

Experimental effective exchange rates based on trade in services

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Outline

- **Introduction**
- **Methodology and data**
- **Trade weights calculations and patterns**
- **Competitiveness developments**
- **Conclusion**

Effective exchange rates

- The **nominal effective exchange rate (NEER)** is calculated as the geometric weighted average of the trading partners' bilateral nominal exchange rates:

$$NEER^t = \prod_{i=1}^N \left(e_{i,euro}^t \right)^{w_i}$$

- For the **real effective exchange rate (REER)** the bilateral nominal exchange rates are deflated using relative price or cost measures:

$$REER^t = \prod_{i=1}^N \left(\frac{d_{euro}^t e_{i,euro}^t}{d_i^t} \right)^{w_i}$$

Introduction

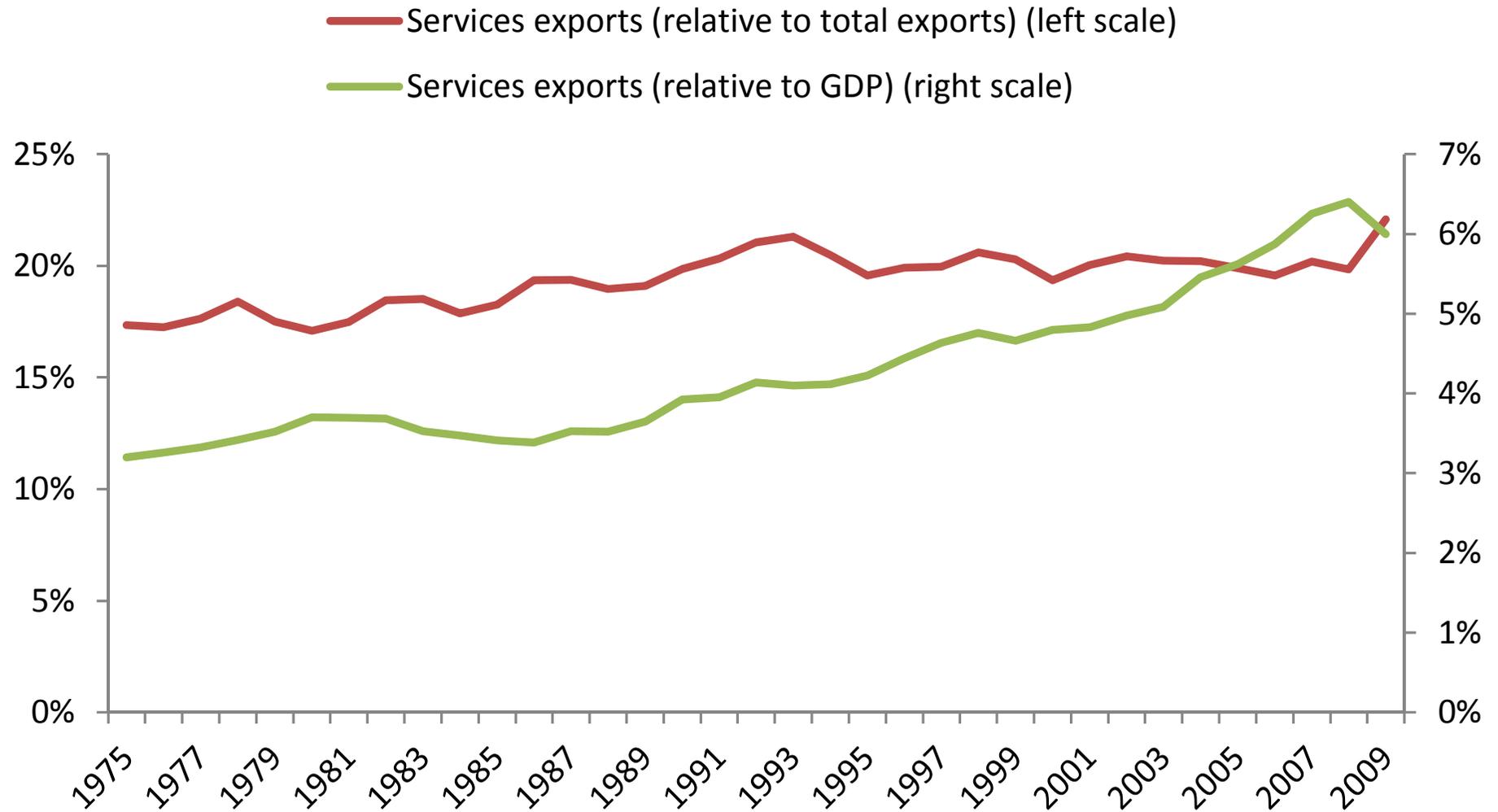
Real EERs:

- **Highly relevant as a measure of competitiveness (scoreboard of the **EU Macroeconomic Imbalance Procedure**)**
- **Comprehensive assessment of international cost and price pressures on domestic firms over the medium term**
- **No firm-level data nor factors relating to non-price competitiveness (such as product quality and reputation) considered**

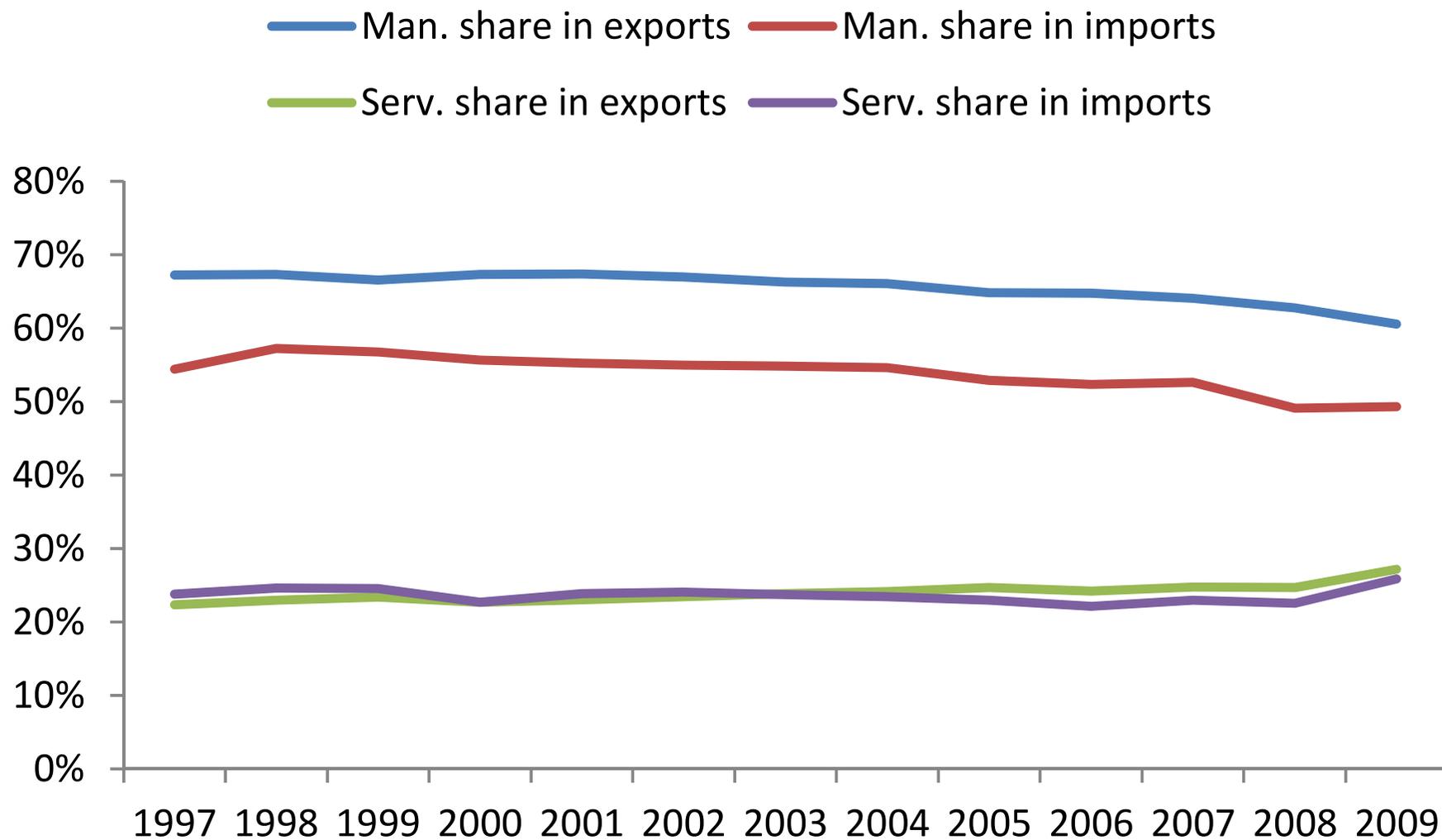
Introduction

- **ECB constructs effective exchange rates (EERs) for the euro area and Harmonised competitiveness indicators (HCIs) for individual Member States**
- **Trade weights based on bilateral manufacturing trade data (hence excluding agricultural, raw material, energy products and services)**
- **But: conceptually important to include trade in services**

