adhere to the collective wage agreement concluded for their respective industry even if they are not member of a business association that signed it. Nonetheless, they have no obligation to do so. Nevertheless, new companies tend to resist applying branch-level collective agreements and, as a result, the proportion of workers covered by collective agreements has gone down over time, particularly in Eastern Germany (Düll, 2013).
 16. Increased use of derogation clauses resulted in cuts in basic pay, reductions in agreed wage increases, lower wage rates for job starters or reduction/suspension of bonuses (Keune, 2010; Haipeter and Lehndorff, 2009).
 17. Other factors to be mentioned, however, are the expansion of low-pay jobs and the reduction of workers covered by collective agreements

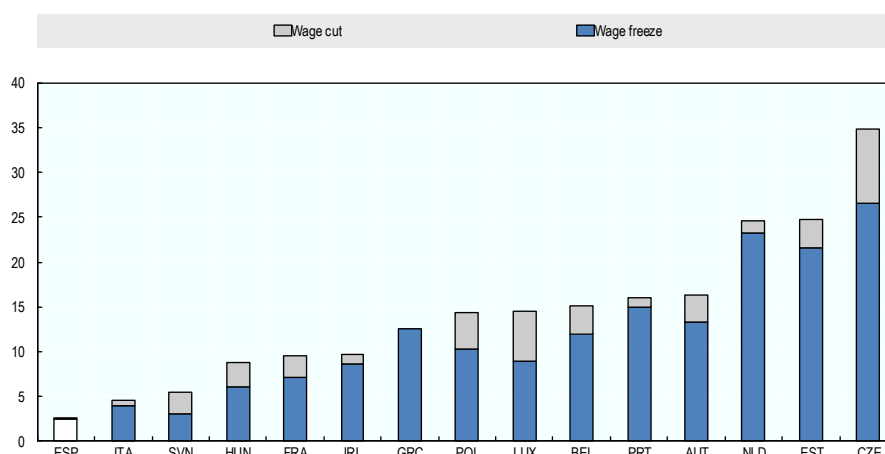
Even if derogation clauses were possible in Spain before the 2012 reform, they were seldom applied. Overall, the Spanish economy was typically characterised by a much stronger reliance on employment adjustments to absorb shocks. For example, before the onset of the crisis, the main adjustment strategy to a demand shock for about 70% of Spanish firms was to reduce employment— mainly by suppressing temporary jobs – while this strategy was preferred by only 40% of firms, on average, in other countries according to the Eurosystem’s WDN Survey (Figure 3, Panel A). In fact, wage cuts or wage freeze were very rarely undertaken by Spanish firms in the five years preceding the crisis in comparison with other countries (Figure 3, Panel B). Evidence from the follow-up WDN survey, conducted in the first months of the crisis, shows that, wage cuts and wage freezes remained much less frequent in Spain than in most other European countries, despite the severity of the 2008-2009 recession in the country (European Central Bank, 2010).¹⁸

Figure 3. Adjustment strategies to adverse shocks used by European firms before the crisis

Panel A. Percentage of firms for which job destruction is the main adjustment strategy to an adverse demand shock, 2007-2008



Panel B. Percentage of firms having frozen or cut wages between 2003 and 2008



Note: Countries are selected on the basis of available data

Source: Eurosystem’s WDN Survey (Fabiani et al., 2010, Babecký et al., 2009, European Central Bank, 2010).

18. Some caution is required in the analysis of the follow-up WDN survey since it is smaller and with a larger non-response rate than the original survey.

In this context, the 2012 reform appears to have improved the flexibility of the Spanish collective bargaining system. In particular, the introduction of the principle of dominance of firm-level agreements on higher-level ones and the greater possibility of opting-out of collective agreements even in the absence of consensus among social partners at the company level represent potential instruments of internal flexibility that, as shown above, were hardly found both in Spain and the other European countries before the crisis. Whether or not there is evidence that these instruments are contributing to promote the competitiveness of Spanish firms is a question that will be examined in Section 3.

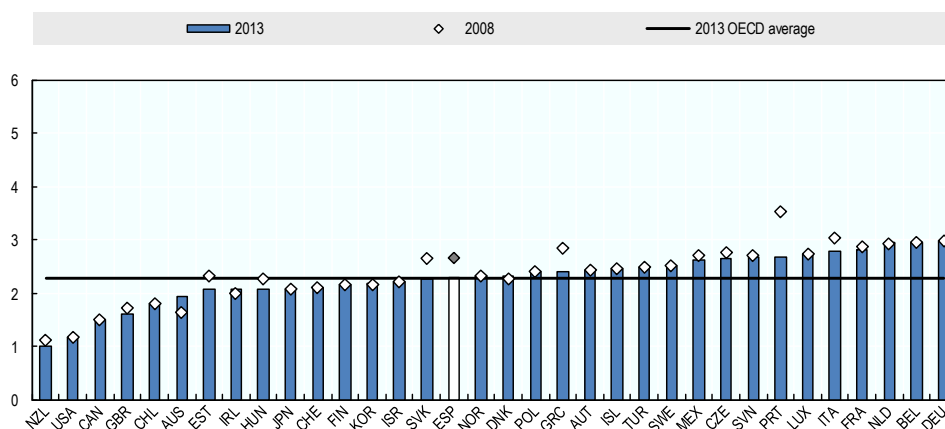
2.2. *Employment Protection Legislation*

There is a large body of theoretical and empirical research – summarised in OECD (2013a) among others – that suggests that hiring and firing regulations have a significant impact on the reallocation of labour resources, while the long-run impact on aggregate unemployment rates is, at best, small. Countries with relatively high employment protection are typically found to have lower hiring and separation rates and a slower resilience to output shocks. Moreover, there is evidence that in these countries stringent regulations stifle the allocation of labour to the most productive uses, thereby hindering productivity and economic growth. Perhaps more important in the Spanish case, if stringent employment protection on regular, open-ended contracts coexists with relatively easy access to fixed-term contracts, firms tend to react by substituting fixed-term for permanent contracts – due to the smaller cost involved with the termination of the employment relationship at the end of a fixed-term contract (see e.g. Boeri and Garibaldi, 2007; Bentolila et al., 2008, 2012; Jahn et al., 2012) – with no significant impact on employment and negative effects on productivity growth, in particular if the likelihood of contract conversion is small (see e.g. Dolado et al., 2012, Cappellari et al., 2012).

OECD indicators on EPL allow benchmarking cross-country differences in the stringency of hiring and firing regulations. These indicators quantify, for employers of large companies, the costs and procedures involved in dismissing individuals – or groups of employees – or hiring workers on fixed-term or temporary-work-agency contracts, as in force on the 1st of January of each year. The indicators concerning the regulations governing individual and collective dismissals of workers with regular, open-ended contracts, are perhaps the most useful for policy analysis. These indicators cover: i) procedural inconveniences that employers face when starting the dismissal process, such as notification and consultation requirements; ii) notice periods and severance pay, which typically vary by tenure of the employee; iii) difficulty of dismissal, as determined by the circumstances in which it is possible to fairly dismiss workers, as well as the repercussions for the employer if a dismissal is found to be unfair (such as compensation and reinstatement); and iv) additional restrictions for collective dismissals, such as additional delays, costs or notification procedures when an employer dismisses a large number of workers at one time. Although any quantification is inevitably a simplification (see e.g. OECD, 2013), and users need to be cautious in using these indicators to assess the relative position of a given country, the change in value of the summary indicator for regular contracts for Spain between 2008 and 2013 suggests that the recent reforms significantly reduced the rigidity of the Spanish legislation on dismissals (Figure 4).

The OECD indicators can also be used for a rough comparison, component by component, of the regulation in Spain with respect to other OECD countries. The Spanish economy appears now more flexible than the average OECD country in areas such as notification procedures and the length of notice periods (see Figure 5). In particular, notice periods were reduced in 2010 from 1 month to two weeks, independently from the length of service, which makes of Spain one of the OECD countries with the shortest notice periods, particularly for workers with a long tenure. Indeed, average notice periods in OECD countries are 3.5 weeks, 1.3 months and 2.7 months for workers with, respectively, 9 months, 4 years and 20 years of tenure at the time of dismissal (OECD, 2013b).

Figure 4. Protection of permanent workers against individual and collective dismissal, 2008 and 2013

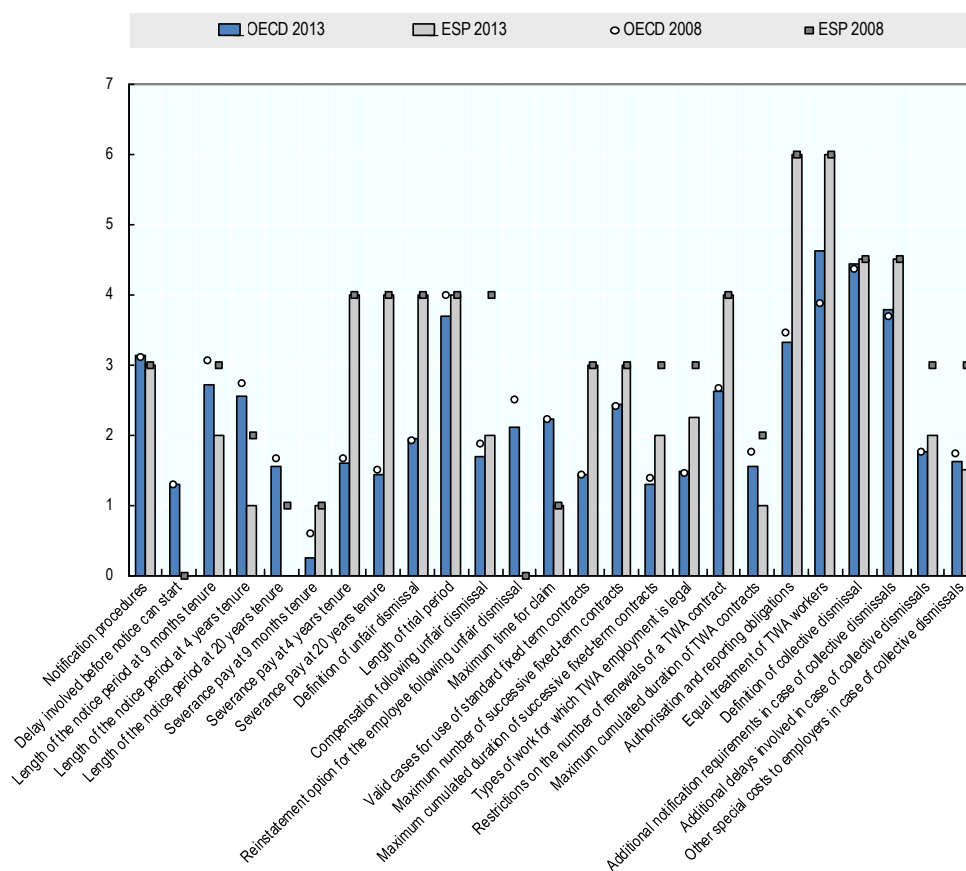


Note: The indicator vary from 0 (least restrictive) to 6 (most restrictive).

Source: OECD Employment Protection Database, 2013 update.

Figure 5. Employment protection for permanent workers: Spain vs. OECD

Disaggregate components, 2008 and 2013



Note: Indicators vary from 0 (least restrictive) to 6 (most restrictive) and refer to rules applicable to large companies.

Source: OECD Employment Protection Database, 2013 update.

In contrast with a number of countries in continental Europe, Spanish workers have no right to reinstatement in the case of unfair individual dismissal¹⁹ – except when dismissal is based on prohibited grounds (such as discrimination) – which provides greater certainty to employers about the cost of dismissal. This is somewhat counterbalanced by a level of monetary compensation for dismissal which is high in cross-country comparable terms. In fact, as far as large companies are concerned, Spain remains among the countries with the most expensive requirements as regards severance pay both in the case of fair and unfair dismissal. And this occurs despite the significant reduction in compensation for unfair dismissal brought about by the 2012 reform (see Section 1), which put additional compensation in this case more in line with the amounts paid in other countries (see Figure 5). More precisely, in the case of unfair dismissal, the typical monetary compensation in OECD countries is about 13.7 monthly wages at 20 years of tenure (against about 22 months in Spain after the reform). For the same length of service, ordinary severance pay in the case of fair dismissal is on average 6 monthly wages among OECD countries where dismissed employees are entitled to it, while it is equal to 10 monthly wages in Spain, in the case of companies with 25 employees or more. Finally, Spain is one of the only 7 OECD countries where workers in large companies are entitled to ordinary severance pay even if their job tenure is shorter than 1 year (see OECD, 2013b).

The situation is comparatively better for small firms, and improved further after the 2012 reform, insofar as the latter included several provisions targeted at them. In the context of the Spanish economy, where small firms represent a large share of total employment, this is an important potential source of dynamism for the labour market.²⁰ In particular, the severance-pay subsidy covered by the wage guarantee fund, which results in a 40% reduction of the burden of ordinary severance pay borne by employers with less than 25 employees, is applicable to all cases of fair dismissals after the 2012 reform. This policy action has put the cost of ordinary severance payment at the level of the OECD average for firms of that size – excluding those countries with no compulsory severance payments in the case of fair dismissal.

The case of the trial period is somewhat similar. For ordinary permanent contracts the maximum length of the trial period is on average shorter – and therefore more constraining – than in most other OECD countries (4 months in Spain against an OECD average of 5.1 months), and can be as short as two weeks in certain sector-level collective agreements. Nonetheless, the introduction of the “*contrato emprendedores*” (see Section 1) has *de facto* made the trial period for firms with less than 50 employees the longest within civil-law OECD countries.²¹ This is particularly important since, although the reform has significantly relaxed the definition of fair dismissal for economic reasons, dismissal for personal reasons remains relatively difficult in Spain. In principle, therefore, the longer trial period should allow small employers to better experiment and screen new employees, reducing the risk of bad matches and thereby increasing hiring incentives. Indeed, there is evidence in the literature that the length of the trial period and the extent of reinstatement are usually the two EPL components with the greatest impact on labour reallocation (see Bassanini and Garnero, 2013). Yet, a very recent decision of a local court stated that, for certain occupations, a trial period as long as one year would be in violation of article 4.4 of the European

19. However, reinstatement with backpay can be ordered when a collective dismissal is declared void by courts (see below).

20. According to the OECD Structural Business Statistics, firms with less than 20 employees and less than 50 employees accounted for 50% and 62%, respectively, of the Spanish non-financial business-sector employment in 2010.

21. Legal systems can be roughly divided in civil-law and common-law countries, the latter including Australia, Canada, Ireland, Israel, New Zealand, the United Kingdom and the United States. Common-law countries typically have lighter statutory regulations limiting the freedom of contracting parties. Beyond most US states and Canadian provinces, where claims for unfair dismissal cannot be filed, the United Kingdom has the longest trial period (2 years for all firms), followed by Ireland and Israel (1 year for all firms) and Australia (1 year for firms with less than 15 employees; see OECD, 2013b).

Social Charter, which stipulates the right to advance notice for all dismissed workers.²² However, it is too early to say whether this argument will be incorporated into other court decisions in the future, and the consequences that this will have for the application of the reform. Nonetheless, to avoid these types of conflict with supranational legislation, a number of OECD countries have introduced the obligation of advance notice of dismissal even for workers in the last months of the trial period, when the latter is long.²³

By contrast, before the reform, Spain was one of the few OECD countries where a specific administrative authorisation was required for collective dismissals. At the beginning of 2012, a similar institutional arrangement could be found only in Greece and Mexico where an administrative authorisation is required if no agreement is reached among social partners on the terms of the collective dismissal procedure. Yet, the administrative authorisation may help reducing uncertainty about the final cost for employers of dismissal decisions in countries where judicial review of these decisions is extensive and employers' choices can be nullified by the court. For example, in May 2013, France re-introduced the requirement of administrative authorisation in the absence of agreement among social partners in order to reduce the degree of judicial uncertainty generated by the possibility for courts of invalidating social plans associated with collective dismissals and, consequently, ordering the reinstatement of involved workers, sometimes several months after dismissal.

There is some evidence suggesting that the Spanish experience immediately after the 2012 reform closely resembles the French experience before the 2013 reform. Even if the litigation rate as regards collective redundancies appears to have remained low (below 5% according to estimates by Palomo-Balda, 2013), a large share of concluded proceedings concerning collective dismissals resulted in court rulings against the employer. And, in most of these cases, the judges ruled that the dismissal procedure was null and void and ordered the reinstatement of the affected workers with backpay – a novel situation in the Spanish labour market that was essentially inexistent before the 2012 reform (see Palomo-Balda 2013, Mercader-Uguina and de La Puebla-Pinilla, 2013, and Ministerio de Empleo y Seguridad Social, 2013).²⁴ In addition, in most cases, the court decisions against employers were not based on challenges to the alleged substantive reasons for dismissal but on the non-respect of the negotiation procedure, in particular as regards the determination of employees' representatives in the consultation committee, the incompleteness of the documentation provided by the employer at the start of the consultation process, or the lack of good faith in consultations. Given these outcomes, the low rate of litigation might not be fully

22. Juzgado de lo Social 2 de Barcelona (Sentencia 412/13, 19-11-2013).

23. This is the case, for example, in Germany, Ireland, Switzerland and the United Kingdom. Often these notice periods are, however, shorter than in the case of other permanent workers. Probationary periods, when too long, could also conflict with the requirements of the ILO Convention 158 for those countries which have ratified this convention (including Spain). Article 2 of this convention stipulates that probationary periods should be of reasonable duration. On this basis, in France (one country that signed Convention 158) the *Contrat Nouvelle Embauche* that was introduced in 2005 and allowed a 2-year trial period under certain conditions was subsequently annulled by the administrative high court because it was considered in violation of the ILO convention (see e.g. Lepage-Saucier et al., 2013). However, other countries that signed Convention 158 have long probationary periods. In Australia, for example, they are as long as one year, for small firms, and six months, for large firms, suggesting that these durations can well be considered as “reasonable”, at least conditional on firm size, even as regards the application of the ILO convention (see also the observations on Australia of the ILO Committee of Experts on the Application of Conventions and Recommendations, 2012). At the time of writing, Spanish labour unions have filed a complaint with the constitutional court concerning the possibility that the *contrato emprendedores* is in violation of Convention 158.

24. Before the reform, a judgement of nullity of a collective dismissal procedure that had been previously authorised by the labour authority was basically impossible without proving an explicit misbehaviour of the labour authority (see e.g. Mercader-Uguina and de La Puebla-Pinilla, 2013).

representative of the effective cost for employers, who might be either forced to give concessions during the negotiation phase or tempted to chain together a smaller number of individual dismissals over subsequent periods of three months in order to escape from collective dismissal regulations,²⁵ even though these chained series of dismissals would be in principle illegal if motivated by the same economic cause.

These shortcomings of the new regulations of collective dismissals have been recently addressed by the government with the approval of the *Real Decreto Ley 11/2013* in August 2013, which has more explicitly defined the requirements of the consultation procedure and the cases in which the dismissal can be declared void. In addition, the interpretation of the law has been further clarified by recent court rulings of the Supreme Court, specifying in particular that the absence of an agreement with unions do not justify per se the invalidation of the dismissal procedure and defining how extensively the consolidated accounts of a business group must be considered in assessing the justification of the dismissal decision.²⁶ It is too early to say, however, whether these interventions will prove sufficient to restore legal certainty as regards to the cost and outcomes of collective dismissals. Yet, albeit significantly reduced, the discretionary role of courts to invalidate a collective-dismissal procedure and order reinstatement remains substantial, at least on paper.

However, the reform has also increased certain, specific costs of collective dismissal by making compulsory to set a retraining and redeployment plan – in the case of dismissals involving more than 50 employees – and enlarging the set of circumstances in which a contribution to the treasury must be made (see Section 1). De la Puebla-Pinilla (2013) estimates these costs as substantial: the total cost of additional taxes and retraining/redeploying affected workers can be greater than the total amount of severance payments that the company would have disbursed had it been able to unfairly dismiss these workers.²⁷ These additional provisions have not been modified by the August 2013 revision of the reform.

Finally, the Spanish labour market is characterised by a high level of duality. At the onset of the crisis, 31.7% of wage and salary employment was on a fixed-term contract (Figure 6). This proportion went down significantly during the crisis, because of the extremely high rate of temporary job destruction, but remains among the highest in the OECD. The duality of the Spanish labour market emerges even more clearly from data on new hires. In 2007, 88.3% of new labour contracts were fixed-term, and this figure increased during the crisis peaking at 92.3% in 2011, to decline only slightly afterwards.²⁸ Although the share of

25. See for example “Los trabajadores de Pastas Gallo denuncian un ERE encubierto”, *El País*, 13 September 2013. Collective dismissal regulations must be applied if, within 90 days, the employer plans to dismiss: more than 10 workers in firms with less 100 employees; at least 10% of workers in firms with at least 100 and less than 300 employees; and 30 workers in firms with at least 300 employees.

26. See in particular the decisions of the *Sala de lo Social del Tribunal Supremo* dated 27 May 2013 (STS 27-5-13, Rec. 78/2012), 20 September 2013 (STS 20-9-13, Rec. 11/2013) and 25 September 2013 (STS 25-9-13, Rec. 3/2013). Moreover, future decisions of the Supreme Court are likely to build up a coherent body of case law that will help reducing further legal uncertainty. In fact, the 2012 reform, by allowing complaints concerning collective dismissals to be filed directly with regional labour courts, makes it possible for the Supreme Court to review all collective dismissal cases, as long as the party who has lost in the first instance lodges an appeal (Gomez-Abelleira, 2012).

