

Budgetary stability and structural reforms in Spain: Lessons from the recession and options for the future

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1. Introduction

Introduction

- **Main objective:** the analysis of the challenges posed by public debt sustainability after the financial crisis, given the uncertainty regarding real long-term interest rate levels and potential growth
- We analyse the sustainability of public debt during the recent crisis and the subsequent recovery, using an extended version of the theoretical framework proposed by Blanchard (1984).
- We show that debt and budget balances during the recession were very close to becoming unsustainable.
- Fiscal adjustment has been steady but slow, balanced on a knife-edge, trying to affect growth as little as possible,
- Risks still remain high, particularly if interest rates rise sharply
- Public debt stabilization around 100% of GDP has high costs in terms of GDP per capita and employment. We estimate these costs using REMS (Boscá et al, 2011)

Introduction

- We analyse also the effects of structural reforms aimed at increasing productivity and employment on public debt, revenues and expenditures.
- In particular, we analyse the simulated effects of a reduction in the structural unemployment rate from 15
- We show that growth provides an important fiscal margin for manoeuvre, by expanding tax bases, increasing public revenues, and mitigating the problem of fiscal sustainability
- Increases in aggregate productivity should also be driven by more efficient public services, which should capitalise on opportunities arising from the on-going process of technological and digital transformation
- More than an option for fiscal policy, this is a pressing need if we want to ensure that the Spanish economy returns to the path of convergence towards the levels of prosperity and well-being of the most advanced societies

2. The fiscal space during the crisis

The fiscal space during the crisis

- Our analysis of the fiscal space during the crisis is based on Blanchard (1984)
- Budget balance evolves according to:

$$\Delta d_t = \frac{r - \gamma}{1 + \gamma} d_{t-1} - t_t + g_t \quad (1)$$

- We define t_{max} as the maximum level of revenues and g_{min} as the minimum level of public spending that are acceptable to society
- The maximum level of sustainable debt is then determined by:

$$d_{max} = \frac{1 + \gamma}{r - \gamma} (t_{max} - g_{min}) \quad (2)$$

The fiscal space during the crisis

- This maximum debt level is closely related to the fiscal limit (see Andrés, 2016, Bi, 2012, or Leeper and Walker, 2011)
- Beyond this level, governments do not have enough political capital to increase taxes or cut spending in order to stabilise the value of public debt
- This is a stochastic limit that varies over time and across countries depending on their economic and institutional characteristics
- It may also take into account future expenditure commitments (for example, those associated with ageing) and depends on the tax burden that society is willing to bear

The fiscal space during the crisis

- Fiscal rule: the primary budget balance converges to its maximum level according to:

$$\Delta(t_t - g_t) \leq \alpha [(t_{max} - g_{min}) - (t_{t-1} - g_{t-1})] \quad (3)$$

- α is the speed of convergence towards the maximum level of the primary budget balance
- Equations (1) and (3) determine the dynamics of the public debt and the budget balance.
- The phase diagram is shown in Figure 1.
- The convergence path to the steady state in which the primary budget balance and public debt reach their maximum sustainable level is given by the line AA':

$$pb_t = t_t - g_t = \left(\frac{r - \gamma}{1 + \gamma} + \alpha \right) (d_t - d_{max}) + (t_{max} - g_{min}) \quad (4)$$

The fiscal space during the crisis

Calibration of the debt limit:

- Ghosh et al (2013) projected debt limits between 149.7% of GDP (for Ireland) and 249.2% (for Norway)
- These authors find that the response of the primary balance to lagged debt starts to decline at debt levels of around 90–100% of GDP and become negative as debt approaches to 150% of GDP
- Greece's experience is a good example of fiscal fatigue and unsustainability when debt approaches to 150% of GDP
- Nerlich and Reuter (2016) estimate that the average debt limit for the EU27 from 1990 to 2014 was 134% of GDP, with a maximum value of 183%
- Politico and Wickens (2015) estimate a higher debt limit for the EU14 from 1995 to 2012 (201% of GDP)
- For comparisons, we assume that $d_{max} = 150\%$ of GDP

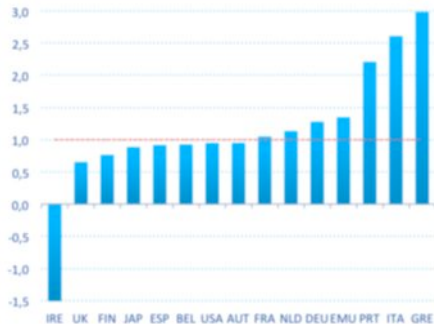
The fiscal space during the crisis

Calibration of the interest rate/growth spread:

- We assume that $(r - \gamma)/(1 + \gamma)$ is equal to 1% in line with the international evidence during the last business cycle, from 2002 to 2015

Average interest rate of public debt minus GDP growth, 2002-2015

Source: own elaboration from AMECO, May 2017.



