Discussion:
Financial Heterogeneity and Monetary Union

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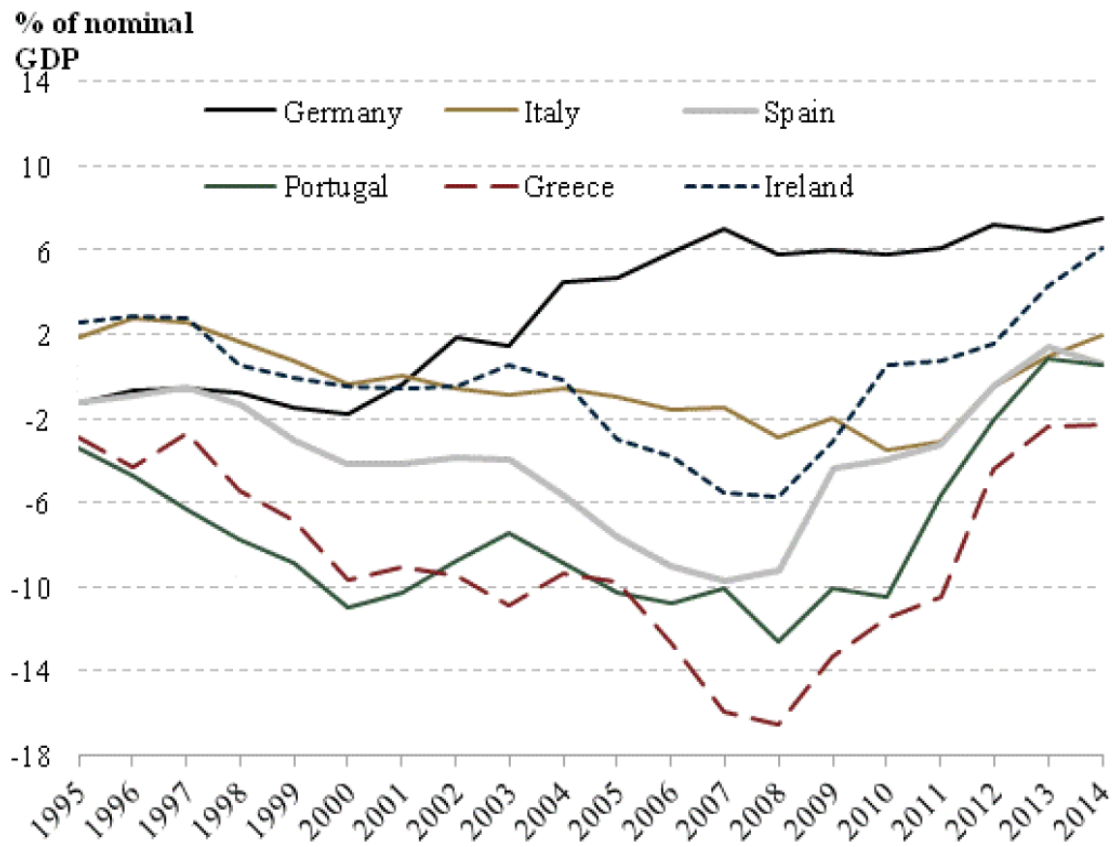
- Recent (current) European crisis was a classical balance of payments problem.

- Too high debt of households, firms and government. Intermediate by banks.

