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Approved By
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Prepared By M. Dao, N. Budina, M. Saiyid, X. Hu, H. Lin, E. Perez Ruiz, J. Vandenbussche, A. Weber, C. DeLong, M. Balz, I. Tirado, H. Hesse, and V. Lledó.

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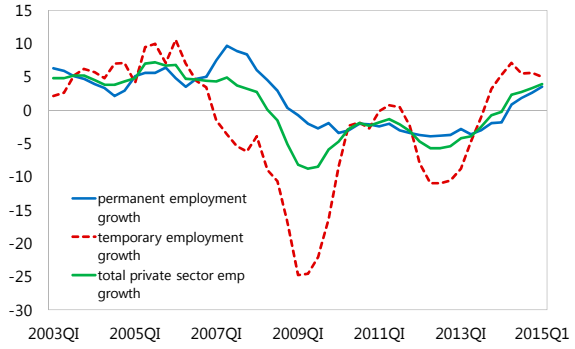
RECENT LABOR MARKET REFORMS: A PRELIMINARY ASSESSMENT[1]

The 2012 labor market reforms are making a difference. Wage moderation is contributing to a visible recovery in headline employment growth, and the reforms have made the labor market more resilient to shocks. There is also some evidence that the contribution of temporary contracts to employment growth has started to decrease. However, the reliance on temporary workers remains strong overall and further structural reforms will be required to reduce the still very high level of long-term, structural unemployment.

A. Reform Context and Aggregate Stylized Facts

1. The Spanish labor market has long been characterized by high levels of structural unemployment and low labor productivity, and the underlying distortions have amplified the propagation of shocks. Spain has one of the highest degrees of duality between permanent and temporary workers among advanced economies. Due to much lower firing cost, temporary workers carried most of the burden of adjustment during the recession and led most of the employment gains in the early recovery, when uncertainty was still high (see chart). Meanwhile, the protected insider-status of the permanent job-holders distorted their wage bargaining incentives, leading to strong downward wage rigidities. High duality reduces temporary workers' productivity (Hospido and Moreno-Galbis, 2015) by lowering incentives to invest in their human capital (Dolado and others, 2002), and due to the skill depreciation resulting from long spells of unemployment as they carry most of the burden of cyclical adjustment. Aggravating the adverse effects of duality on long-run and cyclical labor market outcomes, the wage bargaining framework at the sector-province level acted as an additional mechanism preventing working hours and labor costs to change with business conditions, inducing firms to excessively rely on labor-shedding as they adjusted to the crisis (OECD, 2013).

Private sector employment growth
(quarterly y-o-y growth rates)



Sources: INE, Economonically Active Population Survey.

2. Following the protracted double-dip recession and record level of unemployment, the Spanish government passed the 2012 reform package. Table 1 summarizes the measures undertaken, including recent changes and additions. The reform measures can be broadly divided

[1] Prepared by Mai Dao (RES).

Table 1. Summary of Structural Reforms in the Labor Market

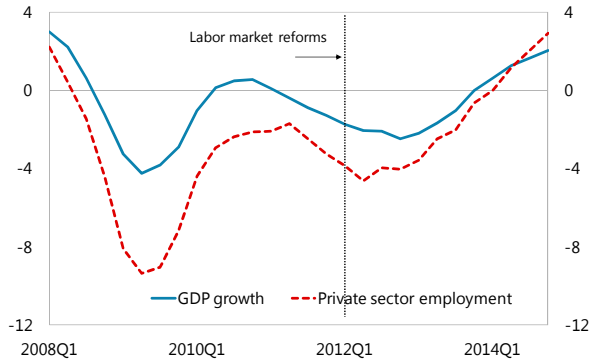
Date	*Measures taken as part of Labor Market Reform*
Feb-12	Increased flexibility in wage bargaining by prioritizing firm-level (from sector-region level) agreements, eased opt-outs, reduced ultra-activity period.
Feb-12	Reduced dismissal cost for unfair dismissals of permanent workers to 33 days' wages/year of seniority up to 24 months (down from 45 days/year up to 42 months)
Feb-12	Extended the use of fair dismissals to objective business criteria. and facilitated firm-level agreements on dismissals
Feb-12, revised Aug-13	Eliminated requirement of adminsitrative authorisation for collective dismissals, introduced traning requirement for dismissed workers and tax to employer if business is profitable.
Feb-12	Special contract for small firms (contrato emprendedores) was introduced to incentivize hiring of permanent workers, particularly of unemployed youth.
Feb-12	Re-instated the 2 year limit for extension of temporary contracts
Nov-12	Introduction of the traning and apprenticeship contract, providing firms with incentives to train and retain uneducated youth.
Feb-13	Hiring subsidies for young workers (<30 years) in form of reduced ESSC.
Dec-13	Reform of part-time contracts
Feb-14, expired Feb-15	Flat rate (payroll) tax of 100 Eur for all permanent hires for 2 years.
Oct-14	Implementation of the National Youth Guarantee Plan
Feb-15	Flat rate tax replaced by ESSC exemption of first 500 Eur for all new permanent hires.
Jul-2012 to Mar-15	New activation program for the long-term unemployed and reformed traning program for the employed

Source: Ministry of Employment and Social Security.

into three broad categories: (i) measures to enhance firms' flexibility; (ii) measures to reduce duality; and (iii) measures to address structural unemployment, with some measures targeting several goals. The first wave of reforms in February 2012 contained most of the elements of the first two targets, by introducing flexibility into the bargaining framework and reducing the hiring and firing cost of permanent workers. Temporary measures aimed directly at mitigating duality consisted mainly of hiring incentives for permanent workers, which were initially targeted at youth and small firms, and more recently extended to all firms and all workers hired on permanent contract. Reforms implemented more recently were predominantly geared toward reducing structural unemployment, in particular the high youth unemployment rate, by introducing training programs for the long-term unemployed, revamping training of the employed, and a youth guarantee scheme to match unemployed youth with education and work opportunities.

3. Following the reforms, wage growth moderated and job destruction started to stabilize as the recovery took hold. Nominal year-on-year wage growth decreased from an average of 2.7 percent in 2009–11 to 0.2 percent in 2012–14. The shift in wage dynamics is even more pronounced when labor demand conditions are accounted for, as the years with high wage growth preceding the reforms took place following the largest rates of job destruction. Figure 1 illustrates how wage growth conditional on lagged employment growth moderated at the aggregate level, as well as across all major sectors of the economy. The onset of wage moderation was also accompanied by a slowdown in employment losses and eventually a return of positive employment gains in 2014Q2. The fact that employment started to grow at a time of still relatively low growth of GDP might be a sign of an improvement in the underlying functioning of the labor market, leading to more job-rich growth than in the past (Ministry of Employment, 2013). Other factors at play included the change in sentiment following strongly supportive monetary policy action at the ECB. Sovereign funding costs were brought down from peak levels around the same time as reforms were passed in mid-2012, and, later on, reducing borrowing costs of Spanish corporates and households, additionally benefitting firms' hiring conditions.

GDP and Private Employment Growth
(Y-o-y percent change)



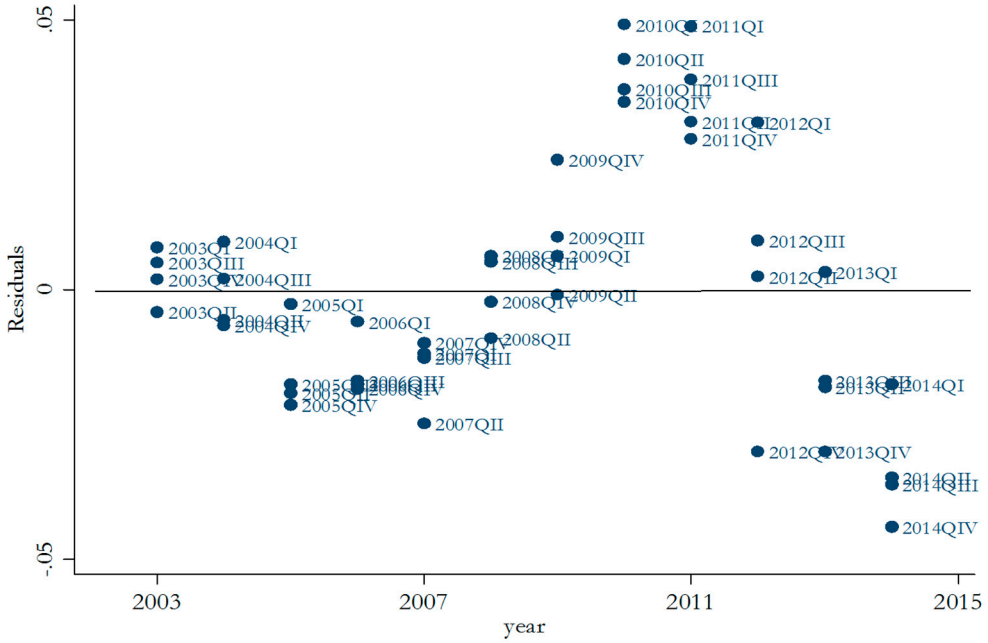
Sources: INE, and IMF staff calculations.

4. There is also some tentative evidence of increased hiring to permanent contracts and faster transition from unemployment to permanent jobs—even though the magnitudes appear small and limited to only some segments of workers and firms. Using regression discontinuity models, a study by OECD (2013) finds that the reforms likely increased the hiring rate from unemployment into permanent contracts. The magnitude is modest in terms of overall gains in permanent jobs (the hiring rate increased by one-tenth from very low levels), improving only the transition out of unemployment for the newly unemployed workers (those with less than 6 months unemployment duration), and significantly affecting hiring only in small firms, likely due to the targeting of firms with less than 50 workers through the "contrato emprendedores". Regarding duality, the reform's impact on the rate of permanent hires is estimated to be positive but so far also small: with an increase in the rate of permanent hires by 13 percent, hiring into permanent contracts is still below pre-crisis rates.

5. The rest of the paper will take a closer look at wage dynamics, their implications for labor market adjustment, and changes in permanent employment. While evaluating structural reforms in "real time" remains challenging, the majority of reform measures have now been in place for some time and exploiting sectoral and regional variation can help taking a reasonable first look at their impact.

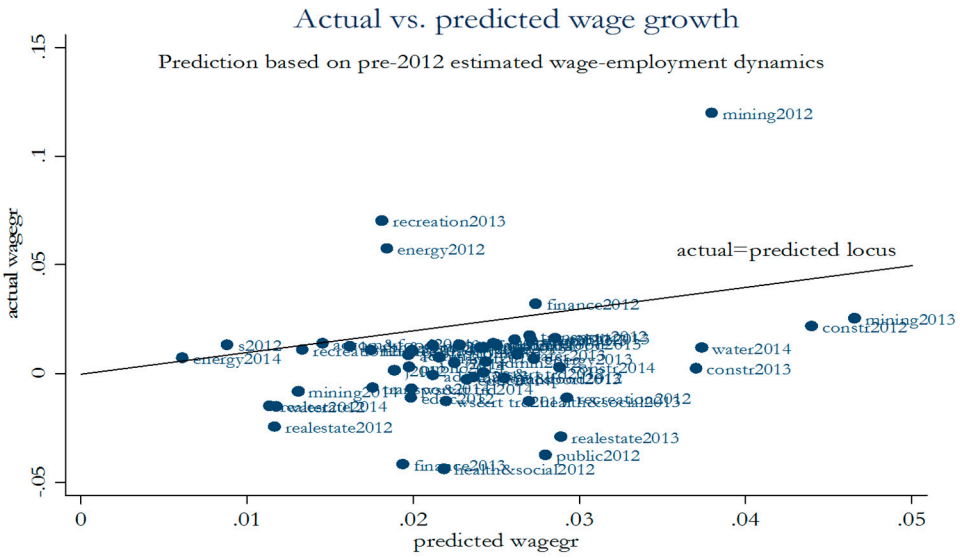
Figure 1. Nominal Wage Growth Before and After the Reforms

The 2012 Labor market reforms set in motion wage moderation. This is visible in the aggregate:



Note: Residuals from a regression of log nominal wages (per hour) on the lagged unemployment rate, lagged log CPI, linear and quadratic trend at quarterly frequency.

…as well as across major sectors of the economy:



Note: Predicted wage growth is derived from a regression of nominal wage growth on lagged employment growth using quarterly data for 18 sectors 2001Q1-2011Q4. Actual wage growth is the annual average of quarterly nominal wage growth in 2012-2014 by sector.

Source: INE and author's calculation.

B. Wage Dynamics

6. **Has wage setting changed since the reforms?** One way to answer this question is to focus on the variation of wages and employment across sectors during pre and post-reform years. Using a panel of sector-level wage and employment growth, we regress nominal and real wage growth on sector-level lagged employment growth (a proxy for labor demand) and a full set of sector-level fixed effects. We thus ask how sensitive have sector-level wages been with respect to variation in employment growth around a sector-specific mean, be it due to aggregate shocks or temporary sector-specific shocks. Table 2 summarizes the regression results.

7. **The results suggest that macro-flexibility has increased.** Before the reforms, wage growth accelerated in upswings, but also during downswings (though by less), slowing labor market adjustment and contributing to excessive labor shedding during recessions. The lack of wage adjustment in downturns was at least partly due to lack of adjustment of wages to hours worked, suggesting rigid labor contracts. Since the reform, larger employment contractions are no longer associated with accelerating wage growth. At the same time, there is no or little evidence that wage dynamics respond systematically to sector-specific variation in economic conditions, pointing to persistent lack in micro-flexibility.

8. More specifically:

- **Downward wage rigidity.** Table 2a in the upper panel shows the overall correlation between wage growth and labor demand, as well as asymmetry in this correlation across positive and negative labor demand episodes. The lack of any significant correlation between lagged employment growth and wage growth (column 1 and 3) masks a strong asymmetry across expansions and downturns (column 2 and 4). While positive employment growth is associated with an increase in (real hourly) wage growth, negative employment growth is also associated with increased real wage growth (hence the negative coefficient on negative employment growth). The wage increase associated with employment contraction is about half the size of the increase observed following employment expansions. To some extent, aggregate wage increase in downturns could reflect composition effects. Workers with lower skill, lower seniority, and, hence, on average lower wages tend to bear the brunt of job loss in a downturn. This will, other things being equal, increase the average wage of the remaining workforce (e.g., Bank of Spain, 2014). That said, compositional changes are unlikely to drive all of the results. Indeed, using micro-level earnings data and controlling for compositional changes, Font et al. (2015) document that downward wage rigidity and asymmetry in wage cyclicality exist during all phases of the Spanish business cycle, driven by wage rigidity of the most protected workers with long tenure and permanent contracts.

- **Lack of *effective* intensive margin adjustment.** This asymmetry is somewhat weaker but still holds for nominal wage growth (column 4), ruling out the possibility that the counter-cyclicality in downturns is driven by the zero lower bound for nominal wage growth. Rather, it is likely explained by the fact that in downturns, hours worked per worker are reduced, while workers' compensation is not reduced proportionately due to previous collective agreements. Indeed,

Table 2a.Sector-Level Wage Cyclicality

VARIABLES	(1) real wage growth (per h)	(2) real wage growth (per h)	(3) nom. wage growth (per h)	(4) nom. wage growth (per h)	(5) nom. wage growth (per worker)	(7) real wage growth (per h)	(8) nom. wage growth (per worker)
employment growth (t-1)	-0.050	0.495***	-0.046	0.384**	0.193*	0.085	0.036
	(0.116)	(0.160)	(0.099)	(0.147)	(0.097)	(0.076)	(0.083)
neg. employment growth (t-1)		-0.742***		-0.585***	-0.286	-0.083	-0.028
		(0.205)		(0.193)	(0.167)	(0.134)	(0.139)
Constant	-0.003	-0.017***	0.012***	0.001	0.001	-0.003	0.001
	(0.003)	(0.005)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Sector FE	Y	Y	Y	Y	Y	Y	Y
Time FE	N	N	N	N	N	Y	Y
Observations	414	414	414	414	414	414	414
R-squared	0.003	0.064	0.004	0.054	0.020	0.620	0.262
Number of secnum	18	18	18	18	18	18	18

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: INE.

Table 2b. Sector-Level Wage Cyclicality—Before and After Reforms

VARIABLES	(1) real wage growth (per h)	(2) nom. wage growth (per h)	(3) nom. wage growth (per worker)	(4) nom. wage growth (per worker)	(5) real wage growth (per h)	(6) nom. wage growth (per h)
employment growth (t-1)	0.522***	0.409***	0.143	0.109	0.086	0.086
	(0.160)	(0.138)	(0.112)	(0.081)	(0.112)	(0.112)
neg. employment growth (t-1)	-0.813***	-0.599***	-0.228*	-0.191*	-0.089	-0.089
	(0.191)	(0.165)	(0.135)	(0.103)	(0.139)	(0.139)
employment growth (t-1)*Post-Reform	-0.258	-0.261	-0.065		-0.005	-0.005
	(0.211)	(0.182)	(0.148)		(0.148)	(0.148)
neg. employment growth (t-1)*Post-Re	0.553**	0.386*	0.173	0.100*	0.022	0.022
	(0.250)	(0.216)	(0.176)	(0.055)	(0.173)	(0.173)
Post-Reform	0.000	-0.012**	-0.009**	-0.010***		
	(0.006)	(0.005)	(0.004)	(0.004)		
Constant	-0.012**	0.011**	0.009***	0.010***	-0.002	-0.008
	(0.005)	(0.004)	(0.003)	(0.003)	(0.007)	(0.007)
Sector FE	Y	Y	Y	Y	Y	Y
Time FE	N	N	N	N	Y	Y
Observations	414	414	414	414	414	414
R-squared	0.117	0.129	0.081	0.081	0.620	0.495
Number of secnum	18	18	18	18	18	18

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: (year-on-year) wage and employment growth are broken down in 18 broad sectors, covering 2008Q1–2014Q3. Sectors are weighted by their average employment share over the sample period.

Source: INE.

when looking at column 5, we observe that wages per worker are weakly pro-cyclical in expansions, and countercyclical, but statistically insignificant in downturns.

- **Before and after the reform.** By allowing the slope coefficients to vary between the periods before and after the reform (2012Q1), Table 2b shows that the countercyclical behavior of hourly wages is entirely driven by the pre-reform dynamics—the difference in wage response between the two sub-periods is statistically significant. A one standard deviation decrease in lagged sectoral employment (that is, about -8 percent employment growth) is associated with a 2.3 percentage point increase in sectoral real wage growth before the reforms (or ½ of the standard deviation in real wage growth), and virtually zero wage growth after the reform. Similar results are obtained using nominal hourly wages (column 2). Wages at the extensive margin (column 4) display qualitatively similar, but quantitatively smaller shifts pre and post-reform, and they are less precisely estimated. Note that although the countercyclical wage response is not observed after the reform, wages are still downward rigid and on average do not decline in the face of negative employment growth.

- **Lack of micro-flexibility.** Finally, column 7 and 8 of Table 2a and column 5 and 6 of Table 2b control for time (quarterly) fixed effects, which render the estimates insignificant in both cases. We find similar results for regressions that, instead of time fixed effects, use aggregate employment growth to model aggregate dynamics affecting all sectors at the same time (see Appendix Table A1). This suggests that, to the extent that there were sector-specific employment growth variation (relative to the cross-sectional mean), relative wages have not responded in a way that would be conducive to reallocation, that is, wages in sectors that are expanding faster did not grow faster relative to other sectors and vice versa. To some degree, this could reflect the shortness of the sample period and the size of the shortfall in aggregate demand during the Great Recession which could mask inter-sectoral wage dynamics. That said, it seems clear that there is more evidence of improving macro-flexibility than there is of changes in micro-flexibility to help necessary labor reallocation across sectors, a process that is important for productivity growth (Blanchard et al. 2013) and resource reallocation, for example from non-tradable to tradable sectors.

9. A structural shift toward wage moderation can also be inferred from regional data. Employment and wages at the level of autonomous regions can be analyzed in a similar way to test for reform-induced change in wage response to region-level employment growth. Due to longer time series available for regional compared to sectoral data, we can obtain more precise estimates and conduct more meaningful tests. Table 3a summarizes the regression results.

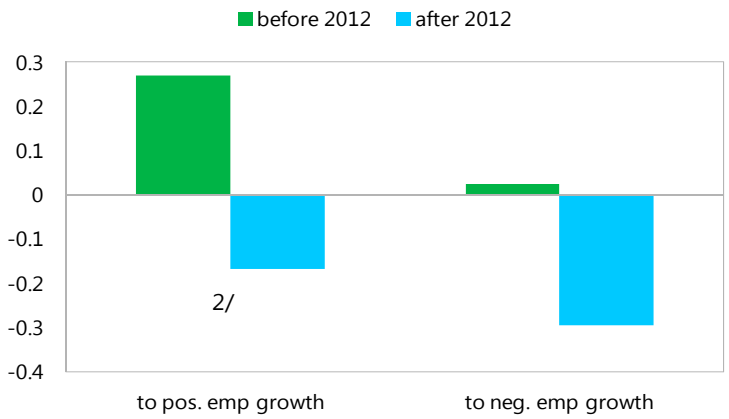
10. The main results confirm the previous findings. As with the sector-level results, regional wage dynamics also display strong downward rigidity in downturns before the reforms while the post-reform period is associated with statistically significantly higher wage flexibility. However, region-specific wages do not move to reflect region-specific employment conditions, and hence are not conducive to inter-regional reallocation.

11. More specifically:

- **Downward wage rigidity**. Within-region nominal wage growth is procyclical in expansions and only weakly procyclical or, in the case of real wage growth (not shown), acyclical in downturns. In other words, wages are overall downward rigid, consistent with the sector-level results.

- **Before and after the reform.** The downward rigidity of wages is driven by the pre-reform period. Allowing slope coefficients to differ pre and post-reform suggest that the change in wage dynamics after the reforms if statistically significant. After the reform, nominal wages decline in response to negative employment growth instead of staying constant as before and they even decline following positive employment growth, though by less (see Figure 2 for illustration). Note that wage decline following positive employment growth must be viewed in the context of a still large economic slack during 2012–14. In terms of magnitudes, a one standard deviation decrease in regional employment (equivalent to -4.2 percent employment growth) led to no change in nominal wage growth before the reform, and a 1.1 percent nominal wage decline after the reform. This wage decline corresponds to half the standard deviation in wage growth across all regions and years, and hence is economically significant.

Figure 2. Wage Growth Cyclicality Before and After Reform 1/

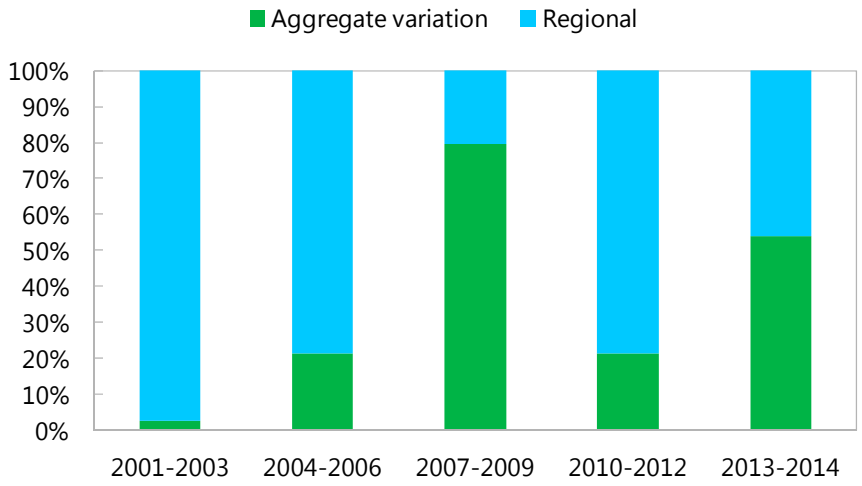


1/ Estimated nominal wage growth in response to a hypothetical 1 pct positive employment growth vs. 1 pct negative employment growth before and after the reform year 2012, based on region-level estimates in Table 3a, column 3.
2/ Quarters with positive employment growth post-2012 occurred within large economic slack while the positive employment growth quarters pre-2012 were concentrated in the pre-crisis boom.

- **Lack of micro-flexibility.** Similar to the sectoral regression, estimates become insignificant once time fixed effects are included. This could, in principle, be due to the fact that most variation in regional employment growth is driven by aggregate forces as opposed to region-specific ones. Indeed, the standard deviation of regional employment growth *relative* to the national average is only half the standard deviation of overall employment growth, and the importance of aggregate forces become particularly dominant in recessions, when employment tend to contract in all regions. However, a significant share of regional employment variation

remains unexplained by aggregate forces, as illustrated by a variance decomposition of regional employment growth in Figure 3, leaving a sizeable degree of regional disparity that should trigger spatial adjustment.

Figure 3. Variance Decomposition of Regional Employment Growth



Source: INE and IMF staff calculations.

- We find similar results of absent micro flexibility when replacing time fixed effects with aggregate lagged employment growth (Table 3b). Comparing column 1 and 2 of Table 3b, as well as column 3 and 4, confirms that the post-reform wage moderation observed seems to be primarily driven by enhanced macro flexibility—that is, increased responsiveness of wages (nominal and real) to aggregate shocks. Meanwhile, the degree of wage responsiveness to labor demand disparities between regions did not improve significantly, suggesting a lack of micro flexibility (see also Figure 4). These results are consistent with theoretical results in Bentolila et al. (2012) and empirical evidence in Antolin and Bover (1997), which suggest that the pervasiveness of temporary contracts and the associated job uncertainty particularly for young labor market entrants has detrimental impact on inter-regional labor mobility in Spain.

- **Robustness.** The results are robust to a number of extensions. For example, allowing for a lagged dependent variable does not change the findings (the short-term response of wages drops but the long-run response remains similar). Controlling for region-specific trends in employment and wage growth also does not affect the results. Column 5 of Table 3a, by weighing regions by their average employment share, shows that the estimated dynamics are not driven by any outlier region in particular. The lack of region-specific micro-flexibility is also obtained when the regressions use wage and employment growth in deviation from national averages (Table 3b).

12. Figure 5 illustrates the change in wage setting dynamics before and after the reform using regional data. The blue data points are quarterly wage employment growth observations from 2000Q1 to 2011Q4 and the estimated wage-setting curve, allowing for different slopes for

Table 3a. Regional-Level Within Regression

	(1)	(2)	(3)	(4)	(5)
	Dependent variable: nominal wage growth per worker (y-o-y)				
wage growth per worker (t-1)				0.534***	0.525***
				(0.028)	(0.026)
employment growth (t-1)	0.244***	0.412***	0.270***	0.149***	0.143***
	(0.019)	(0.088)	(0.072)	(0.037)	(0.029)
employment growth (t-1)*Post-Reform			-0.438**	-0.212**	-0.295**
			(0.154)	(0.099)	(0.118)
neg. employment growth (t-1)		-0.319*	-0.294**	-0.152**	-0.130**
		(0.159)	(0.134)	(0.068)	(0.052)
neg. employment growth (t-1)*Post-Reform			0.710**	0.341**	0.361*
			(0.249)	(0.154)	(0.171)
Post-Reform			-0.022***	-0.009***	-0.010***
			(0.004)	(0.002)	(0.002)
Constant	0.022***	0.016***	0.025***	0.011***	0.011***
	(0.000)	(0.003)	(0.002)	(0.001)	(0.001)
Observations	799	799	799	799	799
R-squared	0.139	0.155	0.374	0.558	0.562
Number of regnum	17	17	17	17	17

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: INE.

Note: Quarterly year-on-year wage and employment growth are at the level of 17 autonomous regions over the period 2002Q1-2014Q4. Regional fixed effects are included. Regression in Column 5 is weighted by average regional employment share.

negative and positive employment growth quarters, as in Table 3a, is given by the black line. As explained above, wage setting is pro-cyclical for the positive portion of the x-axis and flat (acyclical) in the negative portion. The red data points are observations for wage employment growth from 2012Q1 to 2014Q4 and the resulting wage-setting curve is orange. Reflecting the estimation results in column 3 of Table 3a, several observations are worth noting: first, wage growth is lower independent of employment dynamics, corresponding to a negative estimate of the reform dummy (downward shift in the wage-setting curve at zero). Second, negative employment growth is now associated with declining nominal wages while positive employment growth is associated with flat or even slightly negative wage growth.

13. In contrast, Figure 2b shows little systematic variation of wages with regional differences. Compared to Figure 2a, wage growth (both pre and post-2012) does not exhibit any correlation with fluctuation in region-specific (that is, relative to national average) labor demand.

Table 3b. Wage Responsiveness to Regional Versus Aggregate Labor Demand

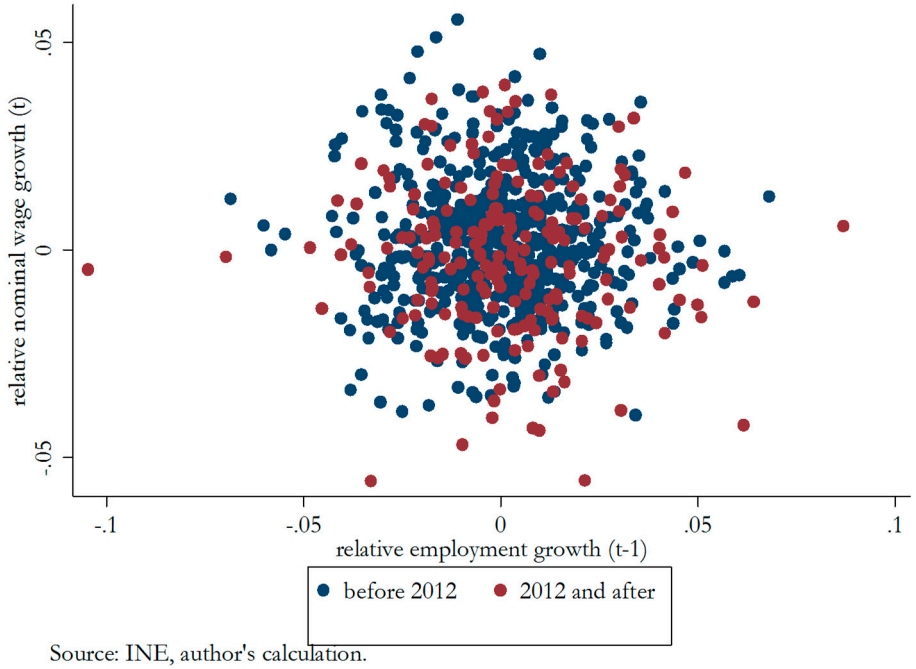
VARIABLES	(1) real wage growth (per worker)	(2) real wage growth (per worker)	(3) nom. wage growth (per worker)	(4) nom. wage growth (per worker)	(5) relative wage growth (per worker)
neg. employment growth (t-1)	-0.278***	-0.032	-0.072***	-0.100	
	(0.023)	(0.127)	(0.024)	(0.093)	
neg. employment growth (t-1)*Post-Reform	0.825***	-0.071	0.410***	0.020	
	(0.106)	(0.240)	(0.114)	(0.216)	
neg. aggr. Emp growth (t-1)		-0.297*		0.106	
		(0.151)		(0.109)	
Ref. Dummy*neg .aggr .Emp. Growth (t-1)		1.415***		0.424*	
		(0.276)		(0.214)	
relative emp growth (t-1)					-0.017
					(0.062)
neg. relative emp growth (t-1)					0.018
					(0.109)
Ref. Dummy*relative emp growth (t-1)					-0.180
					(0.151)
Ref. Dummy*neg. relative emp growth (t-1)					0.093
					(0.173)
Constant	0.000	0.000	0.058***	0.053***	0.001
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Ref. Dummy		0.010*		-0.006	-0.001
		(0.005)		(0.007)	(0.003)
Observations	799	799	799	799	799
R-squared	0.214	0.291	0.404	0.429	0.013
Number of regnum	17	17	17	17	17

All footnotes to Table 3 apply. Relative employment and wage growth in column (5) are defined as deviation from aggregate growth rates.
Source: INE.

That is, although there was considerable variation in labor market conditions across regions, wages did not grow more in regions that were performing better and vice versa. A similar picture is obtained for sector-specific wage and employment growth. Notwithstanding the increased scope for firm-level wage bargaining, wage dispersion across sectors and regions do not yet reflect differences in employment and business conditions. This empirical result is consistent with survey data which indicate that less than 7 percent of (mostly large) firms have been using the options introduced in the labor market reform to deviate from collectively bargained wage levels (Encuesta Anual Laboral, 2013).

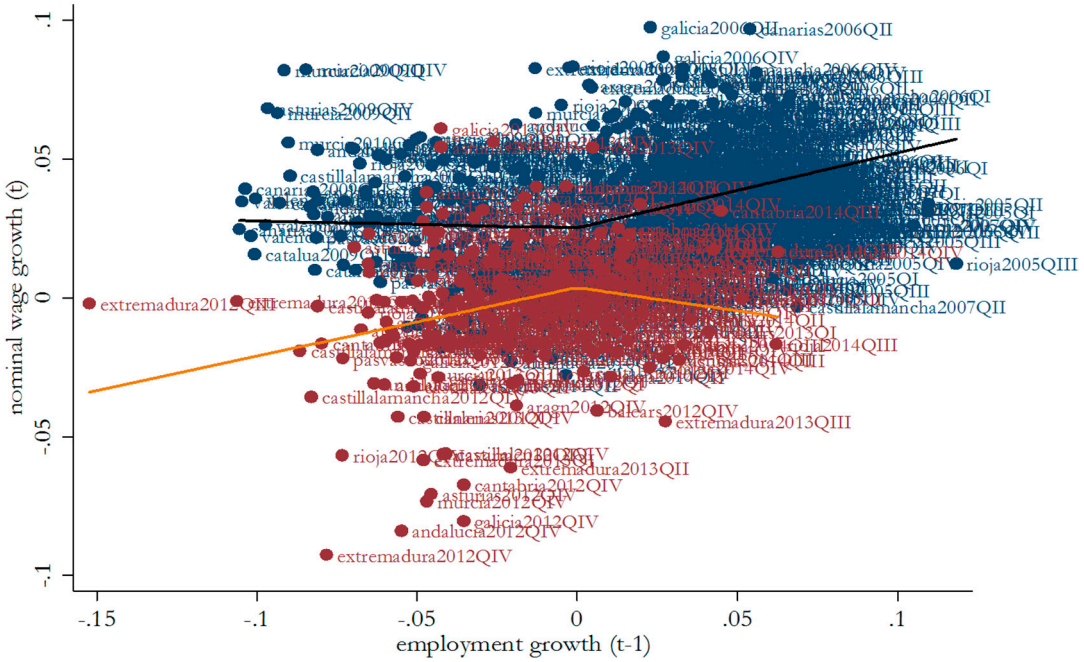
14. The analysis is subject to a number of caveats, requiring caution when interpreting the results. Most importantly, the estimated structural break in wage responsiveness to (aggregate) labor market conditions, although occurring around the time of the reforms, may be due at least in part to other reasons. Establishing causality is inherently difficult in this context, particularly given the staggered sequencing of various reform elements and possibly long lags in their propagation.

Figure 4. Wage and Employment Growth *Relative* to National Average



Source: INE, author's calculation.

Figure 5. Regional Wage and Employment Growth Before and After the Reform



Source: INE.

Note: Data on regional nominal wage growth and lagged employment growth before (blue) and after reform year 2012 (red). Wage setting curve before (black) and after reform year (orange).

For example, given the unprecedented severity of the crisis preceding the reforms, the improved wage flexibility with respect to the business cycle may be also reflect changes in the reservation wage (due to the very high level of unemployment). As discussed earlier, these results could also be impacted by composition effects.

C. Impact of Wage Moderation on Employment Gains

15. Has the reform made the labor market more resilient? We estimate the impact of wage moderation on employment adjustment by estimating a 2-variable Seemingly Unrelated Regression (SUR) model as follows:

$$\Delta e_{r,t} = a_r + \alpha_0 \Delta e_{r,t-1} + \alpha_1 \Delta e_{r,t-1} I(\Delta e_{r,t-1} < 0) + \beta_0 \Delta w_{r,t} + \beta_1 \Delta w_{r,t-1} + \varepsilon^e{}_{r,t}$$

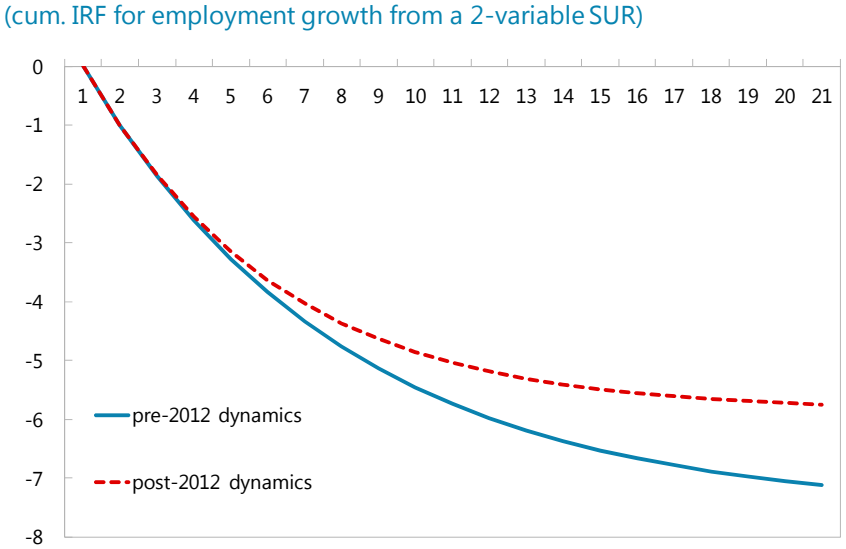
$$\Delta w_{r,t} = b_r + \chi_0 \Delta e_{r,t-1} + \chi_1 \Delta e_{r,t-1} I(\Delta e_{r,t-1} < 0) + \chi_2 \Delta e_{r,t-1} I(\Delta e_{r,t-1} < 0) I(t >= 2012) + \delta \Delta w_{r,t-1} + \varepsilon^w_{r,t}$$

Specifically, we use the region-quarterly panel analyzed above, allowing for wage and employment to grow differently across regions on average due to unobserved factors reflecting amenities and industrial structure (that is, region fixed effects). As in the regression in Table 3, wage response to lagged employment growth is allowed to vary between positive and negative labor demand quarters, and for negative quarters, between before and after the reform year, to capture the shift in wage responsivness identified above. While wages only react with a one quarter lag to unexpected changes in employment growth, employment growth is allowed to respond contemporaneously to wage changes. This assumption is motivated by the fact that collective bargaining only occurs at infrequent intervals, thus allowing wages only to respond to labor demand conditions with a lag, while the adjustment of workforce can occur at any given quarter, given wages and other business conditions, to maximize firms' profits. Note that wage growth is expressed in real terms (deflated by national CPI), as it is a more relevant measure of firm's real labor cost.

16. The results suggest that the reform might help avoid significant job losses in the face of shocks to labor demand. After estimating the system of employment wage equations above, we can simulate the dynamics of adjustment before and after the reform by tracing the dynamic response of the endogenous variables to a given shock to employment growth. Figure 6 plots the response of employment to a one-time negative 1 percent employment growth shock, which, all else equal implies a permanent change in employment level. The magnitude corresponds to the median negative employment growth shock over the historical sample.

17. The change in post-reform wage dynamics could reduce long-term job losses by 20 percent compared to the pre-reform regime. Specifically, the loss in net employment after a one percent drop in labor demand would be 5.7 instead of 7.2 percent relative to the pre-shock level, translating to a saving of around 200.000 jobs overall (based on 14.3 million employed in 2014). Note that this improved resilience would only materialize if the wage responsiveness to the business cycle observed after the reform constitutes a long-term policy impact that can be sustained into the future. In other words, the calculated gains in employment would not materialize if the

Figure 6. Response of Employment Level to a Median Negative Labor Demand Shock (in percent) Over 20 Quarters



Sources: INE, IMF staff calculations.

increased wage responsiveness is instead due to other temporary factors resulting from the massive economic slack that will wear off during the recovery.

D. How About Duality?

18. Have the reforms reduced the adjustment burden to cyclical conditions for temporary workers? One of the undesirable consequences of strong duality and rigid wages has been the highly volatile and precarious employment conditions of temporary workers, with negative consequences on their productivity and the wage setting mechanism. As the first text chart illustrates, firms tend to hire disproportionately more temporary workers in upswings and dismiss them more in downturns, both due to the wide wedge between the cost of a permanent and temporary worker.

19. In what follows, we test whether the reforms have had any discernible effect on the temporary versus permanent workforce adjustment margin. The approach regressed the share of temporary workers in the private sector in each quarter on its lagged value and the contemporaneous year-on-year employment growth in the private sector, allowing this slope to vary before and after the reform year, in addition to including the reform year dummy by itself. The results are summarized in Table 4. A one standard deviation change in employment growth is associated with a change in the share of temporary workers of 0.2 percentage points in the same quarter instead of 1.1 percentage points before the reform. The difference in sensitivity of the share of temporary workers to growth increases to 4 percentage points in the long run taking into account

the model's dynamics. Given that employment still continued contracting, though at a slower pace, after the reform, these results imply that proportionately less of the contraction has been borne by temporary workers relative to before the reform. The difference is statistically significant at the 5 percent level, but its magnitude is small considering that the share of temporary workers in the stock of private employment has been largely stable.

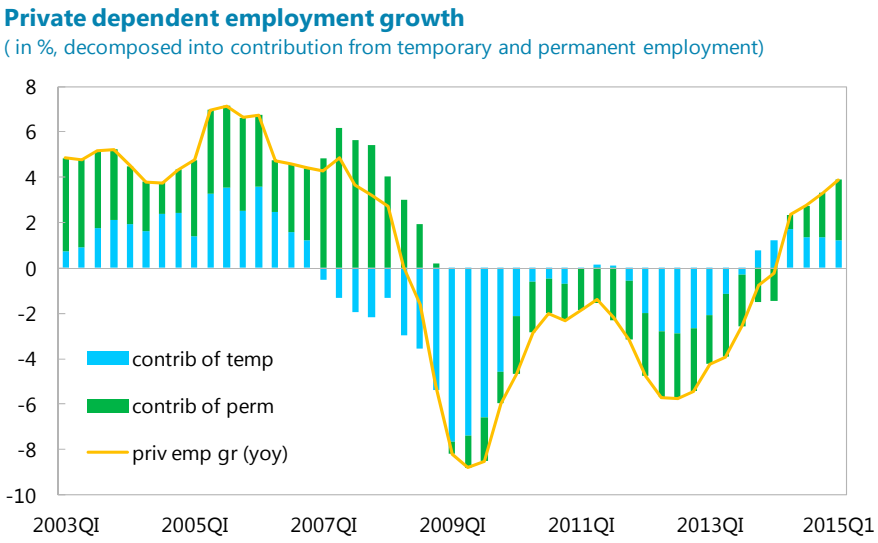
Table 4. Cyclicality of the Share of Temporary Workers

	Dep. Variable: tempshr
tempshr (t-1)	0.762***
	(0.058)
Reform Dummy	-0.011***
	(0.004)
Emp. Growth	0.235***
	(0.065)
Emp. Growth*Reform Dumm	-0.203**
	(0.083)
Constant	0.069***
	(0.017)
Observations	49
R-squared	0.973

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Regression on quarterly data 2002Q1-2015Q1.
Source: INE.

20. The shift away from temporary towards permanent hires will need to be stronger and considerably more sustained to bring down the exceptionally high share of temporary workers. As shown in Figure 7, labor shedding during the height of the crisis was carried out overwhelmingly at the expense of temporary workers. This is all the more striking given that the stock of temporary work contracts, while large in international comparison, is only about one third of the stock of permanent ones. Starting mid-2013, continued job destruction has shifted toward permanent jobs, which could be a sign that the reforms narrowed the wedge in employment protection between the two job categories, or that the remaining temporary workers were on average of higher productivity (see Hospido and Moreno-Galbis, 2015). Early in the recovery, net employment growth was mostly driven by temporary hiring, but most recently, the composition shifted increasingly toward permanent hiring, possibly thanks to the incentives coming from various hiring subsidies. However, permanent employment growth continues to lag temporary one (see text chart around paragraph 1), leaving the share of temporary employment at 25 percent and, thus,

Figure 7. Flow and Stock of Temporary Versus Permanent Employment



Sources: INE, Economically Active Population Survey.

Sources: INE, Quarterly Labor Force Survey.

broadly at the same level as at the onset of the crisis. At the same time, the share of newly issued temporary contracts and rollover of existing ones still makes up more than 90 percent of all new contracts. To bring down the exceptionally high share of temporary employment, growth in permanent jobs will have to increase substantially and surpass temporary ones for a sustained period of time.

21. Although the share of temporary workers may come down further if the economy and labor demand continue to recover and businesses face less uncertainty, the overall impact may be limited due to substitution across subsidized and non-subsidized contracts. The reform measures targeting duality in the form of hiring incentives, both through the "contrato

emprendedores" and through the recent broader payroll tax exemption contain provisions that attempt to avoid substitution, by requiring firms to demonstrate a net employment gain over a certain period after the subsidized permanent hire (see Royal Decree law 1/2015, article II.8). However, effective compliance with this provision still remains to be assessed. Spain has struggled to bring down duality for a long time, and past attempts at avoiding substitution have not been successful in this regard (see Jaumotte, 2011; IMF, 2014).

E. Looking Forward

22. The unemployment rate remains high despite the recovery, the majority of workers have been looking for a job for more than a year (Figure 8) and there remain signs of underemployment. Hiring has strengthened considerably, helped by the reforms, and there are signs that the unemployment rate might have turned. However, the level remains painfully high. With over 60 percent of the unemployed being long-term (i.e., one year or longer), the challenges to prevent skill erosion and promote skill upgrading among the unemployed are as pressing as ever. So far, there is no evidence yet for any improvement in matching efficiency between vacancy and the unemployed, and in fact, the degree of skill mismatch has continued to widen (cf. European Commission, 2014), consistent with the lack of micro-flexibility documented here. Moreover, many of those employed part time are looking for additional work, suggesting a significant degree of underemployment in the labor market.