The fiscal space during the crisis

Calibration of α :

- We assume that $\alpha = 0.1$, in line with the average estimates of Afonso (2008), Bohn (2008) and Checherita-Westphal and Žďárek (2015 and 2017), smaller than the value assumed by Blanchard (1984), but greater than the response of primary balance at moderate debt levels estimated by Ghosh et al (2013)

Calibration of $t_{max} - g_{min}$:

- Assuming that $d_{max} = 150\%$ and $r - \gamma = 1\%$ we have that:

$$t_{max} - g_{min} = \left(\frac{r - \gamma}{1 + \gamma} \right) d_{max} \simeq 1.5\% \quad (5)$$

The fiscal space during the crisis

Public debt and primary budget balance over GDP. Spain, 1995-2020

Source: own elaboration from INE and MINHAFP, Stability Programme 2017-2020.



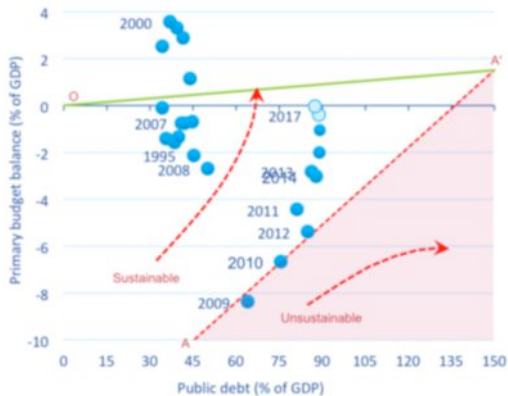
The fiscal space during the crisis

- Debt and primary budget balance from 2009 to 2011 were tightly balancing on a knife-edge, at risk of falling into unsustainable dynamics
- Between 2012 and 2014, the situation marginally improved.
- Only from 2015 onwards when a change in the trend was noticeable
- An increase in interest rates and/or a reduction in potential growth would have shifted line AA' upward, thus significantly increasing the probability of default
- Figure 1 shows that the discretionary fiscal adjustment was very gradual and slow, in an attempt to affect short-term growth as little as possible and at the limit of what financial markets have tolerated
- Banking union, ECB's quantitative easing and other non-conventional measures have been extremely beneficial for the Spanish economy in terms of reducing risk premia and the financial cost of both public and private debt

Spain had a fiscal situation similar to that of the UK ...

Public debt and primary budget balance over GDP. UK, 1995-2018

Source: own elaboration from AMECO, May, 2017.



... but Spain experienced a sovereign debt crisis

10-year government bond yields, Spain, UK and USA, 2007-2017

Source: own elaboration from FRED, June, 2017.



The fiscal space during the crisis: a summary

- A simple model with just two equations (budget balance law of motion + fiscal reaction function) and a reasonable calibration provide useful insights about the fiscal space and the dynamics of fiscal policy during the crisis
- At the aggregate level, EMU had a larger fiscal space than the US, but the absence of a genuine fiscal and banking union was a clear limitation
- It was needed an aggregate perspective of fiscal policy in the euro area, but financial markets just could implement national sustainability analysis
- Some EMU countries (like Spain) had a fiscal space similar to that of the UK but experienced a sovereign debt crisis and faced much higher interest rates
- If fiscal spaces were similar, what explained the sovereign debt crisis?
- Understanding the factors that may explain the divergence of interest rates despite similar fiscal spaces can provide useful lessons to both national economic policies and the design of a new architecture to strengthen the economic and monetary union

3. The sovereign debt crisis: Spain vs the UK

Was austerity more intense in Spain than in the UK?

- Some authors (e.g., DeLong and Summers, 2012, or Fatás and Summers, 2016) have argued the possibility of self-defeating austerity. Under these circumstances both governments and markets should have agreed to continue with expansionary fiscal policies from 2010 onwards
- **Reverse causality:** in our view, fiscal consolidation was the consequence of the sovereign debt crisis and not the other way round
- When the risk premium is high, a prudent approach is to avoid an expansionary fiscal policy and to implement structural reforms to increase potential growth (γ)
- Fiscal adjustment after 2010 was nothing other than a partial reversion of the fiscal stimuli applied in 2008 and 2009, and it was similar or less intense than in the UK
- Public debt stabilization holds for fiscal multipliers between 1 and 1.5 (as the ones estimated by Hernández de Cos and Moral-Beneito, 2016 for the Spanish economy) even when $r - \gamma$ approaches to zero

Was austerity more intense in Spain than in the UK?

