EUROPEAN CENTRAL BANK
EUROSYSTEM

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CompNet Competitiveness Assessment Toolkit

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CompNet Vienna Workshop

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Overview

1. CompNet Value Added in assessing Competitiveness
2. The puzzling disconnect between trade outcomes and price competitiveness
3. Indicators comprised by the Toolkit: existing and in progress
4. Quantitative analysis linking indicators to outcomes
5. Further work

CompNet Value Added in assessing Competitiveness

- **The importance of assessing competitiveness** is firmly embedded within economic policymaking in Europe and around the world.

- **Attempts to define, measure and understand competitiveness:**
  - Global Competitiveness Index - The World Economic Forum;
  - The Competitiveness Scoreboard - Institute for Management Development;
  - Doing Business - The World Bank;
  - European Competitiveness Report – European Commission;
  - UK Competitiveness Indicators – DTI.

CompNet Value Added in assessing Competitiveness

- **CompNet is developing a number of indicators capturing more complex dimensions over and above the traditional price/cost based indicators.**

- **CompNet indicators are more sophisticated than the ones traditionally used for policy analysis; part of them are theoretical foundations, others are based on detailed six-digit product-level statistics (e.g. about 5,000 product categories) and others apply novel methodologies to classical indicators.**

- **These indicators are able to provide information on the salient structural features of a European economy, also in comparison to the rest of Europe and they will be regularly updated.**

- **The assessment is enriched by providing evidence on the intensity of the link between each indicator and trade outcomes.**

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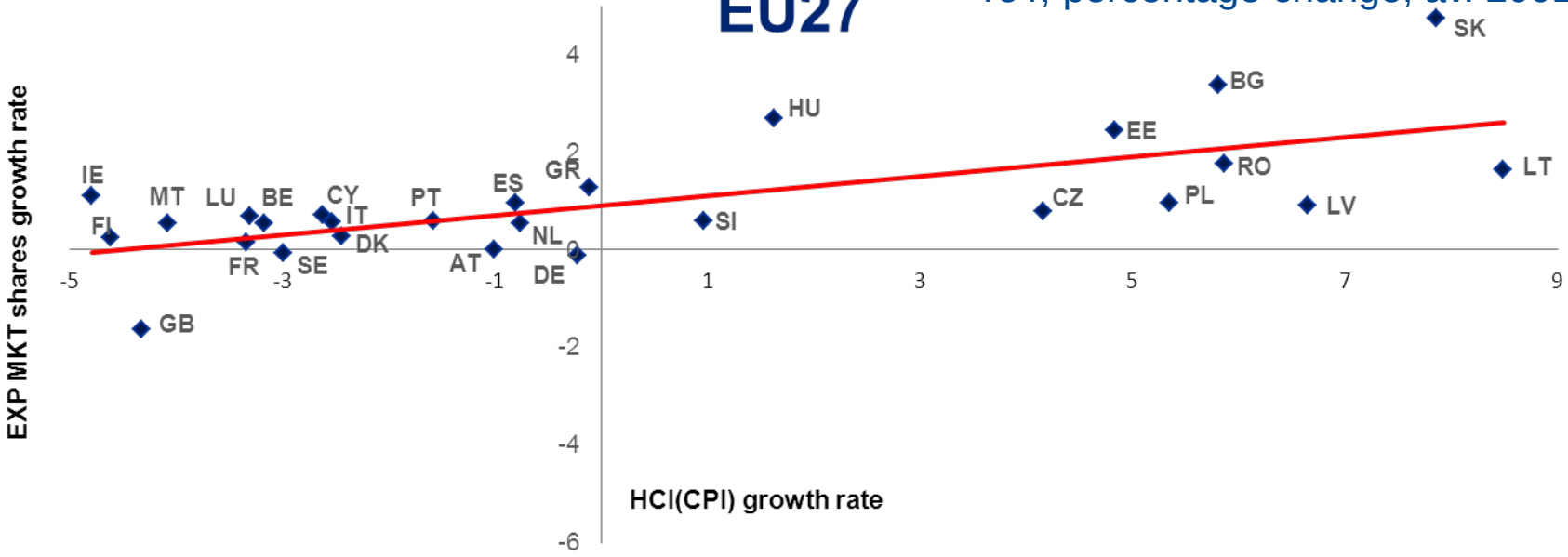
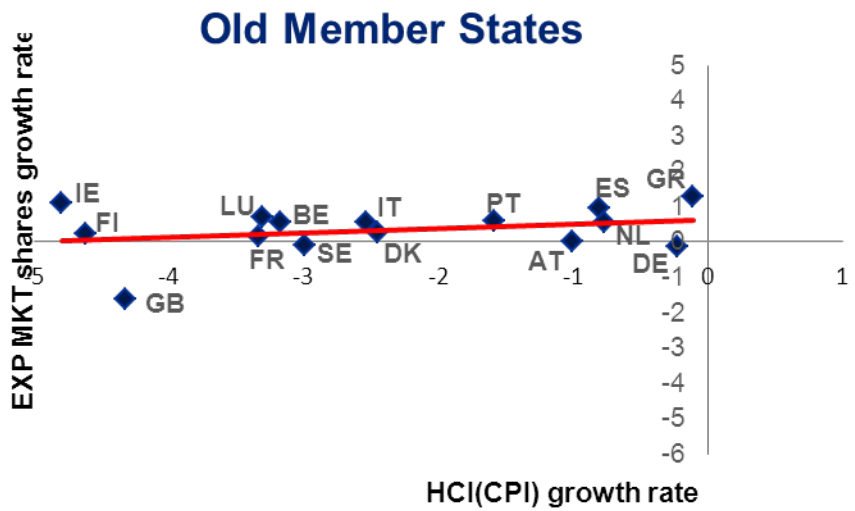
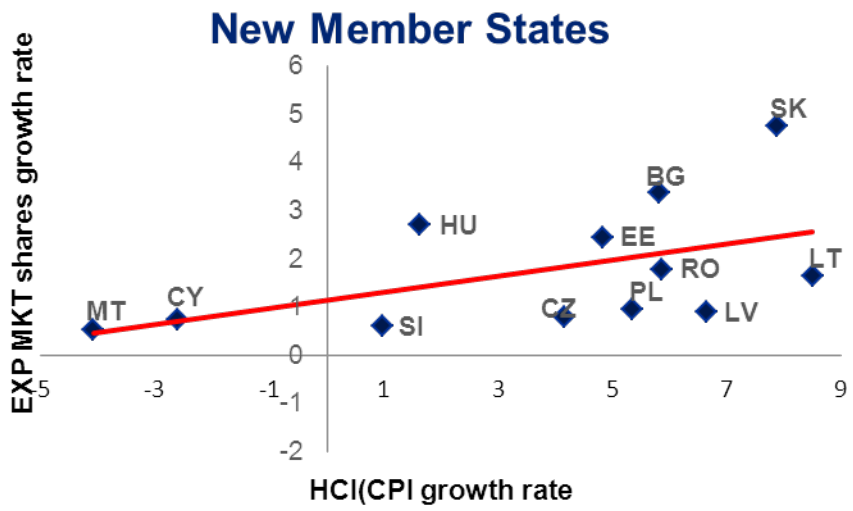
Relationship between export market shares and HCI (CPI)