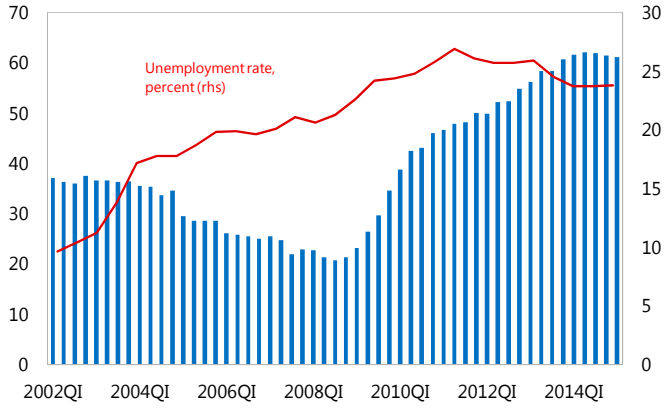
23. Further reduction in duality will require more convergence in employment protection between contract types, further decentralized wage-setting, coupled with product market reforms that reduce barriers and uncertainties for firms to invest and grow. Hiring on permanent contracts can be encouraged more efficiently by further aligning dismissal cost between permanent and temporary contracts, starting from a common level and increasing with tenure. Hiring incentives are helpful to address existing distortions in the adjustment process of firms to business conditions. That said, in the long run, it is firms' profitability and opportunities for expansion that will drive job creation and its quality. Progress in product market reforms, in particular the implementation of Market Unity law and reform of regulatory barriers that limit firm size will help in this regard (see Chapter 2 of the SIP). Along the transition, further decentralized wage-setting and collective agreement opt-outs will provide the much needed flexibility for firms and workers to adjust to temporary shocks.

24. The package of active labor market policies and the Youth Guarantee Scheme launched by the authorities aimed at improving the skills of the unemployed, education of youth, and productivity of the employed, is a welcome step toward addressing the long-standing structural weaknesses. Going forward, it is vital to continue with the reform agenda and fine-tune existing measures to ensure their overall effectiveness. Data on take-up and effectiveness of the various initiatives at the regional level should therefore be made public. The economic recovery offers a unique opportunity to do so as structural reforms have been shown to deliver their strongest impact when cyclical conditions are favorable (see Decressin and others, forthcoming; Barkbu and others, 2012).

Figure 8. Dimensions of Unemployment

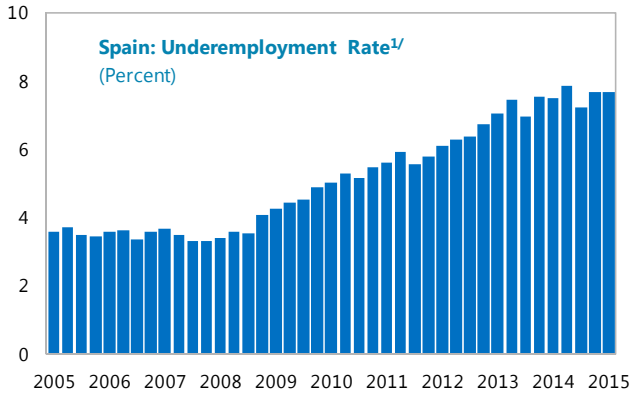
The unemployment rate remains close to 25 percent, with most unemployed being long-term

Share of long-term unemployed
(unemployed 1 year or more, in percent)



Sources: INE, author's calculation.

...and a high level of underemployment.



Source: INE and IMF staff calculations.
1/ Number of employees working part time who would like to work full time, as a share of total active population.

Appendix. Role of Aggregate Versus Sector-Level Labor Demand

Table A1 shows the results of a model similar to that in Table 2b in the text, but controlling for aggregate labor demand to distinguish aggregate from sectoral shocks. Column 1 shows that, relative to the results in column 1 and 2 of Table 2b, including aggregate labor demand already diminishes the statistical significance of the reform effect of wage moderation. If the responsiveness to aggregate forces is allowed to differ before and after 2012 (column 2 and 3), then the wage moderation is entirely captured by the differential responsiveness to aggregate forces, with any additional variation in sectoral labor demand not reflected in sectoral wage dynamics. In column 4, the same (insignificant) results are obtained if relative wages (that is, sectoral wage growth in deviation from average aggregate wage growth) are regressed on lagged relative employment growth (sectoral employment growth in deviation from aggregate employment growth).[1]

Table A1. Aggregate versus Sector-Level Wage Dynamics

	1	2	3	4
VARIABLES	real wage growth (per h)	nom. wage growth (per h)	nom. wage growth (per worker)	real wage growth (per h)
employment growth (t-1)	0.405***			
	(0.133)			
Reform Dummy*empgr_1	-0.198			
	(0.186)			
neg. employment growth (t-1)	-0.534***	-0.011	0.007	
	(0.163)	(0.077)	(0.065)	
Ref Dummy*neg. employment growth(t-1)	0.445	0.006	0.014	
	(0.279)	(0.082)	(0.073)	
aggr. Employment growth (t-1)	1.485***			
	(0.411)			
neg. aggr. Emp growth	-2.031***	-0.527***	-0.353**	
	(0.477)	(0.170)	(0.143)	
Ref Dummy*neg. aggr. Emp. Growth		0.745***	0.634***	
		(0.228)	(0.184)	
relative employment growth (t-1)				0.002
				(0.058)
neg. relative emp growth (t-1)				0.042
				(0.126)
Ref. Dummy * neg. relative emp growth (t-1)				0.033
				(0.093)
Constant	-0.024***	0.005	0.002	-0.004
	(0.003)	(0.004)	(0.004)	(0.005)
Ref Dummy	-0.004	0.004	0.007	0.005
	(0.009)	(0.009)	(0.008)	(0.006)
Observations	414	414	414	414
R-squared	0.182	0.179	0.139	0.011
Number of secnum	18	18	18	18

All footnotes to Table 2 apply. Relative employment and wage growth in column (5) are defined as deviation from aggregate growth rates.

[1] The standard deviation of relative employment growth and absolute employment growth are similar (around 8 percent), hence the lack of correlation is not due to lack of variation in relative employment dynamics.

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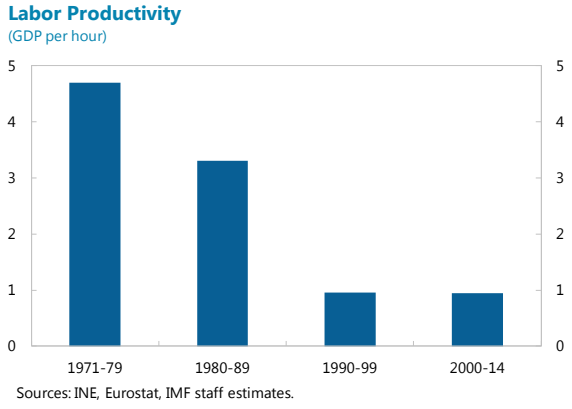
OBSTACLES TO FIRM GROWTH IN SPAIN[1]

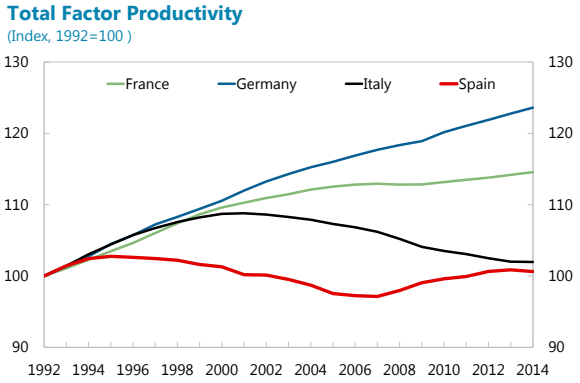
Small and unproductive firms are often linked to low productivity and growth. A key question for policy makers, therefore, is what are the obstacles that prevent firms from expanding and what could be done to reduce them. This note assesses the key determinants of firm level productivity, documents significant variation across a number of firm characteristics, reviews obstacles to firm growth, and illustrates possible benefits from increasing firm growth and firm productivity for aggregate total factor productivity.

A. Background

1. Spanish productivity performance has been on a downward trend since the 1980s. Labor productivity growth and the level of total factor productivity (TFP) have been falling during the 1990s and continued in the 2000s despite the significant capital deepening in the pre-crisis period. As a result, the gap between Spain and the most advanced economies has widened significantly. Recent improvements have been linked mostly to the exit of low-productivity firms and the drastic labor shedding during the 2008–09 crisis.



Sources: INE, Eurostat, IMF staff estimates.



Sources: INE, IMF Staff Calculations.

2. Several factors have been associated with this trend. The pre-crisis decline in aggregate productivity growth is partly explained by the credit and construction boom which meant a shift in resources away from the more productive tradables sectors (Cecchetti et al, 2013). However, structural factors, including labor market duality (which lowers skill-building incentives in the temporary work segment), low R&D, and elements of the regulatory/legal framework ("cost of doing business") that constrain firm growth likely contributed to the large productivity gap relative to other high-income countries (Mora Sanguinetti and Fuentes, 2012).

[1] Prepared by Nina Budina (EUR), Mustafa Saiyid (MCM), and Xingwei Hu (TGS). We thank Vizhdan Boranova for excellent research assistance.

3. Several studies have pointed to the dominance of many low-productive small firms as an important factor inhibiting productivity growth. For example, research suggests that micro-enterprises in Europe are, on average, 20 percent less productive than larger companies (López-García and Sánchez, 2010)—and this gap is particularly large for Spain. SMEs are less likely to innovate or spend on R&D (SBA Database, 2013) and are less exposed to international competition (López-García and Sánchez, 2010). There is also evidence of a positive relationship between firm size and TFP, in particular in sectors such as manufacturing, where scale effects are important (Brandt, 2004); and that larger companies invest more in R&D and benefit more from ICT investments (Kumar et al., 1999, Pagano et al., 2003, Pilat, 2004).

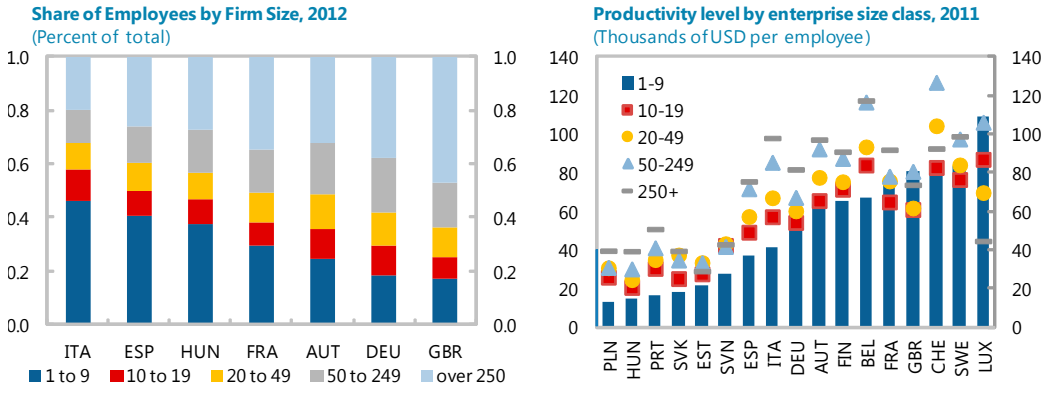
4. This paper uses firm-level data to investigate factors that inhibit firm growth and productivity in Spain. Using firm-level data, the analysis investigates the following questions: (i) What are the stylized facts describing Spanish firms in terms of their relative size and productivity, dynamics and differences across sectors and regions? (ii) Why are Spanish firms so small and what factors could potentially inhibit their growth? Specifically, is there evidence for size-related tax and reporting thresholds or regulatory barriers to entry and competition at the national or regional level? (iii) Finally, given firm size, what explains low firm productivity? Is it capital intensity or total factor productivity? And, are there productivity differences across regions and sectors?

5. This chapter is structured as follows. Section B presents stylized facts about the distribution of Spanish firms by size, sector, productivity, and other performance indicators. Section C discusses key factors inhibiting firm investment and growth, focusing on the quality of regional governments, the effect of size-related regulatory, tax, and reporting thresholds. Section D looks at factors hampering labor productivity. Finally, the last section offers some policy considerations and conclusions.

B. Stylized Facts

6. A key feature of Spain's corporate sector is the coexistence of a large number of very small, low-productivity firms with a few large and highly productive firms (OECD, 2014; see text figure). Indeed, micro firms (1 to 9 employees) and small firms (10 to 49 workers) employ nearly two thirds of the labor force and generate about half of the value added in the economy, but their

Structural Obstacles to Firm Growth



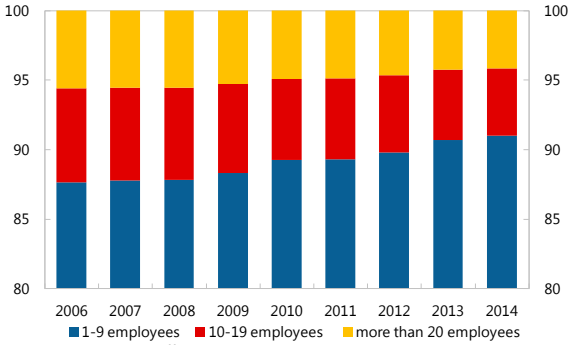
Sources: OECD, and IMF staff calculations.

productivity is typically lower compared to larger companies (European Commission, 2014). Spanish micro and small firms are also significantly less productive compared with peers.

7. While small and micro-sized firms dominate, there is significant regional and sectoral variation.

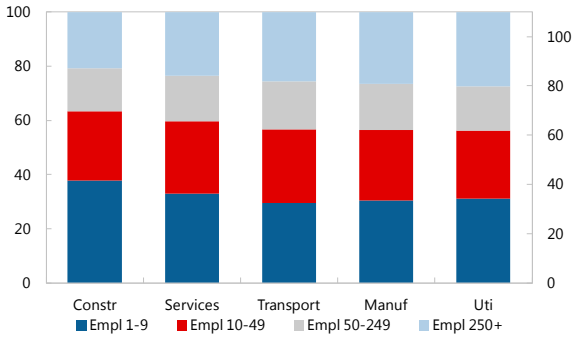
- Firms with less than 20 employees comprise 95 percent of non-financial firms in Spain. Micro firms with less than 9 employees represent 90 of all firms and their share increased after the crisis.[2]
- The incidence of small firms differs across regions, with the highest share of firms with less than 20 employees in Extremadura and the lowest ones in Madrid, La Rioja and Cantabria.
- The sectoral composition reveals a relatively higher share of small firms (in terms of sectoral value added) in the non-tradable sector. Micro and small firms specialize in services, including real estate services, professional services and food and accommodation, and in construction.
- Medium and large firms, in contrast, specialize in manufacturing, energy, and utility sectors and less so in construction, real estate and professional services.

Share of Firms by Employment Size
(Percent of total)



Sources: INE, IMF staff calculations.

Share in Value Added by Sector and Size
(Percent of total for each sector)



Source: SME Performance Review, 2014.

8. To add to this picture, this paper uses the ORBIS dataset covering about 700,000 Spanish firms between 2006–13. The database includes all companies reporting to the Registered Commerce of the Province in Spain. It includes a significant fraction of all the micro, small and medium enterprises.[3] The coverage of this dataset is relatively large, with firms included in the sample accounting for about a half of corporate total gross value added and ⅔ of total cost of employees. Nevertheless, micro firms are somewhat underrepresented compared to the data from the National Statistical Institute, reflecting, among other things, lighter reporting standards for those firms. In addition, the analysis focuses only on active companies reporting the number of employees. The ORBIS dataset contains balance sheets, income statements, location and industrial classification.[4]

[2] More than a half of all micro firms in our sample employ only between 1 and 3 employees.

[3] The database excludes companies with zero employees.

[4] See also Orbis - Bureau van Dijk and Ribeiro and others (2010).

9. Using this data, several indicators of firm-level labor productivity and performance can be computed, complementing the stylized facts already discussed. These include: (i) real gross value added per worker; (ii) the ratio of gross value added to cost of employees; (iii) real operating revenue per worker; (iv) the ratio of operating revenue to cost of employees; and (v) return on assets, defined as net income over total assets. Figure 1 illustrates these measures of productivity, revealing sizeable disparities across firm size:

- As expected, all the indicators used as proxies show that labor productivity increases with firm size. This is particularly true for gross value added per worker. One advantage of this measure as proxy for firm level productivity is that it controls for the intermediate input usage (Gal, 2013).
- Micro firms, in particular those in construction, trade and services, tend to be the least productive and least profitable.
- Labor productivity and profitability of micro and small firms deteriorated significantly post 2008–09 crisis, compared to medium-sized and large companies (Figures A.1 and A.2).
- Firms in sectors less exposed to competition (e.g., services) seem to have lower productivity than others (such as manufacturing). Moreover, the dispersion around the median productivity and profitability is greater for energy, services, and the "others" category, which includes agriculture, mining and quarrying, and otherwise unspecified sectors.
- There are sizeable regional disparities in labor productivity and profitability (see below, and Figures A.1 and A.2).

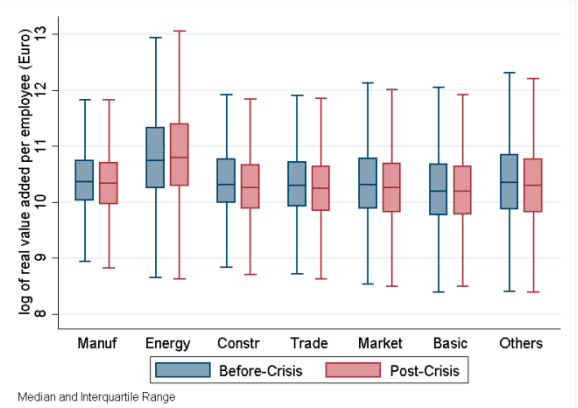
10. The data also suggests that micro and small firms are also among the firms most under economic pressure. About a third of all firms in the database are suffering losses, with micro enterprises comprising the bulk of the loss-makers (Figure A.3). There is significant regional variation in terms of the distribution of the loss-makers, with particularly high number of loss-makers in Catalonia and Andalucía. Across sectors, loss-makers are concentrated in construction, trade and market services. Loss-making firms are defined as firms with negative EBIT or net operating income, with similar results for both definitions.

C. Firm Size and the Role of Institutional Factors

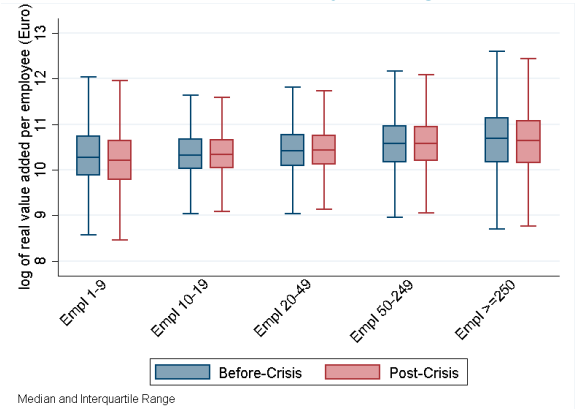
11. Product and labor market settings are likely to play an important role for productivity and firm growth in Spain. In general, burdensome regulations on entrepreneurial activity tend to hamper market entry and growth of small firms (Scarpetta and others, 2002). And there are indications that in Spain, despite recent progress, barriers to entrepreneurship, barriers to entry in the service sector, and relatively more cumbersome license and permit systems remain an obstacle to firm growth (Figure 2 and OECD, 2014).

Figure 1. Spain: Firm Labor Productivity

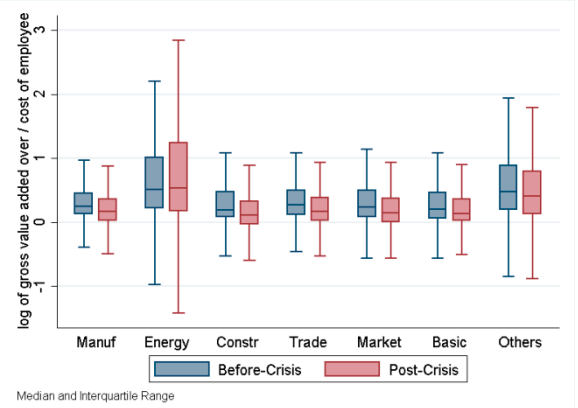
Real value added per employee (in logarithms)



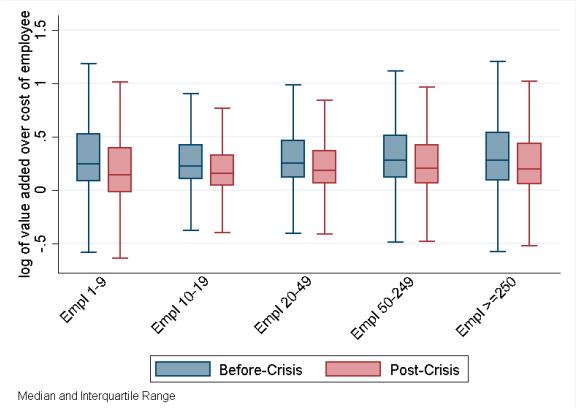
Real value added per employee (in logarithms)



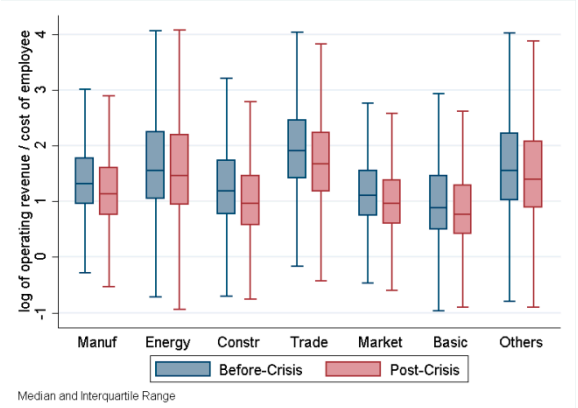
Real value added over cost of employees (in logarithms)



Real value added over cost of employees (in logarithms)



Real operating revenue over cost of employees (in logarithms)



Real operating revenue over cost of employees (in logarithms)

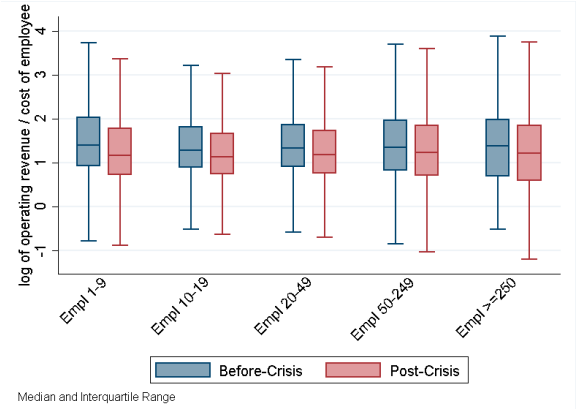
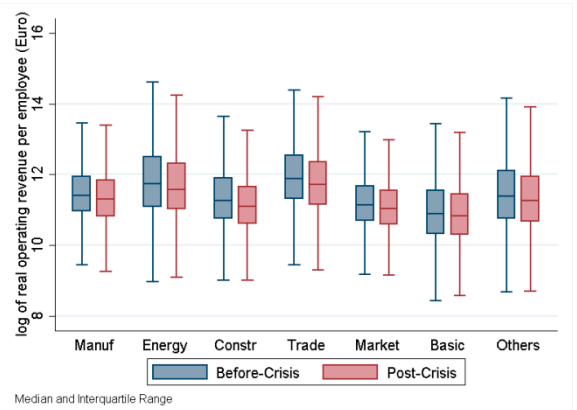
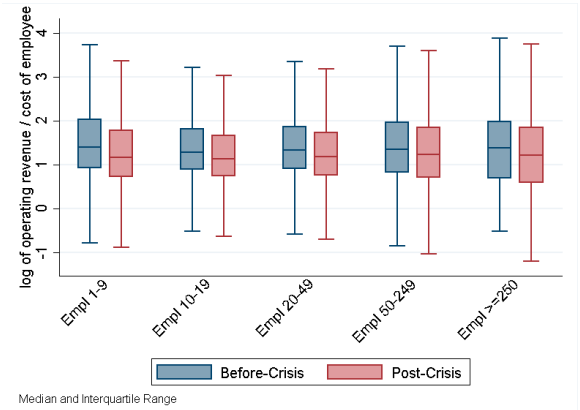


Figure 1. Spain: Firm Labor Productivity (concluded)

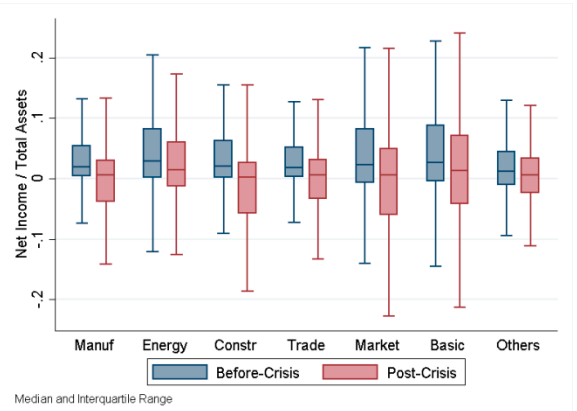
Real operating revenue per employee (in logarithms)



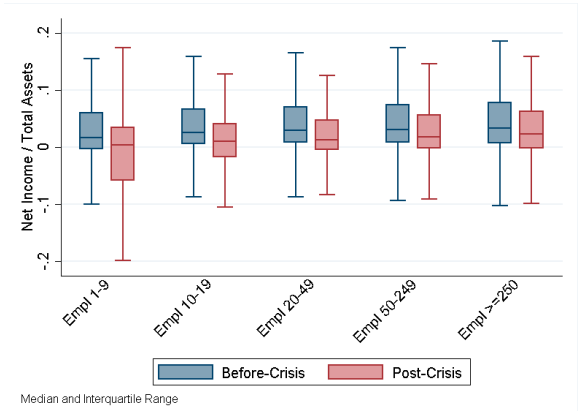
Real operating revenue per employee (in logarithms)



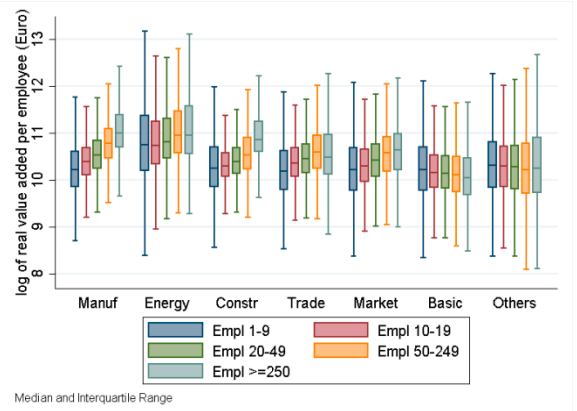
Net income to total assets (in logarithms)



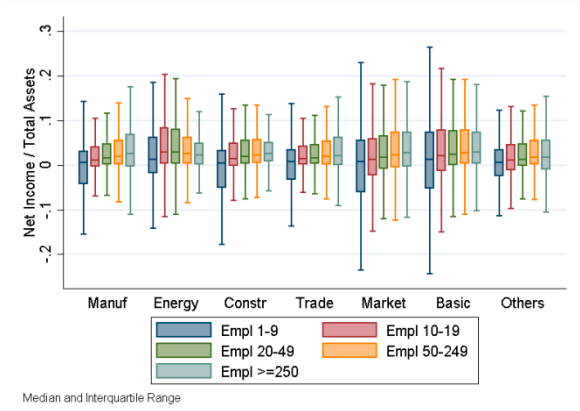
Net income to total assets (in logarithms)



Real value added per employee (in logarithms)

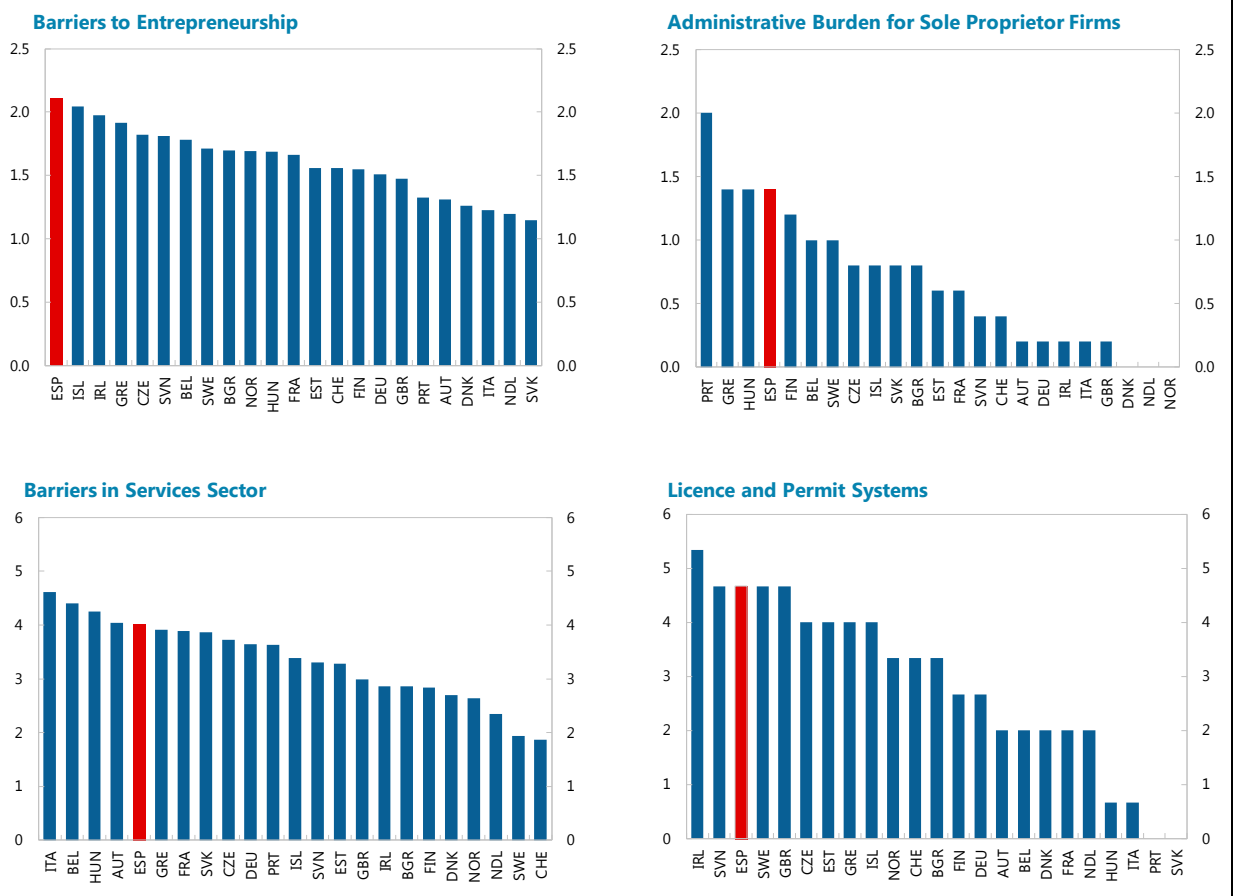


Net income to total assets (in logarithms)



Source: ORBIS; and IMF staff calculations.

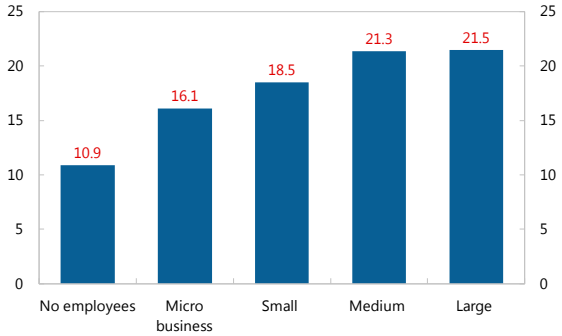
Figure 2. Economy-wide Product Market Regulation, 2013
(Index scale 0 to 6 from least to most restrictive)



Sources: OECD Indicators on Product Market Regulation (PMR).

12. Size-related taxation thresholds can create disincentives for firms to grow. In the past, the corporate tax system has not created incentives for firms to grow, as it allowed for lower corporate standard tax rates for SMEs with an annual turnover below €10 million, and even lower rate for those under €5 million and with fewer than 25 employees, combined with generous deductions for larger firms (OECD, 2014). The result has been an effective tax rate that increases with firm size, discouraging firm growth. The 2015 tax reduced some of the disincentives to firm growth by eliminating the reduced rate for SMEs while reducing the deductions and tax benefits for big companies, to lower the tax gap between the actual and the effective rate.

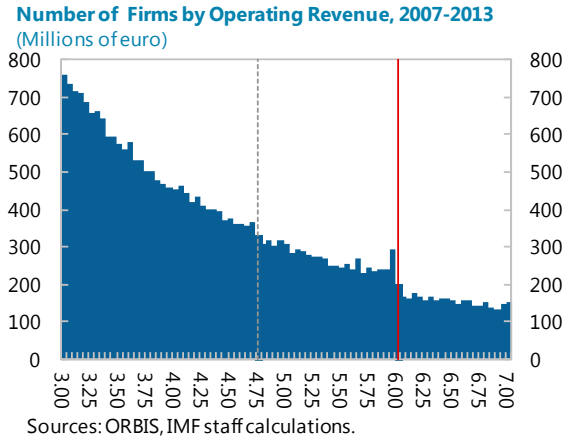
Effective Corporate Income Tax, 2012
(Percent)

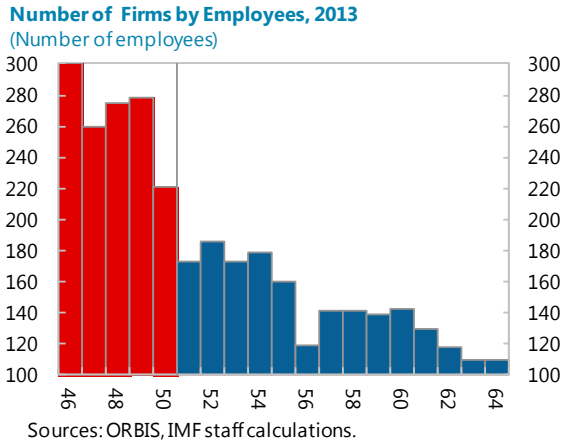


Source: Ministry of Finance.

13. Size-related regulatory and reporting thresholds could also matter. For example, size-related labor legislation that requires a compulsory workers' committee for firms with more than 49 employees could discourage firm growth (Bank of Spain, 2015). There is also evidence for substantial bunching of firms just below the "large tax-payer" threshold—firms with operating revenue of more than €6 million are monitored by the Large Tax Payers Unit (Figure 3), which has been associated with a higher enforcement intensity (see Almunia and Lopez Rodriguez (2014) using data over 1999–2007 period). There is also a requirement for external audit if the firm's size exceeds two of the following thresholds for two consecutive years: (i) €4.75 million in operating revenues; (ii) €2.4 million of total assets; and (iii) 50 employees on average over the year, though since 2007 the first two of these thresholds have been increased to€5.7 and €2.85 million, respectively. These criteria also determine if a firm can use an abbreviated form of corporate income tax return and create compliance costs.

Figure 3. Firms Density



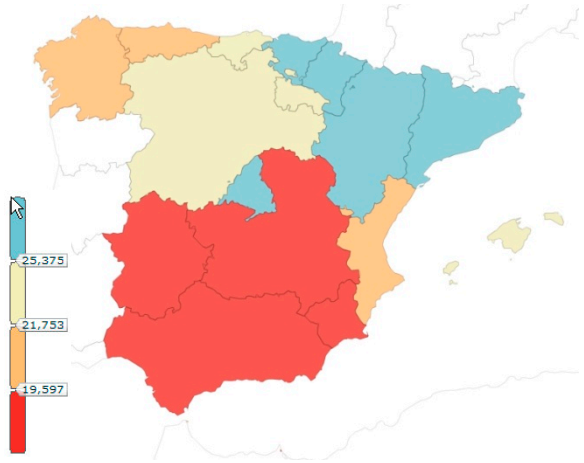


14. Regional aspects of regulation and quality of government can also affect firm growth and productivity levels. Indeed, there are indications that regional GDP per capita correlates with measures of firm labor productivity (e.g., real value added per employee). While some of this might have to do with historically grown industrial structures, differences in firm productivity across regions with similar sectoral or firm-size structure could suggest other problems—including differences in local or regional regulatory practices or the quality of regional or local governments.[5]

[5] Indeed, regional variations in the share of small firms seem to be negatively correlated with the survey based index of regional government quality developed by the European Commission (2010)—an issue we will return to below.

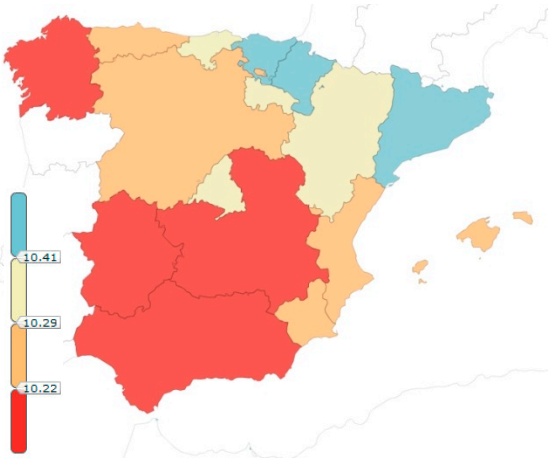
GDP Per capita and Productivity in Spanish Regions

Regional GDP, average 2006-2013



Sources: HaverAnalytics, IMF staff calculation

Regional Labor Productivity, average 2006-2013



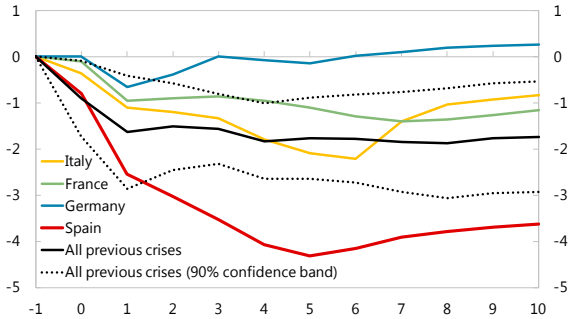
Sources: ORBIS, IMF staff calculation

D. A Closer Look at Determinants of Firm Productivity

What are the main drivers of labor productivity at the firm level? The stylized facts discussed so far point to the small scale and low productivity levels of Spain's non-financial corporate sector and to possible obstacles to firm growth. This section takes a closer look at the determinants of labor productivity using econometric techniques, with a focus on two key elements: (i) the role of financing constraints as a key determinant of investment, which can boost labor firm productivity by raising the capital intensity of production; and (ii) the determinants of TFP (i.e., the level of productivity that is not explained by the stock of capital available).

Change in Investment-to-Capital Ratio

(Percentage points, years on X-axis)



Sources: IMF (2015a) based on Laeven and Valencia (2014), IMF staff estimates.
1/Year 0 is 2008 for euro area countries.

Access to finance and investment

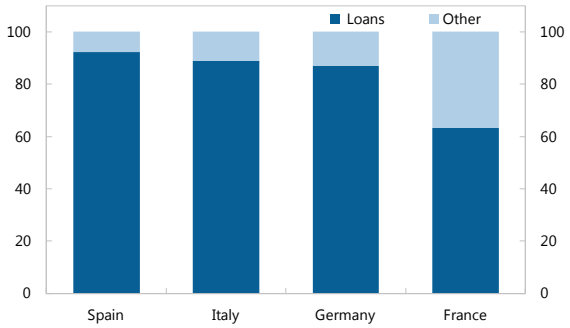
15. Following years of strong investment during the pre-crisis boom, investment fell sharply across all sectors and geographical regions. While the fall in demand was an important factor holding back investment, other factors such as financial sector deleveraging and impaired corporate sector balance sheets and debt overhang played a role in explaining the weak investment (see Chapter 4 of the April 2015 WEO). Empirical evidence for Spain also suggests that the strength of corporate balance sheets is important for the availability of financing (Jimenez, Ongena, Peydro and Salas, 2014).

16. High corporate debt levels and debt overhang amplified the impact of the sharp fall in demand on investment. Using a standard investment model for a sample of 500,000 Spanish firms over the period 2006–13, second chapter of the 2015 Italy Selected Issues Paper (IMF Country Report 15/167) finds evidence of a significant negative impact of firm leverage and debt overhang on firm investment, after accounting for sales growth (proxing investment opportunities), return on assets (proxing firm profitability), cash-to-assets ratio (which captures the role of liquidity constraints), year fixed effects to control for fluctuations in aggregate demand, and firm-level fixed effects that absorb all time-invariant heterogeneity across firms (e.g., from regional or sectoral factors). Investment is also found highly sensitive to the availability of liquid assets and that the financial position of the firm plays a particularly large role for investment in micro and small firms.

17. The creditworthiness of Spain's smaller firms improved by end-2014, aided by the domestic recovery. This reflects the corporate deleveraging process observed since the crisis, reflected in a reduction of the debt equity ratio to its 2006 level, and a significant pickup in firms' profitability, albeit from very low levels (Figure 4).

18. However, access to finance remains constrained for a large fraction of SMEs. While firms in general are now finding it easier to obtain access to banking credit (the mid-2014 ECB survey finds that the proportion of SMEs reporting access to finance as their most pressing problem has fallen to 20 percent of total respondents from 35 percent at the peak), many SMEs are still financially constrained.

Sources of Firms' Financing
(Percent of total)



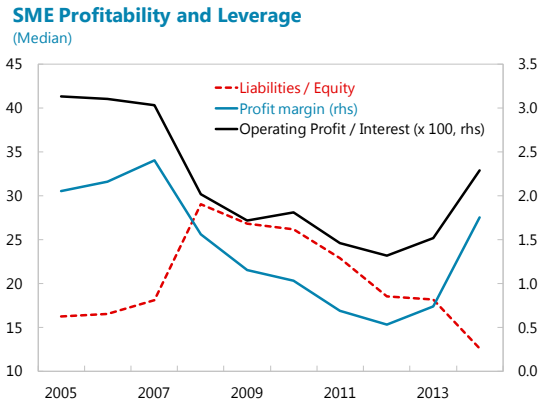
Sources: National central banks, IMF GFSR (October 2014).

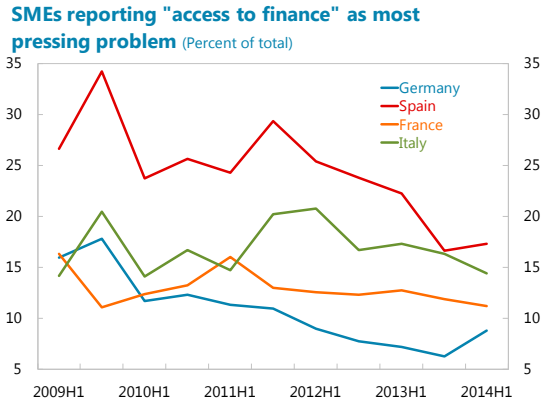
- The ECB survey indicates that a larger fraction of SMEs are concerned about access to finance in Spain than in Germany, France or Italy. This is particularly important as Spanish SMEs continue to rely on financing mainly from banks.

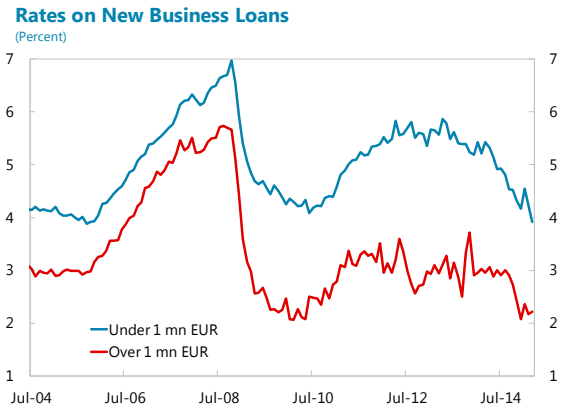
- While borrowing costs for Spanish SMEs have come down by nearly 300 basis points on average from the 2008 peak, they are still about 170 basis points higher than those on larger loans to non-financial corporates. This compares to the long-term historical spread of closer to 150 bps (Figure 4). In addition, non-financial corporates in Spain continue to pay about 90–100 basis points more than those in Germany and France, whereas historically this spread has averaged 40–50 basis points.

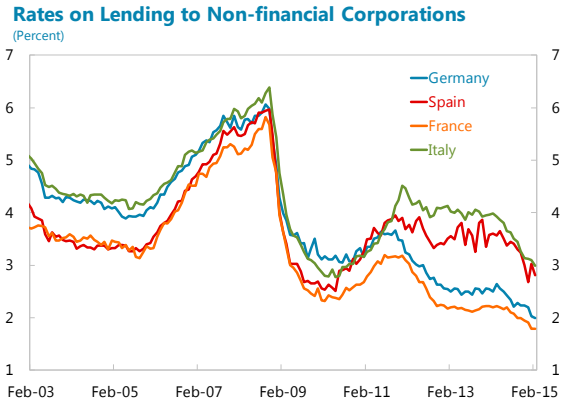
19. In addition, the recent financial crisis led to a tightening of banks' credit underwriting practices. Historically, banks based their credit decisions on their perception of SMEs' ability to pay and their assessment of the foreclosure value of any collateral in case of default. Such collateral

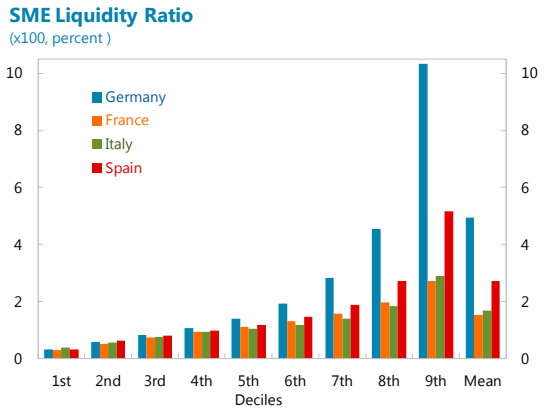
Figure 4. SMEs Access to Finance

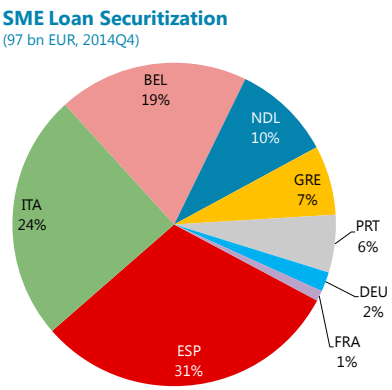












Sources: AFME, BdE, Bloomberg, ECB, ORBIS, SAFE, SIFMA.

provided adequate recovery value against banks' principal, due to the full-recourse nature of many obligations, but the process was slow. During the crisis, collateral values and SME profitability fell significantly, which led banks to focus more on free cash flow (that is, liquidity) in assessing creditworthiness. On this measure, according to ORBIS data nearly 30 percent of Spanish SMEs are still liquidity constrained, with less than 100 percent coverage of liabilities coming due in one year.