27. According to Spanish legislation, if the number of dismissed workers within a period of 90 days is larger than the threshold triggering collective dismissal procedures, the dismissal is void if the firm does not implement the procedure at all. This implies that unfair dismissal (“*despido improcedente*”) is not an option open to employers in this case. As discussed above, however, in certain cases companies might decide to limit the number of affected workers, and/or chain individual dismissals over a long-period to avoid paying the higher costs associated with collective dismissals, even at the risk of having the individual terminations be ruled as unfair by a court.

28. Data on new contracts are from *Datos Estadísticos de Contratos*, published by the *Servicio Público de Empleo Estatal* (SEPE).

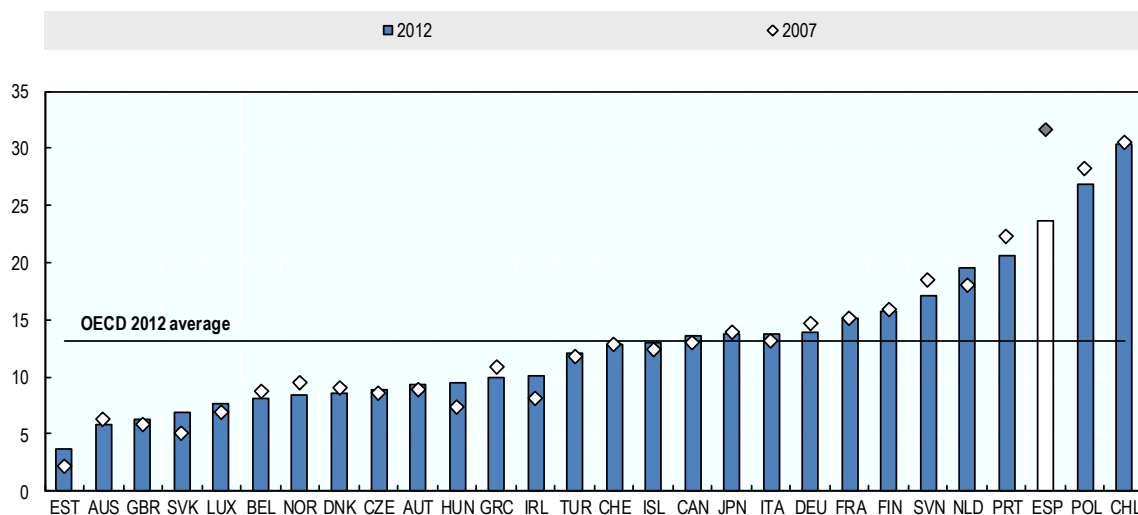
fixed-term contracts in new hires is typically high in countries with stringent EPL, the Spanish labour market appears to perform particularly badly in this respect. For example, in both France and Italy the share of fixed-term contracts in new hires was much lower in 2011 (78% in both countries; see Paraire, 2012, and Ministero del Lavoro e delle Politiche Sociali, 2012).

Despite the high share of fixed-term contracts among new hires, the rate of contract conversion is extremely low in Spain. Only 3% of all new contracts are converted from fixed-term into permanent contracts. From a worker perspective this implies that transitions across temporary and permanent statuses are rare (e.g. Güell and Petrongolo, 2007). Even taking a longer horizon, the evidence is qualitatively similar: about one-third of the workforce that is found in temporary jobs at a certain point in time permanently rotate across temporary jobs and unemployment for at least 6 to 8 years, and even when they obtain an open-ended contract it is unstable (Garcia-Serrano and Malo, 2013). In other words, the Spanish labour market is dynamically segmented between well-protected “insiders” and precarious “outsiders”, who cycle between temporary jobs and unemployment with little hope of transiting towards permanent jobs.

In contrast with the legislation of most other countries, severance pay is due in Spain in the case of termination of a temporary contract at the initiative of the employer even at the end date, but its amount is small.²⁹ In 2010, the government approved a small reform of these payments, entailing their increase from 8 to 12 days per year of service by 2015. While for firms with less than 25 employees this will equalise the cost of fair termination between temporary and permanent contracts, this cost will remain nonetheless much lower for temporary contracts in the case of large firms – and for all firms in the case of unfair dismissal.

Figure 6. Incidence of temporary employment, 2007 and 2012

Employees with temporary contracts as a percentage of total employees



Source: OECD Database on Labour Force Statistics.

29. France, Israel and the United Kingdom are among the few OECD countries where temporary workers have a statutory right to severance pay even in the case of fair termination.

3. The labour market impact of the 2012 reform

Almost paradoxically, the comprehensive nature of the 2012 labour market reform makes its evaluation a difficult task. In fact, the inclusion of a large number of provisions, sometimes explicitly targeted at different groups, does not allow the identification of a well-defined control group. The reform also occurred in the middle of a double-dip recession, at a time when the economic juncture started to deteriorate again after a short recovery that was so hesitant that employment had continued to decline (see e.g. Ministerio de Empleo y Seguridad Social, 2013). This suggests that one of the few available methods to analyse the role of the reform in the recent evolution of the Spanish labour market is through regression-discontinuity models in which the effect of the reform is identified through discontinuous patterns occurring at the time of its enforcement and the business-cycle is modelled through observable controls and non-linear time trends (see Box 1). The fact that discontinuous patterns of labour market performance occurring around February 2012 are used to identify the effect of the reform makes it impossible to distinguish its impact from that of other institutional changes occurring around the same date. Obviously, the analysis developed in this section assesses only the joint effect of the reform and other simultaneous institutional changes.

Box 1. Estimating the impact of the 2012 reform using regression-discontinuity models

The estimation strategy followed in this report identifies the joint effect of all the provisions included in the reform by comparing labour market performance before and after February 2012. The key identification assumption is that, conditional on control variables included in the model, labour market performance evolves in a relatively smooth way, so that any discontinuous jump in performance can be attributed to the labour market reform (and other institutional changes occurring simultaneously, such as the Agreement on Employment and Collective Bargaining 2012-2014, signed by the main business associations and trade unions – CEOE, CEPYME, CCOO and UGT – in January 2012). In order to properly isolate the effect of the reform from that of the business-cycle (which is key for the validity of the smoothness assumption), the estimation models capture economic fluctuations by controlling for the standardised unemployment rate, changes in registered employment (at the regional level when microdata are used) and, most importantly, polynomial time trends up to the 5th order. Baseline specifications include a polynomial trend up to the highest order n such that the n -th term is significant. However, except when specified otherwise, results are robust both to changes in the order of the polynomial and to its exclusion from the specification. When a sufficiently long number of periods is available after the reform, polynomial trends are alternatively included as either homogeneous (same parameters before and after the reform) or heterogeneous (different parameters before and after the reform), and the robustness of the results to these different specification choices is assessed. The results are also robust to the use of other controls for the business cycle such as changes in industry-level value added or productivity growth or the FEDEA index of economic activity (see the Annex for details). Finally, other variables capturing compositional effects (region, industry, workforce composition, etc.) are included in each specification. As suggested by Card and Lee (2008), since the identification is based on a time discontinuity, standard errors are always adjusted for clustering at least on time (and, where relevant, also to other dimensions).

Obviously, misspecification of the empirical model might lead to identify a discontinuous shift in performance around the date of a reform even when this shift occurs before the reform (and cannot therefore be attributed to it). To validate the empirical model, therefore, placebo tests need to be run. These tests consist in setting in the empirical model an earlier date than the actual reform date to estimate possible discontinuities. If discontinuous shifts in performance are really induced by the reform, then no effect should be found at these anticipated dates. This is indeed the case for all the results discussed in this report, where placebo tests are run by anticipating the date of the reform by up to 9 months.

A second issue concerns possible manipulations around the threshold. For example, if the introduction of the *contrato emprendedores* were anticipated, employers eligible for the subsidy could delay hiring to after the reform in order to enjoy the subsidy. However, the details and the breadth of the reform were never mentioned in the programme of the PPE before the November 2011 elections that the party won and was not made public until well after the inaugural address of Prime Minister Rajoy made in front of the parliament at the end of December 2011. It is therefore reasonable to assume that if threshold manipulation occurred, that is if firms postponed certain choices until the approval of the reform, this phenomenon concerned, at worst, only the period January-March 2012. Under these assumptions, threshold manipulation is not an issue in the regressions estimated on quarterly data because the outcome of any firm choice, which was delayed from January to March 2012, is included in the same quarter, with no effect on the average outcome of the quarter. In the case of estimates based on monthly data, baseline models are re-estimated excluding the period from January to March 2012 from the sample as an additional robustness check.

A number of provisions, however, also either entered into force, *de jure* or *de facto*, after the date of approval of the main reform (February 2012) or were modified since then. This is the case, for example, of the norms regulating the CCNCC (*Real Decreto*, 1362/2012, approved in September 2012), of those regulating collective dismissal procedures and associated financial contributions for firms (*Real Decretos* 1483/2012 and 1484/2012, approved in October 2012), of the entry into force of binding time limits for the automatic extension of expired collective bargaining agreements (July 2013) and of the corrections made to collective-dismissal regulations in March and August 2013 (*Real Decretos Ley* 5/2013 and 11/2013; see Section 1 above). This makes more difficult to identify unambiguously discontinuous patterns in the data.

Last but not least, the assessment presented here is performed shortly after the reform. Available data cover at best 18 months in the post-reform period, but sometimes much less. Thus, estimates presented in this section measure only the short-term impact of the reform. In addition, the effect of structural reforms often takes time to materialise since economic agents adapt slowly to new conditions. This is likely to be particularly the case in Spain due to the role of the courts in applying the new legislation and the time that it will take to the judicial system to develop a uniform body of case law. All of these factors suggest great caution in interpreting the results, which at best can be interpreted as preliminary and only roughly indicative of a general trend.

3.1. Labour costs

As discussed in the previous sections, the objective of the reform of collective bargaining and internal flexibility was to restore the competitiveness of Spanish firms, by ensuring a better adaptation of wages to productivity developments. The available, preliminary evidence concerning new collective bargaining agreements suggests that wage increases with respect to observed and expected inflation have been restrained in 2012 and 2013 (Ministerio de Empleo y Seguridad Social, 2013, BBVA, 2013a). In addition, even though the share of workers covered by automatic indexation of wages has not fallen significantly, the impact of indexation clauses on wages appears to have become smaller, probably due to a more flexible application of these clauses in the new contracts, following the recommendations of the 2012 general agreement among social partners (Izquierdo et al., 2013).

Spain has been one of the European countries where unit labour costs have declined the most since 2012 (Figure 7). Between the fourth quarter of 2011 and the second quarter of 2013, unit labour costs declined by 3.9%. This has occurred despite the withdrawal of most hiring subsidies decided by the government in July 2012, which undoubtedly pushed labour costs upwards (see Ministerio de Empleo y Seguridad Social, 2013). In the same period, in most European countries, labour costs were either on a moderate rise or decreasing only slightly.³⁰ Even in Portugal, which has also been hit hard by the crisis, the drop in unit labour costs was 3 percentage points smaller than in Spain.

One needs to be cautious, however, in attributing these developments to the 2012 labour market reform. In particular, as argued elsewhere (BBVA, 2013b), wage moderation was particularly important in the public sector in 2012 for reasons that have nothing to do with the labour market reform, albeit closely related to the the government's action to fiscal consolidation.³¹ To shed light on this issue, therefore, Figure 8 presents the evolution of unit labour costs separately for the business sector and non-market services including the public administration. While the effect of the drop in civil servant's wages is clearly visible in the data for the fourth quarter of 2012, significant wage moderation is also observable outside the

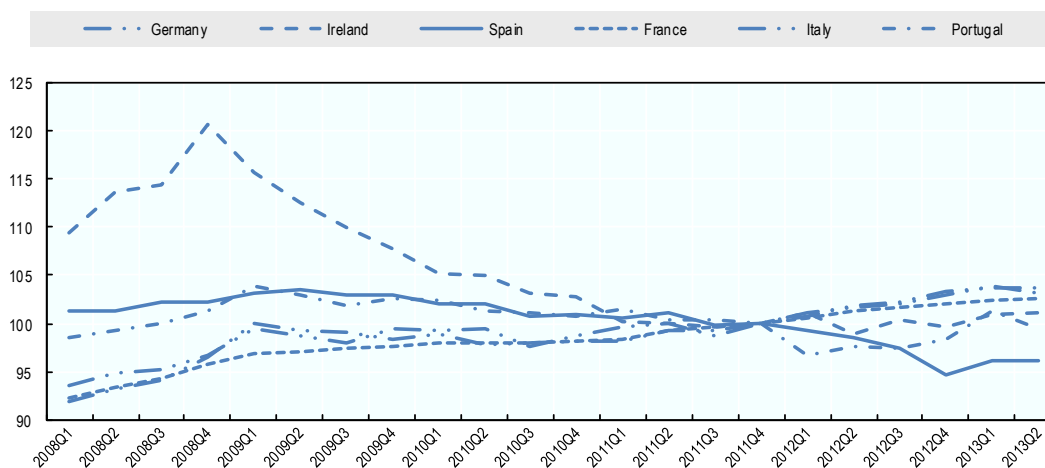
30. Data for Greece are not available. The only other European country with a significant drop in unit labour costs is Cyprus (-7.3%).

31. In Spain most civil servants have two bonus payments, equivalent to about one month's salary, paid twice a year, at Christmas and in July. The Christmas bonus was withdrawn in 2012, thereby resulting in a significant fall in 2012 public sector wages, concentrated in the fourth quarter.

public sector. In fact, in the non-agricultural business sector, unit labour costs, excluding non-wage costs, decreased by 3.2% between the fourth quarter of 2011 and the second quarter of 2013, that is an average annual drop of about 2.1%. By contrast, the growth of these costs was substantially flat in the three years preceding the reform.

Figure 7. Evolution of unit labour costs in selected European countries, 2008-2013

Q4-2011 = 100



Note: Data are seasonally adjusted and adjusted for working days.

Source: Eurostat.

Figure 8. Evolution of the wage and salary component of unit labour costs in Spain, by industry, 2008-2013

Q4-2011 = 100

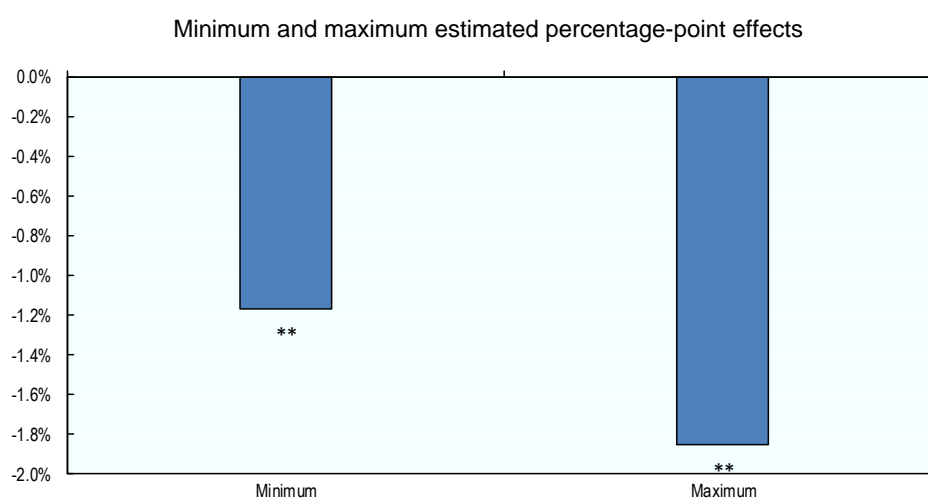


Note: Data are seasonally adjusted and adjusted for working days. The business-sector excludes agriculture.

Source: OECD calculation on the basis of the Spanish Quarterly Labour Cost Survey and Quarterly National Accounts.

Again, the evidence presented in Figure 8 is not sufficient to quantify the effect of the labour market reform on labour cost competitiveness of Spanish firms. The prolonged recession has undoubtedly affected the evolution of wages, and its effects are indeed visible in terms of wage moderation before the reform (see Figure 6 and 7). However, the econometric models estimated for this report using industry-level data allow for netting out the effect of the business-cycle, inflation and productivity growth on the dynamics of labour costs per hour worked so that the effect of the 2012 labour market reform (and the 2012 national agreement among social partners) can be identified through the discrete shift in the growth of labour costs observable since the beginning of 2012 (see Box 1). The estimated results suggest that the 2012 reform (together with the 2012 collective agreement) induced a drop in the growth of unit labour costs in the business sector of between 1.2% and 1.9% (Figure 9).³² It can be concluded, therefore, that more than 50% of the observed drop in unit labour can be attributed to the 2012 reform.

Figure 9. Estimated impact of the 2012 reform on the year-on-year growth of business-sector labour costs



Note: Estimates obtained using different specifications of a model in which the year-on-year the industry-level harmonized index of wage and salaries per hour worked is regressed on the unemployment rate, a polynomial trend (industry-specific in certain specifications) and year-on-year changes in industry workforce composition, the consumer price index and either log employment or log labour productivity. Significance levels are obtained by adjusting errors for clustering by industry and time. The estimates are based on industry data disaggregated at the 1-digit level. **: significant at the 5% level.

Source: OECD estimation on the basis of the Spanish Quarterly Labour Cost Survey, Quarterly National Accounts and the Encuesta de Población Activa. See Annex for the detailed estimation method and results.

These results are consistent with those of a recent Bank of Spain report (Izquierdo et al., 2013), which present estimates of firm-level wage-growth equations with similar controls and show that wage residuals appear to have been significantly smaller after the 2012 reform. Moreover, the available evidence suggests that, while this wage moderation is affecting workers' living standards, it is already yielding some dividends in terms of employment dynamics. There is in fact a consensus among the few available empirical studies published since the reform that, with respect to what is predicted by the negative GDP

32. Although formally the harmonized index of labour cost per hour worked is used as a dependent variable, to the extent that controls capturing productivity developments are included in all specifications, the estimated effect can be interpreted as estimates of the impact on unit labour costs (excluding non-wage costs). Moreover, even though labour shedding is likely to be behind part of the effect visible in raw data (cf. Figure 8), since the marginal worker who become unemployed is likely to be the one with the highest wage with respect to his/her productivity, this is unlikely to be the case for the econometric estimates, to the extent that cyclical fluctuations are rigorously controlled for in several ways in the regression models (see Box 1 and the Annex).

growth observed in the past six quarters, net employment contraction was below expectations, suggesting therefore a positive impact of the reform on employment growth. Consistent findings on this issue emerge from the simple comparison of the time series of GDP and employment growth (Ministerio de Empleo y Seguridad Social, 2013), the examination of the residuals of an estimated Okun's law (Izquierdo et al., 2013) and the estimation of structural models (De Cea and Dolado, 2013, BBVA, 2013a). The further improvement of employment trends in the third quarter of 2013 (see e.g. Puente and Font, 2013) seems to confirm this consensus.

3.2. Changes in worker flows

Hiring rates

As discussed in Section 1.3, flexibility-enhancing reforms of hiring and firing regulations are, first and foremost, expected to increase hiring and separations. However, it can be argued that the expected impact of the 2012 reform on dismissals and separations is *a priori* ambiguous, due to the new incentives to adopting internal-flexibility measures, thereby preserving jobs. Therefore, hiring behaviour by firms is perhaps the most important area where the reform of hiring and firing regulations can be assessed.

Figure 10 underlines the dramatic contraction of the hiring rate during the crisis. Quarterly data from the Labour Force Survey (*Encuesta de Población Activa – EPA*) show that the share of employees with less than 3 months of tenure in total business-sector employment decreased substantially in 2008 (from 10.7% in the first quarter of 2008 to 7.4% in the first quarter of 2009, once corrected for seasonality).³³ It then recovered a little (up to 8.5%) in 2010 when the Spanish economy exhibited some timid signs of recovery and then dropped again to 7.4% in the last quarter of 2011, pushed down by the worsening of economic activity. Since then, the hiring rate has stabilised at 7%-8%.

To what extent can the stabilisation of the hiring rate in spite of the adverse cyclical conditions be attributed to the 2012 reform? The estimated results obtained from hiring-rate regressions – which carefully control for business-cycle influences and composition effects – cautiously suggest³⁴ that the reform had a moderate but positive impact on hiring (See Box 1 for the general methodology and the Annex for details concerning all estimates presented in this section). Indeed, all other things equal the reform is estimated to have increased the hiring rate by about 8% (that is raising the share of employees with less than 3 months of tenure by about 0.6 percentage points),³⁵ so that the hiring rate would have kept falling until the beginning of 2013 in the absence of the reform (see Figure 10, Panel A).