YoY, percentage change, av. 2001:2012





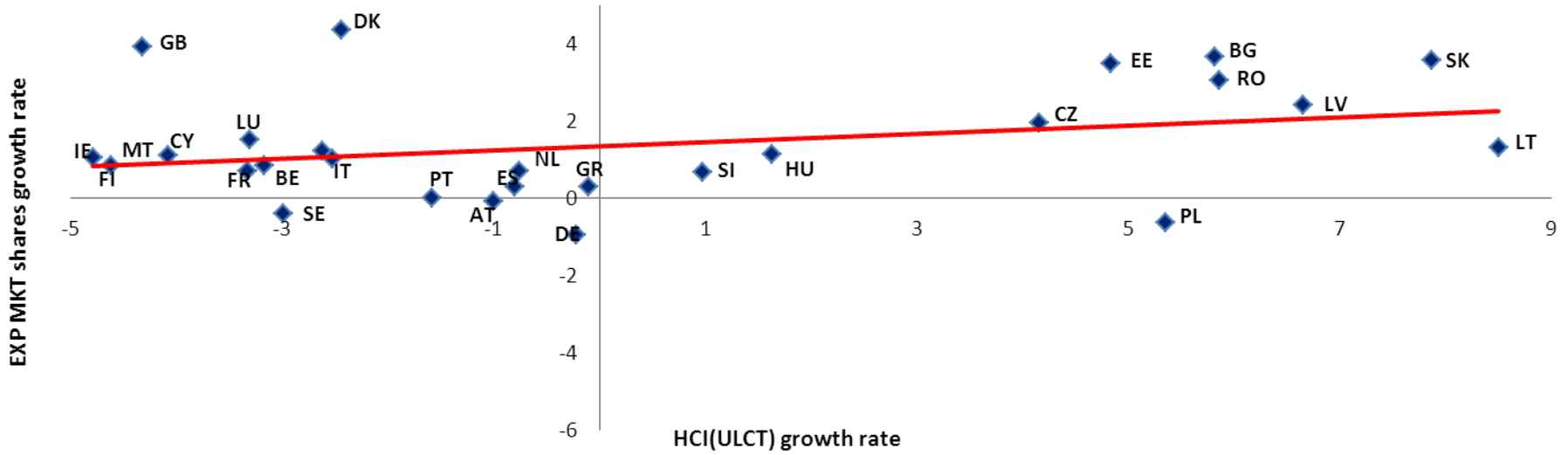


Source: Eurostat and ECB

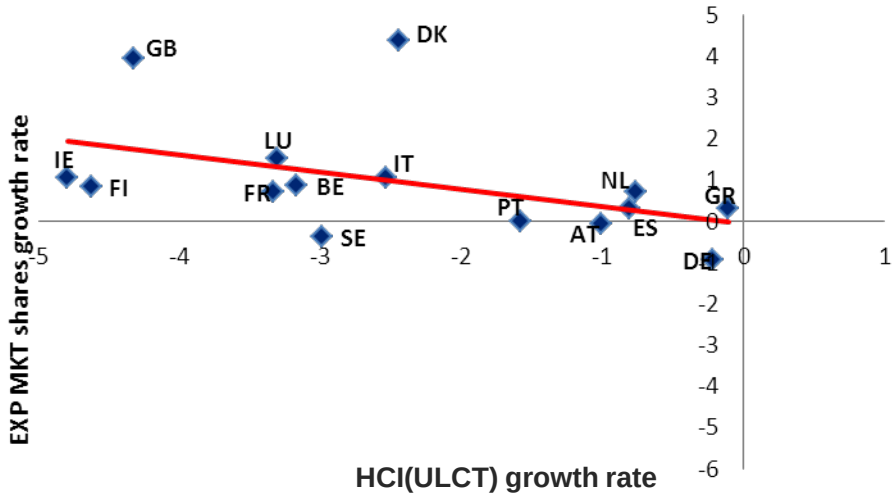
Relationship between export market shares and HCI (ULCT)