20. Spanish firms still face higher credit costs than those in many euro area peers. Differences in liquidity levels of Spain's SMEs vis-à-vis those in peer countries explain part of these differences. In addition, despite the recent rebound in profitability, the median pre-tax return on equity for Spain's SMEs remains lower than for those in Germany, France and Italy. Moreover, actual or perceived differences in transparency concerning the financial situation of SMEs may also be playing a role according to various interlocutors in Spain. The recent collapse of an IT company is frequently cited in this context.

21. Against this background, a number of policy measures have supported banks' ability to lend to firms. Financial sector reform supported by the ESM program led to stronger capital buffers for most banks; problem assets were transferred out of banks' balance sheets; and local savings banks, which suffered disproportionately from adverse real estate exposure, were consolidated. Separately, the ECB supported banks' funding conditions via the provision of LTROs, a purchase program for securitized products, and more recently TLTROs and QE.

22. In addition, in April 2015, the Spanish authorities passed a new law on securitization that allows: (i) greater flexibility for issuers concerning liabilities of securitization structures; (ii) active management of underlying collateral assets; (iii) a diversified asset pool comprised of different types of assets; (iv) a securitization structure to receive external guarantees; and (v) the use of third-party custody and administration of pool assets by originators. Although SME securitization is relatively small in Spain, amounting to only €30 billion, the law affects a much broader securitization universe of nearly €180 billion in Spain, which could have a much greater impact on banks' ability to lend to SMEs.

23. Recent reforms of the insolvency framework will also help. A key aspect of strengthening banks' financing of SMEs is ensuring that problem loans are addressed quickly. For this purpose, the authorities have strengthened mechanisms that encourage distressed borrowers to reach out-of-court debt restructuring agreements with creditors, including banks.[6]

[6] See "Strengthening the Insolvency Framework for SMEs" by Chanda de Long et al for the 2014 Spain Article IV Consultation (pp. 35-43), http://www.imf.org/external/pubs/ft/scr/2014/cr14193.pdf.

24. The authorities have also continued to promote non-bank finance through various initiatives.[7]

- *Direct debt and equity financing of SMEs.* This is mainly achieved by means of two public institutions: Instituto de Crédito Oficial (ICO), a state-owned bank, and Empresa Nacional de Innovación (ENISA), a public company that is attached to the Ministry of Industry, Energy and Tourism. While ENISA focuses mainly on innovative, manufacturing and technology-related firms, ICO provides financing for larger SMEs, mainly those involved in infrastructure development (see table). ICO has a balance sheet comprised of €102 billion in loan assets, funded mainly by €93 billion of market debt. Prior to ECB's TLTRO program, an important component of its business was lending to banks for SME finance at rates that were often below the sovereign yield. This was possible because ICO received its own funding support from the EIB and more recently from various regional public banks, including Germany's KfW, at rates below the sovereign.

- *Alternative public debt and equity markets for SMEs.* The Mercado Alternativo Bursátil (MAB), an equity market platform for SMEs, and the Mercado Alternativo de Renta Fija (MARF), for bonds, became operational in 2009 and 2013 respectively. These alternative public capital platforms have easier listing and reporting requirements for SMEs relative to larger companies; but also suffer from limited liquidity partly on account of reduced transparency.[8]

- *Private equity and debt markets.* Various initiatives since July 2012 include, the launch of FOND-ICO Global, a €1.2 billion fund of funds aimed at promoting early-stage private financing for firms; a revamped legal framework for venture capital (Law 22/2014); and legal amendments relating to crowdfunding and securitization (Law 5/2015).

25. Further improvement in access to financing for Spain's many small firms will depend on the further implementation of these initiatives and additional measures. For example, the authorities could continue to strengthen transparency of SME financials—including by requiring recognized audits, and regular timely reporting of consolidated financials in the centralized database of SME data; and could consider reducing the tax advantage of debt over equity financing for firms.

Total Factor Productivity

26. What drives firm-level TFP in Spain? Orbis data for the period 2006–13 allow to investigate how firm characteristics, such as size, main activity, or location affect the TFP of Spanish

[7] At the European level, the Juncker plan will help support SME finance. Under the plan, a new €315 billion European Fund for Strategic Investments (EFSI) will be expected to support public and private lending to euro-area SMEs over a 3 year-period. Funds are expected to be available from September 2015 at the latest.

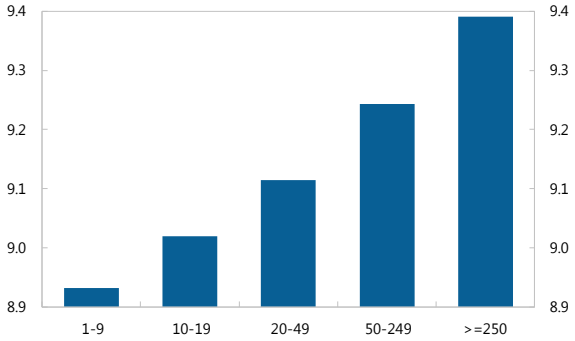
[8] Limited liquidity is partly due to the small size of issues, which are often simply held-to-maturity by investors.

firms. Specifically, we regress the (logarithms of) real output measured by real gross value added on (logarithms of) labor and capital. The estimated coefficients for labor and capital input can be interpreted as the share of labor and capital in a simple Cobb Douglass production function, while the constant term represents the average TFP level across firms and time. We also include time fixed effects to model the impact of overall macroeconomic conditions. We then add fixed effects that measure specific firm characteristics to assess how they affect productivity. Specifically, we estimate the following model:

$$LGVA_{i,t} = \mu + \alpha LN_{i,t} + \beta LK_{i,t} + \tau YR_t + \eta SZ_i + \kappa SECT_i + \lambda RGN_i + u_i + \varepsilon_{i,t}, \quad (1)$$

where $LGVA_{i,t}$, $LN_{i,t}$ and $LK_{i,t}$ are the logarithms of real gross added value (in euro), the number of employees, and the real fixed assets (in euro) for firm *i* at year *t*, respectively. This model includes fixed effects for time, YR_t, firm size, SZ_i , sector, $SECT_i$, and regional location, RGN_i, country-wide intercept, μ, and the firm-specific random effect, u_i. The error term $\varepsilon_{i,t}$ has zero mean and is assumed to be uncorrelated with other terms on the right side.[9] Panel unit root tests confirm the stationarity of the variables, allowing us to estimate equation (1) in levels.

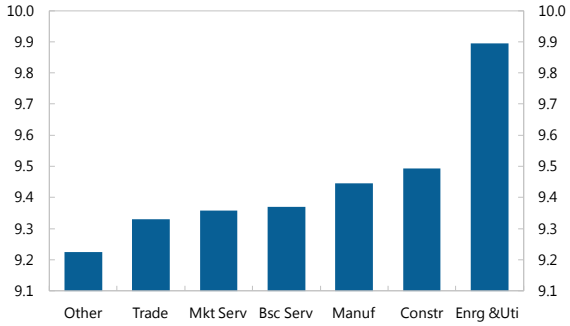
Estimated Size Fixed Effects and Productivity
(Differences in logTFP controling for time effects)



Sources: ORBIS, and IMF staff calculations.

27. The results confirm that there are significant productivity differences across various firm characteristics. We estimate a benchmark model, where, in addition to the factors of production, we include time, firm size fixed effects (Column 1b, Table A.1). The coefficients of labor and capital and the constant term, measuring the average TFP level, are all positive and highly significant. In addition, all the firm-size fixed effects are also significant. They suggest that firm size is strongly positively correlated with TFP, with micro firms being about a third less productive compared to large firms.

Estimated Sector Fixed Effects and Productivity
(Differences in logTFP controling for time and size effects)



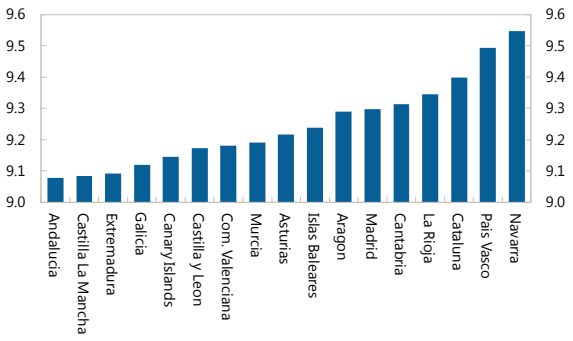
Sources: ORBIS, and IMF staff calculations.

[9] A potential problem in estimating production functions is the possible endogeneity of inputs. However, using stochastic frontier analysis or system GMM, which have been shown to help address these issues (see Van Biesebroeck, 2008 and Syverson, 2011), we find broadly similar results for most specifications. This suggests that the endogeneity bias may not be particularly strong in our sample.

28. There is also strong evidence of systematic differences in TFP across sectors. To establish this, we include sector fixed effects to the baseline regression to check for potential sectoral differences in productivity (Column 1d, Table A.1), while controlling for firm size and regional location. These dummies are highly significant and suggest that sectors such as utility and energy, and manufacturing are relatively more productive (in TFP terms) than services and trade. The firm-size fixed effects remain significant even after accounting for productivity differences across sectors. In economic terms, the productivity gap between the least productive and the most productive sectors amounts to about a third.

29. The location of firms matters as well. In addition to time, size, and sector dummies, we include regional dummies in the baseline specification to find out if firms' location has any additional impact on productivity (Column 1d, Table A.2). The results indicate significant regional TFP differences even after accounting for differences in firm size and sectoral composition. These effects are economically significant as well—for example, the productivity gap between firms in the least productive and in the most productive region is about 50 percent.

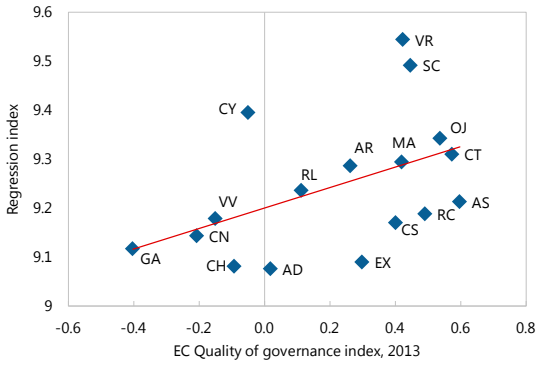
Estimated Regional Fixed Effects and Productivity
(Differences in logTFP controling for time, sector and size effects)



Sources: ORBIS, and IMF staff calculations.

30. The differences in TFP across regions could point to differences in regulatory practice or the quality of government. At first, regional effects could represent otherwise unexplained "local" factors of production, including—for example—differences in human capital (not captured in the labor input variable) or in climate. However, as discussed, firms are also subject to various obstacles to growth, some of which are related to governance (e.g., tax or other public administration) and the implementation of product market regulation (e.g., permits and licensing). To the extent that regions differ along these dimensions, this might also be reflected in the regional fixed effects. Indeed, there is evidence of positive correlation between the estimated regional TFP fixed effects and the quality of regional government index, a survey-based measure, developed by the European Commission. This finding is broadly in line with a number of reports pointing to differences in regional regulatory practice in Spain (OECD, 2014). Using firm-level data and a new regional index of retail sector regulation, a recent study by the Bank of Spain also confirms that a more stringent regional regulation is

EC Quality of Governance Index

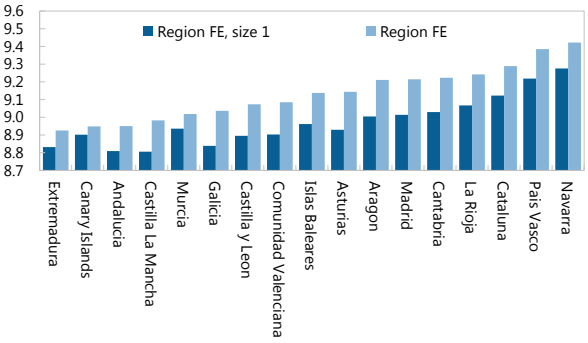


Sources: EC (based on WB Governance Indicators), IMF staff calculation.

associated with lower productivity of the sector, while less stringent regional regulation is associated with higher firm productivity.[10]

31. We also examine whether there is regional variation in the productivity gap between micro and large firms. This could be the case, for example, because micro firms are generally more dependent on the quality of government or they are more affected by regulatory fixed costs. To examine this issues, we re-estimate the benchmark equation (1d), including all the fixed effects, an interaction term between regional fixed effects and the dummy for micro firms, and between sector fixed effects and the dummy for micro firms (Table A.2). All the fixed effects, including the regional effects for micro firms are highly significant.

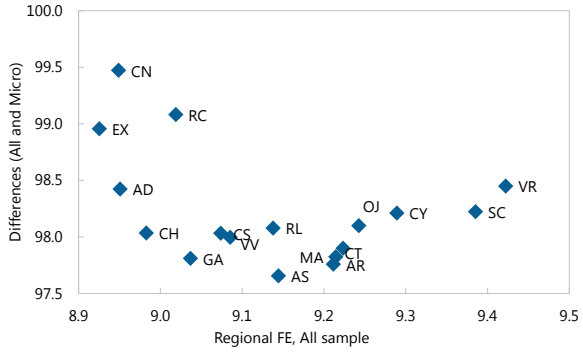
Differential Regional Fixed Effects for Micro Firms
(Differences in logTFP controling for time, sector, region and size)



Sources: ORBIS, and IMF staff calculations.

- Similar to the pattern of regional TFP differences, there are significant productivity differences between micro and larger firms across regions.
- With a few exceptions, regional differences in small-firm TFP mirror the differences in the entire population.
- However, the productivity gap between micro and other firms is larger in regions with average and higher productivity and smaller in regions with relatively low or high productivity.

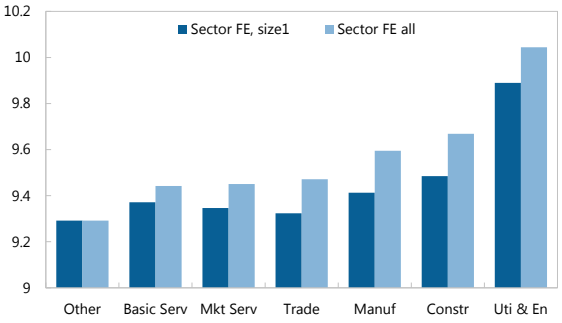
Regional FE and Productivity Differences (All -Micro)



Sources:ORBIS, IMF staff calculations.

32. There is, in addition, evidence for productivity gaps between micro and larger firms across economic sectors. As discussed, in principle, productivity gaps could be larger in sectors that are likely to be more dependent on regional governments, such as for example services or construction, where small firms could be disproportionally more affected by size-related regulations. However, the results seem to suggest

Differential Sector Fixed Effects for Micro Firms
(Differences in logTFP controling for time, region and size)



Sources: ORBIS, and IMF staff calculations.

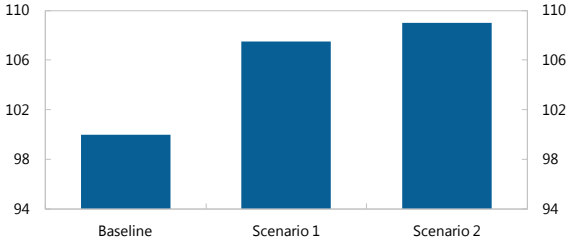
[10] See Bank of Spain, Annual Report 2014, June 2015.

that the gap between micro and larger firms is larger in sectors where productivity is relatively higher, especially in manufacturing and utilities—perhaps reflecting the particular importance of economies of scale. High barriers to entry in the services sector could also play a role by lowering competition and incentives to raise productivity.

33. The results seem unaffected by possible sampling bias. As discussed, the ORBIS data tends to under-represent micro firms (OECD, 2013).[11] To see whether this matters for our results, we re-estimate our baseline model using population weights in line with the full sample of firms based on OECD (2014).[12] The approach effectively gives higher weights to micro and small companies compared to medium and large companies. Maximum-likelihood random effects (MLE) estimates of the benchmark equation show that the results remain qualitatively similar.

34. A simple benchmarking exercise illustrates the potential benefits of growing Spain's many small firms and improving their productivity on aggregate TFP. The starting point is our estimate of Spanish firm-level TFP, computed as the average TFP of the five firm-size categories, weighted by their relative weights based on model (1d) in Table A.1. Second, we ask whether counterfactually "growing" Spain's firms, by adjusting the share of less-productive micro firms downward and that of more productive larger firms upward until they match the employment share by firm size observed in Germany, will affect average TFP across the economy. The comparison with Germany is helpful because, as discussed, Germany's TFP growth has been an important contributor to long-run growth in the past and its firm distribution favors relatively larger firms. In a second step, we also increase the *level* of TFP of Spanish micro firms such that the gap between micro firms and large firms (with more than 250 employees) narrows to the one in Germany. As shown in Section II, the productivity gap of smaller firms tends to be smaller in Germany than in Spain. The results suggest average firm-level TFP gains from firm growth could be substantial: TFP would increase by about 7 percent as a result of an increase in the relative share of larger, more productive firms in line with that of Germany. Improving, in addition, the relative level of productivity of micro firms to match German's productivity gap would bring the average TFP level to 9 percent above the baseline.

Scenarios for potential TFP gains from firm growth 1/ 2/
(Real index of TFP)



Sources: Orbis, OECD, IMF staff estimates.
Note: 1/ Baseline computes average TFP using TFP estimates for each firm size group, weighted by their respective share in total . Scenario 1 the same as the baseline, but uses DEU's weights (the share of each firm size group in total for DEU). Scenario 2 the same as Scenario 1, adjusting the level of real TFP of the micro firms so that the TFP gap between micro and large firms is the same as that of DEU.
2/ The weights for ESP and DEU, and the DEU's relative productivity gap between micro and large firms are based on OECD data.

[11] The micro companies are given the highest weight (2.4), followed by companies with between 10–19 employees (1.7), companies between 20-49 (1.5), medium companies (1.4) and large companies (1.2). See OECD (2013) for further details on the derivation of weights applied to different size categories and for their results for Spain.

[12] See OECD (2014), Entrepreneurship at a Glance.

E. Conclusions and Policy Implications

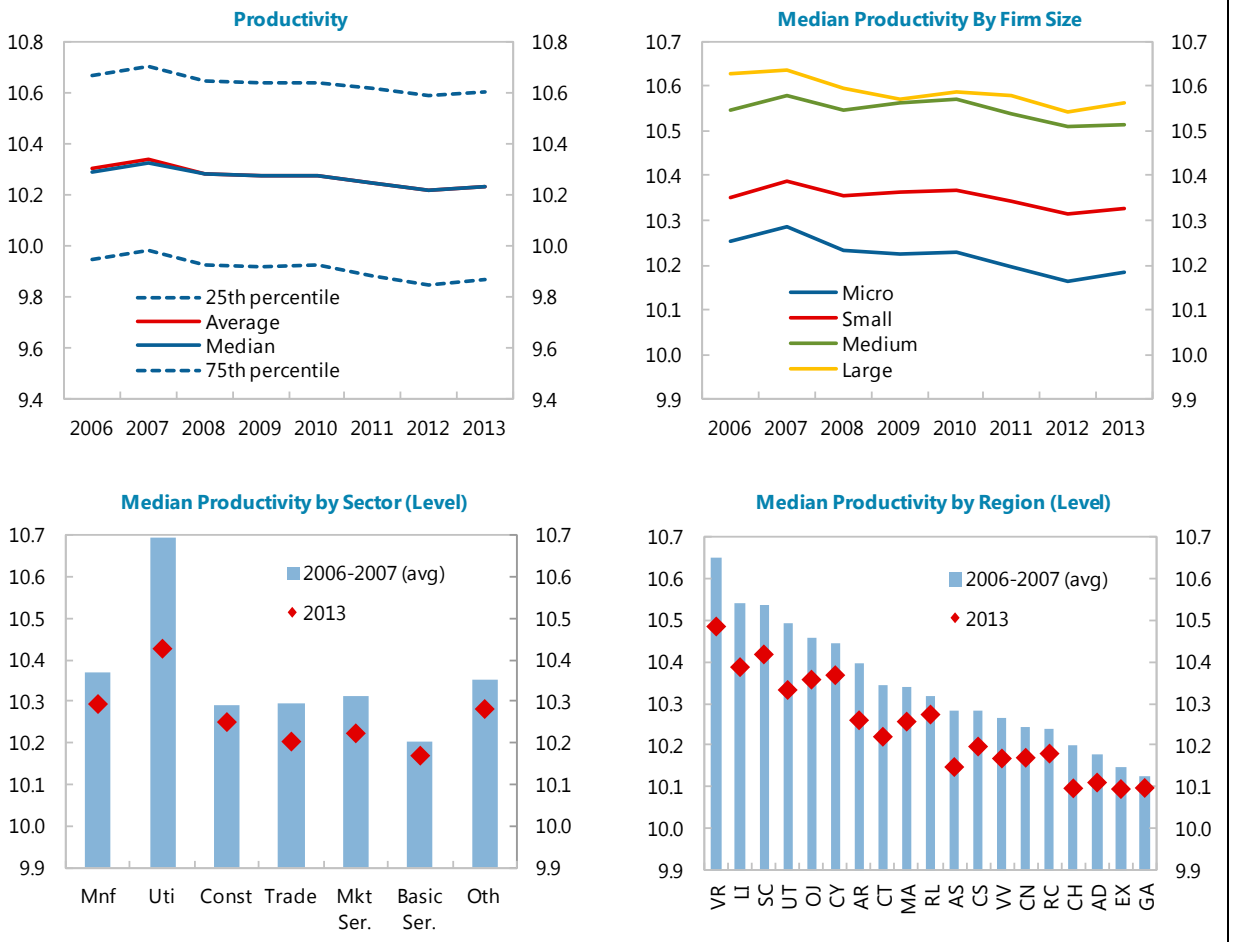
35. The low productivity of the Spanish economy can in part be explained by the dominance of small and low-productive firms. The average firm size in Spain is smaller compared to other developed countries and small firms comprise a much larger share of employment and output. However, small firms are likely to be less-productive because they find it difficult to export and innovate, and to realize economies of scale. As expected, the empirical analysis of firm productivity, using firm level data over 2006–13, confirms that firm size is strongly and positively correlated with firm-level TFP. At about a third, the estimated gap between micro and large firms, after accounting for all other firm level characteristics is sizeable.

36. Large variations across sectors and regions call for a careful review and elimination of obstacles to grow. For example, regional TFP variations could point to market inefficiencies and lack of competition at the regional level due to excessive strictness of regulatory requirements and practices (such as permits and standards) at the regional and local level. These act as barriers to entry, inhibit competition, and stem firm growth, which can hurt firm productivity. This interpretation is in line with recent result in the literature suggesting that more stringent regional regulation is associated with lower productivity, while less stringent regional regulation is associated with higher firm productivity of the retail sector (Bank of Spain, 2015). Other obstacles to growth include size-dependent thresholds in regulation (e.g., in reporting, auditing, and labor-related regulation) and taxation, though the 2015 tax reform has reduced some of the disincentives to firm growth. In terms of sectoral TFP variation, the productivity of services is about a half of that of the energy and utility. Fostering competition in the services sector by accelerating the long delayed liberalization of professional service would contribute to reducing some of this gap.

37. Addressing these obstacles could open significant growth opportunities. An illustrative simulation suggests that lowering the employment share of small firms to match that of Germany, for example, would significantly raise the level of aggregate TFP by about 7 percent. Raising the average productivity of small firms so as to close their relative productivity gap with large firms to German levels could add about 2 percent. Reforms that enhance competition, encourage innovation, and foster internationalization can contribute to realizing some of these gains.

Annex

Figure A.1. Labor Productivity

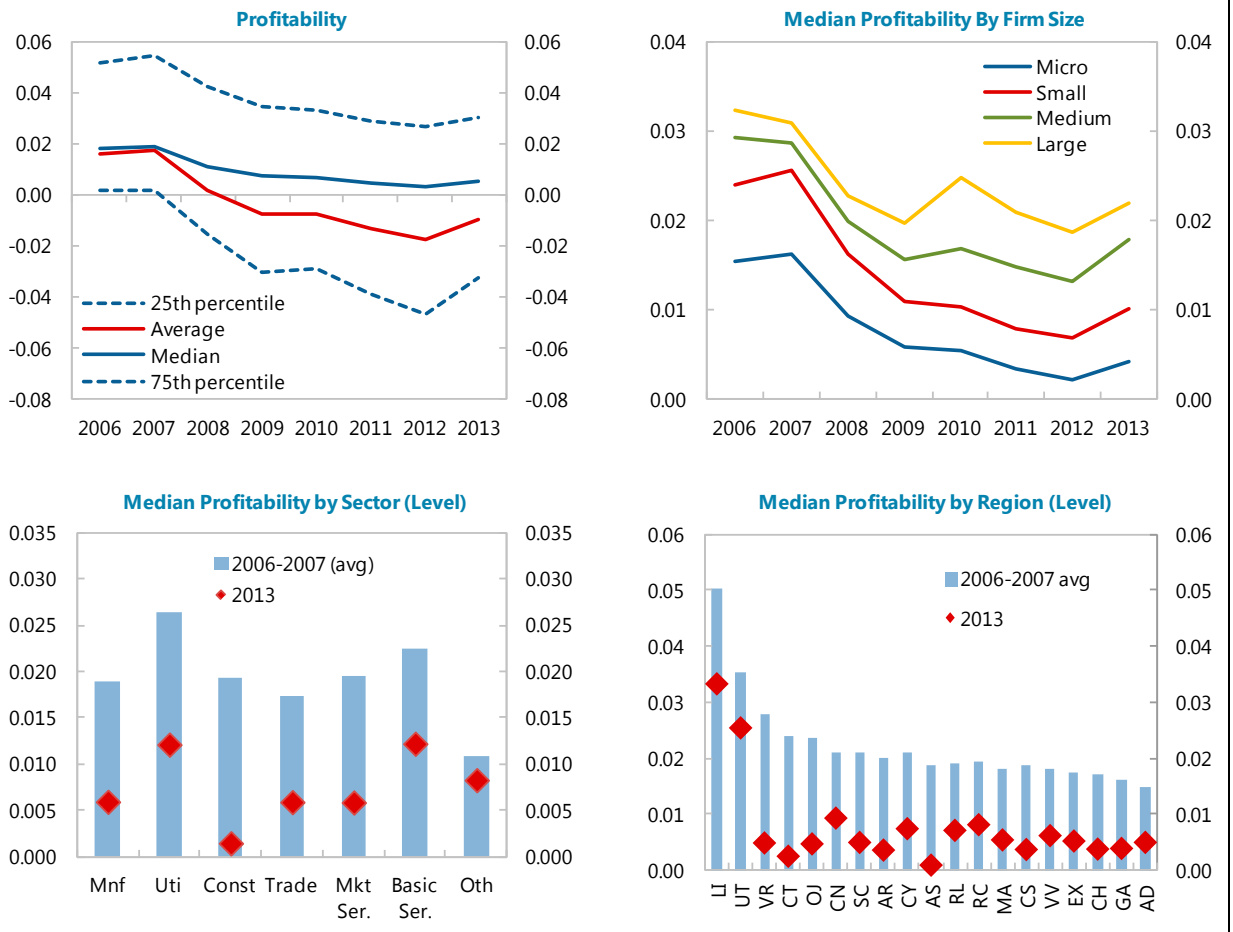


Source: Orbis, IMF staff calculations.

Note: Labor productivity is defined as gross value added over number of employees. The top and bottom 5 percentile of values are excluded to avoid distortion from outliers. Micro firms have less than 9 employees, small firms have between 10-49 employees, medium firms have between 50-249 employees, and large firms have 250 or above employees.

The regions are abbreviated as follows: Andalucia-AD, Aragon-AR, Asturias-AS, Canary Island-CN, Cantabria-CT, Castilla La Mancha-CH, Castilla y Leon-CS, Cataluna-CY, Ceuta-UT, Comunidad Valenciana-VV, Extramadura-EX, Galicia-GA, Islas Baleares-RL, La Rioja-OJ, Madrid-MA, Melilla-LI, Murcia-RC, Navarra-VR, and Pais Vasco-SC.

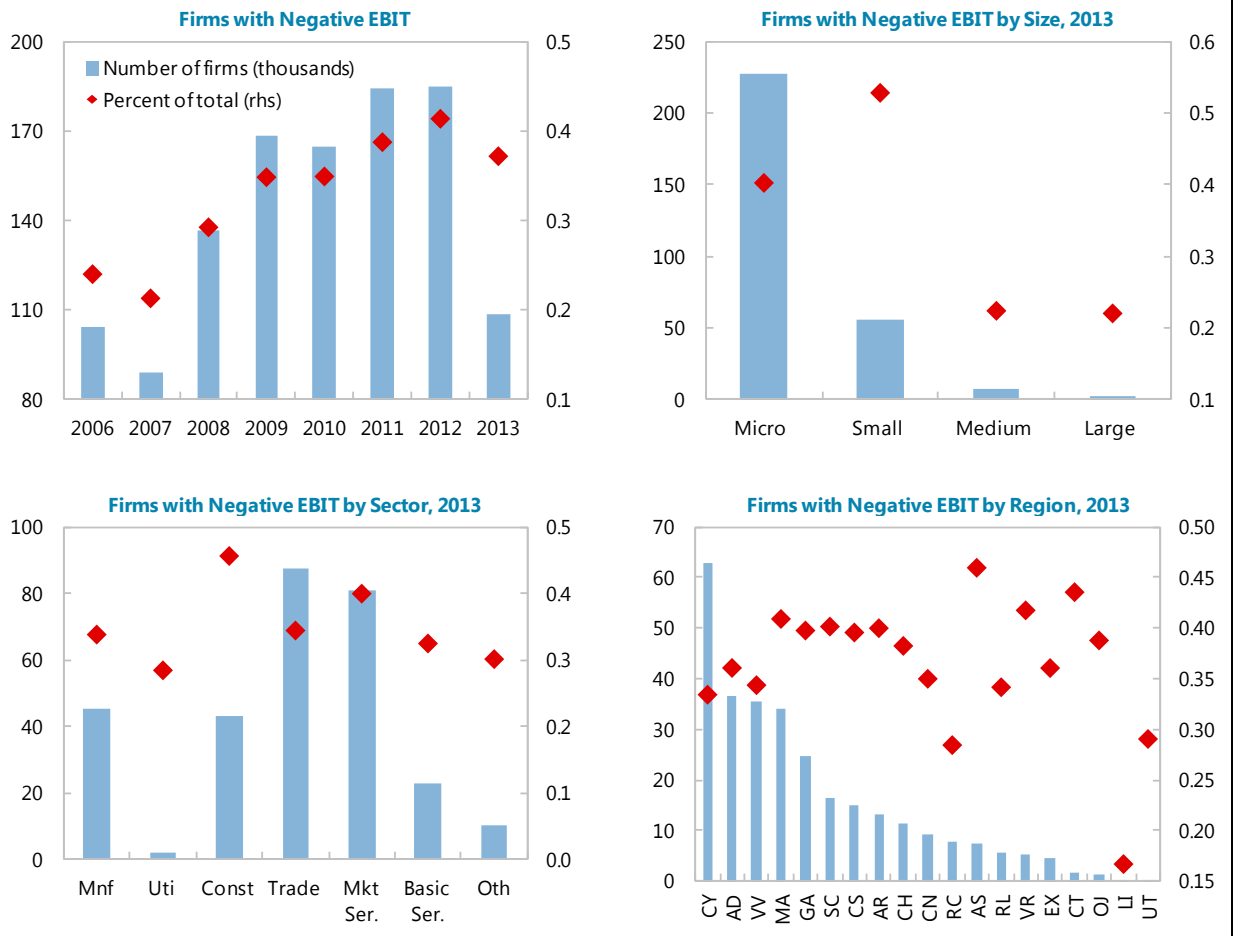
Figure A.2. Profitability



Sources: Orbis; IMF staff calculations.

Note: Return on Assets is defined as net income to total assets. The top and bottom 5 percentile of values are excluded to avoid distortion from outliers. Micro firms have less than 9 employees, small firms have between 10–49 employees, medium firms have between 50–249 employees, and large firms have 250 or above employees.

Figure A.3. Loss-Making Firms



Sources: Orbis; IMF staff calculations.

Note: Loss-making firms are defined as firms with negative earnings before interest and taxes. The top and bottom 5 percentile of values are excluded to avoid distortion from outliers.

Micro firms have less than 9 employees, small firms have between 10-49 employees, medium firms have between 50–249 employees, and large firms have 250 or above employees.

Table A.1. Spain: Panel Regression for Log of Real Value Added

	All (1a)	All (1b)	All (1c)	All (1d)	Micro (2a)	Small (2b)	Medium (2c)	Large (2d)
LN	0.778***	0.734***	0.733***	0.735***	0.713***	0.835***	0.801***	0.709***
	[0.0006]	[0.0008]	[0.0008]	[0.0008]	[0.0009]	[0.0026]	[0.0052]	[0.0097]
LK	0.137***	0.135***	0.135***	0.136***	0.127***	0.116***	0.146***	0.207***
	[0.0003]	[0.0003]	[0.0003]	[0.0003]	[0.0004]	[0.0006]	[0.0016]	[0.0039]
		[0.0013]	[0.0013]	[0.0013]	[0.0016]	[0.0019]	[0.0048]	[0.0107]
dummy_size1		-0.458***	-0.457***	-0.437***	9.222***	0	0	0
		[0.0092]	[0.0092]	[0.0092]	[0.0314]	[(omitted]	[omitted]	[omitted]
dummy_size2		-0.371***	-0.371***	-0.353***	0	9.166***	0	0
		[0.0090]	[0.0090]	[0.0089]	[omitted]	[0.0372]	[omitted]	[omitted]
dummy_size3		-0.275***	-0.276***	-0.260***	0	9.164***	0	0
		[0.0088]	[0.0088]	[0.0088]	[omitted]	[0.0375]	[omitted]	[omitted]
dummy_size4		-0.148***	-0.148***	-0.137***	0	0	8.757***	0
		[0.0085]	[0.0085]	[0.0085]	[omitted]	[omitted]	[0.1137]	[omitted]
dummy_size5				0	0	0	0	0
				[omitted]	[omitted]	[omitted]	[omitted]	[omitted]
dum_region1				-0.441***	-0.489***	-0.292***	-0.173	-0.041
				[0.0255]	[0.0305]	[0.0352]	[0.1075]	[0.4855]
dum_region2				-0.231***	-0.292***	-0.026	0.057	0.107
				[0.0258]	[0.0308]	[0.0358]	[0.1097]	[0.4891]
dum_region3				-0.305***	-0.375***	-0.088**	0.14	0.321
				[0.0261]	[0.0312]	[0.0363]	[0.1118]	[0.4913]
dum_region4				-0.374***	-0.399***	-0.318***	-0.213**	-0.064
				[0.0258]	[0.0308]	[0.0356]	[0.1085]	[0.4871]
dum_region5				-0.208***	-0.269***	-0.094**	0.057	0.256
				[0.0270]	[0.0323]	[0.0375]	[0.1146]	[0.5006]
dum_region6				-0.347***	-0.401***	-0.162***	-0.017	0.08
				[0.0257]	[0.0307]	[0.0355]	[0.1092]	[0.4890]
dum_region7				-0.436***	-0.487***	-0.246***	-0.138	0.037
				[0.0257]	[0.0307]	[0.0356]	[0.1096]	[0.4910]
dum_region8				-0.123***	-0.185***	0.033	0.201*	0.302
				[0.0254]	[0.0304]	[0.0351]	[0.1073]	[0.4849]
dum_region9				-0.339***	-0.394***	-0.169***	-0.012	0.053
				[0.0255]	[0.0305]	[0.0352]	[0.1077]	[0.4858]
dum_region10				-0.428***	-0.460***	-0.332***	-0.206*	-0.064
				[0.0263]	[0.0313]	[0.0365]	[0.1125]	[0.4982]
dum_region11				-0.401***	-0.468***	-0.180***	0.001	0.07
				[0.0256]	[0.0306]	[0.0354]	[0.1085]	[0.4868]
dum_region12				-0.282***	-0.343***	-0.110***	0.029	0.125
				[0.0259]	[0.0310]	[0.0359]	[0.1103]	[0.4897]
dum_region13				-0.175***	-0.225***	-0.028	0.072	0.235
				[0.0275]	[0.0328]	[0.0383]	[0.1188]	[0.5168]
dum_region14				-0.224***	-0.302***	-0.051	0.182*	0.371
				[0.0255]	[0.0304]	[0.0351]	[0.1073]	[0.4847]
dum_region15				-0.329***	-0.364***	-0.228***	-0.161	-0.154
				[0.0259]	[0.0309]	[0.0358]	[0.1094]	[0.4882]
dum_region16				0.025	-0.015	0.151***	0.200*	0.19
				[0.0265]	[0.0316]	[0.0369]	[0.1114]	[0.4904]
dum_region17				-0.026	-0.093***	0.128***	0.239**	0.256
				[0.0257]	[0.0307]	[0.0355]	[0.1084]	[0.4861]
dum_sector1			0.220***	0.168***	0.090***	0.236***	0.505***	0.503***
			[0.0058]	[0.0057]	[0.0067]	[0.0084]	[0.0256]	[0.0735]
dum_sector2			0.669***	0.633***	0.594***	0.662***	0.823***	0.799***
			[0.0122]	[0.0120]	[0.0143]	[0.0188]	[0.0458]	[0.0942]
dum_sector3			0.267***	0.233***	0.206***	0.270***	0.482***	0.549***
			[0.0056]	[0.0056]	[0.0064]	[0.0084]	[0.0263]	[0.0795]
dum_sector4			0.104***	0.064***	0.025***	0.206***	0.360***	0.208***
			[0.0055]	[0.0054]	[0.0063]	[0.0083]	[0.0260]	[0.0741]
dum_sector5			0.132***	0.079***	0.051***	0.141***	0.370***	0.336***
			[0.0055]	[0.0054]	[0.0063]	[0.0083]	[0.0256]	[0.0729]
dum_sector6			0.144***	0.094***	0.075***	0.078***	0.154***	0.168**
			[0.0062]	[0.0061]	[0.0071]	[0.0093]	[0.0267]	[0.0742]
dum_sector7			0	0	0	0	0	0
			[omitted]	[omitted]	[omitted]	[omitted]	[omitted]	[omitted]
_cons	8.875***	9.390***	9.225***	9.520***	0	0	0	8.396***
	[0.0039]	[0.0105]	[0.0118]	[0.0280]	[omitted]	[omitted]	[omitted]	[0.4942]
Time	Y	Y	Y	Y	Y	Y	Y	Y
N	3246145	3246145	3246145	3246145	2404120	719482	102444	20099

Table A.2. Spain: Panel Regression for Log of Real Value Added

LGVA	Coef.	LGVA	Coef.	LGVA	Coef.	LGVA	Coef.
LN	0.736***	dum_region3	-0.147***	dum_sector2	0.752***	dummysz1_region11	-0.197***
	[0.0008]		[0.0379]		[0.0183]		[0.0369]
LK	0.136***	dum_region4	-0.342***	dum_sector3	0.377***	dummysz1_region12	-0.175***
	[0.0003]		[0.0373]		[0.0084]		[0.0374]
dummy_yr2006	0.219***	dum_region5	-0.068*	dum_sector4	0.179***	dummysz1_region13	-0.175***
	[0.0014]		[0.0392]		[0.0083]		[0.0397]
dummy_yr2007	0.248***	dum_region6	-0.217***	dum_sector5	0.158***	dummysz1_region14	-0.200***
	[0.0014]		[0.0372]		[0.0083]		[0.0366]
dummy_yr2008	0.169***	dum_region7	-0.308***	dum_sector6	0.150***	dummysz1_region15	-0.082**
	[0.0013]		[0.0372]		[0.0092]		[0.0372]
dummy_yr2009	0.094***	dum_region8	-0.002	dum_sector7	0	dummysz1_region16	-0.146***
	[0.0013]		[0.0368]		[(omitte]		[0.0382]
dummy_yr2010	0.083***	dum_region9	-0.206***	dummysz1_region1	-0.141***	dummysz1_region17	-0.166***
	[0.0013]		[0.0368]		[0.0366]		[0.0370]
dummy_yr2011	0.049***	dum_region10	-0.366***	dummysz1_region2	-0.206***	dummysz1_sector1	-0.182***
	[0.0013]		[0.0381]		[0.0372]		[0.0082]
dummy_yr2012	0	dum_region11	-0.254***	dummysz1_region3	-0.214***	dummysz1_sector2	-0.154***
	[0.0013]		[0.0370]		[0.0376]		[0.0183]
dummy_size1	-0.131***	dum_region12	-0.153***	dummysz1_region4	-0.047	dummysz1_sector3	-0.183***
	[0.0384]		[0.0376]		[0.0371]		[0.0080]
dummy_size2	-0.355***	dum_region13	-0.049	dummysz1_region5	-0.193***	dummysz1_sector4	-0.147***
	[0.0089]		[0.0400]		[0.0391]		[0.0080]
dummy_size3	-0.261***	dum_region14	-0.077**	dummysz1_region6	-0.178***	dummysz1_sector5	-0.104***
	[0.0088]		[0.0368]		[0.0370]		[0.0080]
dummy_size4	-0.137***	dum_region15	-0.272***	dummysz1_region7	-0.176***	dummysz1_sector6	-0.070***
	[0.0085]		[0.0374]		[0.0370]		[0.0090]
dummy_size5	0	dum_region16	0.130***	dummysz1_region8	-0.166***	dummysz1_sector7	0
	[(omitte]		[0.0384]		[0.0366]		[(omitte]
dum_region1	-0.340***	dum_region17	0.093**	dummysz1_region9	-0.181***	_cons	9.29***
	[0.0368]		[0.0371]		[0.0367]		[0.0390]
dum_region2	-0.080**	dum_sector1	0.303***	dummysz1_region10	-0.093**		
	[0.0374]		[0.0084]		[0.0378]		

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POTENTIAL OUTPUT IN FRANCE, GERMANY AND SPAIN: A RE-ASSESSMENT[1]

A. Introduction

1. Re-estimating potential output in euro area countries is particularly relevant at the current juncture. Estimates of potential output have been revised dramatically and repeatedly downward since the onset of the crisis, [2] suggesting considerable uncertainty around them (IMF, 2015). Even in the absence of any major structural break in the economy, estimating potential output involves a margin of error due to measurement issues and difficulty in identifying temporary demand factors. Moreover, quantifying the lasting effects of the crisis on each component of potential output—labor, capital, and the total factor productivity (TFP) residual—is difficult. Finally, potential output might have been overestimated during credit booms and underestimated during busts.

2. Assessing potential output is an important input for the design of economic policy. Potential growth estimates can help gauge future growth and inflation prospects, and help assess the fiscal stance. The need for a robust methodology suggests, among other things, reviewing a range of approaches (see, e.g., Benes and Pérez Ruiz, 2013) including, where relevant, models that account for the impact of financial cycles (e.g., Berger and others, 2015), and applying them consistently across countries.

3. This paper re-assesses potential output and its components for the three euro area economies—France, Germany, and Spain—using a consistent methodology. Specifically, we ask the following questions: (i) How has potential output evolved during the last quarter century, with a focus on developments since the onset of the crisis?; (ii) What have been the main sources of potential growth and how have they differed across the three countries?; (iii) What is the likely trajectory of potential output growth in the medium term (2015–20) and how much scope is there for policies to enhance growth potential?

4. We apply a multivariate filter (MVF) approach and benchmark the results against other commonly used models. This MVF approach, developed in the IMF's Research Department (MVFRES), estimates potential output based on a model that captures relationships between actual and potential GDP, unemployment and inflation (Blagrave and others, 2015).[3] We compare these estimates with

[1] Prepared by Nina Budina, Huidan Lin, Esther Pérez Ruiz, Jérôme Vandenbussche, and Anke Weber, under the guidance of Helge Berger and Petya Koeva Brooks (all EUR). We are grateful to Roberto García-Saltos, Mico Mrkaic, and Jean-Marc Natal for helpful inputs and insights and to Derek Mason for excellent research assistance. This is a cross-country Selected Issues paper and serves as background material for the Executive Board Meeting on the Spain 2015 Article IV Consultation. The main results and findings of this paper have also served as a background material for the Executive Board Meetings on France and Germany Article IV Consultations. Boxes summarizing country-specific results have been included in the respective 2015 Article IV Staff Reports.

[2] For the purposes of this paper, we define the crisis period as 2008–14. This period includes the global financial crisis and the subsequent euro area sovereign debt crisis.

[3] The paper uses data consistent with the July 2015 WEO update.

those obtained with two other methodologies, i.e., the European Commission's production function approach (ECPF; Havik and others, 2014) and the univariate Hodrick-Prescott filter (HP; Hodrick and Prescott, 1997). In the case of Spain, where financial cycles have been particularly pronounced, we also consider estimates obtained through an alternative MVF that takes into account fluctuations in financial variables.

5. Results suggest that potential growth has slowed substantially in all three countries. Relative to the 1993–2007 period, potential output growth declined significantly in Spain and France during the crisis (by 2.3 and1 percentage points, respectively, on average across methodologies). The downward trend is evident across methodologies. The slowdown in Germany was less dramatic, with potential growth estimated to have declined by only 0.4 pp during the same period.

6. There are stark differences in the contributions to potential growth across the three countries. In Germany, total factor productivity remained the main engine of potential growth, while capital accumulation has slowed down. In France, potential growth has declined significantly since the early 2000s, driven initially by a sustained decline in TFP growth and thereafter by crisis legacies (a prolonged slowdown in investment and a rise in structural unemployment). In Spain, potential growth, in particularly during the boom of 2000–07, was relatively strong and driven by sizeable contributions from capital and potential employment that declined markedly since the onset of the crisis.

7. Without additional reforms, potential growth is projected to remain below pre-crisis levels in France and Spain. Annual average potential growth over 2015–20 is projected to remain below pre-crisis rates in Spain and France (at 1.2 percent). Only in Germany potential growth is projected to stay close to its pre-crisis level of 1.3 percent. The accumulation of labor and capital is projected to remain subdued in all three countries, while TFP is projected to rebound, but expected to remain weak in Spain. While there is scope for lifting potential growth in all three countries, the needed reforms depend on country-specific circumstances.

