

# Fiscal Policy and External Imbalances: A Quantitative Evaluation for Spain

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## Some facts about the Spanish economy: mid-90's to 2008

- Large and sustained **expansion of economic activity** (GDP, employment, investment, ...)
- Large and increasing **current account deficits** → sharp deterioration of the economy's external imbalance
- Substantial **improvements in public accounts** (partly due to the expansion in economic activity)
- **Boom in construction sector** & sustained increases in housing prices

... all this happening in a context of:

- **Loose credit conditions** with cheaper and easier access to credit
- **Rigid labor and product markets** (partly responsible for the Spanish low productivity growth and loss of competitiveness)
- **Intense demographic developments** (mostly via immigration flows)

# Some facts about the Spanish economy: after 2008

With the arrival of the global financial crisis:

- **Fall in GDP**
- Sharp **adjustments in consumption, investment and employment**
- Quick and intense **deterioration of public accounts** (due to automatic stabilizers, revenue shortfalls and anti-crisis expansionary programs)
- Noticeable **reduction in the current account deficit**
- Significant **adjustment in construction sector**

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- How has the crisis modified the *inevitable* **adjustment process** of the Spanish economy?
- May the **expansionary fiscal policy** adopted in the aftermath of the crisis limit an eventual recovery of activity in the medium term?



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**Paper's goal:** To answer these questions with the help of a model

# Elements required in the model

- **Rich demographic description**

- Immigration inflows very intense in Spain over the period 1998-2008
- The aging of the Spanish baby-boom generation will undoubtedly condition, via social security expenses, fiscal policy in the near future

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- **Explicit distortions in labor and product markets**

- These distortions are partly responsible for current developments
- Reforms in these markets are additional policy instruments, particularly relevant when other instruments (i.e. fiscal policy) are restricted

⇒ **We consider a monopoly power in the labor and intermediate goods markets** [i.e. CEV (2005)]

- Extensive literature using large structural models to quantify the effects of fiscal and/or structural reforms
  - Some examples: Bosca, Domenech and Ferri (2009), Coenen, Mohr and Straub (2008), Gomes, Jacquinet, Mohr and Pisani (2009), Kilponen and Ripatti (2006)
  - Our model includes a **richer demographic description**, very relevant for the Spanish economy
- Izquierdo, Jimeno and Rojas (2007) studies the role of immigration in explaining the Spanish expansionary phase
  - Our model adds **market distortions and a richer fiscal policy**

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  - Representative **investment firm**: Owns the economy's capital, rents it to intermediate producers and makes investment decisions
- **Government**
  - Consumes, gives lump-sum transfers, runs a social security system, levies taxes on consumption and on labor and capital income, and issues debt

# Quantitative analysis

- We start running our economy in 1950 ...

... and calibrate the parameters of the model to replicate the main macro-features of the Spanish economy in 1998

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- In 1998, we introduce two *shocks* in line with empirical evidence:
  - **Demographic changes** (immigration inflows and change in survival and fertility probabilities)
  - **Fall in interest rates** (two scenarios) [Figure]



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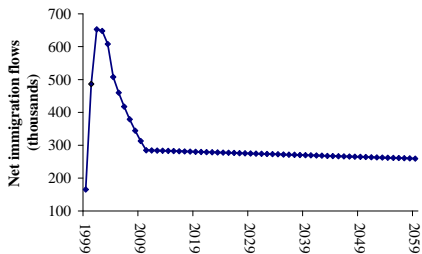
- In 1998, we introduce two *shocks* in line with empirical evidence:
  - **Demographic changes** (immigration inflows and change in survival and fertility probabilities)
  - **Fall in interest rates** (two scenarios) [Figure]

... and we do this in the presence of the following **fiscal rule**, which only operates beyond 2008

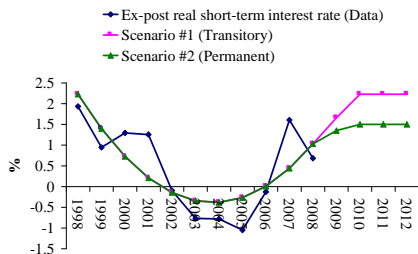
$$\tau_t^l = \tau_{t-1}^l - \kappa_1(\tau_{t-1}^l - \tau_{1998}^l) + \kappa_2\left(\frac{D_t}{GDP_t} - 0.6\right)$$

[Next]

# Immigration inflows and interest rates



Immigration inflows



Interest rate scenarios

[Back]