The evolution of total hiring is mirrored by the dynamics of hiring on regular, open-ended contracts, even though the latter typically represents only about one tenth of total hires. Again, the fall of hiring on permanent contracts appears to have stabilised in 2012, followed by strong signs of an upward movement in the second quarter of 2013. The econometric estimates suggest that the fall in permanent hiring would

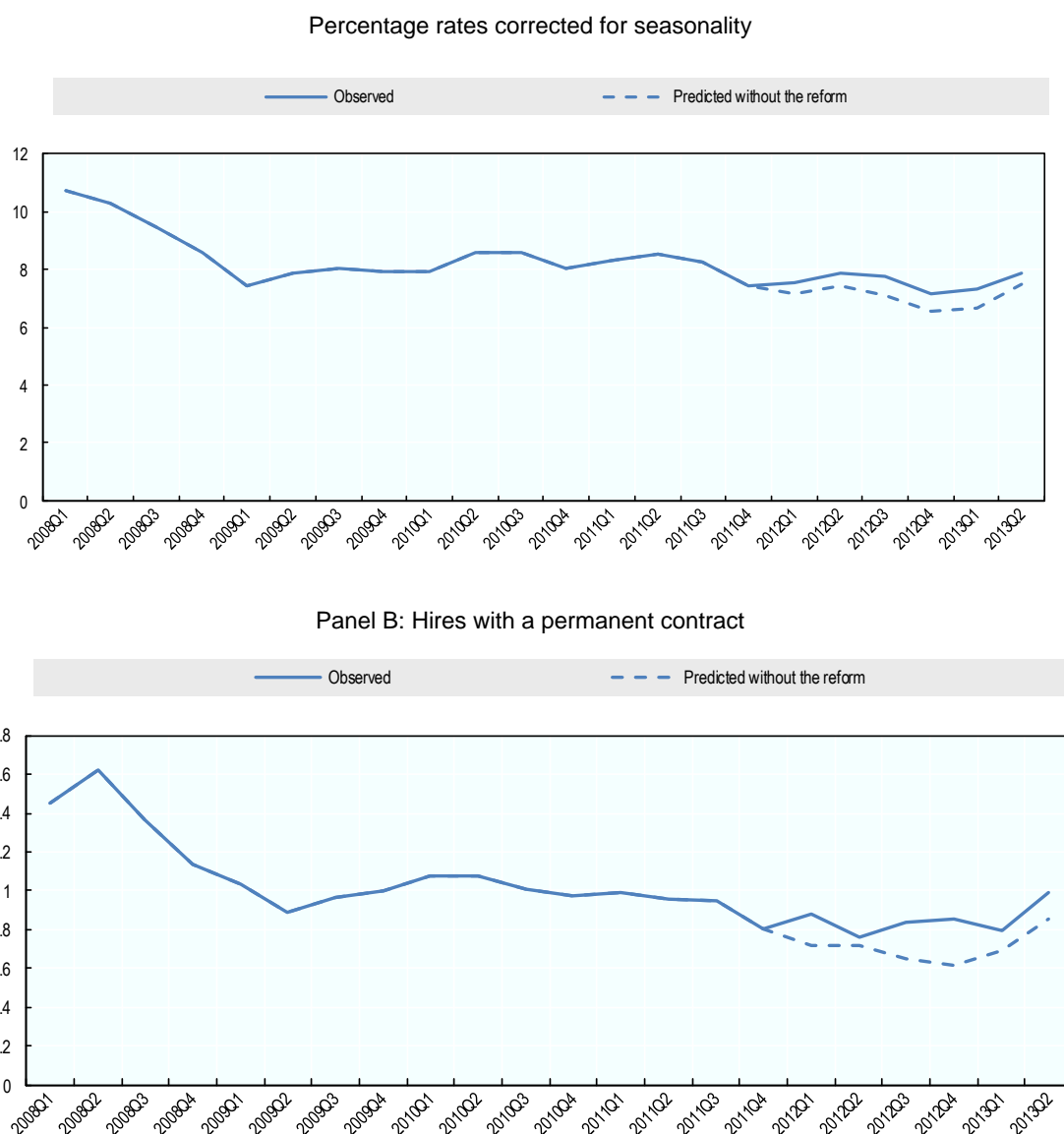
33. Following OECD (2009, 2010), hiring rates are defined here as the share of workers hired in a given period of time and that are in employment at the end of the period (counting therefore each worker only once) divided by total wage and salary employment in that period. This definition is not uncommon in the literature (see e.g. Davis et al., 2006, and Golan et al., 2006) and it is the most appropriate in the case of data from the EPA.

34. It must be underlined however that, in contrast with other econometric analyses presented in this section, the statistical significance of the estimated effect of the reform on the hiring rate depends on the assumptions made on the polynomial trend used to capture business-cycle fluctuations (see the Annex).

35. More precisely, the microeconomic estimates show that the probability that an employee has job tenure shorter than 3 months increased by about 0.6 percentage points. This probability is the micro-level equivalent of the hiring rate at the aggregate level.

have been more pronounced in the absence of the reform than what is predicted in the case of total hiring (Figure 10, Panel B). In fact, the reform is estimated to have increased the hiring rate on permanent contracts by 13%. In addition, the increase in permanent hiring in the aftermath of the reform appears to be concentrated in full-time positions. In particular, the reform is estimated to have increased the hiring rate of full-time open-ended contracts by 18% on average, while no significant effect is found as regards part-time permanent contracts. By contrast, with an estimated positive effect of only 7% – insignificant in certain specifications – the effect on hiring of temporary employees appears more limited.

Figure 10. The evolution of hiring rates in the non-agricultural business-sector, 2008-2013



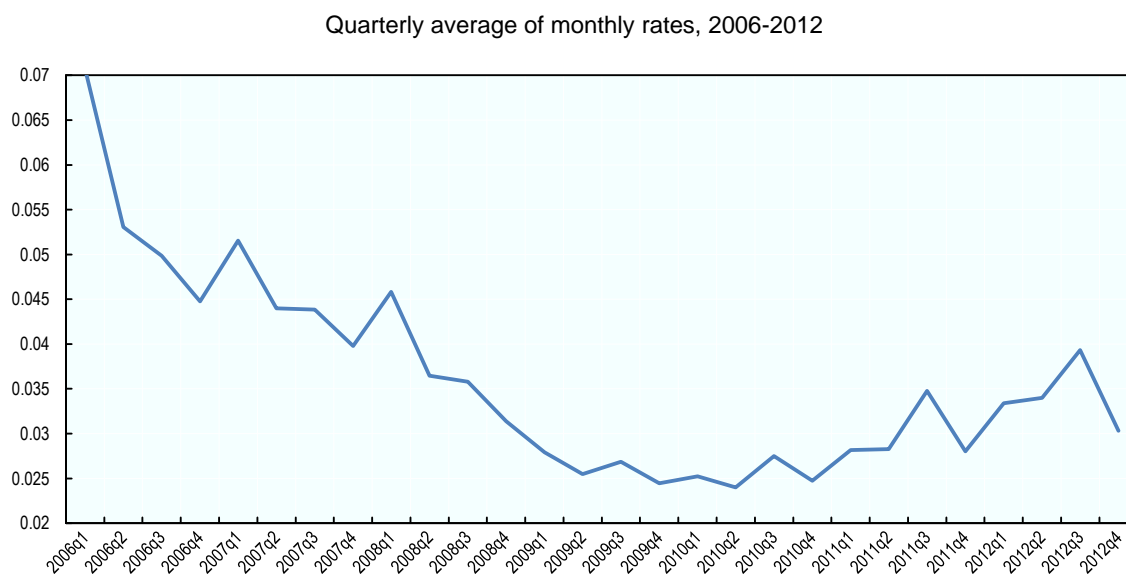
Note: The figure presents observed and predicted percentage ratios of workers with no more than 3 months of job tenure on total employment in the reference week. “Predicted without the reform” indicates the empirical prediction of what the hiring rate would have been in the absence of the reform, based on empirical estimates of the baseline model for the individual probability of having tenure equal to 3 months or less. Panel A refers to all new hires and panel B to new hires with a permanent contract.

Source: Estimations on the basis of data from the *Encuesta de Población Activa* (EPA). See Annex for the detailed estimation method and results.

Transitions from unemployment to employment

Not only are flexibility-enhancing reforms of EPL expected to increase hiring, but they are also expected to reduce unemployment duration and speed up transitions towards permanent employment. Social security microdata, in which employment histories of individuals affiliated with social security can be followed over time, are ideally suited for this analysis. For a large random sample of workers affiliated with social security, the *Muestra Continua de Vidas Laborales* (MCVL) registers all employment and unemployment spells as well as the start and end dates, thereby measuring accurately their exact duration and allowing to link these durations with previous employment spells. Figure 11 shows the proportion of individuals leaving unemployment for permanent employment for a sample of Spanish workers aged 16-64 over the period 2006 to 2012, conditional on being unemployed at that point in time.³⁶ The proportion of unemployed individuals moving to a permanent job has decreased significantly over the period, in particular due to the increase in the number of unemployed since the start of the crisis. However, there are some signs of recovery in the most recent quarters. But to what extent can these developments be attributed to the 2012 reform?

Figure 11: **Average proportion of unemployed individuals leaving unemployment to permanent employment**



Note: For each quarter, the figure presents the average monthly the proportion of individuals leaving unemployment to permanent employment for a sample of Spanish workers aged 16-64 over the period 2006 to 2012, conditional on being unemployed at that point in time. The sample includes all individuals who have been unemployed at least one day.

Source: Muestra Continua de Vidas Laborales (MCVL).

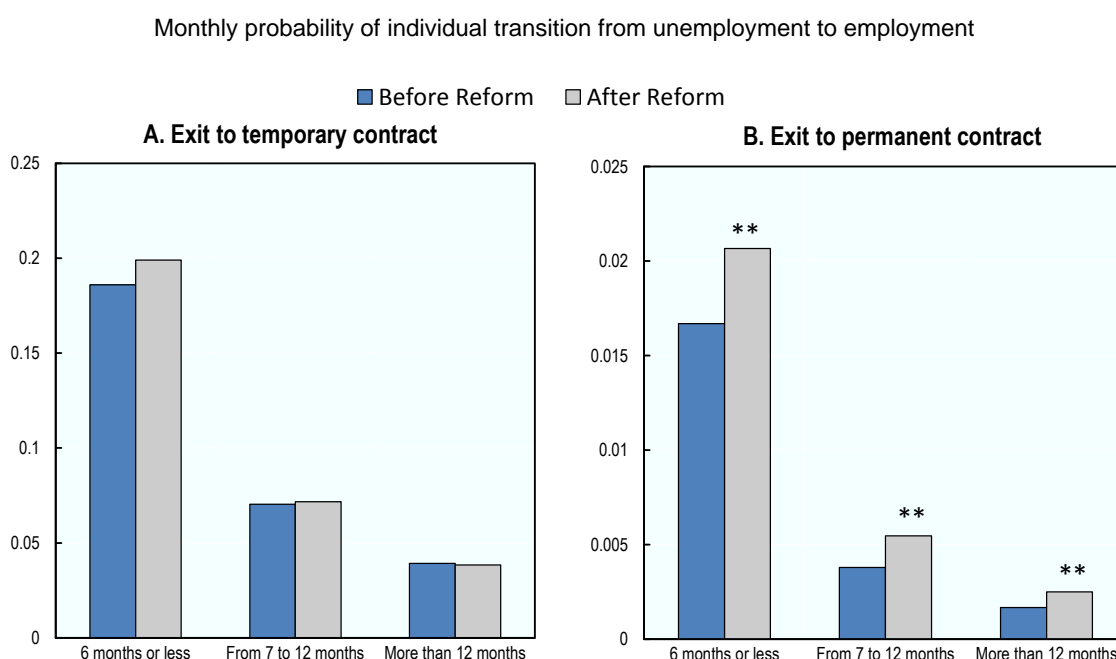
The estimation results indicate that the 2012 reform increased the probability of leaving unemployment and entering employment for any unemployment duration.³⁷ The effect of the reform is

36. The rates presented in Figure 11 are not comparable with those presented in Figure 10 for three main reasons: i) averages of monthly (instead of quarterly) transitions are considered; ii) the denominator is represented by the pool of unemployed workers (instead of wage and salary employees); and iii) individuals not registered as unemployed are not included, which leaves out youth searching for their first job and people transiting directly from job to job without spending at least one day in unemployment (however the latter are less than 3% of all employees in the data).

37. Estimations of competing-risk hazard models on the MCVL – whose results are presented in this section – were run by José Ignacio Garcia-Perez (University Pablo de Olavide) in close cooperation with the OECD

significant only as regards the probability for the unemployed of being hired on a permanent contract, which has increased by 24%, on average, during the first 6 months in unemployment where most transitions occur (Figure 12). The estimated percentage effect is even greater at longer unemployment durations (more than 40%), although obviously smaller in percentage points. By contrast, the effect of the reform on transitions to a temporary contract is small and insignificant.³⁸ Thus, for unemployment durations no longer than 6 months, the reform appears to have raised the share of exits from unemployment to permanent employment in total exits from unemployment by about 14%, taking the point estimates at face value.

Figure 12: Exit from unemployment by type of contract and unemployment duration



Note: The figure presents the average of estimated monthly probabilities of individual transition from unemployment to employment just before (February 2012) and after (March 2012) the reform, by type of new contract and unemployment duration (less than six months, from 7 to 12 months and more than 12 months). The sample includes all individuals who have been unemployed at least one day. Unemployment durations are censored at 30 months in unemployment. Panel A refers to exits from unemployment to temporary contracts and Panel B to exits from unemployment to permanent contracts. The asterisks refer to the significance level of the estimated effect of the reform on each transition probability. **: significant at the 5% level.

Source: Estimations on the basis of data from the Muestra Continua de Vidas Laborales (MCVL). See Annex for the detailed estimation method and results.

Perhaps more important, the reform appears to have boosted transitions towards permanent employment significantly more for those that had a temporary contract prior to becoming unemployed,

Secretariat, which however bears full and sole responsibility for the interpretation of the findings and the choice of the modelling strategy.

38. However, in absolute terms, the estimated effect on transitions to permanent contracts is not significantly greater than that on transitions to temporary contracts. For example, taking point estimates at face value, in the first 6 months of unemployment, the average probability of a monthly transition to a temporary job increased from 18.6% to 19.9% due to the reform whereas the average transition to permanent employment increased only from 1.7% to 2.1%. Moreover, it cannot be excluded that these relative patterns are also due to the gradual increase in severance pay for fixed-term contracts, starting in January 2012 but approved by the parliament in 2010 (see Section 2.2).

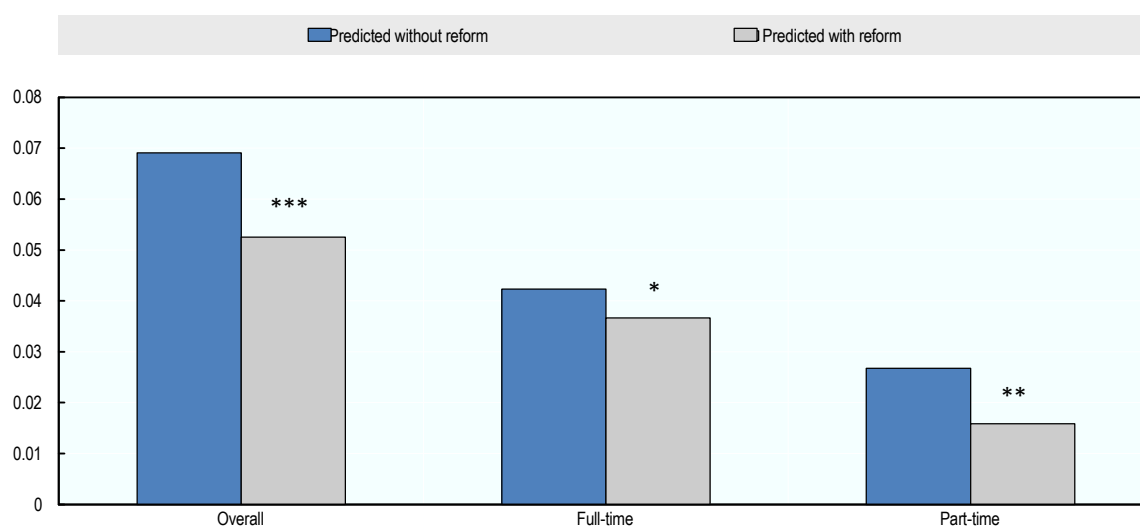
while the effect remains insignificant for those who previously held a permanent contract. Symmetrically, the results suggest a marginally positive impact of the reform on the speed of transition towards a temporary contract only for those that had a permanent contract prior to becoming unemployed. This is particularly good news insofar as it yields evidence of greater mobility across contract types, suggesting that the economy is on a slow path of a reduction of segmentation.

Separation rates

The overall effect of the reform on worker separations is less obvious, as the reform eased firing procedures and reduced its costs but at the same time raised the incentives to adopt internal-flexibility measures, in the first place to avoid terminations. The *Encuesta de Coyuntura Laboral* (ECL) is a large establishment-level survey that registers worker flows at the establishment level and can, therefore, be used to shed light on which effect dominates.

The estimation results show that the 2012 reform significantly reduced the proportion of workers leaving the establishment in a given quarter. The average overall separation rate was reduced by 24% in the aftermath of the reform (Figure 13). The reduction has been particularly sizeable for the separation rate of part-time workers (41%) but there is also some evidence of an effect for full-time workers (13%), which however is only marginally significant from a statistical point of view.

Figure 13: The effect of the reform on quarterly separation rates at the establishment level



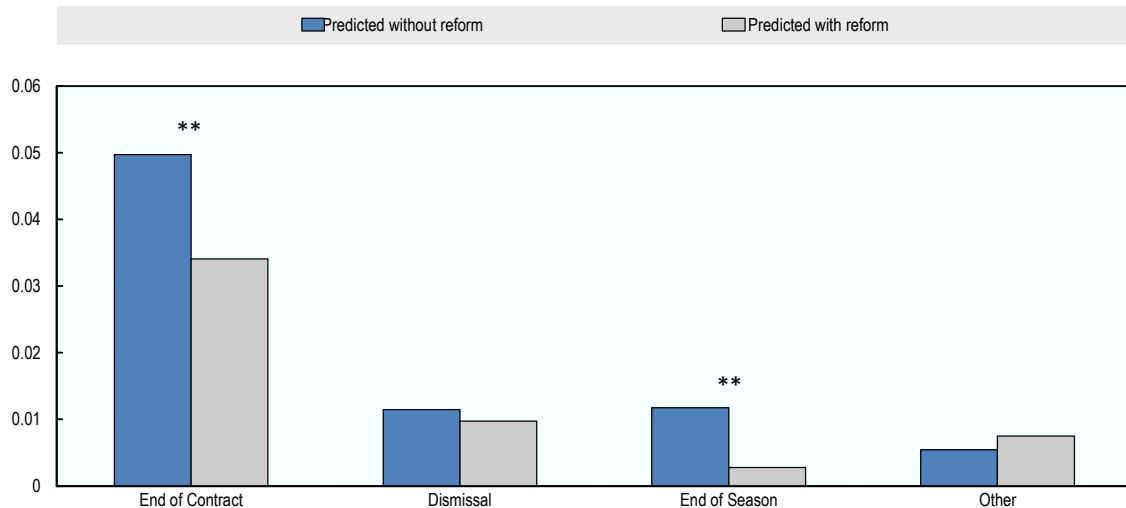
Note: The figure shows empirical estimates of average separation rates in the post-reform period obtained from the estimation on quarterly data for the period 2006-2012 of the baseline model of establishment-level separation rates, as predicted by observable variables. “Predicted without the reform” indicates the empirical predictions of what separation rates would have been in the absence of the reform. For each establishment, separation rates are defined as the ratio of separations in a quarter divided by the average of total employment between the start and the end of the period. The asterisks refer to the significance level of the estimated effect of the reform on each separation rate. ***, **, *: significant at the 1%, 5% and 10% level, respectively.

Source: Estimations on the basis of data from the Encuesta de Coyuntura Laboral (ECL). See Annex for the detailed estimation method and results.

In addition, establishment-level data allows disaggregating flows by contract type and reason of separation. In particular, it is possible to obtain distinct estimates of the effect of the reform on contract terminations (for temporary workers), dismissals of permanent workers, terminations due to end of season for seasonal workers with an open-ended contract – “*fijos discontinuos*” – and other reasons for separation (including retirements, voluntary separations, deaths, etc.). The estimation results (Figure 14) point to a

significant impact of the reform on separations rates due to the end of contract for temporary workers (31% decrease) and seasonal workers (71% decrease), but show no impact on dismissal rates and separations for other reasons.

Figure 14. The effect of the reform on separation rates at the establishment level by type



Note: The figure shows empirical estimates of average separation rates in the post-reform period obtained from the estimation on quarterly data for the period 2006-2012 of the baseline model of establishment-level separation rates, as predicted by observable variables. "Predicted without the reform" indicates the empirical predictions of what separation rates would have been in the absence of the reform. For each establishment, separation rates are defined as the ratio of separations in a quarter divided by the average of total employment between the start and the end of the period. The asterisks refer to the significance level of the estimated effect of the reform on each separation rate. **: significant at the 5% level.

Source: Estimations on the basis of data from the Encuesta de Coyuntura Laboral (ECL). See Annex for the detailed estimation method and results.