The adjustment of government expenditures concentrated in public investment

Total public expenditure per capita, excluding interests, 2007-2018

Source: own elaboration from AMECO. 2007=100 and in real terms.

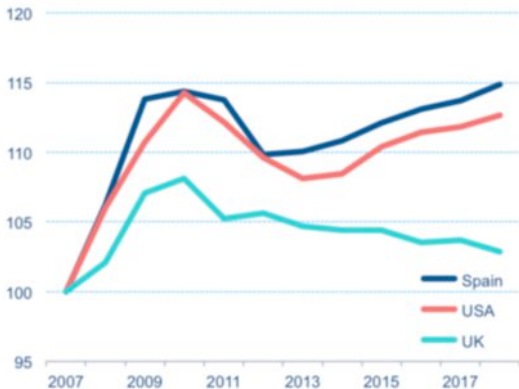


Was austerity more intense in Spain than in the UK?

After excluding investment and interests, current expenditure has been more expansionary than in the US and the UK, with the exception of 2012, in part explained by automatic stabilizers and unemployment benefits

Total public current expenditure per capita, excluding interests, 2007-2018

Source: own elaboration from AMECO. 2007=100 and in real terms.



Was austerity more intense in Spain than in the UK?

The increase in taxes in 2012 just compensated the negative effects of financial tensions on output and public revenues.

Total public revenues per capita, 2007-2018

Source: own elaboration from AMECO. 2007=100 and in real terms.



The sovereign debt crisis: national determinants

Less favourable conditions in Spain:

- Macroeconomic imbalances: the boom turned into a bust (Baldwin and Giavazzi (2015) and Martin and Philippon, 2017)
- Spain did not address the recapitalization of the saving banks until 2012 when the fiscal space was non-existent. Banking finance was crucial for lending. Vicious feedback between banking and sovereign risks
- Discretionary fiscal policies that implied a significant deterioration of the cyclically-adjusted budget balance but with doubtful effects on output
- Rigid labour market (Doménech et al, 2016): the wage push increased the unemployment rate and financial tensions hampered deflation
- The interest rate—growth differential was not favourable to the sustainability of debt (De Grauwe, 2014): self-fulfilling prophecy
- Low growth and low inflation made harder the deleveraging process of the private sector (Arslanalp, De Bock and Jones, 2015)
- A sudden stop in foreign lending to finance large current accounts deficits
- Redenomination risks and doubts about the social support of the EMU integration, structural reforms and fiscal consolidation (fiscal fatigue)

The sovereign debt crisis: EMU determinants

Less favourable conditions in Spain:

- EMU rules did not prevent macroeconomic imbalances: the European Commission (2007) estimated that the Spanish output gap was close to zero and the cyclically-adjusted budget balance close to 2% of GDP
- There was not a banking union with a single supervision mechanism in order to prevent the large exposition of the banking sector to the housing bubble
- The ECB was not a credible lender of last-resort until August 2012
- The euro appreciated against the dollar and the pound, making harder the deflationary process and the adjustment through the external sector
- The lack of a fiscal union could not avoid the sovereign debt crisis
- Contagion from other peripheral countries

4. The effects of higher public debt on economic growth

The effects of higher public debt on economic growth

- Public debt may be sustainable at very different debt to GDP ratios on line OA' in Figure 1

$$d^* = \frac{1 + \gamma}{r - \gamma} (t^* - g^*) \quad (6)$$

- Numerous studies (Reinhart and Rogoff, 2010, 2012 and 2013, Doménech and García, 2013, or Panizza and Presbitero, 2013) have analysed to what extent economic growth (γ) is affected by the level of public debt
- Woo and Kumar (2015): public debt negatively affects growth, after controlling for additional factors, endogeneity and reverse causality
- The effects of public debt on growth tend to be non-linear (Checherita and Rother, 2012), although the threshold is not an universal law and constant over time (Chudik et al, 2017)
- Some studies only find growth effects on public debt (Lof and Malinen, 2014 and Puente-Ajovín and Sanso-Navarro, 2015), while others (Ferreira, 2016 and Chudik et al, 2017) find causality in both directions (vicious circle)