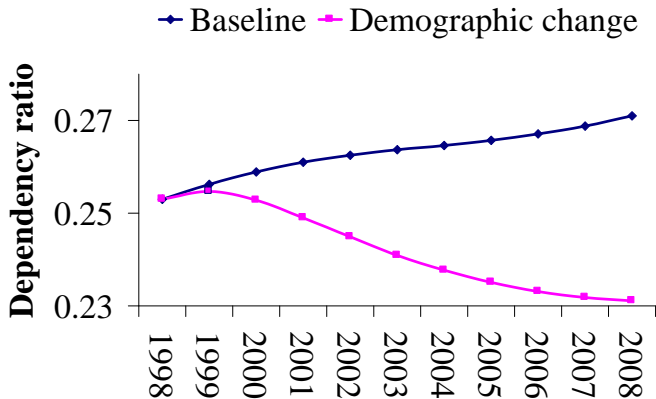
# Role of demographic changes

**Over the period 1998-2008, demographic changes alone are responsible for:**

- **60% of the observed expansion in aggregate investment**
  - Demographic changes lead to a fall in the dependency ratio [Figure]  
→ ↑ working-age population, ↑ employment, ↑ investment, ↑ GDP
- **42% of the improvement in the debt to GDP ratio**
  - Tax revenues increase due to the expansion of economic activity
  - The balance of the social security system improves with a lower dependency ratio
- **27% of the deterioration in the ratio of net foreign assets to GDP**
  - ↑ aggregate investment + minor changes in aggregate savings → current account deterioration

[Next]

# Dependency ratio



[Back]

# Role of interest rates and demographic changes

Over the period 1998-2008, interest rates and demographic changes are jointly responsible for:

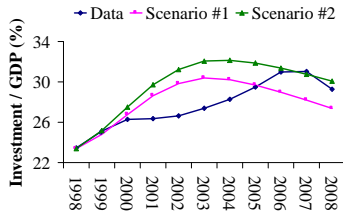
- **93% (97%) of the improvement in the Spanish internal imbalance**

- $\downarrow r \rightarrow \downarrow$  debt burden  $\rightarrow$  further improvement in  $\frac{D}{GDP}$

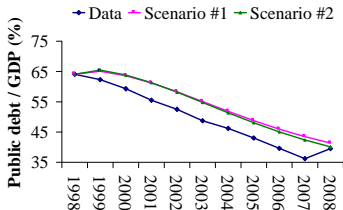
- **66% (93%) of the deterioration of its external imbalance**

- $\downarrow r \rightarrow \uparrow\uparrow$  aggregate investment  $\rightarrow$  further deterioration in  $\frac{IIP}{GDP}$

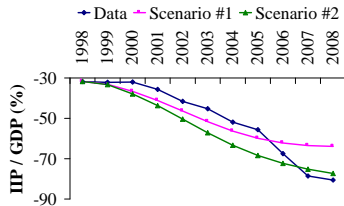
	Data		Model (year 2008)	
	1998	2008	Transitory $\downarrow r$	Permanent $\downarrow r$
Investment/GDP	23.5%	29.3%	27.4%	30.1%
Public Debt/GDP	64.1%	39.5%	41.3%	40.1%
Foreign Assets/GDP	-31.7%	-80.6%	-63.9%	-77.3%



Investment



Public debt



IIP

- **Benchmark:** Calibrated model economy hit by demographic changes and a transitory fall in interest rates
  - In this economy  $\frac{G}{GDP} = 17.3\%$  in every period
- Two counterfactual exercises:
  - **Scenario #1:**  $G$  constant in per capita terms for **10 years**  
 $G_t = G_{1998} \forall t \in [1999, 2008]$ ;  $\frac{G}{GDP} = 17.3\% \forall t > 2008$   
→ *transitory* reduction in  $\frac{G}{GDP}$ : from 17.3% in 1998 to 15.8% in 2008
  - **Scenario #2:**  $G$  constant in per capita terms for **20 years**  
 $G_t = G_{1998} \forall t \in [1999, 2018]$ ;  $\frac{G}{GDP} = 17.3\% \forall t > 2018$   
→ *more permanent* reduction in  $\frac{G}{GDP}$ : from 17.3% in 1998 to 14.8% in 2018

## Tightening fiscal policy ...

- leads to a more intense improvement in public accounts, but
- has little effect on attenuating the external imbalance
  - (if transitory) only reduces it slightly (1 p.p.,  $-63.0\%$  vs.  $-63.9\%$ )
  - (if permanent) even amplifies this imbalance ( $-75.9\%$  vs.  $-63.9\%$ )