8. The paper is organized as follows. Section B summarizes the MVFRES methodology used in this paper as well as other commonly used methodologies. Section C presents the results from the MVFRES and benchmarks them against those obtained using alternative standard methodologies. Section D analyzes the evolution of labor, capital and TFP and their contributions to potential output, with a focus on TFP. Section E concludes and summarizes the paper's policy recommendations.

B. Potential Output Estimation Methods: An Overview

9. Potential output. Potential output is conventionally defined as the level of output consistent with stable inflation (Okun, 1962). Understanding its drivers—labor, capital accumulation, and TFP—can help inform discussions on policies needed to raise it. Estimating the output gap—the difference between actual and potential GDP—is also critical for the conduct of monetary and fiscal policy. Potential output is not directly observable. Economic theory can help estimate potential output through its relationship to selected observable variables. First among them is inflation, with the Phillips curve being central to all (structural) estimation techniques. The empirical literature has nevertheless considered other indicators to improve the accuracy of potential output estimates, such as the degree

of slack (overheating) in the labor market, capacity utilization, and credit and financial imbalances (Denis and others, 2010; Benes and others, 2010; Borio and others, 2013).

10. Estimation methods. As mentioned in the introduction, this paper uses a simple MVF method recently developed by the IMF's Research Department (MVFRES) to assess potential output growth in France, Germany, and Spain. MVFRES results are then compared with the Hodrick-Prescott (HP) univariate filter and the European Commission's production function (ECPF) approach. In the case of Spain, an alternative MVF is also considered that takes into account fluctuations in financial variables (MVFEUR). While the HP filter is purely statistical, the remaining approaches combine filtering techniques with economic theory. A brief description of each method is provided below.

- *The HP univariate filter* (Hodrick and Prescott, 1997). Univariate filters such as the HP are atheoretical. Specifically, HP trend GDP is the result of minimizing a loss function increasing in both the distance between trend and actual GDP and the curvature of the trend function. The relative weight of the cyclical versus the structural component is determined by the selection of the smoothing parameter, which is based on judgment. The appeal of this approach is that it is simple (it can be applied to any country where GDP exists) and transparent (the smoothing parameter encapsulates all judgment fed into the exercise).

- *Multivariate filters*. Multivariate filtering techniques estimate potential output top down from some basic theoretical, imbalances-type relationships.

    - MVFRES. This filter uses Bayesian techniques to estimate a simple model that incorporates the relationship between cyclical unemployment—the deviation of the unemployment rate from the non-accelerating inflation rate of unemployment (NAIRU)—and inflation (Phillips curve), as well as the relationship between cyclical unemployment and the output gap (Okun's law). In addition, the filter uses medium-term growth and inflation forecasts to improve the accuracy of estimates in the outer years. For example, if forecasts are for higher growth, the model-consistent expectation for potential growth would also tend to be higher, all else equal. With the estimates of potential output and NAIRU from the raw filter in hand, the analysis can proceed to investigate the drivers of potential growth using a growth accounting framework. This framework describes how the economy's potential output is accounted for by the basic factor inputs capital and labor, as well as TFP (obtained as a residual).[4] TFP developments can then be used to determine whether the raw filter yields reasonable outcomes. If not, judgment can be used to adjust potential GDP growth or the output gap over the near term.

    - MVFEUR. This approach (based on maximum likelihood estimation techniques) models the relationship between output, prices, and capacity utilization and further uses fluctuations in financial variables to improve the accuracy of estimates. For example, if wide swings in output

[4] The residual includes utilization of the inputs of production labor and capital (such as hours worked and capacity utilization), labor quality (that is, human capital accumulation), and possible measurement errors in the inputs of production. For Germany, labor is measured in hours worked, which are therefore not included in the TFP.

tend to occur alongside wide swings in credit around their long-term trends, the filter will ignore the former when determining the level of potential output.[5] However, if credit provides little additional information, the model will produce results in line with conventional approaches.

- *ECPF* (see Box 1 for a detailed description of the methodology and Table 1 for a comparison with MVFRES). This approach uses economic theory to make assumptions on the functional form of the production technology (Cobb-Douglas by the EC approach), the degree of utilization of capital and labor, and trend TFP. Potential output is then constructed bottom up from these basic factor inputs.

Box 1. The EC Production Function Methodology for Estimating Potential Output

The European Commission (EC) uses a production function approach to estimate potential output. In this methodology, the potential levels of factor inputs (capital and labor) and trend TFP are computed separately.

The capital stock is determined by investment, the past capital stock, and the depreciation rate. Investment is obtained from the investment-to-potential-GDP ratio and potential GDP. The investment-to-potential-GDP ratio is needed for forecasting only and estimated as an autoregressive process. The capital stock is not smoothed since it is an indicator of overall capacity and is relatively stable for EU countries.

Labor input is defined in terms of hours. Calculating trend labor input involves several steps. The trend labor force is first obtained by the applying HP-filtered participation rate to the actual (or projected) working age population. Trend employment is then obtained by applying the non-accelerating wage rate of unemployment (NAWRU) to the trend labor force. Finally, trend hours worked are obtained by applying the HP-filtered average hours worked to trend employment.

Specifically, the NAWRU up to the second year of the forecasting horizon is calculated using a Kalman filter, based on a dynamic system of labor supply and demand equations.[1] Thereafter the NAWRU is determined by a mechanical rule (it takes the value of the second year plus half of the annual change in the second year).

Trend TFP reflects a normal level of efficiency of factor inputs. It is estimated using a bivariate Kalman Filter model and a Bayesian approach, which exploits the link between the TFP (Solow residual) cycle and the degree of capacity utilization in the economy.[2]

By contrast with the EC methodology, MVFRES produces direct estimates of potential output. Aproduction function decomposition is used only in a second stage to derive trend TFP as a residual.

[1] The Phillips curve framework underlying the NAWRU estimation was recently extended to consider rational expectations in addition to the static and adaptive expectations. The rational expectations specification was applied to 21 EU countries, including France and Spain, to avoid NAWRU's excessive pro-cyclicality. The static and adaptive expectation specification was retained for the rest of countries, including Germany.

[2] This method replaces the HP filter method for detrending TFP used previously.

[5] A critical element is to restrict the information from financial variables to higher frequencies to avoid misinterpreting permanent shifts (e.g., a higher level of credit due to financial deepening) as transitory.

Table 1. Production Function Components: Comparison of the European Commission Methodology and MVFRES		
	EC PF methodology	**MVFRES+PF methodology**
Capital	*History:* non-smoothed total net capital stock *Forecast*: a function of total investment and an exogenous depreciation rate, where investment is obtained by multiplying by potential GDP. The projected investment-to-potential-GDP ratio is derived from an AR process which is exogenous to the model	*History*: non-smoothed total net capital stock *Forecast*: a function of projected total investment and an exogenous depreciation rate
Working age population	*History*: working age defined as 15–74 *Forecast*: most recent vintage of the Eurostat projections (EUROPOP 2013)	*History*: working age defined as 15–74 in Germany, 15+ in France, and 16+ in Spain. *Forecast*: working age defined as 15–74, based on latest national statistical office projections
Trend labor force	*History*: apply HP-filtered series of participation rate to working age population *Forecast*: extend the participation rate by an AR process; apply HP filtered series to working age population	*History and forecast*: HP-filtered historical series and desk projections
Trend employment	*History+2 years*: derive NAWRU by Kalman filter; apply to trend labor force *Remaining horizon*: NAWRU determined by the values in the first two years of forecasting horizon; stable afterwards; apply to trend labor force	*History and forecast*: NAIRU is an output of the multivariate filter; apply to trend labor force
Total trend hours worked (final labor input)	*History*: apply HP-filtered average hours worked per employee to trend employment *Forecast*: extend average hours worked per employee by AR process; apply HP-filtered series to trend employment	History and forecast: HP-filtered historical series and desk projections
Trend TFP	*History and forecast*: bivariate Kalman filter model that exploits the link between TFP cycle and the degree of capacity utilization in the economy	*History and forecast*: residual from the production function decomposition

C. Estimation Results

Estimation results

11. There is little variation in estimated potential growth across estimation techniques on average over 1993–2014 (HP, ECPF, and MVFRES). The largest discrepancy occurs between the ECPF and other approaches in the case of Spain, perhaps reflecting difficulties in estimating potential output in the context of large financial cycles (Table 2, Box 2).

12. Potential output growth declined markedly in France, and Spain since the global financial crisis (Table 2, Figure 1). The downward trend is evident across methodologies and countries. Relative to the 1993–2007 period, potential output growth declined significantly in Spain, and France during the crisis (by 2.3 and1 percentage points, on average, across the three methodologies). The slowdown in Germany was relatively more contained (0.4 percentage points, and only 0.2 percentage points relative to 2001–07).

Table 2. Potential GDP Growth, 1993–2014

	(1) HP	(2) ECPF	(3) MVFRES (Raw)	Average of (1), (2), (3)	(4) MVFRES (Judgment) 1/
France					
1993–2000	2.2	2.0	2.2	2.1	2.2
2001–2007	1.7	1.8	1.8	1.8	1.8
2008–2014	0.9	1.1	0.9	1.0	1.0
Germany					
1993–2000	1.7	1.8	1.8	1.7	1.8
2001–2007	1.2	1.3	1.2	1.3	1.2
2008–2014	1.1	1.1	1.1	1.1	1.1
Spain					
1993–2000	3.5	2.6	2.8	3.0	2.8
2001–2007	2.8	3.6	3.0	3.1	3.0
2008–2014	0.7	0.6	0.9	0.7	0.8

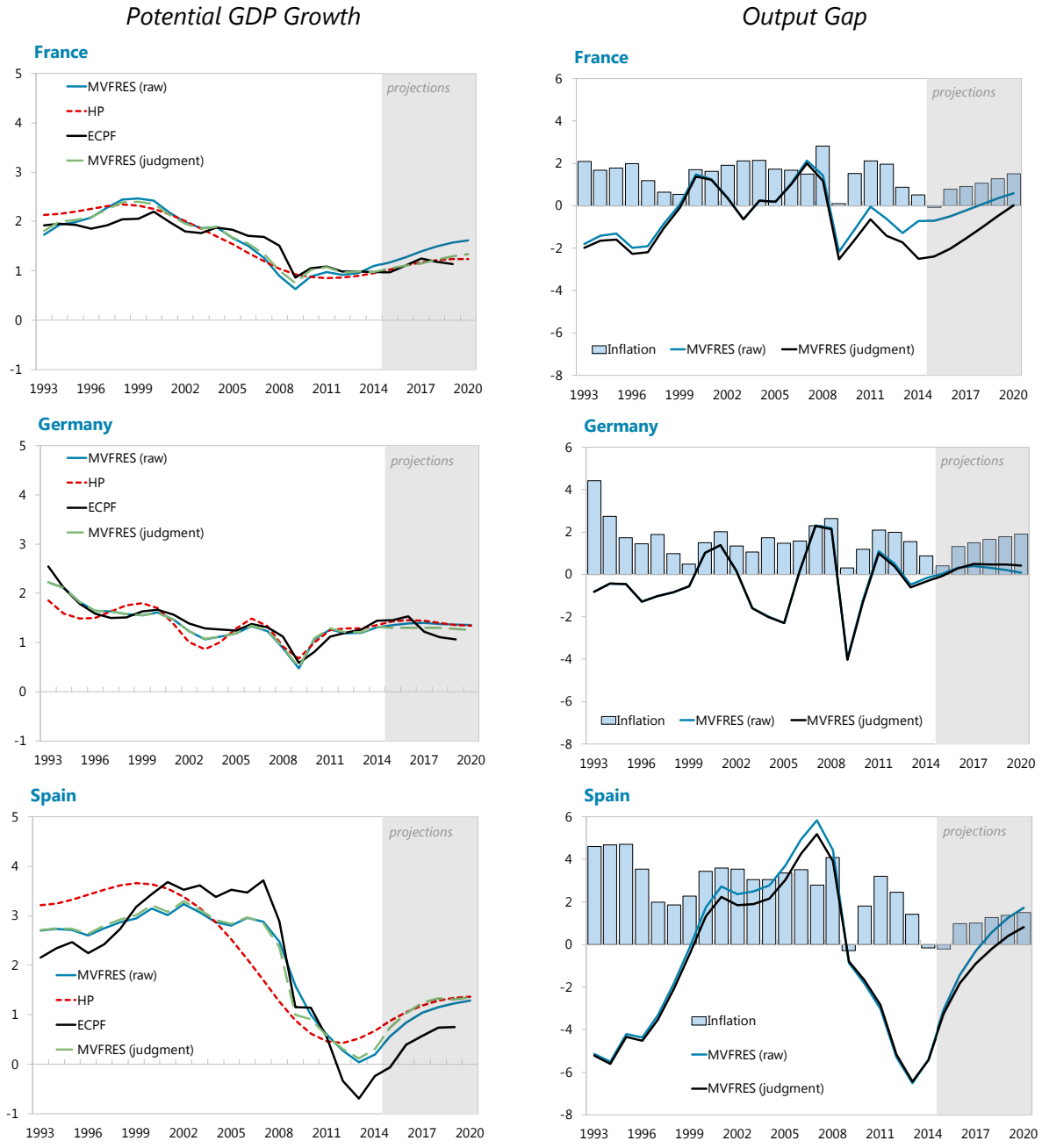
Source: IMF Staff estimates.

1/ MVFRES augmented with additional information outside the filter to improve the plausibility of estimates. See paragraphs 14 and 15 for details.

13. Baseline estimates are based on MVFRES, including some judgment (Table 2; Figures 1 and 2). Estimates by multivariate filters such as the MVFRES generally are more robust to new information than the HP, as they extract information about the cycle from additional, observable indicators strongly linked to output (unemployment, inflation, growth and inflation expectations). However, other factors not captured by the MVFRES approach can play a role as well—for example, large swings in actual GDP linked to financial cycles or the repercussions of natural disasters.

Moreover, while the end-point problem is less of a problem for multivariate filters than the HP approach, it remains an issue. For all these reasons, the raw MVFRES approach can be augmented using judgment to take into account additional information outside the filter to improve the plausibility and robustness of the potential output estimates.

Figure 1. Potential GDP Growth and Output Gap, 1993–2020
(Percent)



Source: IMF Staff estimates.

14. The results for the 2008–14 period are as follows:

- *France*. Potential growth in France is estimated at around 1 percent on average over 2008–14, with an estimated output gap of -2.5 percent in 2014. Raw MVFRES would result in lower potential growth of 0.9 percent on average during 2008–14 and an estimated output gap of -0.7 percent in 2014. Evidence outside the filter nevertheless suggests significantly higher degree of slack in the economy. Capacity utilization and business expectations remain at low levels and labor market developments continue to be weak (high unemployment rates for the youth and low-skilled workers; and high and increasing long-term unemployment). The judgmental assessment is that the output gap in 2015 is -2.5 percent. With this adjustment, the model delivers average potential growth of 1.2 percent (and average TFP growth of 0.5 percent) over 2015–20; and both the output and the unemployment gap close by 2020 at an estimated NAIRU of 9.1 percent.

- *Germany*. Potential growth in Germany is estimated at around 1.1 percent on average over 2008–14, with an estimated output gap of -0.3 percent in 2014. Raw MVFRES would result in the same estimated potential growth, a slightly less negative output gap (-0.2 percent) in 2014, and a small increase in TFP growth after 2015. Without any compelling justification for this increase—no increase in R&D expenditures relative to GDP, no increase in TFP spillovers, no significant structural reforms—potential GDP growth is adjusted slightly downward (to 1.3 percent on average) over 2015–20 to keep average TFP growth in line with its 2011–14 average of 0.7 percent.

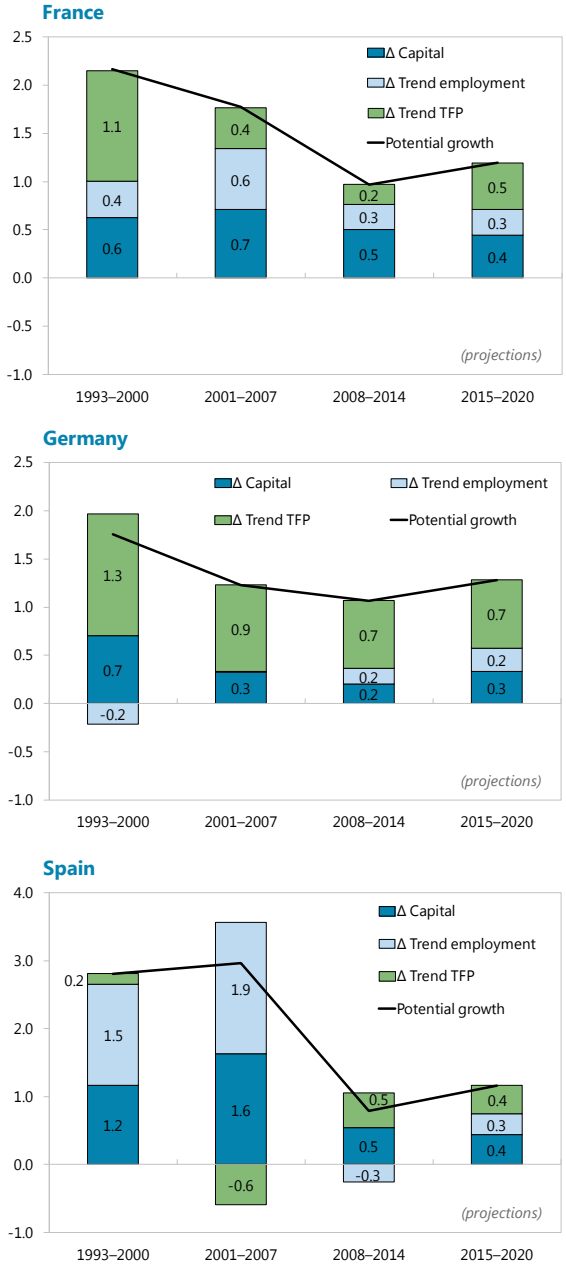
- *Spain*. Potential output growth is estimated at around ¾ percent, on average, over 2008–14, with an output gap of -5.4 percent in 2014. Raw MVFRES estimation yields broadly similar potential growth estimates for 2008–14. The only exception is for 2009, with the raw MVFRES yielding implausibly high potential output growth (1.6 percent), which given the declining contributions of labor and capital during the crisis, results in a spike in TFP growth. Raw MVFRES would also result in the same output gap of -5.4 percent in 2014 and a more gradual potential growth recovery over the medium term, yielding a faster closure of the output gap and opening of sizeable positive output gaps towards the end of the projection period. Evidence outside the filter, including MVFEUR estimates taking into account the movement of financial variables, suggests a larger output gap than implied by raw MVFRES results (Box 2). The MVFEUR with financial variables also yields lower 2009 potential output growth compared to the raw MVFRES. Judgment is therefore used to (i) lower the 2009 potential growth to 1 percent; (ii) set the 2014 output gap to -5.4 percent (both raw MVFRES and the MVF with credit variables produced similar estimates for the 2014 output gap); and (ii) ensure that the projected output gap is closing at a slightly lower pace (in 2018 instead of 2017), consistent with MVFEUR model results that imply a greater amount of slack in post-credit and housing bust period.

15. Without additional reforms, potential growth is expected to remain low in the medium term in all three economies (Figure 2). Under current policies, potential output is expected to grow at around 1.2 percent over 2015–20 on average across countries, up from 0.9 percent during 2008–14. Compared to the pre-crisis period 2001–07, this means that potential growth is projected to remain significantly lower in Spain (by 1.8 percentage points, to 1.2 percent), and moderately lower in France (by about ½ percentage point, to 1.2 percent). German potential output has already rebounded from

the trough of 2009 and is expected to continue close to its 2014 level during the next few years. The reasons for meager potential growth prospects vary across countries.

- *Germany.* Potential growth in Germany declined moderately between the 1990s and the pre-crisis period but held up during the crisis and post-crisis years. A slowdown in TFP growth and capital accumulation explains the decline in 2001–07 relative to 1993–2000. During 2008–14, TFP growth decreased further (by about 0.1 percentage points). The slowdown in capital accumulation (by almost 0.2 percentage points) amid heightened uncertainty was compensated by an improved contribution from labor (the unemployment rate fell and labor force participation increased faster following the Hartz and pension reforms of the mid-2000s, and greater activation of female workers). Going forward, potential growth is projected at around 1.3 percent over 2015–20 on improved investment prospects resulting in faster capital accumulation. TFP is expected to keep growing at the same rate as in recent years (0.7 percent). The labor contribution would also remain broadly unchanged—a somewhat lower dynamism in labor force participation after the impressive gains of recent years and a smaller decline in the unemployment rate (now at a 22-year low) would be offset by the end of the secular decline in hours worked per person employed. Strong immigration would continue to offset the adverse effects of aging on the working-age population over the short-to-medium term. The adverse effects of aging on potential growth would become increasingly visible only at the end of the decade.

Figure 2. Components of Potential Growth, 1993–2020
(Percent)



Source: IMF Staff estimates.

- *France.* Potential growth has declined significantly since the early 2000s, from 2.2 percent in the 1990s to 1.8 percent over 2001–07, further down to 1 percent throughout the crisis. This decline was driven initially by a sustained decline in TFP and thereafter by crisis legacies. The drop in TFP growth, mirrored in many other advanced countries, may be related to lower growth returns from

information and communications technology (ICT) (Fernald 2014a, 2014b; IMF, 2015), and, to a lesser extent, the switch from manufacturing to services (van Ark and others, 2008; Dabla-Norris, 2015, Molagoda and Pérez, 2011). In France, this decline was initially partly offset by higher potential employment growth related to dynamic labor force growth. During the crisis, potential growth collapsed to less than 1 percent, with half of the decline coming from flagging employment (rising NAIRU and falling labor force participation, Bonthius and others, 2013). TFP and the prolonged slowdown in investment contributed about evenly to the remaining shortfall. Heightened risk aversion amongst entrepreneurs and weak demand prospects, combined with longstanding labor market rigidities, would have hampered capital accumulation. Potential output is set to grow at an average rate of 1.2 percent over the medium term as investment recovers reflecting, in part, higher profits and improved confidence from recent and planned structural reforms. TFP is expected to accelerate to 0.5 percent by 2020 (vs. 0.8 percent on average over 1993–2007). Hysteresis effects from the crisis on NAIRU should keep the labor contribution stable at 0.3 percent, despite continued labor force dynamism.

- *Spain*. Estimates, combining raw MVFRES with staff's judgment, suggest that potential output growth has fallen from about 3 percent in 1993–2007 to around ¾ percent, on average, since 2008. The crisis led to a sharp fall in investment, with balance sheets effects aggravating the impact of weak demand.[6] Unemployment rose rapidly, leading to an increase in long-term and structural unemployment, which aggravated skill deficits. And while empirical estimates of TFP have shown some improvement post-crisis, this reflects, to a large degree, the exit of less-productive firms and labor shedding, especially of relatively lower-skilled temporary workers, during the crisis. Estimated at 1.2 percent per year, on average, over 2015–20, potential growth would remain constrained by (i) low productivity growth; (ii) still relatively tepid investment; and (iii) a modest contribution from labor (adverse population dynamics and still very high NAIRU despite the ongoing employment recovery). While estimating the level of structural unemployment in Spain is particularly challenging given marked fluctuations in the unemployment rate, recent evidence suggests that the NAIRU has increased substantially during the crisis period, and it is expected to remain in double digits in the medium term (Medas, 2014).[7]

Modeling choices

16. As indicated above, deriving the baseline estimates involves a number of choices. While the MVFRES approach defines the basic framework, certain key assumptions have to be made to implement it, in particular: (i) on the smoothness properties of potential output; and (ii) on the impact of existing policies on potential output.

[6] Budina, N., S. Lanau, and P. Topalova, 2015, "The Italian and Spanish Corporate Sectors in the Aftermath of the Crisis," second chapter in Italy Selected Issues Paper, IMF Country Report 15/167.

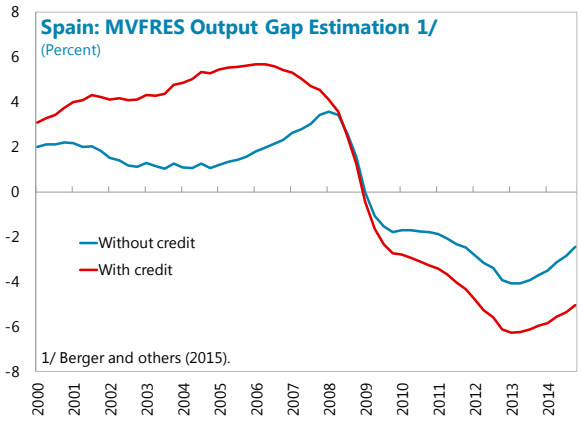
[7] Several studies have noted the difficulty in estimating robust measures of the NAIRU. This partly reflects structural changes over the past decades, including the significant reduction in inflation, the entry in the Euro area, as well as the effect of migration. European Commission (2014) notes that estimates for the NAWRU using the Phillips curve approach are highly sensitive to specifications for Spain (much more than for other countries).

- *Smoothness properties*. The MVFRES approach can deliver higher or lower variability of potential output depending on the assumption of the nature of the shocks that are driving actual GDP. The calibration used here assumes a relative incidence of supply and demand shocks of about 1 to 4.[8] This parameterization strikes a balance between forcing potential output to flexibly adjust to changes in actual GDP and the desired degree of smoothness of potential output estimates. The latter matters where the "sustainability" aspect of growth is important, for example, for guiding fiscal policy (see also Box 2).

Box 2. Estimating Potential (or Sustainable) Output in the Presence of Financial Cycles

Credit-based models can be useful when estimating potential output for economies going through financial cycles. More precisely, a multivariate filter augmented with financial variables (MVFEUR) can help identify episodes of particularly high or low GDP growth that are unlikely to last—a concept that is often called "sustainable" output. GDP can be at "potential" (conventionally defined as generating non inflationary or deflationary pressure) but not sustainable because a credit boom has led to a temporary surge in activity but not (yet) inflation. In a "boom and bust" cycle, this could mean that the level of potential output might fall later on in the direction of the level of sustainable output. To estimate sustainable output, researchers look at financial variables in addition to the relationship between output and prices—for example, the deviations of credit, house and stock prices from their own longer-term trends.

Approaches that take into account financial variables are less likely to interpret a temporary rise or decline in GDP associated with a credit boom or bust as a lasting change in sustainable output.[1] Indeed, results for Spain (see text figure) suggest that an estimate focusing predominantly on output and prices would have suggested a much smaller output gap during the 2000–07 housing and credit boom period than the MVFEUR model. The opposite holds during the crisis period after 2007 when the MVFEUR model points to larger output gap.



In practice, comparing conventional estimates of sustainable output with results that incorporate financial variables can inform the judgment that any such estimates requires. Where financial variables deviate strongly from their longer-term trends and MVFEUR and conventional results differ widely, there is reason to believe that the latter might give an incomplete picture of current and future levels of sustainable output. In the context of the countries analyzed here, this is particularly relevant for the case of Spain and has informed the adjustment of the results derived from the raw MVFRES approach.

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[1] Berger, H., T. Dowling, S. Lanau, W. Lian, M. Mrkaic, M. T. Sanjani, and P. Rabanal, forthcoming, "Steady As She Goes—Estimating Potential during Financial 'Booms and Busts,'" IMF Working Paper (Washington: International Monetary Fund).

[8] The variance of the shock term to potential output is one fourth of the variance of the shock term to the output gap.

- *Reforms.* An important consideration when estimating potential output is the degree to which ongoing policy initiatives are incorporated. The MVFRES approach uses real GDP projections up to 2020 as input to compute potential output. The extent to which potential output projections reflect ongoing policy efforts depends on the assumptions that are made in those projections. This depends on the case at hand. In France, the estimates take into account recent and planned structural reforms, which are estimated to raise real GDP growth by an average of ½ percent over the next five years.[9] In Germany, the baseline incorporates current and announced policies, in particular the recently implemented lowering of the retirement age for some categories of workers and the planned increase in public investment. In Spain, the current growth rebound partly reflects past reforms, including in the labor market, and their effects are captured in the baseline projections.

D. A Closer Look at the Drivers of Potential Output Growth

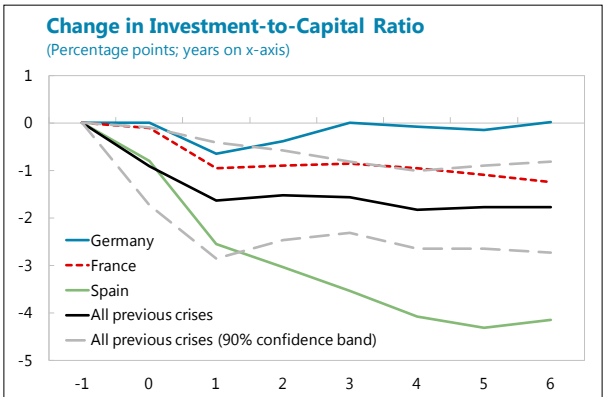
17. This section analyzes the evolution of the components of potential output across the three countries during 1993–2014. First, it discusses the main drivers of potential employment and capital growth during those periods. It then examines in more detail TFP developments.

Capital and potential employment contributions

Capital

18. The capital contribution to potential growth was relatively dynamic until the crisis (Figure 3). Business investment in France during the 2000s was dominated by accelerator effects, equity leverage, and low borrowing costs (Lebrun and Pérez Ruiz, 2014). Reflecting a fall in interest rates following the creation of the euro and relatively high wage growth (Husabo, 2013), investment in the 2000s increased in Spain during the strong credit and housing boom. In Germany, the robust contribution of capital throughout the 1990s reflected a construction boom in the aftermath of reunification, followed by an increase in ICT capital investment during the second half of the decade. The collapse of the new-technology-oriented Neuer Markt segment of the German stock market and competitiveness issues at the time of euro entry led to a decline in investment in the early 2000s.

19. The crisis resulted in a fall in investment, which was especially pronounced in Spain (text figure). Falling demand was one of the main factors depressing investment across the three countries. Investment losses were the largest in Spain, where the global financial crisis sparked a credit bust and a subsequent house price collapse



Sources: IMF (2015) based on Laeven and Valencia (2014); and IMF staff estimates.
Note: Year zero is 2008 for euro area countries.

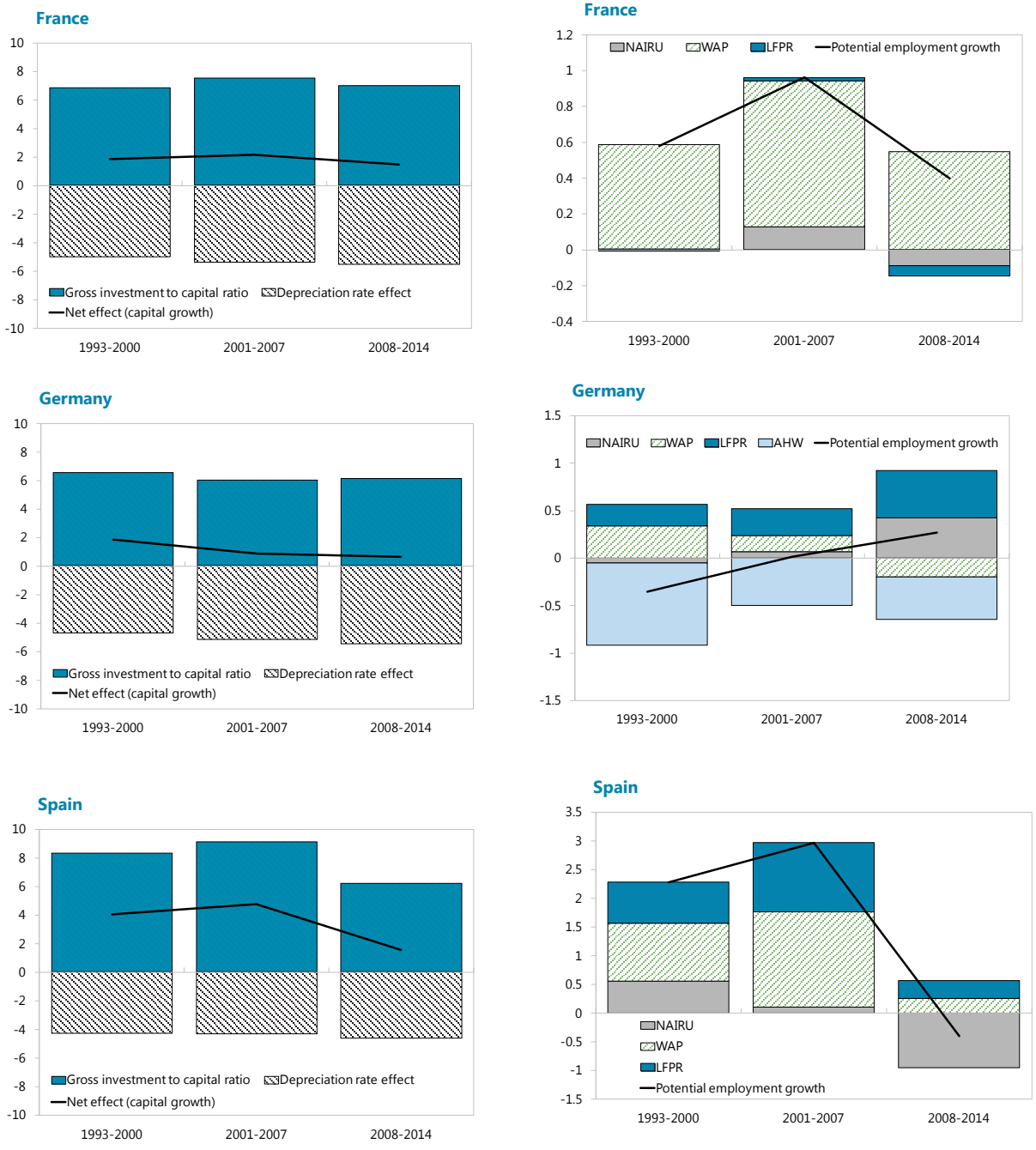
[9] See France, Staff Report for the 2015 Article IV Consultation, Table 7.

Figure 3. Growth of Capital Stock and Potential Employment, 1993–2014

(Annual average, percent)

Growth of Capital Stock

Potential Employment Growth



Source: IMF Staff estimates, INSEE; German Federal Statistical Office; Haver; European Commission.

Notes: Figure uses total capital (including residential). NAIRU, WAP, LFPR, and AHW respectively stand for non-accelerating inflation rate of unemployment, working age population, labor force participation rate, and average hours worked per person employed. NAIRU is calculated as the contribution of (1-NAIRU) to employment growth in headcounts. Germany includes AHW.

(real estate prices declined by 40 percent from their pre-crisis peak). Financial frictions seem to have amplified the effects of depressed demand on investment: econometric evidence suggests that debt overhang (high leverage and debt-to-income ratios), which was particularly pronounced in Spain, significantly and negatively affected corporate investment (Budina and others, 2015; Goretti and Souto, 2013; Kalemli-Ozcan and others, 2015).

Potential employment

20. Trend labor developments display significant heterogeneity across countries (Figure 3). In France, working age population dynamics dominate trend employment growth. These are to a large extent driven by immigration and also high fertility rates. In Germany and Spain, movements in labor force participation also contribute significantly to changes in trend employment. A higher participation of women in the labor force contributed to these developments.

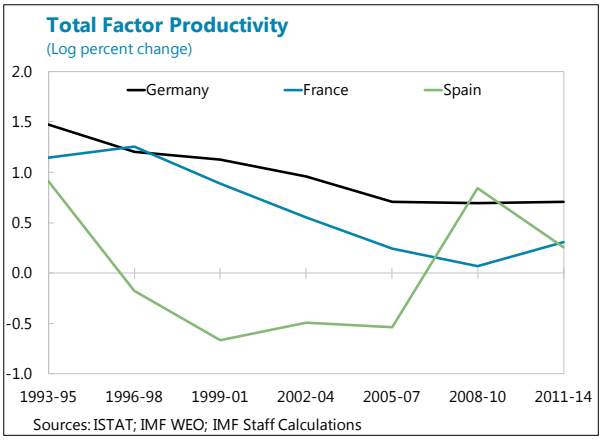
- In *France,* trend labor developments are dominated by working age population dynamics. Combined with steady immigration (especially from former colonies in North Africa), high fertility rates contributed positively to growth throughout the three periods. Working-age population increased by 0.5 percent on average over 1995–07 (0.34 percent during 2008–14 as baby boom effects waned). In comparison, labor participation and the NAIRU contributed only modestly to changes in potential growth. Structural unemployment ranged between 7.3 in 1980 and 10 percent in 1996) and displayed significant persistence (e.g. NAIRU only started to decline in the late 1990s, following healthy growth during the 1980s and early 1990s). Institutional rigidities have kept France's structural unemployment high relative to best performers (see, e.g., Pérez and Yao, 2012; Orlandi, 2012; Gorbanyov and Pérez, 2015). Recent reforms have reduced the labor tax wedge but some of the fundamental issues—including the high minimum wage, limited enterprise-level flexibility, and unemployment and social benefits with insufficient job search incentives—are yet to be fully addressed.

- In *Germany*, the contribution of labor to potential GDP growth was negative throughout the 1990s, mostly on account of a continuous reduction in average hours worked per employed person but also as a result of the steady increase in the natural unemployment rate. The earlier part of that decade saw the continuation of a secular trend towards a shorter work week and more annual leave days. This dimension gradually became less important but the share of part-time jobs then began to increase (EC, 2006). The Hartz reforms in the mid-2000s combined with wage moderation were successful in addressing the unemployment problem, and the structural unemployment rate has been on a steady decline since then. Indeed, unlike the other two countries, the German labor market weathered the crisis particularly well, with the employment rate (measured in hours) contributing positively to growth on average during the most recent period. In addition to the Hartz reforms and wage moderation, this strong labor market performance has been attributed to flexible work practices (see, e.g., Burda and Hunt, 2011; Gartner and Klinger, 2010; and OECD, 2012). The contribution of working age population has been small or negative since the mid-1990s while that of the labor force participation rate has been positive, reflecting the increasing participation of women and of older workers—especially after the increase in the mandatory retirement age from 2007.

- In *Spain*, labor input expanded rapidly in 1995–2007, driven by several factors, including a fast growing working age population (in part reflecting large migration inflows) and a rise in the labor force participation rate. The rise in migration was partially driven by the housing boom—almost ¼ of all new jobs were created in the construction/real estate sectors. But since the crisis, the contribution from potential employment turned negative. Population growth slowed significantly and turned negative in 2012. Moreover, the NAIRU has increased substantially. Spain's unemployment has not only been among the highest, it has also been the most volatile, with an estimated Okun's coefficient more than twice the OECD average during 1990–2011. The boom-bust cycle of the Spanish housing sector during the 2000s can only partly explain this. The volatility of unemployment also appears to reflect wage rigidity, insufficient flexibility of working conditions, and high labor market duality (Cheptea and others, 2014). In particular, the steep increase in the NAIRU during the crisis can be linked to temporary but persistent skill mismatch in the process of much-needed sectoral reallocation, including labor moving from the construction into other sectors of the economy.

TFP

Differences in average TFP growth rates

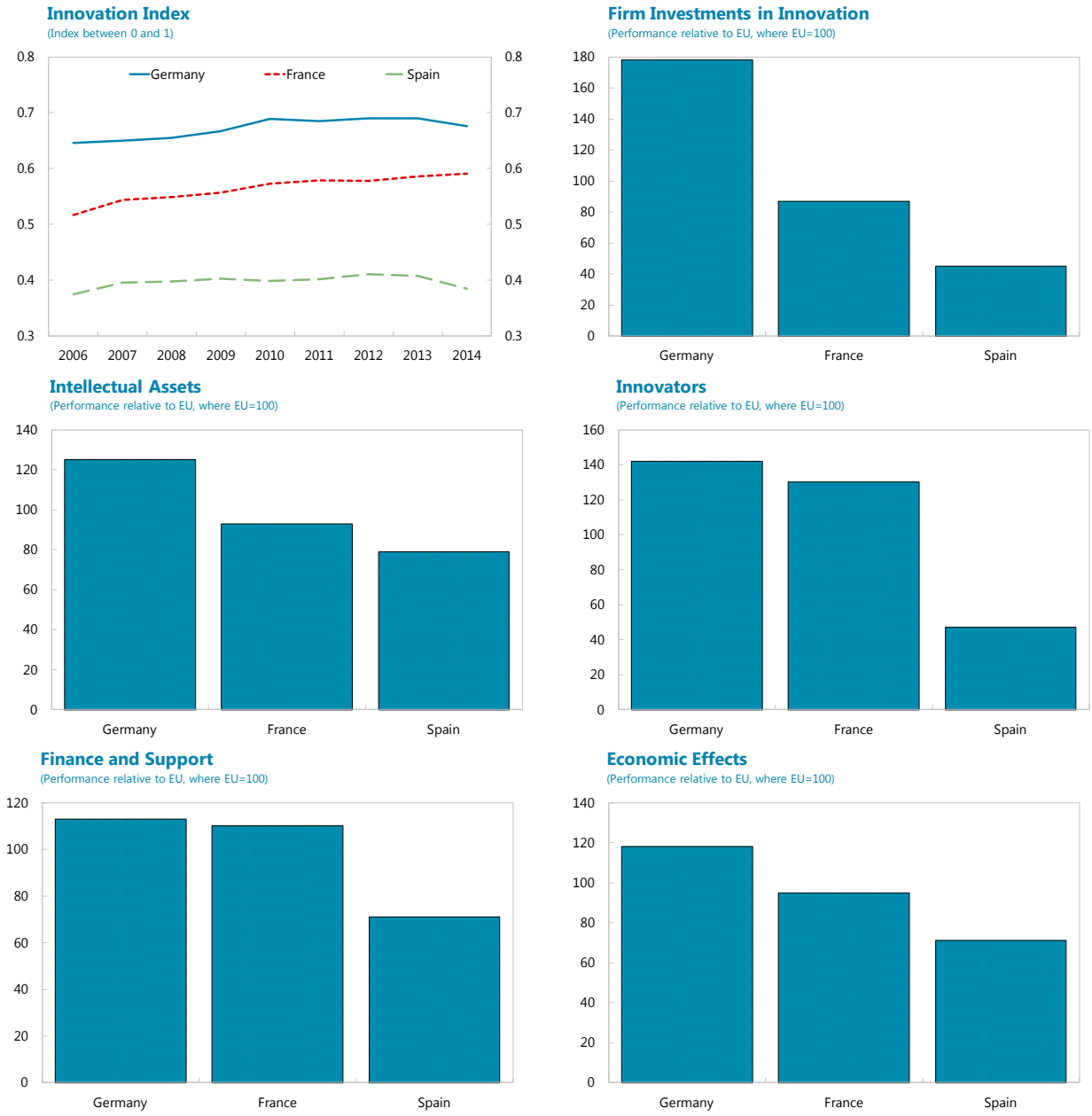


21. Average TFP growth rates differ significantly across the three countries. Germany is the leader in terms of TFP growth (text figure). In Spain, TFP growth was negative prior to the crisis, and while there has been some improvement recently, the available evidence suggests that this is due to the increase in unemployment and exit of low-productivity firms more than composition effects from the reallocation of factors of production and resources to more productive sectors (Bank of Spain, Annual report, June 2015). TFP growth in France was higher than in Spain but lower than in Germany. In line with the previous literature, we can identify a number of factors that may explain these differences including (i) the innovation capacity of countries; and (ii) other structural characteristics.

22. Relatively strong TFP growth in Germany has been supported by a high innovation capacity while the other two countries keep lagging behind. Germany is one of the EU's innovation leaders, according to the 2015 EU's Innovation Scoreboard. The country is even the best performer in the EU according to the European Innovation Output Indicator, and it has achieved its research and development (R&D) expenditure target of 3 percent of GDP. One area where Germany could do better is venture capital investments (IMF, 2013). Spain's performance is below while France is just above average. The three countries' innovation performance has been relatively stable since 2006 (Figure 4). According to the EC, relative weaknesses in France are poor non-R&D innovation expenditure in the business sector, few EU-wide trademarks, and inadequate innovation capacity of SMEs. Innovation in

Spain generally suffers from funding shortages and the very low innovation capacity of SMEs, with the country's license and patent revenues from abroad being particularly weak.

Figure 4. Innovation Measures



Source: European Commission *Innovation Union Scoreboard* 2015.

23. The literature has identified a number of structural characteristics that may also explain these differences in average TFP growth rates. These include the size of firms, public efficiency and quality of governance (Figure 5). Regarding the size of firms, there is evidence that smaller firms, which are more prevalent in France and Spain relative to Germany, are less productive than larger ones. In

Spain, low TFP also reflects labor market duality, which lowers incentives to invest in workers' skills. However, while these factors and country characteristics can explain some of the differences in average growth rates across countries, they are unable to explain the dynamics of TFP. The next section will look at these developments in more detail.