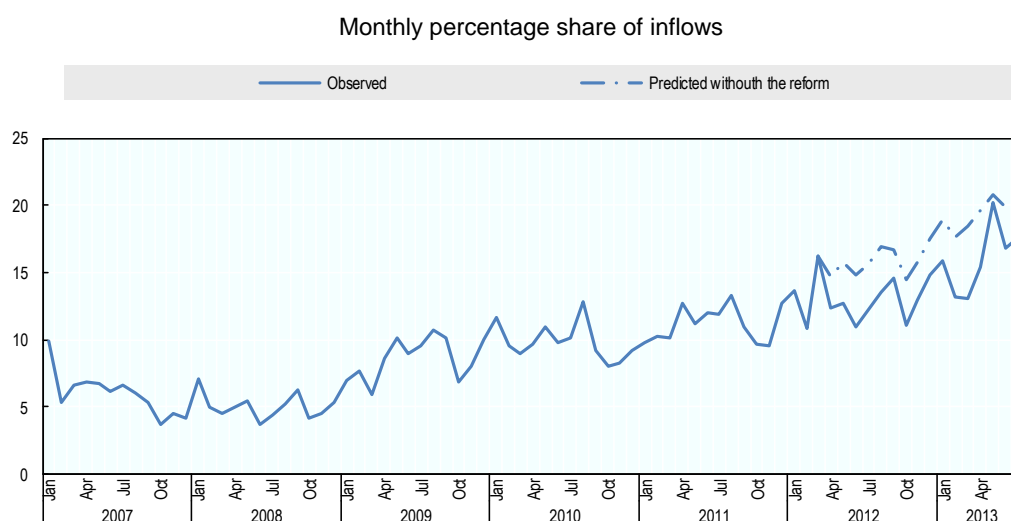
The analysis of job spells and reasons for termination using social security microdata (MCVL) appears to confirm the results for both dismissals and separations for other reasons obtained with establishment-level data. For permanent workers, the estimation results do not show any effect of the reform on the duration of job spells and the probability of separation, no matter whether for dismissal or for other reasons. However, as regards fixed-term contracts, no effect of the reform on contract duration and separation probabilities is found in MCVL data, in contrast with results obtained with establishment-level data. Even though simple statistical reasons might explain this discrepancy,³⁹ it suggests some caution in interpreting these findings. At the very least, however, these results seem to confirm that the reform has not increased the number of separations, in general, and dismissals, in particular. This fact suggests that the stimulus provided by the reform to internal flexibility measures as an alternative to job suppression more than compensated for the upwards effect on separations brought about by the easing of dismissal procedures and costs.

39. For example, there is some evidence that the reduction of termination rates for temporary contracts is concentrated in small establishments (see the Annex). As a consequence, the reform has reduced the average establishment-level separation rate with smaller or no impact on aggregate separations (insofar as aggregate separation rates can be seen as a weighted average of establishment-level ones, with establishment size as weight).

Individual and collective dismissals

Has the distribution of dismissals – between individual and collective terminations – been affected by the reform? It is possible to resort to monthly statistics on inflows onto unemployment benefits (*prestaciones por desempleo*) to investigate the relative variation of individual and collective dismissals, insofar as the reason for claiming benefits is reported in these data.⁴⁰ The share of collective dismissals increased steadily since 2008, from about 5% to a peak of 20% in May 2013 (Figure 15). However, there is no sign that the reform is responsible for this trend: the share of inflows onto unemployment benefits due to collective dismissals seems to have been on the rise even before, probably as the result of the restructuring of the economy brought about by the economic crisis. On the contrary, the estimated results indicate that the share of collective dismissals would have been 3.1 percentage points larger in the absence of the reform. In practice, the empirical estimates suggest that the 2012 reform decreased the number of inflows onto unemployment benefits for reasons of collective dismissals by about 32%, while in the same period the contraction of inflows due to individual dismissals was small and marginally significant.⁴¹

Figure 15. **Share of inflows onto unemployment benefits due to collective dismissal in total inflows due to dismissal, 2007-2013**



Note: The figure presents the monthly percentage share of inflows in unemployment benefits due to collective dismissal in total inflows due to dismissal, as observed in raw data and as they would have been in the absence of the reform, according to baseline estimates on the basis of data covering the period January 2007-July 2013.

Source: Estimations on the basis of data on the *prestaciones por desempleo de nivel contributivo* (Source: MEYSS). See Annex for the detailed estimation method and results.

40. However, some cautions must be exerted in interpreting the results from this analysis since not all dismissals are counted. Inflows data considered here are limited to workers who are eligible to standard unemployment benefits because of sufficient previous contributions and contribution periods (*Prestaciones de nivel contributivo*). They exclude, therefore, workers only eligible for other types of unemployment-related subsidies (*Prestaciones de nivel asistencial*). Moreover, inflows data considered here exclude those resulting from conciliation settlements, court rulings, end of trial period or contract suspensions, because the nature of the originating event (individual or collective dismissal) is not reported. By contrast, benefit claims ex *Ley 45/2002* – individual dismissals for which benefits are claimed before any court ruling stating whether the dismissal is fair or unfair – are included in the analysis.
41. In the baseline model, the estimated contraction for these inflows is of 6%. However this estimate is significant at the 10% level only and is not robust to changes in the specification (see the Annex for more details).

Taking into account the discussion of Section 2.2, these findings are probably not surprising. There is little controversy that the 2012 reform reduced the cost and difficulty of individual dismissals, which explains the pick-up on hiring on permanent contracts that has been observed since its implementation (see above). As already noted, the lack of impact of the reform on individual dismissals is likely to be due to the counterbalancing effects of greater use of internal flexibility measures and lower cost of individual dismissals. By contrast, the case of collective dismissals is more complex. On the one hand, the reform has made economic dismissals significantly easier, even though this is true for both individual and collective dismissals. On the other hand, the reform, under certain circumstances, has increased the taxes levied on firms in the case of collective dismissals (see section 1). Moreover, the reform, as implemented initially, significantly increased the risk that the dismissal procedure could be invalidated by a court in the case of litigation. The observed empirical patterns tentatively suggest that these factors are likely to have played a key role in discouraging collective dismissal decisions.⁴² Yet, to the extent that the *Real Decreto Ley 11/2013* approved in August 2013 has restricted the discretionary role of courts of declaring a dismissal void and ordering reinstatement (see Section 1), it would not be surprising if some of the negative effects of the 2012 reform on the share of collective dismissals in total dismissals are subsequently unwound.

Firm-size differences in the impact of the 2012 reform

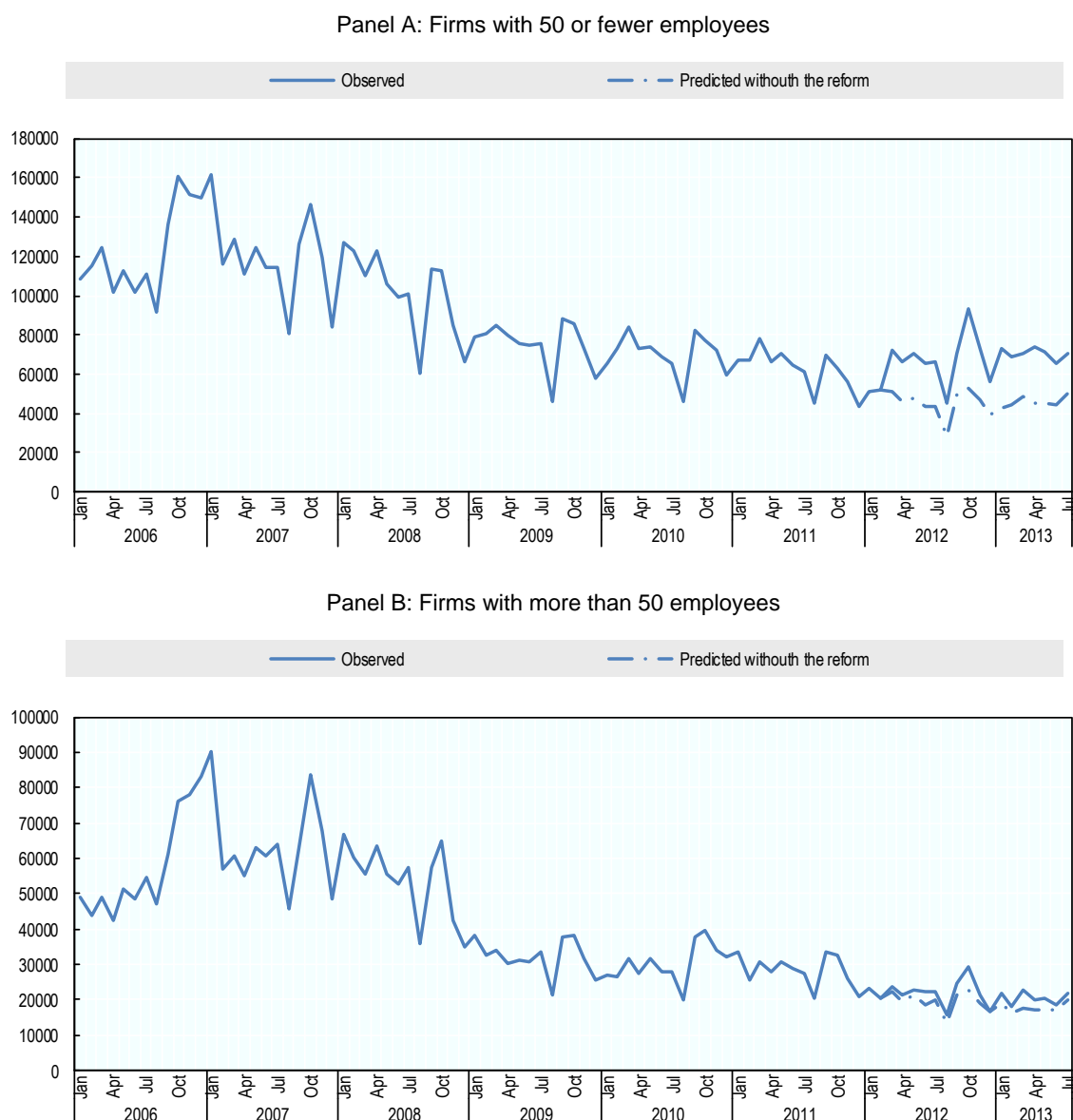
Given the importance of the provisions targeted at small firms in the architecture of the reform (see Section 1), it is important to evaluate firm-size differences in its impact. In Spain, employers have the obligation to inform the public employment service about the characteristics of all new individual contracts they sign as well as about extensions of fixed-term contracts and/or their conversions into permanent contracts. These data are then collected into a database – containing also workers and employers characteristics, including firm size – that can be used to analyse the dynamics of new contracts on a monthly basis, allowing the examination of firm-size heterogeneity in hiring patterns.

In January 2007, about 250,000 new permanent contracts were signed (Figure 16). Of these, about two-thirds were in firms with 50 or fewer employees (cf. Panel A and B). As already noted, the crisis hit job creation hard. Five years later, new permanent contracts were as few as 75,000 per month, with the proportion accounted by small firms remaining approximately constant. The trends concerning new open-ended contracts by firm size has diverged since then. For example, in January 2013, firms with 50 employees or less accounted for more than three-fourths of all new permanent contracts concluded that month.

To what extent are these developments accounted for by the 2012 reform? The econometric models estimated for this report suggest that at least 25 000 new permanent contracts per month in firms with 50 employees or less can be attributed to the 2012 reform, while no significant effect is observable for larger firms. These patterns are mirrored by those of the share of permanent contracts in all new contracts, which is estimated to have been raised by 3 percentage points – that is a percentage increase of about 30% – for firms with 50 or fewer employees.

42. However, as discussed in Section 1, individual dismissals have become particularly easier and less costly in the case of small firms: companies with less than 50 employees can hire by stipulating an open-ended *contrato emprendedores*, which allows a trial period of up to one year, while companies with less than 25 employees can apply for a severance-pay subsidy for any type of fair dismissal. It is not impossible that part of the effect of the reform on the share on collective dismissals can be attributed to these provisions targeted at small firms. As benefit inflows disaggregated by firm size are not available, this issue cannot be investigated further here. Firm size heterogeneity in the impact of the reform is examined in the next subsection as regards other types of flows.

Figure 16. Monthly inflows into permanent contracts, including contract conversions, 2006-2013



Note: The figure presents the number of new permanent contracts signed each month, as observed in raw data and as they would have been in the absence of the reform, according to baseline estimates covering the period January 2006-July 2013.

Source: Estimations on the basis of data on the *datos estadísticos de contratos* (Source: SEPE). See Annex for the detailed estimation method and results.

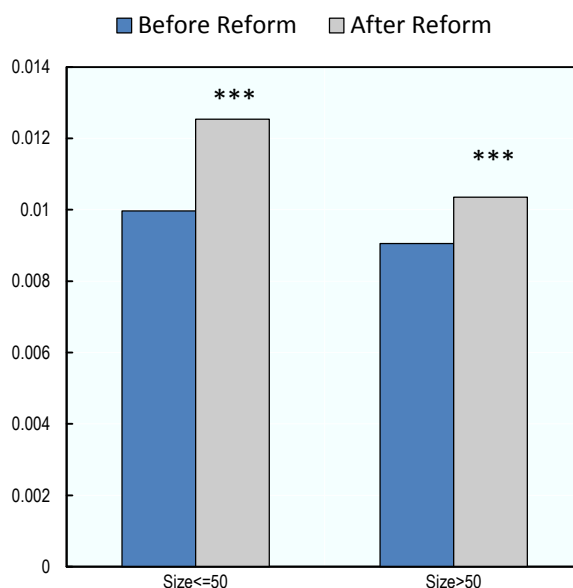
Consistently, it appears from the analysis of social security microdata that the 2012 reform had a greater impact on transitions from unemployment to permanent employment in small establishments rather than large establishments (Figure 17).⁴³ The results from the estimation of the competing-risk hazard

43. Although a disaggregation by firm rather than establishment size would be more interesting, this is not possible given the available data. The only size variable which is available in the *Muestra Continua de Vidas Laborales* is the size of the social security accounting unit (*Cuenta de Cotización*), which is unique for each firm at the provincial level. It does not correspond exactly either to the plant or the firm level – it covers many plants of the same firm if they are in the same province but plants established in different

models suggest that the reform increased the average transition to a permanent contract – conditional on being unemployed for six months or less – by 26% in establishments with 50 or fewer employees, compared with 15% in establishments with over 50 employees. To the extent that the large majority of firms are mono-establishments, this confirms that the impact of the reform on hiring is greater for smaller firms.

Figure 17. **Exit from unemployment to permanent employment by firm size**

Monthly probability of individual transition for unemployment durations smaller or equal than 6 months



Note: The figure presents the average of estimated monthly probabilities of individual transition from unemployment to permanent employment just before (February 2012) and after (March 2012) the reform conditional on being unemployed at least one day but less or equal than 6 months, by type of contract and firm size. Unemployment durations are censored at 30 months in unemployment. The asterisks refer to the significance level of the estimated effect of the reform on each transition probability. ***: significant at the 1% level.

Source: Estimations on the basis of data from the Muestra Continua de Vidas Laborales (MCVL). See Annex for the detailed estimation method and results.

When the data are further disaggregated by firm size, the greatest estimated expansion in the number of new permanent contracts induced by the reform is found in very small firms with 25 employees or less (45%, corresponding to about 21,000 new contracts per month). By contrast, in firms with 26 to 50 employees the increase was relatively more modest, not only in absolute terms (about 4,000 new contracts per month) but also in percentage terms (about 28%).

Given that the positive effect of the reform appears concentrated in very small firms, a first obvious candidate in explaining these findings is the severance-pay subsidy made available for firms with less than 25 employees in all cases of fair dismissal (see Section 1). Indeed, to the extent that fair economic dismissals have become easier and less uncertain after the reform, this subsidy is likely to play a greater role than before the 2012 reform, when most employers used to take the route of “*despido exprés*” and severance payments were therefore not subsidised. Obviously, however, this provision alone cannot explain the significant impact for larger companies. Another factor that is likely to be behind this upsurge

provinces are not linked. For a matter of simplicity each social security accounting unit is referred to as an “establishment”, hereafter.

in hiring on permanent contract is the introduction of the *contrato emprendedores*, which *de facto* extended the trial period for firms with less than 50 employees.⁴⁴ Indeed, for these firms, the positive effect of the reform is somewhat larger on new hires than on contract conversions, which in the period of analysis concerned, by and large, correspond to workers hired before the reform. Yet, some significant impact of the reform is detectable in the case of conversions as well.

Can these two factors, taken together, fully explain the firm-size heterogeneity of the effect of the reform? This is far from clear. Less than 8,000 *contrato emprendedores* are typically stipulated in a representative month. Given that the number of new permanent contracts in firms with 25 or fewer employees is on average 5 times larger than the corresponding figure for employers with 26 to 50 employees, a large share of the new *contrato emprendedores* is likely to have been signed in firms with 25 or fewer employees.⁴⁵ Moreover, in firms with 26 to 50 employees, the impact of the reform on contract conversions is very close to that on new hires on permanent contract. These observations suggest a third factor that could be behind the observed empirical patterns. The larger the size of the firm, the greater the likelihood the firm needs to undertake a large number of dismissals at some point in time. But the threshold triggering collective dismissal procedures varies little with firm size (from 10 dismissals within a period of 3 months for firms with less than 100 employees to 30 employees within the same period for firms with 300 employees or more); therefore, collective dismissals procedures are likely to be more often binding in the case of larger firms.⁴⁶ Given that the evidence presented in the previous subsection and in Section 2.2 suggests that collective dismissals might not have become less difficult and costly, larger firms might have refrained from hiring on permanent contracts to avoid incurring the risk of making collective dismissals in the future, particularly at a time of sluggish demand and uncertain perspectives.

This conjecture can be tested by examining further by more disaggregated size classes the impact of the 2012 reform on hiring by firms with more than 50 employees. The estimated results based on contract data show that the reform has significantly increased the number of new permanent contracts in firms with 51 to 100 employees (by 23%), while no significant effect is detected for larger firms.⁴⁷ To the extent that all these firms are ineligible both for the *contrato emprendedores* and for the severance-pay subsidy, the combination of easier individual dismissals and more burdensome collective dismissals remains the only explanation for the simultaneous increase in the number of permanent contracts stipulated by firms with 51 to 100 employees and the lack of significant changes for larger firms. Moreover, for the former class of firms, the positive effect of the reform is entirely concentrated in contract conversions, suggesting that these firms use fixed-term contracts as a substitute for longer trial periods.

Overall the evidence presented in this section not only suggests that the Spanish labour market has become more dynamic in the aftermath of the 2012 reform but also that duality is decreasing. Indeed, hiring on permanent contracts is on the rise while there is no evidence of an increase of transitions out of permanent contracts. The latter fact is also confirmed by recent evidence provided by the Ministerio de Empleo y Seguridad Social (2013), which shows that there is no difference in the probability of leaving a

44. This could also contribute to explain why the effect is concentrated in very small firms: to the extent that mismatching problems are likely to be more problematic in these firms, they can benefit more from the longer trial period made available by the *contrato emprendedores*.

45. No breakdown by firm size is available for the *contrato emprendedores*.

46. For example, according to OECD (2009) the average quarterly dismissal rate of continental European countries for which data are available is close to 1%. That is, in a normal year, almost 1% of employees are dismissed each quarter. Therefore, any firm with 3,000 employees or more dismissing at that rate would cross the threshold defining collective dismissals.

47. The difference between these two classes of firms in the effects of the reform is also significant, at least at the 10% level.

permanent contract conditional on tenure between a *contrato emprendedores* and a standard open-ended contract in the first 12 months of a job spell. This implies that longer trial periods in the former type of contract have not implied greater precariousness for workers hired with these contracts. Moreover, dynamic segmentation has also been reduced insofar as transitions between temporary and permanent contracts have become more frequent (see above). Nevertheless, if the percentage increase of transition rates that can be attributed to the reform is sizeable, their absolute magnitude is small. Moreover, there is some evidence suggesting that the reform have particularly reduced separations for temporary contracts, due to the greater incentives for internal flexibility as an alternative to the suppression of fixed-term posts (see Figure 14). As a consequence, it is likely that it will take some time before these developments become visible in the share of temporary employees in total employment. Indeed, using the same microeconomic model used before for hiring rates but replacing the dependent variable, no significant effect on the share of workers with a fixed-term contract is estimated if the regression discontinuity is set at the time of the reform (first quarter of 2012),⁴⁸ while a modest – albeit robust and significant – effect appears if the discontinuity is tested one year later.⁴⁹ It is, however, too early to say what will be the magnitude of the long-run impact of the reform on this variable.

3.3. *Simulating the long-run impact of the 2012 reform on productivity and economic growth*

The increase in the pace of reallocation of labour resources and the reduction in labour market duality are expected to increase efficiency and labour productivity growth in the long term (see Section 2.2). However, insofar as multi-factor productivity growth – measuring efficiency enhancement in an economy – cannot be meaningfully estimated at greater frequencies than annual ones, it is not possible to test whether the 2012 reform has effectively brought about this outcome. Nevertheless, by exploiting the quantification of the institutional change implied by the reform – as reflected in OECD EPL indicators – and resorting to estimates available in the literature, it is possible to provide a tentative estimate of the potential impact of the 2012 reform on productivity growth and, with some additional assumptions, overall economic growth.