- Built through the years prior to the world financial crisis

CURRENT ACCOUNT

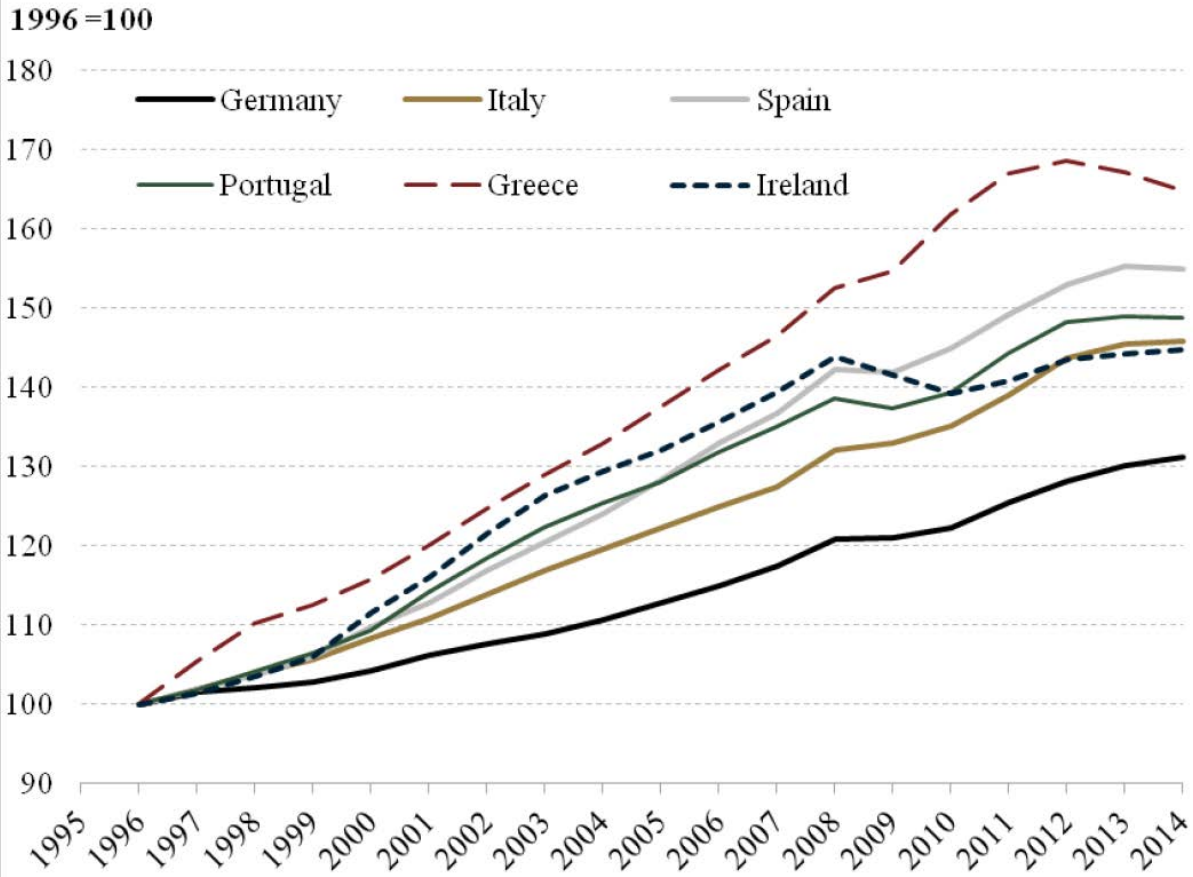


Source: AMECO-DG ECFIN.

Causes:

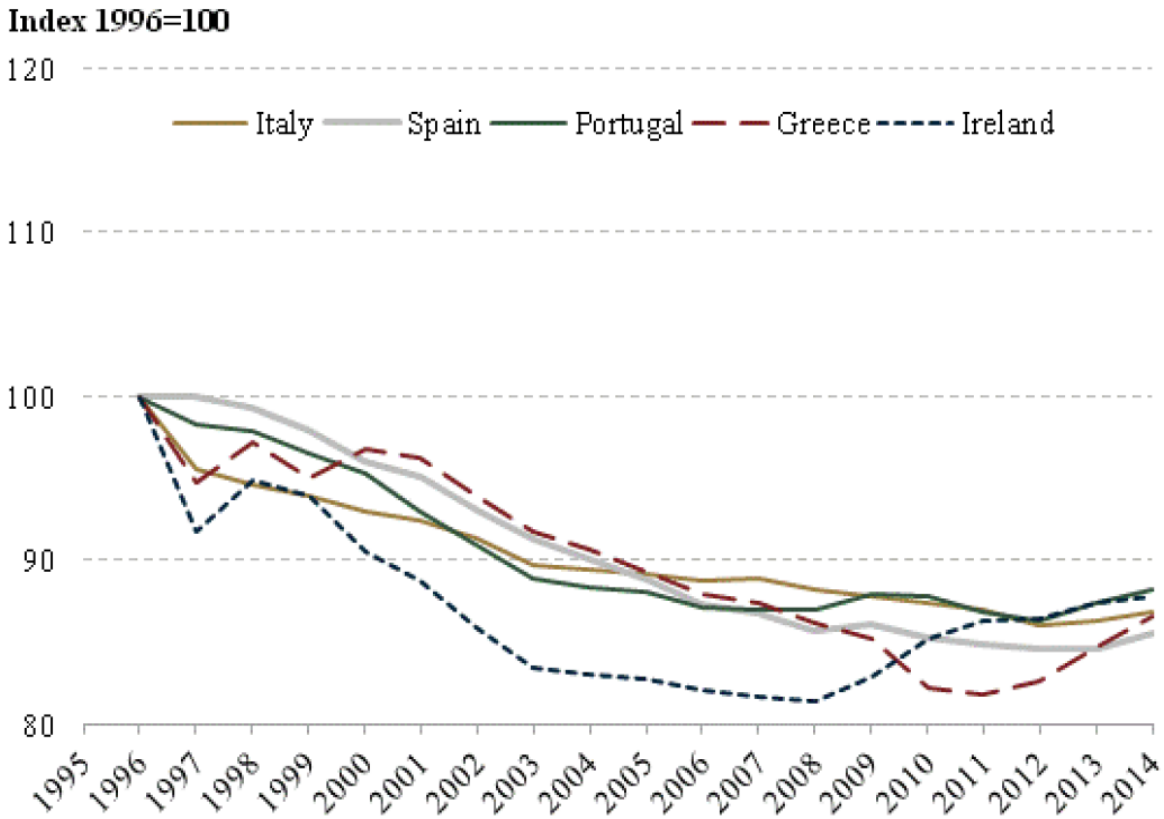
- Too cheap credit
- Overvalued currency???