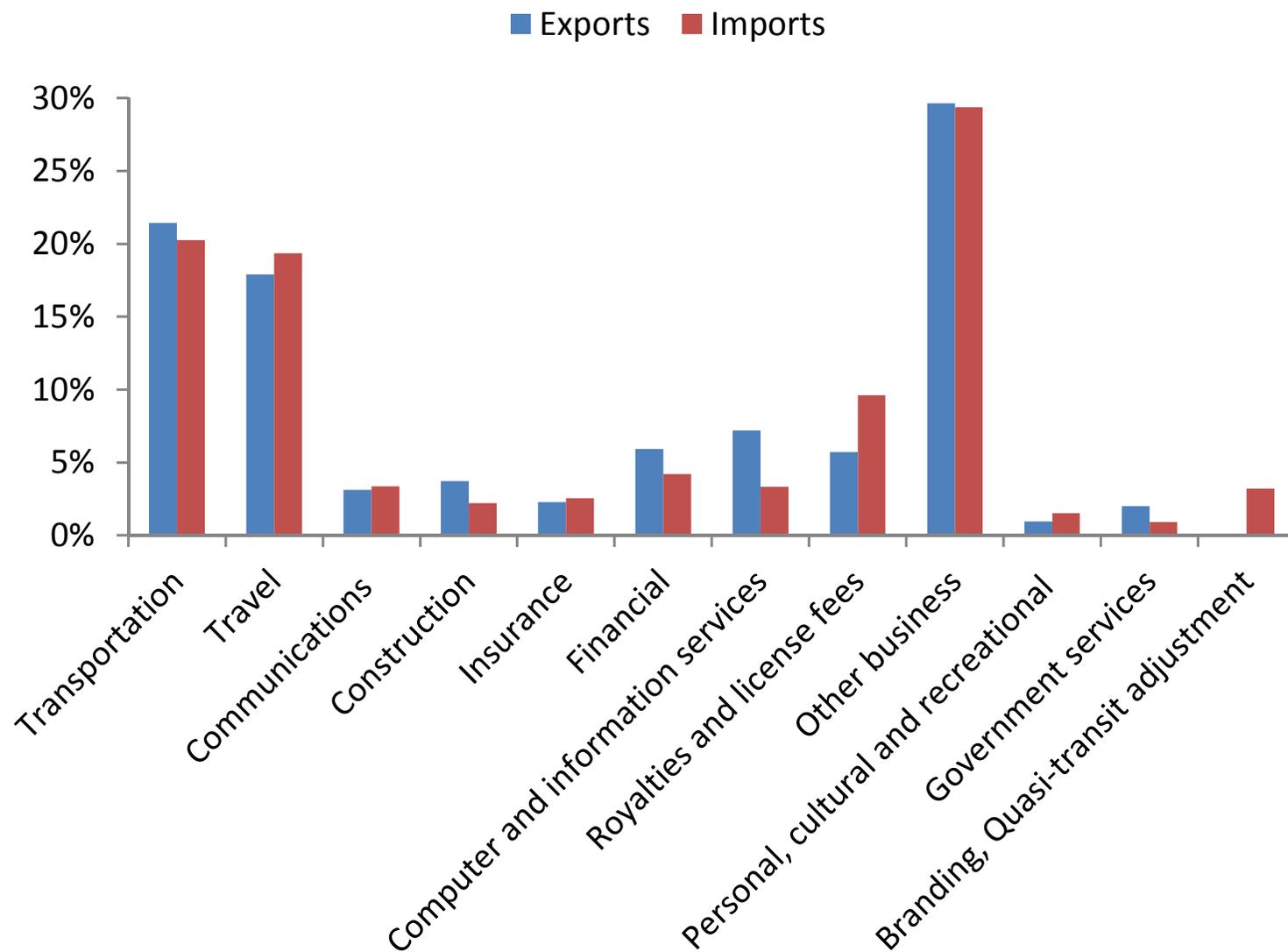
The role of services in global trade



Manufacturing and services shares in euro area trade



Euro area services exports and imports in 2009



Trade in services

- **Services trade has gained in importance over the last decades**
- **Wider range of services are traded internationally**
- **Role of services in international trade is much larger in value added terms than suggested by gross trade flow data** (Francois and Manchin, 2011 and Johnson and Noguera, 2012)
- **But: data availability problems**

Contribution of the paper

- **Construct trade weights according to ECB methodology (Schmitz et al., 2012, Buldorini et al., 2002)**
 1. **Based on trade in services**
 2. **Combining manufacturing and services weights**
- ➔ **New set of EERs and HCIs**
- **Available for a wide range of deflators**
- **Services sector EERs/HCIs based on services trade weights and consumer services prices**

Previous efforts

- **Bank of England**
 - **bilateral services trade data without accounting for third market effects (Lynch and Whitaker, 2004)**
- **International Monetary Fund (IMF)**
 - **includes trade in services by using the same weights as for manufactured goods and (partly) tourism flows (Bayoumi et al., 2005)**
- **Hong Kong Monetary Authority**
 - **REER based on services trade vis-à-vis a small group of partner countries (Ha and Fan, 2003)**
- **Di Mauro et al. (2008)**
 - **effective exchange rate based on bilateral services trade with regard to 24 partner countries without accounting for third market effects**

Trade weights methodology

- **BIS methodology presented in Turner and Van't dack (1993) and adapted to the euro area by Buldorini et al. (2002) and Schmitz et al. (2012)**
- **Trade weights combine information on both exports and imports:**
 - **import weights** are each trading partner's simple share of total euro area imports
 - **export weights** are double-weighted to account for “third market” effects
- **Trade weights are time-varying and calculated over non-overlapping three-year periods**
- **Indices are chain-linked at the end of each three-year period**

Data requirements

- **Bilateral trade flows** between all partner countries
- An estimate of **domestic supply** to calculate third market effects
- **Services price/cost deflators**

Data availability

- **Trade weights for new EERs/HCIs based on trade in services available from 2004 for the EER-20 group**
(Bulgaria, Czech Republic, Denmark, Latvia, Lithuania, Hungary, Poland, Romania, Sweden and the United Kingdom), plus Australia, Canada, China, Hong Kong, Japan, Norway, Singapore, Korea, Switzerland and the United States
- **Sources:**
 - Eurostat
 - OECD Statistics on International Trade in Services
 - UN Services Trade database
- **Manufacturing trade weights for the official euro EERs and HCIs are available for up to 40 trading partners (EER-40) covering 1995-2009**

Data challenges

- **Data gaps compared with data on trade in manufactured goods**
- **Confidential data for euro area Member States**
- **Mirror data**
- **Quality issues**