Bassanini et al. (2009) estimate the long-run potential impact of changes in the OECD summary indicator of EPL for regular contracts (see Section 2.2) on multi-factor and labour productivity growth in the business sector, excluding agriculture, mining, fuel and professional services.⁵⁰ Their industry-specific estimates are based on the characteristics of each industry, notably as regards the propensity to use dismissals as a way to adjust to shocks.⁵¹ Taking their most reliable estimate at face value and assuming as given the sectoral structure of the Spanish economy in 2007,⁵² in the long-run an hypothetical reform reducing the EPL indicator for individual and collective dismissals by half a point – a large reform in terms of the historical record for OECD countries –⁵³ would result, in the business sector, in higher multi-factor

48. This finding is confirmed by running the same estimation model on social security data.

49. The estimated drop of the share of temporary workers is of 0.5 percentage points.

50. These industries were excluded due to the difficulty of measuring accurately multi-factor productivity growth therein.

51. This propensity is approximated by industry-specific US dismissal rates, a choice justified by the light firing regulations in this country that can be then taken as a benchmark to mimic the distribution of dismissal rates in the absence of regulation.

52. This year is chosen to avoid that the simulation be perturbed by large cyclical swings in the structure of the economy. Results are however robust to the choice of the year.

53. The 2003 severance-pay reform in Austria, often cited as an example of large, radical reform, resulted in about half a point reduction of these indicators.

annual productivity growth by 0.45 percentage points and faster labour productivity growth by 0.3 percentage points.

What predictions would these estimates imply for the Spanish economy? The size of the 2012 reform, as measured by OECD indicators, is only slightly smaller (0.44; cf. Figure 4) than what considered by Bassanini et al. (2009). By applying the same estimated coefficients, it can be expected that, in the long-run, labour productivity should grow faster by about $\frac{1}{4}$ of a percentage point each year in the business sector (excluding agriculture, mining, fuel and professional services) as the result of the reform. Taking into account that these industries accounted for 59% of total value added in the Spanish economy before the crisis, and assuming conservatively no impact on employment and productivity in other industries, this would translate into 0.15 faster GDP growth each year. This number can be seen as very rough lower-bound estimate, to the extent that it is based on the assumption of no impact on other industries and no impact on employment. While the latter assumption would be reasonable had the reform been limited to employment protection, the wage moderation induced by the reform of collective bargaining is likely to result in greater employment growth, thereby raising GDP growth even further.

4. Interactions with other policies

The previous section has assessed the impact of the 2012 reform of Spain's labour market legislation as has occurred so far. However, these reforms should be considered and evaluated in the broader context of structural reforms and policies in other areas. Indeed, as suggested by the *Revised OECD Jobs Strategy* (OECD, 2006), the effects of macroeconomic and structural policies are strongly interdependent and institutions should be designed and reformed in such a way to exploit their complementarity. In other words, the full materialisation of the positive employment impact of the recent labour market reform is strictly conditional on complementary reforms in other areas.

First of all, macroeconomic conditions affect overall labour market performance and the effect of the 2012 reform will depend on any macroeconomic shocks the Spanish economy might suffer. Sound macroeconomic policies are necessary to support economic and employment growth. In that respect, it is important to keep the public debt on a sustainable path, while carefully avoiding excessively restrictive fiscal stances. The pension reform proposed by the government, following the recommendations of a commission of experts, would go in this direction, as it would ensure the long-term sustainability of the pension system as well as intergenerational solidarity. Indeed the reform proposal would envisage coupling, by 2019, the introduction of a revalorisation index (*Índice de Revalorización de las Pensiones*) – guaranteeing the adjustment of pensions only conditionally on the favourable evolution of a large number of parameters – with that of a sustainability factor (*Factor de Sostenibilidad*) – linking the amount of the retirement pension to changes in life expectancy (see e.g. BBVA, 2013a).

In addition, numerous interactions exist between labour legislation and product market institutions. Reforms in the product and service markets will not only increase competition and boost productivity, but they will also have an impact on labour market performance (Blanchard and Giavazzi, 2003, Nicoletti and Scarpetta, 2005). Spain has already undertaken several reforms in 2012 and 2013 (e.g. *Programa Nacional de Reformas 2013* and the update of the Stability Program Update for Spain 2013-2016). However, it is not yet clear to what extent the fall in unit labour costs (see Section 3.1) translates into a commensurable fall of price inflation⁵⁴, thereby guaranteeing a full impact of wage moderation on competitiveness. To avoid that slower wage growth results only in higher profits, without raising competitiveness, a further push on

54. For example, the average increase in wages as set in collective agreements in 2012 was 1.3% (0.9% in new collective agreements), while inflation was 2.9% (Izquierdo et al., 2013), a relative high level in comparison with Eurozone competitors. However figures for 2013 suggest that inflation is declining significantly and is now close to 0.

product and service market competition might be necessary (European Commission, 2013). Estimates by Bassanini and Duval (2009) suggest that the effect on unemployment of simultaneous reforms of anti-competitive product market regulations and industrial-relation institutions – such as the reform of collective bargaining discussed in Section 3.1 – is at least 15% larger than the sum of the effects of the two policy reforms taken in isolation.

The reform of the financial sector is currently underway and remains on track (IMF, 2013). Nevertheless, debt levels remain high and constrain the private sector's ability to borrow (La Caixa, 2013). Available evidence from other countries suggests that falling bank lending dramatically affects investment of small and medium enterprises, making their employment level slump. For example, Chodorow-Reich (2014) finds that the withdrawal of credit accounted for between one-third and one-half of the employment decline in US small and medium firms in the year following the Lehman bankruptcy. Similarly, using Italian data, Cingano et al. (2013) find that a 10 percentage-point fall in credit growth reduces the investment rate by 8-14 percentage points over four years, and employment by almost 1.5%. Restoring the health of the financial markets and easing the credit crunch is particularly important in the case of Spain, given the large share of small firms in this economy.

Another essential element to improve the functioning of the Spanish labour market and reviving employment creation relate to active labour market policies. In Spain, the administration of unemployment benefit system depends on the Spanish public employment service (SEPE) in the central government, while the development of active labour market policies is done by the regional governments (following the legislative framework approved by the central government).

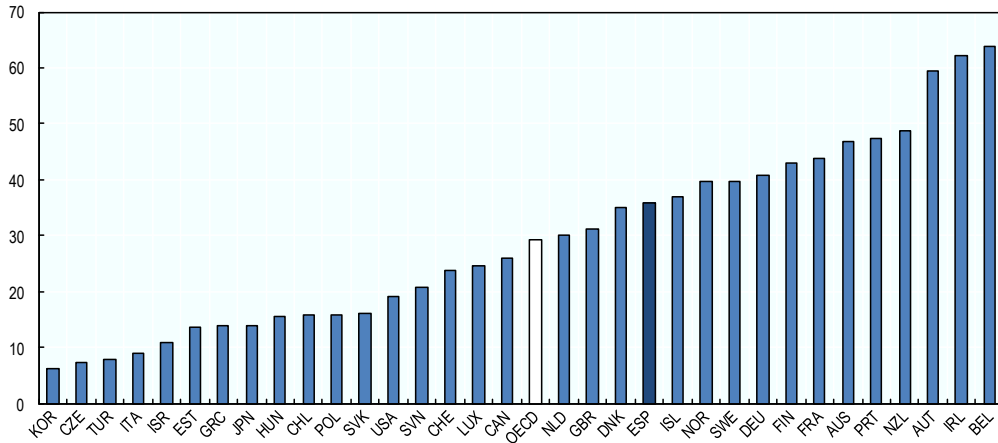
The Spanish unemployment insurance is relatively generous with respect to the OECD average (Figure 18). Providing adequate unemployment benefits can be desirable in the context of significant structural reforms: while many workers are likely to gain from these reforms, certain groups of workers would inevitably lose their jobs in their aftermath and require support to regain employment. However unemployment benefits must be made conditional on strictly-enforced work-availability conditions and included in a well-designed “activation” package. The decentralized public employment service may not have the capacity for implementing activation policies on a sufficient scale to counterbalance the potential negative effects of generous benefits on work incentives. Spain's expenditure on passive measures is around 3% of GDP (the highest level in the OECD), while expenditure on active measures is slightly below 1%,⁵⁵ and most of the “active” expenditures are employment incentives. More important, the plurality of actors in this area makes it difficult to integrate properly-enforced job-search requirements and effective re-employment services with the provision of adequate unemployment benefits. Last but not least, resources for preventing the receipt of benefits when in undeclared employment have always been limited in Spain.

Since the start of the recession, there has been a movement along the Beveridge curve (Figure 19), which allows identifying changes in the efficiency of the process of matching unemployed workers to vacancies – an inward shift of the curve representing an improvement in matching efficiency. The figure shows a decrease in the vacancy rate paralleled by an increase in unemployment, corresponding to the increase in labour market slack. Yet, no inward shift of the curve is detectable since the 2012 labour market reform, suggesting that inefficient activation policies are hampering the improvement in matching efficiency. In the most recent quarters, there seems to be even an outward shift denoting intensification in matching frictions, although probably due only to the simultaneous increase in long-term unemployment and the renewed firms' propensity to post vacancies (see Section 3.2).

55. Even if part of the low ratio between active and passive expenditures is due to the recession.

Figure 18. Average of net replacement rates over the first 60 months of unemployment, 2011

Unweighted average of two income levels and four family situations, excluding social assistance

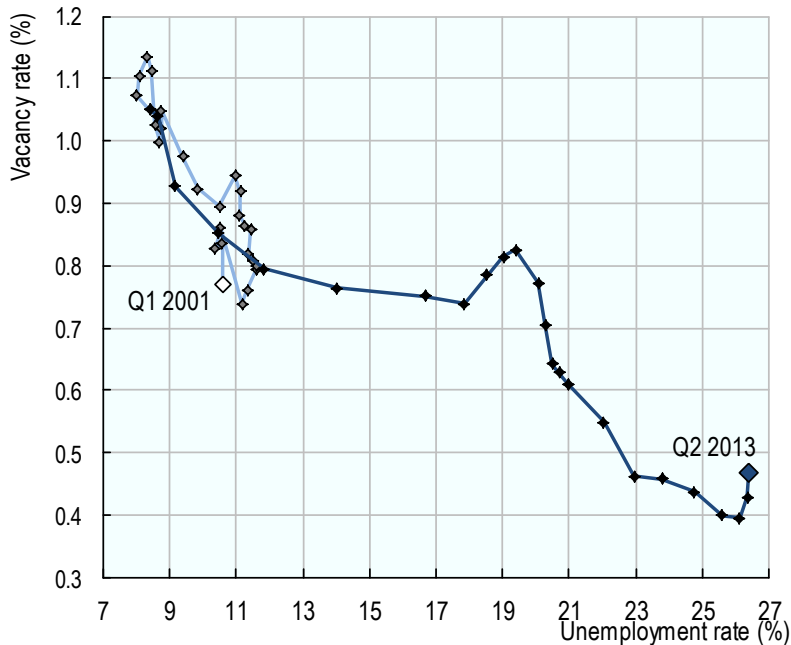


Note: Unweighted averages, for full-time earnings levels of 67% and 100% of the average wage (AW) and four family situations (single persons, couple, with two children and without). Family benefits are included. Any income taxes payable on unemployment benefits are determined in relation to annualised benefit values (i.e. monthly values multiplied by 12) even if the maximum benefit duration is shorter than 12 months. For married couples the percentage of AW relates to the previous earnings of the "unemployed" spouse only; the second spouse is assumed to be "inactive" with no earnings and no recent employment history. Children are aged four and six and neither childcare benefits nor childcare costs are considered.

Source: OECD Tax-Benefits Models.

Figure 19. The Beveridge curve in Spain

Vacancy and unemployment rates as a percentage of the labour force, Q1 2001-Q2 2013



Note: Job vacancy rates refer to the non-agricultural sector. The light blue line corresponds to the period up to 2007 Q4, while the dark blue line corresponds to the period since 2007 Q4.

Source: OECD calculations based on OECD Short-Term Labour Market Statistics Database and Eurostat, Job Vacancy Statistics.

Some improvements have taken place in the domain of activation policies. The strategy for entrepreneurship and youth employment 2013-2016 (*Estrategia de Emprendimiento y el Empleo Joven 2013-2016*) approved in February 2013⁵⁶ includes measures to encourage youth employment, facilitating job-placement in salaried employment as well as the start of entrepreneurship activities. For example, among the measures approved so far, new hiring incentives to employ unemployed youth have been created and a reduced flat rate for social security contributions for young entrepreneurs has been introduced. Moreover, the annual coordination mechanism between central and regional governments (*Plan anual de política de empleo 2013*)⁵⁷ approved in August 2013 has introduced several changes to improve the coordination between national and regional administrations. This agreement states the annual objectives of employment policies in Spain and introduces several evaluation measures of the activities performed by the regional governments. Up to 40% of the funding of active labour market policies of regional governments will be conditional on those evaluation measures. In addition, since August 2013, an individual needs to be registered as unemployed in the regional office and keep this status in order to receive and maintain the right to receive unemployment benefits.

The changes introduced in the domain of active labour market policies go in the right direction, but it remains to be seen whether they are sufficient to be effective, in particular insofar as they fall short of fully integrating active and passive policies. In the context of a prolonged recession, it is very important to focus on improving activation policies to help those unemployed to find jobs. For this, it is crucial to have the right institutional setting with effective employment services. Further in-depth analysis would be required in order to identify the possible weaknesses in the current Spanish system in the delivery and provision of income support and employment services. In particular, it will be important to ensure transparency in the monitoring of the effectiveness of regional active labour market programmes and that there are strong incentives at the local level to follow best practice. This is the case in Switzerland, for example, where cantons work under very clear guidelines and are subject to close scrutiny by the central government (see e.g. Düll et al., 2010, OECD, 2013a).

5. Conclusions and recommendations

The 2012 labour market reform in Spain appears to have been a significant step in the right direction. As the result of it, the Spanish labour market has already shown some signs of increased dynamism and this is likely to bring about lower dualism and faster productivity growth in the medium term. The reform focused primarily on collective bargaining and on dismissal regulations. This report provides a very preliminary assessment of the short-run effects of the reform on labour market performance. This is an important caveat insofar as: i) only a short period has elapsed since the implementation of the reform; ii) Spain is only now showing timid signs of recovery from a long recession; and iii) due to the breadth of the reform, it is difficult to clearly identify a counterfactual to carry out a standard evaluation. As a consequence, further monitoring is required to fully assess the impact of the reform in the medium and long term.

The analysis presented here confirms that, as suggested elsewhere (e.g. Izquierdo *et al.* 2013, Ministerio de Empleo y Seguridad Social, 2013, BBVA, 2013a), the effect of the reform on internal flexibility and collective bargaining has played an important role in the recent contraction of unit labour costs, although protracted adverse cyclical conditions are not alien to this pattern. It is not yet possible to say whether the reform will restore competitiveness over the medium to long term. However, the Spanish economy appears to have made progress in achieving wage moderation, which allows setting jobs in times of crisis, even if continuous monitoring of the effect of the reform in this area is advisable, and the

56. *Real Decreto-ley 4/2013*, full legislative text available at <http://www.boe.es/boe/dias/2013/02/23/pdfs/BOE-A-2013-2030.pdf>.

57. The full legislative text is available at <http://www.boe.es/boe/dias/2013/09/10/pdfs/BOE-A-2013-9464.pdf>.

government must be ready to implement further action if performance worsens. In addition, trends in income inequality should be monitored in order to guarantee that the costs and benefits of the reform are equally shared.

The analysis also shows an effect of the reform on hiring, particularly on permanent contracts, which is most likely the outcome of the relaxation of dismissal regulations. Consistently, the reform appears to have also reduced the duration of unemployment spells, essentially due to faster transitions towards a permanent contract. In addition, there are signs of a fall in the segmentation of the labour market insofar as transitions to permanent jobs have increased in particular for workers entering unemployment after a temporary contract. There is also some evidence of a reduction in separations, particularly for temporary workers, possibly resulting from the application of internal flexibility measures as an alternative to contract termination. Nonetheless, there is also evidence of a negative effect of the reform on collective dismissals, probably due to the increase in procedural uncertainty that initially followed the elimination of the administrative authorisation as well as the increase in the relative direct costs of collective dismissals with respect to individual terminations. In this respect, the government was quick to react with a mini-reform in August 2013 to reduce this uncertainty. It is too early to say whether this intervention will prove sufficient to restore outcome predictability. Yet, the discretionary role of courts to invalidate a collective-dismissal procedure and order reinstatement of workers with backpay remains large, at least on paper.

The increase of new permanent jobs is concentrated in small and medium sized employers, despite the persistent credit crunch, which is likely to affect especially this class of firms, insofar as they are more reliant on bank lending than on equity finance or corporate bonds. The greater burden on collective dismissals can be considered as one of the factors that explain why no increase in hiring is observed for large firms. Nonetheless, two other elements appear to have played a key role in determining the faster growth of open-ended contracts in small firms: i) the extension of the trial period for firms with less than 50 employees, made possible by the introduction of the *contrato de Apoyo a emprendedores*; and ii) the severance-pay subsidy, made available to firms with less than 25 employees in all cases of fair dismissal. The latter is likely to play a greater role after the 2012 reform, insofar as fair economic dismissals have become easier.

The results of the empirical analysis suggest that the reform could have contributed to 25 000 additional new permanent contracts each month and increased the share of permanent jobs in new hires by 3 percentage points. However, the share of temporary contracts in new contracts remains high. Moreover, there is some evidence that incentives to internal flexibility measures have particularly contributed to save the jobs of workers on fixed-term contracts. Thus, these pieces of evidence suggest that it may take some time before these new patterns have a visible impact on the proportion of fixed-term employees in total employment.

Whether or not the 2012 labour reform is sufficient to transform the Spanish labour market into one that combines flexibility with fairness and worker security remains to be seen. Nevertheless, to improve the likelihood that this objective will be attained, the empirical findings presented in this report suggest that further adjustments might be desirable and could be put in place at little social cost.

- First, given the evidence presented in this report, some action as regards regulation for collective dismissals could be taken. Even though it cannot be established whether the August 2013 revision is sufficient to rebalance incentives, a cautious approach would suggest reducing further the discretionary role of courts to invalidate dismissals, restricting it only to cases of discrimination and prohibited grounds – as in the case of individual terminations. In this way, unlawful collective dismissals will be treated – as in most other OECD countries – as any other type of unfair dismissal, thereby restoring the equilibrium between individual and collective dismissals. Moreover, some of the additional, specific costs for employers in the case of

collective dismissals introduced by the reform could be rolled back, notably those contributions linked to the firm's future profitability, which increase uncertainty at the time of starting the dismissal procedure about the effective financial burden to be borne by employers.

- Second, there is evidence that the trial period is still too short for most firms that are not eligible for the *contrato emprendedores*. Firms with 50 to 100 employees, not eligible for this type of contract, have increased their share of permanent contracts since the 2012 reform. However, this increase is entirely due to contract conversions, showing that these employers still tend to use fixed-term contracts as a surrogate for longer trial periods in order to screen new recruits. To the extent that dismissing non-performing or mismatched employees after the expiration of the trial period remains difficult in Spain, the government could therefore consider lengthening the maximum duration of trial periods up to at least the OECD average for firms not covered by the *contrato emprendedores*, particularly in those cases in which this duration is currently much shorter.
- Third, a greater convergence of employers' costs of termination for permanent and temporary contracts would be desirable. This will be already the case by 2015 for firms with less than 25 employees – for fair terminations – due to the severance-pay subsidy in place for these firms and the schedule of increases in severance pay for fixed-term contracts approved in 2010. By that date, for firms within this size class, severance costs borne by the employer for fair terminations at its own initiative will be equalised, no matter whether the contract is open-ended or fixed-term. The government could consider deepening this convergence process by reducing severance pay, and in particular ordinary severance costs for large employers.
- Last but not least, greater integration of active and passive policies is required in order to increase the capacity of the Spanish economy of matching the unemployed with vacancies. In this respect, a careful evaluation of recent reforms in this area is required. In particular, it will be important to ensure transparency in monitoring the effectiveness of regional active labour market programmes and that there are strong incentives to follow best practice. In addition, the introduction of a *Youth Guarantee* scheme as recommended by the European Council earlier this year for all EU countries would also be a welcome step to reduce unemployment and NEET (not in employment or education and training) rates among youth. But this will require ensuring that cost-effective public and private employment services are in place to roll out the guarantee while maintaining a high level of services for all job seekers.

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ANNEX

EMPIRICAL FRAMEWORK AND DETAILED ESTIMATION RESULTS

The evaluation of the 2012 Spanish labour market reform is an arduous task. First, the exercise is performed shortly after the reform. Available data cover at best 18 months in the post-reform period, but sometimes much less. Second, the inclusion of a large number of provisions, sometimes explicitly targeted at different groups, does not allow the identification of a control group. Third, the reform also occurred in the middle of a double-dip recession, at a time when the economic juncture restarted to deteriorate after a short recovery that was so hesitant that never stopped employment levels from falling. This suggests that one of the few available methods to analyse the role of the reform in the recent evolution of the Spanish labour market is through regression-discontinuity models in which the effect of the reform is identified through discontinuous patterns occurring at the time of its enforcement and the business-cycle is modelled through observable controls and non-linear time trends.