CPI (1996=100)



Source: Eurostat.

BILATERAL REAL EXCHANGE RATE



Source: IMF and Eurostat.
Note: An increase (decrease) corresponds to a depreciation (apreciation).

This paper:

How real exchange rate misalignment pre crisis was not corrected but increased with the crisis.

The cost of a monetary union among countries with heterogeneous financial frictions.

Decisions of credit constrained firms?

Importance of heterogeneity?

With floating exchange rates the periphery could use the policy rate and create a devaluation, through uncovered interest parity.

Even if inflation would still be higher in the periphery, a depreciation of the real exchange rate helps exporters **financially more fragile**.

Exploring the consequences of non-homotheticity preferences of "Deeply Habits" explored by Ravn, Schmitt-Grohé and Uribe

- Non-homothetic preferences
- Deep habits
- Sticky prices
- Open economies
- Financial frictions

How successfull???

Nonhomothetic preferences

Utility function (continuum of households: agregation???)

goods-specific subsistence points υ_{it}

$$E_0 \sum_{t=0}^{\infty} \beta^t U(x_t^c, h_t)$$

$$x_t^c = \left[\int_0^1 (C_{it} - \upsilon_{it})^{1-\frac{1}{\eta}} di \right]^{1/\left(1-\frac{1}{\eta}\right)}$$

Demand

$$C_{it} = \left(\frac{P_{it}}{P_t} \right)^{-\eta} x_t^c + \upsilon_{it}$$

Price elasticity increasing in C_{it}

$$\eta(1 - v_{it}/C_{it})$$

Flexible prices

$$Y_{it} = F(A_t h_{it}) - \phi$$

$$E_0 \sum_{t=0}^{\infty} r_{0,t} \left[\frac{P_{it}}{P_t} C_{it} - w_t h_{it} - (\phi) \right]$$

- Nonhomothetic preferences: Counter cyclical mark-up $C_{it} = C_t = Y_t \rightarrow \mu_{it} = \left[1 - \frac{1}{\eta(1-\upsilon_t/Y_t)}\right]^{-1}$

Deep Habits

$$\upsilon_{it} = \theta C_{it-1} (or = \theta S_{it}), \theta > 0$$

- Past aggregate flow (or stock) of good specific consumption influence the utility of specific habits, exogenous to the household

- The demand function faced by a firm depends not only on the relative price of the good and aggregate consumption but also on past sales of the particular good

- Introduces a dynamic pricing. Today's prices are set taking into account that they will affect not just today's sales but also future sales through their effect on future demand.

- As before, **markup falls in response to expansions in aggregate demand** for good i. This is the price elasticity effect of deep habits, originating from the fact that when demand increases, the relative importance of the price-inelastic (or habitual) component of demand falls. But now in addition, **the markup is decreasing in the present discounted value of future sales**. This is the intertemporal effect of deep habits.