EU27

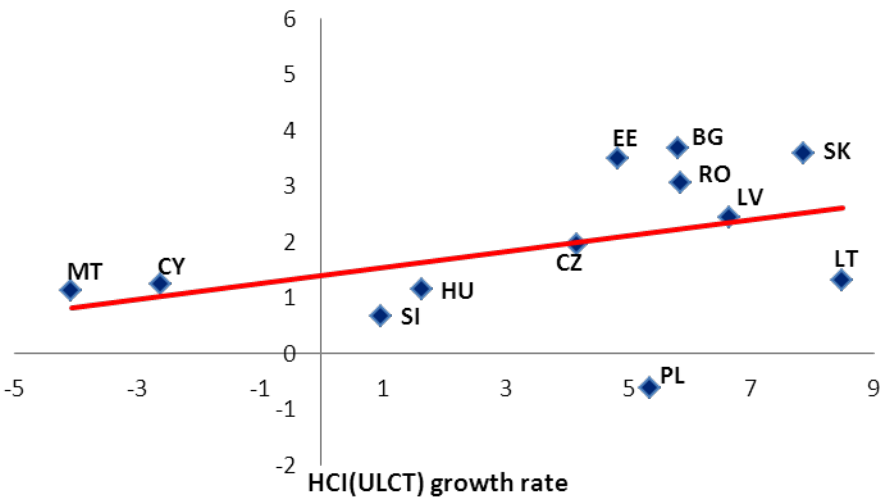
YoY, percentage change, av. 2001:2012



Old Member States



New Member States



Source: Eurostat and ECB

There is no clear preferred HCI in explaining export dynamics

Long-run elasticity of exports of goods with respect to HCIs

1995Q1:2012Q4

	DE	EE	IE	GR	ES	FR	IT	CY	LU	MT	NL	AT	PT	SI	SK	FI
CPI	-0.36	-1.85	-0.74	-0.86	-0.81	-0.72	-0.30	-2.24	-1.34	-1.17	-0.40	-0.91	-0.53	-0.41	-0.32	-1.42
PPI	-0.27	-0.16	-0.68	1.00	-1.20	-0.68	-0.55	-1.38	-0.17	-0.65	-0.23	-0.17	0.04	-0.33	-0.34	-1.13
ULCM	-0.36	-1.03	-0.28	-0.12	-0.30	-0.73	-0.20	0.42	-0.19	-0.42	-0.21	0.08	-0.24	-0.06	-0.31	-0.41
ULCT	-0.45	-1.40	-0.65	-0.22	-0.71	-1.29	-0.48	-0.70	-0.27	-0.57	-0.23	-0.74	-0.30	-0.06	-0.33	-1.62
GDP	-0.46	-1.55	-0.73	0.48	-0.37	-1.01	-0.33	-0.01	-0.03	-0.82	-0.36	-1.20	-0.94	0.28	-0.44	-2.42

not sign at 10% | sign at 10% | sign at 5% | sign at 1%

Long-run elasticity of exports of services with respect to HCIs

	DE	EE	IE	GR	ES	FR	IT	CY	LU	MT	NL	AT	PT	SI	SK	FI
CPI	-0.67	-0.08	-0.68	1.68	-0.92	-0.56	-0.72	-0.43	-0.21	0.72	-0.81	-0.36	-0.98	-0.02	-0.58	0.04
CPIS	-0.75	0.05	-0.31	0.68	-0.58	-0.74	-1.06	-0.12	1.18	0.45	-0.47	1.83	-0.43	0.70	-0.35	0.00
ULCT	-0.54	-0.18	-0.10	1.24	-0.65	-0.52	-0.14	-1.29	-0.18	-5.83	-0.88	-0.31	-0.39	-0.11	-0.59	0.14
GDP	-0.58	-0.49	-0.67	2.06	-0.76	-0.55	-0.83	-0.28	0.56	-1.93	-0.98	0.64	-0.40	-0.04	-1.12	0.01

not sign at 10% | sign at 10% | sign at 5% | sign at 1%

Source: S. Christodoulopoulou and O. Tkacevs (2013)

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Indicators comprised by the Toolkit

- **Existing indicators:**
  - Non-price factors:
    - Adjusted relative prices (K. Benkovskis and J. Woerz)
    - Decomposition of export market share growth (K. Benkovskis and J. Woerz)
  - Barometer of competitive pressure from third countries (K. Benkovskis , M. Silgoner, J. Woerz, K. Steiner)
  - Export sophistication index (E. Bobeica)
  - Technological intensity (E. Bobeica)
- **Indicators to be added:**
  - Shift-share analysis
    - Based on regression (G. Gaulier, D. Taglioni and S. Zignago)
    - "Traditional" (G. Momchilov)
  - Alternative HCIs based on trade in services (M. Schmitz)

