

Price competitiveness trends and external performance in the largest economies of the euro area

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Outline

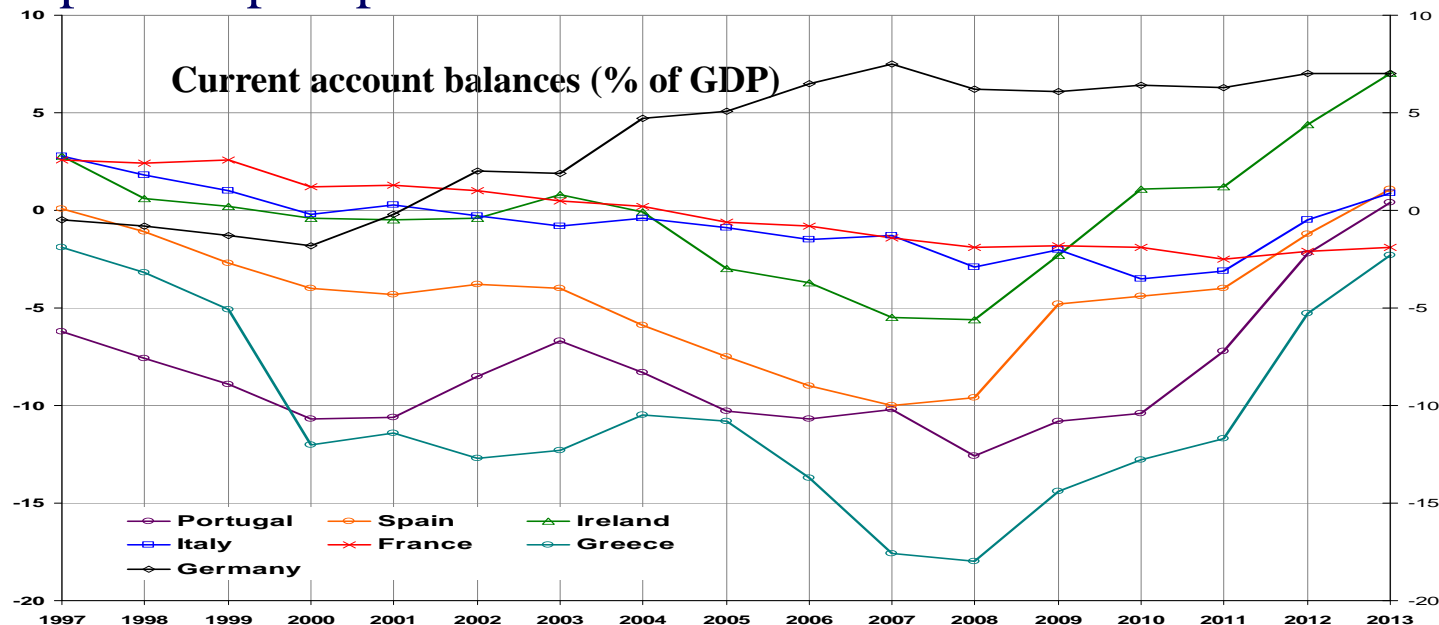
1. Why focus on competitiveness?
2. Measuring price competitiveness
3. Focusing on Italy:
 - a) *Within countries*: PPI and ULCM developments;
 - b) *Between countries*: the arithmetics of REERs and a numerical example
4. Measuring the links between price competitiveness and trade performance in the four largest euro-area countries, 1993-2012
5. Reassessing the links (relative TFP; import-intensity adjusted demand components)
6. Conclusions

1. Motivation

The concept of “competitiveness” has been a strong feature of the economic and policy debate in recent years. Amongst the drivers of the – often persistent – current account imbalances within the euro area, price competitiveness has been considered a key factor.

YET....

- ... many alternative price-competitiveness indicators are available;
-in some countries they have recorded an increasingly **significant divergence**;
- ...in the academic and public debate there is **no consensus on the ideal indicator** of a country’s price competitiveness, in terms of its ability to explain export performance.



1. Price-competitiveness indicators (2)

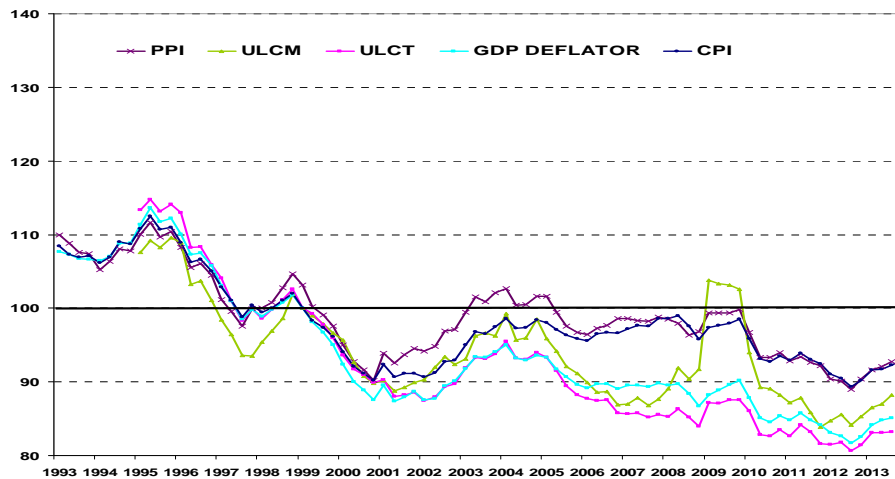
Several deflators traditionally used in REER calculations

1. **Consumer prices indices (CPIs-HICPs)**
2. **Producer price indices (PPIs)**
3. **GDP deflators**
4. **Unit labour costs in manufacturing (ULCMs)**
5. **Unit labour costs in total economy (ULCTs)**

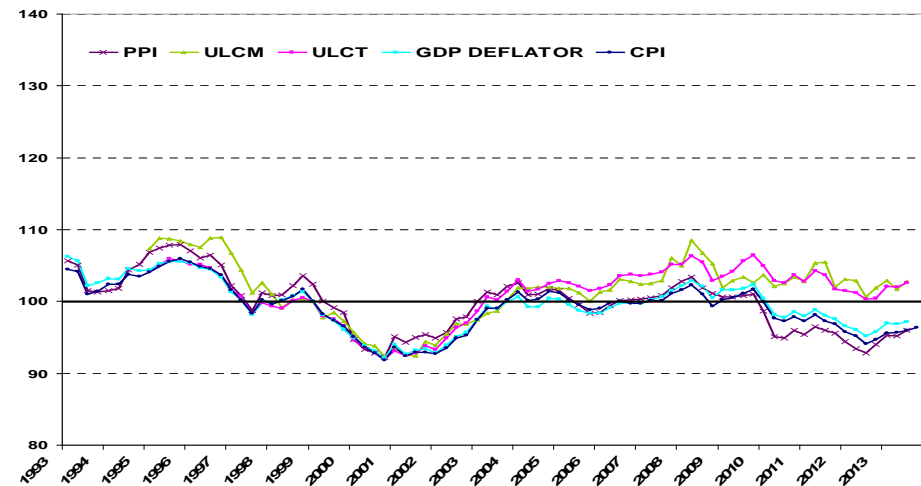
2. The indicators for the 4 largest economies in the euro area (a)

Increasing divergence of indicators since the late 90s, notably in Italy...