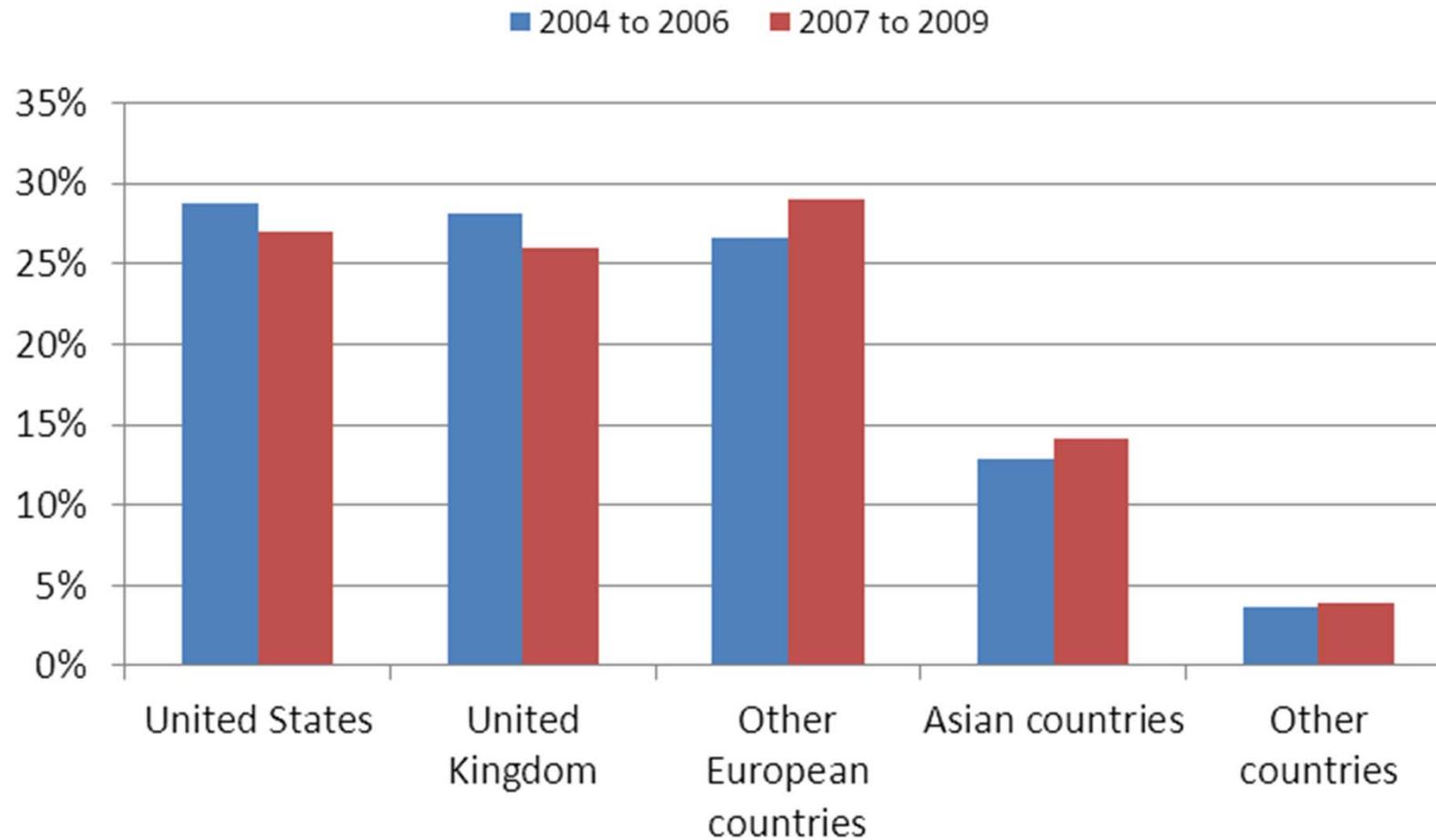
Caveats of (services) trade weights

- **Armington (1969) assumptions: only one type of good (differentiated by the country of origin) and constant elasticity of substitution**
- **Vertical specialisation, value-added content (Johnson and Noguera, 2012, Bems and Johnson, 2012)**
- **Complementarity**
 - **intermediate and final goods/services**
 - **between goods and services**

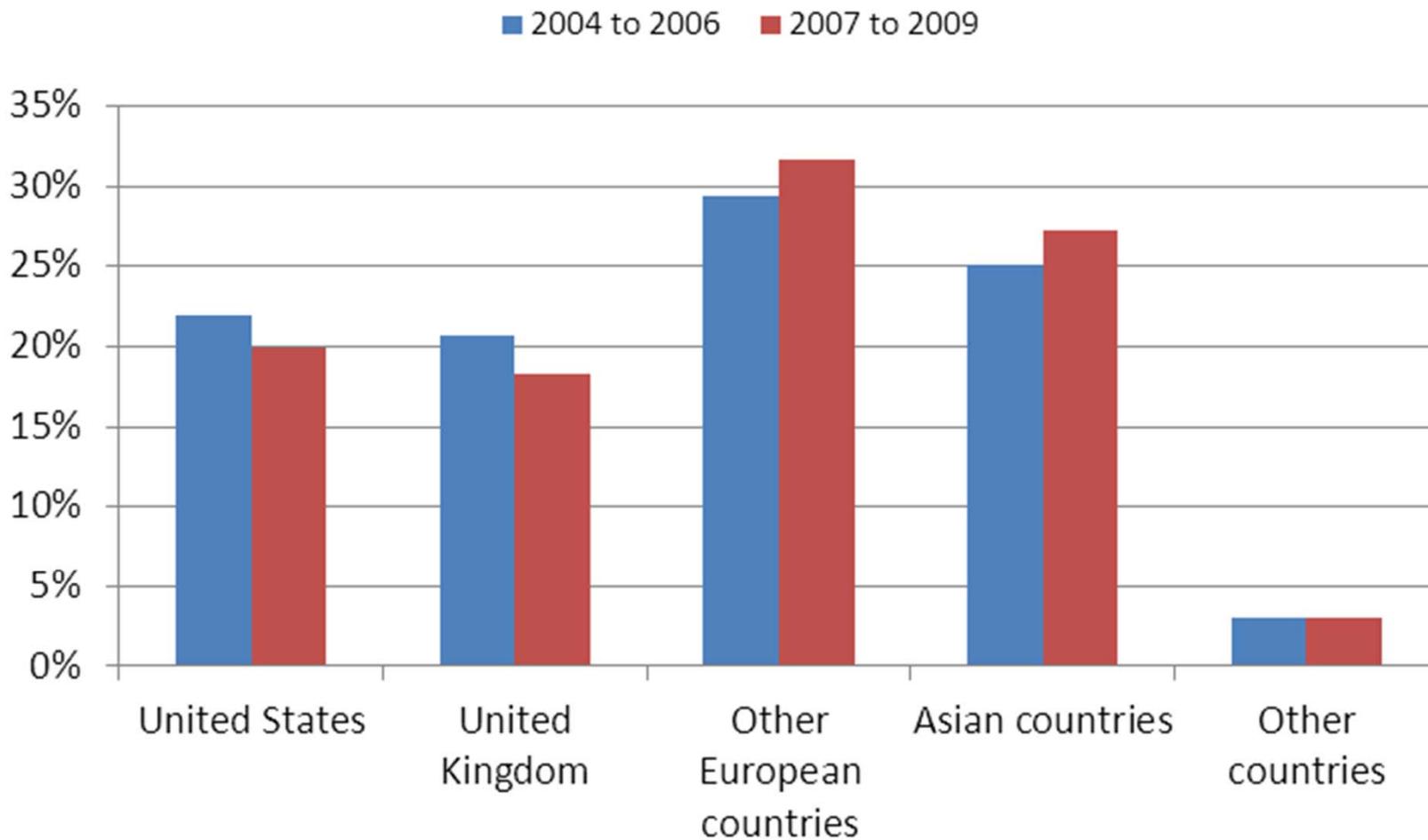
Euro EER-20, overall trade weights, 2007-09

Country	Services	Manufacturing	Combined	(Serv) - (Man)
China	4.24%	18.76%	14.35%	-14.52%
Poland	2.88%	6.18%	5.18%	-3.30%
Japan	3.90%	7.19%	6.19%	-3.29%
Czech Republic	2.08%	5.01%	4.12%	-2.93%
South Korea	1.73%	3.92%	3.26%	-2.20%
Hungary	1.66%	3.19%	2.72%	-1.53%
Sweden	3.74%	4.68%	4.39%	-0.94%
Romania	1.04%	1.97%	1.69%	-0.93%
Lithuania	0.28%	0.41%	0.37%	-0.13%
Bulgaria	0.53%	0.63%	0.60%	-0.10%
Latvia	0.24%	0.24%	0.24%	0.01%
Denmark	3.04%	2.62%	2.75%	0.43%
Hong Kong	2.09%	1.61%	1.75%	0.48%
Australia	1.55%	0.94%	1.13%	0.61%
Canada	2.30%	1.66%	1.85%	0.65%
Norway	2.03%	1.34%	1.55%	0.69%
Singapore	2.22%	1.47%	1.69%	0.75%
Switzerland	11.49%	6.46%	7.99%	5.03%
United States	26.97%	16.87%	19.93%	10.10%
United Kingdom	26.00%	14.87%	18.25%	11.12%

