Constant Market Shares Beyond the Extensive Margin of External Trade: Indicators for CompNet Macro Toolkit

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Overview

1. Motivation
2. Constant Market Shares Methodology
   - Traditional
   - Extensions
   - Interpretation
3. Results and Applications
   - Data and Results
   - Applications, the example of Bulgaria

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Motivation

- Concerns about competitiveness after the global crisis
- Huge variance within the factors of traditional CMS
- Turbulence in trade resulted in shifts in trade patterns
- Extensive margin is not to be underestimated
- Unexplained residual

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Tyszynski (1951) till Jiménez & Martín(2010)

$$g^A - g^* = \underbrace{\sum_{j=1}^{M}\sum_{k=1}^{N}(s_{jk}^A - s_{jk}^*)g_{jk}^*}_{\text{Structural Effect(SE)}} + \underbrace{\sum_{j=1}^{M}\sum_{k=1}^{N}s_{jk}^A(g_{jk}^A - g_{jk}^*)}_{\text{Competitiveness Effect(CE)}}$$

g - export growth, s - share in total exports
A - focus country, * - benchmark region
j - trade partner, k - product group
M - number of trade partners, N - number of product groups

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Tyszynski (1951) till Jiménez & Martín(2010) (2)

$$SE = \underbrace{\sum_{j=1}^{M}(s_j^A - s_j^*)g_j^*}_{\text{Market Effect(ME)}} + \underbrace{\sum_{j=k}^{N}(s_k^A - s_k^*)g_k^*}_{\text{Product effect(PE)}} +$$

$$+ \underbrace{\sum_{j=1}^{M}\sum_{k=1}^{N}\left[(s_{jk}^A - s_{jk}^*) - (s_k^A - s_k^*)\frac{s_{jk}^*}{s_k^*} - (s_j^A - s_j^*)\frac{s_{jk}^*}{s_j^*}\right]g_{jk}^*}_{\text{Structural Mixed Effect(SME)}}$$

Motivation

- Extensive margin is also important.
- Specialization vs Diversification?
  - Specialization has a cost - Missed opportunities!
  - We need an "anti-structural" effect

Extensions to the Traditional CMS

$$\text{Extensive Margin Effect} = \sum_{j=1}^{M_{ext}} \sum_{k=1}^{N_{ext}} \left(\frac{V^A_{jkt} - V^A_{jk0}}{V^A_0} - \frac{V^*_{jkt} - V^*_{jk0}}{V^*_0} \right)$$

$$\text{Opportunity Loss Effect} = \sum_{j=1}^{M_{opl}} \sum_{k=1}^{N_{opl}} -s^*_{jk} g^*_{jk}$$

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Interpretation

- Extensive Margin Effect
  - Difference between the contribution of all trade lines on the extensive of the focus country and the same trade lines in the benchmark region.
  - Six cases that determine the sign and magnitude of the effect - difficult to interpret without disaggregated results.
- Opportunity Loss Effect
  - The "anti-structural" effect.
  - Cumulatively negative in times of overall world exports growth.
  - Could be positive during crisis.
  - Again, disaggregated contributions are needed for in-depth analysis.

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Data

- Source: BACI Database
- Product Classification: HS6
- Covered period: 1998 - 2011

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Results

- Reporters: 47 Major Exporters
- Contribution to Exports Growth Rate
  - Trade lines: 14 894 111 (1 147 677 unique) per reporter
  - Product, market, structural mixed and competitiveness effect contributions to export growth for all trade lines on the intensive margin.
  - Extensive margin effect for all trade lines on the extensive margin.
  - Opportunity loss effect for the rest.
- Size: ∼10GB of CSV files