→ …

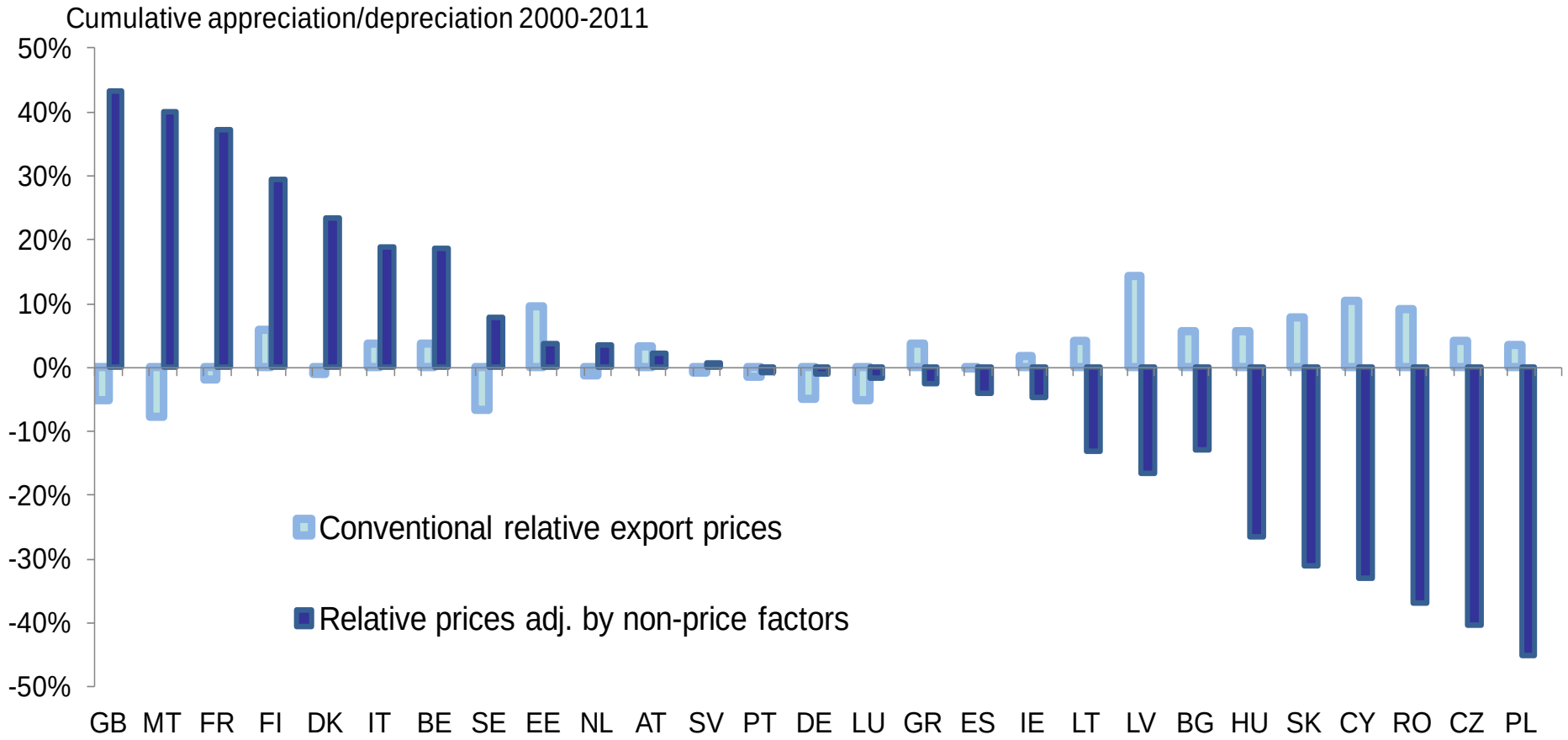
Indicators comprised by the Toolkit

→ ...

- **Indicators to be added:**
  - Contribution to trade balance (C. Osbat, S. Ozyürt and T. Karlsson)
  - Trade-weighted national unit labour costs (M. Silgoner)
  - Measures of integration in Global Value Chains:
    - GVC participation and position based on Koopman et al. (O. Gloede et al.)
    - Balassa Index of specialisation in intermediates, imports and exports (S. Christodoulopoulou)
    - Import and employment content of exports (based on I/O tables) (I. Rubene)