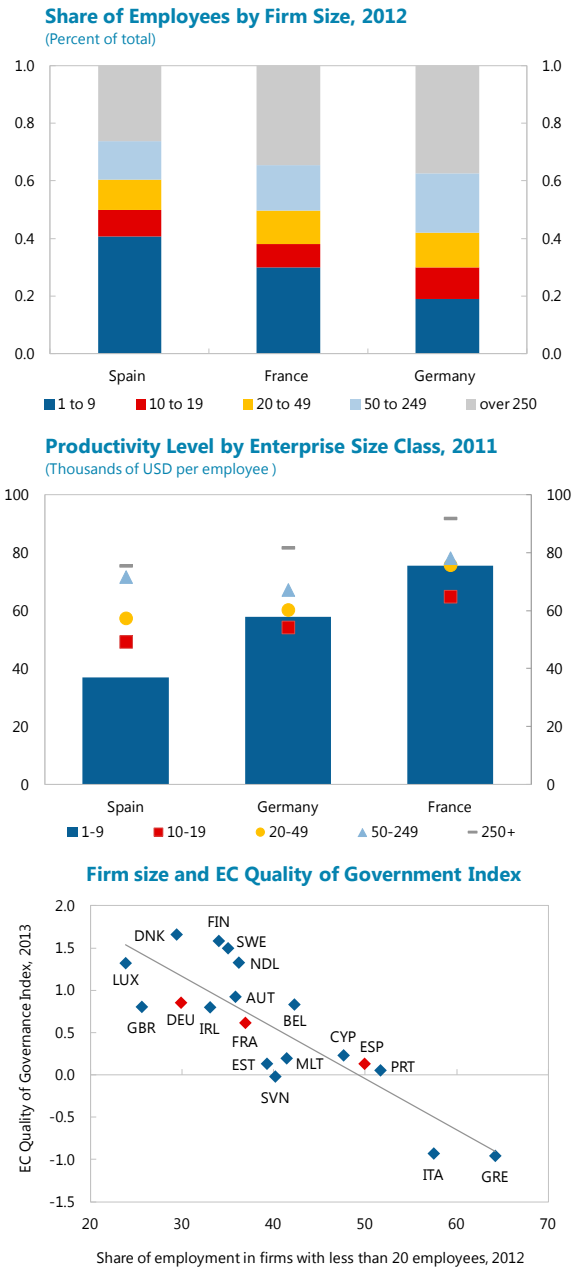
TFP dynamics

24. What can explain the differences in TFP dynamics? The literature has put forward a number of hypotheses to explain the TFP slowdown that was observed to some extent in all three countries prior to the crisis. The evidence suggests that a significant slowdown in ICT diffusion and adoption in the services sector, likely caused by a regulatory and institutional framework discouraging innovation and absorption, can account for much of the TFP slowdown.

Hypothesis 1: Production switches from high-TFP performing manufacturing sectors to low-TFP growth services sectors

25. According to this hypothesis, the increasing weight of the services sectors in output slows down aggregate productivity growth, because of intrinsically lower TFP growth in services. Recent studies have only found limited support for the cross-sector reallocation of resources to explain the slowdown in TFP growth. Molagoda and Pérez (2011) show that the allocation of resources towards lower-than-average productivity sectors contributes somewhat negatively to TFP growth in Germany (-0.2 percent); France (-0.1 percent) and Spain (-0.1 percent) over the 1980–2007 period. The evidence in van Ark and others (2008) is also similar for the 1995–2004 period.

Figure 5. Structural and Institutional Characteristics



Source: EC (based on WB Governance Indicator), OECD, INE, WB Worldwide Governance Indicators

26. Rather, studies suggest that the slowdown is mainly due to a decline in productivity growth in services sectors, which comprise the bulk of employment and economic activity (van Ark and others, 2008; Dabla-Norris and others, 2015). Indeed, the TFP growth continued to decline

in business services sector in all three countries, and for Spain, the decline is even faster in the 2000's than in the 1990's. In distribution services, TFP growth picked up in Germany but slowed down in the other two countries during 2001–07 (Figure 6). In particular, the average TFP growth became negative in Spain during that period.

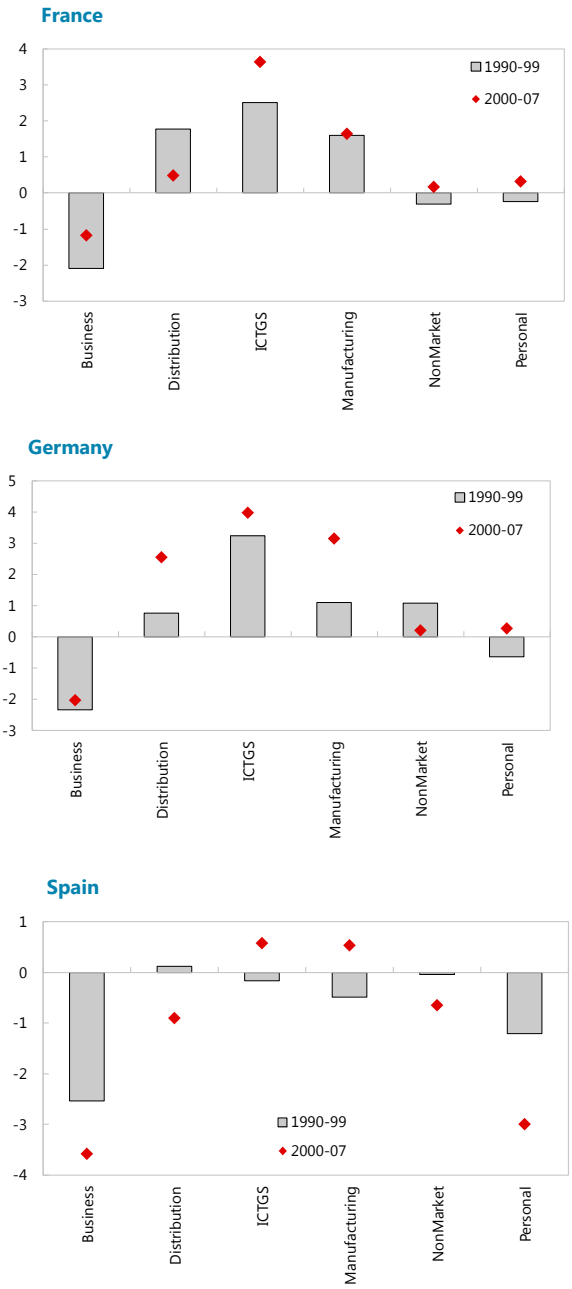
Hypothesis 2: The ICT revolution loses steam.

27. Hypothesis 2 has two dimensions: (i) direct effects, namely a slowdown of TFP growth in sectors producing ICT goods and services (ICTGS), and (ii) indirect effects, namely lower TFP growth in ICT-using sectors.

- On (i) there is little evidence that a productivity slowdown in ICTGS can explain the wider TFP slowdown over time. First, the weight of these sectors in the economy is unlikely to be large enough to weigh down overall TFP growth significantly and second, TFP growth in ICTGS was actually higher in all three countries during 2000–07 than during 1990–99(Figure 6).

- On (ii), there is more evidence that this dimension can account for some of the TFP slowdown. In principle, ICT can have a broad-based effect on aggregate TFP through its role as a general-purpose technology that fosters complementary innovations. The recent literature has indeed shown that there was a significant slowdown in ICT diffusion and adoption in the services sector in Europe and this has often been cited as one of the key drivers in productivity differences between the US and Europe (Dabla-Norris and others, 2015). This raises the question of what contributed to this slowdown (hypothesis 4).

Figure 6. Total Factor Productivity Growth Rates for Selected Sectors, 1990–2007
(Percent)



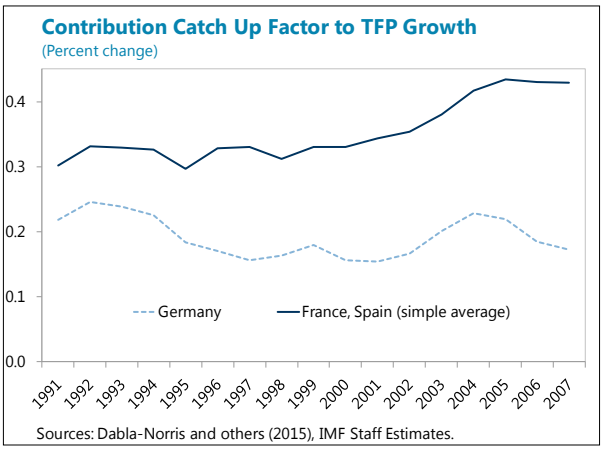
Source: Dabla-Norris and others (2015)
Note: ICTGS = information and communication goods and services

Hypothesis 3: Innovation fatigue as countries catch up with technology leaders

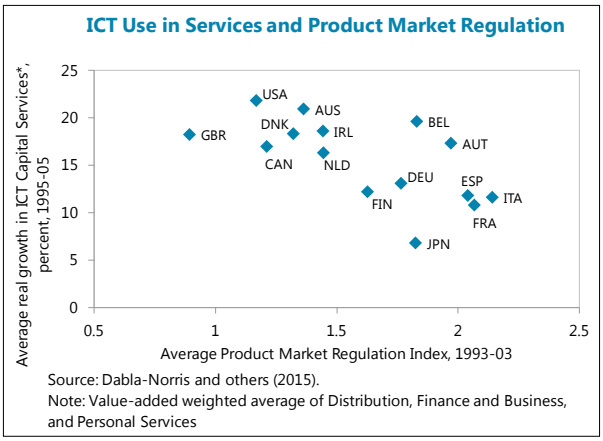
28. Lower productivity of Spain and France may be linked to poorer performance in innovation as little catching up to the technological leader is left. However, recent analysis (Dabla-

Norris and others, 2015) does not support this hypothesis. While the catch-up has been progressing, the gap between Germany and France and Spain has increased significantly over time, rather than decreasing (text figure). Thus hypothesis 3 cannot account for the slowdown in TFP over time.

Hypothesis 4:* A *regulatory and institutional framework that discourages innovation creation/absorption



Sources: Dabla-Norris and others (2015), IMF Staff Estimates.



Source: Dabla-Norris and others (2015).
Note: Value-added weighted average of Distribution, Finance and Business, and Personal Services

4.1 Market Regulation and ICT Investment

29. There is evidence that differences in ICT investment have contributed to recent differences in TFP growth (Kent and Simon, 2007; Dabla Norris and others, 2015). This raises the question of why some countries have invested more heavily in ICT than others. One explanation that has been put forward by the literature is that those countries that did not invest heavily in ICT were hamstrung by rigid regulation of their labor and product markets, as evidenced in a negative correlation between product market regulation and ICT use in services (text figure). Moreover, there may be combined effect of product and labor market regulation. For instance, Kent and Simon (2007) find tentative evidence that lower initial levels of regulation are associated with higher TFP growth over subsequent years, and that labor and product market deregulation have more of an effect in combination.

4.2 Firms' Size, Economies of Scale, and Innovation Capacity

30. Countries' TFP growth is to a large extent driven by firms' ability to innovate and reap economies of scale. This ability heavily depends on firm size. As discussed, French and Spanish firms tend to be smaller than German firms.

- French enterprises face heavy labor-related regulations and other legal requirements (accounting, tax, profit sharing) which limit their capacity to grow and to reap economies of scale (OECD, 2009). Garicano and others (2012) estimate that the most important threshold (50 employees) costs the economy at least 0.5 percent of GDP in terms of foregone employment and productivity.

- Spanish firms tend to be smaller, less productive, innovative, and export-oriented than most European peers, while the productivity gap between small and large firms is wider than in many other European countries. Obstacles to growth include size-depending thresholds in regulation (e.g., in reporting, auditing, and labor-related regulation) and taxation, limited financing access, as

well as market fragmentation from the proliferation of regulatory requirements and practices (such as permits and standards) at the regional and local level, which constitute barriers to entry and inhibit competition.

E. Conclusions

31. This paper reassesses potential output for France, Germany, and Spain by applying a multivariate filter approach and comparing the results to more standard methodologies. The analysis suggests that potential output growth has declined significantly in France and Spain since the Great Recession and without additional reforms it is expected to remain below pre-crisis levels in the medium term. In Germany, potential growth is expected to remain at pre-crisis levels, though aging will exert pressure on potential growth in the longer term.

32. The analysis of the sources of potential growth reveals stark differences across the three countries:

- *The capital contribution* to potential growth was strong in the pre-crisis period in Spain but the crisis resulted in a large drop in investment. In Germany, the capital contribution had already declined pre-crisis and remained at low levels throughout the crisis. In France, the contribution of capital has been resilient over time.

- *The contribution of potential employment* was robust before the crisis in France and Spain, reflecting a fast growing working age population (in part due to large migration inflows), and, for Spain also, a rising labor force participation rate; this trend reversed during the crisis as result of increasing structural unemployment and, for Spain also, adverse population dynamics. In Germany, while insignificant prior to the crisis, the contribution of trend employment has picked up thanks to higher labor force participation rates, particularly for women and older workers, and the decline in structural unemployment.

- *Total factor productivity* has been on a secular decline in Spain and declining since 2000s in France prior to the crisis. The trend continued through the global financial crisis in France. The improvement in Spain relative to very low levels in the past is due to drastic labor shedding, especially of low-skilled temporary workers. Only in Germany has total factor productivity remained the main engine of potential growth over time.

33. These differences point to a number of structural problems that are constraining potential growth in the medium term. In Germany, while the net immigration has helped mitigate the pressure from aging in recent years, the population is projected to age fast. In France, structural unemployment is expected to remain high without reforms. In Spain, potential growth remains constrained by adverse population dynamics, high structural unemployment and low TFP growth, reflecting the continued dominance of small firms and labor market duality, which lowers incentives to invest in workers' skills. This points to a significant potential in terms of lifting TFP and reducing the high structural unemployment in France and Spain.

34. Staff analysis is indicative of substantial scope for raising potential GDP through structural reform. While it is difficult to estimate the potential impact of specific reforms, staff analysis indicates that significant gains could be made, with the precise impact depending on countries' starting position, the ambition of the reform agenda, the speed of its implementation, and the time needed for these reforms to take hold. As discussed in the 2015 Staff Report for the Article IV Consultation with each country, reform efforts should focus, *inter alia*, on reducing structural unemployment together with steps to reduce the high level of spending and taxes in France, reducing disincentives for women to work full time in Germany, and addressing relatively low productivity, high duality and skill deficiencies in Spain. Reforms along these lines would go a long way in providing a well needed boost to potential output.

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SPAIN'S INSOLVENCY REGIME: REFORMS AND IMPACT[1]

Spain recently introduced further improvements to its insolvency regime to assist distressed businesses and households. The most noteworthy advancement is a "fresh start" for good-faith consumers and entrepreneurs, which if implemented effectively will likely have positive effects on future economic activity and a limited short-term impact on banks' earnings.

A. Introduction

1. As part of its ongoing efforts to improve the insolvency regime, Spain introduced in 2014 and 2015 further changes to facilitate the restructuring of corporate and household debt. The reforms, passed via Royal Law Decrees (hereinafter, "RDL") issued in September 2014 and February 2015, are designed to (i) facilitate the ability of enterprises to reach restructuring agreements in court; (ii) encourage the sale of businesses as going concerns in insolvency liquidation; (iii) improve the mediated out-of-court restructuring process for SMEs and extend it to include consumers; and (iv) provide a "fresh start" for consumers and individual entrepreneurs[2] after their assets are liquidated in bankruptcy.[3] The introduction of the fresh start is a particularly important achievement, as it may allow financially distressed entrepreneurs and consumers to be discharged of unsustainable debt and incentivizes future entrepreneurial behavior and consumption, thereby supporting continued economic growth and social cohesion.[4]

2. The reforms are significant advances, although certain features could be improved going forward. Public creditors continue to be excluded from the out of court restructuring processes and are not subject to discharge after liquidation, which hinders the deleveraging of private sector debt by (i) disincentivizing other creditors from voluntarily agreeing to restructure debt and (ii) incentivizing debtors facing financial difficulty to pay their public debts at the expense of those owed to other creditors. The "fresh start" legislation could benefit from clarification in order to facilitate wide and uniform application of the law, while minimizing misuse. Regarding the reforms to the in-court restructuring procedures, a somewhat cumbersome class voting system

[1] Prepared by Chanda DeLong (LEG), Mustafa Saiyid (MCM), and Manfred Balz and Ignacio Tirado (LEG external experts).

[2] The debt discharge is available, after liquidation of their personal assets, to all natural persons, i.a., sole proprietors of unincorporated businesses, consumers, individual general partners of partnerships, and individuals who gave personal guarantees, or provided collateral, for debt of another.

[3] *See* Royal Decree Law 11/2014, of September 5, 2014, on urgent measures in insolvency matters, and Royal Decree Law 1/2015, of February 27, 2015, on second chance mechanisms, reduction of financial burden and other measures of social order. The Royal Decree Law 11/2014 was subsequently approved by the Parliament, with minor amendments, as Law 9/2015 of May 25, 2015.

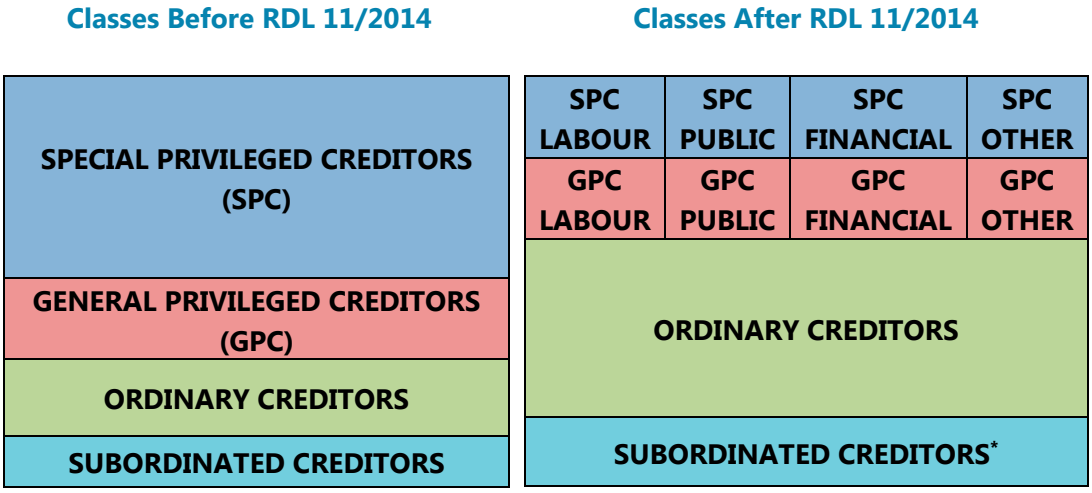
[4] These reforms follow those made in March 2014, which made significant amendments to out of court refinancing agreements between enterprises and their financial creditors. For a discussion of these reforms, see: Spain: Selected Issues, "Strengthening the Insolvency Framework for Spanish SMEs", IMF Country Report No. 14/193.

without specified conditions under which dissent by impaired creditor classes can be overridden ("cram-down") may reduce the efficiency of the restructuring process. Furthermore, going concern sales may be hindered by rules designed to protect labor and social security, at the expense of value maximization.

B. Amendments to the Insolvency Law

In-court and out-of-court procedures

3. The RDL of September 2014 amended the in-court procedures to facilitate corporate restructuring (see Box 1). The reform introduced a new class voting system with up to nine distinct classes, which is intended to facilitate restructuring agreements by including secured and priority creditors in the voting process if they are to be affected by the restructuring plan (See Figure below). In order for a restructuring agreement to be binding on them, affected privileged creditors holding a qualified majority of claims in each of the classes of affected privileged creditors must vote in favor of the plan approved by ordinary creditors; subordinated and non-affected creditor classes do not vote. There is no "cram-down" mechanism by which a plan can go forward despite the obstruction of dissenting classes. The reforms also expanded the content of the restructuring plans to provide more restructuring tools and allow for more substantial write-downs.



*Source: Spanish Ministry of Economy

4. The creation of a class voting system involving priority and secured creditors is in line with best practice, but the design will have to prove itself in practice. A system in which up to nine affected voting classes must each approve a restructuring plan may often prove too involved to be workable, particularly in the absence of a "cram down" mechanism by which dissenting, affected classes could be bound by the plan provided that they were treated "fairly and adequately".[5] The

[5] In a cram-down system based on absolute priority, dissenting classes can be impaired without their majority consent as long as no junior class receives anything, no senior class receives more than 100%, and members of the dissenting class receive at least liquidation-value. The relative seniority is based on the ranking of claims for distribution in liquidation.

system also does not aggregate creditor claims based solely on their ranking within the insolvency regime, but rather groups all priority classes within each of the four socio-economic groups into one voting class. As such, creditors within classes may have different economic incentives that prevent them from reaching majority consent.

5. The reforms also introduced noteworthy and progressive rules enabling the sale of businesses as going concerns and significant changes to the out-of-court restructuring mechanism for SMEs. The primary amendments are as follows (see Box 1):

- *Going Concern Sales:* The reform allows negotiated sales of business assets (without an auction) in liquidation and the assignment of necessary licenses and contracts without the consent of counterparties.

- *Out of Court Agreements:* The RDL of February 2015 amended the special procedure introduced in September 2013 by which SMEs can reach an out of court agreement on payment ("OCAP") with their creditors, with the assistance of a mediator.

Box 1. Changes to In-Court and Out-of-Court Procedures

The Royal Decree Law 11/2014 of September 5, 2014, as amended by the Law 9/2015 of May 25, 2015 and the Royal Decree Law 1/2015, of February 27, 2015 introduced changes in the legal framework for business restructuring both in and out of court, which include the following:

In court proceedings

Plan Content: The amendments eliminated the previous limitations on plan content (debt reductions of up to 50% of unsecured debt and reschedulings of up to 5 years). Now there is no limit to write downs and reschedulings can be up to 10 years.

Class Voting: A new system of class voting has been introduced: creditors are divided into four classes based on "socioeconomic" factors: labor, public, financial, and a residual category "other", which are then further subdivided into two classes: those creditors with special privilege (security interest) and those with general privilege (priority). All ordinary creditors vote together in a separate class. A majority of 50% or 65% of ordinary creditors is required to approve the plan. The privileged creditors will be included in those percentages when they vote in favor of the plan.

Plan Approval: To bind all privileged creditors within a class, the following thresholds must be met: (a) creditors holding 60% of the total value of the claims if the plan includes write downs of less than 50% and reschedulings of up to 5 years or (b) creditors holding 75% of the total value of the claims if the plan includes higher write-downs and longer reschedulings (with a cap of 10 years).

Automatic Assignment of Contracts/Licenses: In going concern sales, the automatic assignment of executory contracts and licenses relevant for the continuation of the business/professional activity is permitted without the need for the consent of the debtor´s counterparty.

Negotiated Direct Sales of Businesses: A negotiated sale of the business can be conducted on the marketplace, without an auction procedure.

Creditors that Acquire Claims Post-Insolvency: Creditors that acquire an insolvency claim by assignment/transfer are no longer deprived of the right to vote on a plan. The only ones to lose the right to vote are those especially related persons who acquire claims after the opening of proceedings or, having acquired it before, are subordinated according to the law.

Box 1. Changes to In-Court and Out-of-Court Procedures (concluded)

Sección de Calificación: The rule that defines the opening of the "sección" on liability and disqualification of directors has been amended. No such procedure will be opened if an insolvency plan is passed that envisages a write off of less than 1/3 of the claims or a stay shorter than 3 years, either for all creditors or for the creditors of one or more classes. It will thus suffice to pay 67% of the claims to only one of the classes of creditors to avoid the mandatory investigation into the behavior of directors.

Steering Committee: A steering committee has been created to supervise the effectiveness of the new insolvency system stemming from the recent reforms.

Out of Court Agreements on Payments (the "OCAP" Procedure)

Plan Content: The possible content of the plan has now been extended to encompass write downs/extensions beyond the prior limitations of a 25% write-down and a three year moratorium.

Plan Approval: The majorities needed to reach an agreement have been amended as follows: 60% of the value of the claims for plans including write-downs of up to 25% or rescheduling of less than 5 years; 75% necessary to pass a plan with higher write-downs and reschedulings (with a cap of 10 years). Secured creditors may also be bound by the plan (for the amount covered by the collateral) as long as 65% or 80% vote in favor of the agreement, depending on the extent of the write downs/rescheduling.

Process: The procedure has been streamlined, channeled through the Commercial Registry, the notaries and the chambers of commerce, made more accessible by means of pre-designed forms/templates, and facilitated by an improved system of mediators.

Eligibility: The procedure has been expanded to cover consumers as well as entrepreneurs. See Box 2.

6. However, preferential treatment afforded to public creditors and labor reduces the efficiency of the process. Public creditors continue to be excluded from any out of court restructuring processes. There is no stay on the execution of public claims once the processes begin and public creditors are left out of the collective creditor decision-making process. This may limit the effectiveness of these agreements, particularly in the case of entrepreneurs who often have tax arrears. With respect to going concern sales, the law requires the mandatory assumption by the purchaser of residual social security and labor liabilities ("successor liability"). While successor liability protects social security and labor creditors,[6] it discourages potential buyers as these liabilities cannot always be accurately reflected in a discount to the purchase price. Even when this discount possibility exists, value is taken away from other creditors by granting employees and social security bodies an extra type of preference. As an additional measure to protect labor, the law also gives the judge the possibility to authorize the transfer of the business as a going concern in liquidation to the bidder that better secures the continuation of the business and the preservation of jobs, even if the bid is lower than other bids by as much as 15%. While this rule gives clarity to previously disparate judicial practice, it distorts the making of efficient choices best for the market as a whole.

[6] This rule also disincentivizes owners or shareholders of the debtor from shedding debt and repurchasing the business debt free from out of liquidation.

The fresh start

7. The most noteworthy achievement is the introduction of a fresh start for individual entrepreneurs and consumers. With this reform, Spain has transitioned from being one of the few countries in the European Union without a fresh start policy to having one of the more liberal regimes, apart from an unusually broad exclusion of public claims.[7] For details on the design, see Box 2.

Box 2. The "Fresh Start" Reform

The Royal Decree Law 1/2015 introduced a specific system to deal with the insolvency of individuals. The system covers both consumers and individual entrepreneurs and generally consists of two mandatory, consecutive stages, one conducted out of court with a view to reach a plan and, if unsuccessful, an in-court bankruptcy liquidation. The main features of the system are as follows[1]:

Out of Court Stage

- For individual debtors with an estimated debt below 5 million euro, a prior "OCAP" procedure must be attempted. Individual professionals (*empresarios* according to Social Security rules and *autonomos*) are regarded as entrepreneurs.
- Debtors convicted of certain economic and social crimes and those who had reached an OCAP, concluded a refinancing agreement or who have undergone insolvency proceedings in the previous 5 years may not access the proceedings.
- The procedure varies depending on the type of debtor. If entrepreneur, the debtor initiates the procedure by filing a petition and requesting the appointment of a mediator. The petition will be channeled through the Commercial Registry or a Chamber of Commerce. If the debtor is a consumer, the petition will be made to a public notary, who may act as mediator or, in some cases, appoint one. Both petitions must be accompanied by relevant documents, and templates designed by the Ministry of Justice are to be used. The procedure for consumers is shorter and less costly.
- The mediator is a private professional who plays a substantial role: among other tasks, the mediator analyzes the documents; summons creditors to a meeting; drafts the plan, which will include a payment plan with reference to the resources needed to execute it; and must supervise the implementation of the plan[2].
- The opening of the OCAP limits the debtor´s ability to effectively carry out legal acts outside the ordinary administration of his affairs; generally, executions are stayed, and the accrual of interest is suspended during the negotiation.

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[1] In June 2015, the Parliament approved amendments to RDL 1/2015 to (i) clarify that the discharge can be revoked during the period of the payment plan upon fortuitous gains such as lottery or inheritance (and not other economic success); (ii) include a provision that the guarantor gets no recourse action against the discharged debtor (provided it is not revoked) (iii) reduce the threshold from 50% to 25% for those debtors subject to the Code of Good Practices; and (iv) clarify that the grounds for revocation shall occur during the term of the payment plan (except for revocation based on the discovery of undisclosed assets or revenues (if they are sufficiently material), which can occur any time within the five-year period). The amended version of the law is still subject to confirmation by the Senate.

[2] Concerning the content of the plan and the majorities necessary for its approval, see Box 1.

[7] See *Spain 2014 Article IV—Staff Report*, IMF Country Report No. 14/192.

Box 2. The "Fresh Start" Reform (concluded)

- Creditors must express their opinion on the plan or their claim will be subordinated. Public creditors are not affected by the OCAP.

If no plan is approved, the plan is declared void, the approved plan breached or, at any time during the OCAP proceedings it is apparent that no majority may be reached, in-court insolvency proceedings will be opened on the insolvent debtor.

In-Court Insolvency Stage

Following a failed OCAP, abridged, formal insolvency proceedings will be opened. In case of consumers, the proceedings will necessarily be liquidation proceedings. The main characteristics are:

- The debtor must have previously tried an OCAP (unless not legally allowed).
- Only *good faith* debtors may obtain a discharge. In any case, good faith will be deemed to exist when (a) the procedure has not been classified as "guilty" (*culpable*); (b) the debtor has not been convicted for criminal offences in the 10 years prior to the opening of insolvency; (c) the debtor has paid all administration claims, all privileged claims and 25% of unsecured claims; or, alternatively (i.e., if such payment has not happened), the debtor (d) has not breached the duty to collaborate during insolvency proceedings; (e) has not obtained a discharge in the previous 10 years; (f) has not unjustifiably rejected a job offer in the previous 4 years; (g) accepts to be included in the public insolvency register for 5 years; and (g) accepts to be subject to a post-liquidation payment plan.
- The immediate yet provisional discharge will *only* affect (i) all outstanding unsecured and subordinated claims, with the exception of public claims and alimonies and (ii) the part of secured claims that remains unpaid following execution of the collateral (if it is classified as unsecured).
- The dischargeable claims are provisionally discharged upon liquidation. All other claims (*except public claims*) are subject to a payment plan that can last up to 5 years.
- A final discharge will be granted upon compliance with the payment plan unless any of the following occur:
    - The debtor incurs any of the causes that would have prevented him or her from obtaining the provisional discharge (see definition of "good faith" above).
    - The debtor enjoys certain fortuitous gains (inheritance or lottery) such that he or she is able to satisfy all discharged claims and alimonies.
    - Undeclared assets or revenues are discovered.
    - The payment plan is not complied with.
- In spite of having breached the payment plan, the judge may confirm the discharge if, given the circumstances of the case and having heard the creditors, the debtor has devoted 50% of her non-exempt income to the satisfaction of the plan.

8. The reform is a crucial step to encourage individuals to engage in productive economic activity in the formal sector. A "fresh start" regime incentivizes the start of new businesses and risk-taking, as entrepreneurs know that they will not be forever tied down repaying unsustainable debt. It may also deter grey market activity, as individuals will have less incentive to conceal future earnings and savings for fear they will be perpetually subject to pursuit by creditors. More broadly, it has the important societal effect of recognizing that economic failure—in either a

business venture or with respect to personal finances—should not be a life sentence, but a temporary setback.

9. Spain's regime takes a unique approach designed to balance the need to quickly deleverage individuals with the desire to minimize moral hazard. The result is a system that stands out from its European peers and other advanced economies (see Box 3). Its design is an amalgam of modern insolvency systems, such as the U.S. bankruptcy discharge ("Chapter 7"), which allow the debtor an immediate and generally irrevocable fresh start after liquidation, and many European systems, which require a period of "good faith efforts" after liquidation, whereby the debtor's nonexempt income must be dedicated to the payment of pre-insolvency creditors for a period of several years, after which discharge is granted. While the Spanish system does not fully avail itself of the benefits of an immediate and generally unconditional fresh start, it could maximize these effects in its own system by increasing the post-discharge certainty for the debtor. This could be done by remedying the lack of clarity with respect to the post-liquidation payment plan and revocation of the discharge. In addition, while the Spanish system does not have the disciplining effects of a post-liquidation commitment period of court-supervised "good behavior," the potential for misuse can be minimized by careful monitoring. If evidence of widespread abuse arises, areas in which the law could be strengthened in this regard include expanding the "good faith" criteria for entry and ensuring discharge is not granted in the event of fraudulent behavior.

10. As with the other reforms to the insolvency regime, a number of arguments speak in favor of including public creditors in the "fresh start" reform. The exclusion of public creditors may take away from the intended positive impact of the fresh start by (i) leaving debtors with potentially significant residual debt after discharge and (ii) creating incentives for debtors to strategically pay public creditors at the expense of others when in financial difficulty, as follows:

- *Residual Debt:* After bankruptcy liquidation, all residual debt owed to public creditors (even to those public law debts that enjoy no privilege in the insolvency law) [8] will not be extinguished or included in the post-discharge payment plan. As a result, individuals—particularly individual entrepreneurs—may be saddled with sizeable public debt even after having liquidated their assets, leaving them with fewer resources to start and grow businesses, earn income, and consume. This is likely to negatively impact tax revenues in the longer term. In the post-liquidation period, public creditors may enforce arrears in the applicable administrative processes, including by garnishing wages. This may obstruct the debtor from complying with his payment plan, including by preventing him from dedicating 50 percent of his non-exempt income to the payment plan, and thereby preventing him from receiving a final discharge.

[8] Within formal insolvency proceedings, including the liquidation stage, public claims rank as follows (arts. 90-93): arrears for withheld tax and Social Security contributions rank in the second tier of generally privileged claims; public claims and 50% of tax and Social Security claims rank in the fourth tier of generally privileged claims; the remaining 50% are considered ordinary unsecured claims, with the exception of those claims that are subordinated; claims for interest (ordinary and default interest) rank in the third tier of subordinated claims, and claims for fines and sanctions, in the fourth tier. Public law claims are subject to general rules concerning security rights: notwithstanding the classification above, if the public claim is secured with collateral, it will be classified as specially privileged and will rank ahead of all other creditors concerning the proceeds of the collateral.

- *Unintended Incentive Effects*: A potential effect of the broad exclusion of public creditors is that rational debtors in distress may be incentivized to pay public creditors preferentially and default strategically on their other liabilities before petitioning for mediation and bankruptcy. This may have a negative effect on payment culture and take away value from other creditors, e.g., financial and trade creditors of an entrepreneur, thereby undermining the entrepreneurial incentives desired from a fresh start policy.

Box 3. Personal Insolvency Regimes: Cross-Country Survey

The following provides a description of the approach in the personal insolvency regimes in selected modern jurisdictions: Germany, Italy, the United Kingdom, and the United States to two key design issues: (i) Immediate Discharge v. Commitment Period and (ii) Scope of Dischargeable Claims.

Immediate Discharge v. Commitment Period

Germany: Discharge is granted only after a commitment period that generally lasts 6 years (it is reduced to 5 years upon payment of all costs of proceedings and 3 years if there is 35 percent recovery for creditors). During the commitment period the debtor assigns or transfers all nonexempt income to a trustee for the ratable payment of all unpaid (residual) administrative, priority, general, and subordinate claims, which are paid by the trustee following bankruptcy priority rules. All pre-insolvency creditor actions are stayed during the commitment period, including for creditors with non-dischargeable claims.

Italy: In Italy, individuals in debt distress have a number of procedures available to them, including a creditors agreement (for persons with an economic activity), a consumers' insolvency plan (which does not require creditors' consent), and bankruptcy liquidation. After bankruptcy liquidation, discharge can be granted four years after the initiation of insolvency procedures, subject to the debtor's good conduct during that period.

United Kingdom: The U.K. has various procedures available to individuals in debt distress that provide debt reduction, including bankruptcy. In a bankruptcy liquidation, discharge is generally granted one year after the opening of the liquidation (called a moratorium period) although the debtor may be required to pay excess income for up to three years. During the moratorium period, the debtor is subject to various restrictions (e.g., informing a credit provider of the bankruptcy when applying for credit of £500 or more, being barred from being a director of a company or taking part in its promotion, formation or management unless court permission is obtained, etc.). These restrictions can continue for up to 15 years if the debtor was reckless or otherwise culpable in causing the bankruptcy.

USA: Depending on their income, debtors may choose between Chapter 7 liquidation with immediate discharge and Chapter 13 debt adjustment (which allows debtors to avoid liquidation and retain assets (e.g. their home) in exchange for submitting to a trustee-monitored debt adjustment plan). Under Chapter 7 of the U.S. Bankruptcy Code, a debtor receives an immediate discharge (in practice this generally takes place about 4 months after closing of liquidation). Chapter 13 plans have a min. three year plan period, which can be extended to five years for debtors with greater income. During the plan, there is a stay on pre-petition creditors' actions, and there is no minimum creditor recovery prescribed; "zero recovery plans" are not uncommon.

Scope of Dischargeable Claims

Germany: Discharge excludes claims for intentional torts, intentional evasion of alimony and maintenance, and interest-free loans for costs of proceedings. These claims are accelerated upon bankruptcy and can be enforced after the conclusion of the commitment period. Public law claims are included in the discharge, including VAT, except taxes or social security contributions criminally evaded or withheld (non-dischargeable only after final criminal verdict).

Box 3. Personal Insolvency Regimes: Cross-Country Survey (concluded)

Italy: The discharge does not cover the debts for alimony, tort debts, pecuniary sanctions and tax liabilities for acts preceding the insolvency process but assessed after its commencement. All other tax claims are dischargeable.

United Kingdom: Discharge excludes debts arising from fraud, debts incurred in family proceedings, damages arising from personal injuries and debts which weren't included in the bankruptcy itself (e.g. a debt to the Student Loans Company). There is no special priority afforded to public claims and they are subject to discharge after the one year moratorium period.

United States: In Chapter 7, discharge does not include priority tax claims (non-priority tax claims are discharged), claims incurred by fraud, intent to deceive, or false pretenses, domestic support obligations, willful or malicious injury (tort) claims, fines and penalties, educational benefits and loans, and certain intentional personal injury claims. Chapter 13 has a very similar scheme of nondischargeable debts. It also requires that the plan pay all priority claims. Ordinary claims, e.g., trade and nonintentional tort claims, may be classified separately and receive different technical treatment.

C. Maximizing Effectiveness of Reforms

10. Maximizing the effectiveness of the reforms will require sufficient resources and active monitoring. In the near future, judicial resources should be dedicated to ensure the law is implemented effectively, which may include strengthening IT capacity, improving case management by speeding the process of digitalization of files, the development of standard forms and templates, and an investment in dissemination and capacity building of the relevant stakeholders. The use of the regime—particularly the new fresh start mechanism—should be carefully monitored, including by the gathering of relevant statistics, so that informed adjustments can be made .

11. As an urgent priority, remaining areas of uncertainty in the law regulating the fresh start should be clarified. In order for the market to take full advantage of the benefits of the system, the bases for revocation should be minimal and made explicitly clear in the law to create maximum certainty for the debtor. Widely-held misunderstandings about the law include the following: (i) which non-discharged liabilities are included in the payment plan and whether such liabilities, if any, are forgiven completely after successful completion of the payment plan or dedication of 50 percent of income to the plan; (ii) the length of the payment plan (whether it is up to or fixed at five years); (iii) under what circumstances the discharge can be revoked; and (iv) in what circumstances the judge would exercise his discretion not to revoke the discharge when the debtor used 50 percent of disposable income for compliance with the plan.[9] To minimize potential abuse, it should be made clear that the ex-ante requirement of good faith should be strictly applied and broadly interpreted so that the listed criteria are clearly illustrative and not exclusive.

[9] See footnote 8, above. In June 2015, the Parliament approved amendments to RDL 1/2015 to clarify certain issues, including that the discharge can be revoked during the period of the payment plan upon fortuitous gains such as lottery or inheritance (and not other economic success). The amended version of the law is still subject to confirmation by the Senate.

12. Public claims should be included in bankruptcy discharge, at least to the extent that they are ranked as ordinary or subordinated claims.[10] As a second best option, public claims should be included in the payment plan, their enforcement stayed during the plan period, and the accrual of interest and penalties stopped, and eventually be finally discharged like all other claims included in the plan. This is a crucial measure to really give distressed debtors a "fresh start" and create the appropriate incentives to engage in productive activity in the formal economy.

13. In due course, when reliable data on judicial practice and empirical impact become available, consideration could also be given to further improvements as outlined below. These are designed to address remaining obstacles to facilitate in-court and out-of-court agreements to rehabilitate viable firms, facilitate going concern sales in liquidations, and achieve the most effective function of the fresh start mechanism:

In-court and out-of-court procedures:

- *Public creditors*: Public creditors should be included in, and be affected by, the OCAP procedure as well as in the refinancing agreements.

- *Cram down:* To overcome obstruction by voting classes, particularly given the multiplicity of voting classes, a "cram-down" mechanism could be introduced allowing for the disregard of the majority dissent of one or several classes provided they receive fair value under the plan, including, as a minimum, the net present value of the payout they would likely receive in a liquidation.

- *Successor liabilities*: Social security and labor liabilities should not be transferred to the acquirer with the business in a sale of all or substantially all business assets as a going concern sale in an insolvency procedure. Rather, such liabilities should be included in the restructuring plan. To protect against possible misuse, the law could require disclosure and control of sales to insiders or their "straw men" by a creditors' committee and/or require a public auction for such sales. The rule that gives the judge the possibility to authorize the transfer of the business as a going concern in liquidation to the bidder that better secures the continuation of the business and the preservation of jobs, even if the bid is lower than other bids by as much as 15 percent, could also be reconsidered.

- *Pending bilateral contracts:* The regulation of the treatment of executory contracts in insolvency proceedings continues to run against best international practice. Claims of counterparties of rejected terminated executory bilateral contracts should be classified as ordinary insolvency claims (instead of claims against the estate). This would facilitate business restructuring.

[10] See Box 3 for examples of countries that include a discharge for public claims.

Fresh start

- *Revocation*: Revocation may not be the most appropriate sanction for subsequent fortuitous gain. An appropriate alternative would be to distribute substantial fortuitous gains (even when they make up for less than the full amount of residual claims) ratably to pre-insolvency creditors. This could be achieved easily on the basis of the final list of bankruptcy claims.

- *Preventing Misuse:* A greater measure of misuse control in the final stage of the discharge process (post-liquidation) could be warranted if evidence of abuse surfaces after experience with the law develops. While the provision setting forth revocation of discharge for a debtor who concealed his assets is crucial, other kinds of fraud committed in the post-insolvency period could also be bases for revocation. The law could also state that certain liabilities are never dischargeable.[11]

- *Co-debtor joint case management:* Related parties, such as household members, frequently give personal guarantees or supply collateral. Following practice in other modern jurisdictions, for a coherent resolution of household debt it could be considered to enable joint case administration in the same forum and by the same judge in the insolvencies of debtor and household co-debtors.

D. Estimated Scale of Impact

14. The analysis below attempts to estimate the impact of post-liquidation discharge on debtors as well as creditors, including banks and the government. It is subject to considerable uncertainty due to lack of clarity regarding some provisions of the law and data limitations. It assumes that the reform is effective in promoting discharge of debtors and the recommendations above are followed. It does not model potential changes in the behavior of borrowers or lenders as a result of the legislative reforms. For example, there is a risk, albeit small, that borrowers might become less inclined to service their debt obligations and lenders might tighten lending volumes and raise interest rates to compensate for higher lending risks. Details of the methodology and assumptions appear in the annexes.

15. The results suggest that the reform could offer significant relief to debtors following liquidation. According to our estimates, the law could eventually reduce about €30–44 billion of private sector liabilities, or nearly half of the total liabilities of distressed borrowers if the entire stock of banks' NPLs were liquidated (table below). Based on our understanding of the law, these debtors are assumed to include consumers and "individual entrepreneurs".[12] In the calculation, we estimate average recovery from liquidation of between 45–55 percent on loans of consumers, which include

[11] For example: claims incurred by false pretenses, claims for willful or malicious injury to another person or entity, certain domestic support claims, and criminal fines and penalties.

[12] More specifically, sole proprietors of unincorporated businesses, consumers, individual general partners of partnerships, and individuals who gave personal guarantees, or provided collateral, for debt of another.

mortgage and auto loans, credit card debt and other personal loans, and a similar recovery rate on loans to individual entrepreneurs. Since banks only report broad NPLs arising from the corporate sector, a key uncertainty relates to the size of debt of individual entrepreneurs. This figure is estimated using two different approaches: (i) based on debt liability data for small enterprises in the ORBIS database and (ii) adding together aggregate BdE data on banking sector NPLs for industries in which individual entrepreneurs are active. In practice, the discharge would be expected to occur over a number of years depending on the effectiveness of the reform and the speed at which debtors would make use of it.

Table 1. Spain: Estimated Size of Private Sector Liabilities Affected by RDL, March 2015
(Billions of euros)

	Banks' NPLs	Bank loans (percent of financing)	Estimated Total Debt	Estimated Liquidation Recovery	Estimated Residual Debt	Banks' Portion of Residual Debt
Consumers	47	100	47	19-25	22-28	22-28
Individual Entrepreneurs (est.)	15-30	90	17-35	8-17	9-18	8-16
Total	62-77		64-82	27-42	31-46	30-44

Sources: BdE, Haver Analytics, ORBIS, IMF staff estimates (June 2015).

Estimated Impact on Banks

16. The law is expected to have a relatively small impact on banks' earnings. The bulk of the relief offered to debtors will come from cancelation of banks' remaining claims after liquidation. These are estimated as between €30–44 billion (see the table above). However, due to banks' provisions, at 55 percent of NPLs, and other benefits accruing from cancellation of non-performing debt, for example lower carrying costs of NPLs, the RDL is expected to lower banks' earnings in Spain by only about 1–2 percent per year at the current pace of liquidation; and the corresponding impact on banks' overall capital is estimated as less than 1 percent versus what it might have been at the end of a 3-year period. It is important to note that even before the reform banks would have been able to collect only a small portion of the full residual amount owed by debtors after liquidation.

17. The impact of insolvency reform on banks' earnings and capital was estimated using a bottom-up approach. For this purpose, 10 years of annual filings data on Spain's largest 5 banks by consolidated assets are used to project forward balance sheets, earnings, and capital for a three-year period. For each bank, an iterative procedure is used to maximize loan growth and thereby earnings subject to constraints on capital and funding. The first of these constraints is that any capital raised through reinvested earnings and equity issuance must equal or exceed market expectations of target capital requirements over 2015–17. The second constraint is that funding

raised through growth of deposits, from the interbank market, debt issuance or via ECB facilities should equal or exceed the funding needs related to projected loan growth.

Table 2. Spain: Banks Post-Reform

Banks	Proportion of Loan Book in Spain (percent)	Domestic Loans at end-2014 (bn eur)	Domestic deposits at end-2014 (bn eur)	Projected Available Credit Supply (percent yoy)	Estimated Earnings Impact (percent of pre-reform)	Estimated Capital Impact (percent of pre-reform)
Santander	20	166	175	3 - 4	-1 to -0.5	-0.5 to 0
BBVA	50	166	139	4 - 5	-1 to -0.5	-0.5 to 0
Caixa	100	189	182	4 - 5	-2.5 to -2	-1 to -0.5
Bankia	100	113	107	-1 to 0	-2.5 to -2	-2 to -1
Sabadell	90	102	98	-1 to 0	-1.5 to -1	-1 to -0.5
Top 5 banks		736	700	2 - 3	-2 to -1	-1 to -0.5
System		1313	1997	2 - 3	-2 to -1	-1 to -0.5

Sources: BdE, bank statements, IMF staff estimates (May 2015).