Services trade weights for the EER-20 group



Combined trade weights for the EER-20 group



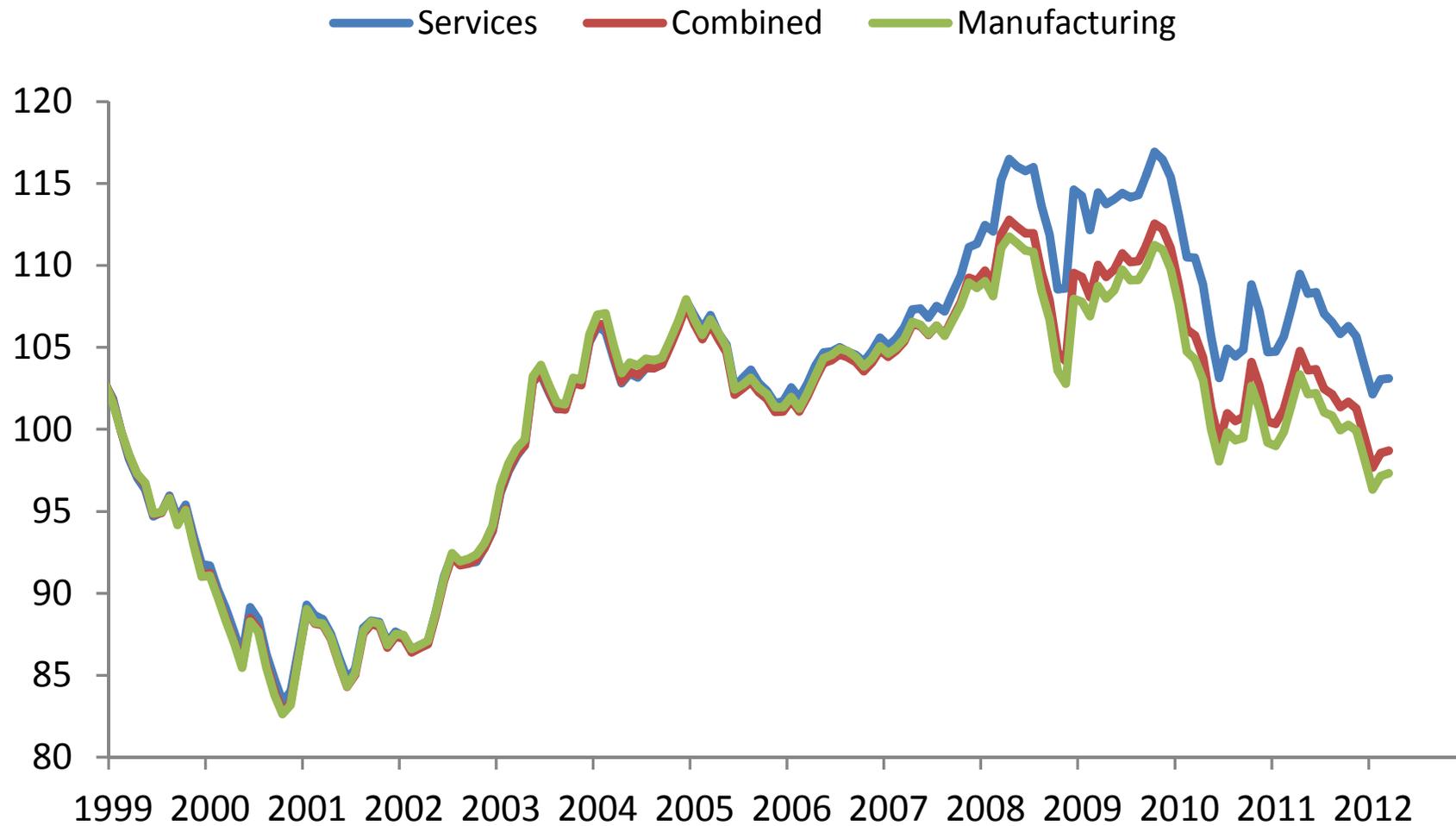
HCI trade weights, 2007-09

	Services share	Manuf.share	Services		Manufacturing	
			Intra - EA	Extra - EA	Intra - EA	Extra - EA
Austria	34.3%	65.7%	63.3%	36.7%	64.0%	36.0%
Belgium	25.8%	74.2%	58.5%	41.5%	59.9%	40.1%
Cyprus	72.3%	27.7%	46.3%	53.7%	65.0%	35.0%
Estonia	38.2%	61.8%	51.2%	48.8%	49.4%	50.6%
Finland	38.8%	61.2%	41.1%	58.9%	47.1%	52.9%
France	30.6%	69.4%	47.8%	52.2%	59.6%	40.4%
Germany	27.0%	73.0%	43.3%	56.7%	47.1%	52.9%
Greece	57.5%	42.5%	37.3%	62.7%	61.4%	38.6%
Ireland	64.0%	36.0%	40.8%	59.2%	37.9%	62.1%
Italy	29.8%	70.2%	53.2%	46.8%	56.1%	43.9%
Luxembourg	77.0%	23.0%	59.0%	41.0%	62.6%	37.4%
Malta	60.1%	39.9%	44.5%	55.5%	53.0%	47.0%
Netherlands	31.1%	68.9%	46.4%	53.6%	51.0%	48.9%
Portugal	36.2%	63.8%	61.6%	38.4%	76.1%	23.9%
Slovakia	17.0%	83.0%	45.8%	54.2%	53.4%	46.6%
Slovenia	23.2%	76.8%	66.4%	33.6%	67.2%	32.8%
Spain	41.8%	58.2%	51.5%	48.5%	65.4%	34.6%
Average	41.5%	58.5%	50.5%	49.5%	57.4%	42.6%

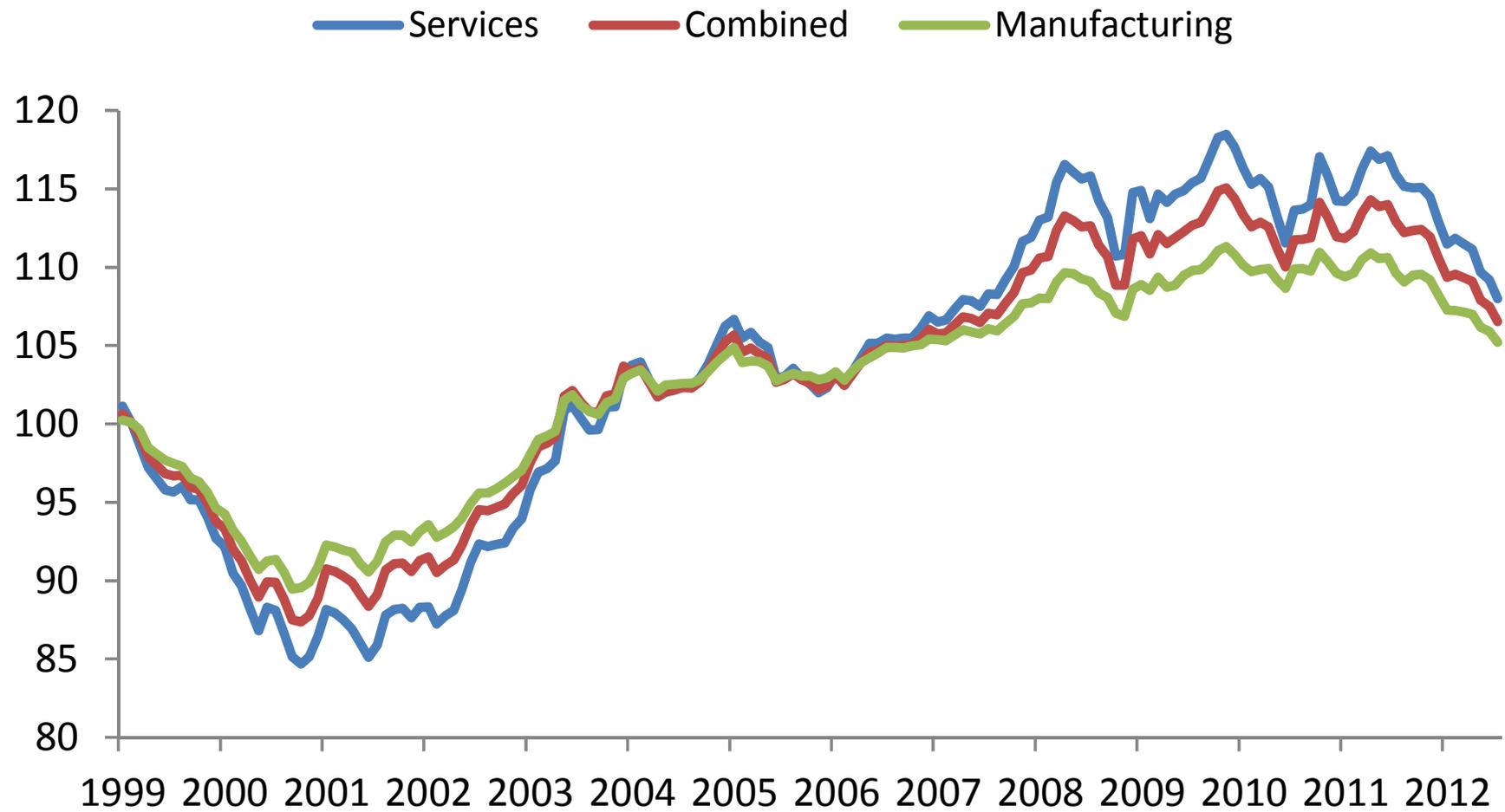
Deflators

- **Trade-off between data availability and theory**
- **This paper:**
 - **Consumer price index**
 - **Consumer price index: services**
 - **GDP deflator**
 - **Unit labour costs (ULCT) in the total economy**
- **Official ECB REERs (manufacturing-based)**
 - **Producer price index**
 - **Unit labour costs of manufacturing sector (ULCM)**