Dynamics of relative export prices adjusted for non-price factors

CEE countries have gained non-price competitiveness in the analysed period

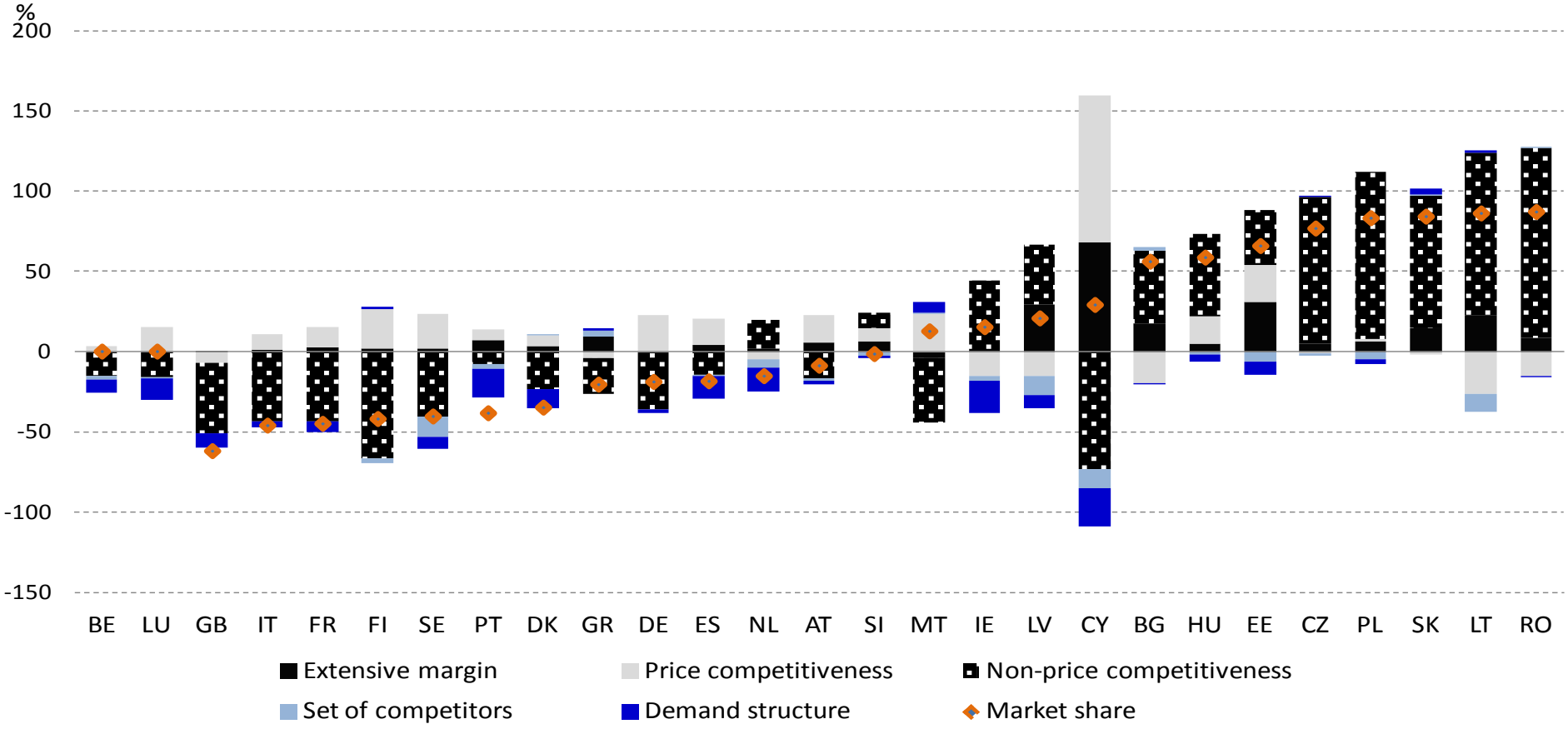


Source: Benkovskis and Woerz (2012)

Decomposition of export market share changes

The contribution of non-price factors to cumulative changes in export market shares is the highest for most of the analysed countries.

Decomposition of export market share changes for EU27 in 2011 (1996=100)



Source: Benkovskis and Woerz (2012)

Export sophistication indicators

- **Motivation: what really matters for economic growth is not how much it exports, but what it exports: that is, export quality and technology structure.**
- **The export sophistication index (EXPY) developed by Hausmann et al. (2007) is based on the following statement: *"an export is more sophisticated the higher the average income of its exporter"* (Lall et al., 2005).**
- **Hausmann et al. (2007) first computed the productivity level associated with a certain product (PRODY), as the weighted average of per capita GDPs:**