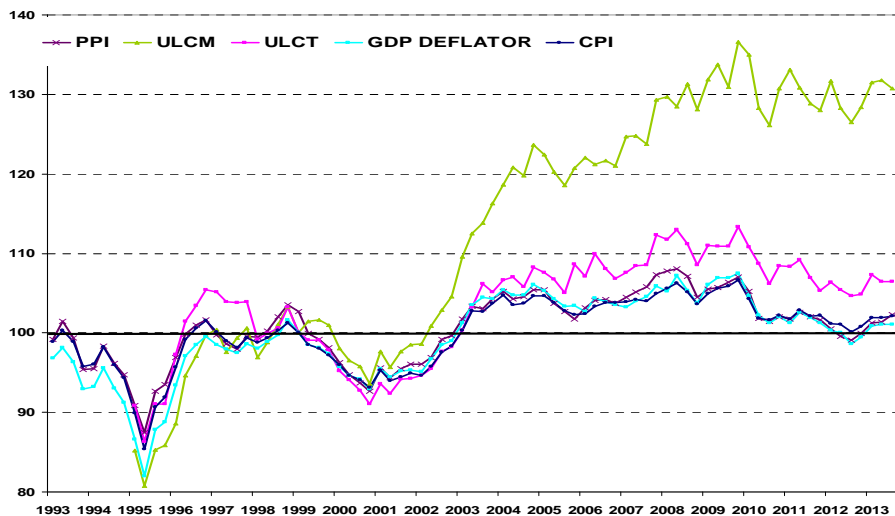
Germany



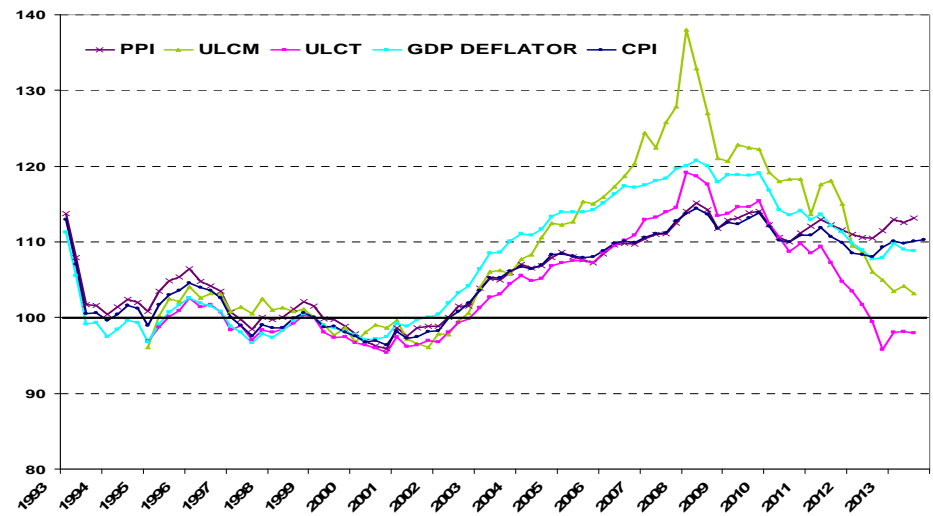
France



Italy

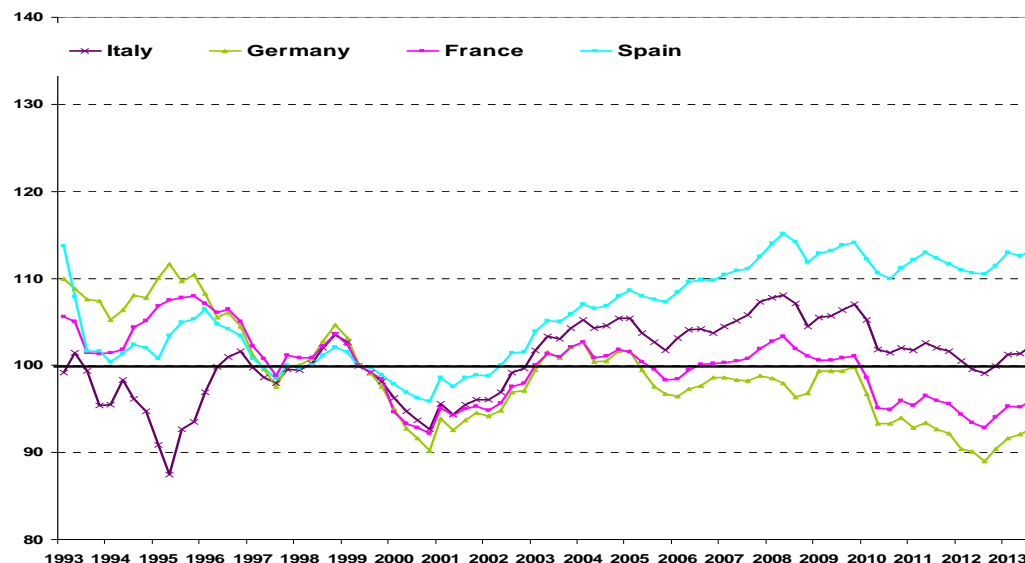


Spain

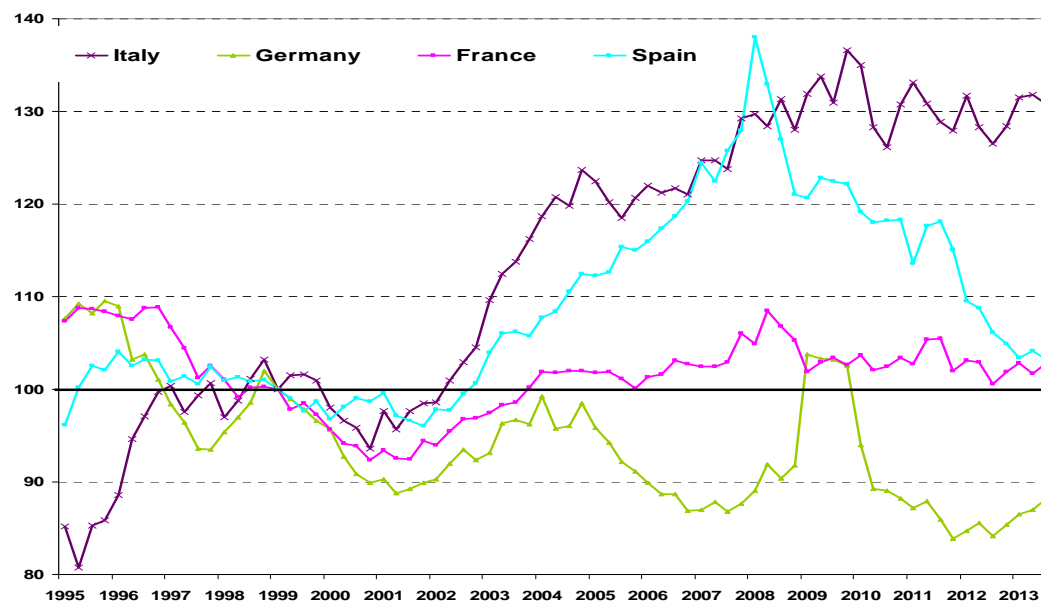


2. The indicators for the 4 largest economies in the euro area (b)

PPI-based REERs



ULCM-based REERs



Policy implications from alternative

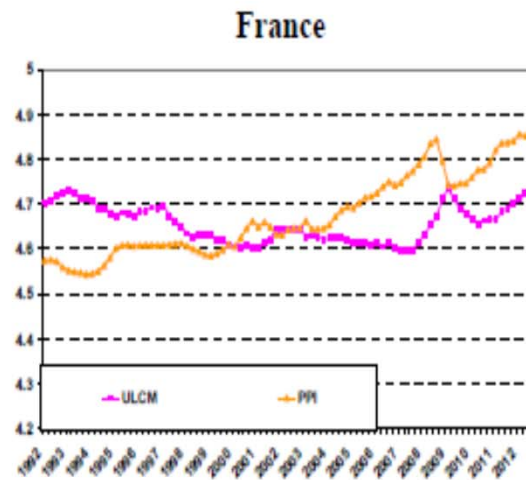
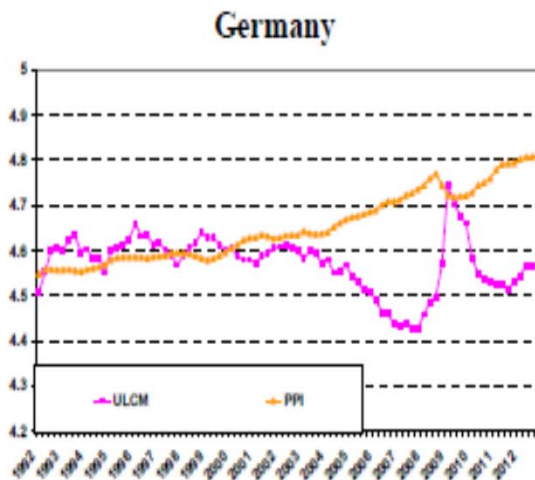
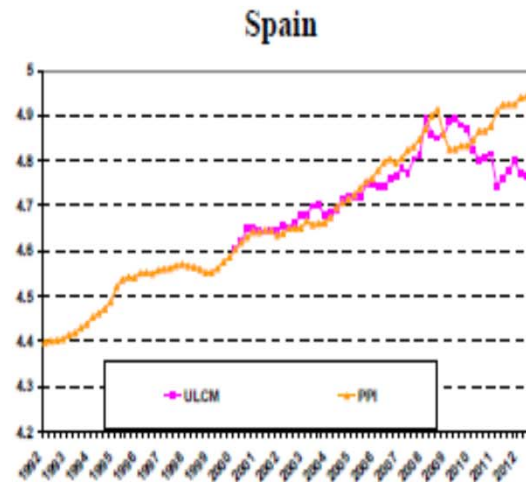
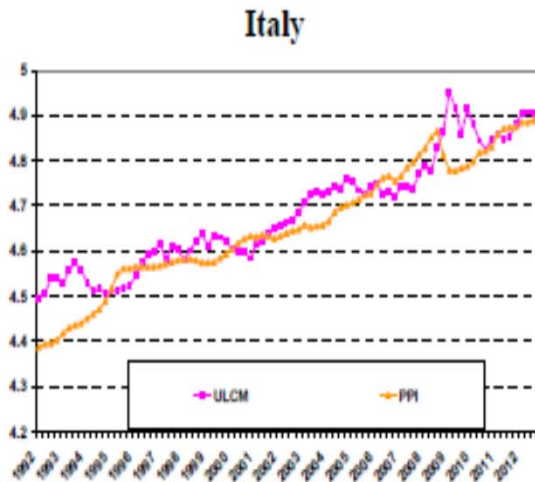
indicators may be largely different:

PPI-based REERs: over the 1999-2007 period Italy lost **5.7 pp** in competitiveness, which have been almost fully recovered since (similar losses and gains are recorded on the basis of the other price-based indicators); the gap wrt Germany currently stands at **9.5 p.p.**

ULCM-based REERs: since 1999 Italy has lost **30.1 p.p.** in competitiveness; the gap wrt Germany is currently of **41.3 p.p.**

If the conflicting behaviour of PPI- and ULCM-based indicators is due to diverging domestic labour costs and prices, it may signal an alarming build-up of cost pressures on Italian firms; the process for Italy could be unsustainable in the long run.

3. Focusing on Italy's puzzle: a) *within country trends*



A visual inspection of producer price and labour cost developments in the manufacturing sectors over the past two decades, however, suggests a **comovement in Italy and in Spain** (with the exception of the recent years for the latter), **but not in Germany and in France.**

3. Focusing on Italy's puzzle: a) *within country trends*

Table 1. Cointegrating regressions
(average quarterly data; natural logarithm of indices 2005Q1=100)

Dependent variable: PPI Sample: 1994Q1-2012Q3					
A. Italy				C. Spain**	
<i>FMOLS estimation</i>		Coefficient	P-value	<i>FMOLS estimation</i>	
ULCM		1.65	0.000	ULCM	Coefficient 1.08 P-value 0.000
<i>ADF test on residuals*</i>				<i>ADF test on residuals*</i>	
ADF test statistic		P-value	0.019	ADF test statistic	P-value 0.837
B. Germany				D. France	
<i>FMOLS estimation</i>		Coefficient	P-value	<i>FMOLS estimation</i>	
ULCM		0.64	0.248	ULCM	Coefficient -0.69 P-value 0.119
<i>ADF test on residuals*</i>				<i>ADF test on residuals*</i>	
ADF test statistic		P-value	0.682	ADF test statistic	P-value 0.118

* Null hypothesis: the residuals have a unit root.

** The sample period for Spain is 2000Q1-2012Q3 due to data availability.

A formal cointegration analysis confirms the lack of significant misalignment between unit labour costs and producer prices in Italy's manufacturing in the long-run, thus dismissing the haunt of non-viable restraints on profit margins due to excessive labour costs.

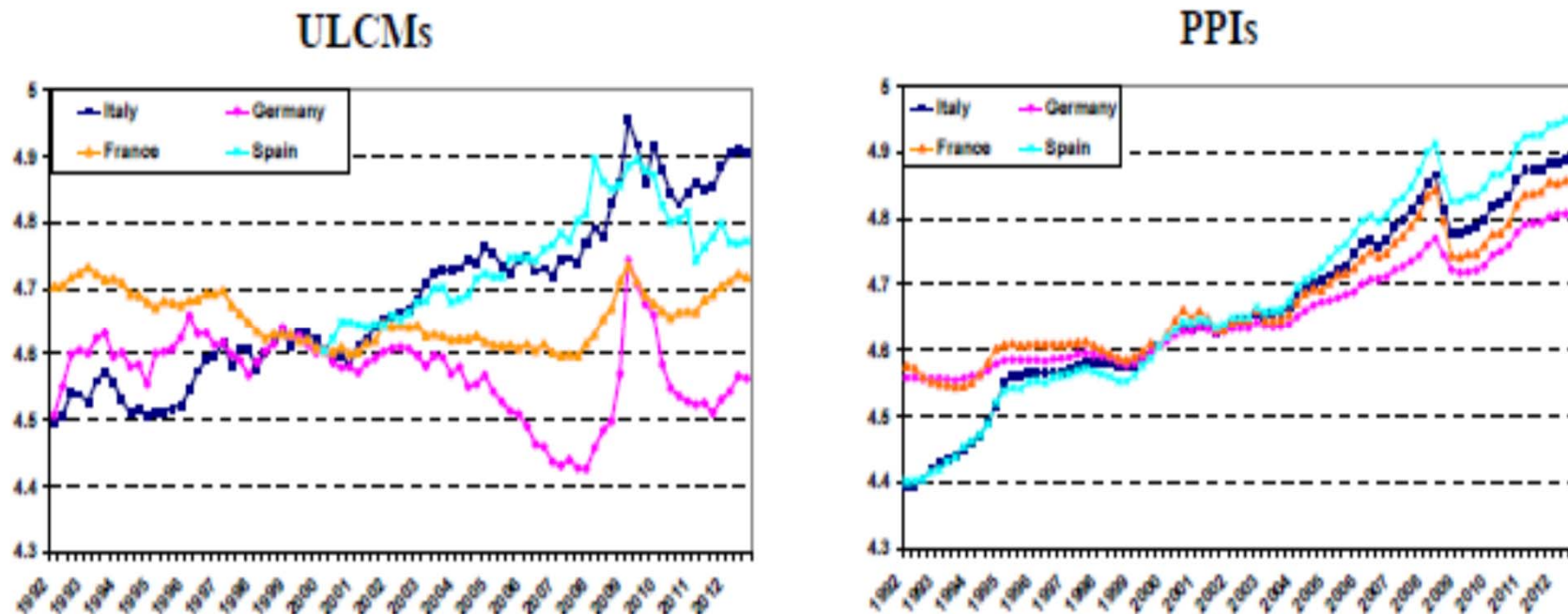
Conversely, a long-run comovement between the two series is rejected in **Germany and France.**

3. Searching for drivers: b) *between* countries

But if a sound long-run relationship between PPIs and ULCMs shows up only for Italy, whereas a long-run comovement is rejected for Germany and France...