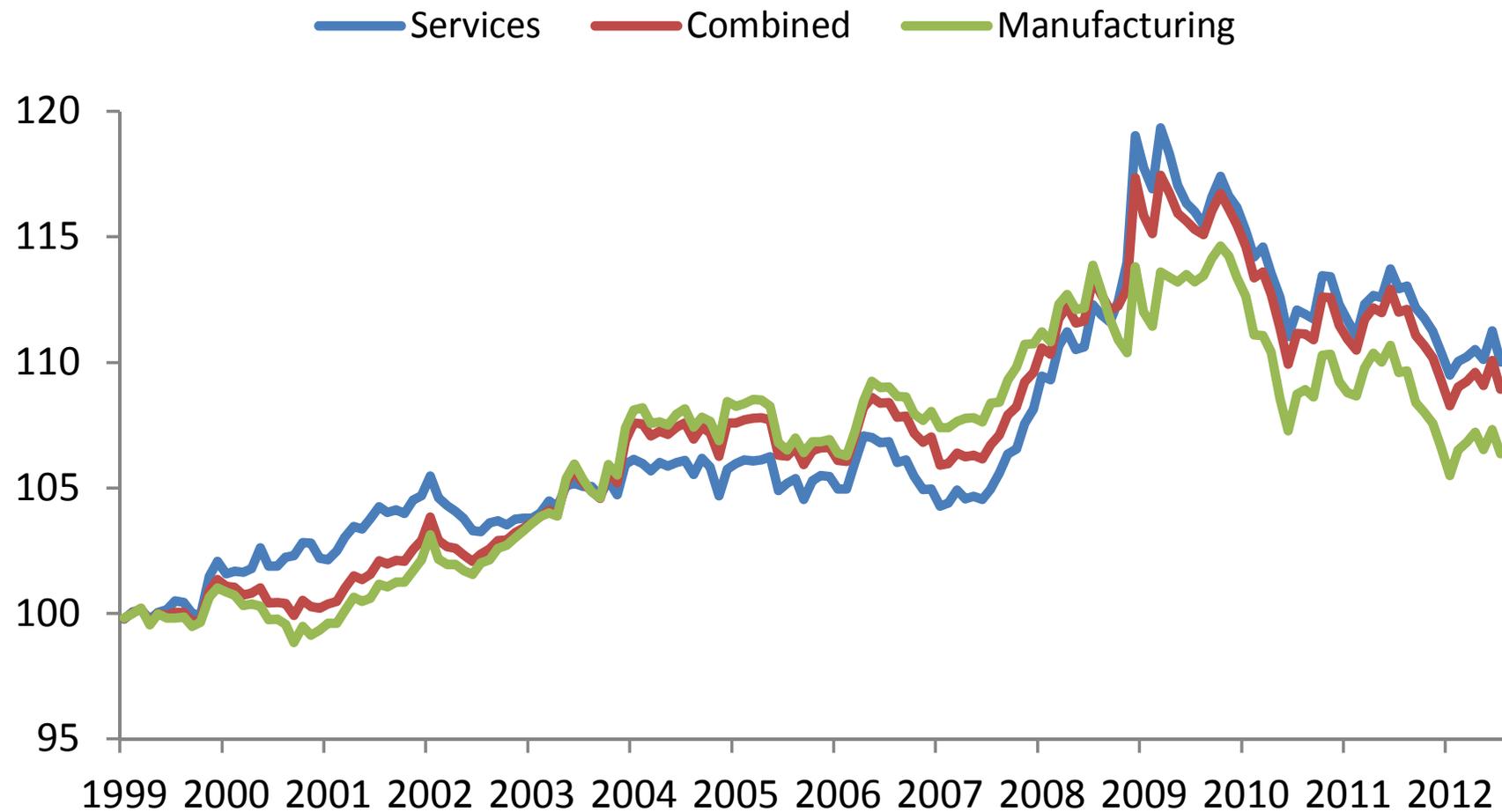
The different euro REER-CPI: moving closely



