# Dissecting trade of three European countries:
# firms, destination and products roles in Belgium, France and Hungary trade from 2003 to 2009

Gábor Békés, Jean-Charles Bricongne, Emmanuel Dhyne, Guillaume Gaulier, Lazlo Halpern, Peter Harasztosi

Institute of Economics CERS-HAS, Banque France, Banque Nationel de Belgique, Magyar Nemzeti Bank

# *Outline*

- Presentation of datasets
  - Trade data
  - Balance Sheet data
  - Some problematic issues
- Selected outputs
  - The broad picture using destination×product data
  - Firm level export margins and dynamic
  - Exporter static and dynamic premia

# PRESENTATION OF DATASETS

## KEY ISSUES AND PROBLEMS

# Trade data

|  | Belgium | France | Hungary |
| --- | --- | --- | --- |
|  | Export values by country of destinations and by CN8 product categories. | Value and quantity of exportations by destination and by CN8 product categories. | Value (both in Euros and Forints) and quantity of exportations by destination and by HS8 product categories. |
| time span | 1995-2011 | 1994-2009 | 2003-2010 |
| frequency | Monthly | monthly | yearly |

# Balance Sheet data

| | Belgium | France | Hungary |
|---|---|---|---|
| database | Firm Annual Account Database: annual accounts (both financial accounts and social accounts) of all Belgian firms, excluding banks and insurance companies | BRN: "bénéfices réels normaux": balance sheets, income statements and number of employees | Balance sheet information from NAV (Tax Authority) for firms in customs and PRODCOM (Domestic production dataset) |
| NACE | REV 2.2 | REV 2.2 | Originally REV 1.1 – moved to REV 2.2 with own concordance table |
| time span | 1996-2011 | 1993-2009 | 2003-2010 |
| coverage | large firms provide detailed annual accounts (turnover, material input) , small firms only have to provide a subset of the financial variables. | | survey, 90% of manufacturing sector firms which employs 20+ employees and 40-50% of smaller firms |

# Sampling rules and cutoffs

Different sampling rules of firm level datasets

- Sampling issues affect inference about the economic issues correlated with size
- E.g. Share of exporters, TFP, dynamics
- 20 employee threshold is used in our analysis

Different threshold applied on exports/imports:

- **Belgium:** *several changes* 104,115 EUR ---- 400,000 EUR
- **France:** *intra EU trade: several changes,* above 150,000 euro
- **Hungary:** Several changes, now 380,000 EUR on exports and imports
- **extra EU trade***:* individual flows above 1,000 euro
- thresholds change over time -  harmonization, but: thresholds differ across countries

# Problematic issues 1

1. Secrecy rules

- In most countries authorities require each publishable cells to contain at least a certain number of firms.

- *Small industries need to be aggregated especially, if we are looking for dynamics (entry, exit) or cut data by some features (FDI makers, exporters, etc).*

2. Industry codes

- Some countries have moved NACE rev.2 earlier than others
  - concordance needed
  - mapping between revision 2 and revision 1 is not a one-to-one mapping

- In small countries two-digit industries may contain few firms

- calculating entry and exit is meaningless, also secrecy rules restrict presentation

- thus we opted for merging industries  (11 new categories).

# Problematic issues 2

**3. TFP estimation**

- common method for measuring real capital is crucial:
- size cutoff in sampling can change the value of the estimated production function parameters significantly
- Our approach: Levinsohn Petrin (2003), capital - nominal value of fixed assets
- No firm level prices

**4. EU accession and trade data**

- Change in customs data coverage: before accession every transactions reported vs EU data is based on a survey
- Change is in the definition of the import partner country: origin – sender
  - Affects the measurement of import from countries that are overseas and their products are shipped through third country affiliates. (e.g.: China, share in imports fell from 7 percent to 2 in aggregate imports)

# PRELIMINARY (SELECTED) RESULTS

Margins of trade, exporters premiums and performances

# Before exploiting firm level data: dynamic of exports using product and country level data:
### statistical CMSA (Gaulier et al. 2012)

- France: the worst market share growth and the worst performance (once specialization is controlled for) since product specialization is rather good