...why is the divergence between ULCM- and PPI-based indicators larger in Italy?

The answer can be obtained by examining the **arithmetics of REERs**.



3. Searching for drivers: b) *between* countries

A simple **simulation** of the developments of artificial price-competitiveness indicators may shed light on actual trends.

Let us suppose there exist **three trading partners**: A, B and RoW, under the following assumptions:

- (i) Nominal exchange rates are fixed;
- (ii) *Weights*: B is a major trading partner of A, whereas the relevance of A for B is much smaller (as is the case of Italy and Germany, respectively);
- (iii) *Within-country trends*: Trends in PPIs and ULCMs are broadly similar in country A, whereas the dynamics of ULCMs are more contained than those of PPIs in countries B and RoW;
- (iv) *Between-country trends*: Trends in ULCMs are lower in countries B and RoW than in A; developments in PPIs are similar across the three countries (as seen in the previous slide).

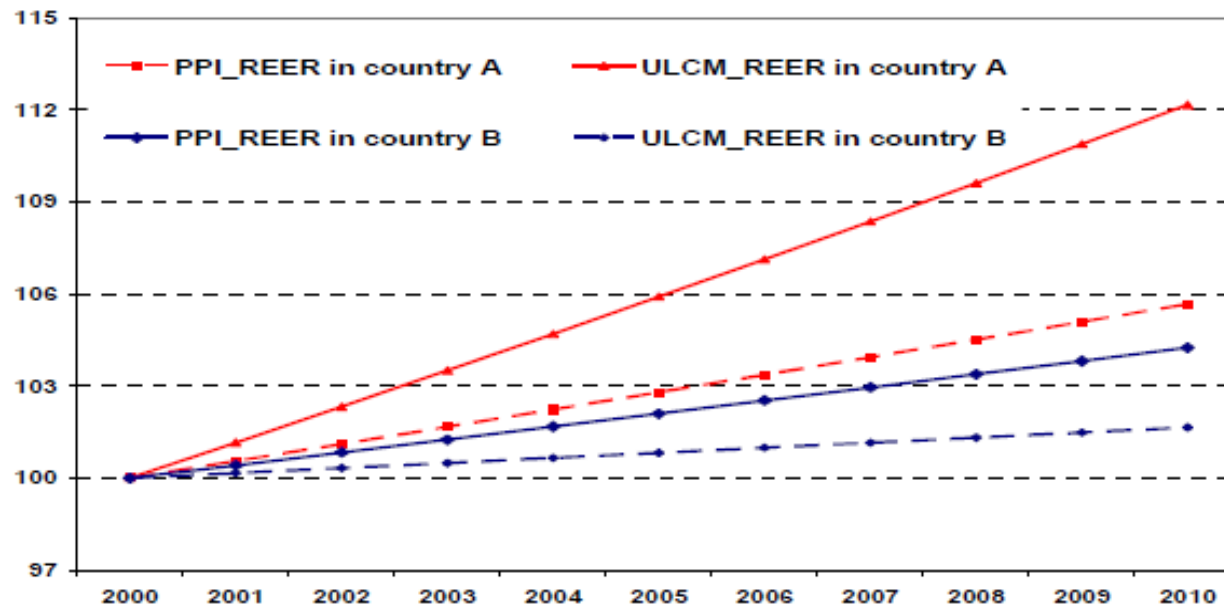
3. Searching for drivers: b) *between* countries

By rescaling the weights actually used by the BoI in its computation of PPI-based REERS, it turns out that:

- country A faces 2 partners (B and RoW) that benefit from lower ULCM relative to PPI growth;
- country B faces only 1 partner (RoW) with slower ULCMS than PPIs, as well as directly gaining from its domestically lower ULCM dynamics than PPIs.

It follows that the discrepancy in the PPI-based REERs of the two countries would be limited, and that the **ULCM-based REER would signal a larger loss of competitiveness in country A.**

Figure 4. PPI- and ULCM-based indicators in an artificial world
(average yearly data; indices 2000=100)



Assumed average growth rates:

PPI_A=2.1%; PPI_B=2.0%;
PPI_RoW=2.0%;

ULC_A=2.1%;
ULC_B=1.5%;
ULC_RoW=1.5%.

Weights for A: 18% B, 72%
RoW.

Weights for B: 7% A, 93%
RoW.

4. Explaining trade performance: do price-competitiveness indicators play a role?

- Results for the four largest euro-area countries (**Italy; Germany; France; Spain**).
- The standard formulation for the export and import equations is based on the partial equilibrium model of international trade presented in Goldstein and Khan (1985), where:

$$\Delta x_t = \beta_0 + \beta_{1i} \sum_{i=1}^4 \Delta x_{t-i} + \beta_{2i} \sum_{i=0}^4 \Delta reer_{t-i} + \beta_{3i} \sum_{i=0}^4 \Delta fd_{t-i} + \varepsilon_t$$
$$\Delta m_t = \delta_0 + \delta_{1i} \sum_{i=1}^4 \Delta m_{t-i} + \delta_{2i} \sum_{i=0}^4 \Delta x_{t-i} + \delta_{3i} \sum_{i=0}^4 \Delta reer_{t-i} + \delta_{4i} \sum_{i=0}^4 \Delta dd_{t-i} + \eta_t$$

- This reduced-form model has been estimated empirically in many policy papers, such as Allard et al. (2005), Bussière et al. (2013), Ca' Zorzi and Schnatz (2007), Di Mauro and Forster (2008), European Commission (2010) and Christodoulopoulou and Tkacevs (2014).

4. Empirical results: the data

- We use quarterly national account data (Istat, Eurostat) of the volume of **exports and imports of goods** (the latter net of energy products, only for Italy so far) over the period **1993Q1-2012Q4**.
- We alternately use our five **price-competitiveness indicators** of ECB and Bank of Italy sources.
- **Potential demand of goods** is computed as the weighted average of real imports of Italy's 75 trading partners, where the (rolling) weights represent Italy's export shares in the previous 3-year period (BI elaborations on IMF-WEO, Istat and CPB Netherlands); for Germany, France and Spain world demand is of ECB source.
- **Domestic demand** is taken from national accounts data (Istat, Eurostat).
- Since our data are I(1), **first (log) differences** are taken. Single-country regressions are run via OLS both separately and as systems of 2 equations (results very similar; the second set of results are here shown).

4. Empirical results: the baseline export equation

A. ITALY						
	Constant	Potential demand	REER	REER(-4)	N. observations	Adjusted R ²
1. PPI	-0.0055 (0.0109)	1.0255 (0.0000)	-0.5215 (0.0000)	-0.2491 (0.0197)	75	0.7204
2. CPI	-0.0054 (0.0102)	1.0169 (0.0000)	-0.5694 (0.0000)	-0.2775 (0.0113)	76	0.7284
3. GDPDEFL	-0.0049 (0.0172)	0.9972 (0.0000)	-0.5101 (0.0000)	-0.2430 (0.0172)	75	0.7320
4. ULCM	-0.0044 (0.0550)	1.0342 (0.0000)	-0.2384 (0.0087)	-0.1761 (0.0318)	68	0.7158
5. ULCT	-0.0062 (0.0045)	1.0202 (0.0000)	-0.3089 (0.0034)	-0.0706 (0.4182)	68	0.7081
B. GERMANY						
	Constant	Potential demand	REER	REER(-4)	N. observations	Adjusted R ²
1. PPI	-0.0003 (0.8890)	1.1320 (0.0000)	-0.2552 (0.0506)	-0.0775 (0.5286)	75	0.6656
2. CPI	-0.0010 (0.6502)	1.1675 (0.0000)	-0.3249 (0.0296)	-0.0315 (0.8319)	76	0.6710
3. GDPDEFL	-0.0010 (0.6750)	1.1574 (0.0000)	-0.2601 (0.0647)	-0.0315 (0.8197)	75	0.6632
4. ULCM	0.0014 (0.5341)	1.0417 (0.0000)	-0.3698 (0.0006)	-0.0203 (0.8223)	68	0.7388
5. ULCT	-0.0002 (0.9355)	1.1530 (0.0000)	-0.3169 (0.0176)	0.0804 (0.5196)	68	0.7174
C. FRANCE						
	Constant	Potential demand	REER	REER(-4)	N. observations	Adjusted R ²
1. PPI	-0.0031 (0.1253)	0.9894 (0.0000)	-0.1628 (0.2139)	-0.1530 (0.2279)	75	0.6411
2. CPI	-0.0029 (0.1468)	0.9913 (0.0000)	-0.2248 (0.1674)	-0.1410 (0.3581)	77	0.6369
3. GDPDEFL	-0.0031 (0.1319)	0.9810 (0.0000)	-0.2398 (0.1591)	-0.1841 (0.2455)	75	0.6434
4. ULCM	-0.0029 (0.1429)	0.9604 (0.0000)	-0.3530 (0.0098)	-0.0749 (0.5883)	68	0.6570
5. ULCT	-0.0028 (0.1591)	0.9451 (0.0000)	-0.4028 (0.0099)	-0.1570 (0.3087)	68	0.6592
D. SPAIN						
	Constant	Potential demand	REER	REER(-4)	N. observations	Adjusted R ²
1. PPI	-0.0003 (0.6631)	1.1585 (0.0000)	0.0434 (0.8760)	-0.0707 (0.8119)	67	0.4129
2. CPI	-0.0008 (0.8261)	1.1768 (0.0000)	-0.0273 (0.9288)	-0.2893 (0.3796)	69	0.4147
3. GDPDEFL	0.0012 (0.7520)	1.1078 (0.0000)	0.1244 (0.6512)	-0.1120 (0.6771)	71	0.3589
4. ULCM	0.0013 (0.7479)	1.1034 (0.0000)	0.1580 (0.3340)	-0.0422 (0.7939)	69	0.3762
5. ULCT	0.0005 (0.8898)	1.1569 (0.0000)	-0.1417 (0.5453)	-0.0591 (0.8145)	69	0.3716

In the export equations of all countries except Spain, the three drivers are significant (satisfactory R-squared) and show the signs predicted by the theory.