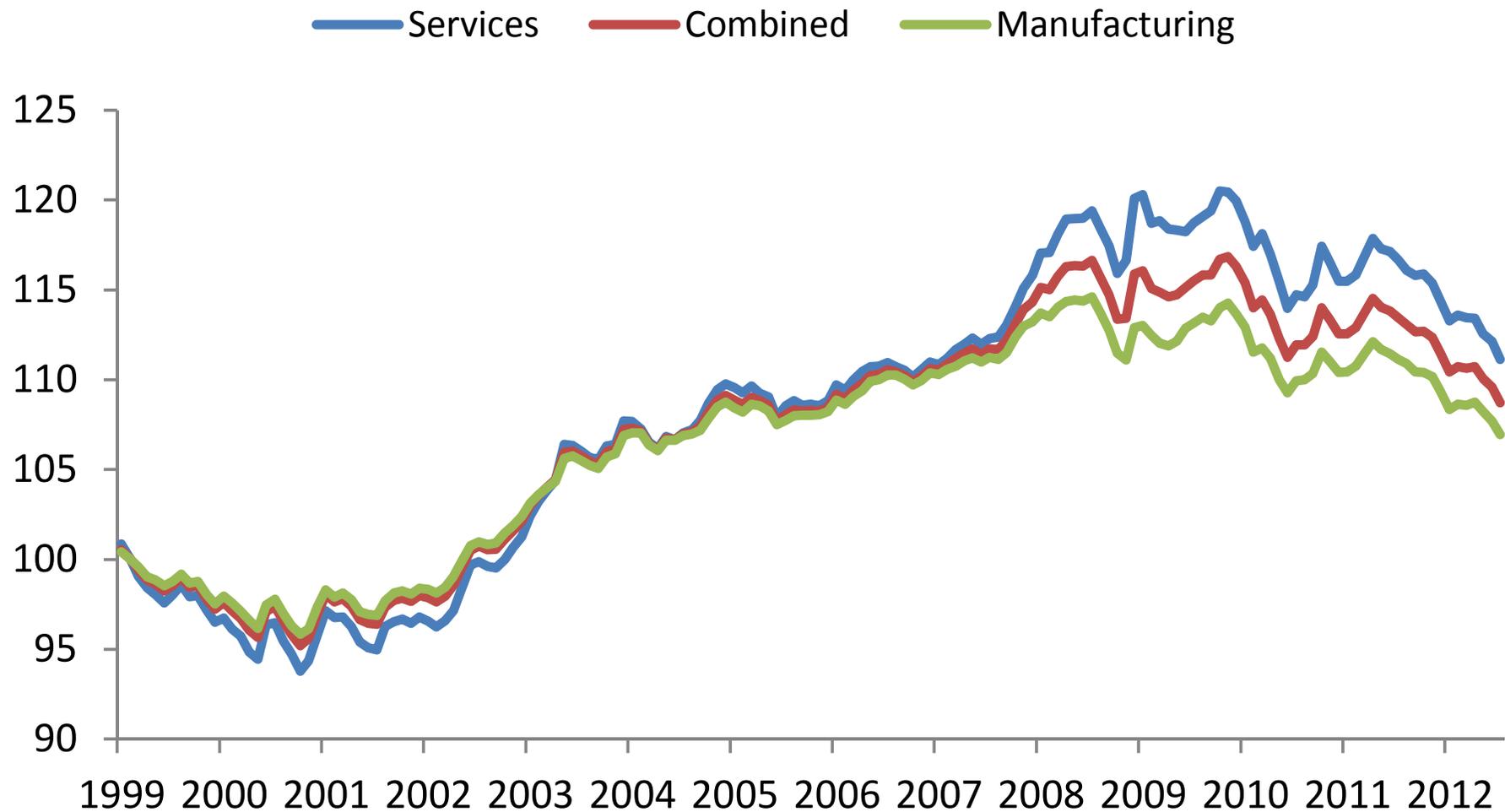
HCI-CPI: Greece



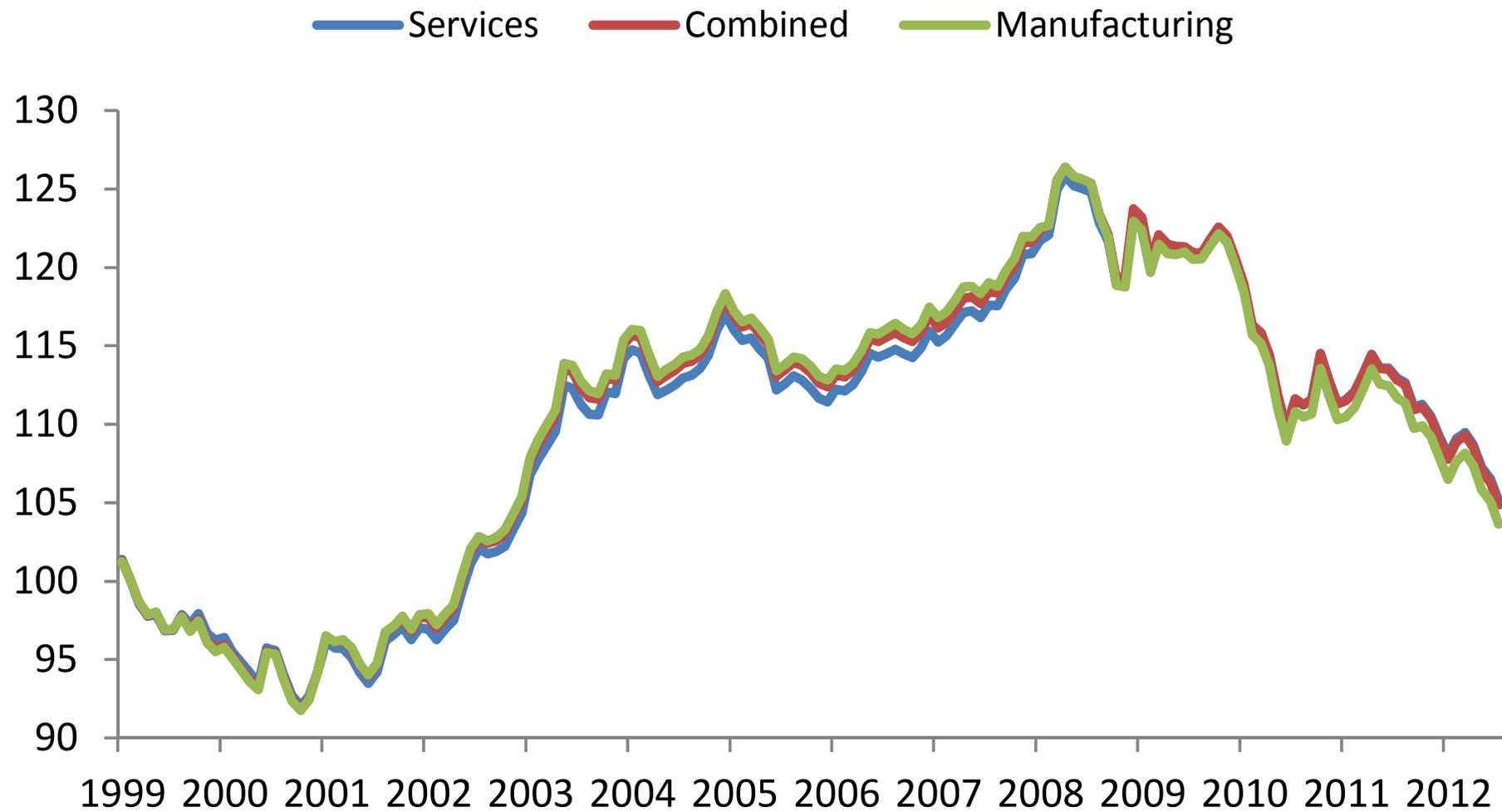
HCI-CPI: Malta



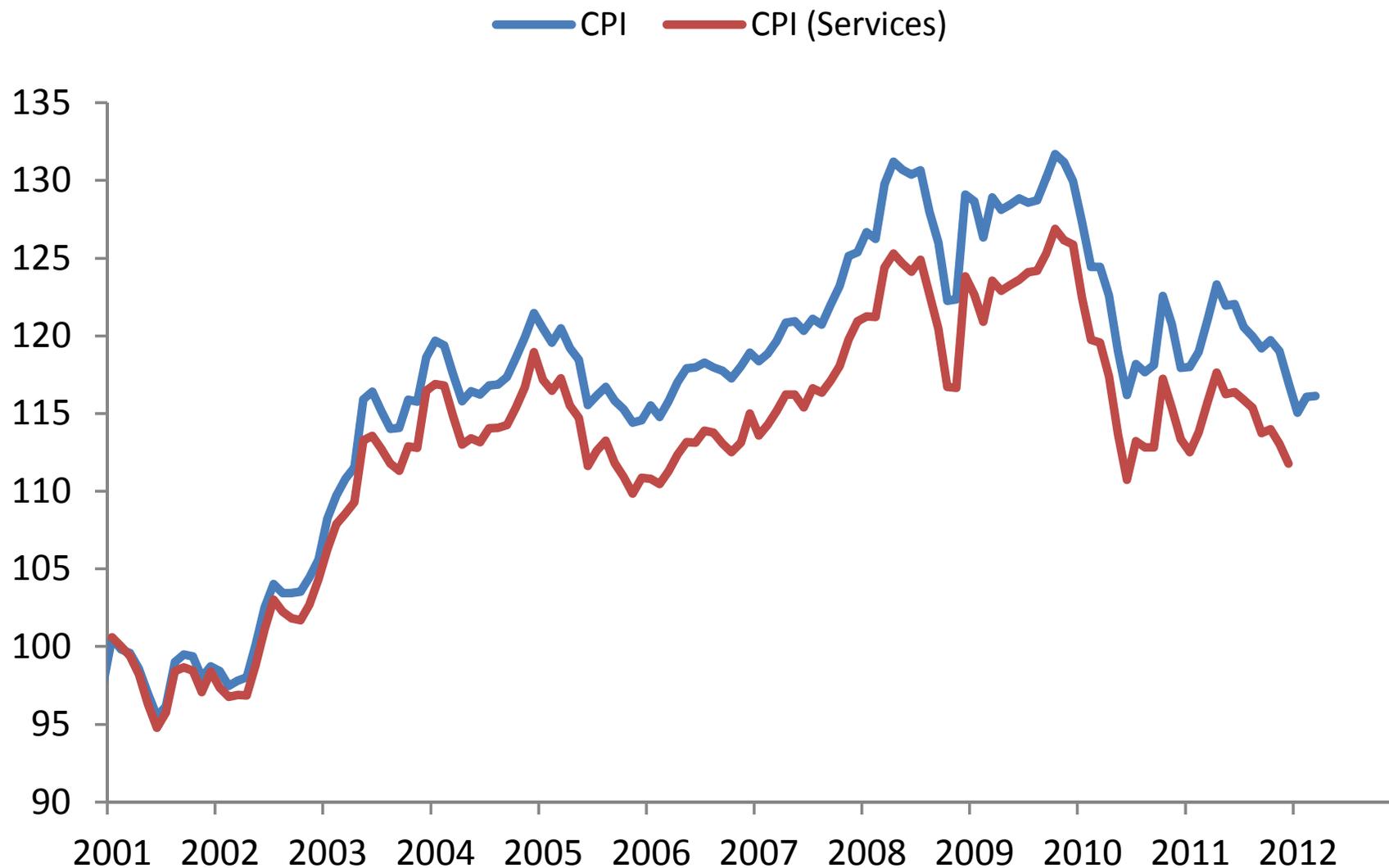
HCI-CPI: Spain



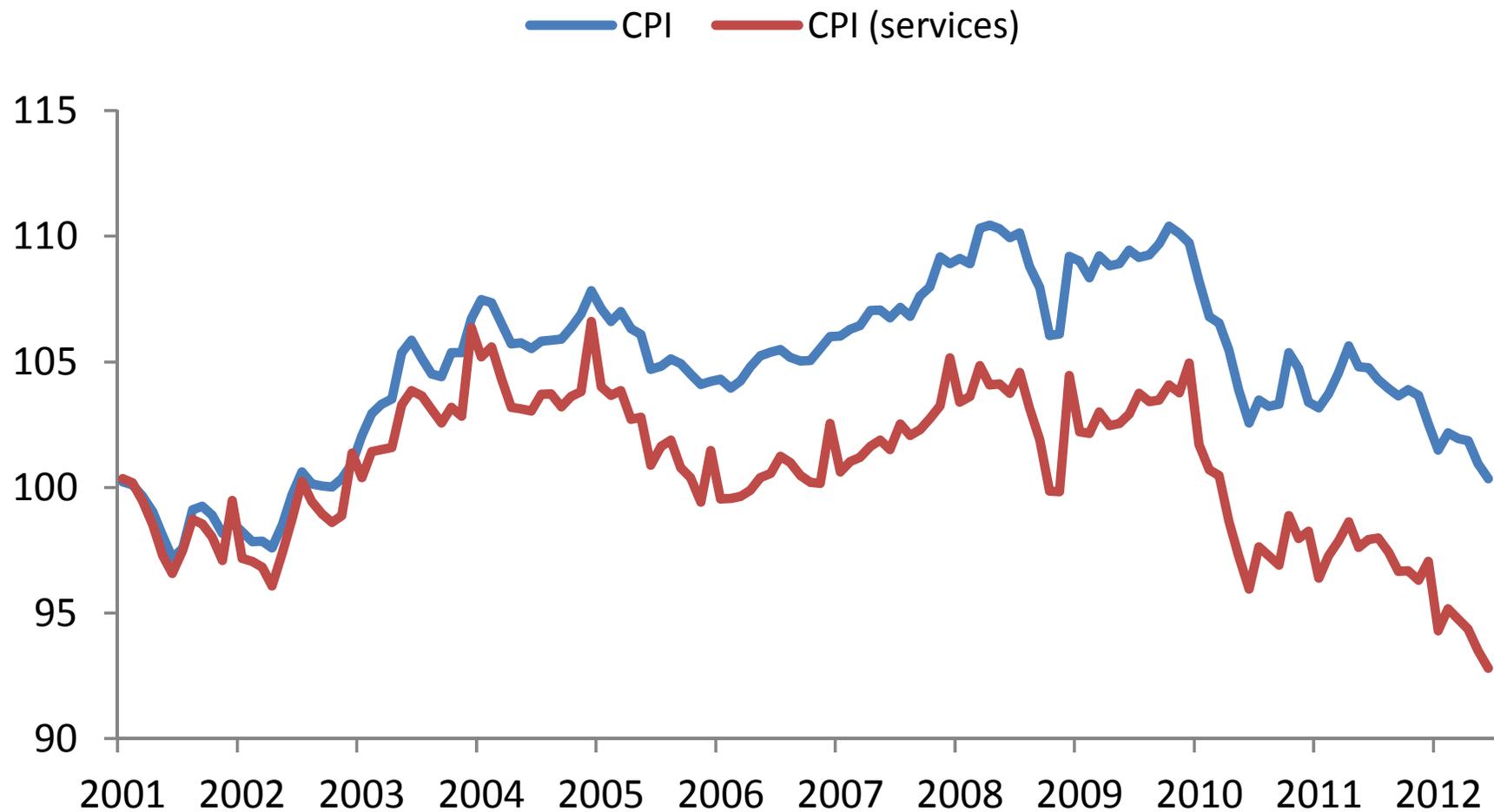
HCI-CPI: Ireland



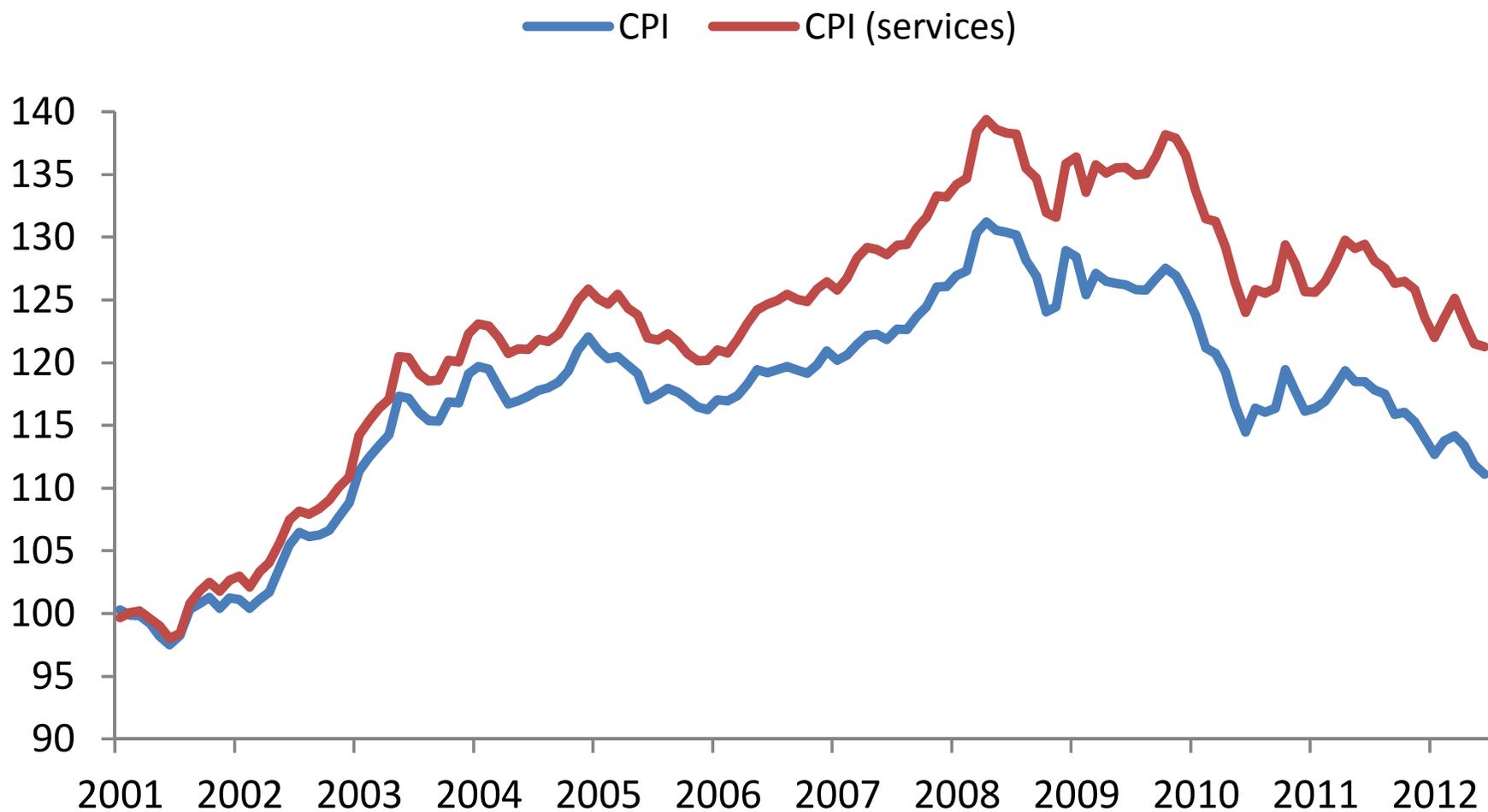
Euro area more competitive based on services sector CPI



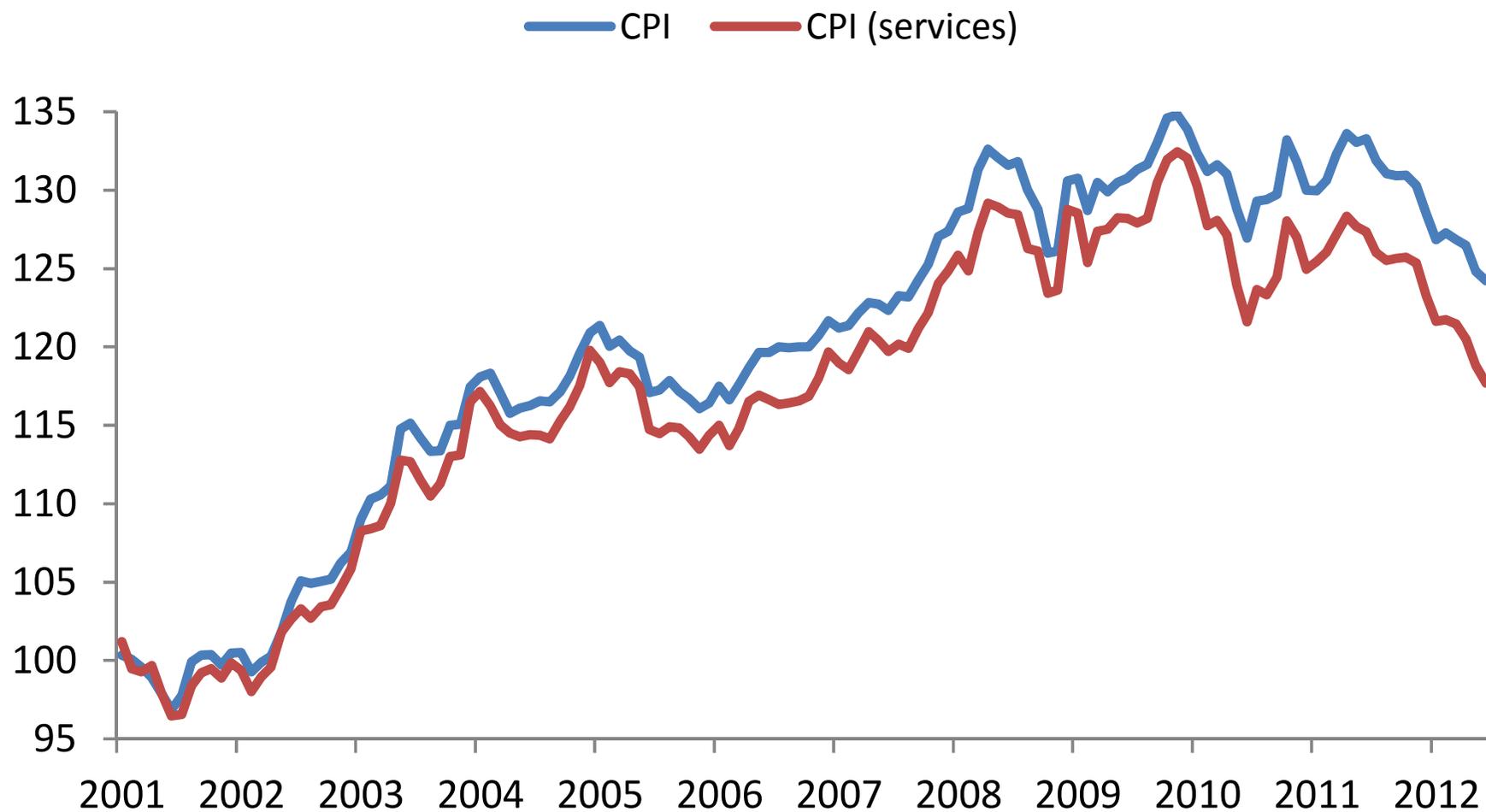
Services HCIs: Germany



Services HCIs: Ireland



Services HCIs: Greece



Scoreboard: services sector competitiveness (2008-11)

Country	Services weights and CPIS		
	Overall	Intra	Extra
Austria	-1.33	1.65	-6.28
Belgium	-3.56	0.31	-8.78
Cyprus	-6.23	-1.27	-10.31
Estonia	-5.47	-2.08	-8.90
Finland	-4.35	2.75	-9.00
France	-5.09	0.32	-9.78
Germany	-7.09	-2.13	-10.72
Greece	-4.28	1.46	-7.53
Ireland	-9.05	-4.45	-12.09
Italy	-3.57	1.34	-8.85
Luxembourg	-2.45	2.78	-9.52
Malta	-7.63	-1.02	-12.60
Netherlands	-3.34	2.34	-8.00
Portugal	-4.60	-0.27	-11.16
Slovakia	2.42	5.01	0.28
Slovenia	-4.68	-2.15	-9.50
Spain	-5.68	-0.32	-11.05

Scoreboard: overall competitiveness (CPI, 2008-11)