The estimation strategy followed in this report identifies the joint effect of all the provisions included in the reform by comparing labour market performance before and after February 2012. The key identification assumption is that, conditional on control variables included in the model, labour market performance evolves in a relatively smooth way, so that any discontinuous jump in performance (conditional on control variables) can be attributed to the labour market reform (and other institutional changes occurring simultaneously). The general regression-discontinuity model, which is estimated on various sets of either quarterly or monthly data, can be written as:

$$P_{it} = Y_i\beta + X_{it}\gamma + \delta I_{t>R} + \sum_{s=1}^5 \lambda_s (t-R)^s + \sum_{s=1}^5 \mu_s I_{t>R} (t-R)^s + D_t + \varepsilon_t \quad (1)$$

where P is a performance variable which can be measured at time t either at the aggregate level or at a more disaggregate level, indexed by i (such as the industry, the establishment or the individual level). Y and X are vectors of aggregate and disaggregate (if relevant) confounding factors, respectively, notably capturing composition effects, while R is the date of the reform,⁵⁸ I is the indicator function (which, in eq. (1) indicates the post-reform dummy), D stands for seasonal (e.g. quarterly or monthly) dummies, and Greek letters stand for parameters to be estimated, except for ε , which represents a standard error term. The parameter of interest is δ . A significant estimate for this parameter suggests a significant impact of the reform. As suggested by Card and Lee (2008), since the identification is based on a time discontinuity, standard errors are always adjusted for clustering at least on time (and, where relevant, also on other dimensions). Moreover, probability weights are also used in order to ensure the relevance of results for the dynamics of the aggregate business sector.

Given the lack of control group and the particular time at which the reform took place (see above), properly isolating the effect of the reform from that of the business-cycle is key for the validity of the smoothness assumption. In order to capture economic fluctuations, the baseline estimation models control for the standardised unemployment rate, changes in employment registered with the general social security regime (at the regional or industry level when microdata are used) and, most importantly, polynomial time trends up to the 5th order. Baseline specifications include a polynomial trend up to the highest order n such

58. As the reform entered into force on February 12th, 2012, R is set at the beginning of 2012 in baseline specifications with quarterly data and at the beginning of March 2012 in those on monthly data (except if differently specified).

that the n -th term is not insignificant. However, except when specified otherwise, the results are robust both to changes in the order of the polynomial and to its exclusion from the specification. When a sufficiently long number of periods is available after the reform, polynomial trends are alternatively included as either homogeneous (same parameters before and after the reform) or heterogeneous (different parameters before and after the reform), the latter represented by the interaction term between I and the time trend in eq. (1). As a robustness check, employment changes are replaced with other – perhaps less endogenous – controls for the business cycle, such as changes in either industry-level value added or industry-level productivity growth (from quarterly national accounts) or the aggregate FEDEA index of economic activity. The FEDEA index is an indicator of economic activity in Spain that measures the economic cycle by using different sources of relevant information (GDP, Economic Sentiment Indicator, industrial production, car sales, electricity consumption and workers affiliated in social security)⁵⁹.

Obviously, misspecification of the empirical model might lead to identify a discontinuous shift in performance around the date of a reform even when this shift occurs before the reform (and cannot therefore be attributed to it). To validate the empirical model, therefore, placebo tests need to be run. These tests consist in setting in the empirical model an earlier date than the actual reform date to estimate possible discontinuities. In practice, this means setting an earlier date R – than the actual reform date – in eq. (1) and re-estimating the equation. If discontinuous shifts in performance are really induced by the reform, then no effect should be found at these anticipated dates. This is indeed the case for all the results presented here, where placebo tests are run by anticipating the date of the reform by up to 3 quarters, in models with quarterly data, or by up to 6 months in models with monthly data.

A second issue concerns possible manipulations around the threshold. For example, if the introduction of the *contrato emprendedores* were anticipated, employers eligible for the subsidy could delay hiring from before to after the reform in order to enjoy the subsidy. However, the details and the breadth of the reform were never mentioned in the programme of the PPE before the November 2011 elections that the party won and was not made public until well after the inaugural address of Prime Minister Rajoy made in front of the parliament at the end of December 2011. It is therefore reasonable to assume that if threshold manipulation occurred, that is if firms postponed certain choices until the approval of the reform, this phenomenon concerned, at worst, only the period January-March 2012. Under these assumptions, threshold manipulation is not an issue in the regressions estimated on quarterly data because the outcome of any firm choice, which was delayed from January to March 2012, is included in the same quarter, with no effect on the average outcome of the quarter. In the case of estimates based on monthly data, baseline models are re-estimated excluding the period from January to March 2012 from the sample as an additional robustness check.

The fact that discontinuous patterns of labour market performance occurring around February 2012 are used to identify the effect of the 2012 reform makes it impossible to distinguish its impact from that of other institutional changes occurring around the same date. In particular, this is the case of the Agreement on Employment and Collective Bargaining 2012-2014, signed by the main business associations and trade unions – CEOE, CEPYME, CCOO and UGT – at the end of January 2012. This agreement promotes internal flexibility, as a mean to preserve employment, as well as commits to wage moderation and the expansion of performance-related pay.

A number of provisions, however, also either entered into force, *de jure* or *de facto*, after the date of approval of the main reform (February 2012) or were modified since then. This makes more difficult to identify unambiguously discontinuous patterns in the data. However, to the extent that the effects of subsequent policy adjustments are likely to go in the same direction of those of the February 2012 reform, results presented here are likely to represent only an underestimate of the true effect. Of course, if the direction of the impact of subsequent policy interventions were different, this argument would be invalid.

59. For further information and methodology, see www.fedea.net/indice/indice-f.html.

This annex presents in detail methodology and empirical results dataset-by-dataset. The first section presents the analysis of the impact of the reform on labour costs, based on data from Spanish Quarterly Labour Cost Survey; the second section looks at hiring rates on the basis of data from the *Encuesta de la Poblacion Activa*; the third section studies new permanent contracts using the monthly statistics on contracts published by SEPE; the fourth examines the differential trends in collective and individual dismissals using the monthly statistics on unemployment benefits published by SEPE; the fifth studies separation rates using the Encuesta de Coyuntura Laboral; and the sixth section examines transitions from unemployment to employment using longitudinal data from the social security register.

Labour costs

Methodology

Unit labour costs measure the average nominal cost of labour per unit of output and are calculated as the ratio of total nominal labour costs to real output. Of particular interest for this report are wage and salary costs: the 2012 reform of collective bargaining is, in fact, expected to reduce the growth rate of nominal wage and salary costs per unit of output in times of crisis. Obviously the evolution of labour costs is strongly affected by the sectoral composition of activities. For this reason the analysis is carried out using data at the industry level (at the 1 digit of the NACE rev. 2 classification), using data from the Spanish Quarterly Labour Cost Survey and Quarterly National Accounts from the first quarter of 2005 to the second quarter of 2013 and focussing mainly on the non-agricultural business sector. However, to the extent that productivity data are not available at the same level of disaggregation (the industry classification used in the quarterly national accounts being slightly more aggregate), the wage and salary component of the harmonised index of labour costs per effective hour worked is used as dependent variable and hourly labour productivity (and/or other variables capturing it) are included as controls. One additional complication stems from seasonality: insofar as labour compensation vary significantly from one quarter to another due to the timing of payment of specific bonuses, only year-on-year changes in the harmonised index of labour costs can be meaningfully analysed. The estimated model, derived from the general one of eq. (1), can be written as

$$\Delta \log LC_{jt} = \beta_u u_t + \beta_\pi \Delta \log \pi_{jt} + \beta_c \Delta \log CPI_t + \Delta X_{jt} \gamma + \sum_{s=1}^5 \lambda_{js} (t-R)^s + \delta I_{t>R} + D_t + D_j + \varepsilon_{it}$$

where LC is the labour cost index in industry j at time t (wage costs per effective hour, adjusted for calendar days but not for seasonality), π is hourly productivity, CPI is the harmonised price index, X is a vector of workforce and job characteristics (the share of open-ended contracts, the share workers with less than one year of tenure, the share of three education categories, the share of four age categories, and the share of women),⁶⁰ u stands for the national-level standardised unemployment rate, R is the date of the reform, I is the indicator function, D stands for quarterly and industry dummies, and Δ denotes year-on-year changes ($t/t-4$). As residuals in this model are inevitably serially-correlated, errors are adjusted for clustering on both time and industry. As the reform is expected to affect the quarterly growth rate of labour costs from the first quarter of 2012, it should affect their year-on-year growth only slowly. Therefore, in contrast with other estimation exercises reported in this annex (see below), R is set at the beginning of the second quarter of 2012 in the baseline specification. Finally, the time trend is included in two alternative ways: in one series of specifications a 5th-order aggregate, homogeneous polynomial trend is included,⁶¹ while in a second series a linear trend is allowed to vary across industries to capture industry heterogeneity in growth patterns. To the extent that only 5 quarters are observed where I is equal 1, the parameters of polynomial trends are not assumed to change over time.

60. These data are from the labour force survey (*Encuesta de la Poblacion Activa*, EPA).

61. The 5th order term is significant in all specifications.

Results

Table A1 presents the key results. In the two baseline models, the impact of the reform on the growth of labour costs, conditional on productivity growth and other controls is estimated between 1.2 and 1.9 percentage points, significant at the 5% statistical level. Similar results are obtained with the following alternative specifications (not reported in the table but available upon request): i) reducing the order of the polynomial trend (or not including any trend); ii) substituting changes in industry-level log productivity with changes in either aggregate productivity or industry-level log employment, or including the latter as an additional covariate;⁶² and iii) estimating the models with seasonally-adjusted data.

Table A1. **The effect of the reform on year growth of labour costs**

Industry-level equations, quarterly data

	Post-reform dummy	Placebo tests		
	Baseline (1)	One quarter before (2)	Two quarters before (3)	Three quarters before (4)
Model:				
5-th order polynomial	-0.019** (0.009)	-0.006 (0.011)	0.020* (0.011)	0.021 (0.013)
Industry-specific trend	-0.012** (0.005)	-0.005 (0.006)	0.004 (0.005)	0.009* (0.005)

Note: The dependent variable is the year-on-year quarterly change of the logarithm of the industry-level wage and salary component of the harmonised labour cost index. Each cell refers to a different specification. Robust standard errors, clustered on time and industry, in parentheses. All equations also control for the unemployment rate, change in log hourly productivity, quarter and industry dummies, changes in the log consumer price index, and changes in the industry composition of the workforce (that is, for each industry, the share of: open-ended contracts, workers with less than one year of tenure, 3 education categories, 4 age categories, and women). The post-reform dummy takes value 1 from the second quarter of 2012. In placebo tests it is replaced with a dummy taking value 1 from the fourth, third and second quarter of 2011 in columns 2, 3 and 4, respectively. ** $p < 0.05$, * $p < 0.1$

Placebo tests are implemented by replacing the post-reform dummy with dummies taking value 1 from the beginning of either the fourth or the third or the second quarter of 2011.⁶³ In all cases, estimates show either an insignificant or a positive and marginally significant effect of the “placebo”, therefore confirming that the estimated effects estimated in baseline models can be attributed to the reform.

Hiring rates

Methodology

Hiring rates are normally defined as new hires in a given period over employment in the same period. The microeconomic equivalent of this concept at the individual level is the probability of having been hired in a period of duration h before the reference week. In other words, one can estimate the effect of the

62. Short-term changes in employment and productivity are typically very strongly negatively correlated, therefore changes in the level of employment can be used to capture variations in productivity, since productivity by industry is not available at a sufficiently disaggregate level (the expected sign of the coefficient of employment is therefore negative). This allows also extending the number of covered industries. In fact, mining, water and electricity and gas are excluded from baseline specifications since productivity data are not available for these industries. When employment is also included in these specifications while already controlling for productivity changes, this is done to better control for possible worker selection.

63. Since the first quarter of 2012 is the quarter when the reform was implemented, a placebo test setting the placebo-reform dummy equal to 1 since the start of that quarter cannot be easily interpreted and is therefore not reported.

reform on the hiring rate by estimating its impact on the probability that an employee has tenure shorter than h . The following regression discontinuity model is estimated on individual quarterly data from the labour force survey (*Encuesta de la Población Activa*, EPA, cross-sectional file with a 2-digit industry classification) from the first quarter of 2008 to the second quarter of 2013:⁶⁴

$$H_{ijt} = \beta_u \log u_t + \beta_e \Delta \log E_{jt} + X_{ijt} \gamma + \sum_{s=1}^5 \lambda_s (t - R)^s + \delta I_{t > R} + D_t + \varepsilon_{ijt} \quad (2)$$

where H is an indicator variable taking value 1 if the individual i in region j has job tenure lower or equal to 3 months at time t . H refers alternatively to all hires, hires on permanent contracts and hires on temporary contracts. The sample is restricted to all wage and salary employees in the non-agricultural business sector. As far as control variables are concerned, u is the quarterly standardised unemployment rate, E is regional employment, X is a vector of individual characteristics (70 2-digit industry dummies, gender, 10 age categories, 7 education categories, 10 occupational categories, and dummies for being non-native, having multiple jobs and having changed municipality in the last year).⁶⁵ Finally, as in eq. (1), R is the date of the reform (set at the first quarter of 2012), I is the indicator function, D stands for quarterly dummies, Δ denotes changes and Greek letters stand for parameters to be estimated, except for ε , which represents a standard error term. Finally, a 4th-order aggregate homogeneous polynomial trend is included,⁶⁶ in baseline specifications. To the extent that only 6 quarters are in the post-reform sample, the parameters of the polynomial trends are not assumed to change over time.

Results

Baseline estimates, reported in Table A2 suggest that the 2012 reform increased the hiring rate – measured as the proportion of employees with 3 month of tenure or less – by about 8% (that is a percentage-point marginal effect of 0.64 percentage points). With a 13% increase (corresponding to a percentage-point marginal effect of 0.14 percentage points), the estimated percentage effect is larger in the case of hiring on open-ended contracts. Very similar results – in percentage terms – are obtained if the sample is restricted to employees with an open-ended contract only. A somewhat stronger effect is estimated in the case of hiring on open-ended full-time contracts – 18% increase – corresponding to a percentage-point marginal effect of 0.16 percentage points). By contrast, the estimated percentage effect is much smaller in the case of hiring on temporary contracts, with a 7% increase (corresponding to a percentage-point marginal effect of 0.5 percentage points).

All the results presented in Table A2 are robust to i) specifying eq. (2) as a probit model instead of a linear probability model; ii) increasing the order of the polynomial trend⁶⁷ (or not including any trend);⁶⁸ iii) substituting changes in regional employment with, alternatively, changes in industry real value added or changes in unemployment rates; and iv) excluding all aggregate controls except polynomial time trends from the specification. By contrast, the only exception is the result on hiring on fixed-term contract, which is not robust to the exclusion of the polynomial trend.

64. The sample is limited to this period due to the change in industry classification that occurred between 2007 and 2008.

65. All individual data are from EPA.

66. The 4-th order term is significant in all specifications.

67. Although higher-order terms turn out to be statistically insignificant.

68. However, if a lower-order polynomial trend is included, the effect of the reform on the hiring rate of permanent workers is insignificant, although still positive.

Table A2. The effect of the reform on the probability of having tenure shorter than three months

Individual-level equations, quarterly data					
Dependent variable	(1) Hired	(2) Hired, permanent	(3) Hired, permanent	(4) Hired, full-time, Permanent	(5) Hired, fixed-term
Post-reform dummy	0.00646*** (0.00185)	0.00135** (0.00061)	0.00183** (0.00080)	0.00156** (0.00062)	0.00511** (0.00192)
Sample restricted to perm. workers	No	No	Yes	No	No
Observations	712,393	712,393	551,429	712,393	712,393
R-squared	0.066	0.004	0.012	0.004	0.067

Note: Hired stands for a dummy indicating that the worker has been hired in the three months preceding the reference week. Robust standard errors, clustered on time, in parentheses. All equations control for the unemployment rate, change in regional employment, quarterly dummies, a 4th order polynomial in time (quarters), 70 2-digit industry dummies, gender, 10 age categories, 7 education categories, 10 occupational categories, and dummies for being non-native, having multiple jobs and having changed municipality in the last year. *** p<0.01, ** p<0.05.

Placebo tests are then run for all specifications by “anticipating” the date of the reform by up to 3 quarters (Table A3). None of the placebo effect is significantly positive. However for both total hiring and, in particular, hiring on temporary contracts, placebo effects are significantly negative. This suggests some possible misspecification of the business-cycle component, so that the attribution of the increase in hiring on temporary contract to a genuine effect of the reform must be considered more uncertain.

Table A3. The effect of different placebos on the probability of having tenure shorter than three months

Individual-level equations, quarterly data					
Dependent variable	(1) Hired	(2) Hired, permanent	(3) Hired, permanent	(4) Hired, full-time, Permanent	(5) Hired, fixed-term
Placebo:					
1 quarter before	-0.00073 (0.00332)	0.00028 (0.00086)	0.00041 (0.00114)	0.00063 (0.00084)	-0.00101 (0.00293)
2 quarters before	-0.00447** (0.00200)	0.00028 (0.00078)	0.00028 (0.00102)	0.00058 (0.00074)	-0.00474*** (0.00140)
3 quarters before	-0.00615*** (0.00156)	-0.00142* (0.00077)	-0.00192* (0.00104)	-0.00122 (0.00086)	-0.00473*** (0.00152)
Sample restricted to perm. workers	No	No	Yes	No	No

Note: Hired stands for a dummy indicating that the worker has been hired in the three months preceding the reference week. Each cell refers to a different specification. Robust standard errors, clustered on time, in parentheses. All equations control for the unemployment rate, change in regional employment, quarterly dummies, a 4th order polynomial in time (quarters), 70 2-digit industry dummies, gender, 10 age categories, 7 education categories, 10 occupational categories, and dummies for being non-native, having multiple jobs and having changed municipality in the last year. *** p<0.01, ** p<0.05, * p<0.1

New permanent contracts

The monthly statistics on contracts, published by SEPE, allows replicating and deepening the analysis of hiring on permanent contracts. In fact, while EPA covers a sample of few tenth of thousands employees and is available only at the quarterly base, contract statistics are published monthly and are based on compulsory administrative declarations from all employers and therefore cover the entire population. In

addition a breakdown of new contracts is available by firm size, which is important given that certain provisions of the 2012 reform are applicable only to firms below a certain size threshold.

Methodology

In order to assess the impact of the reform on hiring on permanent contract, the following class of regression-discontinuity models is estimated, using on aggregate monthly data for the period January 2006–July 2013:

$$\log NP_t = \beta_u u_t + \beta_d \Delta u_t + X_t \gamma + \sum_{s=1}^5 \lambda_s (t - R)^s + \delta I_{t>R} + \sum_{s=1}^5 \mu_s I_{t>R} (t - R)^s + D_t + \varepsilon_t \quad (3)$$

where NP is the number of new permanent contracts at time t , u is the monthly standardised unemployment rate, X is a vector of variables capturing workforce composition of new hires (shares of 3 education categories, 5 age categories and women), R is the date of the reform, I is the indicator function, D stands for monthly dummies, Δ denotes changes and Greek letters stand for parameters to be estimated. All data are from the monthly statistics on contracts published by SEPE, except for the unemployment rate. As the identification is based on a time discontinuity, standard errors are adjusted for clustering on time. Finally, a 5th-order aggregate polynomial trend is included, in baseline specifications.⁶⁹ Since 18 observations are available in the post-reform period, the time trend is alternatively specified as homogeneous (same parameters before and after the reform) and heterogeneous (different parameters before and after the reform).

Eq. (3) is estimated for the whole economy and then separately for firms above and below the threshold of 50 employees (since only firms below the threshold are eligible for the *contrato emprendedores* introduced by the reform). Then, both groups of firms (above and below this threshold) are divided further into those with size above and below 25 employees and those of size above and below 100 employees.

Results

As shown in Table A4, the 2012 reform increased hiring on regular open-ended contracts by 20%-30%. If firms are split in two subsamples – those with 50 or fewer employees and those with more than 50, no significant increase is observed for the largest firms. By contrast, no matter how the time trend is specified, the reform is estimated to have increased the number of new contracts by about 42%, and this estimated impact is always significant at the 1% level. For these two groups of firms the predicted effect of the reform is plotted in Figures A1 and A2. For firms with 50 or fewer employees, the baseline model with homogeneous time trend predicts that the reform raised the number of new open-ended contracts by at least 25 000 units, while no effect is detectable for larger firms. These trends are also reflected in the evolution of the share of regular open-ended contracts in total hiring, which is estimated to have been raised by about 3 percentage points (or about 30%) in firms with 50 or fewer employees, while no significant effect emerges for larger firms.⁷⁰

69. The 5-th order term is significant in all specifications.

70. These figures (not shown in the table) are obtained by replacing the log of the number of new contracts with the share of permanent contracts in new hires in eq. (3). All results presented here are robust if the share of regular open-ended contracts in total hiring is used as dependent variable instead of the number of open-ended contracts.