Potential demand affects exports positively, with coefficients not significantly different from unity (stable export market shares).

Each **contemporaneous price-competitiveness indicator** enters the export equations, significantly and negatively (with the exception of Spain and France, partially), but with a varying coefficient. **Lagged price-competitiveness measures** are significant only in the Italian case.

Noticeably, in **Italy** the magnitude of the coefficients of the cost-based measures is significantly smaller (according to Wald tests) than that of the price-based ones. *Pair-wise encompassing tests* “step out” the ULCM- and ULCT-based measures.

In **Germany** the difference proves not significant, but price-based indicators are “stepped out”. In **France** solely cost-based measures are significant. In **Spain** exports are insensitive to price competitiveness, however measured (*Spanish paradox*).¹⁴

4. Empirical results: the baseline import equation

A. ITALY						
	Constant	Exports	REER(-4)	Domestic demand	N. observations	Adjusted R ²
1. PPI	0.0012 (0.4397)	0.4679 (0.0000)	0.3897 (0.0222)	1.9897 (0.0000)	74	0.767552
2. CPI	0.0012 (0.4154)	0.4564 (0.0001)	0.4210 (0.0093)	1.9737 (0.0000)	74	0.771421
3. GDPDEFL	0.0011 (0.4449)	0.4621 (0.0000)	0.3757 (0.0141)	1.9560 (0.0000)	75	0.770149
4. ULCM	0.0004 (0.7961)	0.3949 (0.0000)	0.2743 (0.0095)	2.0784 (0.0000)	66	0.798493
5. ULCT	0.0017 (0.3156)	0.4065 (0.0000)	0.2159 (0.0949)	2.0653 (0.0000)	66	0.790155
B. GERMANY						
	Constant	Exports	REER	Domestic demand	N. observations	Adjusted R ²
1. PPI	0.0037 (0.0584)	0.4421 (0.0000)	-0.1750 (0.1389)	1.4774 (0.0000)	79	0.6337
2. CPI	0.0031 (0.1168)	0.4650 (0.0000)	-0.1996 (0.1491)	1.4925 (0.0000)	80	0.6366
3. GDPDEFL	0.0033 (0.0890)	0.4500 (0.0000)	-0.1937 (0.1350)	1.4829 (0.0000)	79	0.6340
4. ULCM	0.0033 (0.1332)	0.4827 (0.0000)	-0.0154 (0.8971)	1.5090 (0.0000)	72	0.6196
5. ULCT	0.0033 (0.1255)	0.4991 (0.0000)	0.0452 (0.7428)	1.5280 (0.0000)	72	0.6201
C. FRANCE						
	Constant	Exports	REER(-2)	Domestic demand	N. observations	Adjusted R ²
1. PPI	-0.0024 (0.0998)	0.4489 (0.0000)	0.0021 (0.9840)	2.2956 (0.0000)	77	0.8825
2. CPI	-0.0024 (0.0265)	0.4500 (0.0000)	0.0318 (0.7958)	2.3004 (0.0000)	77	0.8826
3. GDPDEFL	-0.0024 (0.0264)	0.4493 (0.0000)	0.0107 (0.9349)	2.2972 (0.0000)	77	0.8825
4. ULCM	-0.0026 (0.0358)	0.4483 (0.0000)	0.2993 (0.0436)	2.3822 (0.0000)	69	0.8928
5. ULCT	-0.0022 (0.1241)	0.4390 (0.0000)	0.0303 (0.8371)	2.2738 (0.0000)	69	0.8832
D. SPAIN						
	Constant	Exports	REER	Domestic demand	N. observations	Adjusted R ²
1. PPI	-0.0092 (0.0001)	0.7273 (0.0000)	-0.0651 (0.7181)	2.0721 (0.0000)	71	0.8393
2. CPI	-0.0087 (0.0001)	0.7439 (0.0000)	-0.0467 (0.8177)	2.0263 (0.0000)	73	0.8396
3. GDPDEFL	-0.0093 (0.0000)	0.7278 (0.0000)	-0.0359 (0.8391)	2.0768 (0.0000)	71	0.8391
4. ULCM	-0.0090 (0.0001)	0.7539 (0.0000)	-0.0884 (0.3485)	2.0529 (0.0000)	73	0.8415
5. ULCT	-0.0089 (0.0001)	0.7425 (0.0000)	-0.0925 (0.5188)	2.0604 (0.0000)	73	0.8405

Given the high import content of exports, **import growth** reacts positively to contemporaneous export growth in all four countries (elasticity of 0.4-0.5%; 0.7% for Spain) .

Domestic demand also plays a key role in activating imports, particularly in Italy, France and Spain (where elasticities are greater than 2%, relative to 1.5% circa in Germany).

Italian imports react positively (expected sign) to **lagged competitiveness indicators** (again, elasticities are higher for price-based measures), while contemporaneous effects do not prove significant.

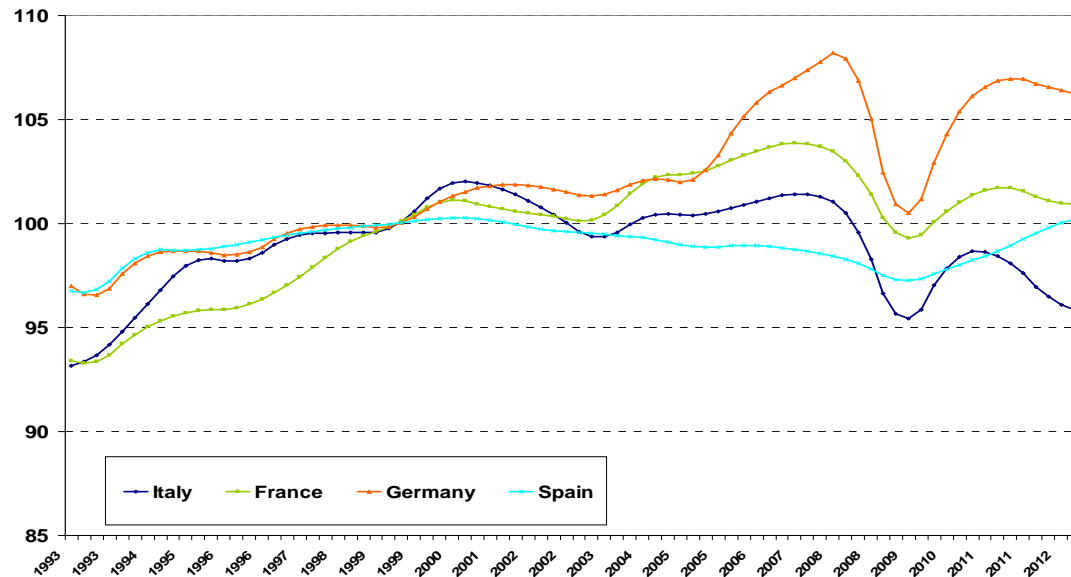
In Germany, France and Spain imports are **insensitive to both contemporaneous and lagged REERs** (only one lagged ULCM-based measure is positively correlated to imports for France).

4. Sensitivity analysis

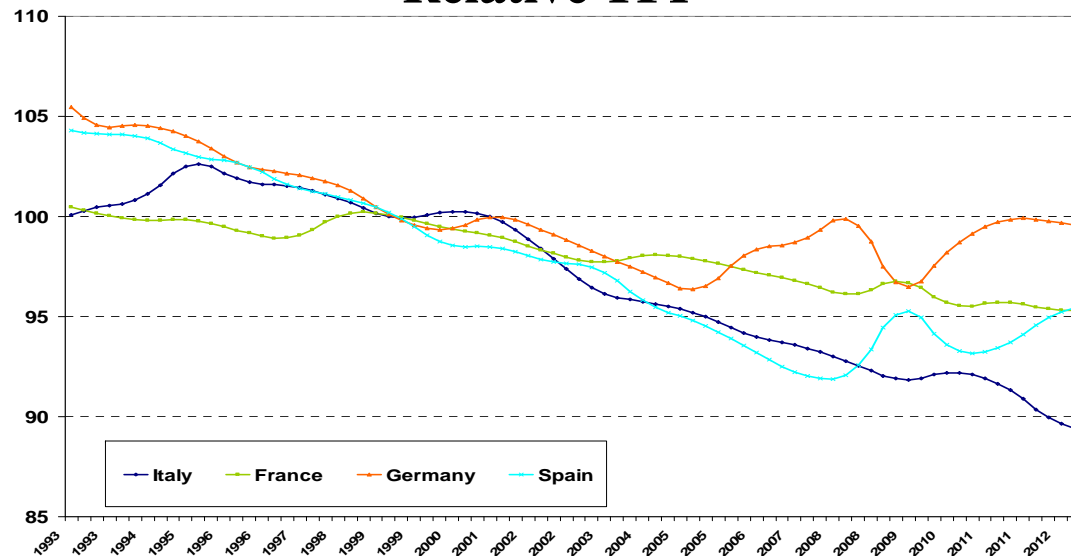
- Findings are very similar when considering **total trade volumes**, whereas for **service flows** the fit of the models considered is unsatisfactory (adjusted $R^2=0.2-0.3$) and therefore a more appropriate specification is required.
- To tackle a **potential endogeneity issue**, we replaced contemporaneous explanatory variables with their lagged values: our findings hold, although the fit of the model suffers slightly.
- An **EMU dummy** taking value 1 as of 1999Q1 (as in Bayoumi et al. 2011) is not significant, nor are its interactions with the explanatory variables.
- A **crisis dummy** taking value 1 as of 2007Q3 is not significant, nor are its interactions with the explanatory variables.
- Limiting the analysis to the **1995Q1-2012Q4** period to net out possible distortions of the 1992 devaluation does not change our results.
- Linear **trends** do not enter significantly in the equations.
- In the export equation the inclusion of the **volume of imports of intermediate goods**, as in European Commission (2010), which we constructed employing Istat and Eurostat monthly trade data, does not affect our baseline results since the variable is found to be non-significant across the board.
- **Capacity utilization rate** in the import equation is significant only in the case of France, as in Allard et al (2005).

5. Readdressing the export equation: relative TFP

Absolute TFP



Relative TFP



We constructed a **quarterly (absolute and) relative TFP measure**, which to some extent captures the non-price competitiveness dimension.