- Belgium: market share losses increase over time for Belgium: during the crisis because of a detrimental sectoral specialization and in more recent quarters because of a negative "push factor"

- Hungary: large market share gains before the crisis due firstly to push factor and also to a favorable geographical pull factor. Large drop during the crisis due to a very negative geographical pull factor and a negative push factor.
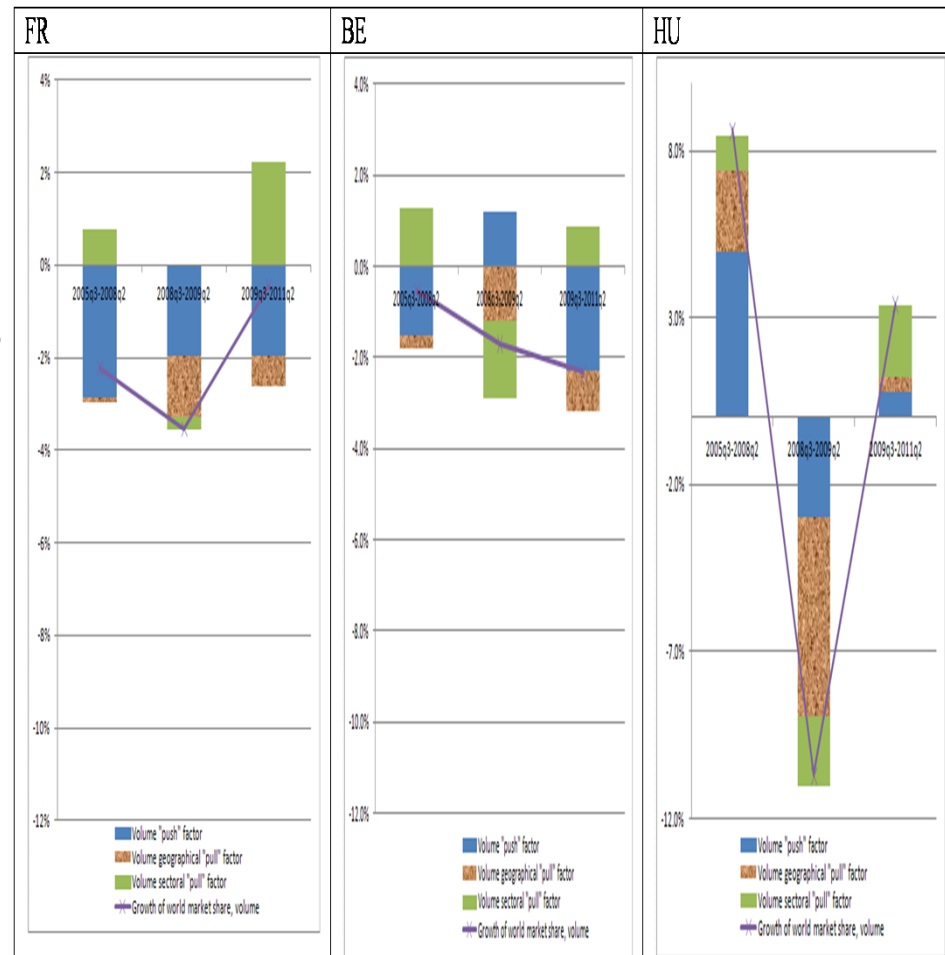
# Firm-level trade data: country and product extensive margins (levels)

- Belgian firms sell more products towards more destinations, but taking into account weights makes the three countries more comparable

|  | France | Belgium | Hungary |
|---|---|---|---|
| number of destinations | 4.3 | 5.7 | 3.4 |
| *inv concentration =equivalent* number of destinations | 1.9 | 2.0 | 1.6 |
| number of product | 2.7 | 3.4 | 3.0 |
| *inv concentration =equivalent* number of product | 1.4 | 1.5 | 1.4 |
| number of destinationsxproducts | 8.3 | 14.7 | 7.5 |
| *inv concentration =equivalent* number of destinationsxproducts | 2.4 | 2.8 | 2.1 |