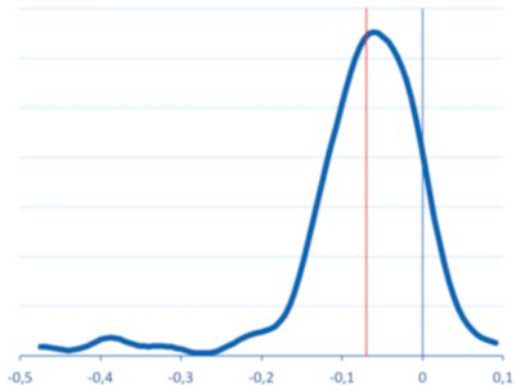
The effects of higher public debt on economic growth

- We can recover the long-run effects of public debt on the level GDP per capita as $\beta / \ln(1 - \alpha) / t$ where β is the effect of public debt on growth, α is the coefficient of initial per capita income and t is the time span
- Figure 4 shows the estimated density function of the effect of a 10 pp increase in public debt on GDP per capita
- The mean of the distribution is -0.08% (the median is -0.07%), as the calibrated effect by Elmendorf and Mankiw (1999)
- These negative effects are mainly due to the distortions caused by the taxes needed to sustain the higher level of public debt, given the level of public expenditures

The effects of higher public debt on economic growth

The density function of the estimated long-term effects on per capita GDP of a 10 pp increase in the public debt to GDP ratio

Source: own elaboration from Woo and Kumar (2015).



The effects of higher public debt on economic growth

- We have used REMS (Boscá et al, 2011), to simulate a permanent increase in the public debt to GDP ratio, as that produced between 2007 (36% of GDP) and 2016 (close to 100%)
- We assume that public expenditures to GDP remain constant and that, in the most favourable scenario, the risk premium increases just 5 bp for every 10 pp of increase in the debt to GDP ratio
- We have considered five possible scenarios depending on alternative changes in the tax structure to stabilize debt

The effects of higher public debt on economic growth

Effects of a permanent increase in public debt from 36% to 100% of GDP

	<i>All taxes</i> (1)	<i>Indirect taxes</i> (2)	<i>Labour income tax</i> (3)	<i>Social contributions</i> (4)	<i>Capital income tax</i> (5)
<i>GDP</i>	-5.5	-2.4	-3.6	-6.6	-14.2
<i>Private consumption</i>	-4.8	-2.9	-4.1	-8.3	-6.2
<i>Investment</i>	-6.7	-1.4	-2.0	-3.3	-35.8
<i>Employment</i>	-3.1	-2.3	-3.6	-6.3	1.4
<i>Public revenues</i>	4.8	6.3	5.6	4.3	1.2

The effects of higher public debt on economic growth

- Opting exclusively for higher indirect taxation (Column 2), the negative effects are reduced by almost half
- Distortion increases in the case of higher labour income taxes and social security contributions, reaching maximum levels in the case of capital income taxes, as shown in Column 5
- Increasing indirect taxes instead of raising social security contributions we simulate higher GDP, higher private consumer spending, greater investment, more employment and higher tax revenues
- The benefits of the fiscal devaluation proposal are confirmed (Boscá, Doménech and Ferri, 2013, Farhi, Gopinath and Itskhoki, 2014, or the Expert Commission on the Reform of the Spanish Tax System, 2014)

5. Effects of structural reforms on debt sustainability

Effects of structural reforms on debt sustainability

- In order to analyse the empirical evidence on the effects of economic activity on the budget balance (see, for example, Mourre et al, 2013, for a more detailed decomposition) we use a very simple approximation:

$$pb_t - pb_t^* = \phi (u_t - u_t^*) + \varepsilon_t \quad (7)$$

- Figure 5 shows the preliminary evidence
- From 1996 to 2007 practically all improvements in the deficit to GDP ratio (from -5.5% to 1.9%) can be explained by the decrease in cyclical unemployment.
- The line with negative slope ($\phi = 0.75$) fits all of these years quite well
- Using this line, we can project each year on the vertical line for the zero cyclical unemployment to obtain an estimate of the structural budget balance
- The structural fiscal deficit stood slightly above 2% of GDP from 1996 to 2007

Effects of structural reforms on debt sustainability

Cyclical unemployment rate and the budget balance to GDP ratio, Spain 1995-2020

Source: own elaboration from INE, IGAE and MINHAFP, Stability Programme 2017-2020.