- How idiosyncratic marginal cost shocks affects pricing? Or the passthrough channel. **Temporary increases in costs induce firms to increase prices**

less than proportionally. Mark-ups decline. It is optimal to decline current profits to limit the decline in future demand resulting from the incraese in prices. Pass-through increases with the persistence of the marginal cost. With antecipated shocks even smaller pass-through, lead to increse in prices previous to the shock realization and a smaller increase contemporaneously.

Price stickyness

- Quadratic adjustment costs of changing nominal prices.

  No heterogeneity (relative price =1) and firms smooth price increases (declines) over time in response to shocks.

- The two mechanisms toghether firms vary mark-ups in order to smooth price increases but taking into account the effect on future sales. The combination of nominal rigidities with deep habits moderates the Phillips curve in 3 ways:-
  - habits moderates the effect of marginal costs on inflation
  - deep habits introduces a backward looking term (with the stock)
  - an expansion of current demand has an efect on inflation that is moderated by habits and the additional forward looking term, an expected increase in the future value of demand has a negative impact on current inflation because gives an incentive to firms to lower the mark up to capture future market share. (able to explain price puzzle behaviour after a monetaray shock with lower price stickyness)

Open Economies and Financial Frictions

$$Y_{it} = F(\frac{A_t}{a_{it}} h_{it}) - \phi$$

$$Y^*_{it} = F(\frac{A^*_t}{a^*_{it}} h^*_{it}) - \phi^*$$

- Proxi for financial frictions: $\phi, \phi^* > 0$,so that ex-post profits can be negative and those fixed costs cannot be transfered to shareholders. To pay the firm issues equity. Firms are credit constrained, pay a dilution cost φ. To be financed in 1 unit is has to issue $1/1 - \varphi$.Cost of external financing increasing with φ.It affects mainly the discount factor of future sales.

- The set of goods produced by the home country by a, and the set of goods produced by the foreign country by b. All goods are internationally traded (sold abroad by domestic producers)

$$x_t = \left[\omega x_{at}^{c(1-1/\xi)} + (1-\omega) x_{bt}^{c(1-1/\xi)}\right]^{1/[1-1/\xi]}$$

$$x_{jt}^c = \left[\int_0^1 (C_{ijt} - \upsilon_{ijt})^{1-\frac{1}{\eta}} di\right]^{1/\left(1-\frac{1}{\eta}\right)}, j = a, b$$

- An increase in aggregate demand enlarges the importance of the price elastic component of demand increasing the price elasticity. In other words, the price elasticity of demand is procyclical.

- Because the price elasticity of demand can, in principle, be different in the domestic and the foreign markets, it follows that firms have an incentive to charge different markups (via price discrimination) domestically and abroad.

- Pricing to habits gives rise to deviations from the law of one price over the business cycle at the level of individual goods traded across borders.

- Prices set with aggregate information.
- Then realization of idiosyncratic shocks.

- Work for each firm as prices set-in-advance.

- Negative profits are allowed. No dynamics.

- Firms make “precautionary savings” intra- period.

- Persistence of financial shocks leads to antecipated changes of discount factors of future sales.

- Open economies: labor market segmented, equity market segmented. Home higher indebted $\phi^* > \phi$ and with higher external financing costs, $\varphi^* > \varphi$.

- 4 pricing decisions: local firms (identical costs) selling domestically and abroad (differents mark-ups). The same for foreign firms. Therefore symmetric equilibrium 4 prices. (Rotemberg)

- Wage rigidity important so that the countercyclical behavior of mark ups is transmitted to prices. With a decline in wages this is no more necessarily the case.

The exercise:

- An assymetrical financial shock : increases dilution cost for home firms, i.e. the cost of external financing.
- Home firms increase prices, apreciation real exchange rate and negative current account.
- Labor immobility and equity markets segmented: then idiosyncratic shocks lead to reallocation of labor and funds across firms.
- From high to low productivity.

Q: The financial friction cannot eliminate this misallocation. How does the pricing decision moderate the costs of financing?

Assymetric shocks and transmissions:

- The relative price changes described as “price wars”. No strategically behavior …

- Each firms set prices taking as given demand directed to its good (a or b) or total consumption in each economy.
- Q: What is the specific exernality of heterogeneous firms to be corrected by policy?