# Contributions to export growth of the intensive and extensive margins
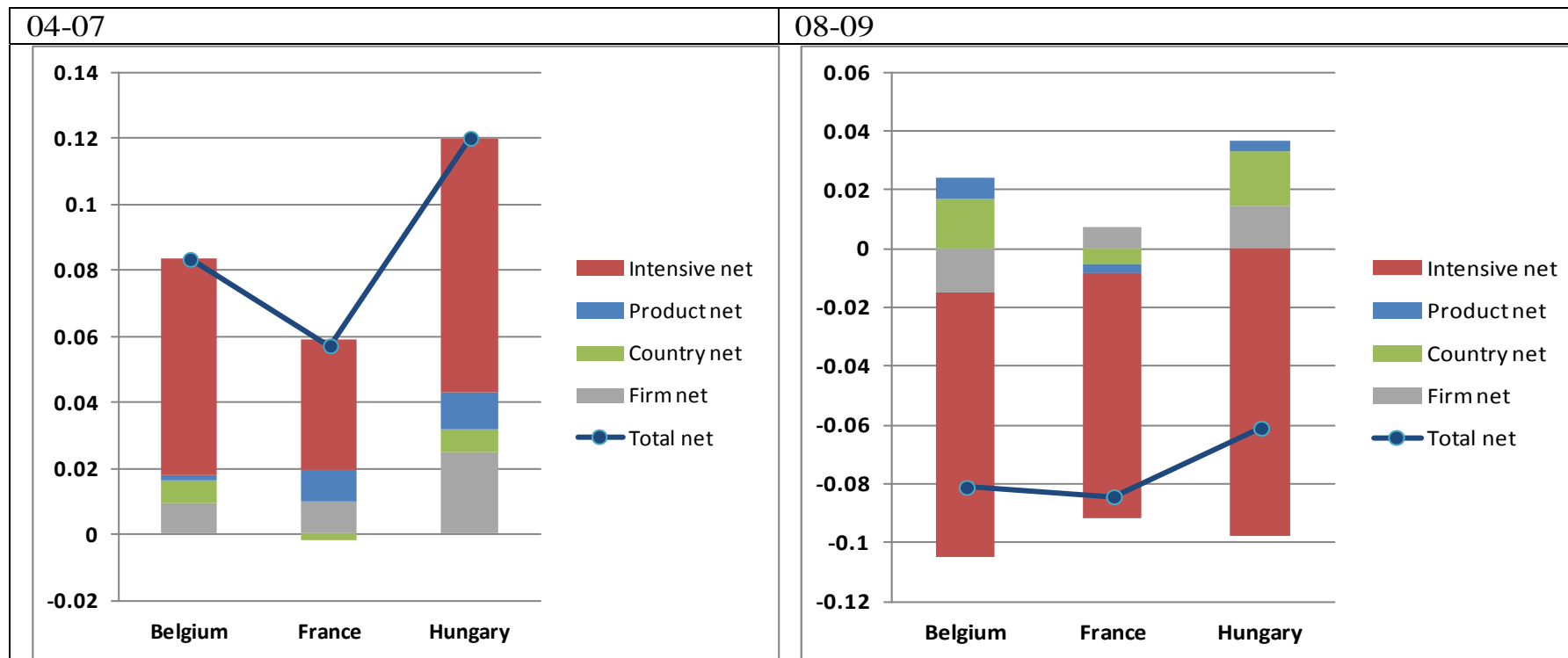


- Before the crisis, in the short-run, the contribution of extensive margins is globally rather limited.
- Yet, even if the intensive margin is predominant, Hungary outperforms Belgium before the crisis (2004-2007) thanks to the extensive margin (firms and product); Belgium outperforms France thanks to the intensive margin (especially the negative intensive margin, more detrimental for France).
- Over the medium term, extensive margins play a bigger role. As they exhibit less heterogeneity across countries, they have a relatively high contribution to growth in countries with slow export growth.
- In the crisis (2009/2007), once again, the export drop is mainly due to the intensive margin, both positive and negative. The negative intensive margin falls more for Belgium, less for France. Nevertheless, the extensive margin plays a (negative) significant role for France.