Credit Supply

18. Our base scenario suggests that the law is unlikely to be a significant impediment to credit supply. This is primarily because the estimated scope of its balance sheet impact is relatively small and the largest banks appear to have adequate capital and provisioning buffers as well as ample funding—both in terms of market access and continued availability of ECB liquidity, including targeted long-term refinancing operations (TLTROs), despite the modest loss of private deposits since the start of the recovery for the banking system as a whole. These estimates assume that discharge is not revoked within the five-year period after having been granted.

Estimated Impact on the Government

19. Amendment of the reform to include a discharge of public claims would have a relatively small impact on the public finances. Public claims are estimated to range from €7–9 billion cumulatively or 3–4 percent of annual tax revenues, which would likely be spread out over several years depending on the pace of liquidation. This estimate assumes that net earnings of distressed consumers and entrepreneurs are at most similar in magnitude to their debt servicing costs then applying estimated average income tax and social security contribution rates for consumers and entrepreneurs to these earnings. The potential loss to the government from discharge of these public claims could potentially be compensated, partially if not wholly, by higher

tax revenue from firms entering the formal economy but this potential compensation is not included in this analysis. Also, it is important to note that much of these claims are uncollectible.

Estimation Uncertainty

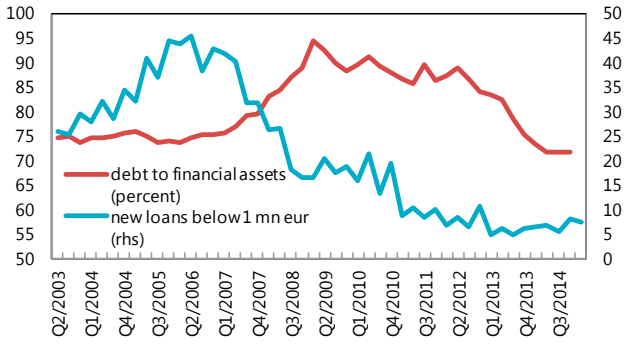
20. Any such estimate comes with considerable uncertainty, and the impact could well be higher or lower.

- **Scope of the reform.** Key uncertainties relate to the size of debt of individual proprietorships that would be affected by discharge and the extent of recovery on the debt of consumers and entrepreneurs. If banks' NPLs due to entrepreneurs were cut by half, for example, because of the use of an OCAP or a refinancing agreement, then private sector debt relief related to discharge would fall by nearly 20 percent. On the other hand, if the recovery rate on this distressed debt were 10 percent higher, the discharge from debt relief would be 20 percent lower.

- **Banks' capital and funding buffers.** The capital requirements in the calculations are set at fully-loaded Basel III CET1 capital ratios of 11, 11.5, and 12 percent over 2015–17 for SIFIs and 2 percentage points lower each year for non-SIFIs, in line with market expectation, which are higher than the Basel III schedule. Nevertheless, future regulatory developments concerning treatment of DTAs or TLAC requirements could raise capital needs well above the assumed targets. On the funding side, banks are assumed to take full advantage of ECB's facilities, including TLTROs, as needed, and deposits are assumed to remain stable going forward.

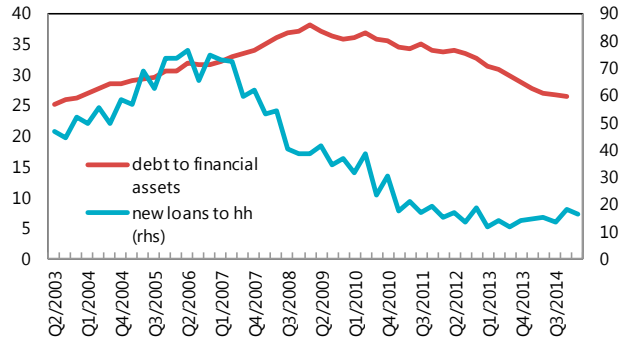
Credit Demand

Non-Financial Corporate Credit and Leverage
(billions of eur, percent)



Source: Haver, BdE

Household Credit and Leverage
(billions of eur, percent)



Source: Haver, BdE

21. Allowing for a "fresh start" is likely to increase credit demand over time. The intuition is that discharged debtors would eventually become re-integrated into the formal economy, seek new credit for new investment themselves and contribute to higher output and credit demand from others. While the data provides some support for this notion, a precise estimate of the aggregate response of credit demand over time to the debt relief received by consumers and individual entrepreneurs is difficult.

- Our analysis suggests that debt relief could amount to €22–28 billion for consumers and€9–18 billion for entrepreneurs. For consumers, this amounts to about 3–4 percent of the current total level of household debt and between 35–50 percent of the flow of new credit to households during 2014.[13] For individual entrepreneurs, it amounts to about 1–2 percent of the current level of corporate debt and between 35–65 percent of the flow of new credit to firms for loan sizes below €1 million during 2014. [14]

- Debt relief of this order of magnitude is expected to lead to a pickup in household consumption and a modest increase in corporate investment depending on the pace of liquidation. For example, our estimates suggest a pickup of 0.9–1.3 percent in annual consumption and 0.4–0.9 percent in annual investment, which could be spread out over 5 years or more, depending on the pace of liquidation.[15]

- If this increase in overall consumption and investment were only partially-financed by new borrowing, the implied increase in credit demand arising from insolvency reform alone would be in the range 0.3–0.6 percent over this period. Alternative approaches for estimating household and corporate credit demand in response to changes in leverage also suggest a similar impact on overall credit demand (see Annex II). Aggregating the results of the various approaches described above, the insolvency reform impact on credit demand from household and corporate borrowers is anticipated to approximate an increase of 0.5 to 1.0 percent, which would be spread out over a number of years based on the pace of liquidation.

[13] BdE data on the flow of new credit has only become available since March 2014, so the estimated figures above do not capture the full year. See BdE Financial Stability Report, May 2015, pp 22–23.

[14] This proportion appears large because of base effects since new credit flows in 2014 were still relatively small.

[15] These estimates are derived based on the methodology discussed in Chapter 2 of the Selected Issues Papers for the IMF Staff Report for the 2015 Article IV Consultation with Italy and are also noted in Box 1.

Annex I. Estimation of Banking Sector Impact of Recent Insolvency Reform[1]

A. Introduction

The objective of this estimation exercise is to determine the impact of the insolvency reform of February 2015 on banks' asset quality, earnings, capital and their ability to extend credit over a three-year period going forward. The key legal reform assumed in this exercise relates to the cancelation of any residual debt left after liquidation for some types of borrowers of banks' loans. Borrowers subject to discharge are understood to include consumers and "individual entrepreneurs".

B. Data

The estimation exercise uses balance sheet and earnings data on individual banks' from 10 years of annual filings through 2014 as well as the latest quarterly filing for the first quarter of 2015 available from SNL and Bankscope. Spain's top 5 banks by size of consolidated assets were used in the exercise. While the top 2 banks, classified as systemically important financial institutions (SIFIs), are globally active with relatively small exposures in the domestic market, 23 percent and 50 percent of their consolidated assets respectively, the top 5 banks still represent close to 60 percent of domestic assets of the banking system. For the insolvency reform analysis, corporate sector data is obtained from ORBIS, while household sector data is from the OECD as well as Haver.

C. Approach

The basic approach is to estimate potential credit supply (or loan growth) from each of the top 5 banks independently from credit demand based on banks' capital and funding constraints. Each bank's entire balance sheet structure and earnings are projected forward for a 3-year period based on a set of assumptions described below. Two main scenarios are considered, which concern banks' ability to recover on NPLs after liquidation: (i) before and (ii) after the passage of recent insolvency reform. The process of estimating potential credit supply also identifies the impact of reform on banks' asset quality, earnings and capital.

D. Methodology

For each bank, an iterative procedure is used to maximize loan growth and thereby earnings subject to constraints on capital and funding. The first of these constraints is that any capital raised through reinvested earnings and equity issuance must equal or exceed market expectations of target capital requirements over 2015-2017 (defined in assumptions below). The second constraint is that funding raised through growth of deposits, from the interbank market, debt issuance or via ECB facilities

[1] Prepared by Mustafa Saiyid (MCM).

should equal or exceed the funding needs related to projected loan growth. The starting point for the iterative procedure is to set annual loan growth to the pace of annual deposit growth based on latest available data. The impact of the reform is estimated by reducing the recovery amounts on banks' NPLs from consumers and individual entrepreneurs.

E. Assumptions

To simplify the calculations, the exercise necessarily involves certain assumptions on individual banks' capital, funding, earnings, and assets; as well as on the debt subject to discharge under the recent insolvency reform. These are summarized below.

Banks-related assumptions:

- **Capital.** The requirement is that banks equal or exceed market expectation defined as fully-loaded Basel III CET1 capital ratios of 11, 11.5 and 12.0 percent over 2015-2017 for banks considered SIFIs (the two largest in the system) and 2 percentage points lower each year for non-SIFIs. Market issuance of Basel III CET1 qualifying capital includes only equity and excludes, for simplicity, contingent convertible securities (CoCos) and other subordinated debt. Equity issuance is that announced already.

- **Funding.** The projected pace of annual deposit growth matches that during the past year. Debt issuance comprises only rollover of existing debt. Banks take full advantage of ECB's TLTRO facility if eligible. Eligibility requirements and maximum allowable TLTRO funding follow those in the relevant ECB circular.[2]

- **Earnings.** During 2015-2017, the following income statement items, as applied annually, are constant from latest available data (2015 q1): net interest margin (NIM) spread earned by banks, fee-based income, expenses, the tax-rate, and the provisioning ratio versus NPLs. The constant NIM spread effectively assumes that any changes in banks' deposit costs are passed on fully to customers (of bank loans). Banks' dividend policy also remains constant unless a change has been announced.

- **Assets.** During 2015-2017, banks' fixed assets remain unchanged from latest available data. The refinancing of loans does not count towards credit growth. Liquidated NPLs reduce banks' risk-weighted assets.

- **Asset Impairment.** The recovery rate on secured NPLs, assumed to be mainly mortgages, is estimated at 50 percent. This is based on taking the pre-crisis LTV ratio of 80 at origination of mortgage loans for borrowers that subsequently became distressed, and applying a haircut of 60 percent to the foreclosure value of their home, of which 40 percentage points is owed the overall real estate price decline (since the peak) and 20 percentage points to transaction costs.

[2] See "Modalities of the targeted longer-term refinancing operations", ECB, July 3, 2014.

The recovery rate on unsecured NPLs inferred from banks' filings varies widely. For simplicity, this was set to 15 percent of the par amount of the written-off loan to match the average level for the top 5 banks.

Insolvency reform-related assumptions:

- **Affected NPLs.** The reform only affects banks' NPLs from consumers and individual entrepreneurs.
- **Residual debt.** The residual debt of affected borrowers includes any debt left after liquidation for both secured and unsecured loans. The discharge of any residual debt after liquidation is not revoked.

F. Details of Insolvency Reform Impact

The primary channel through which the recent insolvency reform affects banks' balance sheets and earnings is assumed to be through reduced recovery amounts from banks' NPLs after liquidation. This only affects NPLs that come from certain types of borrowers, specifically those related to consumers and individual entrepreneurs.

While data is readily available for NPLs of households, the first step is to estimate NPLs of individual entrepreneurs within the broad non-financial corporate universe. One estimate can be obtained from Banco de España (BdE) data on the breakdown of non-financial corporate sector NPLs by industry and using only those NPLs that relate to industries in which individual proprietorships dominate, such as wholesale/retailing, agriculture, hotels and restaurants and other services. While NPLs resulting from individual entrepreneurs are over-estimated in these industries, they are under estimated in others, such as manufacturing, transport and real estate. This approach results in a rough estimate for NPLs of individual entrepreneurs that is slightly less than one-quarter of non-financial corporate sector NPLs. [3]

The second step is to estimate the overall debt of borrowers affected by the insolvency reform of February 2015. This can be done by applying estimates of bank financing as a proportion of the total to banks' NPLs for consumers and individual entrepreneurs.

The third step is to calculate the amounts that would be recovered in a liquidation of these NPLs. For consumers, two types of NPLs are assumed, those that are secured by housing, and others that are unsecured. In the former case, the recovery is estimated as 50 percent of NPLs (as described in

[3] An alternative approach is to use the size of firms as a guide. If all SMEs are assumed to be individual proprietorships, ORBIS data indicates that their liabilities are about one-tenth of those for the overall non-financial corporate sector. This might suggest a corresponding proportion for NPLs. However, private databases do not include all SMEs and it is also possible that SMEs may be disproportionately represented in NPLs compared with larger non-financial corporates.

the asset impairment assumption above); while in the latter, the recovery is estimated as roughly 15 percent of NPLs as inferred from banks' filings.

At this stage, the residual debt after liquidation may be calculated by subtracting estimated recovery amounts at liquidation from estimated total debt. Banks' share of this residual debt is simply in proportion to banks' financing of total consumer or individual entrepreneur debt. Before RDL of February 2015, banks may have been able to collect a portion of this residual debt after liquidation, perhaps 10-15 percent of it (based on banks' filings). But after the reform, banks may not collect even that portion of residual debt.

Annex II. Estimation of Impact on Credit Demand of Recent Insolvency Reform[1]

A. Introduction

This annex outlines methodologies to estimate the impact of recent insolvency reform concerning post-liquidation discharge on overall credit demand from consumers and firms. These approaches were developed by other authors and the results are simply adapted and used here as described below.

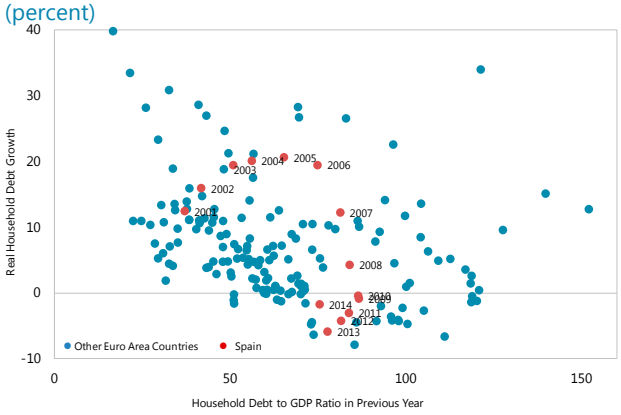
B. Data

The estimation of the impact on credit demand from consumers uses cross-country data from BIS over 2000–14 on consumer leverage and credit; while that from firms relies on Banco de España's confidential data over 2002-2010 for loan applications received by banks and the characteristics of the lending institutions, which approved or denied those applications.

C. Consumer Demand

An admittedly crude way of gauging the broad order of magnitude of what this might mean for the future development of household credit demand is to construct a least-squares linear fit of the inverse relationship between real consumer credit and the level of their debt to GDP (see text figure). Under this approach, an elasticity of -0.47 with a standard error of 0.14, implies that a decline in overall consumer leverage by about 1.5 to 3 percentage points resulting from discharge would lead to an increase in overall credit demand by 0.7–1.5 percent over a period of time corresponding to the liquidation of banks' end-2014 NPLs that would be covered by the law.[2]

Credit growth and household debt to GDP
(percent)



Sources: BIS, IMF Staff Calculations.

[1] Prepared by Mustafa Saiyid (MCM).

[2] See: Annex to 2015 Cyprus Article IV Staff Report, Ruchir Aggarwal, May 2015.

D. Demand from Firms

To estimate demand from firms, we turn to a model that links the approval of firms' loan applications to the key fundamentals of those firms as well as the characteristics of lending institutions Jimenez et al.[3] This approach measures the success of a loan application as 1 (granted) or 0 (not granted) and constructs a least-squares linear fit versus variables for a firm's size, capital ratio, liquidity ratio, past history of delinquency, and age of relationship with a lending institution along with similar variables for banks. It distinguishes between good times defined as the period 2002–(July) 2007, when banks were fully capable of lending, and a crisis period corresponding to (August) 2007–2010, when banks faced capital constraints arising from weak loan quality.

Since this approach uses confidential data on loan applications available only to the BdE, it cannot be replicated. However, the authors' results are presented for several different situations, which makes it possible to use these results in this analysis. In good times, 39 percent of firm's loan applications were accepted on average; while during the crisis period, the acceptance rate dropped to 30 percent.

To study the impact of the February RDL on the approval of loan applications using this model, we focus on two firm-specific variables: firms' capital ratio and past history of delinquency. The first of these, measured as the natural log of the ratio of firms' own funds to assets, is closely related to firm leverage. During good times, firms granted credit had on average 13 percent of own funds relative to assets; while during the crisis period, banks became more selective requiring on average 17 percent of own funds from firms. The second variable is a measure of the number of firms applying for credit while having other delinquent loans.

For firms' capital ratio, we assumed that a 1–2 percent decrease in firms' debt due to the law, would translate to a proportionate increase in firms' own funds relative to assets. This leads to an increase in loan approvals by 0.3–0.5 percentage points relative to the assumed baseline of 39 percent for good times when banks face no capital constraints.

E. Caveats

For the methodology to estimate consumer demand, the difficulties relate to the use of cross-country data with banking systems in different states of development and wide variation in macro conditions.

For the methodology to estimate demand from firms, one caveat is the change that occurred in the in the structure of the Spanish banking system in the immediate aftermath of the financial crisis, when many savings banks were consolidated and a number of banking relationships were lost. This

[3] "Credit Demand Forever?" On the Strengths of Bank and Firm Balance-Sheet Channels in Good and Crisis Times, G. Jimenez et al., SSRN, October 2014. See: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1980139

would suggest that the elasticities of loan approvals and banking sector variables would have been altered.

The impact on demand from firms due to discharge appears small according to the model because the sensitivity is being analyzed in isolation. Typically, a debt discharge would also lead to a reduction in the numbers of firms that would have delinquent NPLs at the time of a new credit application. While this impact of the law on the firm subprime variable is intuitively clear, is not easy to model in the absence of data on the number of firms that would be affected. A decrease in these subprime firms by half, would alone raise loan approval by 0.9 percentage points and complete resolution of all the subprime firms' NPLs leaving no history of these in credit applications would increase loan acceptance by nearly 2 percentage points, an impact that would be spread out over time.

F. Results

Aggregating the results for these two approaches for credit demand by consumers and individual entrepreneurs suggests a pickup of 0.5-1.0 percentage points over a period of several years depending on the pace of liquidation.

SPAIN: EXTERNAL COMPETITIVENESS AND SUSTAINABILITY[1]

Despite the notable improvement since the crisis, Spain's external position remains vulnerable. By lowering the high demand elasticity of imports and boosting export performance, structural reforms to further improve competitiveness could lead to a sustained increase in the current account and help reduce risks from the highly negative net international investment position.

A. Introduction

1. Spain's external position remains vulnerable despite a number of mitigating factors. Spain's negative net international investment position (NIIP) is among the highest in Europe at 93 percent of GDP. The external debt stock is high (at 160 percent of GDP) with large gross financing needs over the medium term. These external vulnerabilities create risks, even though the favorable maturity structure of Spanish liabilities, the low cost of debt, and the geographical diversification of external assets and liabilities work as mitigating factors. Staff's baseline forecast foresees a 3–4 percent of GDP annual NIIP improvement over the medium term.

2. The current account (CA) has strengthened after the crisis, but there is scope for further improvement. Spain's 11 percent of GDP CA improvement during the crisis period has been impressive by historical standards, especially since it has been achieved without the benefit of a nominal exchange rate depreciation. Competiveness improved following price and wage moderation, and more firms sought to compete on external markets during the recession. Spain's global export market share has also remained relatively stable in recent years, and Spanish exports have continued to diversify especially to emerging countries. However, import compression during the crisis played a large role as well and a number of structural challenges remain (see also Bank of Spain, 2014). Moreover, Spain's export share in GDP remains relatively low compared to peer economies, and export growth is still hampered by the overall small size of Spanish firms, low labor productivity, and the relatively low-value added of export goods compared to other advanced economies. There also remains sizable scope for Spain to move towards higher-quality exports and improve both the extensive margin (more exporting firms) and intensive margin (more exports by firms).

3. Recent external debt sustainability analysis (DSA) and the external balance assessment (EBA) confirm these impressions. According to the EBA staff assessment, the 2014 cyclically-adjusted CA has been ½ –2 ½ percent of GDP weaker than that consistent with medium-term fundamentals and desirable policy settings. Furthermore, staff also assesses a REER overvaluation

[1] Prepared by Heiko Hesse (SPR).

gap of around 5 to 10 percent. The external DSA indicates that Spain's high external debt is projected to decline gradually over the medium term in the baseline scenario but is subject to risks. For example, the debt path would not stabilize in a scenario in which key variables are assumed at their historical averages—a period that includes Spain's unsustainable boom and bust period.

4. Spain's external performance could be boosted from a higher export market share and lower demand elasticity of imports. Results from a simple empirical model illustrates that the demand elasticity has recently rebounded strongly, which highlights that the crisis has not led to significant import substitution that would have further boosted the trade balance and lowered the NIIP. Other results suggest that GDP growth faster than 2.5 percent could trigger a weakening of Spain's CA/ GDP ratio. A number of countries with better export performance have higher growth thresholds.

5. Structural reforms can help to improve Spain's export competiveness and global market share. These include labor market policies that ensure continued wage moderation and boost Spain's export competiveness, as well as reforms that reduce obstacles to firm growth. Larger firms in Spain are found to be more productive, more successful at exporting, and prone to establish a foothold in higher value market segments and global value chains. This would also help to reduce the still very high demand elasticity of imports by, for instance, reallocating resources to the tradable sectors and enhancing import substitution.

6. Structure of the Paper. Section B discusses stylized facts of Spain's CA and NIIP including their strengths and weaknesses. Section C examines Spain's external position from the perspective of the EBA and external DSA. Section D assesses Spain's export and import elasticities and the determinants of the CA. Section E discusses some other factors of Spain's export competitiveness such as firm size followed by the conclusion and policy recommendations in Section F.

B. Stylized Facts of Spain's CA and NIIP

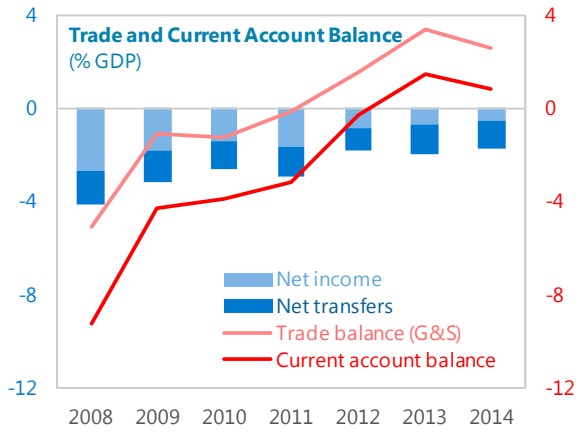
7. External imbalances matter for euro area economies. The euro area financial crisis highlighted that countries with high external vulnerabilities are not immune to solvency and liquidity concerns. Though member countries are protected from a currency crisis, in the absence of intra-euro area fiscal transfers, individual countries are subject to the inter-temporal budget constraint with accumulated liabilities expected to be matched by expected future surpluses (Vidon, 2011). In addition, the post-crisis period has also shown how difficult competiveness adjustments are within the currency area due to nominal wage rigidities and the relatively low level of inflation across the euro area.

8. To a large degree, the origins of Spain's external vulnerabilities can be traced back to the boom period since euro membership. The euro brought a convergence of interest rates that supported persistently large current deficits and increasingly more negative NIIP levels. The CA deteriorated to a peak deficit of 10 percent of GDP in 2007 before strongly reversing to 1.4 and 0.8 percent of GDP in 2013 and 2014, respectively. More recently, the sharply lower oil price helped reduce the overall import bill, partly offsetting higher import growth following the surge in domestic

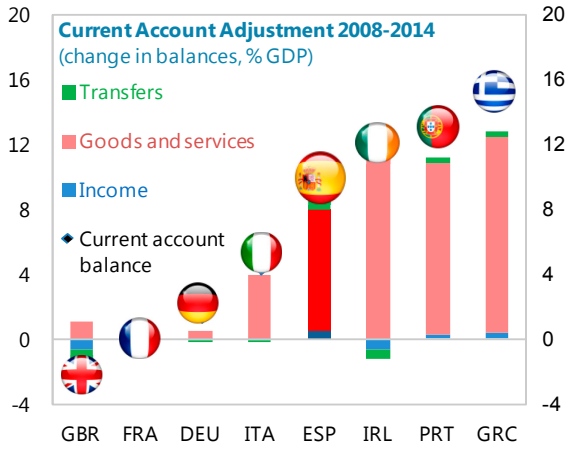
demand. The depreciation of the euro positively contributed to Spain's exports outside the Euro zone, while ECB measures have helped to drive down interest rates including on external debt. NIIP liabilities dropped from -34 percent of GDP in 2000 to -91 percent of GDP in 2009, driven mainly by substantial CA deficits but also reflecting persistently negative valuation effects. The NIIP remains elevated at -93 percent at end-2014.

Strengths and weaknesses of Spain's CA

9. Spain's post-crisis CA adjustment has been remarkable—but the high demand elasticity of imports remains a concern. Spain's substantial CA adjustment has been driven by the strong trade balance performance in goods and services. This improvement has been broadly in line with crisis countries such as Ireland and Portugal. In addition, the negative drag from net income and transfers has become smaller despite the large negative NIIP that would consume sizable interest payments on the accumulated external liabilities. However, the strengthening of the recovery since 2014 has also renewed worries about the high domestic demand elasticity of imports which has slowed the CA improvement (see a more detailed discussion below).

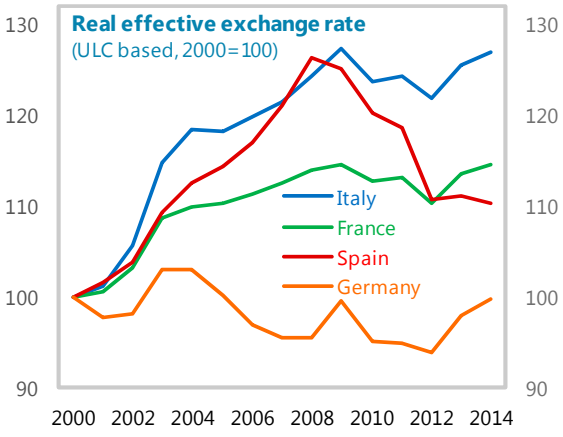


Sources: Eurostat; WEO; Bank of Spain; and IMF staff calculation.



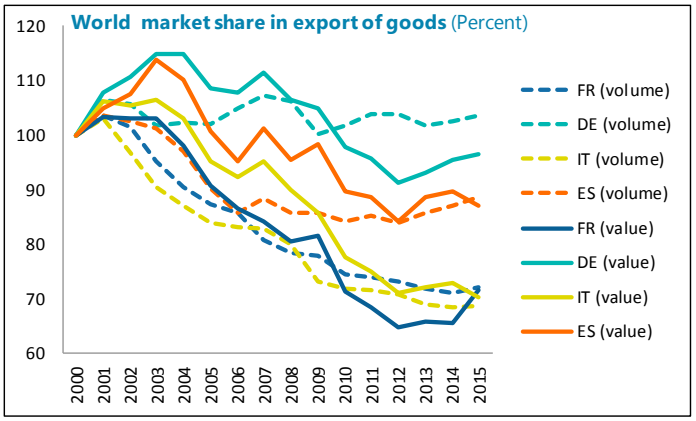
Sources: Eurostat; WEO; Bank of Spain; and IMF staff calculation.

10. Spain's export performance benefited from structural competiveness gains mirrored in a depreciating ULC-based REER. Spain's ULC-based REER depreciation since 2008 relative to France, and Italy reflected both the moderation in nominal wage growth and productivity improvements linked to the large-scale labor shedding during the crisis. More recently, the ULC-based REER has stabilized at 2003 levels. The CPI based REER has seen limited depreciation since the crisis suggesting further room for relative price-level adjustment.



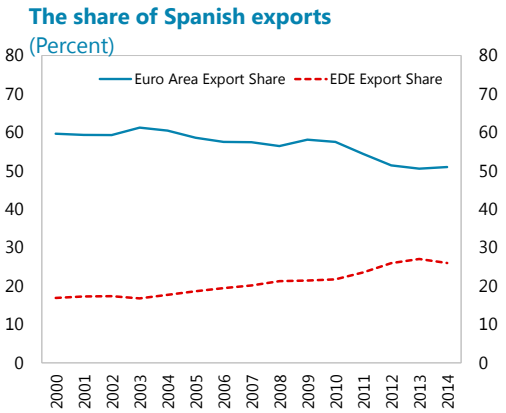
Sources: Eurostat; and IMF staff calculations.

11. Better export competiveness has been also reflected in a relatively stable global export market share in recent years especially compared with European peers. In particular, the Spanish market share in export of goods in volume terms has held up well compared to France and Italy, whose market share has continued to decline. Similarly, Spain's value-based market share has only decreased by 0.2 percent to 1.7 percent during 2000–14 in absolute terms. This suggests that Spain has benefited from structural competiveness gains due to wage and price moderation—a trend that could well continue under the right policies. The relative better performance of export volumes could also indicate a trend towards a more medium or higher quality of exports (EC, 2015).

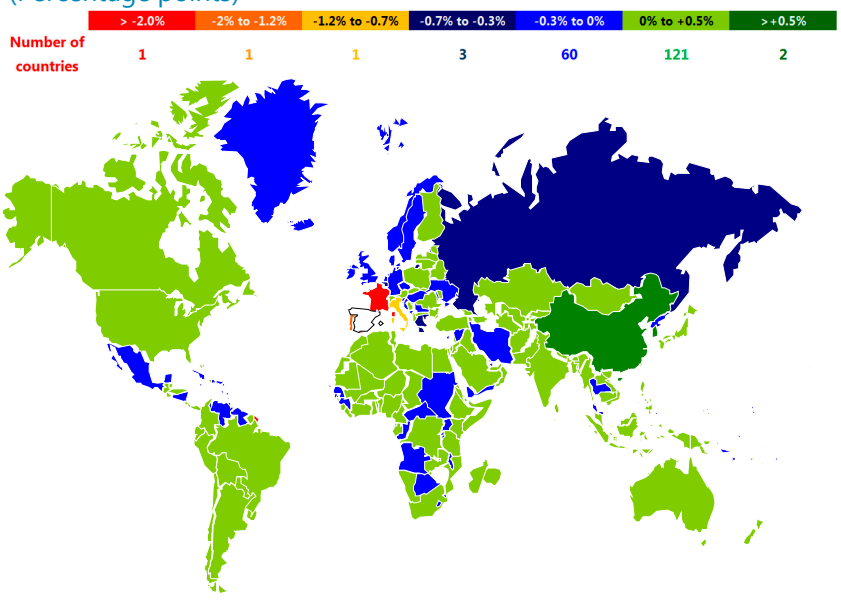


Sources: WEO; EC; and IMF staff calculations.

12. Spanish exports have also profited from geographical diversification, especially an increasing share of exports to emerging and developing economies (EDE). The export share to EDE countries, which also exhibited relatively more rapid growth, has soared by almost 6 percentage points to 26 percent between 2007–14 while the share of the euro area has declined by 6.4 percent to 51 percent. A look at the below map of Spain's export markets confirms the geographical diversification with, for instance, a notable increase in Spain's relative export share to China.



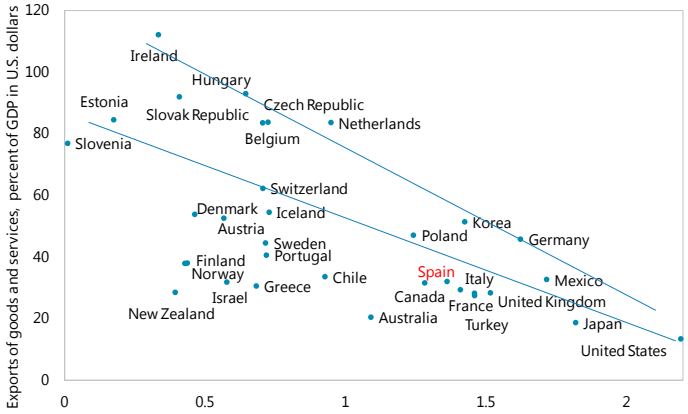
Sources: Direction of Trade database, IMF Staff calculations



Sources: Datacomex; and Spanish Treasury.

13. At the same time, Spain still exports less relative to GDP than the best export performers in Europe. For a given size of the economy (as measured by labor force), Spain's export share ranks below Germany, Korea and Poland, or Ireland and the Netherlands (though both are smaller economies and tend to be more open). Despite Spain's 11 percentage points increase in its export-to-GDP ratio since 2009, there is still sizable scope for improvement with regard to a more sustainable CA surplus and lower NIIP vulnerabilities.

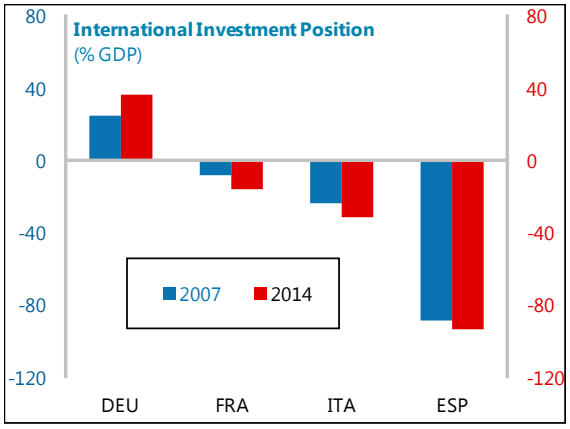
GDP share of exports and total labor force, 2014
(OECD countries)



Sources: WEO, BBVA and IMF staff calculations

Strengths and weaknesses of Spain's NIIP

14. Though it has remained relatively stable in recent years, Spain's negative NIIP position is still among the highest among euro area countries. The negative NIIP has remained at a persistently high level through 2014 at -93 percent of GDP. Such high NIIP levels also imply large gross financing needs of Spain's external debt. It should be also noted that the NIIP was structurally already very high well before the crisis period, declining from -35 percent of GDP in 2001 to -76 percent in 2007. This contrasts with much more favorable NIIP positions of other large euro area economies.



Sources: Eurostat, Bank of Spain; WEO; and IMF staff calculations.

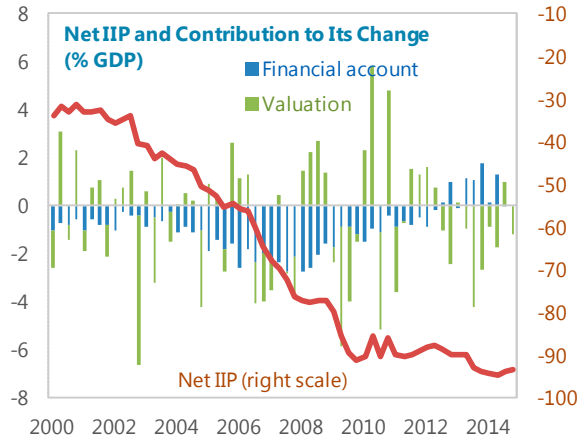
15. In recent years, the large NIIP position has been sensitive to valuation changes and portfolio investments. While valuation changes can go either way, they have been mostly negative for Spain (see below figure). [2] The interest rate convergence following the euro entry, together with the availability of external financing and rising asset prices have contributed to negative valuation effects in the run-up to the crisis.[3] While a history of negative valuation changes does not imply

[2] The change in the NIIP between periods is predominantly the sum of two factors: the net acquisition of foreign assets, and a revaluation of the NIIP to reflect the changes in the price of financial instruments and the exchange rates in which the instruments are denominated.

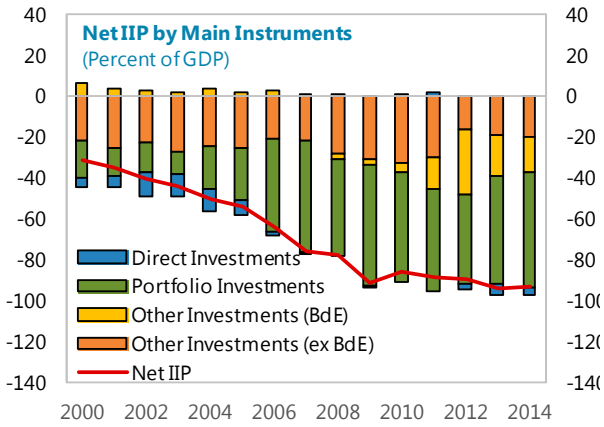
[3] Spain has historically paid a significant premium on its external liabilities relative to the rate of return it has earned on external assets, which led to persistent downward revaluation of the NIIP. The historical pattern does not fully

(continued)

negative changes in the future, a highly negative NIIP tends to be more sensitive to valuation changes than a lower one. For instance, ongoing private sector deleveraging (by reducing external indebtedness or higher returns on Spain's foreign assets (e.g., due to Euro depreciation and U.S. tapering) could lead to valuation gains. In addition, a sustained decline in the NIIP would also benefit from an improvement in the large negative net portfolio position from e.g. an increase in Spain's foreign portfolio holdings including valuation gains. In contrast, a valuation loss from e.g. Euro appreciation or generally a higher rate of return on external liabilities could worsen the NIIP or slow down the NIIP adjustment path despite the currently strong GDP growth. This suggests that valuation changes are a vulnerability associated with a highly negative NIIP.



Sources: Bank of Spain; WEO; and IMF staff calculations.



Sources: Bank of Spain; WEO; and IMF staff calculations.

16. Spain's Target2 flows have substantially improved since the crisis. Target2 balances are the mechanism through which national central banks within the Eurosystem lend to each other. As Spanish banks increasingly turned to ECB funding following the sharp decline of their market funding during the crisis, Target2 balances for Spain declined significantly, reaching -€429bn in August 2012. This was reflected in the sharp widening of the Bank of Spain net debt liabilities in the NIIP and, by definition, and increase in other investments (Bank of Spain) in the financial account. Since then, Target2 balances strongly rebounded to -€188bn as of February 2015.[4]

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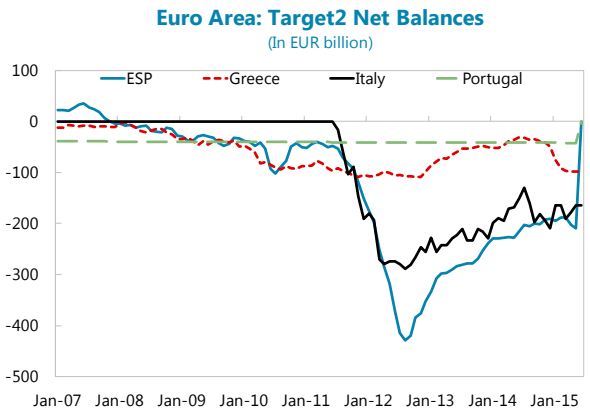
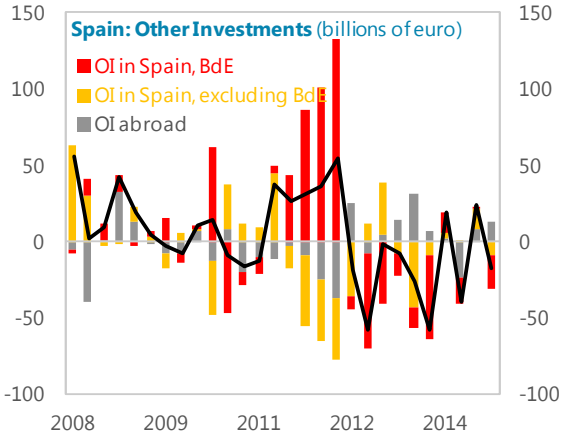
imply the direction of future valuation movements especially with the recent Euro depreciation, forthcoming U.S. tapering, Spain's strong recovery and ongoing private sector deleveraging.

[4] From a cross-country perspective, Spain's experience has been mirrored in other Euro area countries with sizable negative target2 balances that eventually rebounded from 2013.



Sources: ECB; Bank of Spain; WEO; and IMF staff calculations.



Sources: ECB; Bank of Spain; WEO; and IMF staff calculations.

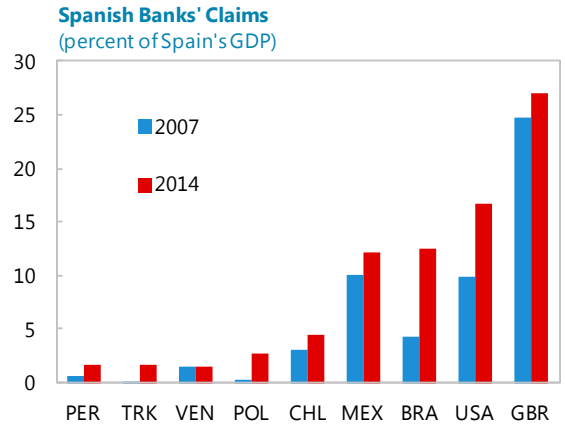
17. The sizable equity nature of Spain's IIP liabilities is a mitigating factor. Though IIP liabilities are very high with 234 percent of GDP at end 2014, a sizable portion of those are not fixed income and are not subject to sudden withdrawals. For instance, the liability equity component (both from direct and portfolio investments) constitutes 62 percent of GDP. Debt instruments related to direct investments (typically intra-company loans) are 20 percent of GDP, while Target2 liabilities are around 18 percent of GDP.

18. The wide geographical distribution of Spain's bank exposures has helped diversify Spain's external vulnerability risks since the crisis period. Spanish banks have increased their traditionally high exposure to Latin American countries as well as to the US and the UK since the crisis.[5] According to BIS data, the largest Spanish bank exposure is to the UK with 27 percent of Spain's GDP, which has remained stable throughout the crisis period. The US follows with 17 percent (a sharp increase compared to 2007), with Brazil and Mexico close behind. Exposure to these foreign markets has enabled Spanish banks to not only diversify their earnings structure but also compensate for the low earning and operating environment in Spain.[6] At the same time, the combined claim of French, German, UK and Dutch banks on Spain amount to a sizable 24 percent of Spain's GDP in 2014, which is a sharp drop to the 51 percent observed in pre-crisis 2007.[7]

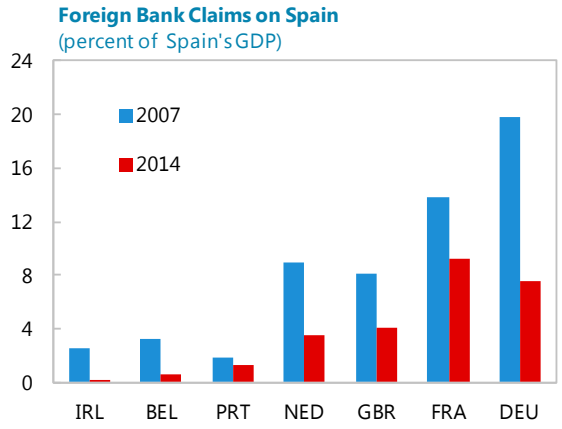
[5] It should be noted that the BIS bank exposure data is not strictly comparable to the NIIP data

[6] Even if a sharp slowdown in Latin America would dent Spanish banks' profits, those in the US and UK could help to offset declining EM profits.

[7] The financial crisis in Spain and banks' deleveraging pressures in the difficult post-crisis regulatory environment have contributed to this substantial decline of their Spain exposure.

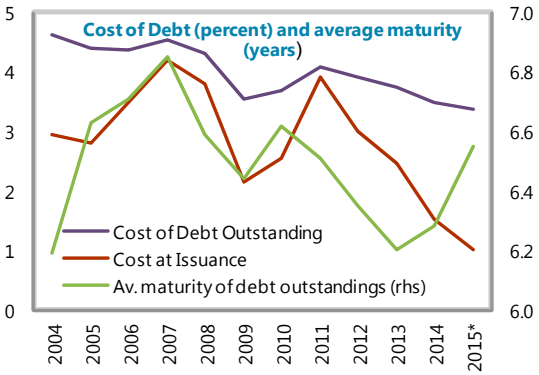


Sources: BIS; and IMF staff calculations.



Sources: BIS; and IMF staff calculations.

19. The low cost of debt and the improved structure of maturities provide a measure of relief on the external liability side.



Sources: Spanish Treasury; Bank of Spain; and IMF staff estimates.

- Spain's cost of sovereign debt outstanding has continuously declined since 2012 with the cost at issuance reaching historical lows.
- The maturity structure of fixed income claims remains favorable. For instance, 91 percent of portfolio investment debt liabilities have a long-term maturity. The average maturity of the sovereign debt outstanding has increased to 6.5 years with further scope for improvement.
- While the non-resident share of Spain's sovereign debt holdings (around 50 percent) remains a potential vulnerability, ECB measures such as QE or OMT limit the risk from large-scale capital outflows.

20. On balance, Spain's external vulnerabilities remain a concern. Spain's negative NIIP is very high by cross-country and historical standards. Despite the remarkable CA adjustment since the crisis, the CA balance also remains very sensitive to changes in domestic demand and it impact on imports. These vulnerabilities still outweigh the existing mitigating factors such as the currently low cost of debt, favorable maturity structure, export and bank exposure diversification, sizable equity IIP liability component, and moderate competiveness gains since the crisis.

C. Assessment of Spain's External Position: EBA and External DSA

This section examines Spain's external position from the EBA and external DSA perspective. Overall, the findings from the EBA and external DSA confirm the above assessment that Spain still faces significant external vulnerabilities.

Spain's External Balance Assessment (EBA)

21. The EBA assessment suggests that Spain's external position in 2014, though slightly improving from 2013, remains substantially weaker than that consistent with medium-term fundamentals and desirable policies.[8] While the staff baseline projects a 3–4 percent annual NIIP/ GDP improvement in the medium term, a weaker REER and larger CA surpluses would be needed to further lower external risks.

22. Specifically, the EBA assessment suggests a ½ to 2 ½ percent of GDP weaker cyclically-adjusted CA than desired. This CA gap takes into account the size of the NIIP and is larger than suggested by a simple application of the EBA model (0 percent of GDP CA norm for 2014). It implies that Spain would need to maintain such CA surplus magnitudes over the medium-term.

23. The staff assessment also points to continuing REER overvaluation. While the EBA models suggest a REER overvaluation of between 10–13 percent for 2014,[9] staff assesses an overall REER gap of around 5 to 10 percent above the desired level, taking into consideration NIIP sustainability. However, for both the REER and current account analysis, achieving significantly lower unemployment rates closer to international peers in the medium term would likely imply a larger gap.

External DSA

24. Complementing the EBA, the external DSA provides another framework to examine a country's external sustainability. The external DSA is limited by relatively mechanistic assumptions and the narrow medium-term forecast but can nevertheless provide some insights into the external debt path in the baseline and alternative scenarios.