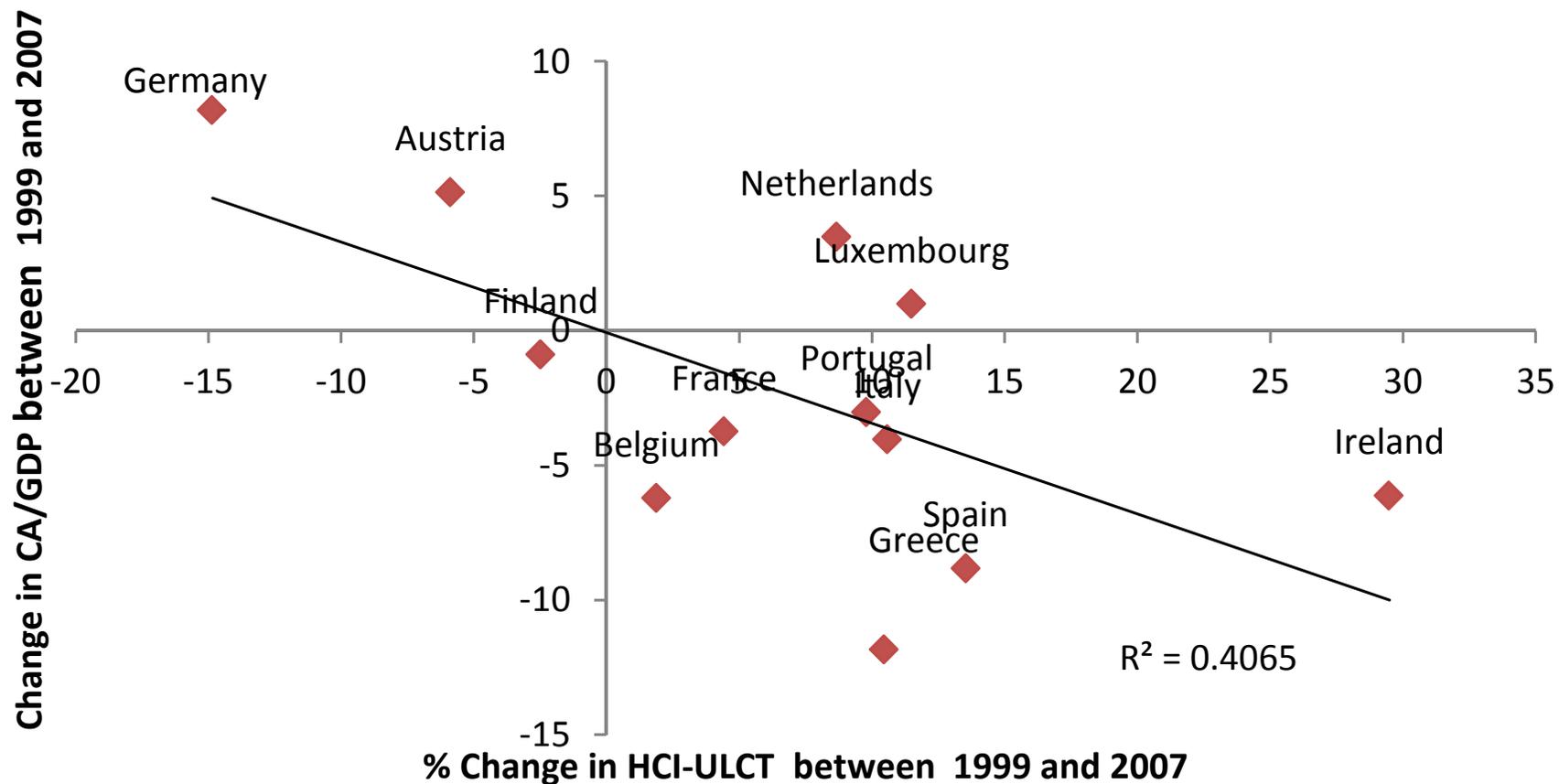
Country	Combined weights and CPI		
	Overall	Intra	Extra
Austria	-1.96	1.18	-7.26
Belgium	-2.52	1.62	-8.32
Cyprus	-3.70	0.59	-8.06
Estonia	-2.46	1.58	-6.35
Finland	-4.71	1.66	-9.58
France	-4.43	-0.02	-9.77
Germany	-5.84	-1.13	-9.68
Greece	-0.99	4.16	-5.43
Ireland	-11.87	-6.96	-14.97
Italy	-3.08	1.40	-8.34
Luxembourg	-1.44	3.34	-8.16
Malta	-7.08	-1.19	-12.17
Netherlands	-5.44	-0.41	-10.14
Portugal	-2.83	0.22	-9.87
Slovakia	-2.44	0.41	-5.45
Slovenia	-2.00	0.65	-7.16
Spain	-3.82	0.50	-9.86

Scoreboard: overall competitiveness (ULCT, 2008-II)

Country	Combined weights and ULCT		
	Overall	Intra	Extra
Austria	-0.01	1.15	-2.01
Belgium	0.41	2.44	-2.51
Cyprus	3.59	6.06	1.03
Estonia	-9.53	-9.96	-9.10
Finland	-0.63	3.14	-3.58
France	0.21	2.79	-2.98
Germany	-1.34	1.22	-3.47
Greece	-3.07	-1.30	-4.64
Ireland	-17.45	-16.51	-18.06
Italy	-2.32	0.01	-5.11
Luxembourg	3.92	7.04	-0.56
Malta	-2.14	0.96	-4.91
Netherlands	-1.34	1.39	-3.95
Portugal	-4.32	-2.19	-9.33
Slovakia	0.60	0.49	0.72
Slovenia	1.88	2.58	0.47
Spain	-9.43	-7.48	-12.22

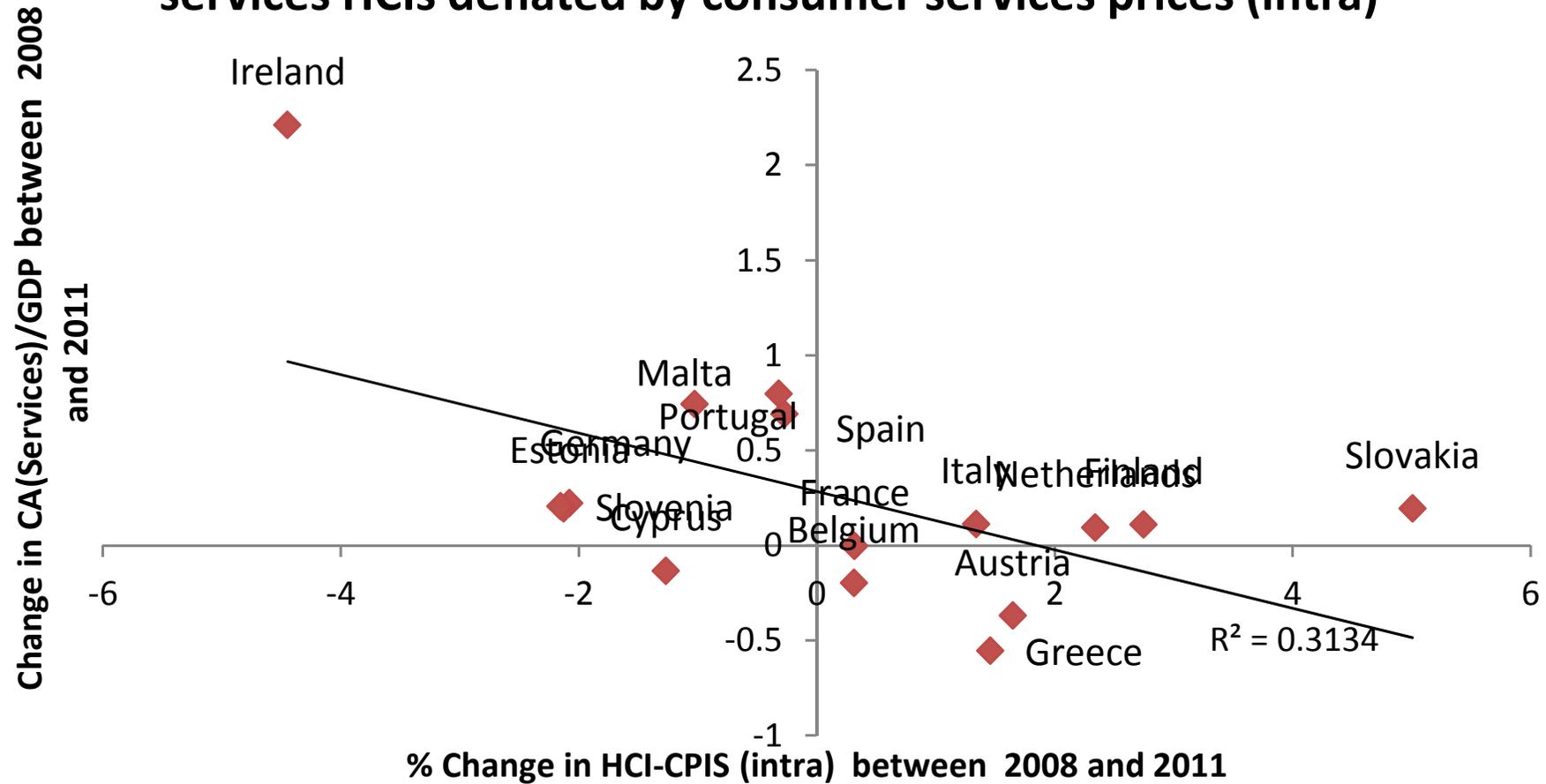
Pre-crisis: negative correlation of HCIs with change in CA balances

Change in current account balance (relative to GDP) and combined HCIs deflated by ULCT



Also visible for services sector since 2008

Change in CA balance (services, relative to GDP) and services HCIs deflated by consumer services prices (intra)



Conclusion

- **Inclusion of services trade in EER calculations provides more complete picture of euro area EERs and competitiveness**
- **First services based index including third market effects**
- **New index assessing services sector competitiveness**
- **Differences between services and manufacturing based indicators**
- **Good prospects for further development of new indicators**
- **New deflators (ULC – services sector) desirable**



Thank you for your attention!