- Timing of events. as noticed by the authors the sequence of the story is not fixed by the financial shock. The proposed alternative is the one that considers the financial shock during a transition to the steady state. The transition was driven by an optimism that occurs like an increasing positive home demand shock that just stops at the year of the financial shock.

- But. Deep habits: As seen before, **markup falls in response to expansions in aggregate demand** for good i and in addition, **the markup in response to the present discounted value of future sales.**There the

behavior of inflation before the financial shock is driven just by the positive demand. Q6?Shouldn´t we expect a lower inflation, a depreciation of the real exchange rate and an increase in employment and consumption?

- More intriguing is that the story during the pre crisis period is always associated, as noticed in the paper, with cheap credit supply.In this model this should be assocated with a positive financial shock pre-crisis, that is with a decline in dilution costs φ during the period where we saw an apreciation of the real exchange rate, a persistent (increasing???) current account. Dificult to reconcile with the model!

- But still the story should have some relation with the behaviour of firms during the crisis. It seems true that, during the crisis, those

firms that perceive an increase in the shadow price of financing change their decisions. To get this evidence we need to deeper.

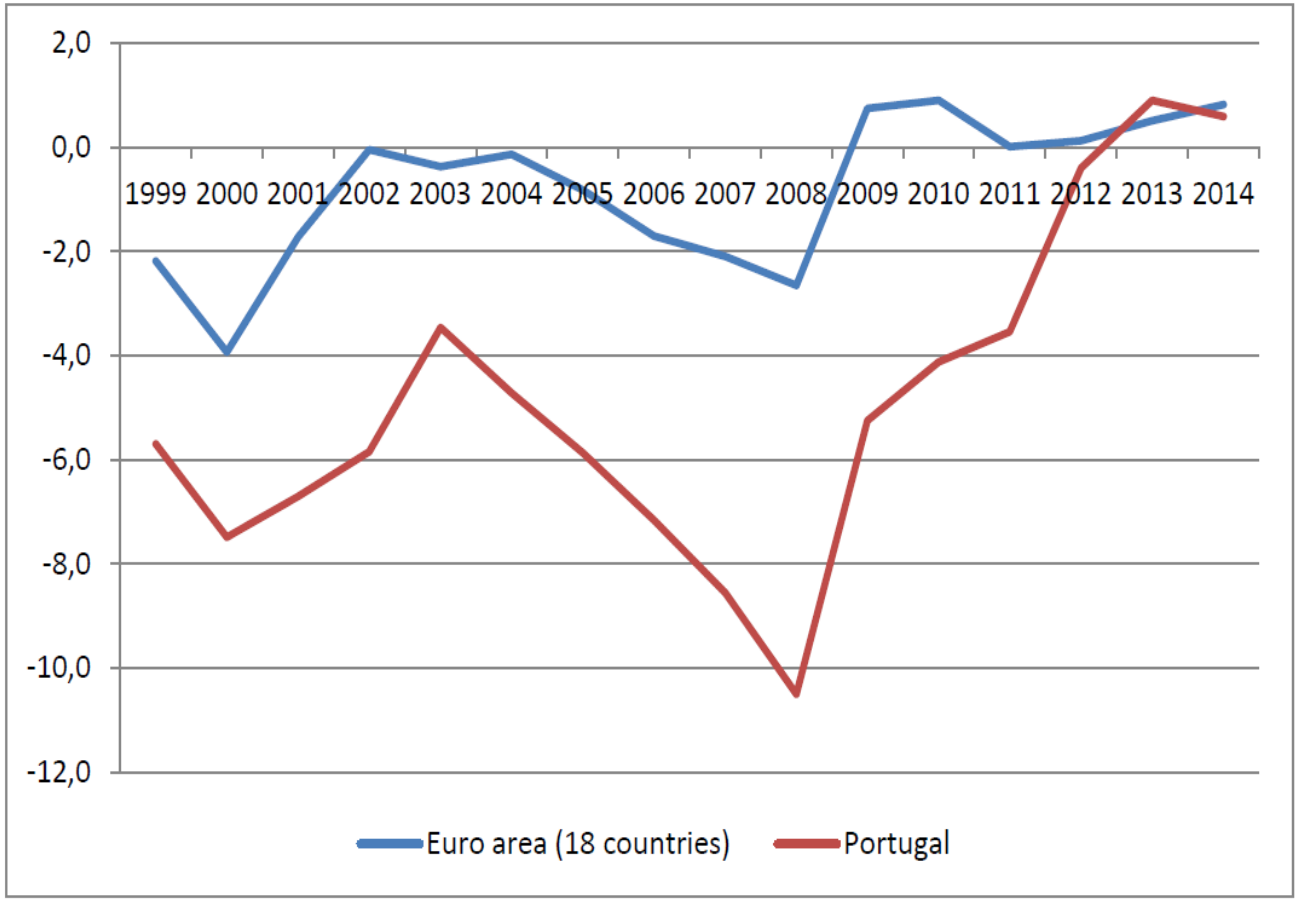
Small and micro firms were the ones taht more suffered the increase of external financing.