Table A4. The effect of the reform on new permanent contracts

Panel A. Homogeneous trend, monthly data							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample (firm size)	All	1to50	>50	1to25	26to50	51to100	>100
Post-reform dummy	0.217* (0.124)	0.421*** (0.110)	0.132 (0.084)	0.463*** (0.109)	0.281*** (0.095)	0.231** (0.103)	0.067 (0.080)
Observations	91	91	91	91	91	91	91
R-squared	0.957	0.949	0.970	0.946	0.959	0.953	0.972

Panel B. Heterogeneous trend							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample (firm size)	All	1to50	>50	1to25	26to50	51to100	>100
Post-reform dummy	0.334*** (0.108)	0.424*** (0.101)	0.150 (0.116)	0.456*** (0.0942)	0.266* (0.136)	0.286** (0.117)	0.099 (0.127)
Observations	91	91	91	91	91	91	91
R-squared	0.965	0.959	0.971	0.956	0.966	0.960	0.973

Note: Dependent variable: logarithm of new open-ended contracts. Robust standard errors, clustered on time, in parentheses. Each equation includes level and changes in the standardised unemployment rate, the shares of 3 education categories, 5 age categories and women in new contracts and a 5-th order polynomial trend in time (months), which in Panel B is assumed to differ between before and after the reform. *** p<0.01, ** p<0.05, * p<0.1

When the data are further disaggregated by firm size, the greatest estimated expansion in the number of new permanent contracts induced by the reform is found in very small firms with 25 employees or less (45%-46%; see Table A4). In firms between 26 and 100 employees the effect is somewhat more limited. The reform is estimated to have raised the number of new permanent contracts by 26%-28% in firms with 26 to 50 employees and by 23%-28% in firms with 51 to 100 employees. By contrast, no significant effect is observed for larger firms.⁷¹

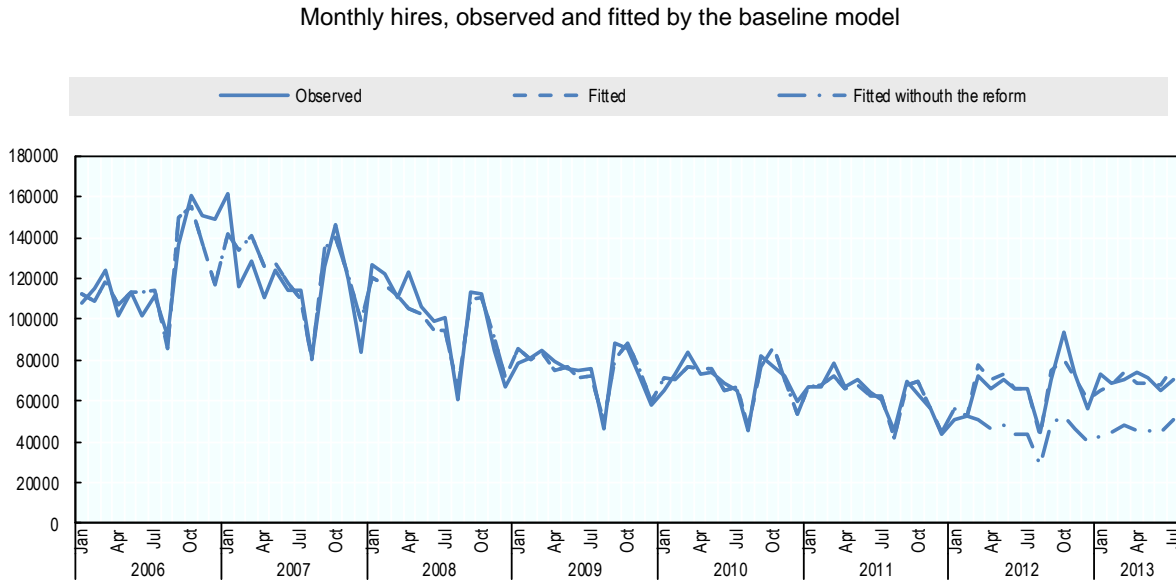
All the results presented in Table A4 are robust to i) changing the order of the polynomial trend (or not including any trend); ii) excluding workforce controls; iii) substituting polynomial trends with year dummies; iv) substituting changes in the unemployment rate with either changes in the FEDEA index or the logarithm of employment as measured by the number of workers enrolled in the general social security regime; and v) excluding all aggregate controls except polynomial time trends from the specification.

Placebo tests are then run for all specifications by “anticipating” the date of the reform by up to 6 months. Table A5 presents the results for the case of homogenous time trends. Results are however similar in the case of heterogeneous trends and/or if changes in the unemployment rate are replaced by

71. No matter how the time trend is specified, the effect on firms with 25 employees or less appears also significantly larger than that of firms with 26 to 50 employees. Similarly the effect on firms with more than 100 employees appears significantly smaller than that of 51 to 100 employees. By contrast, the difference in the estimated impact between firms with 26 to 50 employees and 51 to 100 employees is statistically insignificant at conventional levels.

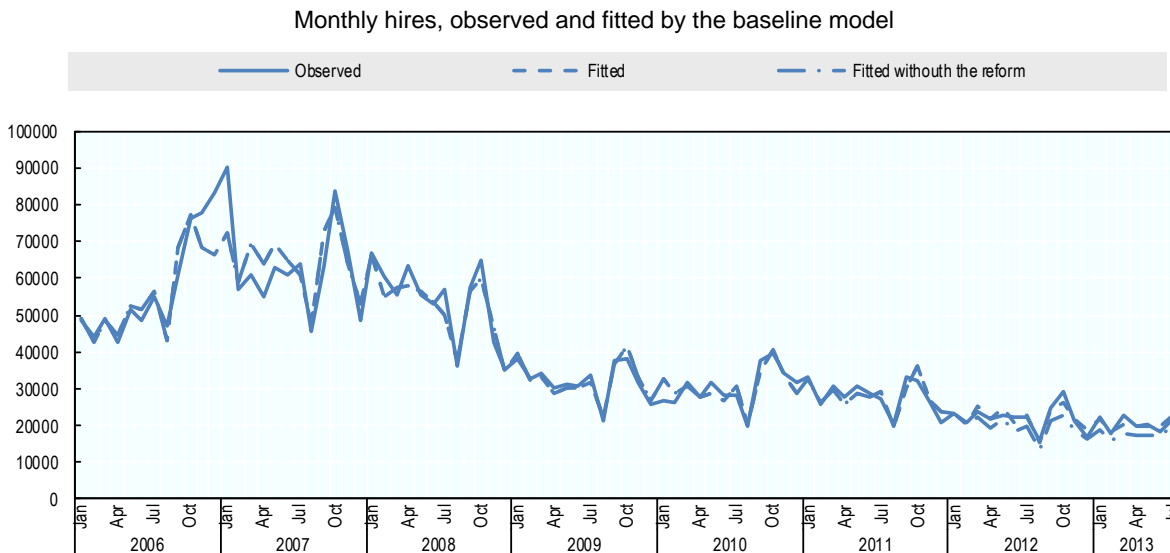
changes in the FEDEA index. In all cases where a significant effect of the reform is estimated with eq. (3), placebo tests show no significant effect if the date of the reform is set at the beginning of January 2012 or before. This suggests that the estimated effects in Table A4 can be genuinely attributed to the reform.

Figure A1. **New hires with a permanent contract in firms with 50 or fewer employees, 2006-2013**



Note: The figure presents the number of new permanent contracts signed each month, as observed in raw data and as fitted using estimates of Table A4, Column 2 (including netting out the effect of the post-reform dummy).

Figure A2. **New hires with a permanent contract in firms with more than 50 employees, 2006-2013**



Note: The figure presents the number of new permanent contracts signed each month, as observed in raw data and as fitted using estimates of Table A4, Column 3 (including netting out the effect of the post-reform dummy).

Table A5. The effect of different placebos on new permanent contracts

Homogeneous trend, monthly data							
Sample (firm size)	(1) All	(2) 1to50	(3) >50	(4) 1to25	(5) 26to50	(6) 51to100	(7) >100
Placebo:							
Placebo-reform Jan 12	-0.030 (0.090)	0.034 (0.110)	0.066 (0.084)	0.043 (0.112)	0.004 (0.118)	-0.008 (0.113)	0.070 (0.089)
Placebo-reform Dec 11	-0.061 (0.090)	-0.044 (0.101)	-0.049 (0.089)	-0.046 (0.099)	-0.104 (0.114)	-0.155 (0.105)	-0.016 (0.084)
Placebo-reform Aug 11	-0.119 (0.090)	-0.135 (0.084)	-0.123 (0.081)	-0.146* (0.079)	-0.135 (0.122)	-0.193* (0.107)	-0.061 (0.069)

Note: Dependent variable: logarithm of new open-ended contracts. Each cell refers to a different specification. Robust standard errors, clustered on time, in parentheses. Each equation includes level and changes in the standardised unemployment rate, the shares of 3 education categories, 5 age categories and women in new contracts and a 5-th order polynomial time trend, which in Panel B is assumed to differ between before and after the reform. * p<0.1

A breakdown by type of transition is also available in the data, which allows estimating eq. (3) separately for new employment relationships and conversions of temporary contracts into open-ended ones (Table A6).

Table A6. The effect of the reform on new permanent contracts, by type of transition

Panel A. Conversions							
Sample (firm size)	(1) All	(2) 1to50	(3) >50	(4) 1to25	(5) 26to50	(6) 51to100	(7) >100
Post-reform dummy	0.159 (0.182)	0.306* (0.163)	0.213* (0.123)	0.325** (0.162)	0.266* (0.136)	0.387** (0.161)	0.121 (0.102)
Observations	91	91	91	91	91	91	91
R-squared	0.925	0.924	0.921	0.919	0.931	0.907	0.924

Panel B. New employment relationships							
Sample (firm size)	(1) All	(2) 1to50	(3) >50	(4) 1to25	(5) 26to50	(6) 51to100	(7) >100
Post-reform dummy	0.240*** (0.090)	0.498*** (0.098)	0.046 (0.075)	0.562*** (0.103)	0.267*** (0.058)	0.041 (0.072)	0.012 (0.083)
Observations	91	91	91	91	91	91	91
R-squared	0.972	0.963	0.982	0.957	0.976	0.975	0.979

Note: Dependent variable: logarithm of new open-ended contracts, by type, estimated on monthly data. Robust standard errors, clustered on time, in parentheses. Each equation includes level and changes in the standardised unemployment rate, the shares of 3 education categories, 5 age categories and women in new contracts and a 5-th order, homogeneous polynomial time trend, which in Panel B is assumed to differ between before and after the reform. *** p<0.01, ** p<0.05, * p<0.1

As far as conversions are concerned the effect of the reform is the greatest for firms with 51 to 100 employees (with a 39% estimated increase) followed by those with 1 to 25 employees (32% increase). However, while for the latter the estimated increase in new open-ended employment relationships is much

larger (56% increase), there is essentially no effect on these for the former. As regards firms with 26 to 50 employees the effect of the reform appears similar on both conversions and new open-ended employment relationships (about 27% in both cases), although less precisely estimated for the former.⁷²

Collective and individual dismissals

Inflows onto unemployment benefits, by reason of inflow, are a reliable source of data to distinguish the effect of the 2012 reform on individual and collective dismissals.⁷³

Methodology

The same class of regression-discontinuity models used in the previous section for new contracts (eq. 3) can be used to estimate the impact of the reform on the number of individual and collective dismissals, using on aggregate monthly data (January 2007-July 2013). Three differences are however in order: i) the dependent variable in this case will be replaced by either the logarithm of monthly inflows onto unemployment benefits due to, alternatively, collective or individual dismissals or the share of inflows due to collective dismissals in total inflows due to dismissals; ii) the logarithm of inflows due to other reasons than that those measured in the dependent variable replaces changes in the unemployment rate (since the former seems more appropriate in this case); and iii) to the extent that this model is used to study mainly collective dismissals and at least one-month consultations with trade-unions are required by post-reform regulations in the case of collective dismissals, the post-reform dummy takes value one only one-month after the reform (therefore taking value 1 from April 2012).⁷⁴ All data are from the monthly statistics on unemployment benefits (*Prestaciones por desempleo*) published by SEPE. Inflows by dismissal exclude those resulting from conciliation settlements, court rulings or contract suspensions, but include those ex ley 45/2002 (individual dismissals for which benefits are claimed before that a court can rule whether the dismissal is fair or unfair). Inflows data considered here are limited to workers who are eligible to standard unemployment benefits because of sufficient previous contributions and contribution periods (*Prestaciones de nivel contributivo*). They exclude, therefore, workers eligible only for other type of unemployment-related subsidies (*Prestaciones de nivel asistencial*). Since published data do not contain a breakdown of inflows by workers' characteristics, these controls are not included. As the identification is based on a time discontinuity, standard errors are adjusted for clustering on time.

In order to capture the business-cycle (over and above levels of the unemployment rate and other inflows onto unemployment benefits), models of the type of eq. (3) include a polynomial trend up to 5th order, which can be either homogeneous (same parameters before and after the reform) or heterogeneous (different parameters before and after the reform) depending on the specification. The baseline specification includes a homogeneous polynomial trend up to the highest order n such that the n -th term is not insignificant (in practice, the 2nd order in the case of the number of collective dismissals, the 3rd order in the case of its share and the 5th order in the case of individual dismissals).

Results

Taking baseline estimates with homogeneous trends at face value, the 2012 reform is estimated to have reduced inflows onto unemployment benefits for reasons of collective dismissals by about 32%

-
72. Similar estimates are obtained by using heterogeneous trends and/or replacing changes in unemployment with changes in the FEDEA index.
73. However, it must be kept in mind that available data are limited to workers who have sufficiently long contribution histories to be eligible for unemployment benefits.
74. This seems appropriate to minimise the risk of counting as subsequent to the reform dismissals that were originated by a collective-dismissal procedure which in fact started before the reform.

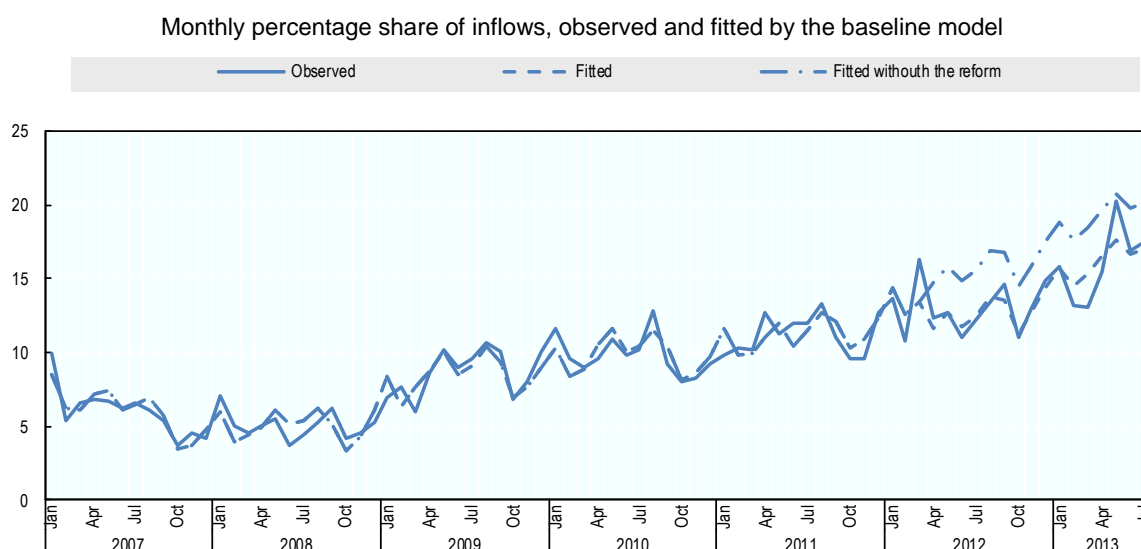
(Table A7). By contrast, individual dismissals decreased by about 6% only. Moreover, this effect is significant only at the 10% level. Results are similar with heterogeneous trends (not shown in the table). This evolution is reflected in the estimated effect of the share of collective dismissals in total dismissals (see also Figure A3). In fact, the reform is estimated to have reduced this share by about 3.1 percentage points (that is about 30%).

Table A7. The effect of the reform on inflows onto unemployment benefits due to dismissal

Monthly data, homogeneous trends			
Dependent Variable	(1) Log Collective dismissals	(2) Log Individual dismissals	(3) Share Collective dismissals
Post-reform dummy	-0.316*** (0.084)	-0.060* (0.035)	-3.146*** (0.856)
Observations	79	79	79
R-squared	0.948	0.964	0.928

Note: Dependent variable: Columns 1 and 2: logarithm of inflows onto unemployment benefits for the reason indicated in the column title; Column 3: share of collective dismissals in inflows due to any type of dismissal. All equations control for the unemployment rate, a polynomial trend in time (months) and inflows in unemployment benefits for reasons different from those reported in the column title. A 2nd-order polynomial is included in Column 1, a 5th-order polynomial in Column 2 and 3rd-order polynomial in Column 3. Robust standard errors, clustered on time, in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure A3. Share of inflows onto unemployment benefits due to collective dismissal in total inflows due to dismissal, 2007-2013

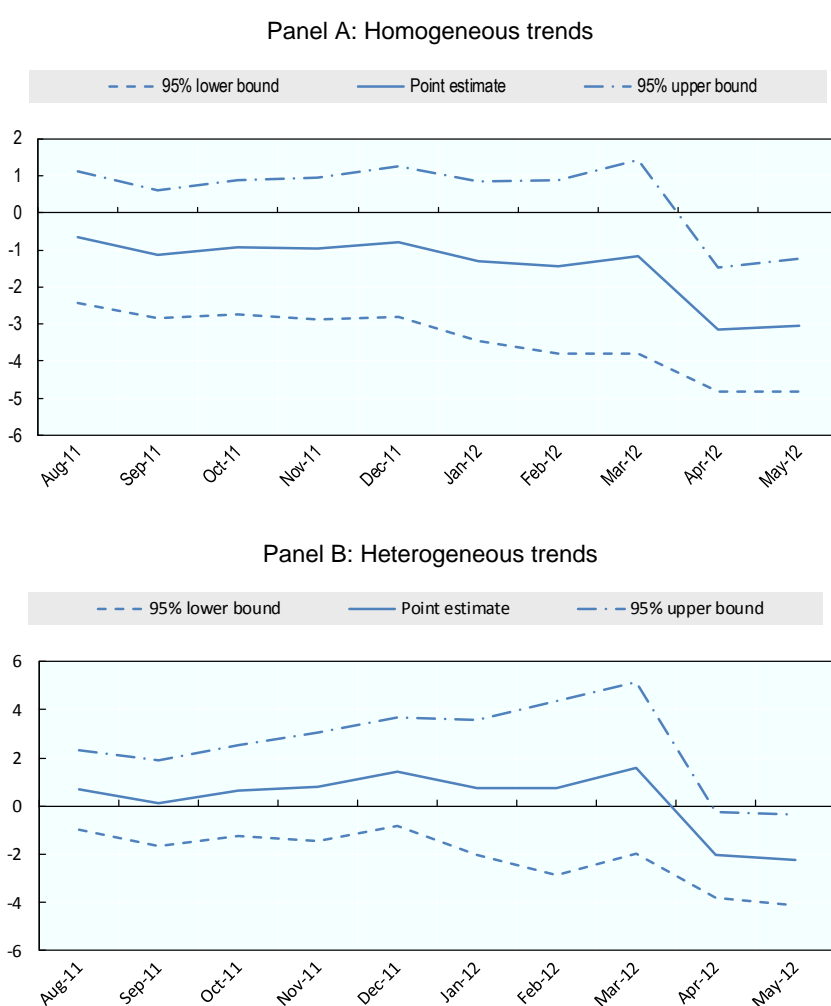


Note: The figure presents the monthly percentage share of inflows in unemployment benefits due to collective dismissal in total inflows due to dismissal, as observed in raw data and as fitted using estimates of Table A7, Column 3 (including netting out the effect of the post-reform dummy)..

Results on collective dismissals are robust to i) substituting homogeneous trends with heterogeneous trends; ii) changing the order of the polynomial trend (or not including any trend);⁷⁵ and iii) replacing changes in the unemployment rate with changes in the FEDEA index. By contrast, results on individual dismissals are sensitive to the specification of the polynomial trend. In fact, if a 2nd or 3rd-order polynomial is specified, the point estimate is even positive, although insignificant.

Placebo tests are then run for all specifications by “anticipating” the date of the reform by up to 6 months. Figure A4 presents the results for the share of collective dismissals. It turns out that if the the date of the “placebo-reform” is set even one single month before, its estimated effect would be insignificant, no matter whether the trend is modelled as homogeneous or heterogeneous. This suggests that the estimated effects in Table A4 can be genuinely attributed to the reform.

Figure A4. **The effect of different placebos on the share of inflows onto unemployment benefits due to collective dismissals**



Note: The figure reports estimated coefficients and confidence interval obtained by estimating the specification reported in Table A7, Column 3, substituting the post-reform dummy with a dummy taking value 1 from the indicated dates. Apr-12 corresponds to the estimated effect of the true reform (measured through the coefficient of the post-reform dummy).

75. However, the effect on the share of collective dismissals become insignificant is no trend (or a linear, homogeneous trend) is included.

Worker separations at the establishment level

Methodology

Worker separations at the establishment level are analysed using the *Encuesta de Coyuntura Laboral* (ECL), an establishment-level⁷⁶ survey that follows establishments over time and registers its worker flows. Around 12,800 establishments are surveyed each quarter. This sample is representative of all establishments in the private sector and covers all workers registered in the General Regime of the Spanish Social Security Register (as well as those in the Special Mining Regime).