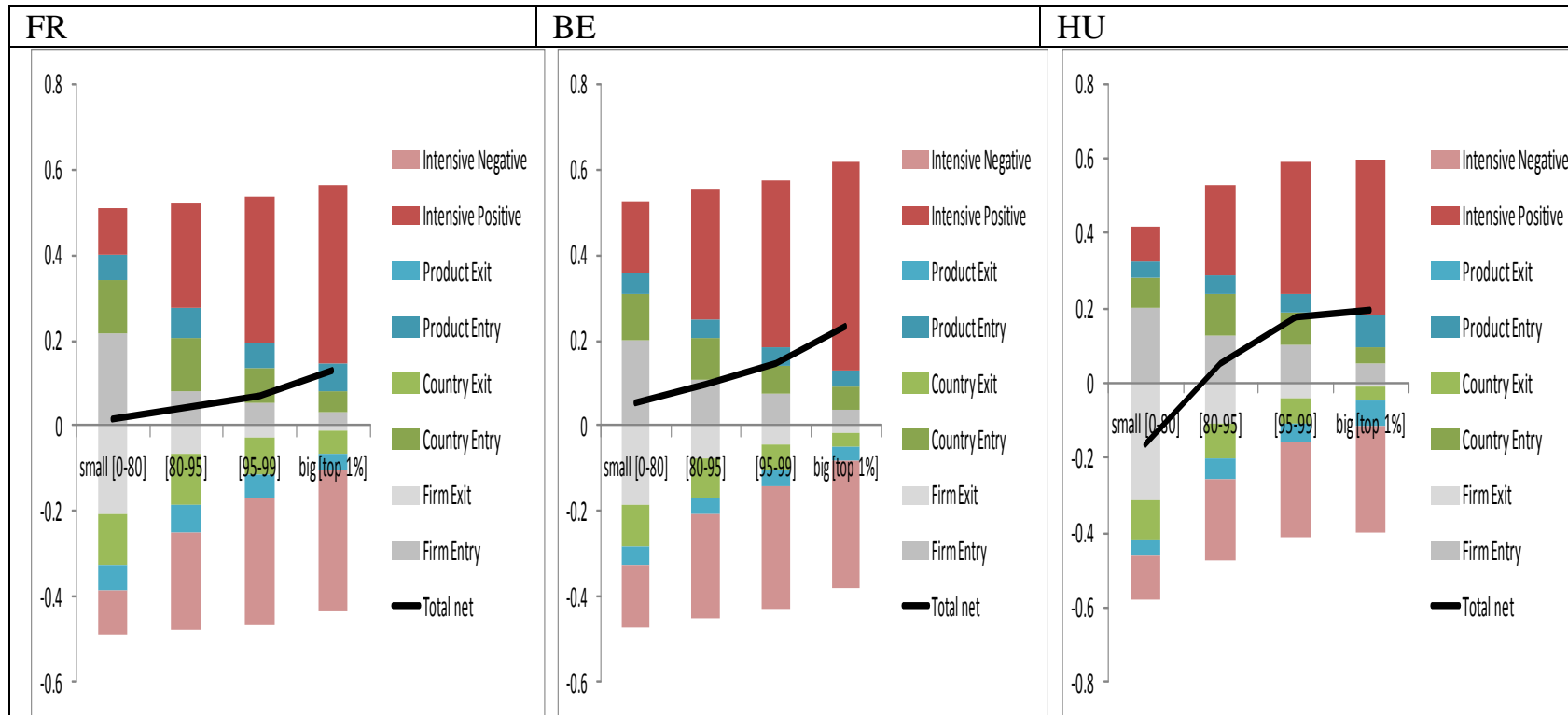# A closer look at the intensive margin