**Intuition:** Forward-looking agents anticipate that  $\downarrow \frac{D}{GDP} \rightarrow \downarrow$  in future labor taxes  $\rightarrow$  they immediately modify their labor and consumption profiles and  $\uparrow$  current private borrowing to smooth consumption  $\rightarrow$  ambiguous effect on  $\frac{IIP}{GDP}$  ( $\uparrow$  private borrowing,  $\downarrow$  public borrowing)

	Model (year 2008)		
	Benchmark	Transitory $\downarrow G$	Permanent $\downarrow G$
Investment/GDP	27.4%	27.5%	28.0%
Public Debt/GDP	41.3%	36.7%	36.9%
Foreign Assets/GDP	$-63.9\%$	$-63.0\%$	$-75.9\%$



# Role of fiscal policy (contd.)

- Same benchmark
- Two different fiscal scenarios:
  - **Scenario #1:** consumption taxes increase 2 p.p. for 10 years,  $\tau_t^c = 1.20 \forall t \in [1999, 2008]$
  - **Scenario #2:** consumption taxes increase 2 p.p. permanently
- Same results as before: **increasing consumption taxes also has little effect on the economy's external imbalance**

		Model (year 2008)	
	Benchmark	Transitory $\uparrow \tau^c$	Permanent $\uparrow \tau^c$
Investment/GDP	27.4%	27.6%	27.7%
Public Debt/GDP	41.3%	33.0%	33.0%
Foreign Assets/GDP	-63.9%	-62.9%	-63.2%

- **Benchmark:** Calibrated model economy hit by demographic changes and a transitory fall in interest rates
  - In this economy, labor market mark-up = 20% and product market markup = 10%
- Two counterfactual exercises:
  - **Scenario #1:** The labor market markup falls 2 p.p. ( $\lambda^l = 1.18$ )
  - **Scenario #2:** The product market markup falls 2 p.p. ( $\lambda^i = 1.08$ )

## Reducing market distortions leads to

- a more intense expansion of economic activity ( $\uparrow I$ ,  $\uparrow L$ , ...) and to an improvement in competitiveness
- a stronger consolidation of public accounts
  - Due to the expansion in economic activity
- a further deterioration in the economy's external imbalance
  - Households anticipate lower taxes and a more efficient economy in the future  $\rightarrow \uparrow$  current borrowings to smooth consumption  
This, together with  $\uparrow I$ , dominates the fall in public indebtedness

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	Model (year 2008)		
	Benchmark	Labor mkt. reform	Product mkt. reform
Investment/GDP	27.4%	27.6%	28.4%
Public Debt/GDP	41.3%	38.0%	36.6%
Foreign Assets/GDP	-63.9%	-65.0%	-68.4%

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# The global financial crisis

In 2008 the global financial crisis hits the benchmark model economy:

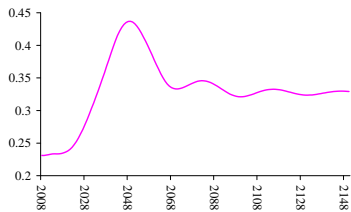
- **Part of the economy's capital stock is destroyed** (gradually over 5 years)
  - Captures overall impression that part of investment made over the expansion was over-valued
- **Expected TFP growth is reduced** with respect to the benchmark (1 p.p. less for 20 years)
  - Depicts (i) over-optimistic expectations prior to the crisis or (ii) adverse effects of the crisis for financial sector TFP
- **Sharp increase in government consumption and transfers** (gradually corrected over 5 years)
  - Reflects government's response to the crisis (exogenous in the model)
- **Negative shock to aggregate labor** (disappears in 5 years)
  - Reflects the impact of the crisis in terms of unemployment

# The effects of the crisis

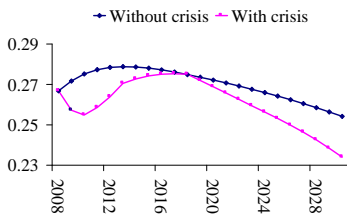
- **Even without the arrival of the crisis, in the short-run, the Spanish economy would have entered into an adjustment process** with:
  - lower, even negative, GDP growth
  - correction in the external imbalance
  - public accounts deterioration