$$PRODY_k = \sum_j \frac{(x_{jk}/X_j)}{\sum_j (x_{jk}/X_j)} Y_j$$

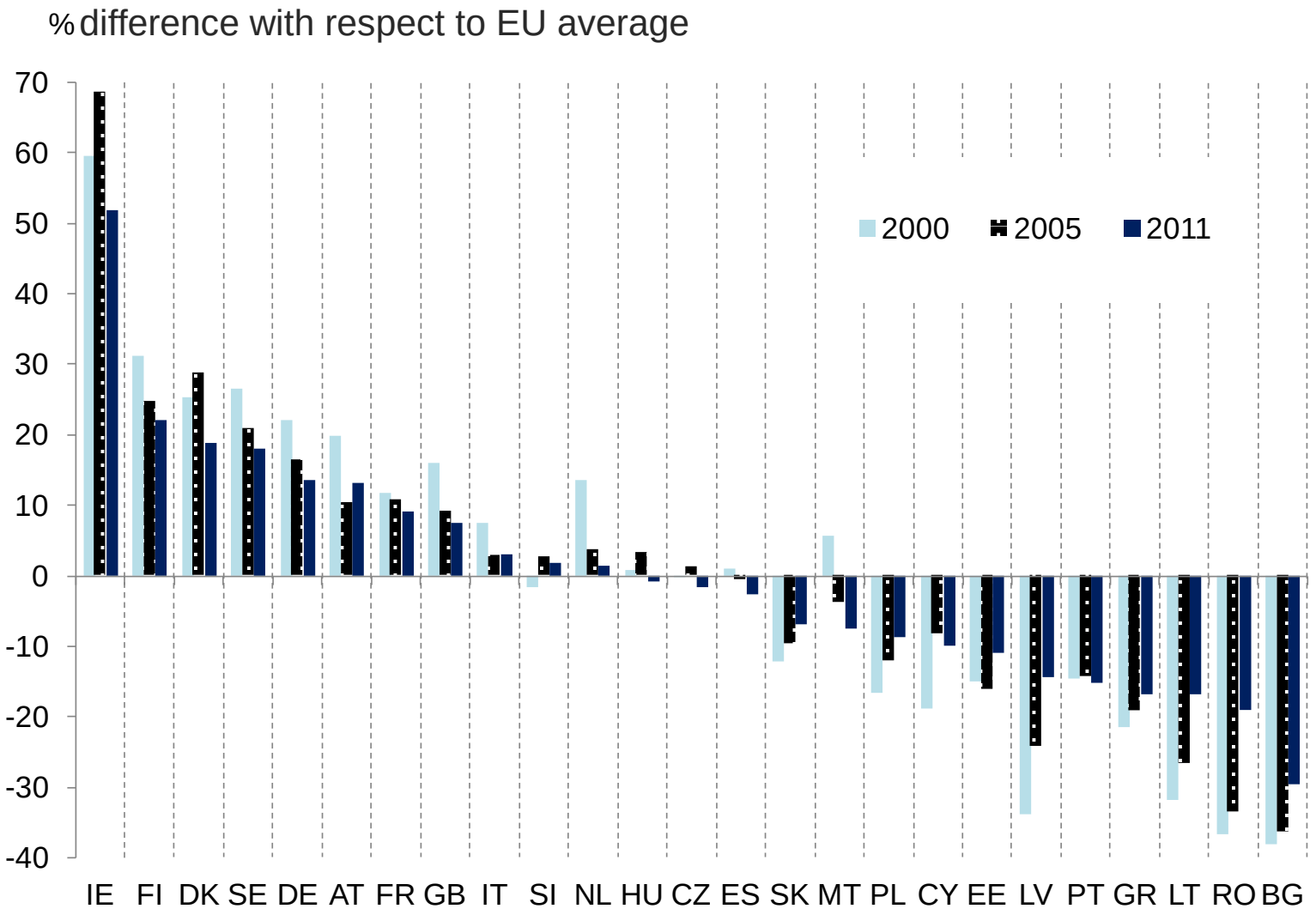
k – products
j – exporting countries
x – exports
Y – GDP/capita

- **PRODYs are used to compute the productivity level associated with a certain country's export basket of goods (EXPY):**