Absolute quarterly **data** are retrieved from annual data (European Commission) based on linear interpolation. Relative data are obtained by adopting the same methods and weighting schemes used for REER calculations.

Whereas absolute TFP in **Italy** peaked in the early 2000s and then recorded a recovery in the years prior to the crisis, relative TFP has been declining since early 2000s.

5. Readdressing the export equation: relative TFP (b)

A. ITALY							
	Constant	Potential demand	REER	REER(-4)	Relative TFP(-4)	N. observations	Adjusted R ²
1. PPI	-0.0046 (0.0255)	1.0326 (0.0000)	-0.5309 (0.0000)	-0.2049 (0.0957)	1.0436 (0.1031)	75	0.7322
2. CPI	-0.0041 (0.0639)	1.0190 (0.0000)	-0.5715 (0.0000)	-0.2208 (0.0404)	1.0114 (0.0915)	76	0.7296
3. GDPDEFL	-0.0036 (0.0962)	0.9985 (0.0000)	-0.5167 (0.0000)	-0.1931 (0.0640)	1.0162 (0.0960)	75	0.7330
4. ULCM	-0.0022 (0.4642)	1.0350 (0.0000)	-0.2264 (0.0100)	-0.1515 (0.0413)	1.2897 (0.1938)	68	0.7172
5. ULCT	-0.0035 (0.2280)	1.0239 (0.0000)	-0.2887 (0.0071)	-0.0449 (0.6780)	1.4868 (0.0857)	68	0.7138
B. GERMANY							
	Constant	Potential demand	REER	REER(-4)	Relative TFP	N. observations	Adjusted R ²
1. PPI	0.0022 (0.3605)	1.0162 (0.0000)	-0.2419 (0.0049)	-0.0275 (0.8193)	1.3535 (0.0126)	75	0.6809
2. CPI	0.0018 (0.4779)	1.0425 (0.0000)	-0.3023 (0.0020)	0.0097 (0.9478)	1.4051 (0.0110)	76	0.6842
3. GDPDEFL	0.0017 (0.4786)	1.0395 (0.0000)	-0.2396 (0.0173)	0.0275 (0.8320)	1.3806 (0.0109)	75	0.6792
4. ULCM	0.0032 (0.1014)	0.9600 (0.0000)	-0.3401 (0.0002)	0.0071 (0.9370)	1.0007 (0.0533)	68	0.7430
5. ULCT	0.0023 (0.3403)	1.0416 (0.0000)	-0.2895 (0.0019)	0.1150 (0.3834)	1.2168 (0.0336)	68	0.7267
C. FRANCE							
	Constant	Potential demand	REER	REER(-4)	Relative TFP	N. observations	Adjusted R ²
1. PPI	-0.0029 (0.0736)	1.0087 (0.0000)	-0.1723 (0.1064)	-0.1419 (0.2210)	0.7453 (0.4575)	75	0.6379
2. CPI	-0.0036 (0.0424)	1.0026 (0.0000)	-0.2551 (0.0824)	-0.1225 (0.3728)	-0.8031 (0.3752)	77	0.6340
3. GDPDEFL	-0.0028 (0.0810)	1.0001 (0.0000)	-0.1723 (0.1064)	-0.1419 (0.2210)	0.7429 (0.4441)	75	0.6402
4. ULCM	-0.0034 (0.0703)	0.9707 (0.0000)	-0.3647 (0.0035)	-0.0799 (0.57524)	-0.5665 (0.5230)	68	0.6529
5. ULCT	-0.0027 (0.1305)	0.9574 (0.0000)	-0.4064 (0.0016)	-0.1517 (0.3113)	0.3775 (0.6704)	68	0.6521
D. SPAIN							
	Constant	Potential demand	REER	REER(-4)	Relative TFP(-1)	N. observations	Adjusted R ²
1. PPI	0.0002 (0.9607)	1.4820 (0.0000)	0.1452 (0.7064)	0.0325 (0.9068)	2.9865 (0.064)	67	0.3975
2. CPI	-0.0008 (0.8354)	1.5108 (0.0000)	0.0442 (0.9068)	0.2297 (0.3693)	2.9680 (0.0599)	69	0.3979
3. GDPDEFL	-0.0001 (0.9793)	1.5071 (0.0000)	0.2509 (0.4829)	0.0234 (0.9206)	3.1645 (0.0587)	71	0.4035
4. ULCM	-0.0002 (0.6466)	1.6373 (0.0000)	0.1697 (0.3132)	0.1806 (0.2000)	3.8050 (0.0318)	69	0.4456
5. ULCT	-0.0002 (0.6637)	1.5842 (0.0000)	-0.0830 (0.8027)	0.2309 (0.3611)	3.2358 (0.0748)	69	0.4282

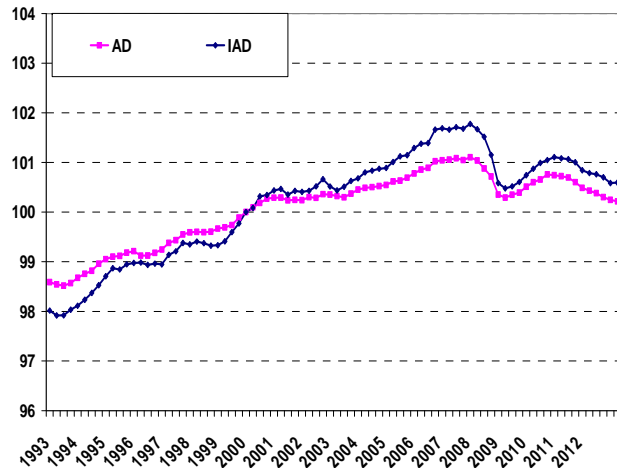
Relative TFP is significant in all countries, improving the fit of the models; France is the only exception.

Elasticities vary from 1% for Italy to 1.4% for Germany to over 3% for Spain.

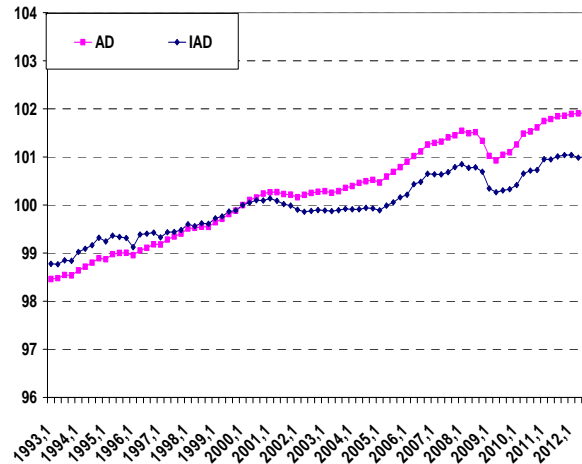
All previous findings are confirmed.

5. Readdressing the import equation: adjusted domestic demand

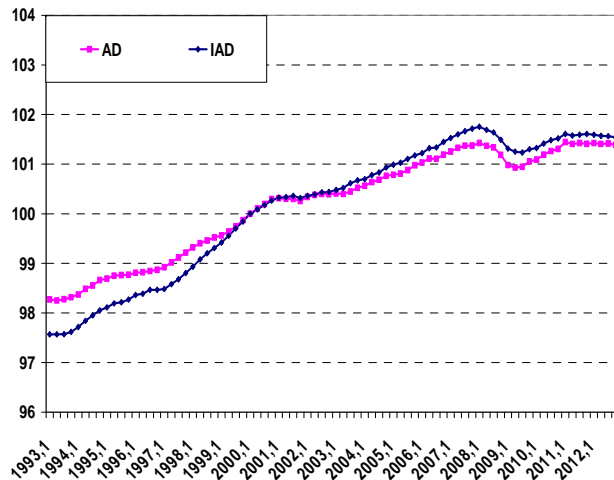
Italy



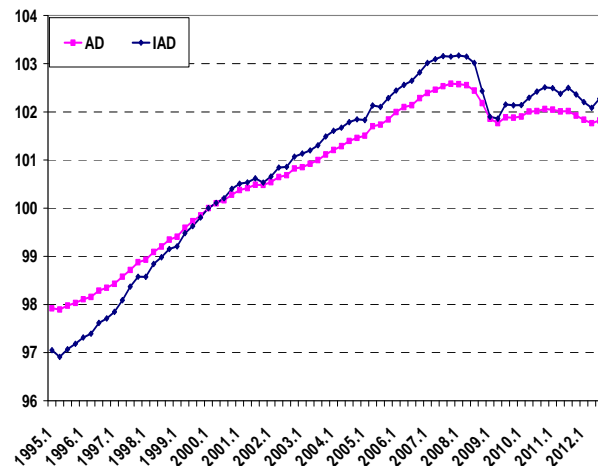
Germany



France



Spain



We construct a measure of **import-intensity adjusted demand (IAD)**:

$$IAD_t = C_t^{\omega_C,t} G_t^{\omega_G,t} I_t^{\omega_I,t} X_t^{\omega_X,t}$$

i.e. a weighted average of total investment (I), exports (X), private consumption (C) and government expenditure (G), where the weights are the import contents of the final demand components.

Demand component data are taken from Istat and Eurostat; the import contents are computed on the basis of the OECD Input-Output Database, as in Bussière et al. (2013). Since I-O tables are available only every five years, we linearly interpolated the weights to obtain quarterly series. For the period after 2005, we assumed the same weights as in 2005.