Main cause: The aging of the Spanish baby boom generation

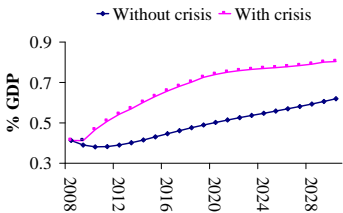
- **The arrival of the global financial crisis accentuates, in the short run, the aforementioned dynamics**
- **No long-term effects of the crisis**



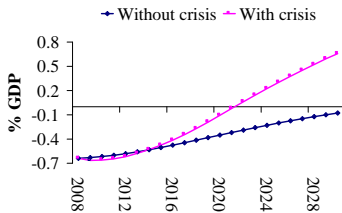
Dependency ratio



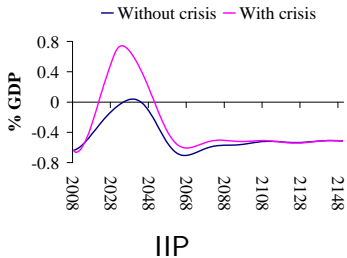
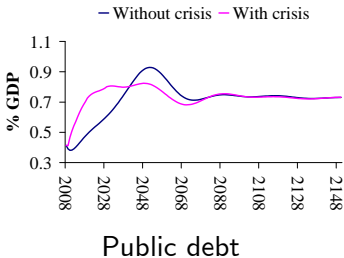
GDP



Public debt



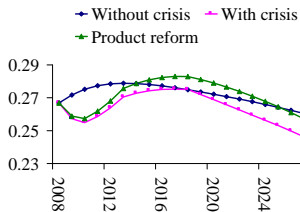
IIP



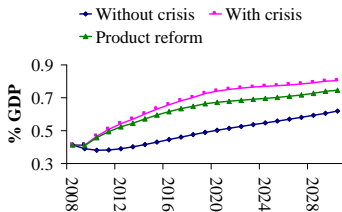
Benchmark + crisis + **2 p.p. permanent reduction in product market markup**

- **Positive effects in the short-, medium- and long-run in terms output and public accounts**
  - The economy gets back to the GDP level that it would have had without the arrival of the crisis in 2014 rather than 2018
  - For some time (over the period 2014-2025) even greater output levels compared to a non-crisis scenario
- **Little effect on the economy's external imbalance**

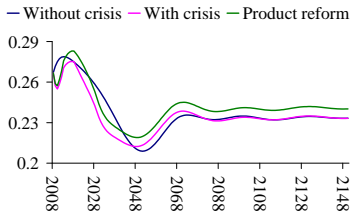




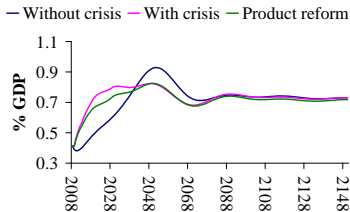
GDP (short-run)



Public debt (short)



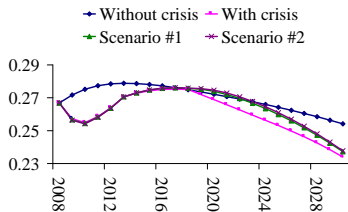
GDP (long-run)



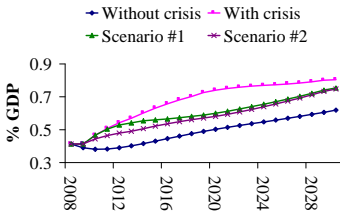
Public debt (long)

Benchmark + crisis + **two scenarios with tighter fiscal policy**

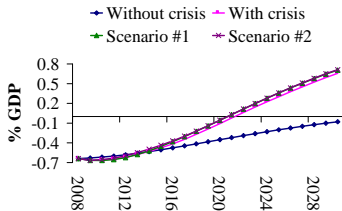
- **Less intense deterioration of public accounts**
- **Little effect on the economy's external imbalance**
- **More intense output worsening in the short-run, BUT stronger recovery in the medium-term** (GDP is much higher over the period 2018-2030 with a less expansionary fiscal policy)
  - Since  $\frac{D}{GDP}$  increases less  $\rightarrow$  smaller adjustment in future labor taxes  $\rightarrow$  less adverse effect on employment and output



GDP



Public debt



IIP

## The expansion

- It was driven, to a very large extent, by falling interest rates and demographic changes
- Little role for tighter fiscal policy or structural reforms in reducing the economy's external imbalance

## The crisis

- It has accelerated an adjustment process that the Spanish economy was about to face
- The expansionary fiscal policy adopted in the aftermath of the crisis will harm the medium-term recovery of output
- Significant role for structural reforms in terms of output recovery and public accounts sustainability