Effects of structural reforms on debt sustainability

- The structural unemployment rate (u_t^*), which on average has been close to 15.5% between 1995 and 2016
- Given the estimated value of ϕ , a reduction of structural unemployment to 7.5% would allow an improvement in the structural budget balance of 6 pp of GDP
- This reduction in the structural unemployment rate could not be achieved overnight, but rather gradually and only if a wide range of structural reforms is introduced as proposed, for example, by Andrés and Doménech (2015) and BBVA Research (2016)
- This does not represent a serious constraint since budgetary stability is a medium to long-term objective

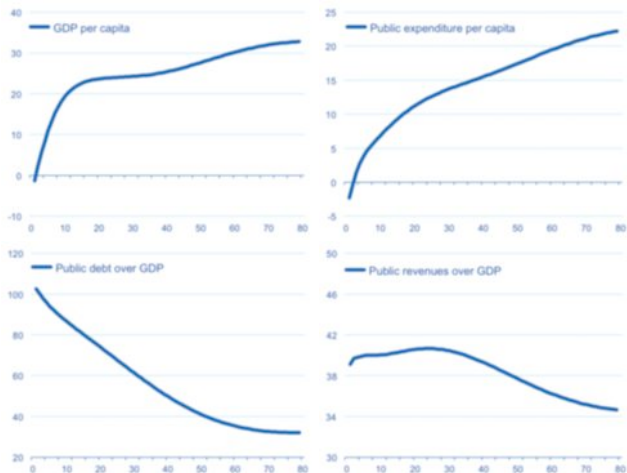
Effects of structural reforms on debt sustainability

- We have used REMS to simulate effects of a reduction of 8 percentage points in the structural unemployment rate (from 15.5% to 7.5%), using a similar approach to Andrés et al (2011)
- We assume that improvements in the labour market regulations reduce duality and temporary employment, decreasing the separation rate and increasing efficiency of matching processes between vacancies and unemployment
- With the exception of unemployment benefits, other public spending items (public consumption, investment and transfers) remain constant in GDP terms
- The fiscal rule proportionally reduces all tax rates according to changes in the level of public debt
- We impose that the final steady state ratio of public debt to GDP is 36%, reversing the increase that took place over the last recession

Effects of structural reforms on debt sustainability

Effects of a reduction in the structural unemployment rate from 15.5% to 7.5%

Source: own elaboration. The horizontal axis represents quarters.



Effects of structural reforms on debt sustainability

Simulation's results show that:

- There is an increase in GDP per working-age population, due the fall in unemployment and to the lower tax rates needed to sustain a lower level of the public debt to GDP ratio
- As a result of the reduced level of public debt in the long term and the drop in unemployment benefits, tax revenues over GDP fall to 35%
- As a result of the reduction of structural unemployment and greater GDP, per capita public spending increases by 22.6% in the long term
- A smart fiscal consolidation with smaller tax burden and higher public spending

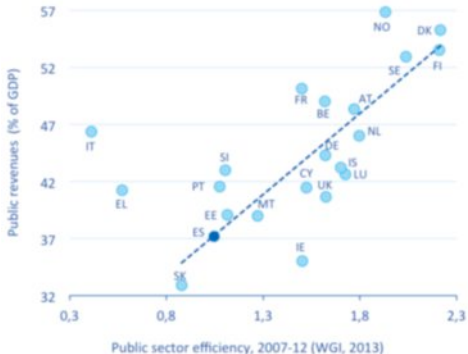
Effects of structural reforms on debt sustainability

- Complementary reforms that increase aggregate productivity will have similar effects to those shown in Figure 6
- Increases in productivity at the aggregate level should also be accompanied by more efficient public administrations, capitalising on the opportunities that arise from the on-going technological and digital transformation process
- Improvements in the efficiency of public administrations will allow the government to offer better public services with lower costs for taxpayers, obtaining additional resources for other public policies
- Higher levels of public sector efficiency would increase the willingness to accept a higher tax burden, as Andrés and Doménech (2016) argue
- Figure 7 shows that, with the exception of Italy and Greece, there is a high positive correlation (0.81) between public sector efficiency and public revenues as a percentage of GDP
- Before increasing the tax burden it would be wise to improve the efficiency and quality of public services

Effects of structural reforms on debt sustainability

Efficiency and public revenues over GDP

Source: Andrés and Doménech (2016).



6. Conclusions

Conclusions

- Sustainability of public debt was on a knife-edge from 2009 to 2011. From 2012 onwards the situation improved but risks are still high
- The Spanish economy had few alternatives to deficit reduction: the degree of freedom available consisted solely in modulating the composition of the adjustment and implementing structural reforms
- The slow fiscal adjustment have minimised the short-term effects on growth at the costs of future negative effects of public debt on income, employment, and private consumption and investment
- Structural reforms that increase employment and productivity will strengthen the fiscal margin and reduce public debt significantly
- Increases in productivity are also a responsibility of the public sector in the on-going process of technological and digital transformation
- More than a fiscal policy option, this is a pressing need to convergence to the levels of prosperity and well-being in the most advanced countries