5. Readdressing the import equation: adjusted domestic demand (b)

A. ITALY						
	Constant	Import-Adjusted Exports	REER(-4)	Import-Adjusted Domestic demand	N. observations	Adjusted R ²
1. PPI	0.0013 (0.6473)	1.6018 (0.0000)	0.5972 (0.0051)	1.3376 (0.0002)	75	0.5299
2. CPI	0.0017 (0.5549)	1.5333 (0.0000)	0.6480 (0.0023)	1.3584 (0.0002)	74	0.5399
3. GDPDEFL	0.0015 (0.6039)	1.5448 (0.0000)	0.5883 (0.0023)	1.3398 (0.0002)	75	0.5399
4. ULCM	0.0029 (0.9981)	1.4750 (0.0000)	0.4070 (0.0220)	1.3033 (0.0006)	66	0.5363
5. ULCT	0.0021 (0.6181)	1.5106 (0.0000)	0.3840 (0.0440)	1.2801 (0.0009)	66	0.5276
B. GERMANY						
	Constant	Import-Adjusted Exports	REER(-4)	Import-Adjusted Domestic demand	N. observations	Adjusted R ²
1. PPI	0.0092 (0.0016)	1.6436 (0.0000)	0.0858 (0.7194)	1.0888 (0.0000)	73	0.2838
2. CPI	0.0089 (0.0022)	1.6260 (0.0001)	-0.0630 (0.8290)	1.0886 (0.0000)	73	0.2829
3. GDPDEFL	0.0091 (0.0024)	1.6338 (0.0001)	0.0194 (0.9398)	1.0917 (0.0000)	73	0.2825
4. ULCM	0.0046 (0.1611)	3.6554 (0.0000)	0.0149 (0.9368)	0.8636 (0.0060)	68	0.2825
5. ULCT	0.0045 (0.1995)	3.6642 (0.0000)	-0.0011 (0.9965)	0.8614 (0.0062)	68	0.4069
C. FRANCE						
	Constant	Import-Adjusted Exports	REER(-2)	Import-Adjusted Domestic demand	N. observations	Adjusted R ²
1. PPI	-0.0015 (0.4954)	2.2509 (0.0000)	0.0745 (0.6869)	2.3701 (0.0000)	68	0.5883
2. CPI	-0.0017 (0.4153)	2.2260 (0.0000)	-0.2817 (0.2168)	2.3217 (0.0000)	68	0.6010
3. GDPDEFL	-0.0016 (0.4766)	2.2515 (0.0000)	0.0743 (0.7630)	2.3618 (0.0000)	68	0.5826
4. ULCM	-0.0021 (0.3497)	2.3558 (0.0000)	0.3267 (0.1644)	2.2560 (0.0000)	65	0.6325
5. ULCT	-0.0017 (0.4333)	2.2812 (0.0000)	0.2232 (0.3538)	2.2044 (0.0000)	65	0.6260
D. SPAIN						
	Constant	Import-Adjusted Exports	REER(-4)	Import-Adjusted Domestic demand	N. observations	Adjusted R ²
1. PPI	-0.0055 (0.0090)	2.0396 (0.0000)	0.0368 (0.8278)	2.4698 (0.0000)	71	0.8581
2. CPI	-0.0055 (0.0086)	2.0390 (0.0000)	0.0619 (0.7400)	2.4685 (0.0000)	73	0.8582
3. GDPDEFL	-0.0055 (0.0089)	2.0388 (0.0000)	0.0376 (0.8152)	2.4630 (0.0000)	71	0.8581
4. ULCM	-0.0055 (0.0085)	2.0589 (0.0000)	-0.0412 (0.6398)	2.4740 (0.0000)	73	0.8585
5. ULCT	-0.0054 (0.0095)	2.0412 (0.0000)	0.0011 (0.9933)	2.4666 (0.0000)	73	0.8580

- The fit of the model improves (marginally) only in the case of Spain, whereas it deteriorates for the remaining countries.

- The role of export dynamics in explaining import growth increases substantially across countries relative to our baseline model.

- The role of (lagged) price-competitiveness indicators is confirmed to be significant only for Italy. In this case, price elasticities (0.4-0.6%) are higher than those reported in the baseline equation; price-based indicators continue to present higher coefficients than cost-based ones.

5. Conclusions

- Our **empirical findings** point to a different informative content of alternative price-competitiveness indicators across countries. Not only do results vary according to the **deflator** used, but also owing to the differences in countries' **patterns of trade** which underlie the (different) weights employed in their REER formulae.
- For **Italy** we find that **cost-based competitiveness indicators** play a smaller role relative to price-based ones in explaining Italy's export dynamics. For **France** and **Germany**, **price-based indicators** are more relevant; **Spanish exports** are instead insensitive to all price competitiveness indicator trends.
- **Non-price competitiveness**, as proxied by relative TFP, plays a significant role in explaining export performance, in particular for Italy and, even more so, for Spain.
- **Price competitiveness** plays a role in explaining **import dynamics** only in Italy; price-based indicators present higher elasticities than cost-based measures.
- **Adjusting demand components for import-intensity** improves the fit of the import equations only for Spain: effect of strong assumptions underlying the data reconstruction?

5. Conclusions (2)

- In a context of increasing internationalisation of production, possibly to a variable extent across countries, **ULCM-based indicators risk conveying a biased assessment of price competitiveness**
- In the specific case of Italy, **labour costs** weigh on price competitiveness less dramatically than shown by ULCM-based REERs.
- Conversely, we confirm that **structural reforms aimed at boosting overall productive efficiency** (e.g. by speeding up the sluggish restructuring of production processes by Italian firms, including their pattern of participation in increasingly pervasive global value chains) could play a key role in improving both price and non-price competitiveness and therefore its export performance.



Thank you for your attention

1. Price-competitiveness indicators (1)

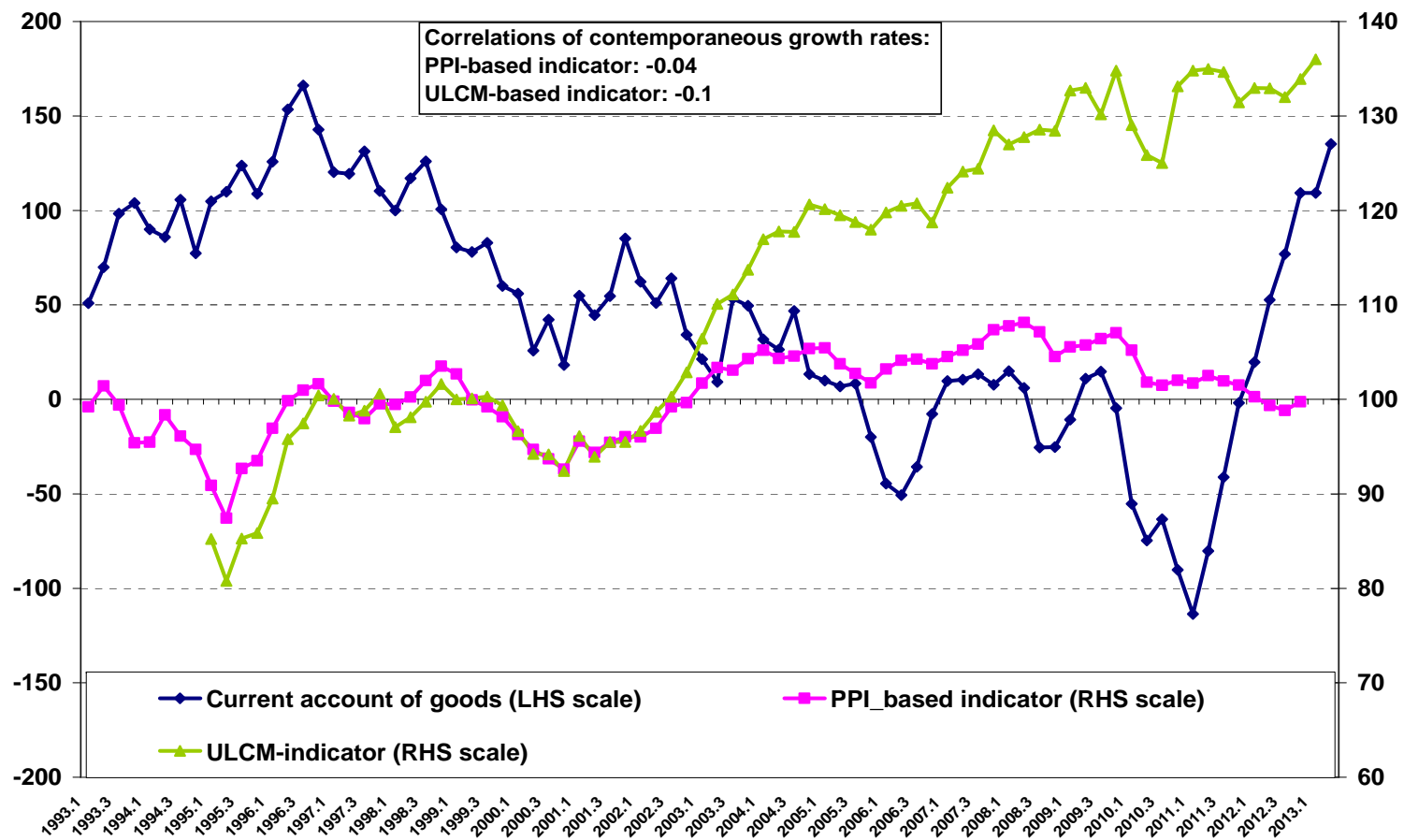
- The price competitiveness of a country is approximated by the **real effective exchange rate (REER)** of its currency, i.e. a weighted (geometric) average of nominal exchange rates of a country's main trading partners, deflated by relative deflators.

$$REER = \prod_{i=1}^n \left(\frac{P}{P_i^*} e_i \right)^{w_i}$$

- Pinning down the weighting scheme and the deflators is crucial in order to extract reliable signals of a country's price competitiveness from REERs:
 - As for the **weighting scheme**, a country's pattern of trade, related also to its number of trading partners, is the most relevant variable.
 - As for the **deflators**, they may be either price- or cost-based.

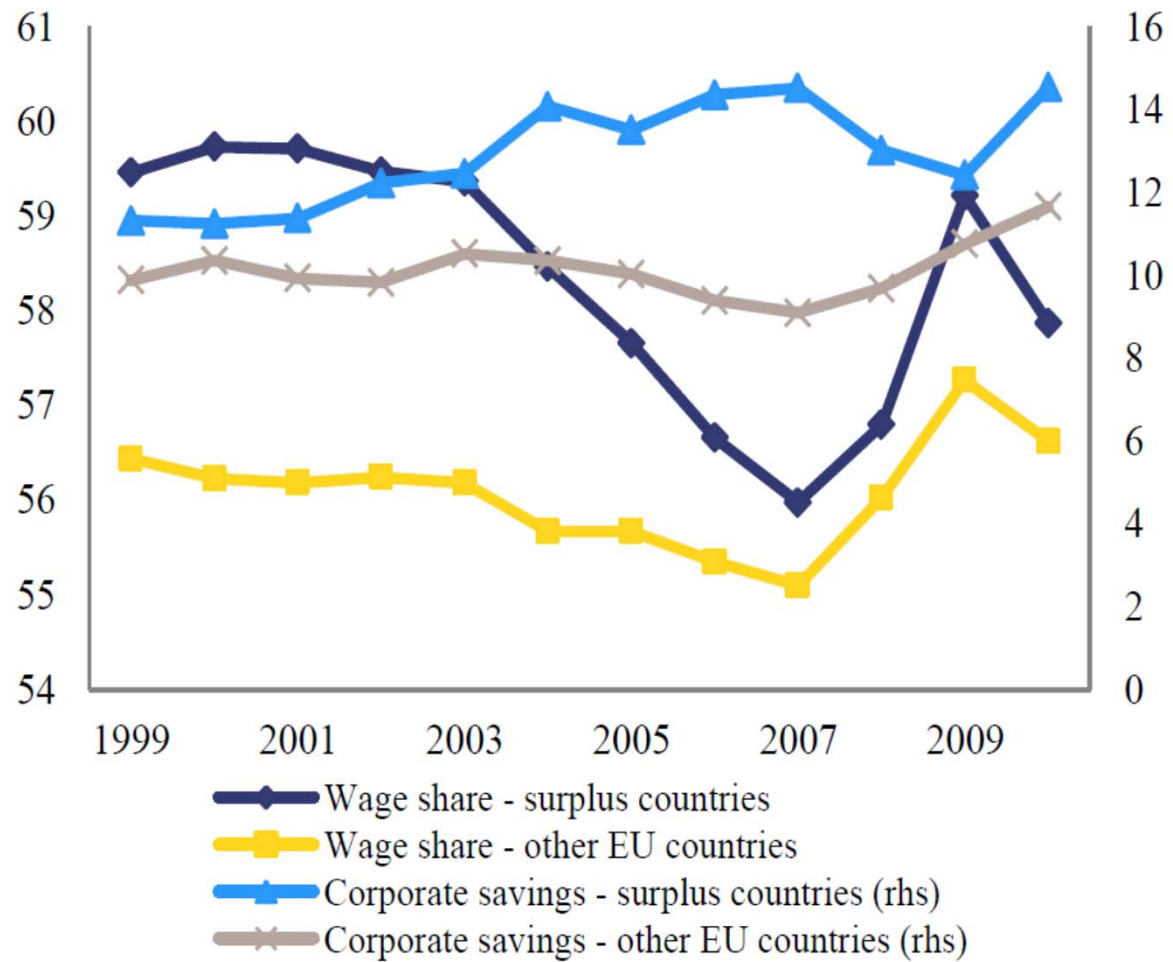
Current account and price-competitiveness indicators in Italy