Separation rates at the establishment level are defined as the number of separations in each quarter divided by the average of total employment between the start and the end of the period at each establishment. Separation rates are computed both for full-time and part-time employment, and distinguishing between those separations that are due to end of contract for temporary workers, due to dismissals of permanent workers, due to end of season for seasonal workers with an open-ended contract – “*fijos discontinuos*” – and due to other reasons (including retirements, voluntary separations, deaths, etc.).⁷⁷

The following regression discontinuity model is estimated on quarterly establishment-level data from ECL for the period 2006 to 2012, for which micro data are available:

$$SR_{jt} = \alpha \log u_t + \beta \Delta \log E_{jt} + F_{jt} \gamma + \sum_{s=1}^5 \lambda_s (t - R)^s + \delta I_{t>R} + Q_t + \mu_j + \varepsilon_{jt} \quad (4)$$

where SR corresponds to the separation rate of the establishment j in quarter t . SR refers alternatively to separation rates of all workers, of full-time/part-time as well as separation rates due to end of contract, dismissals, end of season and other reasons. The sample is restricted to all establishments in the private sector with at least ten workers on average for the whole period they are observed in the data. The estimation has as cyclical controls the quarterly standardised unemployment rate at the national level (u) and the change in employment level (in logs) at the regional level ($\Delta \log E$). In addition, several establishment characteristics F are included: industry, establishment size, region as well as average age and qualification structure in each sector in the region (extracted from LFS data). R is the date of the reform, I is the indicator function, Q stands for quarterly dummies, and Δ denotes changes. Greek letters stand for parameters to be estimated, except for ε which represents a standard error term. The standardised unemployment rate is from OECD labour market statistics, while regional employment is measured by the number of workers enrolled in the general social security regime. Establishment fixed-effects μ are included in fixed-effects regressions. As the identification is based on a time discontinuity, standard errors are adjusted for clustering on time.

An additional variable is added to control for the share of permanent (and temporary) contracts in the establishment, which is important when differentiating between types of separations. The results are robust to the inclusion of this variable.

76. The unit of observation is the social security account number (*Cuenta de Cotización*), which is unique for each firm at the provincial level. It does not correspond exactly to the plant or the firm level (as those firms established in different provinces are not linked), although for a matter of simplicity we will refer to each social security accounting unit as an “establishment”, hereafter. For each *Cuenta de Cotización*, it is possible to identify if the account corresponds to establishments with only one or several plants in the same province. Almost 90% of the observations have only one plant.

77. The separation rate of each type of workers (full/part-time, etc) is defined as the ratio between the number of separations of each type of workers divided by the average of total employment between the start and the end of the period at the establishment.

The estimation of equation (4) is performed using ordinary least squares as well as fixed-effect models⁷⁸ for all establishments in the private sector with more than 10 employees. The equation is also estimated for small establishments with less than 50 employees only, with similar results. Results shown include a polynomial time trend up to the 5th order but are robust to changing the order of the polynomial time trend.

Results

The baseline results (see results in Table A8) suggest that the 2012 reform significantly reduced the share of workers leaving the establishment in a given quarter. The estimated coefficient for the overall separation rate implies that the reform reduced overall separation rates by about 24%, although the exact point estimates differ slightly depending on the specification. The effect of the reform has been particularly sizeable for part-time workers (for which separation rates are 41% lower due to the reform).

Table A8. The effect of the reform on separation rates at the establishment level

Quarterly data				
	Post-reform dummy	Placebo tests		
	Baseline	One quarter before reform	Two quarters before reform	Three quarters before reform
	(1)	(2)	(3)	(4)
Separation rates:				
Overall	-0.018*** (0.006)	-0.010* (0.006)	0.005 (0.006)	0.006 (0.005)
Full-time	-0.006* (0.003)	-0.004 (0.003)	0 (0.004)	0.003 (0.003)
Part-time	-0.010** (0.004)	-0.007 (0.005)	0.008 (0.005)	0.005 (0.004)
End of Contract	-0.016** (0.006)	-0.016** (0.008)	0.017** (0.008)	0.013* (0.006)
Dismissal	-0.002 (0.001)	-0.002** (0.001)	-0.001 (0.001)	0.002* (0.001)
End of Season	-0.009** (0.004)	-0.008 (0.005)	0.013*** (0.004)	0.009** (0.004)
Other	0.001 (0.002)	0.003** (0.001)	0 (0.002)	-0.002 (0.001)

Note: Each cell corresponds to the OLS coefficient of the post-reform (or the placebo test) dummy from a regression with each separation rate as dependent variable. All equations control for the unemployment rate, change in regional employment, a 5th order polynomial in time (quarters), establishment size, quarterly dummies, age and education composition of the establishment workforce and region and sector dummies. Robust standard errors, clustered on time in parentheses. ***, **, *: significant at the 1%, 5% and 10% level, respectively.

In addition, establishment-level data allows disaggregating flows by contract type and reason of separation. The results point to a significant impact of the reform on separation rates due to the end of contract for temporary workers (for which separation rates decreased by 31%) and for seasonal workers

78. Alternatively, the estimation of equation (4) using a Tobit model is performed and similar results as OLS are found. In addition, substituting separation rates by the log of the absolute value of separations does not modify the results significantly.

(71% decrease), but show no impact on dismissal rates and separations for other reasons. An impact of the reform decreasing separation rates is still found when controlling for individual establishment effects, although the effect is not significant (not shown in the table), suggesting that the reform affected separation rates mainly by changing the composition of establishments.

Placebo tests are run for all the estimations by “anticipating” the date of the reform for up to 3 quarters. This is equivalent to substituting the date of the reform R by an earlier date and re-estimating the equation (4). The coefficient of the placebo reform, when the its date is set just one quarter before the true reform, is still negative and significant at the 5% for the separation rate due to the end of contract for temporary workers, suggesting caution in the interpretation of the baseline estimates as regards this covariate. Other placebo tests corresponding to two and three quarters before the reform show no significant effect for all the estimations, except for a positive and significant one in the cases of end of contract and end of season, which again suggests caution in interpreting the baseline results concerning these variables.

An additional robustness test has been undertaken by replacing the change in log regional employment ($\Delta \log E$) by the FEDEA index of economic activity. The results are not sensitive to using one or the other indicator of the economic cycle.

Transitions from unemployment to employment

Methodology

Transitions from unemployment to employment are analysed using the *Muestra Continua de Vidas Laborales* (MCVL). This longitudinal dataset from social security registers covers employment histories of over one million individuals, making it a very good data source to study worker transitions out of unemployment. The MCVL covers around one in twenty persons registered in the social security and is representative of the whole population that had a relationship with social security in a given year⁷⁹. These data are used to study the impact of the reform on the hazard rate out of unemployment using a discrete-time competing-risk duration model. The empirical strategy followed is similar to the one followed in García-Pérez and Muñoz-Bullón (2011).

The probability of exiting unemployment after a spell of duration d to enter either temporary employment or permanent employment is simultaneously estimated for the two types of exits within a competing-risk framework. Both possible transitions are modelled using a logistic distribution as given by:

$$\begin{aligned} \Pr(U_{it} = d, L_{it} | U_{it} \geq d) = & \\ & F(\alpha_0 + \alpha_1 \ln(U_{it}) + \alpha_2 \ln(U_{it})^2 + \alpha_3 \ln(U_{it})^3 + \alpha_4 X_{1it} + \alpha_5 X_{2it} + \alpha_6 X_{1it} * \ln(U_{it}) + \\ & + \alpha_7 \text{PrevEmpl}_{it} + \gamma \log u_t + \beta_1 \Delta \log E_{jt} + \beta_2 \Delta \log E_{jt} * \ln(U_{it}) + \sum_{s=1}^3 \lambda_s (t - R)^s + \delta I_{t > R} + m_t) \end{aligned} \quad (5)$$

where U refers to the duration of the unemployment spell, which ends at time t for the worker i , L is after-transition employment contract-type (permanent or temporary) and X_1 refers to the following individual characteristics: age and education categories and an indicator of whether the individual receives unemployment benefits or not. These are also included in interaction with the duration of the unemployment spell. X_2 stands for controls for gender, migrant status and region, while *PrevEmpl* for characteristics of the previous job (sector, type of contract, and if the individual was dismissed or not) as

79. See García-Pérez (2008) for further details on the MCVL data and its usefulness to study labour market transitions.

well as the number of times the individual has been unemployed and the percentage of time he has been employed throughout his labour market career. Specifications include also as cyclical controls the monthly unemployment rate at the national level (u) and the change in log employment at the provincial level ($\Delta \log E$). However, in order to capture the business-cycle (over and above control variables), models of the type of eq. (5) include a polynomial trend up to the highest order n such that the n -th term is not insignificant (in practice, the 3rd order or 5th order depending on the specification). Finally, R is the date of the reform, I is the indicator function, m stands for monthly dummies, and Δ denotes changes. Greek letters stand for parameters to be estimated. In order to distinguish the estimated impact of the reform between large and small establishments (to capture threshold effects) a four-fold competing-risk model is also estimated, with four possible exiting states (permanent/temporary in large/small establishments).⁸⁰

Equation (5) is estimated for a sample of Spanish workers aged 16-64 during the period 2003-2012 (2006-2012 for the subsample differentiating by establishment size). Transitions from unemployment to employment are conditional on being unemployed for at least one day and durations are censored at 30 months of unemployment – that is, those spells lasting more than 30 months are considered to be censored at the 30th month.

Results

The baseline results for the transitions from unemployment to employment (shown in Table A9) indicate that the 2012 reform increased significantly the probability of leaving unemployment and entering employment for any unemployment duration. The effect of the reform is significant as regards the probability for the unemployed of being hired on a permanent contract, which has increased by 24%, on average, during the first 6 months in unemployment where most transitions occur, although this probability remains very small in absolute terms. The effect of the reform on the probability to exit from unemployment into permanent employment is more sizeable for those being unemployed for less than 7 months than for those unemployed between 7 and 13 months or more than 13 months (Figure A5).

The reform seems to have increased as well the probability of leaving unemployment and entering temporary employment, although the effect is not significant in most specifications.⁸¹ Thus, for unemployment durations no longer than 6 months, the reform appears to have raised the share of exits from unemployment to permanent employment in total exits from unemployment by about 14%, taking the point estimates at face value.

Results from transitions from unemployment to permanent employment also indicate a greater impact of the reform in small establishments than in larger ones (Table A4). The results from the estimation of the competing-risk hazard models suggest that the reform increased the average transition to a permanent contract – conditional on being unemployment for six months or less – by 26% in establishments with 50 or fewer employees, compared with 15% in establishments with over 50 employees (Figure A6). To the extent that the large majority of firms are mono-establishments, this points to a greater impact of the reform on hiring for smaller firms.

80. As for analyses based on the ECL, establishment here refer to the *Cuenta de Cotización*, which is unique for each firm at the province level.

81. However, in absolute terms, the estimated effect on transitions to permanent contracts is no smaller than that on transitions to temporary contracts. For example, taking point estimates at face value, in the first 6 months of unemployment, the average probability of a monthly transition to a temporary job increased from 18.6% to 19.9% due to the reform whereas the average transition to permanent employment increased only from 1.7% to 2.1%.

Table A9. The effect of the reform on Transitions out of Unemployment into temporary employment and into permanent employment

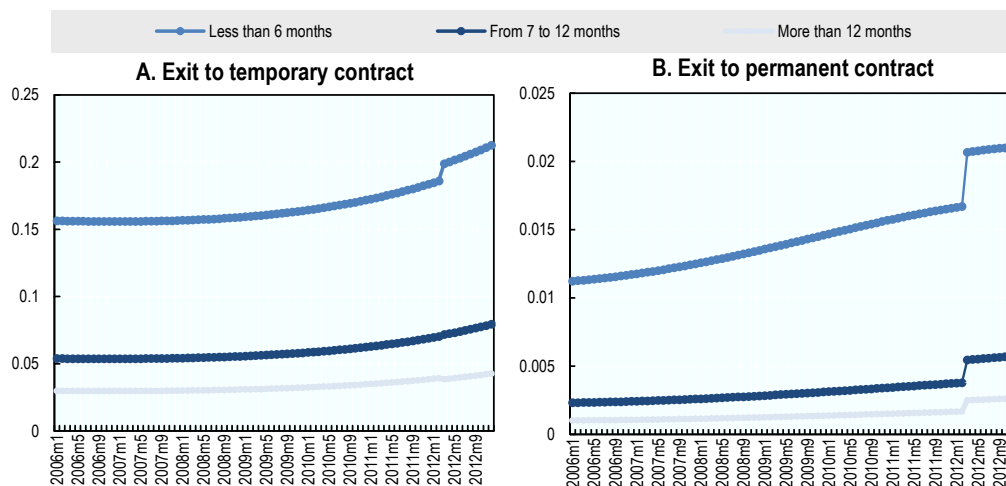
Monthly data, coefficients of the competing-risk hazard models

		Post-reform dummy	Placebo tests			Number of observations	Years
		(1)	One quarter before reform (2)	Two quarters before reform (3)	Three quarters before reform (4)		
All sample	U to TC	0.0999 (0.0641)	-0.120* (0.0654)	-0.177*** (0.0470)	-0.149*** (0.0442)	3,886,004	2003-2012
	U to PC	0.256*** (0.0746)	-0.0836 (0.0866)	-0.175** (0.0705)	-0.113* (0.0630)		
Establishments with 50 employees or less	U to TC	0.0967 (0.0669)	0.0994* (0.0541)	0.0377 (0.0576)	0.0254 (0.0470)	2,174,106	2006-2012
	U to PC	0.264*** (0.0796)	0.0381 (0.0789)	-0.0659 (0.0718)	-0.0264 (0.0674)		
Establishments with more than 50 employees	U to TC	0.0947* (0.0514)	0.0574 (0.0574)	0.0117 (0.0690)	-0.00221 (0.0473)		
	U to PC	0.165*** (0.0629)	-0.0401 (0.0965)	-0.0290 (0.114)	0.205*** (0.0662)		

Note: U: unemployment; PC: permanent employment; TC: temporary employment. Coefficients within border lines refer to simultaneous estimates. The All equations control for the unemployment duration (in logs) up to the 3rd order, the national unemployment rate, change in regional employment (and its interaction with the unemployment duration (in logs)), a 3rd order polynomial in time (months) in the models of the first two lines and a 5th order polynomial in the others, age and education categories, an indicator if the individual receives unemployment benefits (and the interaction of those variables with the duration of the unemployment spell), gender, migrant status, region, characteristics of the previous job (sector, type of contract, and if the individual was dismissed), the number of times the individual has been unemployed, the percentage of time he has been employed as well as monthly dummies. The sample includes all individuals who have been unemployed at least one day. Unemployment durations are censored at 30 months in unemployment. Robust standard errors, clustered on time in parentheses. ***, **, *: significant at the 1%, 5% and 10% level, respectively.

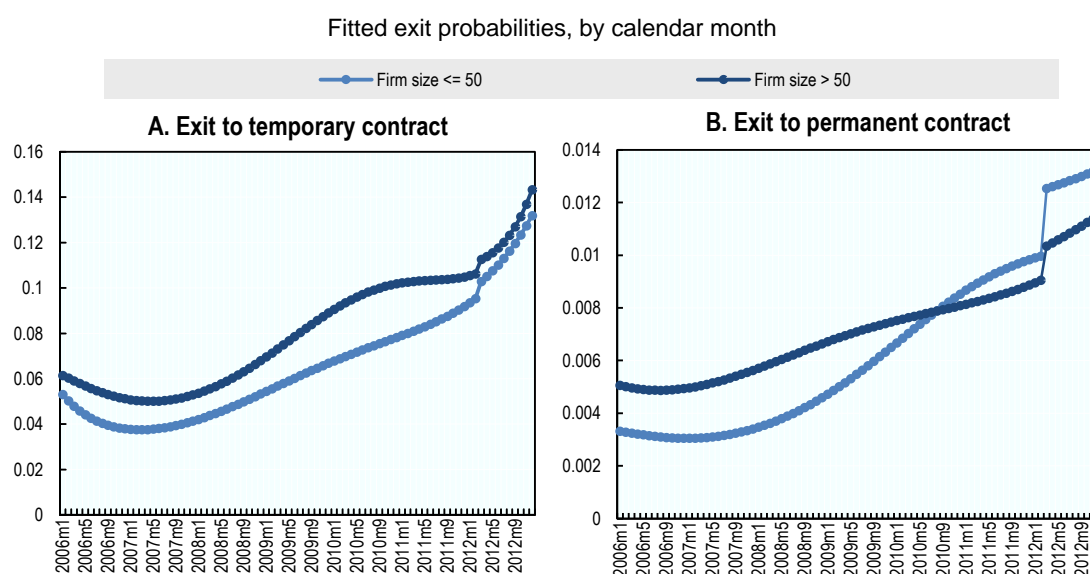
Figure A5. Exit from unemployment by type of contract and unemployment duration

Fitted exit probabilities, by calendar month



Note: The figure presents the average of estimated monthly probabilities of individual transitions from unemployment to employment by type of contract in the new job and unemployment duration (less than six months, from 7 to 12 months and more than 12 months), netting out the effect of the time trend and monthly dummies. The sample includes all individuals who have been unemployed at least one day. Unemployment durations are censored at 30 months in unemployment. Panel A refers to exits from unemployment to temporary contracts and Panel B to exits from unemployment to permanent contracts.

Figure A6. Exit from unemployment conditional on duration smaller or equal than 6 months, by type of contract and establishment size



Note: The figure presents the average of estimated monthly probabilities of individual transitions from unemployment to employment by type of contract in the new job and unemployment duration (less than six months, from 7 to 12 months and more than 12 months), netting out the effect of the time trend and monthly dummies. The sample includes all individuals who have been unemployed at least one day. Unemployment durations are censored at 30 months in unemployment. Panel A refers to exits from unemployment to temporary contracts and Panel B to exits from unemployment to permanent contracts.

Placebo tests are run for all the estimations by “anticipating” the date of the reform by up to three quarters. The coefficients are either non-significant or negative for all specifications, except for the placebo test three quarters before the reform for transitions to permanent employment in establishments with more than 50 employees. Similarly, some caution is required in interpreting baseline estimates since placebo test statistics are significant (albeit negative) when the placebo date is two quarters before the true reform. However, these statistics turn out to be insignificant when transition hazards are allowed differing across establishment types.

Several robustness checks have been performed as well, which include i) substituting the polynomial trend for calendar year dummies; ii) using polynomial time trends of different order; ii) performing the estimations separately by type of previous contract held, by age groups and by gender; iii) substituting regional unemployment rates for aggregate ones; and iv) replacing registered employment by the index of economic activity of FEDEA. Results presented in Table A9 are robust to these changes.

The effect of the 2012 reform has not been homogeneous on all individuals (Table A10). In particular, transitions from unemployment towards permanent employment have increased significantly more for those that had a temporary contract prior to becoming unemployed, while the effect remains insignificant for those who previously held a permanent contract. Symmetrically, the results suggest a marginally positive impact of the reform on the speed of transition towards a temporary contract only for those that had a permanent contract prior to becoming unemployed.

The reform seems also to have had a greater impact on younger workers, a population group severely affected by unemployment, than on older ones. Transition rates from unemployment towards permanent employment have increased more for individuals aged 18-30, compared to for those aged 31-44 and 45-64 (Table 6).

Finally, estimating the same models for transitions out of permanent or temporary contract yields an insignificant impact of the reform on these transition hazards.

Table A10. **The effect of the reform on Transitions out of Unemployment into temporary employment and into permanent employment, by personal characteristics**

Monthly data, coefficients of the competing-risk hazard models

	Post-reform dummy		Number of observations
	U to TC	U to PC	
	(1)	(2)	(3)
Previous temporary	0.0902 (0.0637)	0.639*** (0.0775)	3,047,292
Previous permanent	0.149* (0.0822)	0.153 (0.0993)	838,712
Males	0.104 (0.0682)	0.269*** (0.0663)	1,996,002
Females	0.0913 (0.0606)	0.246*** (0.0873)	1,890,002
Age 18-30	0.0703 (0.0542)	0.319*** (0.0544)	1,770,386
Age 31-44	0.0950 (0.0702)	0.247*** (0.0836)	1,370,296
Age 45-64	0.191* (0.109)	0.225* (0.124)	745,322

Note: U: unemployment; PC: permanent employment; TC: temporary employment. Coefficients on the same line refer to simultaneous estimates. All equations control for the unemployment duration (in logs) up to the 3rd order, the national unemployment rate, change in regional employment (and its interaction with the unemployment duration (in logs), a 3rd-order polynomial in time (months), age and education categories, an indicator if the individual receives unemployment benefits (and the interaction of those variables with the duration of the unemployment spell), gender, migrant status, region, characteristics of the previous job (sector, type of contract, and if the individual was dismissed), the number of times the individual has been unemployed, the percentage of time he has been employed as well as monthly dummies. The sample includes all individuals who have been unemployed at least one day. Unemployment durations are censored at 30 months in unemployment. Robust standard errors, clustered on time in parentheses. ***, **, *: significant at the 1%, 5% and 10% level, respectively.