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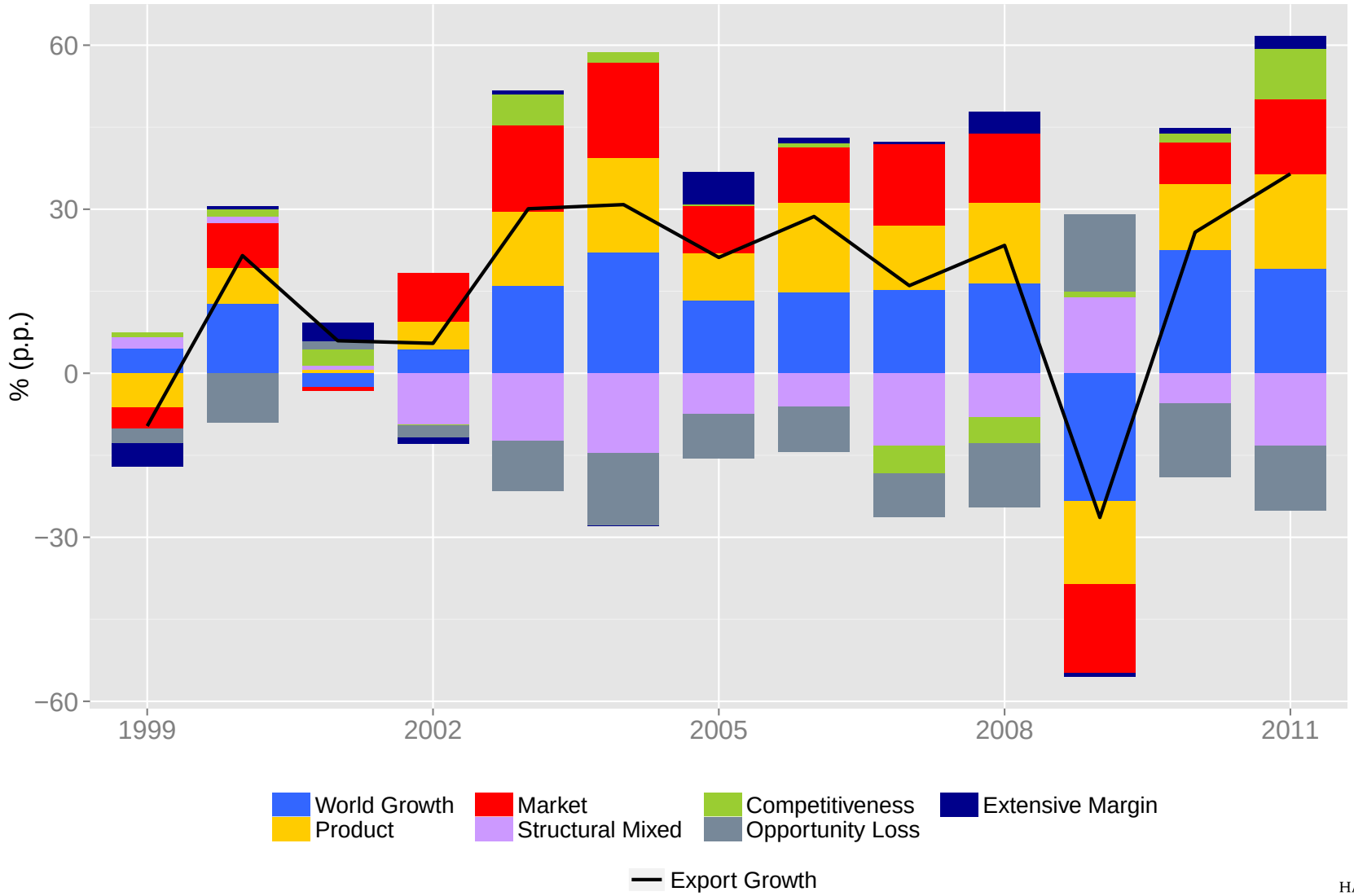
Results (2)

```
period,product,reporter,partner,comptvn_effect
.....
2007,720927,100,807,-0.0034297189673791 5
2007,721012,100,807,0.0016469046068099 1
2007,721041,100,807,-2.5654090903974 9e-06
2007,721049,100,807,-0.0005659151919533 7
2007,721070,100,807,-3.9321617210294 4e-05
2007,721090,100,807,-0.0001652080172581 37
2007,721114,100,807,-0.0002123990992099 5
2007,721119,100,807,-0.0006870253469212 4
2007,721123,100,807,-0.0003455885597915 65
2007,721129,100,807,-7.5205577754156e-05
2007,721210,100,807,4.0456017526503 9e-05
2007,721240,100,807,-7.3497748574926 4e-05
.....
```