(indices 1999Q1=100)



Wages shares

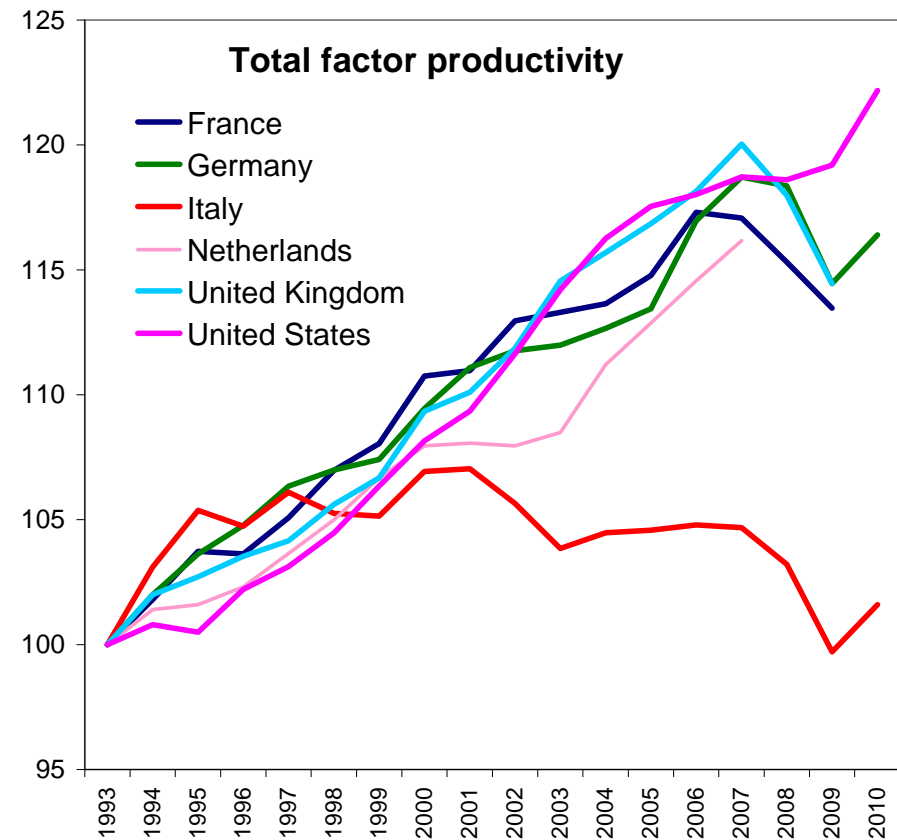
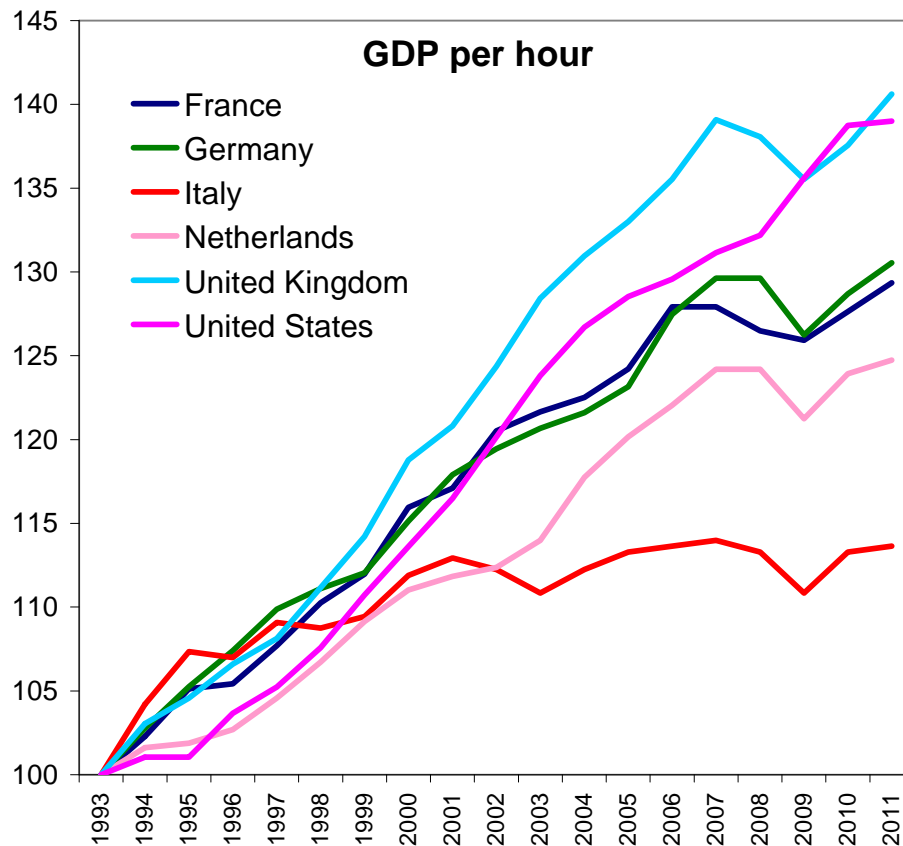
Graph 4.15: Wage shares and corporate savings ratio over GDP



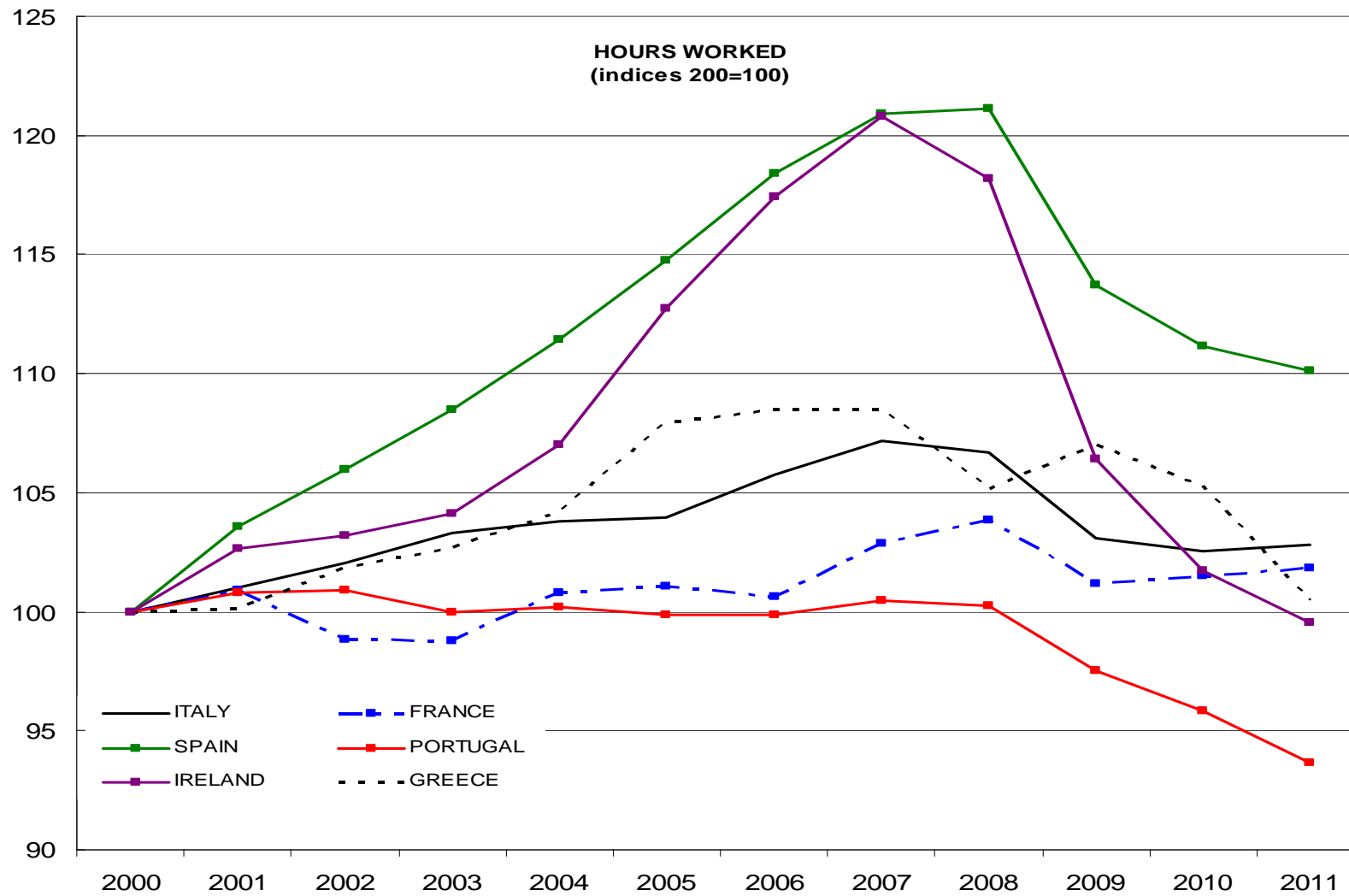
Source: European Commission (2012)