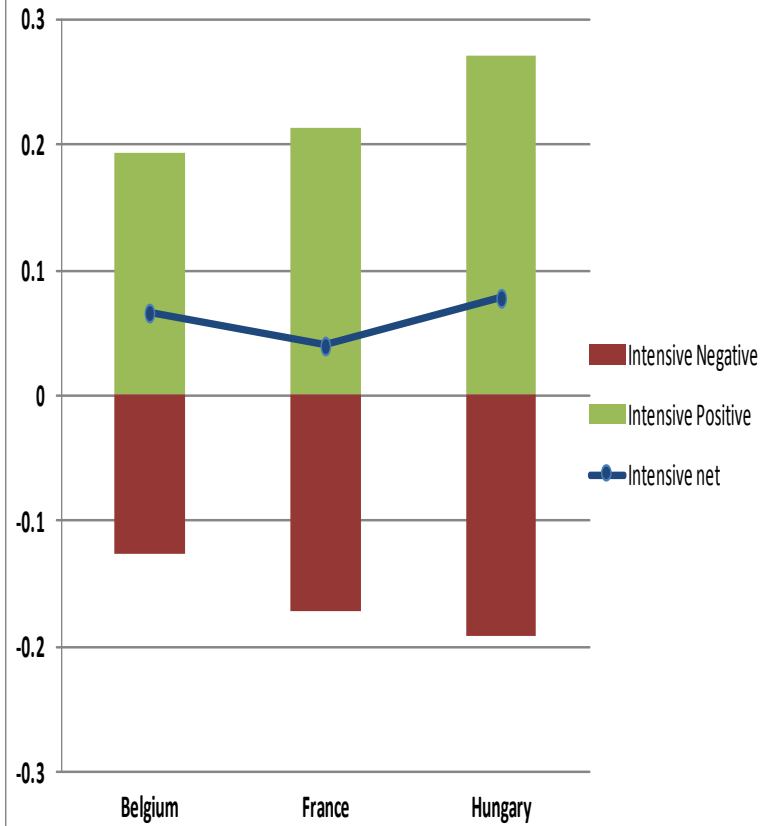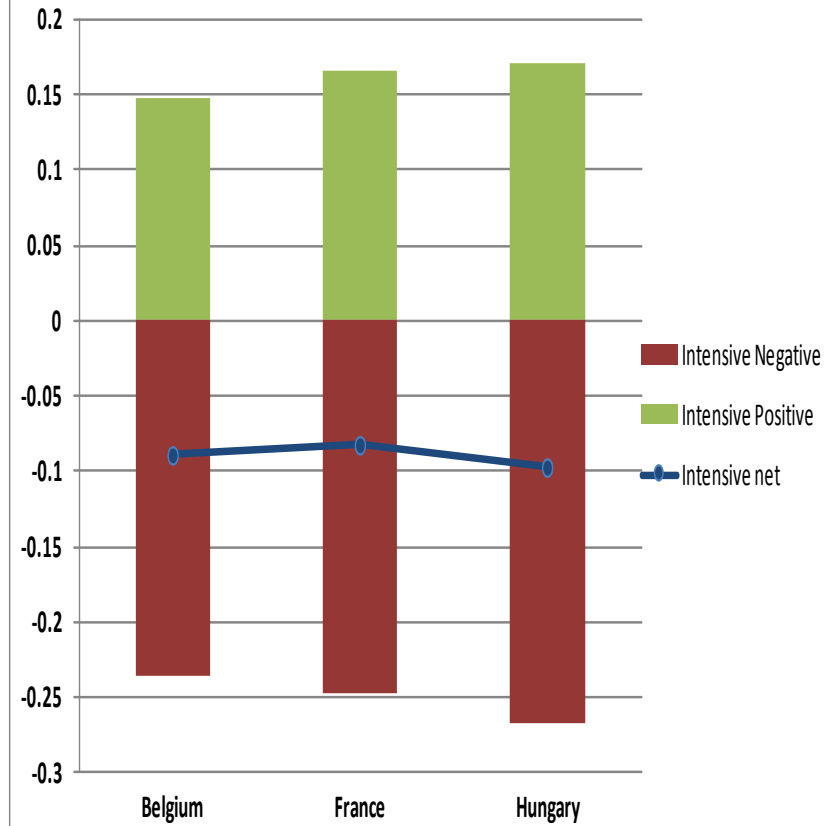
# Margins by exporter size