They react mainly through two channels closed in this model:

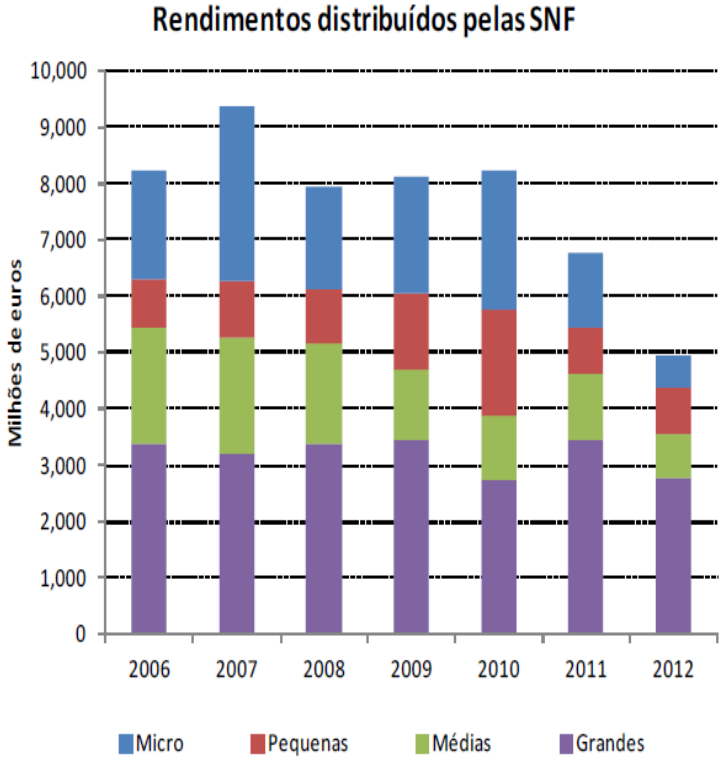
- Wage reduction
- Non distribution of dividends and holding positive savings across periods.

Both contribute to NFE to show for the firts time a positive aggregate effect on net savings in the periphery.

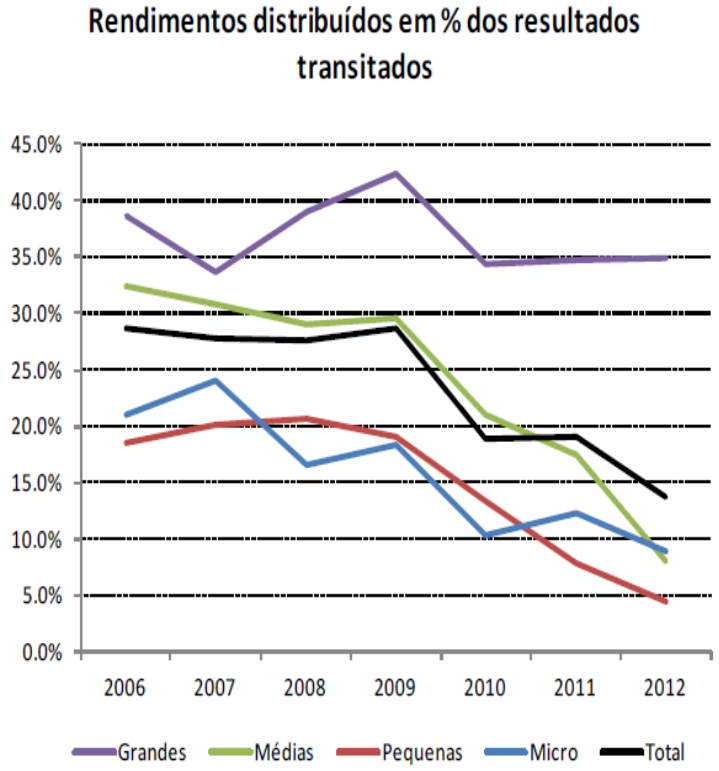
NET SAVINGS


2,0
0,0
-2,0
-4,0
-6,0
-8,0
-10,0
-12,0
1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Euro area (18 countries)
Portugal

DIVIDENDS



Fonte: Banco de Portugal.