Aggregated Results



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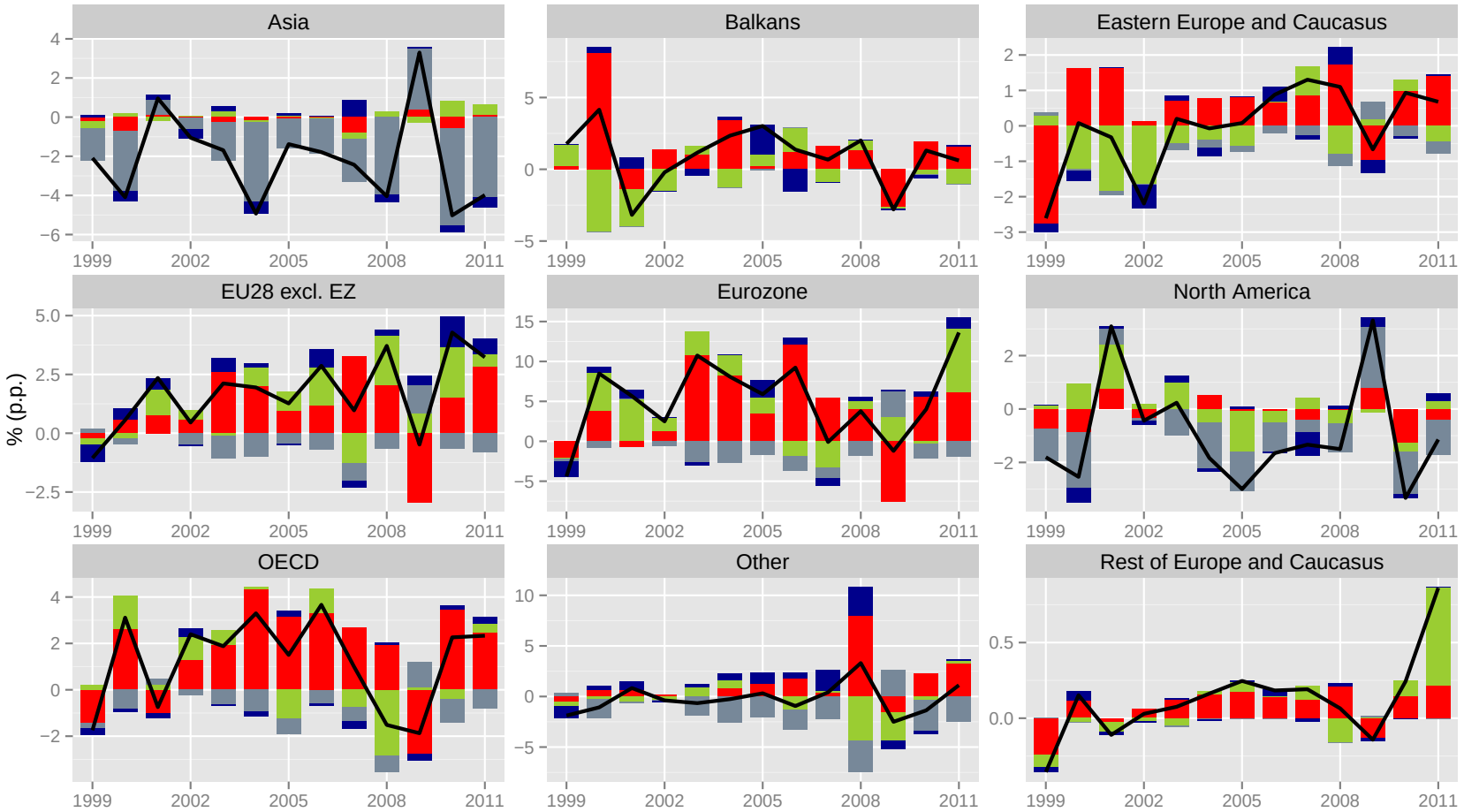
Source: BACI data; Bulgarian National Bank calculations