- The relative importance of the intensive margin is increasing with size. For biggest companies, gross intensive margins are by far predominant.
- It is the opposite for firms' extensive margins, whose importance is decreasing with size, and which are most important among the smallest firms.
- Countries extensive margins are relatively smaller for biggest companies.
- There is no clear pattern for product extensive margins.

# Selected industries



Textile-clothing (5) | Electric-electronic (8) | Motor vehicles (9)
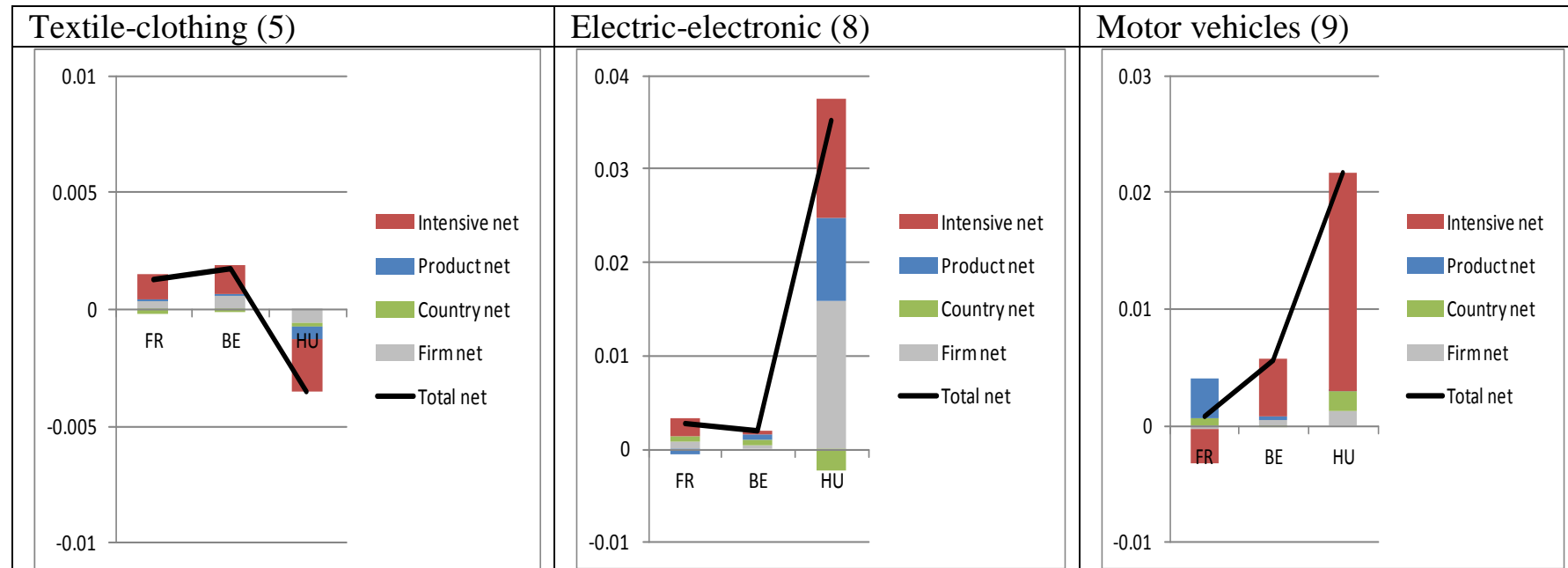
# Procyclicalicity of margins

Correlations with total export growth, within country:

|  | BE | FR | HU |
|---|---|---|---|
| *Total net* | *1* | *1* | *1* |
| Firm net | 0.280 | 0.390 | 0.260 |
| Country net | 0.038 | 0.729 | -0.077 |
| Product net | -0.607 | 0.406 | 0.465 |
| Intensive net | 0.992 | 0.996 | 0.938 |

Cross country correlations, by variable:

|  | BE/FR | BE/HU | FR/HU |
|---|---|---|---|
| Total net | 0.968 | 0.907 | 0.952 |
| Firm net | 0.344 | 0.199 | -0.500 |
| Country net | 0.128 | -0.539 | -0.153 |
| Product net | 0.093 | 0.203 | 0.445 |
| Intensive net | 0.981 | 0.944 | 0.975 |

- Intensive margins are highly pro-cyclical in general, since they account for the bulk of export growth, but less so for small exporters. Firms' margins are also pro-cyclical, but to a lesser extent.
- For the other two margins, findings are not homogeneous: country margins are pro-cyclical in France (73%) but a-cyclical in Belgium and Hungary. Product margins are pro-cyclical in France and Hungary but counter-cyclical in Belgium (-61%, but it comes form biggest exporters only).
- Across countries, total growth correlates mostly because of intensive margins.