$$EXPY_i = \left(x_{il}/X_i\right) PRODY_l$$

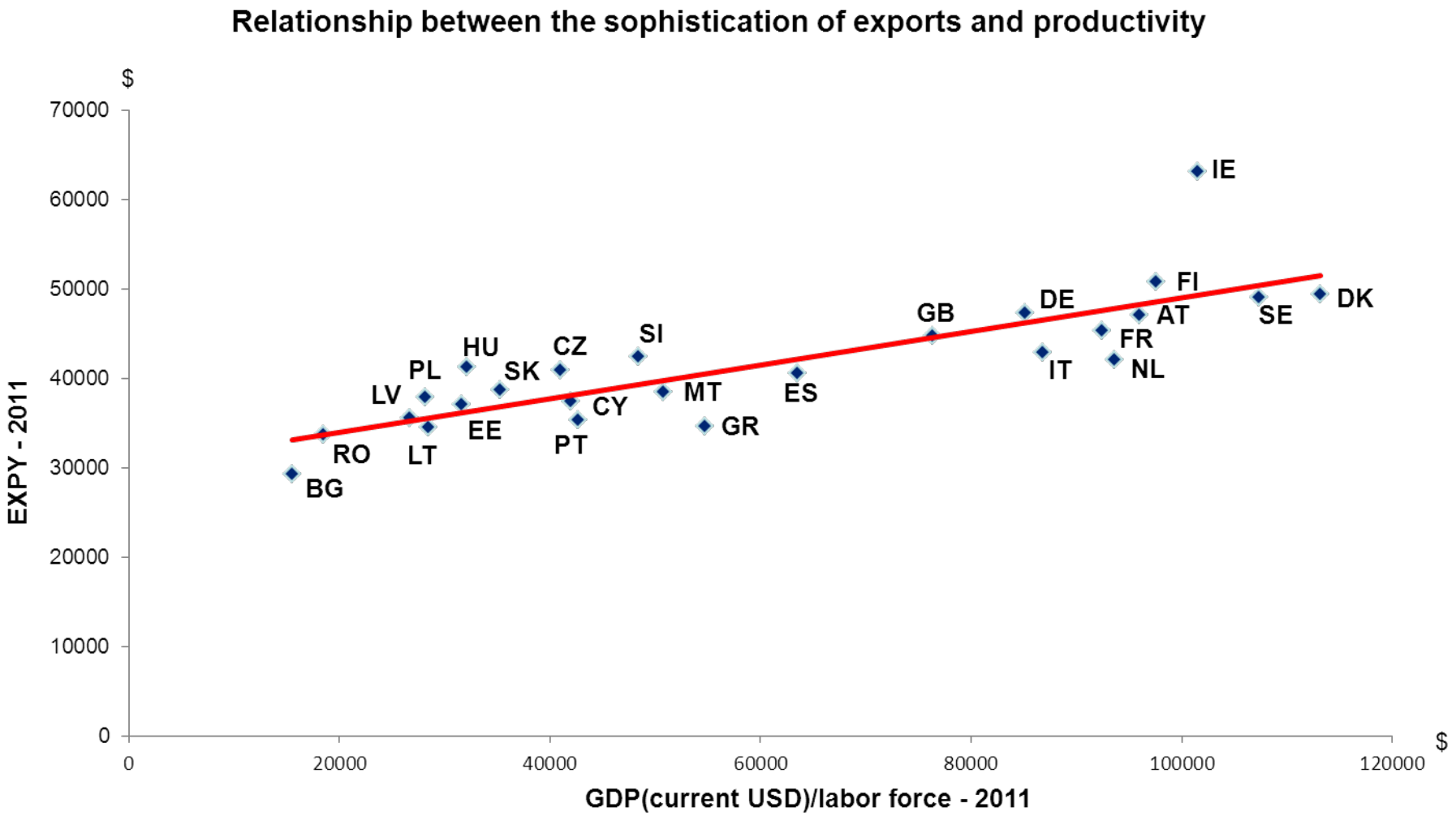
i – countries
l – products

The export sophistication index (1) - Goods



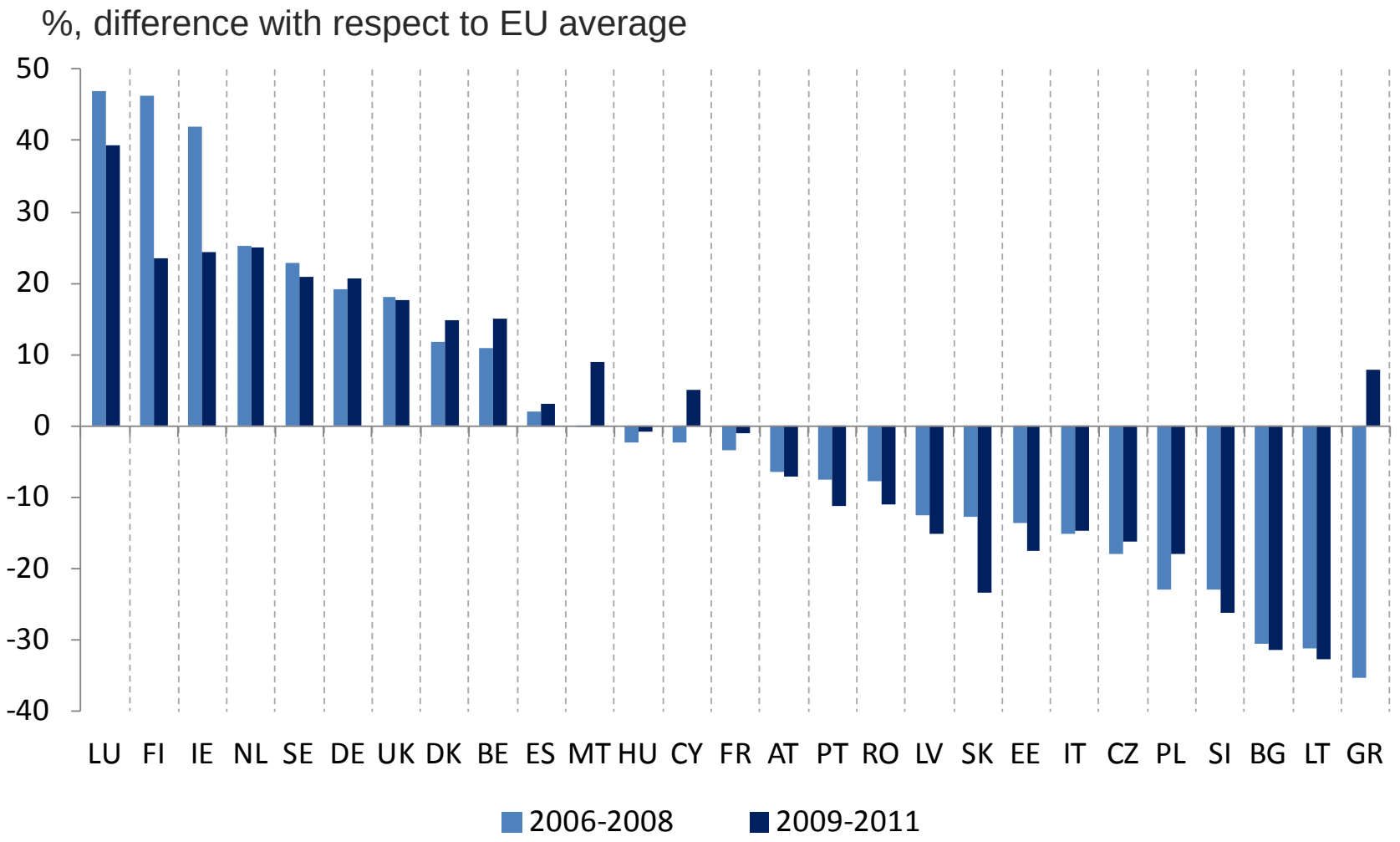
Source: WDI, BACI and ECB staff calculations