Regions



Source: BACI data; Bulgarian National Bank calculations

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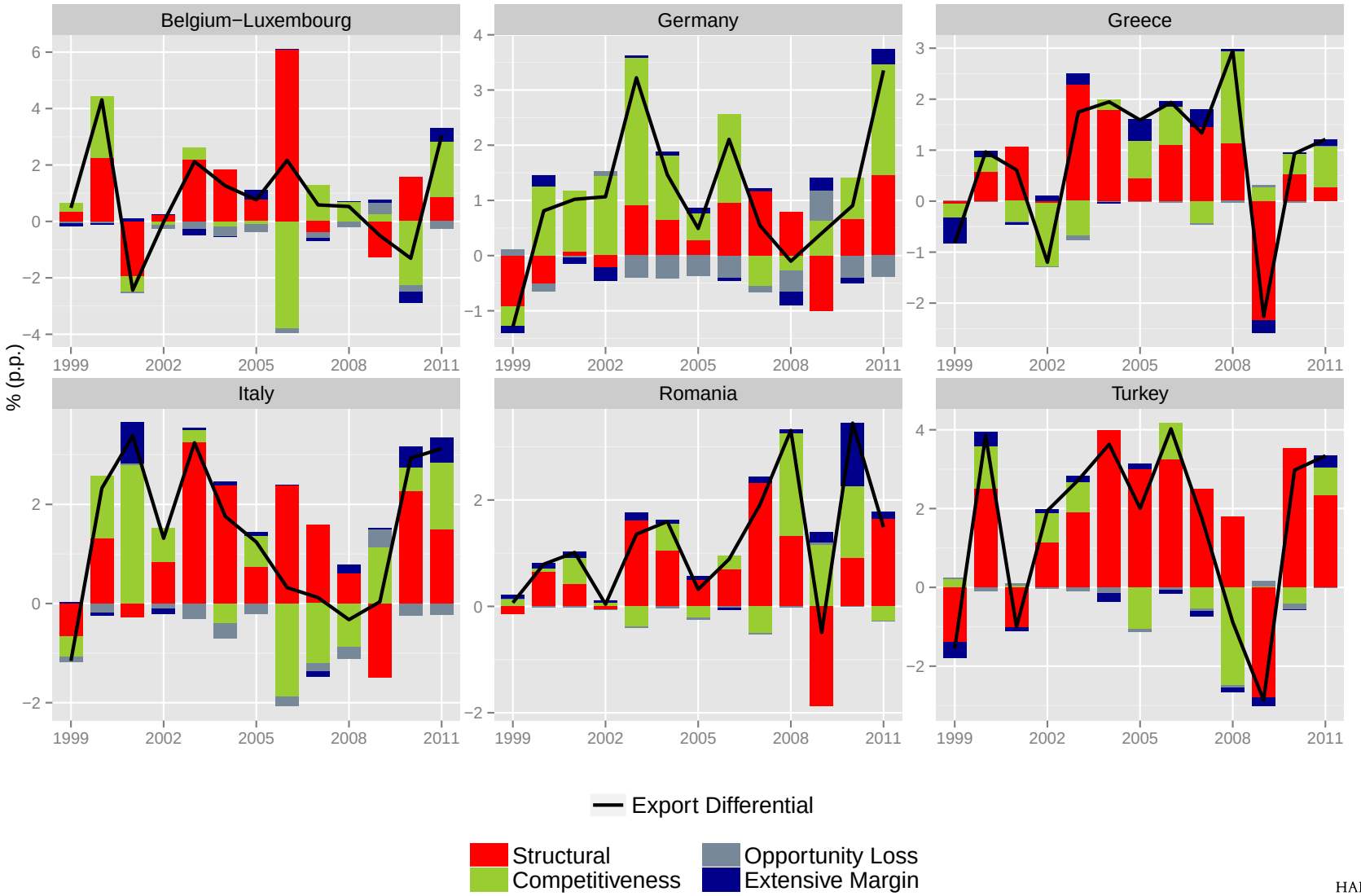
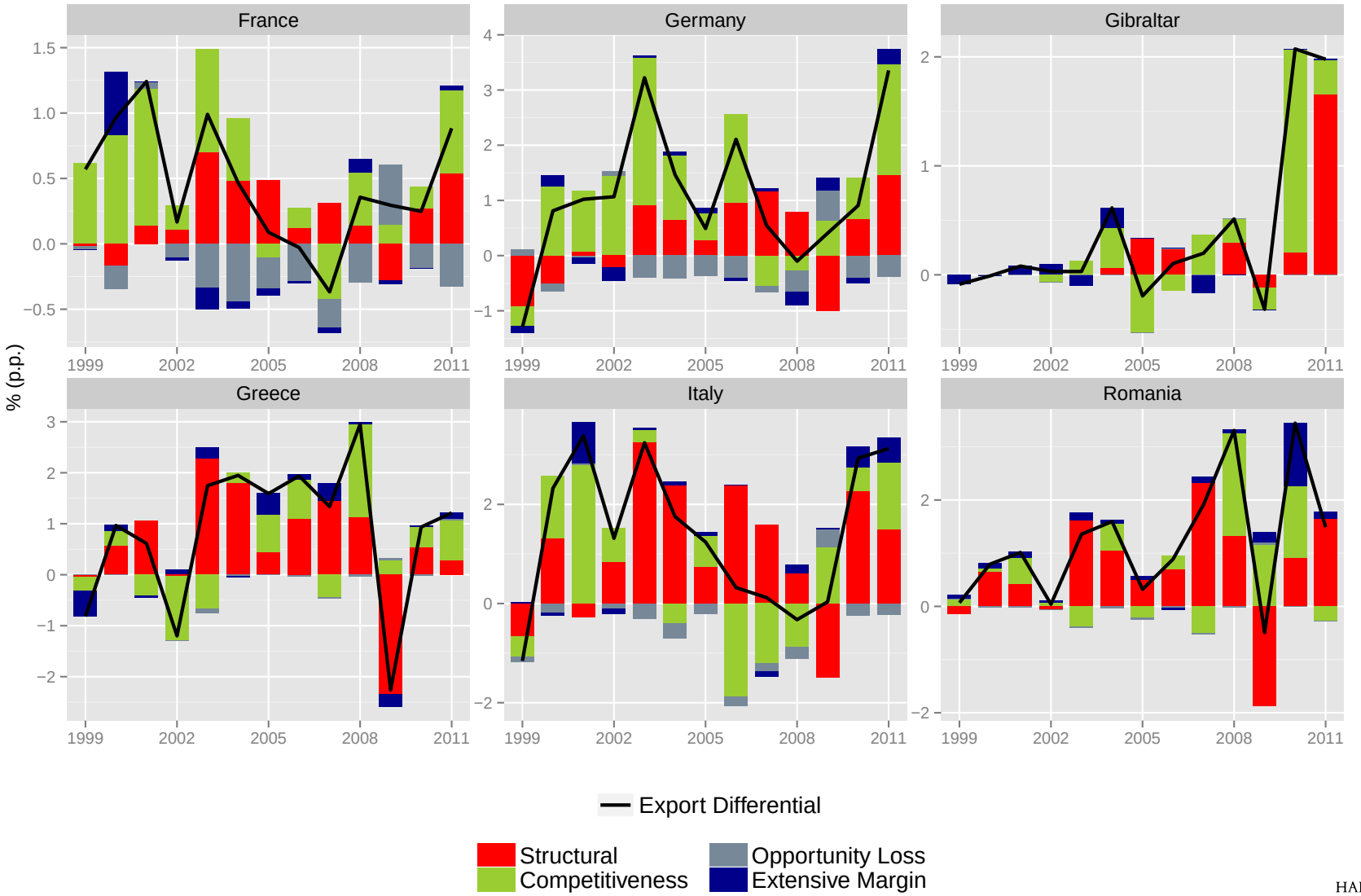
Partners, Total Contribution