# Subset of firms with accounting data

| Average 2004-2008 | | | |
|---|---|---|---|
| | France | Belgium | Hungary |
| Number of firms | 15225 | 2446 | 4669 |
| Percentage of exporters | 70% | 69% | 61% |
| Export entry rate | 6.0% | 5.5% | 4.7% |
| Share of new exporters in employment | 2.3% | 2.2% | 1.8% |
| Export exit rate | 6.5% | 4.7% | 7.4% |
| Share of exiting firms in employment | 2.6% | 1.8% | 1.5% |
| Survival rate (2008) | 52.9% | 54.9% | 41.5% |
| Share of temporary exp (2007) | 13.0% | 7.0% | 12.1% |

# Export premia: Exporters produce more, employ more people, use more capital and are marginally more productive

| Ratios (medians) | | France 2004 | France 2009 | Belgium 2004 | Belgium 2009 | Hungary 2004 | Hungary 2009 |
|---|---|---|---|---|---|---|---|
| Output | Exporters/Non exporters | 2.3 | 2.5 | 3.3 | 3.2 | 3.0 | 4.0 |
| | Domestic exp/non exp | 2.0 | 2.2 | 2.5 | 3.0 | 2.3 | 3.2 |
| | Foreign exp/non exp | 2.8 | 2.8 | 2.8 | 2.9 | 1.8 | 2.3 |
| Employment | Exporters/Non exporters | 1.5 | 1.5 | 1.8 | 1.8 | 1.8 | 2.1 |
| | Domestic exp/non exp | 1.4 | 1.4 | 1.4 | 1.7 | 2.2 | 1.8 |
| | Foreign exp/non exp | 2.2 | 2.0 | 1.8 | 2.4 | 2.0 | 2.0 |
| Value added | Exporters/Non exporters | 1.9 | 2.1 | 2.3 | 2.4 | 2.6 | 3.3 |
| | Domestic exp/non exp | 1.7 | 1.9 | 1.8 | 2.2 | 3.0 | 2.6 |
| | Foreign exp/non exp | 2.3 | 2.4 | 1.7 | 1.4 | 1.6 | 1.9 |
| Labour productivity | Exporters/Non exporters | 1.28 | 1.37 | 1.31 | 1.29 | 1.41 | 1.52 |
| | Domestic exp/non exp | 1.20 | 1.31 | 1.32 | 1.28 | 1.41 | 1.40 |
| | Foreign exp/non exp | 1.02 | 1.22 | 0.96 | 0.58 | 0.80 | 0.99 |
| TFP | Exporters/Non exporters | 1.06 | 1.06 | 1.10 | 1.12 | 1.20 | 1.27 |
| | Domestic exp/non exp | 1.06 | 1.04 | 1.09 | 1.11 | 1.01 | 1.35 |
| | Foreign exp/non exp | 1.09 | 1.11 | 1.10 | 1.03 | 0.73 | 0.96 |

# Do exporters grow faster?

| Total manuf | | 04-07 France | 04-07 Belgium | 04-07 Hungary | 08-09 France | 08-09 Belgium | 08-09 Hungary |
|---|---|---|---|---|---|---|---|
| Employment | Exporters | -0.7% | -0.4% | *0.0%* | -3.0% | -1.1% | -4.5% |
| | Non exporters | **-0.3%** | **1.1%** | *-1.2%* | **-1.2%** | **0.5%** | -4.2% |
| Value added | Exporters | **3.5%** | 1.6% | **4.5%** | -5.6% | -4.5% | *-8.4%* |
| | Non exporters | 2.2% | 1.6% | *3.3%* | **-4.0%** | **-1.1%** | ***-9.2%*** |
| Labour productivity | Exporters | **4.2%** | **2.0%** | 4.5% | -2.5% | -3.4% | *-3.8%* |
| | Non exporters | 2.5% | 0.5% | 4.5% | -2.8% | **-1.6%** | ***-5.0%*** |
| TFP | Exporters | **2.9%** | **1.8%** | **4.8%** | **-5.0%** | -3.9% | *-8.1%* |
| | Non exporters | 1.6% | 0.9% | *2.6%* | -5.6% | **-1.4%** | ***-9.0%*** |