Productivity growth rates

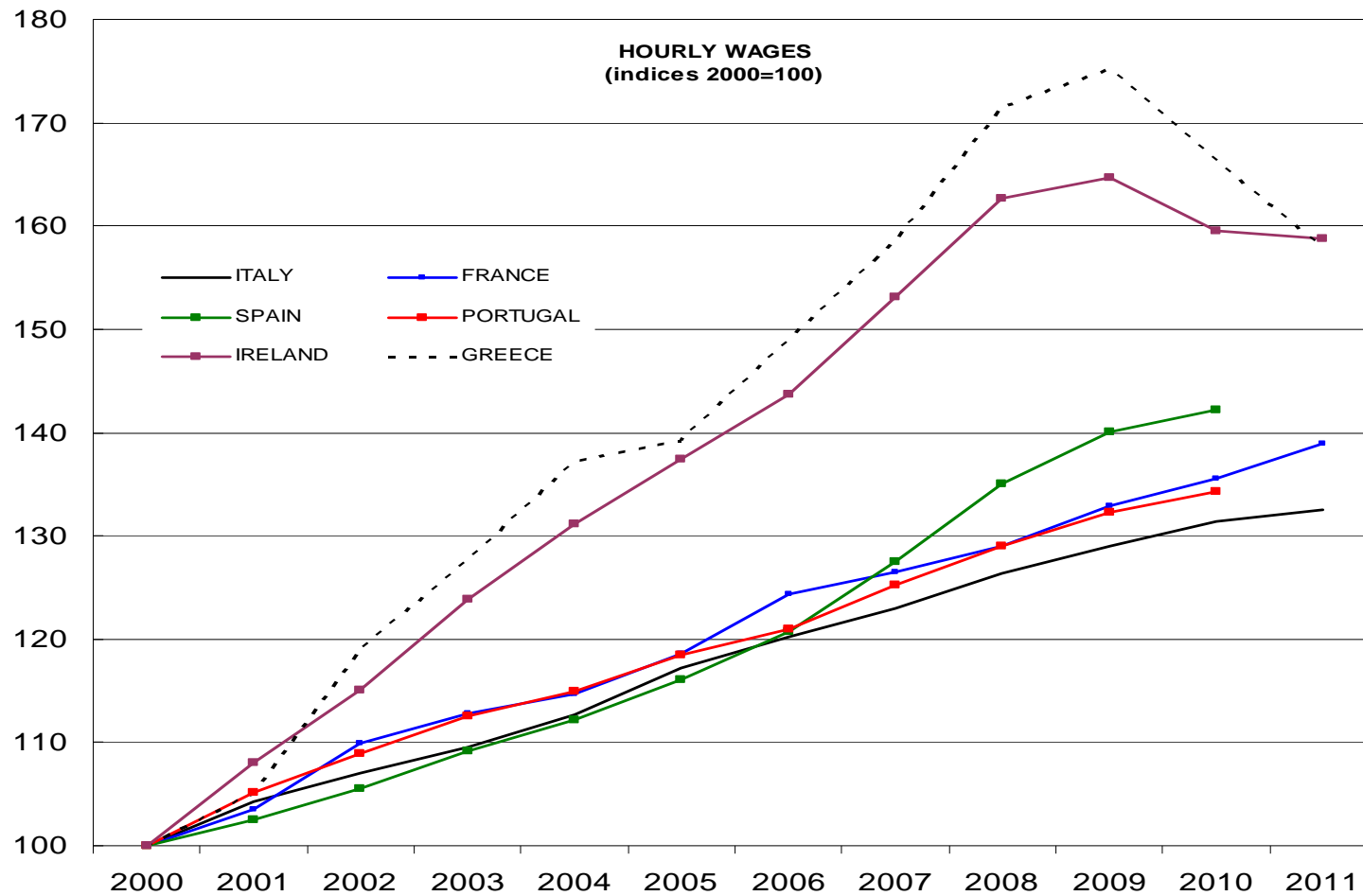
GDP per hour and Total Factor Productivity (selected countries)



Hours worked



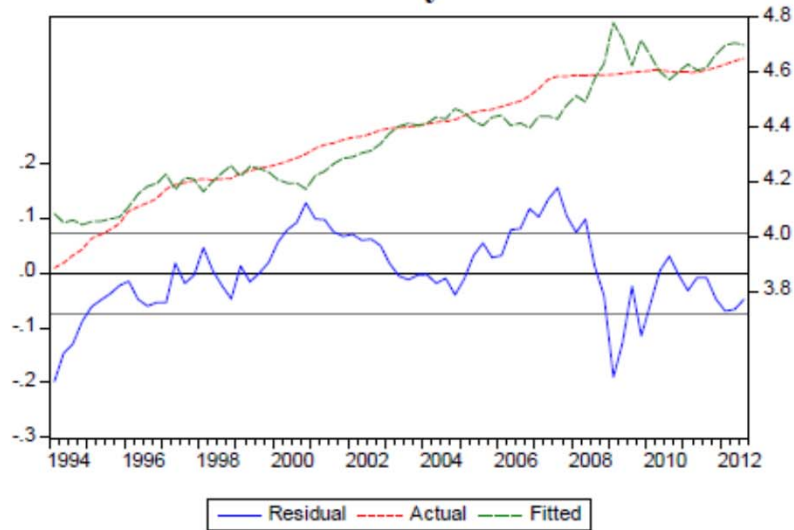
Hourly wages



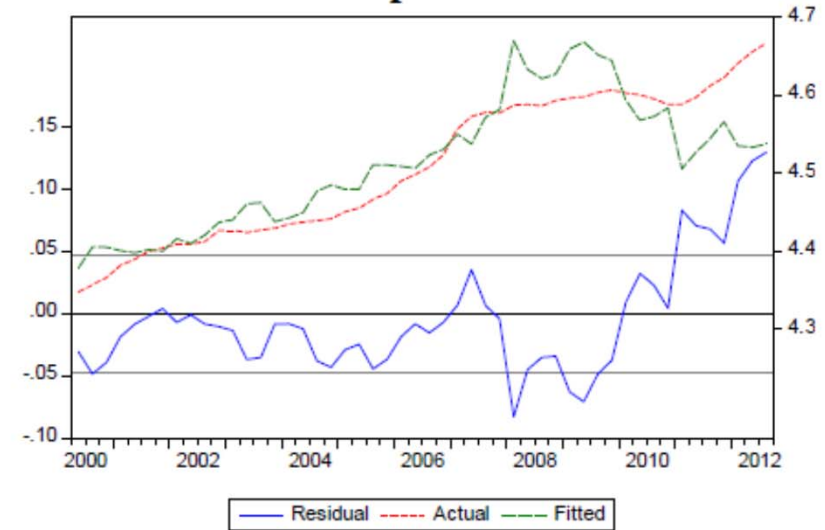
3. Solving Italy's puzzle: a) *within* countries

FMOLS regression of producer prices on unit labour costs;

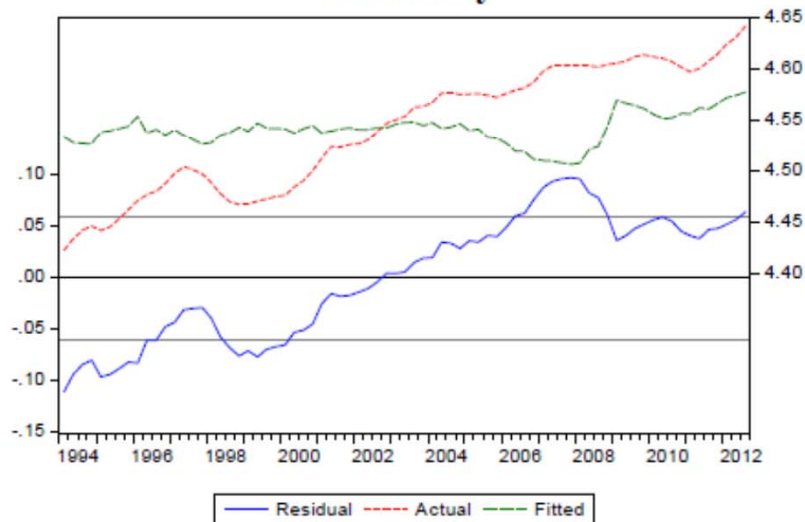
Italy



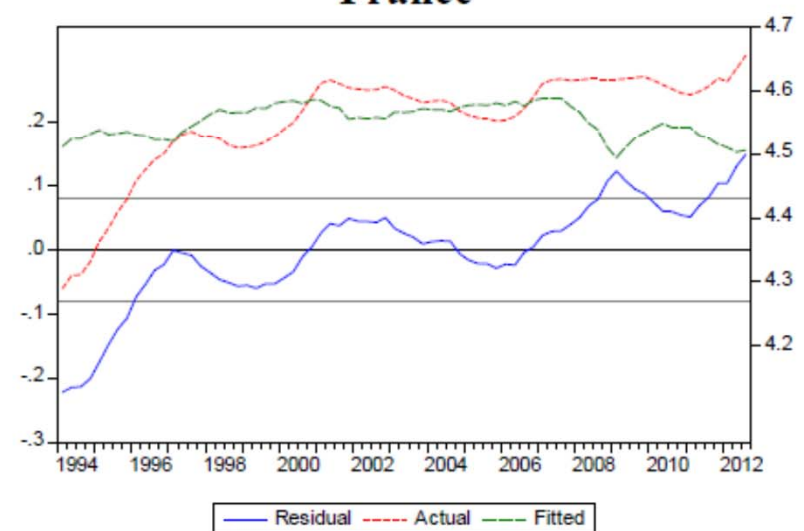
Spain



Germany



France



[back](#)

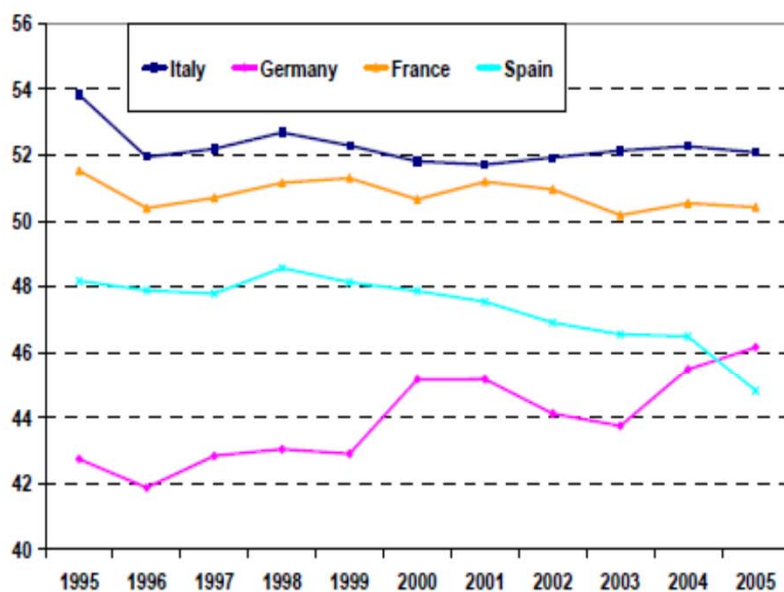
The effects of structural changes

Explaining the diverging producer price-labour cost developments in Italy's main trading partners goes beyond the scope of this presentation.

Yet **less pronounced offshoring in Italian manufacturing**, and therefore less sizeable changes in the shares of wages and intermediate inputs on gross output relative to other advanced economies, could be a possible explanation of the broad stability of the long-run price-cost relationship in Italy.

Figure 5. Structural changes in the manufacturing sector
(current prices)

Shares of material intermediate inputs in gross output



Wage shares (labour compensation on gross output)