The export sophistication index (3) - Goods



Source: WDI, BACI and ECB staff calculations

The export sophistication index (2) - Services

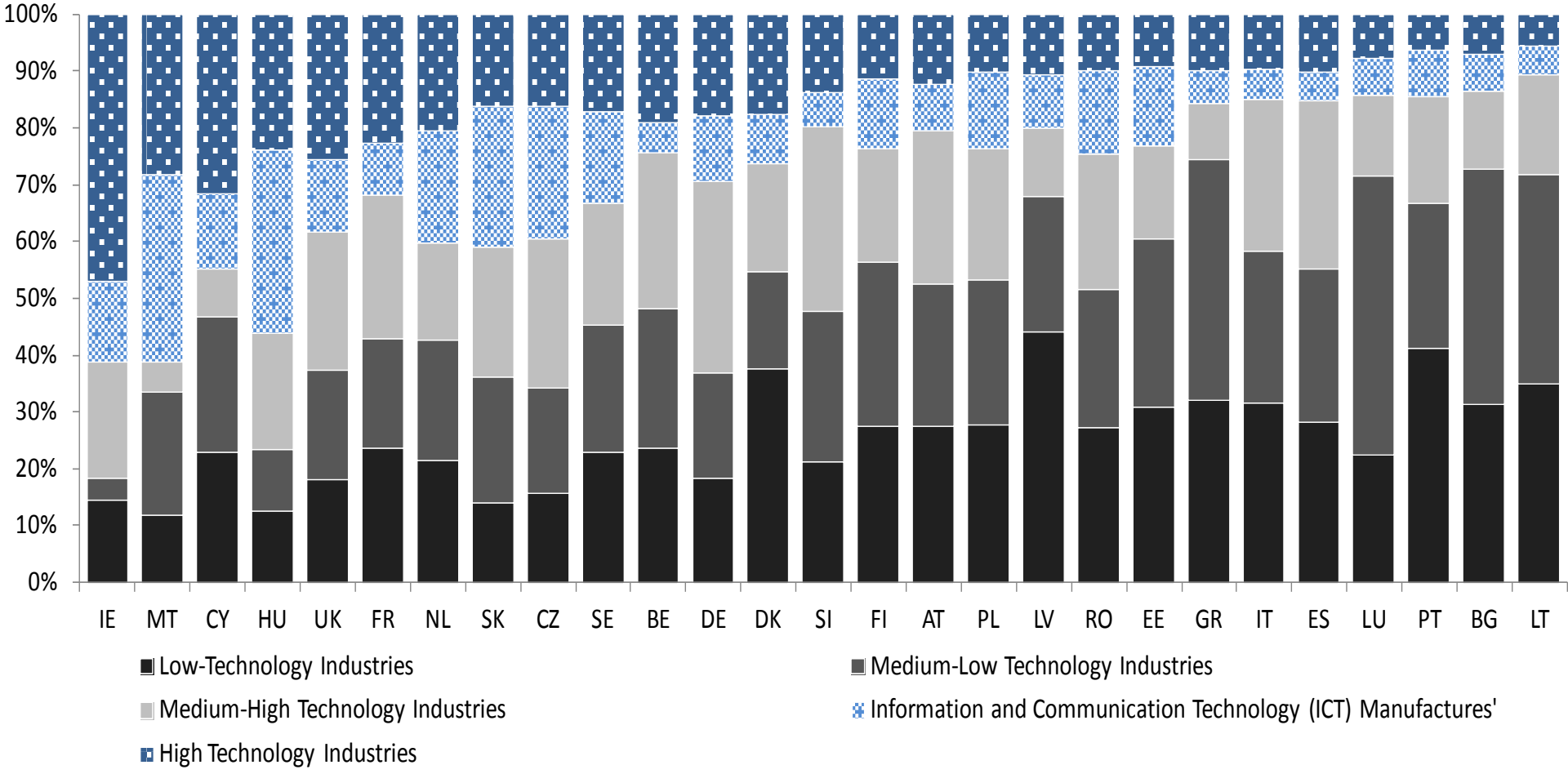


Source: WDI, WTO and ECB staff calculations

Technological Intensity

Balassa Indices for each category relative to the indices for the remaining categories

av. 2009 - 2011



Source: STAN OECD and ECB staff calculations

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Bringing all together: Bayesian Model Selection

- As proposed by, C. Osbat & S. Formai (2013), the final part of the toolkit will statistically analyse the determinants of the export performance on trade across countries, by considering both the aforementioned price and non-price factors.
- The analysis is divided into 3 parts:
  1. Measurement of the export performance by looking at 3 different indices:
     - I. Annual growth rate in manufacturing market share (no raw materials taken into account),
     - II. Annual growth rate in services market share,
     - III. Annual growth rate in the extensive margin (product destination).
  2. Run a cross-country regression to quantify the links between these indicators.
  3. Implement the Bayesian Model Selection, compute the average to deal with the uncertainty problem, and choose the fittest model.

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Further work

- **Enriching existing indicators**
- **Finalise BMA analysis**
- **Analysis on tradable/non-tradable sectors**