25. The analysis confirms that the high level external debt will decline over the medium term but is subject to risks.

- The baseline scenario benefits from staff's projected continuation of Spain's economic recovery and the increasing trade balance and CA surplus. External debt is seen as falling from around 160 percent of GDP at end 2014 to 132 percent in 2020.

- Driven by the continued strong export growth in the baseline, the external debt-to-export ratio is projected to narrow by over 150 percent of GDP during 2015–20 (see table).

[8] The Spain 2014 AIV staff report provides further details.

[9] The two EBA REER regression model approaches are based on the "index" and "level" REER tools. The Level REER is an additional regression-based assessment tool, providing another estimate/indicator for external assessments. It is closely related to the EBA REER panel regression-based method--now referred to as "Index REER." Both are using the CPI-based REER.

- Furthermore, gross external financing needs will continue to decline in the projection period but remain a vulnerability given their high level with around 58 percent of GDP by 2020.

26. However, the external debt path would fail to stabilize in a scenario based on historical data properties. Here, a real GDP growth path of only 0.7 percent is assumed combined with a one percent higher nominal external interest rate. External debt would be over 35 percent of GDP higher in 2020, at 168 percent of GDP (see figure and table).

27. Alternative stress scenarios suggest moderately higher external debt level compared to the baseline. In all alternative scenarios, external debt is still projected on a downward path but it would require more sustained efforts to sustainably bring down these high external debt levels.

- In particular, external debt only slightly increases from a rather benign interest rate shock (from 2.6 in the baseline to 3.1 percent) and similar for a 30 percent real depreciation shock.

- In contrast for the growth shock scenario, where an average growth rate of 0.8 percent is assumed (compared with 2.1 percent in the baseline), external debt would be around 10 percent of GDP higher in 2020 with 142 percent of GDP.

- A similar elevated external debt path is obtained in the combined shock scenario that assumes ¼ standard deviation shocks to the real interest rate, growth rate, and the current account balance. Here, external debt is 12 percent higher in 2020 with 144 percent of GDP.

28. Overall, the DSA scenarios suggest that Spain's high external debt levels will decline over the medium term unless key macroeconomic variables return to historical levels. The latter, while reflecting the impact of the boom and bust period of the recent past, remains a concern given the sizable domestic and external risks surrounding the recovery in Spain.

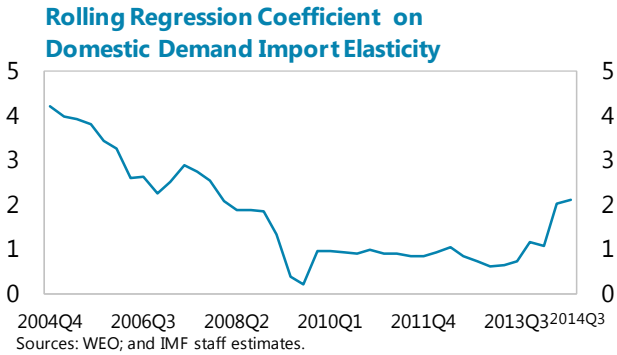
D. Export and Import Elasticities and Determinants of the CA

Reducing external risks remains important, and this section will illustrate how Spain's trade balance could improve from a higher world export market share and lower demand-import elasticities. Spain's growth and CA nexus also leaves room for improvement.

Export and import elasticities

29. Empirical results suggest that the domestic demand elasticity to imports has strongly rebounded since 2014 in line with the consumption-driven economic recovery.

- Stylized regression models (see the appendix for technical details and results) suggest a domestic demand elasticity of around 1.5. That is, a one percent increase in domestic demand would result



Sources: WEO; and IMF staff estimates.

Spain External Debt Sustainability Framework, 2010-2020

(In percent of GDP, unless otherwise indicated)

	Actual							Projections					
	2010	2011	2012	2013	2014			2015	2016	2017	2018	2019	2020
Baseline: External debt	157.4	162.0	162.0	154.7	160.1			**154.1**	**149.3**	**145.0**	**140.7**	**136.5**	**132.3**
Change in external debt	-3.8	4.6	0.0	-7.3	5.4			-6.0	-4.8	-4.3	-4.3	-4.1	-4.2
Identified external debt-creating flows (4+8+9)	4.9	2.2	7.4	0.1	-2.7			-6.9	-5.1	-4.6	-4.3	-4.1	-4.1
Current account deficit, excluding interest payments	0.0	-1.2	-3.6	-4.9	-4.2			-4.1	-3.9	-4.4	-4.7	-5.1	-5.7
Deficit in balance of goods and services	1.3	0.2	-1.6	-3.4	-2.6			-2.7	-2.8	-3.0	-3.1	-3.4	-3.8
Exports	25.6	28.8	30.3	31.6	32.1			32.6	34.0	35.2	36.5	37.5	38.4
Imports	26.8	29.0	28.8	28.1	29.6			29.9	31.1	32.3	33.4	34.2	34.7
Net non-debt creating capital inflows (negative)	0.1	-0.9	2.2	1.1	-0.6			-0.4	-0.4	-0.3	-0.3	-0.3	-0.3
Automatic debt dynamics 1/	4.8	4.2	8.8	3.9	2.0			-2.5	-0.8	0.1	0.7	1.3	1.9
Contribution from nominal interest rate	3.9	4.4	3.9	3.5	3.4			3.2	3.0	3.3	3.5	3.9	4.2
Contribution from real GDP growth	0.0	0.9	3.7	1.9	-2.1			-5.6	-3.8	-3.2	-2.8	-2.6	-2.3
Contribution from price and exchange rate changes 2/	0.9	-1.1	1.2	-1.6	0.8			...	...	...	...	...	...
Residual, incl. change in gross foreign assets (2-3) 3/	-8.7	2.4	-7.4	-7.4	8.1			0.9	0.3	0.3	0.0	0.0	-0.1
External debt-to-exports ratio (in percent)	615.9	562.1	534.4	490.3	498.2			472.1	439.7	411.6	385.9	363.8	344.4
Gross external financing need (in billions of US dollars) 4/	1104.7	1092.5	1131.2	1053.8	961.8			955.9	842.1	844.8	854.8	863.9	871.6
in percent of GDP	77.0	73.0	83.4	75.6	68.4	10-Year	10-Year	77.9	66.2	63.7	61.7	59.8	57.5
Scenario with key variables at their historical averages 5/								**154.1**	**155.5**	**158.3**	**161.3**	**164.4**	**168.4**
Key Macroeconomic Assumptions Underlying Baseline						Historical Average	Standard Deviation						
Real GDP growth (in percent)	0.0	-0.6	-2.1	-1.2	1.4	0.7	2.7	3.1	2.5	2.2	2.0	1.9	1.8
GDP deflator in US dollars (change in percent)	-4.6	5.0	-7.4	4.0	-0.4	2.3	6.6	-15.4	1.1	2.1	2.3	2.4	3.2
Nominal external interest rate (in percent)	2.3	2.9	2.2	2.2	2.2	3.2	1.0	1.7	2.0	2.3	2.5	2.9	3.2
Growth of exports (US dollar terms, in percent)	7.6	17.6	-4.6	6.9	2.8	5.8	11.0	-11.5	7.8	8.2	8.1	7.5	7.5
Growth of imports (US dollar terms, in percent)	7.7	12.7	-10.1	0.6	6.0	3.9	14.0	-11.8	7.8	8.1	8.0	6.8	6.5
Current account balance, excluding interest payments	0.0	1.2	3.6	4.9	4.2	-0.2	3.6	4.1	3.9	4.4	4.7	5.1	5.7
Net non-debt creating capital inflows	-0.1	0.9	-2.2	-1.1	0.6	1.0	2.5	0.4	0.4	0.3	0.3	0.3	0.3

1/ Derived as [r - g - r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock, with r = nominal effective interest rate on external debt; r = change in domestic GDP deflator in US dollar terms, g = real GDP growth rate,

e = nominal appreciation (increase in dollar value of domestic currency), and a = share of domestic-currency denominated debt in total external debt.

2/ The contribution from price and exchange rate changes is defined as [-r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock. r increases with an appreciating domestic currency (e > 0) and rising inflation (based on GDP deflator).

3/ For projection, line includes the impact of price and exchange rate changes.

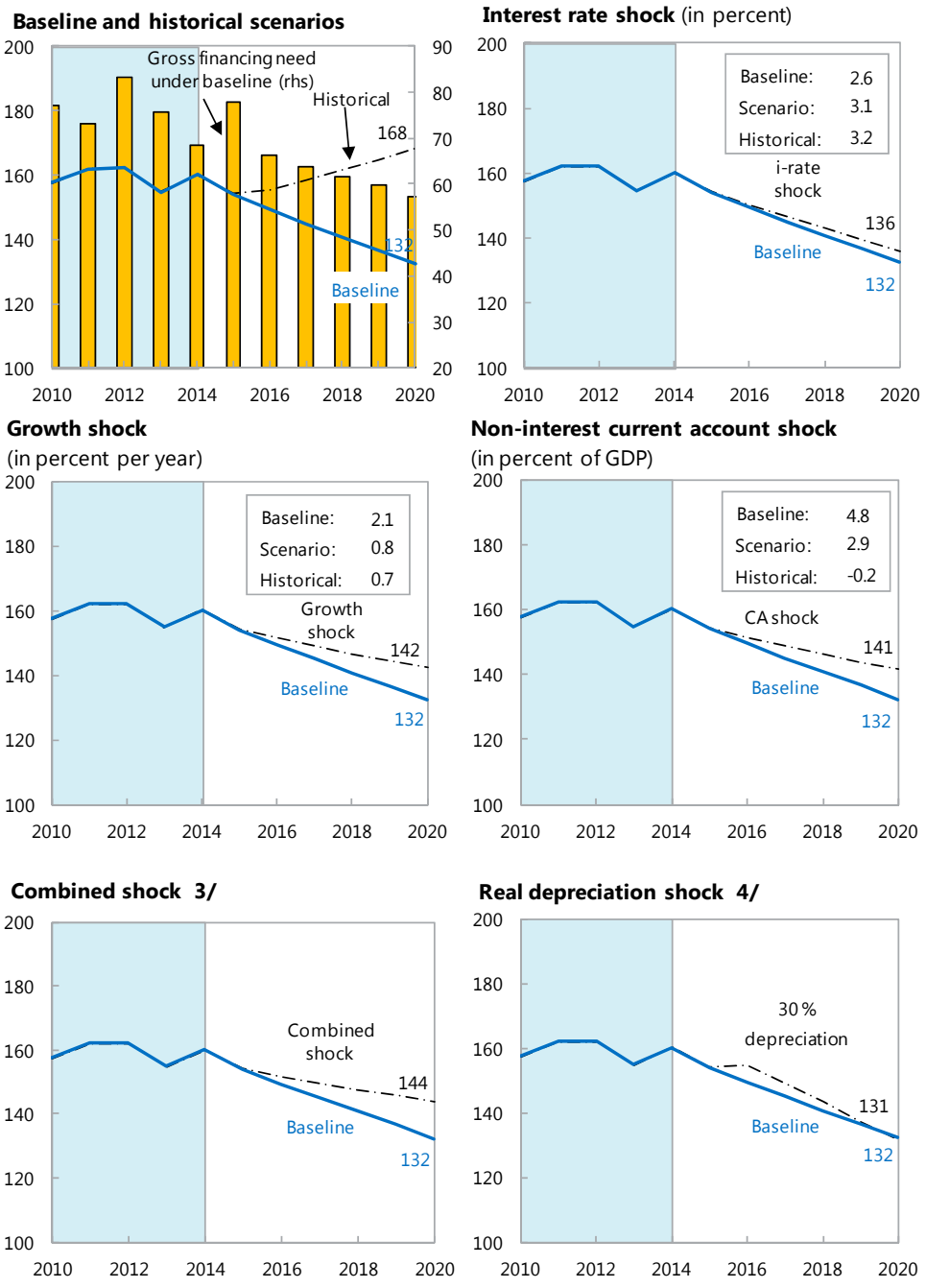
4/ Defined as current account deficit, plus amortization on medium- and long-term debt, plus short-term debt at end of previous period.

5/ The key variables include real GDP growth; nominal interest rate; dollar deflator growth; and both non-interest current account and non-debt inflows in percent of GDP.

6/ Long-run, constant balance that stabilizes the debt ratio assuming that key variables (real GDP growth, nominal interest rate, dollar deflator growth, and non-debt inflows in percent of GDP) remain at their levels of the last projection year.

Spain: External Debt Sustainability: Bound Tests 1/ 2/

(External debt in percent of GDP)



Sources: International Monetary Fund, Country desk data, and staff estimates.

1/ Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.

2/ For historical scenarios, the historical averages are calculated over the ten-year period, and the information is used to project debt dynamics five years ahead.

3/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and current account balance.

4/ One-time real depreciation of 30 percent occurs in 2015.

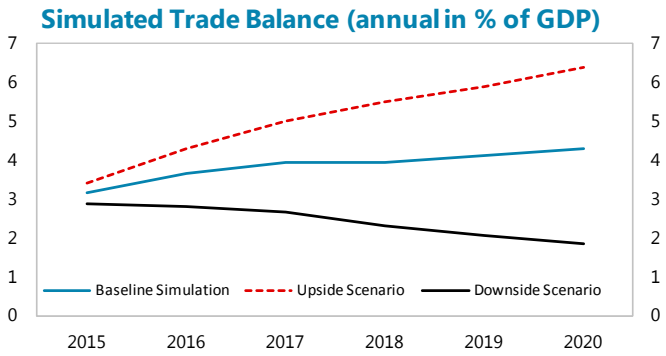
in a 1.5 percent rise in the import of goods. The finding of a crisis-induced decline in the demand elasticity is broadly consistent with existing research for Spain.[10]

- While the demand elasticity had steadily declined through the crisis period, it rebounded in 2014 to values above 2 (see figure).[11] This supports the argument that the import decline during the crisis has not only come from structural competiveness gains but also from crisis-induced compression in domestic demand (see Orsini, 2015).

- Furthermore, changes in exports of goods are strongly associated with import growth with an estimated elasticity of 0.9, which highlights the strong import content of Spanish exports. A higher degree of import substitution would also lower the import sensitivity to exports.

30. A similar exercise confirms that external demand and price competiveness are key driving factors for changes in export of goods and services. In particular, both export of goods and services are highly elastic to changes in foreign domestic demand with estimated elasticities over 1.5. Price competiveness, as measured by changes in the REER, is also a highly significant factor for export performance. In contrast, though statistically significant, oil prices only play a minor role to explain the export of goods in the regressions.[12]

31. A simple simulation illustrates that even a moderately higher export market share and a small reduction in the demand elasticity of imports can boost Spain's trade balance performance over the medium term. The estimated elasticities from the export and import regression equations are used to simulate Spain's trade balance.[13] For the upside scenario, we assume a gradual 5 percent increase in Spain's global export of goods market share (from around 1.7 ercent value-based to 1.78 percent) together with a gradual reduction in Spain's demand import elasticity to around 1 (observed during the crisis period).[14] The



Sources: WEO; and IMF staff estimates

[10] For instance, Orsini (2015) in a comprehensive study estimated demand elasticities of around 1.9 for the sample period 1981–2014, 1.6 for 1998–2014, 1.43 for 1998–2008 and 1.36 for 2008–2014 (depending on the econometric approach used). BBVA (2013) estimated a demand elasticity of 1.7.

[11] Please see the appendix for details on the rolling regression.

[12] The exercise does not, of course, capture factors such as the increase of Spanish exporting firms during the crisis or structural export competiveness gains, which also would have played a role in Spain's improved export performance. The reduced form regression would though indirectly capture elasticity changes from these latent factors.

[13] The simulations are based on quarterly data, and WEO projections for the relevant macro variables are used.

[14] Spain's assumed global export market share would in essence move closer to levels seen in the early 2000s. In addition, the simulated decline in the demand import elasticity would imply a sizable import substitution.

text chart indicates that Spain's simulated trade balance surplus would significantly increase from the baseline simulation by around 2 percent of GDP. A higher export market share would also significantly boost Spain's export to GDP ratio and move it towards the best export performers. At the same time, a downside scenario simulation with a gradual 2.5 percent decline of the export market share and an increase of the demand elasticity to 2.5 from 1.5 would point to a sizably lower trade balance over the medium term.

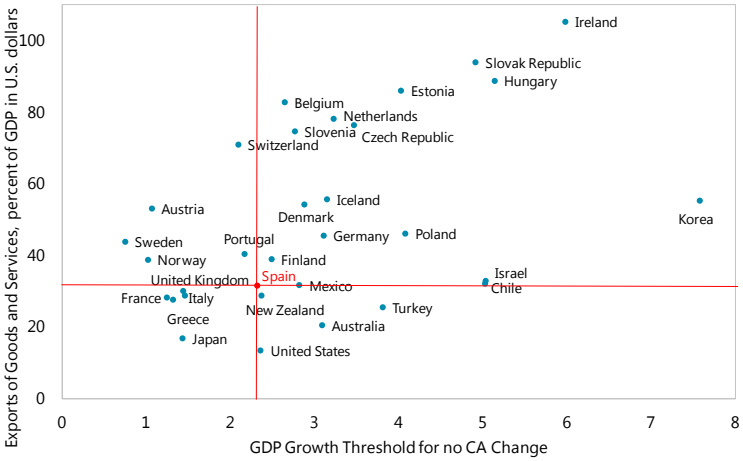
Determinants of the Spanish current account

32. As a complement, we estimate the growth threshold in Spain that would be consistent with no deterioration in the CA/GDP ratio.[15] As mentioned, high import growth triggered by strong domestic demand has recently been a constraint on the trade and CA balance despite favorable tailwinds from lower oil prices and the euro depreciation.

33. The results suggest that growth rates higher than about 2 ½ percent are associated with a weakening of the CA/ GDP ratio.[16] While this finding should be taken with a grain of salt given the simplicity of the empirical approach, it points to the general fragility of the CA surplus at the growth rates currently projected for 2015 and 2016. If correct, a strong consumption and import driven growth cycle with GDP growth well above 2.5 percent would not necessarily improve CA surplus sustainability unless structural reforms would increase Spain's growth thresholds.

34. Indeed, a cross-country comparison implies that Spain's growth threshold could be lower than that of many peer countries that typically also exhibit stronger export competitiveness than Spain. We estimate the GDP growth thresholds that would be consistent with a stabilizing CA/ GDP balance for OECD countries.[17] Countries that have a higher GDP growth rate threshold than Spain include Germany (3.1 percent), Netherlands (3.2), Ireland (6), Korea (7.6), or

Growth Thresholds and Export to GDP Ratio,
(OECD countries, 2014)



Sources: WEO; and IMF staff estimates

[15] The empirical approach follows Miniane (2013).

[16] These empirical results are based on quarterly OLS regressions. See the appendix for technical details and the full results.

[17] For the cross-country comparison, OLS regression models based on annual data are used to allow for a longer historical sample period. Spain's estimated growth threshold in this case is 2.3 percent and fully consistent with the results of the quarterly models (2.5).

Poland (4.1). These are also the countries that tend to have a higher export/ GDP share than Spain. Overall, there is sizable scope for Spain to further improve the level of domestic growth that is compatible with external balance.

E. The Structure of Exports, Firm Size, and Competiveness

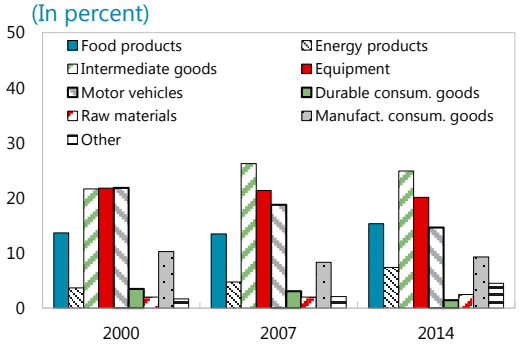
35. How to sustainably improve Spain's external balance? Its export share is relatively small given its economic size when compared with peer export performers, and Spain's trade balance could be higher if its exports were more competitive. There are indications that both issues have to do with the characteristics of the firms active in the tradable sector.

36. The bulk of Spanish export products tend to be more labor-intensive with only a moderate degree of technological content.

- The majority of Spanish exports are in intermediate, equipment, motor vehicles and food products (see figure), which also tend to be more price sensitive and exhibit a high import content (except food products). The low share of high technological content and the quality of exports relative to other advanced economies could also explain why Spain has not taken full advantage of global value chains (EC, 2015).

- The fact that the largest Spanish exporters are well able to compete with peers is a sign that overcoming obstacles to firm growth could further increase the quality of export goods and better integrate Spain in the global value process.

Structure of Spanish Exports of Goods,
(In percent)



Source: Datacomex; and European Commission.(2015)

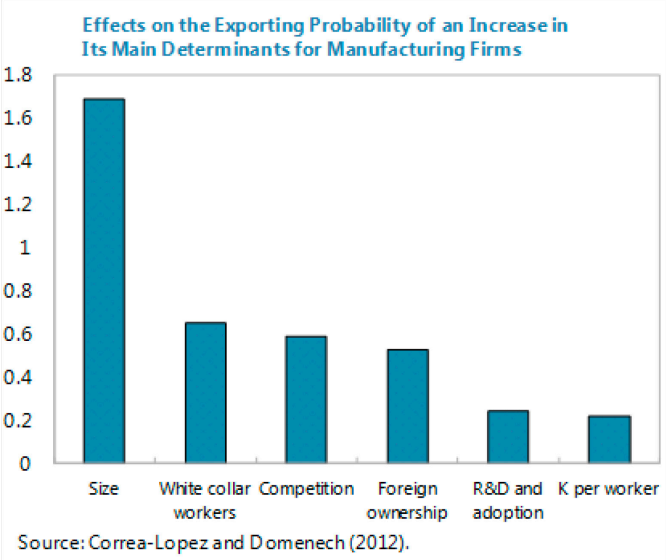
37. Indeed, firm size is one of the key determinants for the export success of Spanish firms.

- Empirical research has shown a strong relationship between firm size and the share of exporting firms in Spain (Correa-Lopez and Domenech, 2012). The extensive margin (lack of exporting firms) is a key weakness that holds back Spain's export capacity. For instance, while the extensive margin indeed improved since the crisis with 50 percent more Spanish exporters between 2007-2013, 70 percent of exporters are not regulars, while the majority of exporters (over 85 percent) are undertaken by the largest 5000 companies (EC, 2015).

- Correa-Lopez and Domenech (2012) have estimated that increasing the median firm size (from 50 to 60 employees) would yield a 1.7 percent higher likelihood of export probability (see below chart).

- Besides the higher probability of exporting, larger Spanish firms typically exhibit larger productivity, lower employment volatility with higher percentage of permanent employment,

better human capital, innovative capacity as well easier access to external finance. For instance, Spanish affiliates of foreign firms (that benefit from FDIs) are found to be larger, more export-oriented and more productive than domestic firms (Tello and Rodriguez, 2015).



- Chapter 2 of the SIPs examines these issues in more detail and points to a number of obstacles to firm growth in Spain, including size-thresholds in taxation, regulatory barriers to entry at the regional level, limited financing access and—post-crisis—a larger need to deleverage for small firms. In particular, structural labor market reforms (such as further decentralization of wage-setting and policies that lower duality) as well as reforms on regulation and the business climate would be also very helpful to Spain's SMEs and encourage firm growth.[18]

F. Conclusion

38. The analysis has shown that Spain's external position remains vulnerable, even though mitigating factors exists. The NIIP and external debt level are very high, and the high demand elasticity of imports can potentially constrain Spain's CA in the currently strong recovery. That said, the cost of external debt has reached historical lows, competiveness has improved, and the maturity structure of debt is more favorable than in the past. The geographical diversification of Spain's exports has also contributed to relatively stable export market shares compared to many European peers.

39. There is sizable scope to improve Spain's export competiveness and CA performance. Even moderate gains in Spain's global export market share and a lower demand elasticity of imports would significantly boost the trade balance over the medium term. This would also raise the threshold beyond which higher GDP growth could not cause a CA deterioration. Spain's export share in GDP also remains relatively low compared to peer economies, export growth is still hampered by the overall small size of Spanish firms, low labor productivity, and the relatively low-value added of export goods. Continued structural reforms that address these areas would help with Spain's CA performance and move the highly negative NIIP to more sustainable levels.

[18] For instance, reforms that increase the share of permanent workers (which tends to raise skill levels) and create incentives for firms to grow (which also tends to make them more inclined to export) would also facilitate competiveness.

Appendix: Export and Import Elasticities and CA Regression Framework

A. Export and Import Elasticities

Standard OLS regressions are adopted to examine the key determinants of Spain's exports and imports of goods and services, respectively.

- The analysis focuses on the short-term export and import elasticities so does not distinguish between the short- and long- term impacts. The quarterly sample period runs from 2000 to end 2014 with macro variables adopted in quarterly changes. Robust standard errors are used to deal with potential heterogeneity problems. We recognize though that there could be some potential endogenity issues in the export and import regressions. We attempt to use lagged explanatory variables that would partly capture contemporaneous endogenity problems.

- For the imports of goods equation, the domestic demand elasticity is calculated as the sum of the coefficients of the contemporaneous and one quarter lagged change in domestic demand with the second quarter lagged change not statistically significant. An average demand import elasticity of around 1.5 is estimated.

- To account for potential structural breaks in the data, the OLS regression analysis is complemented by rolling regressions to estimate the time-varying domestic demand elasticity to imports within a specified rolling time window.

Export and Import OLS Regressions

Export Equations	**Δ Export of Goods**	**Δ Export of Services**
Constant	0.00	0.00
Δ Foreign Demand	1.77***	0.85***
Δ Foreign Demand (-1)		0.73**
Δ Foreign Demand (-2)	0.68	
Δ REER (-3)	-0.87**	-0.41**
Δ Oil Price (-2)	-0.06**	
No. of observations	56	56
Import Equations	**Δ Import of Goods**	**Δ Import of Services**
Constant	-0.01**	0.00
Δ Domestic Demand	2.66***	1.26***
Δ Domestic Demand (-1)	-1.15***	
Δ Domestic Demand (-2)	-0.29	
Δ Export of Goods	0.89***	0.17*
Δ Export of Goods (-1)		0.15
No. of observations	57	58

Source: IMF staff estimates.

Note: ***, **, * signicant p-value at 0, 5, and 10 percent, respectively; estimation period 2000Q1-2014Q4.

B. Determinants of the Spanish Current Account- An Empirical Assessment

- In stylized OLS regressions, the change in the CA/ GDP ratio is regressed on a number of macroeconomic variables such as real GDP and domestic demand growth as well as the change in oil prices and the ULC-based REER. The quarterly sample period is from 1995Q1–2014Q4.

- Model results indicate that real GDP and domestic demand growth (both in Spain and in advanced economies) are key drivers for changes in the Spanish CA/ GDP balance For instance, a 1 percent increase in the real GDP growth rate is, ceteris paribus, associated with a 0.6 percent decline in the CA/ GDP ratio (column 1 in the below table). Similarly, for domestic demand growth, the CA would decline by 0.4 percent (column 2). While the oil price and REER (as a proxy for competitiveness) are less important determinants of the CA/ GDP ratio, foreign demand growth does matter, as the regression results in column 6 illustrate.

- The growth "speed limit" is estimated by –c(0)/ c(1), where c(0) is the estimated constant and c(1) the estimated coefficient on real GDP growth. It also assumes that other factors do not change (ceteris paribus), which arguably is a restrictive assumption. But with oil prices and the REER only playing a limited role in the CA regressions (as shown above), the ceteris paribus assumption could be justified.

- The estimated 2.5 percent real GDP growth rate that is consistent with no change in the CA/ GDP ratio also holds in robustness analysis. For instance, for the shorter sample period from 2000Q1-2014Q4, the estimated real GDP growth threshold only slightly declines to 2.3 percent. Finally, a domestic demand growth rate of 2.6 percent (2.3 percent for the shorter sample period) would not lead to a deterioration of the CA/ GDP, which is consistent with the real GDP growth threshold. It should be noted that the simplified regression framework does not capture the impact of structural reforms on the CA and is not a general equilibrium analysis.

- For the cross-country comparison, similar OLS regressions are estimated for all OECD countries based on annual data from 1979-2014 (where available). Specifically, the annual change in the country's CA/ GDP balance is regressed on the country's real GDP growth rate. Spain's estimated growth threshold of 2.3 percent is fully consistent with the results from the quarterly data. Similar, overall findings in the cross-country comparison hold when using domestic demand growth instead of real GDP growth. For instance, Spain's domestic demand growth threshold is estimated at around 2.4 percent.

Dependent Variable: Change in the Current Account/GDP Ratio (quarterly data)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	0.38	0.26	0.07	0.07	-0.02	0.09
	(0.01)	(0.04)	(0.57)	(0.54)	(0.87)	(0.46)
Real GDP Growth	-0.62					
	(0.00)					
Domestic Demand Growth		-0.40				-0.66
		(0.00)				(0.00)
Change in Oil Prices			-0.02			-0.03
			(0.22)			(0.03)
Change in REER				-0.17		0.12
				(0.15)		(0.30)
Domestic Demand Growth in Advanced Economies					0.16	0.61
					(0.28)	(0.00)
Growth consistent with no change in CA/ GDP	2.47	2.62				
No. of observations	78	78	78	78	78	78

Sources: IMFstaff estimates.
Note: Values in brackets are the coefficient's p-value; estimation period 1995Q1-2014Q4.

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COORDINATING FISCAL CONSOLIDATION IN SPAIN: PROGRESS, CHALLENGES, AND PROSPECTS[1]

The coordination of different levels of government has been shown to be a critical factor behind sucesseful fiscal consolidations in decentralized economies. Fiscal reforms improving the capacity and incentives of subnational governments to consolidate made a difference. This has been the case in Spain, where there is some evidence that fiscal policy was better alligned across government levels during the crisis, partly as a result of reforms improving region's fiscal autonomy and governance. However, despite this progress, lack of fiscal compliance among regions remains significant and risks undermining the credibility of the consolidation process. Revisiting existing institutional arrangements to further improve fiscal coordination may thus be warranted. This note will serve this purpose by assessing the progress in improving fiscal coordination in Spain, identifying design and implementation challenges in the regional fiscal framework, and discussing prospects for further enhancing it.

A. Overview

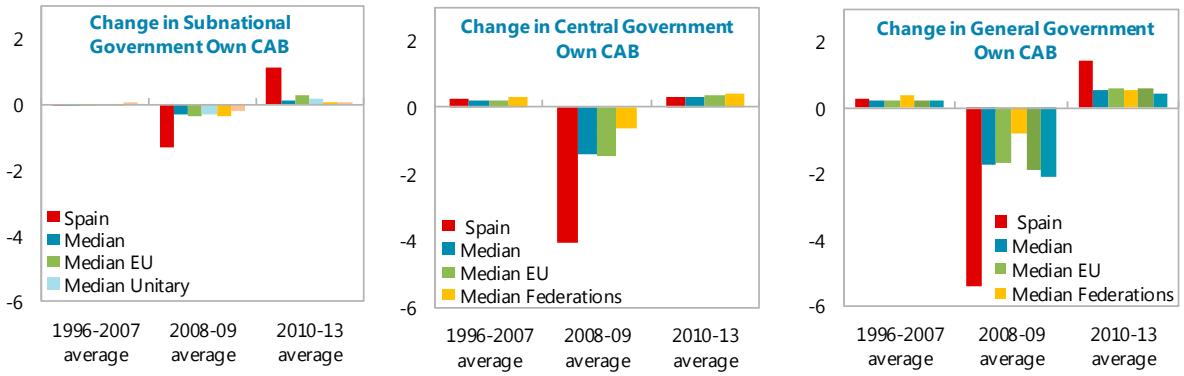
1. The coordination of the different levels of government is a critical factor behind successful fiscal consolidations in federal states. There is growing evidence that successful fiscal consolidations, i.e. those leading to long-lasting reductions in the public debt, usually involved concerted adjustment efforts by different government levels (Darby and others, 2005; Vammalle and Hulbert, 2013; and OECD, 2013). Intermediate government tiers (state or regional-level governments), in particular, have been shown to increase the probability of the stabilisation of national debt if they consolidate in tandem with central governments (Molnar, 2012). Pursuing concerted fiscal consolidation efforts across government levels (hereafter referred to as *fiscal coordination*) should, therefore, be a key priority to sucesseful fiscal consolidations in decentralized economies like Spain.

2. Fiscal coordination can be complex and challenging. This is particularly true in Spain, where the federal system endows subnational governments (SNGs)—and especially regional governments (hereafter referred to as *regions*)—with considerable political and fiscal autonomy. Regional socioeconomic differences, on turn, have bequeathed SNG with different spending needs, and fiscal capacities. SNG capacities and incentives to support consolidaton efforts at the general government level will thus likely differ and may be difficult to achieve absent ex-ante coordinaton mechanisms.

[1] Prepared by Victor Lledó (FAD).

3. There is some evidence that fiscal policy was better aligned across government levels in Spain during the crisis. Prior to the global financial crisis, which erupted after 2007, there was little indication that subnational and central government policy efforts were synched (Figure 1). SNGs have generally took a broadly neutral stance before the crisis, while central governments (CGs) tended to consolidate. By contrast, the contribution of SNGs to fiscal expansions and fiscal consolidation during the crisis was notably larger than those observed in the past and the average across OECD peers (Figure 1).

Figure 1. Fiscal Policy Responses Across Government Levels in Spain and Peers Became More Syncronized Following the Crisis 1/



Source: IMF Staff calculations.
1/ Spain's pre-crisis average is 2001-07.
Own CAB defined as cyclically adjusted balances including revenue sharing and excluding intergovernmental transfers. See note of figure 2 for additional details.

4. Fiscal reforms made a difference. The more prominent role of SNGs in supporting macroeconomic stabilization and fiscal consolidation at the general government level in the crisis aftermath has been partly attributed to reforms in the fiscal decentralization and fiscal governance frameworks, which increased SNGs capacity and incentives to adjust. Of particular relevance have been the strengthening of Spain's Budget Stability Law (BSL) and gradual increases in SNG tax autonomy.

5. However, fiscal compliance remains weak among regions. Fiscal non-compliance among regional governments remains significant, with a large number of regions unable to meet their targets in most years between 2010 and 2014.

6. This suggests that, as the economic outlook normalizes, there is a need to revisit existing institutional arrangements to further improve fiscal coordination. Three areas deserve particular attention:

- ***Fiscal governance.*** Some stock-tacking of recent fiscal governance reforms may be warranted. How well the reformed BSL has been implemented? Has it helped to improve fiscal

responsibility? Are there any design and implementation gaps that are hampering fiscal coordination? If so, how to address them?

- ***Fiscal autonomy.*** A review of recent fiscal decentralization reforms could be useful. Has fiscal decentralization helped enhance SNGs' capacity and incentives to meet their fiscal consolidation targets? Have reforms in the regional financing system helped to reduce vertical and horizontal fiscal imbalances and foster fiscal coordination?

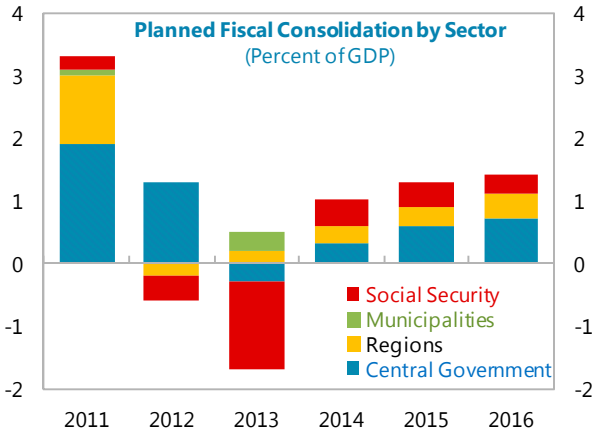
- ***Fiscal resilience.*** An assessment of existing fiscal mechanisms to share risks seems opportune in light of SNGs increasingly reliance on regional liquidity mechanisms. Have such schemes improved fiscal resilience, while containing moral hazard risks? Are there alternative mechanisms that could better address this trade-off?

7. The rest of the note will take stock of the progress in improving fiscal coordination and discuss the challenges and prospects for further enhancing it in the above-mentioned areas. Next section describes how fiscal coordination improved in the post-crisis and the role played by reforms in the fiscal framework in explaining this *progress*. Section C overviews key remaining *challenges*. Section D concludes with reform *prospects* for Spain.

B. Assessing Progress in Coordination

8. Fiscal policy responses have become more synchronized following the crisis. Fiscal policy synchronicity between CGs and SNGS greatly improved among OECD countries following the crisis (Lledó and Pereira, forthcoming). That was also the case in Spain where SNGs fiscal position in the pre-crisis boom years was mainly expansionary, while CGs presented some consolidation episodes (Figure 2). In line with EU peers, expansionary policies were adopted by both central and subnational governments in the immediate aftermath of the global financial crisis (2008–09). Triggered by the beginning of Greece's sovereign debt crisis, fiscal consolidation started in 2010 led initially by CGs, with growing SNG involvement after that.

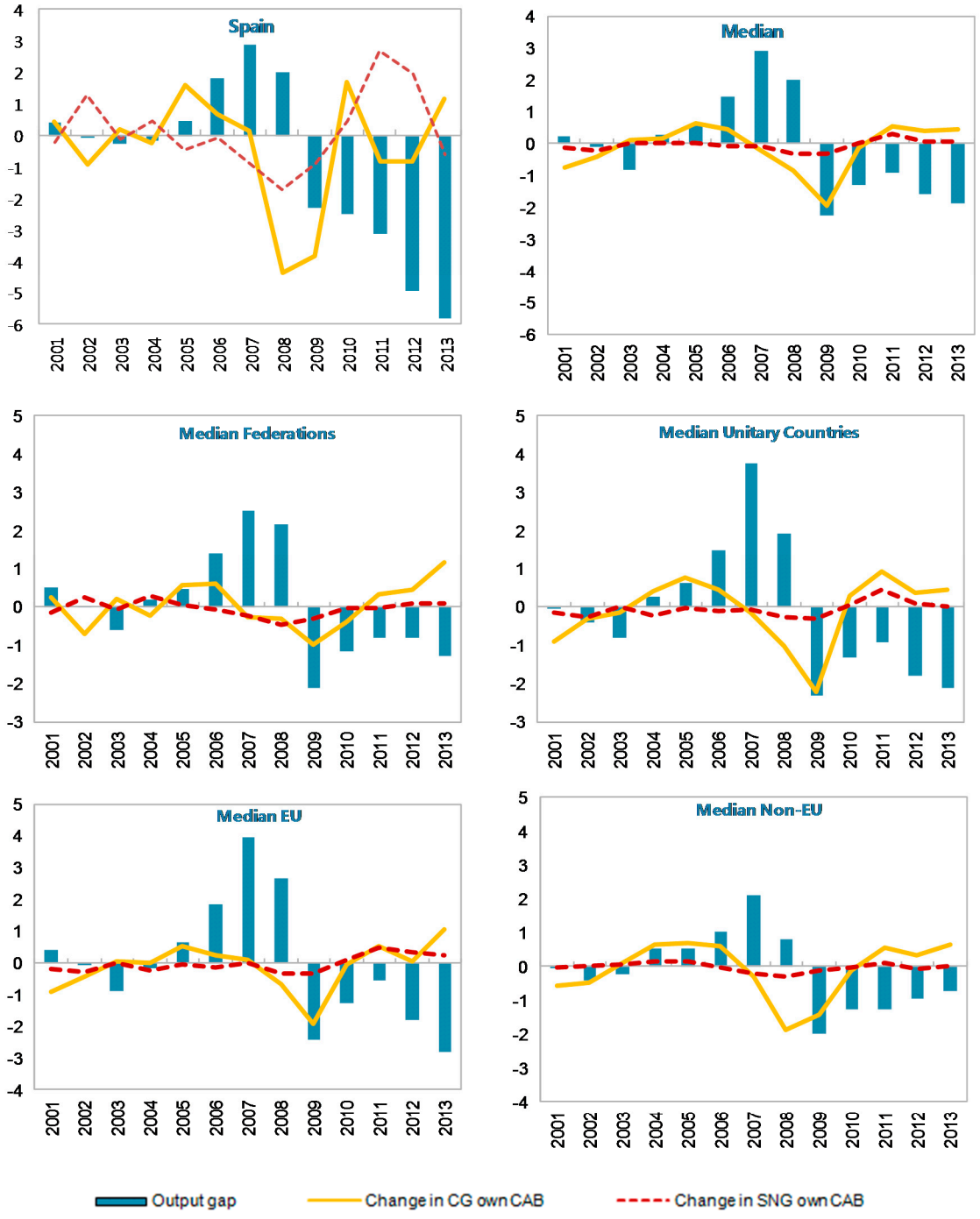
9. Greater post-crisis synchronization reflects to some extent greater policy coordination efforts. Fiscal measures proposed in fiscal consolidation plans at the general government (GG) level cut across government levels with a strong contribution by regions, particularly after 2012 (Kingdom of Spain, 2011–14). Fiscal targets have been broadly discussed among CGs and SNGs prior to approval within intergovernmental fiscal bodies (Consejo de Política Fiscal y Financiera—CPFF in the case of regions and Comisión Nacional de Administración Local—CNAL in the case of local governments), with specific measures, particularly on the expenditure side, agreed by working groups with representation by both CGs and SNGs. The



Sources: Ministry of Finance, IMF staff estimates.

Figure 2. Post-Crisis Fiscal Efforts and Synchronization Across Government Levels

(All series in percent of potential GDP, Median Across Countries)



Sources: OECD, WEO, IMF Staff Calculations.

Notes: SNG = subnational government, CG = central government, CAB = cyclically adjusted balance. All variables are expressed as a percentage of potential GDP. CABs for all levels of government were computed using a standard assumption of unitary elasticity of revenues (including shared taxes) to the output gap, and zero elasticity of spending, non-tax revenue and intergovernmental transfers. The uniform methodology is adopted to avoid statistical discrepancies created by differentiated assumptions across countries.

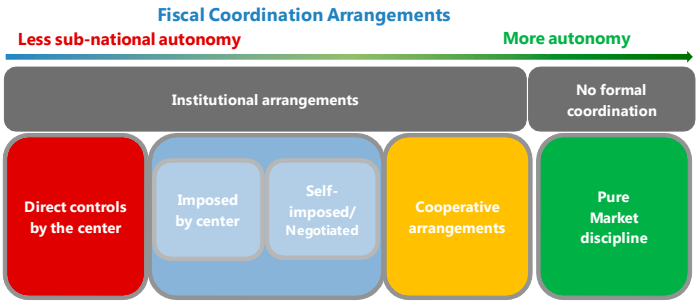
larger frequency of meetings at multilateral intergovernmental fiscal bodies vis a vis bilateral meetings between the CG and individual SNGs following the crisis seems to indicate increasing efforts to improve fiscal coordination across and within government levels (Aja and Colino, 2014).

10. Enhancements in fiscal coordination have been underpinned by reforms in the fiscal framework. SNG capacity and incentives to adopt fiscally sustainable policies are more likely to occur when locked in by institutional arrangements that are well monitored and enforced, supported by sound budgeting procedures, and that result in a functional fiscal decentralization framework (Box 1). In the case of Spain, regions' capacity and incentives to adjust have been partially attributed to fiscal decentralization reforms and refinements in the fiscal governance framework.

Box 1. Institutional Arrangements for Fiscal Coordination

Fiscal coordination requires reinforcing SNGs' fiscal capacity and incentives to adjust by balancing fiscal autonomy and responsibility. CGs, under their mandate to safeguard fiscal sustainability, are expected to take the lead in implementing fiscal consolidations. This is particularly the case when adjustment needs from a *common nationwide fiscal shock* such as the one hitting Spain after 2010. Under these circumstances, SNGs can only be expected to support CGs' consolidation efforts if endowed with *fiscal autonomy and responsibility to capably and willingly do so.* Granting SNGs more fiscal autonomy (to tax, spend, and borrow) without hardening their budget constraints would only intensify SNGs deficit bias, weaken their fiscal responsibility, and undermine their incentives to adjust.[1]

Different institutional arrangements can help support fiscal coordination. On one extreme there are arrangements where d*irect (administrative) controls* by the center prevail. Such arrangements are associated with the lowest degree of fiscal autonomy and tighter budget constraints. *Rules-based fiscal frameworks* (including explicit numerical targets) come next. Unlike direct controls, they are imposed on intermediate fiscal objectives or allow for some flexibility through the adoption of cyclical adjustments or escape clauses for large macroeconomic shocks, emergency situations, and natural disasters. *Intergovernmental fiscal policy bodies* ensure the highest degree of fiscal autonomy among institutional arrangements by allowing SNGs to renegotiate their fiscal targets on a regular basis. Finally, fiscal responsibility may be imposed by creditors, with SNGs free to set their own targets, as long as their fiscal policy does not impair market confidence.



Source: Eyraud and Sirera (2015)

Subnational fiscal constraints are usually supported by monitoring and enforcement mechanisms. These mechanisms can be of a preventive, corrective, or coercive nature. Preventive mechanisms provides

[1] In the absence of hard budget constraints, the fiscal costs of SNG spending plans are only partially internalized, as they are expected to be financed ex-ante by a common-pool of resources or ex-post through central government bailouts. Overspending, undertaxation, and a deficit bias would ensue. See Eyraud and Lusinyan (2013) and Foremny (2014) for recent reviews of the theoretical and empirical literature.

Box 1. Institutional Arrangements for Fiscal Coordination (concluded)

guidelines on how frequently fiscal targets and rules are to be monitored and what criteria should be used to assess and communicate how likely they are to be breached. Corrective mechanisms devise pre-assigned paths to bring SNG finances below the limits imposed by existing constraints and may imply the temporary loss of fiscal autonomy. Coercive mechanisms pre-establish sanctions and financial penalties in the event specific corrective actions are not taken. Oversight of these mechanisms has been commonly assigned to fiscal councils, agencies with the expertise and autonomy to issue public assessments independently from government or political parties.