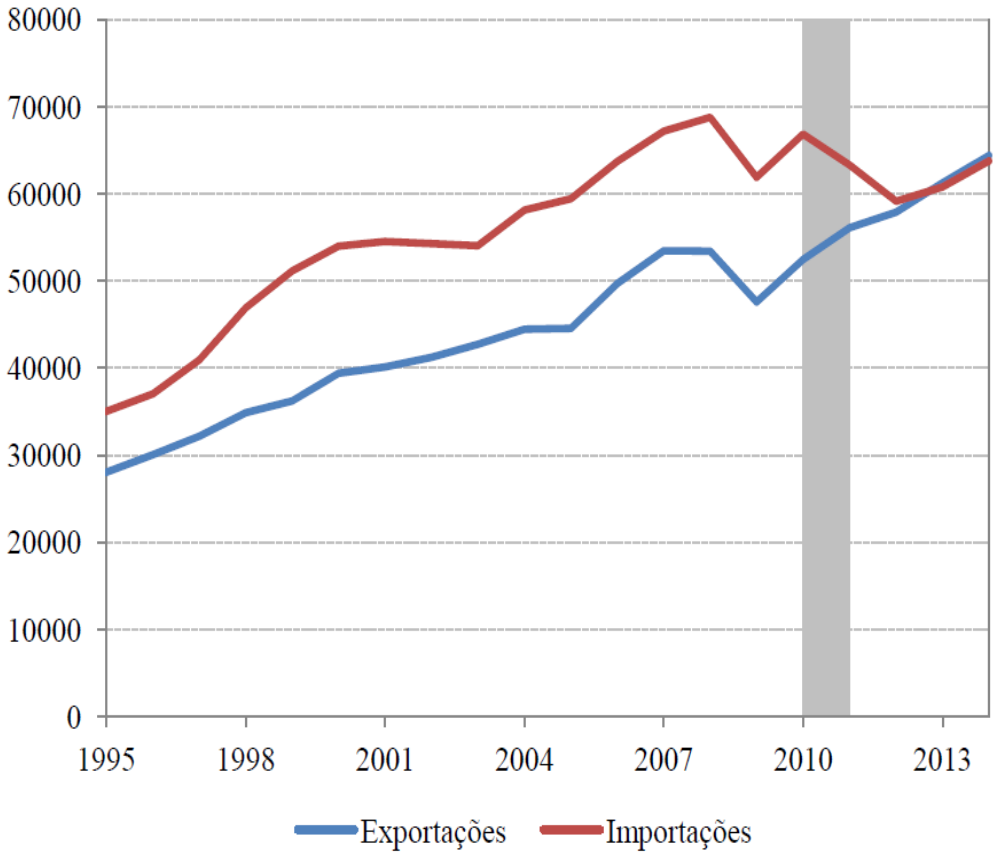


Fonte: Banco de Portugal.

- This slightly different story, which could be accomodated in this paper, would also have very different results in two dimensions:

- Exports increased both before and after the crisis
- During the crisis those small firms gained market share

PORTUGAL - EXPORTS AND IMPORTS



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- Important to explore financial constraints at the firm level!