Fiscal coordination requires sound and uniform budgeting and accounting practices. Public financial management (PFM) arrangements have shown to support fiscal responsibility and coordination by promoting sound and uniform practices across all government levels at all budgeting stages (Fainboim and others, 2015). They include (i) *shared medium- and long-term fiscal objectives* to guide budget formulation and fiscal targets; (ii) *shared macroeconomic assumptions* to ensure consistent budgetary projections across all levels of government; (iii) *timely and frequent production of in-year fiscal reports, annual accounts, and financial statements* at each government level followed by an independent and external auditing to underpin monitoring and enforcement mechanisms; and (iv) common budget classification and accounting standards.

Sound subnational constraints and budget practices may not suffice if inherent flaws in the fiscal decentralization framework are pervasive. They can improve fiscal outcomes where coordination failures and or a lack of fiscal discipline are the result of lack of information, instruments, and procedures constraining the capacity and incentives to implement sound policies. But, they are less effective if flaws inherent in the fiscal decentralization framework—such as ill-designed transfer systems, mismatch between revenue and spending responsibilities, unfunded spending mandates—stifle central and subnational government officials' incentives to comply, monitor, and enforce them (Braun and Tommasi, 2002, Escolano and others, 2012).

Vertical fiscal imbalances deserve special attention. Fiscal decentralization reforms among OECD countries, including Spain, in recent decades have been characterized by an asymmetry between expenditure and revenue decentralization (Blochliger and Vammalle, 2012). In most cases, the devolution of spending responsibilities has often outpaced the devolution of revenues creating a gap between own revenue and spending (referred to as vertical fiscal imbalances—VFI) financed by transfers and subnational borrowing. VFIs may be desirable up to a point, as intergovernmental transfers are an important policy instrument to promote risk-sharing, redistribution across SNGs, and to support fiscal consolidations.[2] Large VFIs, however, undermines incentives to adjust. This is because large VFIs intensify transfer dependency and common-pool financing, raising bailout expectations, moral hazard behaviour, and entrenching deficit biases (von Hagen and Eichengreen, 1996; Rodden 2002). A parallel literature shows that granting SNG additional tax autonomy promotes fiscal responsibility (Oates, 2006) and is as, if not more important, than strict subnational fiscal rules to harden budget constraints when VFIs are initially very large (Plekanov and Singh, 2006) or in the case of federations (Foremny, 2014).

[2] Transfers provide risk-sharing opportunities in case of idiosyncratic regional shocks (Von-Hagen, 2007). As equalization grants, they also help correct horizontal fiscal imbalances (revenue-raising capacity and expenditure need disparities) by redistributing across regions (OECD, 2013). Transfers are generally cut substantially during successful consolidations in order to "force the hand" of sub-central tiers to adjust expenditure (Darby, 2005).

Fiscal decentralization

11. Fiscal decentralization reforms prior to the current fiscal consolidation period reinforced fiscal autonomy.

- *Pre-crisis period*. In the last four decades prior to the crisis, Spain has undergone a deep process of fiscal decentralization. Expenditure decentralization has been particularly significant, with the SNG share in total spending increasing from just under ⅓ in 1995 to about half of total public spending in 2007. Revenue decentralization has also significantly increased during this period, with the SNG share of own revenues to total revenues doubling to near a quarter between 1995 and 2007. This has been largely driven by two reforms in the *regional finance system* that took place in 1997 and 2002 (Box 2). These reforms led to large increases in tax autonomy through increases in both own taxes and shared revenues. As a result, the increase in revenue decentralization was particularly pronounced in the years immediately after these reforms (Figure 3).

Box 2. Regional Finances and Tax Autonomy in Spain

Spain has a dual system of regional finances. Regional financing is regulated by two independent systems: the *foral system and the common system*. The former is applied only to the Basque Country and Navarra. The latter is applied to the remainder fifteen regions.

Regions under the *foral* system enjoy significant tax autonomy. The *foral system* dates back to Medieval times and in its current format to bilateral covenants established in 1978. Under the foral system, subject to some variations between the two regions, where it applies, regions are responsible for the design, administration, collection, and inspection of all taxes accrued in its territory except for customs tariffs. Foral regions do not share any revenues with other regions or the CG. They are only expected to transfer back to the CG the share of the CG budget associated with the non-devolved spending responsibilities (mainly social security, national security, and foreign relations). This amount referred as *Cupo* (Basque Country) or *Aportacion (Navarra)* is set by a formula that takes into account the region's economic size.

Tax autonomy under the *common* system is lower than in the foral system. Regions under the *common regime* finance their own spending through a combination of own revenues, shared revenues, and intergovernmental transfers. Differently from the *foral system*, regions under the common system do not have full regulatory power over the whole range of taxes accrued in their territories.

The common system has been subject to periodic revisions, which led tax autonomy to increase. The common system has been set in national law dating back to 1980 and subject to renegotiation every five years. Since 1997, reforms have gradually increased regions' discretion over ceded taxes, allowing them to set tax rates and establish tax credit and allowances. Reforms have also increased the amount of revenues shared with the center. Revenue sharing was first introduced in 1997 and allowed regions to benefit from 30 percent of personal income taxes (PIT). It was broadened in 2002 to include value-added taxes (VAT), with revenue sharing rates increased to 33 percent. The last reform in 2009 increased the region's share of PIT and VAT revenues to 50 percent and devolved 58 percent of revenues from excise duties and special taxes on alcohol, tobacco and hydrocarbons back to the regions where it was collected. Revisions under the foral system have been less frequent and focused on the Cupo/Aportacion formula.

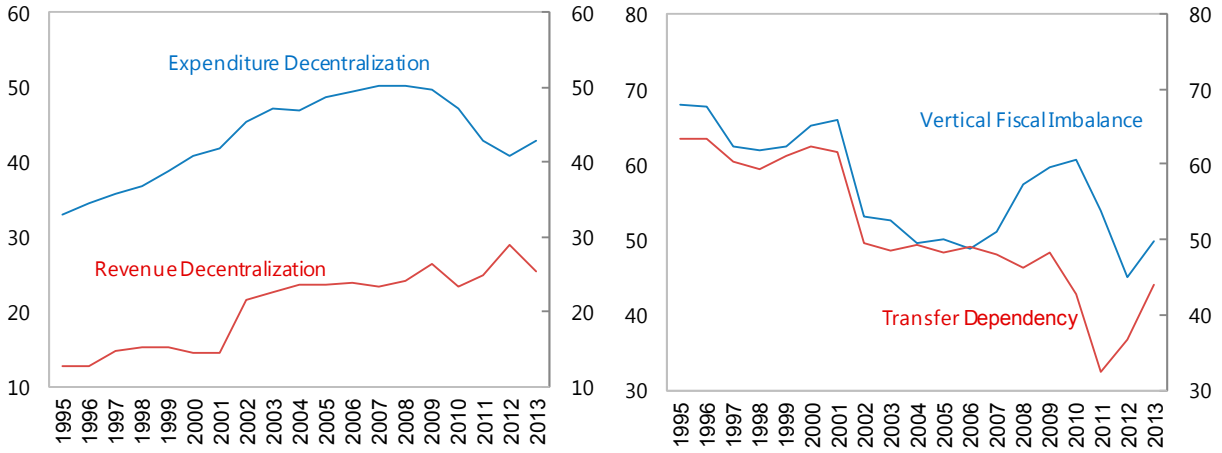
Regional Finance System -Shared Tax Bases
(percent of shared revenues)

	Old system	Current system
Personal Income Tax	33	50
Value-Added Tax	35	50
Excise duties and special	40	58

Source : Ministry of Finance

1/ Levied on alcoholic beverages, hydrocrbons, and tobacco

Figure 3. Fiscal Decentralization in Spain Was Not Interrupted by the Crisis; VFI Temporarily Increased 1/



Sources: OECD, IMF staff calculations.
1/ Expenditure (revenue) decentralization ratio is defined as the ratio of SNG own expenditure (revenue) to general government spending(revenue); vertical fiscal Imbalances are defined as the ratio of the sum of net transfers and net SNG borrowing to own expenditure.

- *Crisis period*. Revenue decentralization in Spain, unlike other EU countries, was not interrupted by the crisis (Eyraud and Moreno Badia, 2013). Another reform to the regional finance system in 2009 devolved additional tax revenues and mandates to the regions. Expenditure decentralization, on the other hand, slowed down. This was, however, the result of CG's relatively larger spending increases and subsequently smaller spending cuts than those carried by SNGs in the post-2007 crisis period rather than any systematic attempt from CG in reversing the devolution of spending responsibilities to SNGs (Figure 4).[2]

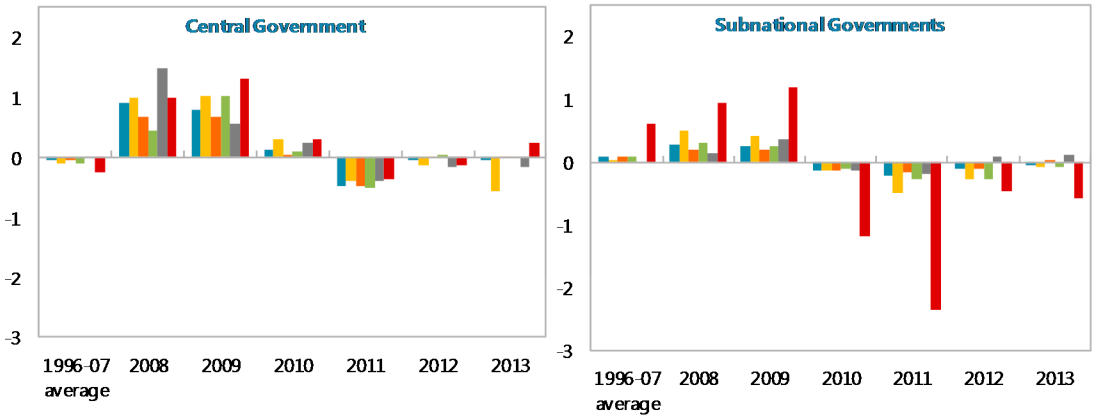
12. Vertical fiscal imbalances temporarily increased during the crisis. VFIs declined in most of the pre-crisis period, especially following the reforms in regional finance system described above. VFIs temporary increased during the crisis as a result of a significant drop in SNG own revenues and the corresponding increase in SNG net borrowing necessary to support the 2008–09 fiscal stimulus. VFI increases started to revert as soon as SNG net borrowing slowed and eventually declined to support the ensuing fiscal consolidation. The trend decline in transfer dependency has also been disrupted in the crisis aftermath, mainly as the result of swings (both positive and negative) observed after the 2009 regional finance reform stemming from the way transfers to regions are advanced and settled (more on that below).

[2] CG spending outgrew SNGs between 2009–10 most likely as a result of the stimulus plan E and the larger size of CG's automatic stabilizers—unemployment insurance, in particular—vis-à-vis those at SNGs. The larger size of CG's automatic stabilizers relative to SNG's has probably contributed to constrain CG spending cuts during the crisis. A better understanding of these facts would require a more detailed analysis of the vertical distribution of resources—which is a task for future research.

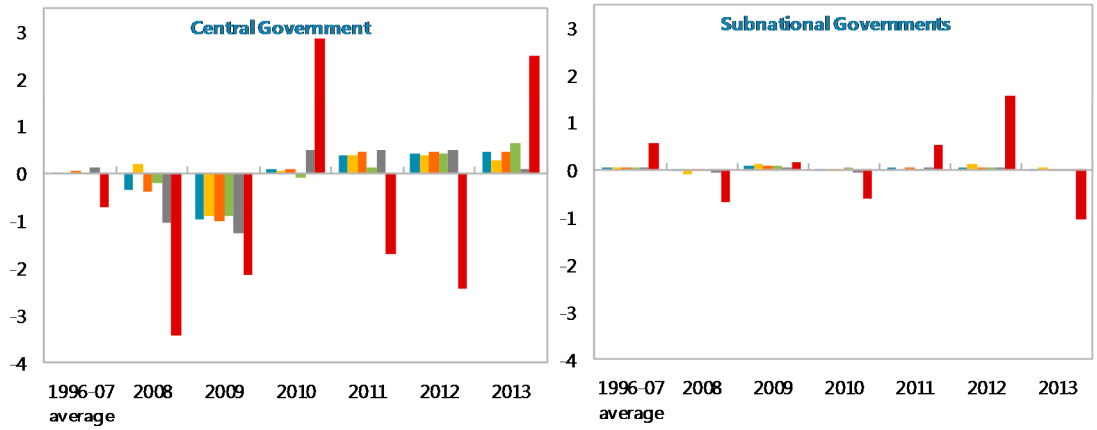
Figure 4. Policy Instruments Were Actively Used During the Crisis

(Percent of potential GDP)

Change in Own Primary Expenditure

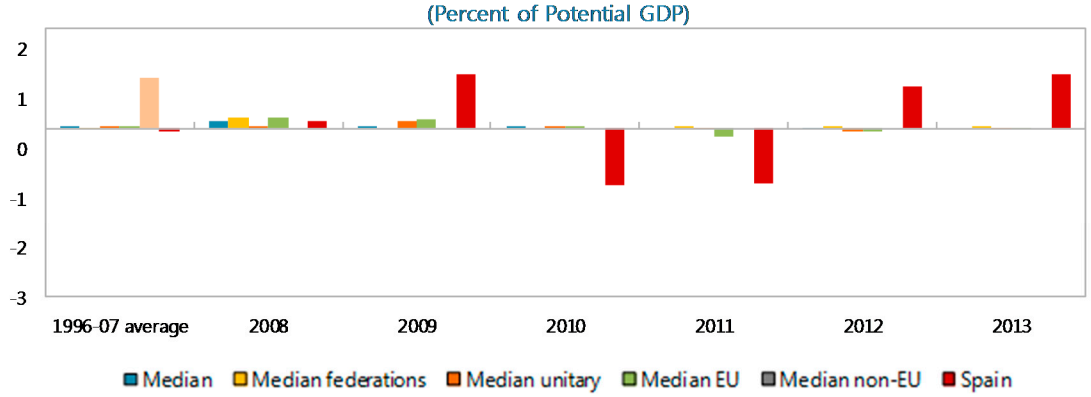


Change in Own Cyclically Adjusted Revenue



Change in Net Transfers to Subnational Governments, including Cyclically Adjusted Tax Sharing

(Percent of Potential GDP)



Sources: OECD, IMF staff calculations.

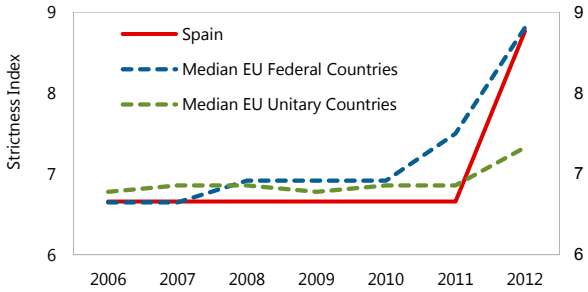
Note: Change in net transfers for 2010 and 2011 nets out the devolution to the central government of surplus transfers to regions according to settlment procedures, as SNG have been allowed to postpone such payments in the course of twenty years.

13. SNGs have actively used their enhanced tax and spending mandates to support the post-crisis fiscal consolidation. SNGs have used the fiscal autonomy acquired in the pre-crisis period to support general government consolidation efforts during the crisis by relying on both tax and spending instruments (Figure 4, top charts). While most of the initial consolidation observed in 2010 can be explained by increases in VAT and personal income taxes at the CG level, fiscal consolidation after 2010 was also driven by SNGs through increase in regional taxes and fees (Kingdom of Spain, 2014). In particular, regions established new environmental taxes and increased tax rates on property transactions, personal income tax, and excises for some products. Regional governments also reinforced their information sharing to reduce tax evasion.

Fiscal governance

14. Fiscal governance reforms have raised region's non-compliance costs. Recent reforms centered at strengthening the design of subnational fiscal rules and addressing identified challenges to its monitoring and implementation. They led to de-jure very strict rules and, in doing so, have raised ex-ante non-compliance costs.

Balanced budget rules became stricter in Spain following the crisis



Sources : European Commission, Fiscal Rules Database.

- *Pre-crisis period*. Constraints on SNG capacity to borrow and generate budget deficits date back at least two decades with the adoption of Spain's Convergence Program *(*Hernandez de Cos and Peres, 2013). Balanced budget rules at the regional level were first introduced in the 2001 BSL, which also envisaged sanctions in the event of non-compliance. The law was amended in 2006 to address the pro-cyclical nature of the rule and to target a fiscal balance over the cycle. The 2006 amendment was extended to local governments to whom a non-bail out clause was also created.

- *Crisis period*. Subnational rules were subject to further refinements to comply with EU-wide fiscal governance taking place in the context of the Six-Pack, Fiscal Compact, and Two-Pack. A constitutional reform approved in 2011 enshrined the rules-based framework in the Constitution. A new BSL approved in 2012 introduced structural budget balance, expenditure, and debt rules at the regional level. The 2012 BSL also strengthened rule monitoring and enforcement through the adoption of mechanisms to prevent, correct, and penalize deviations from fiscal rules and targets.[3] Monitoring and enforcement was also reinforced through improvements in the quality, coverage, and frequency of intra-year regional and local budget

[3] Under the preventive mechanism, a non-compliance warning can be issued at any time and corrective measures implemented within a month this warning was issued (BSL, Article 19). Under the corrective mechanism, fiscally non-compliant regions need to prepare a one-year Economic and Financial Plan (PEF) with corrective measures (BSL, Article 21) that is monitored quarterly and that, if not implemented for two consecutive quarters, would trigger coercive measures (BSL, Article 24).

figures and the creation in 2013 of Spain's independent fiscal council—Autoridad Independiente de Responsabiliad Fiscal (AIReF).

C. Challenges

15. Despite the strengthening of regional fiscal autonomy and governance, fiscal non-compliance remains significant. The short period following the implementation of the 2012 BSL has been marked by some noticeable improvements in fiscal compliance, particularly by municipalities and the social security administration. Non-compliance margins at the regional level have also declined. However, more than ⅖ of regions have continued not to meet their targets since then. Moreover, the overall regional target has been systematically missed every year since 2010, accounting for the bulk of deviations accumulated during this period. (Figure 5).

Figure 5. Regions' Fiscal Non-Compliance Remains Significant

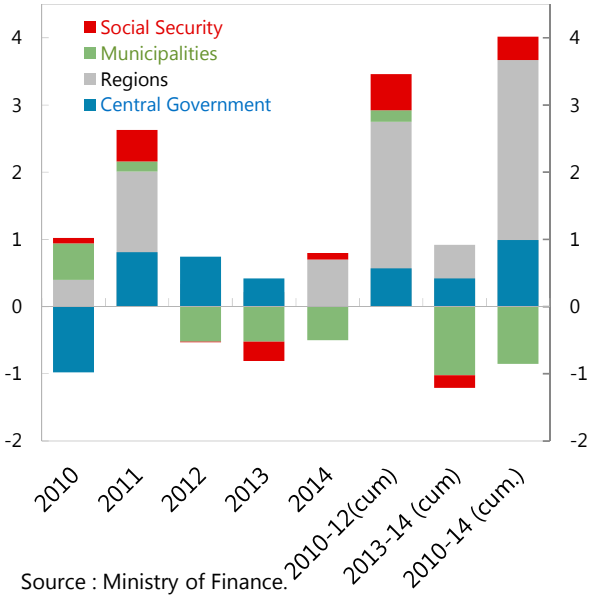
Deviations from Fiscal Targets, 2010-14

(in percent of regional GDP)

	10	11	12	13	14
	(in percent of regional GDP)				
Andalucia	-0.7	-2.2	-0.6	0.1	-0.2
Aragon	-0.6	-1.3	0.0	-0.9	-0.7
Asturias	-0.3	-2.3	0.5	0.0	-0.3
Baleares	-1.6	-2.9	-0.3	0.3	-0.7
Canarias	0.1	-0.2	0.4	0.2	0.1
Cantabria	-0.5	-2.2	0.0	-0.1	-0.5
Castilla-La Mancha	-3.9	-7.1	-0.1	-0.8	-0.8
Castilla and León	0.1	-1.3	0.1	0.1	-0.1
Catalonia	-1.8	-3.3	-0.7	-0.4	-1.6
Extremadura	0.0	-3.4	0.5	0.1	-1.4
Galicia	0.0	-0.3	0.2	0.1	0.0
Madrid	0.0	-1.2	0.4	0.1	-0.3
Murcia	-2.5	-3.2	-1.6	-1.5	-1.7
Navarra	-0.6	-0.7	-0.2	-0.2	0.3
La Rioja	-0.7	-0.7	0.3	0.0	-0.2
Valencia	-1.2	-3.7	-2.2	-0.6	-1.4
Basque Country	0.0	-1.3	0.0	0.1	0.0

Note: Negative, red (positive, green) numbers indicate under (over)-compliance.
Source: IMF staff estimates

Fiscal Deficit Deviations by Sector 1/
(Percent of GDP)



Source : Ministry of Finance.
1/ Positive deviations : under-compliance. Negative deviations : over-compliance.

16. This has been largely attributed to the design and implementation gaps in the regional fiscal framework. Gaps have been particularly salient on fiscal governance and financing systems. Fiscal governance gaps include the application under the BSL and related legislation of (i) monitoring and enforcement mechanisms; (ii) the horizontal allocation of fiscal targets; and (iii) budget practices. Regional finances have also a number of areas where some stock-taking would be useful, notably (i) regions' limited regulatory power over own taxes; (ii) the design of intergovernmental transfer system; and (iii) the choice of debt financing instruments.

Fiscal governance

17. Reliance on formal monitoring and enforcement mechanisms provisioned under the BSL has been weak. Non-compliance warnings have not been issued in time, and, when so, they often remained unaddressed (IMF, 2013; EC, 2015). The adoption of corrective measures has been slow and implemented through adjustment plans with a lag of more than one year. No formal warnings or financial sanctions were issued since the BSL inception, despite repeat non-compliance by a number of regions. Throughout this period monitoring and enforcement was largely done in connection with extraordinary liquidity mechanisms (see below) in an environment of very tight financing conditions (IMF, 2013) and stronger political cohesion within and across government levels than in the pre-crisis period (Aja and Colino, 2014). Monitoring could have been reinforced earlier had AIReF's set up not been subject to delays. Enforcement has been hampered by the absence of procedures capable of activating the prevention, correction, and coercive mechanisms in a gradual and predictive way (IMF, 2013). In particular, under the preventive mechanism, there are no specific provisions about how frequently these warnings should be issued, how non-compliance risk should be defined, and what would constitute acceptable preventive measures.

18. Existing procedures for establishing regions' deficit targets could be compromising region's capacity and incentives to adjust. The BSL does not specify any criteria of how fiscal deficit targets for individual regions should be determined other than they should add up to the deficit target for regions as a group set as percent of GDP. Instead, the BSL delegates to the Ministry of Finance the task of making annual proposals—following a recommendation by AIReF—and subject to the appreciation of the CPFF and the approval of the Council of Ministers (BSL, Articles 15 and 16). In practice, fiscal targets for individual regions have been for the most part set equal to those chosen for regions as a group regardless of regional differences in fiscal adjustment needs and capacity (i.e. available resources).[4, 5] The de-facto majority of the Ministry of Finance at the CPFF has also fueled perceptions of lack of evenhandedness on the fiscal adjustment, with negative implications for the region's ownership (and ultimately the credibility) of their fiscal adjustment (Rosseló-Villalonga, 2013).[6]

19. There is still room to improve budgetary practices at the regional level. Firstly, several regions have yet to fully observe public financial management and fiscal transparency practices mandated by the Budget Stability Law, including the submission of multiannual budget plans with sufficient specification of revenue and expenditures to allow verification of compliance with the

[4] An exception was 2013 when fiscal deficit targets for 2013 have been revised and allowed to differ across regions.

[5] Individual fiscal targets for regions have been set as a percent of regional GDP. While GDP usually provides a good proxy of the general government's revenue potential and hence of its capacity to meet their financial obligations. The same cannot be said of regional GDP in countries where transfers from the center account for a significant share of regional income. In such cases, fiscal targets set in percent of regional GDP can lead to smaller (and tighter) nominal deficits than those derived under a fiscal target that would also factor in the amount of net transfers received from the center.

[6] Decisions in the CPFF are done by a two-round voting process. In the first round approval requires a two-thirds majority, which, if not achieved, triggers a second round of voting when only an absolute majority of votes is required. With the same number of votes as all the other 17 regions combined, the Ministry of Finance has a de-facto absolute voting majority.

expenditure rule and public debt targets (AIReF, 2014 a). Secondly, budgetary accounting practices at the regional level diverge, including those regarding the economic classification of revenue and expenditure (AIReF, 2014 a and b).

Regional finances

20. Regions lack the power to completely adjust all taxes devolved to them. Regions collect about ⅓ of tax revenues and social security contributions, but their regulatory power extends to just over half of these revenues (Tax reform expert committee, 2014). This corresponds to an intermediate level of tax autonomy comparable to that in Australia and Germany. Most taxes are levied on immobile bases, which is in line with best-principles. Spanish property taxes, however, are prone to large fluctuations and are quite distortionary, given their transaction-base, non-recurrent nature. Regions have the power to establish their own taxes, fees, and charges as long as they are not levied by the central government or outside their geographical territory and do not obstruct the free movement of goods, and services. However, full legal control over tax bases and rate structure is the exception. Regulatory power over fees, charges, and copayments for public services is limited as well. In addition, regulatory power over excise and other indirect taxes, including VAT, is constrained by EU regulations.

Regulatory Power over Devolved taxes

Tax	Revenue (percent shared)	Regulatory Power
Wealth	100	schedules, minimum income limits, deductions and credits
Estate and Gift	100	schedules, deduction and credit, management
Property Transfers, Legal Acts [1]	100	schedules, deduction and credit, and management
Gambling	100	exemptions, base, rate, charges, credit, and accrual
Vehicle registration	100	rates
Electricity	100	no power
Hydrocarbons	58	rate of region share
Excises [2]	58	no power
Personal Income (PIT)	50	schedules, allowances, certain credits
Value-Added (VAT)	50	no power

Source: Tax reform expert committee, 2014
1/ ITP-AJD: Includes real estate, admnistrative concessions, personal property, notary public documents
2/ Includes alcholic beverages, tobacco, other intermediate manufacturing products

21. Drawbacks in the design of the regional finance system limit regions capacity and incentives to adjust.

- The current multi-fund structure used to allocate resources under the common system of regional finances is believed to compromise the system's original objective of equalizing fiscal capacities to meet spending needs across regions (Box 3). This, on turn, arguably undermines the capacity and incentives to adjust for those regions where fiscal capacity remained below average once resources are distributed.

- The design of the payment system delays regions' adjustment. The bulk of resources transferred to the regions by the central government either in the form of shared revenues and equalization transfers for any given fiscal year is paid in advance on the basis of a budget appropriation for that fiscal year. Settlement takes place two fiscal years later, with regions reimbursing the central government if advanced payments are above those actually collected and vice-versa if advanced payments are below actual collection. This system reduces incentives to adjust among regions particularly at turning points in the cycle when revenues and thus transfers are prone to be overestimated. This became apparent right at the start of the current system when the unanticipated economic slowdown led resources transferred in 2010 to be overestimated and delayed adjustment until 2012 when settlement took place. Settlement procedures also constrain regions' capacity to adjust and comply with fiscal targets. This was the case in 2014

when widespread non-compliance was largely explained by declines in advanced transfers in 2014 based on revenue forecasts that did not incorporate the recent recovery.

Box 3. Spain's Intergovernmental Transfer System and Fiscal Equalization

Intergovernmental transfers in Spain aim at fiscal equalization. Since they were first established in the early eighties, the system aimed at equalizing the resources needed to provide a uniform level of public services across regions, defined as their spending needs. Spending needs differed across regions depending on a number of cost factors including how old, young, or dispersed the population is. Equalization is achieved by ensuring regions receives broadly similar resources not in per capita terms, but per unit of *spending need*. Equalization has been typically carried by one fund financed with central government resources and by regions' ceded and shared taxes. Resources are allocated on the basis of demographic and geographic criteria.

Fiscal equalization is undermined by its multi-fund structure. Under the current common system, fiscal equalization is carried by the Guarantee Fund with resources distributed according to an *adjusted population* index to proxy spending needs. This index is estimated by a formula that takes into account each region total, old, and school age population, population density, area, and degree of insularity. Simulations have shown this fund to be particularly good at promoting fiscal equalization. However, fiscal equalization is partially reversed once additional resources are allocated according to the other funds set up to mitigate the deterioration of fiscal capacity among the richest regions under the previous system (De La Fuente, 2012). The final outcome was a more complex, less transparent, and less equalizing system than one where fiscal equalization would have been the main objective.

Fiscal equalization - Simulated Outcomes

	Gross Fiscal Capacity	Fiscal Capacity after Guarantee Fund	Fiscal Capacity after other funds
Canary Islands	52	97	95
Extremadure	72	94	113
Castilla La Mancha	82	96	99
Andalusia	82	96	96
Galicia	85	96	106
Murcia	86	97	95
Valencia	92	96	93
Castilla Leon	95	99	109
Asturias	100	99	107
Rioja	101	100	116
Aragon	106	99	105
Cantabria	109	98	118
Catalonia	119	103	99
Baleares Islands	125	106	102
Madrid	143	111	101
Average	100	100	100
Standard Deviation	22	5	8

Source : De la Fuente (2012)

22. Growing reliance on regional liquidity mechanisms has improved regions' fiscal resilience at the expense of increasing moral hazard risks. Regional liquidity mechanisms (RLMs)in the form of conditional loans provided by the central government were first deployed in Spain to provide liquidity to fiscally stressed regions during the crisis and more recently broadened to all regions (Box 4). While helping to reduce regional government's financing costs and to offer more stable sources of financing, RLMs may have increased moral hazard risks. In particular, bond yields of fiscally non-compliant regions benefitting from rRLMs have started to converge to those of comparable bonds issued by fiscally prudent regions that have opted out of these schemes. At the same time there are signs that public debt among RLMs beneficiaries has risen faster than among non-beneficiaries.

Box 4. Regional Liquidity Mechanisms in Spain

RLMs have been deployed in Spain to provide liquidity to regions during the crisis. To provide emergency liquidity, reduce financing costs, and ensure the timely payment of private suppliers to fiscally stressed regions, the central government set up in 2012 a number of RLMs. RLMs included a fund to help regions pay for outstanding debt with private suppliers (Fondo para la Financiación del Pago a Proveedores-FFPP) and, most significantly, the Regional Liquidity Fund (Fondo de Liquidez Autonómico, FLA). Both the FFPP and the FLA were financed by the issuance of Treasury bonds under the central government financing program. Resources were then channeled to regions under these funds through loan agreements. Loans were guaranteed by the regions' financing system resources (participation in centrally collected taxes and other transfers). Financing along these lines emerged as an alternative to the issuance of joint bonds by the central government and regions (so-called Hispabonos) similar to the Euro Area's preference for rescue funds (EFSF and then ESM) over Eurobonds. Regions joining the FLA are subject to fiscal conditionality implemented through an adjustment plan. Adjustment plans were to be monitored monthly by the Ministry of Finance. Regions participating in RLMs were also subject to financial prudence rules, whereby all non-RLM loans are subject to prior approval by the Treasury and the Ministry of Finance.

Access to liquidity facilities has been recently broadened, made permanent, and cheapened. Access to liquidity facilities available to regions has been modified in December 2014 (Royal Law-Decree 17/2014) with the creation of the Autonomous Communities Financing Fund (ACFF). The ACFF broadened access of RLMs to all regions through different facilities. All these facilities are envisaged to be permanent. ACFF preserved the FLA, which remains available to all regions subject to fiscal conditionality and financial prudence rules. The ACFF includes a new liquidity facility—the Facilidad Financeira (FF)—which has been made available to regions meeting an ex-ante assessment of compliance with fiscal targets under the BSL. FF recipients are subject to financial prudence rules, but, unlike the FLA, access to the FF is not conditional on adjustment measures. FF regions failing to comply with their fiscal targets are, however, expected to be transferred to the FLA and thus subject to conditionality. Similar funds have been created to provide support to local governments. As in the past, resources to finance these funds are obtained from the issuance of Treasury bonds. The subsidy provided under the new facilities has increased. Treasury will now on-lend at no interest through the FLA s in 2015 and under the FF during 2015–17.

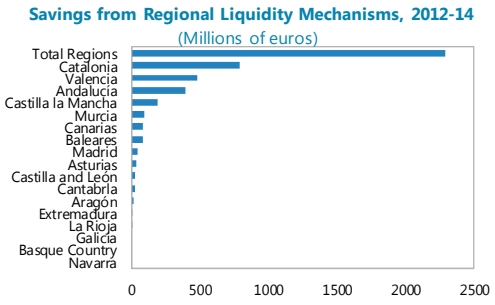
Acess to liquidity financing schemes

2012-14		2015		
FLA	No Fund	FLA	FF	No Fund
Andalusia	Aragon	Cantabria	Andalusia	Basque Country
Asturias	Castilla-Leon	Castilla La Mancha	Aragon	Madrid
Baleares Islands	Extremadura	Catalonia	Asturias	Navarra
Canarias	Galicia	Murcia	Baleares Islands	
Cantabria	La Rioja	Valencia	Canarias	
Castilla La Mancha	Madrid		Castilla-Leon	
Catalonia	Navarra		Extremadura	
Murcia	Basque Country		La Rioja	
Valencia			Galicia	

Source : Ministry of Finance

Most regions have opted to benefit from the new RLMs. In the case of the FLA, nine out of the seventeen regions benefitted from about €60 billion disbursed during 2011–14. Except for Madrid, Navarra, and the Basque Country, all regions have requested to benefit from the FLA and FF.

RLMs may have improved fiscal resilience… RLMs has helped avert a major fiscal crisis among the most vulnerable regions by significantly reducing debt financing costs. Savings from these sources was particularly significant during the crisis when market financing became very costly and virtually



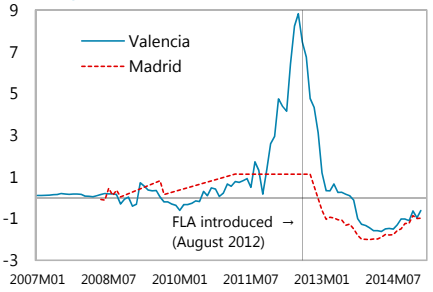
Source: Ministry of Finance.
Note: Savings estimates from lower interest obtained under the FLA and FFPP.

Box 4. Regional Liquidity Mechanisms in Spain (concluded)

unavailable for the most fiscally imbalanced regions. Savings from the FLA and other facilities are estimated at about €22.6 billion during the life of these loans.

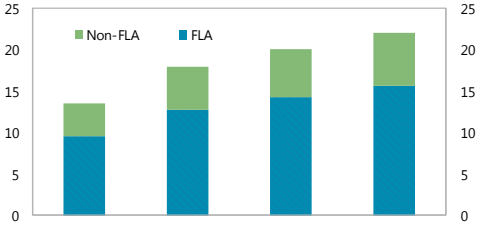
…At the cost of increasing the risk of moral hazard. There is some evidence that lower financing costs at the regional level from the initial batch of RLMs resulted in higher financing costs at the central level by increasing the risk premium of sovereign bonds (Jenkner and Lu, 2014). Recent evolution of bond-yields spreads seems to point at a greater convergence between regional yields regardless of their fiscal track record. Lending seems to be decoupling from fiscal fundamentals, with the interest premium of fiscally non-compliant regions declining and those of fiscally compliant regions increasing. In the meantime, regional debt has continued to increase since the inception of the FLA and was mainly driven by increases among regions tapping the FLA. As a result, the central government has also become the largest lender to regions, particularly those with a less fiscally responsible track record. All these facts combined may be a sign of increasing moral hazard risks.

Spreads of 10-year regional bonds to soverign maturing 2015-16, 2007-15



Source: Bloomberg.

Regional Debt Burden, 2011-14
(Percent of GDP)

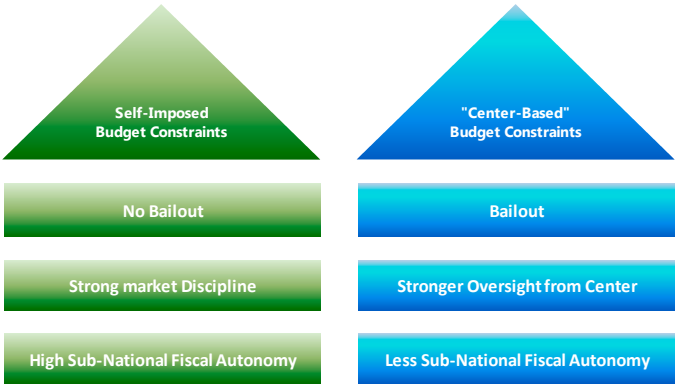


Source: Bank of Spain.
Note: FLA bar represent the total debt burden of regions benefitting from RLM (FLA) between 2012-14.

D. Prospects

23. In view of the challenges discussed, the balance between autonomy, governance, and resilience in the regional fiscal framework deserves attention. The issue is hardly unique to Spain and there is more than one solution. Indeed, very different frameworks have emerged in existing federations to promote fiscal responsibility and facilitate the coordination of fiscal policy, including when consolidation efforts are required. On one side of the spectrum, for example in the U.S., or Canada, fiscal autonomy is high, with fiscal responsibility at the subnational level underpinned by credible "no bailout" clauses, self-imposed budget constraints, and strong market discipline. On the other side, where SNG bailout episodes have occurred more frequently such as in Germany or Brazil, fiscal responsibility has been ensured by centrally imposed budget constraints and oversight and more limited fiscal autonomy. Intermediary frameworks (e.g., Australia, Belgium) have fostered fiscal discipline through dialogue and cooperation, where intergovernmental fiscal policy bodies play a central role. Following the crisis and in line with the general EU approach, Spain has opted to move from an intermediate,

Stylized Setup for Hard-Budget Constrains



Source: Allard and others (2013).

cooperative framework prevailing before the crisis towards a more centralized framework. Under this approach regions' spending and borrowing autonomy acquired before the crisis have been increasingly subdued by rules and constraints imposed by the center, with a lesser role for market discipline.

24. Three *options* could be considered:

- Option 1: *Deepen the existent centralized framework by strengthening center-based budget constraints and oversight, further reducing subnational fiscal autonomy, and relying less on market price signals to orient SNG fiscal behaviour*. It is worth noting that, while this approach is being applied in a number of countries, reducing subnational fiscal autonomy would seem to run against the recent trend of increasing rather than decreasing the degree of fiscal and political decentralization.

- Option 2: *Dismantle the centralized framework and move towards a fully decentralized, strictly market-based framework*. This approach would foster fiscal discipline through the power of markets and outside often complex rules-based framework. This would not exclude the possibility of some centralized borrowing or vertical transfers—and indeed a minimum of fiscal risk sharing is usually required to ensure that no-bailout clauses are credible (Allard and others, 2013). However, transitioning to such a system would take time and might bring back market-induced fiscal stress given high existing debt levels, uneven and insufficient subnational tax autonomy, and the absence of a well established subnational insolvency framework to allow for an orderly debt restructuring in the event of a subnational default.

- Option 3: *Move towards a more coherent intermediate system where elements of the centralized, cooperative, and market-based frameworks are combined in a balanced fashion.* One approach would be to bring back cooperative practices in the determination of subnational fiscal targets and other budget constraints initially underpinned by smart rules and strong oversight imposed by the center and eventually supported by market discipline.

25. Arguably, the adoption of an intermediate system that balances the need for better autonomy, governance, and resilience will directly help address the identified gaps in the current framework. Three areas deserve particular attention:

- **Fiscal governance.** Progress needs to continue by ensuring that the BSL is monitored and enforced on a timely basis, especially at the regional level. Ensuring effective monitoring and timely enforcement within the framework will largely depend on (i) making the application of mechanisms envisaged under the BSL gradual and predictable; (ii) further improvements in budget accounts and practices so as to allow fiscal rules and targets to be comprehensively, accurately, frequently, and expediently evaluated; (iii) establishing AIReF's as a respected referee; and (iv) more collegial procedures and a differentiated treatment when setting region's fiscal targets. Specifically,

- *Gradual and predictable monitoring and enforcement mechanisms.* As previously recommended (IMF, 2013), monitoring and enforcement could be made more gradual and predictable if done both monthly and quarterly based on pre-established targets and preventive or corrective measures in the event intra-year targets were missed.[7] Under this scheme, the issuance of warnings (if the region is fiscally compliant) or the application of coercive measures (if the region is non-fiscally compliant and under a PEF) would only take place after two consecutive quarterly targets were missed, with "yellow cards" issued prior to that.

- *Sound regional budgeting*. Building on the recent progress, efforts should continue to ensure all regions deliver multiannual budget plans, with well-specified revenue and expenditure measures, critical to benchmark the design and implementation of fiscal consolidation against that of other government levels. A greater degree of convergence of budgetary practices among regional governments, in particular regarding the economic classification of expenditure and revenue items, could be encouraged to ensure a comparable assessment of fiscal rules and targets across regions.

- *AIReF as an effective referee*. AIReF should continue to be ensured sufficient resources. It should also continue to be granted access to all the relevant information in accordance to legal timelines to fully exercise its mandate to help the Ministry of Finance to monitor and enforce the BSL frequently, timely, gradually, and predictably along the lines proposed above. Sufficient resources, including staffing, and timely access to relevant information are particularly critical to ensure it can properly monitor fiscal compliance at the subnational level. On-going efforts to ensure the *comply and explain* principle regarding AIReF's recommendations is consistently and transparently implemented by all public entities subject to such recommendations should also be sustained.[8]

- *A more differentiated treatment of fiscal targets*. Region's ownership of the fiscal consolidation process could be enhanced by allowing their individual fiscal deficit or debt targets to vary—in a rules-based and transparent fashion—taking into account structural differences in adjustment needs and capacity and consistent with overall fiscal targets at both the regional and general government level. Asymmetric fiscal targets imply that regions with fiscal targets above the overall regional target will need to be matched by regions for which targets would be below this average. Reaching consensus would, therefore, not be straightforward thur reinforcing the need for a transparent rule-based allocation of fiscal targets. In this context, AIReF's role in providing an objective assessment

[7] Different paces in the budget execution of revenue and spending items should be taken into account when setting intra-year targets.

[8] The "comply and explain" principle as envisaged at AIReF's Organic Law requires all public entities departing from AIReF recommendations (i.e. not complying) regarding the enforcement of BSL and related laws and regulations to give detailed reasons for doing so in writing. Regulations aimed at clarifying how this principle should be applied have recently been implemented.

of the design and implementation of these rules would be important. Allowing for a more collegial discussion of these targets in the CPFF may also be warranted.

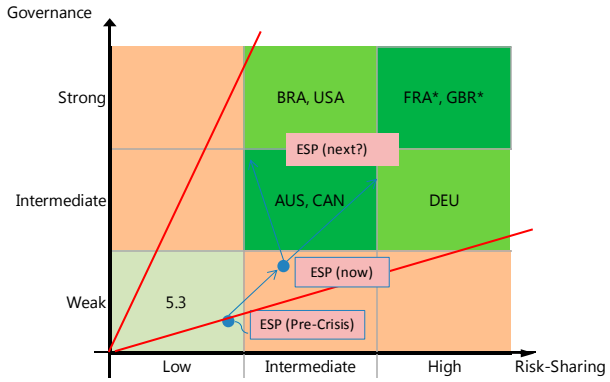
- **Fiscal autonomy.** Consideration could be given to enhance subnational fiscal autonomy through reforms to (i) increase region's regulatory power over devolved tax bases; and (ii) address design gaps in the regional financing system.

  - *Enhancing regions' tax autonomy*. Regions remit to establish co-payment for public services and other fees and charges could be extended. Additional regulatory power over excise and other indirect taxes could be considered and market unity preserved by ensuring that any changes are uniformly and simultaneously implemented across regions. The CPFF could be further empowered to promote coordination over these and other devolved taxes.

  - *Reforming regional finances*. Intergovernmental transfers should aim at promoting fiscal equalization in a comprehensive and transparent way. Consideration could thus be given to merge all existing funds into just one fund that follows the same criteria of the current Guarantee Fund. The current regional finance payment system could also be reformed through the application of an adaptive mechanism in which income forecasts are updated over the course of the year and affect the partial payments along the lines proposed by Hernández de Cos and Pérez (2015).

- **Fiscal resilience.** International experience shows that stronger risk-sharing and stronger governance typically go hand in hand (Allard and others, 2013). Along this line, the increasing reliance on central government debt issuance to finance regions through RLMs would suggest a heightened need for fiscal governance in the form of an appropriately monitored and enforced BSL to increase fiscal resilience, while minimizing moral hazard risks to fiscal discipline. This could be achieved, for example, by making access to resources obtained through RLMs to both fiscally and non-fiscally compliant regions conditional to the approval and implementation of an adjustment plan, with disbursements under this plan conditional to intra-year fiscal targets, as previously discussed. The adoption of ex-ante minimum risk-sharing mechanisms such as rainy-day funds could also be considered to complement these reinforced liquidity financing schemes. Such a fund would collect revenues from regions at all times and make transfers those experience

Nexus between risk sharing and governance



Source: Allard and others (2013) and IMF Staff estimates.

Note: * denotes unitary countries (FRA, GBR), where administrative units are defined by the central government and exercise powers at the central government's discretion. The remaining countries (AUS, BRA, CAN, DEU, ESP, USA) are federations, where the sub-national states' existence and powers cannot be changed unilaterally by the central government. The risk-sharing classification is based on estimates from the literature of the share of income shocks to sub-national entities that are absorbed by central transfers . The governance classification is based on a review of each country's codified rules and an assessment of their effectiveness in constraining sub-national budgets.

negative shocks.[9] Unlike RLMs, risk will be shared ex-ante—namely before the shocks have turned into funding crises. In addition to enhancing fiscal consolidation, a rainy-day fund would reduce fiscal pro-cyclicality by providing region-wide automatic mechanism to save (consolidate) in times of common positive shocks. Among the challenges associated with such a scheme would be to correctly detect the events warranting the activation of the insurance scheme, and hence transfer payments. Moreover, as with any insurance scheme, rainy day funds are not immune to moral hazard risks. Alternative options proposed to address this issue range from adopting simple and transparent rules. If not properly designed, such scheme could end up delivering more transfers than warranted leading regions to build insufficient fiscal buffers or implement adjustment measures, knowing that ultimately, the rainy-day fund would provide support.

[9] The introduction of rainy-day funds at the state level in the U.S. has been associated to better credit ratings and lower financing costs (Charles, 2010).

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