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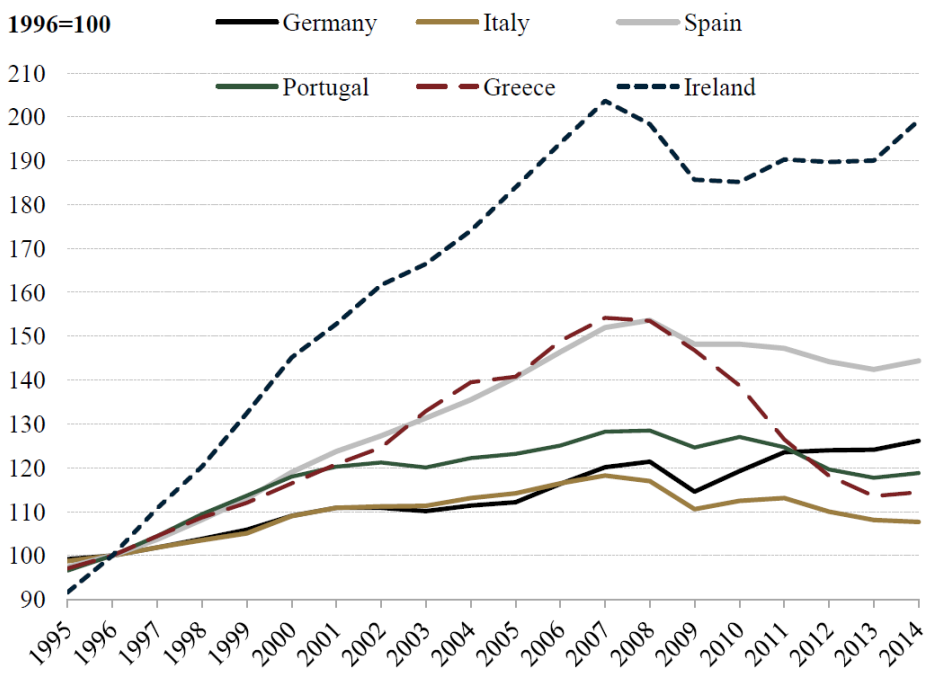
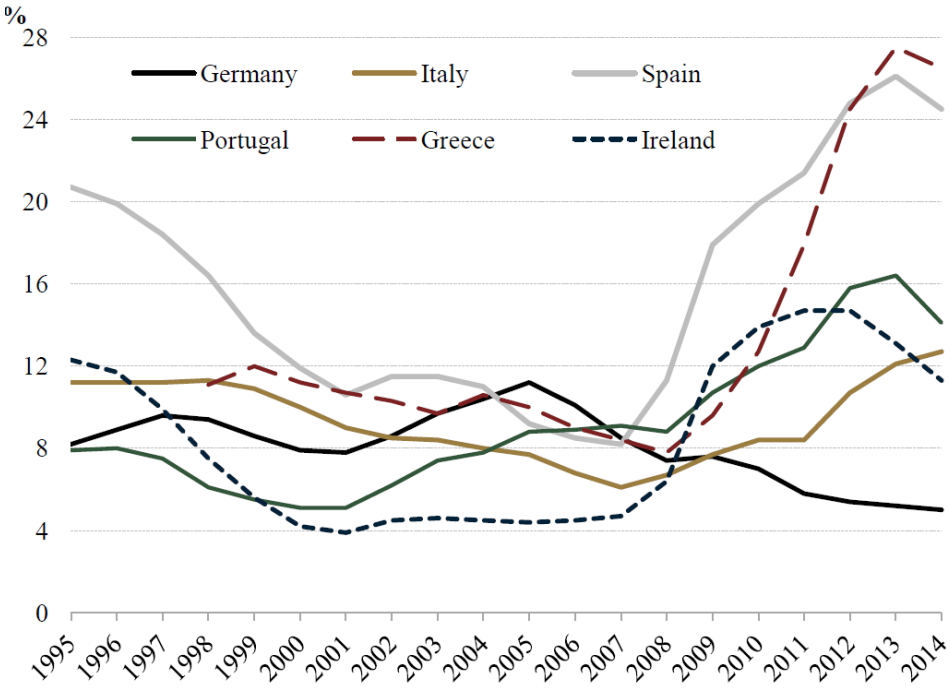
- In order to fix the crisis story it seems some links are missing!

REAL GDP



Source: Eurostat.

Unemployment Rate



Source: Eurostat.

Pricing

$$\frac{P_{it}}{P_t} = \mu_t MC_t$$

Mark-up inverse to price elasticity

$$\mu_{it} = \left[1 - \frac{1}{\eta(1 - \upsilon_{it}/C_{it})}\right]^{-1}$$

Symmetric equilibrium

- With homotehtic preferences: Constant mark-up$\longrightarrow \left[1 - \frac{1}{\eta}\right]^{-1}$