Source: BACI data; Bulgarian National Bank calculations

Partners, Competitiveness Contribution



Source: BACI data; Bulgarian National Bank calculations

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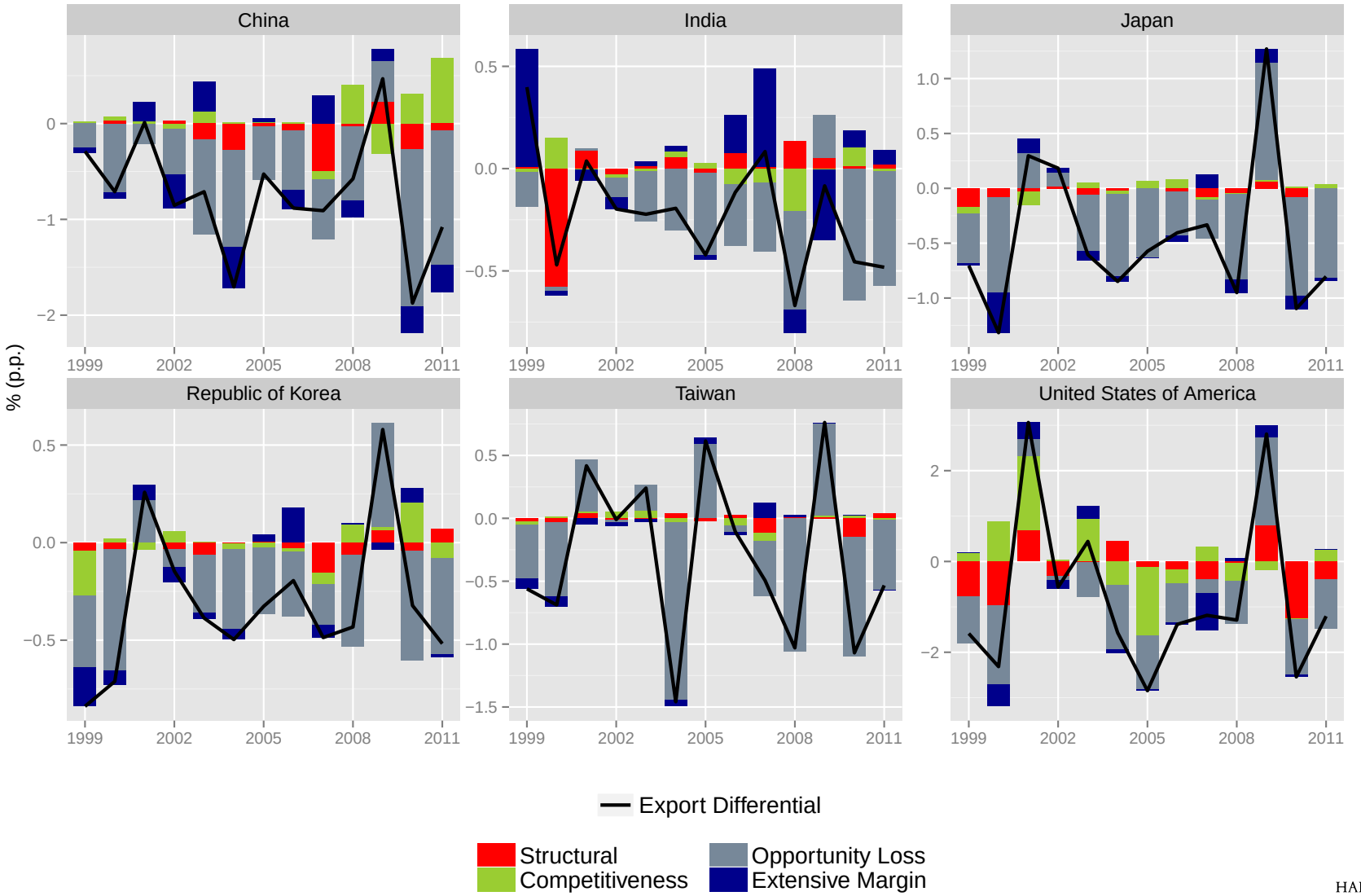
Partners, OppLoss Contribution



Source: BACI data; Bulgarian National Bank calculations

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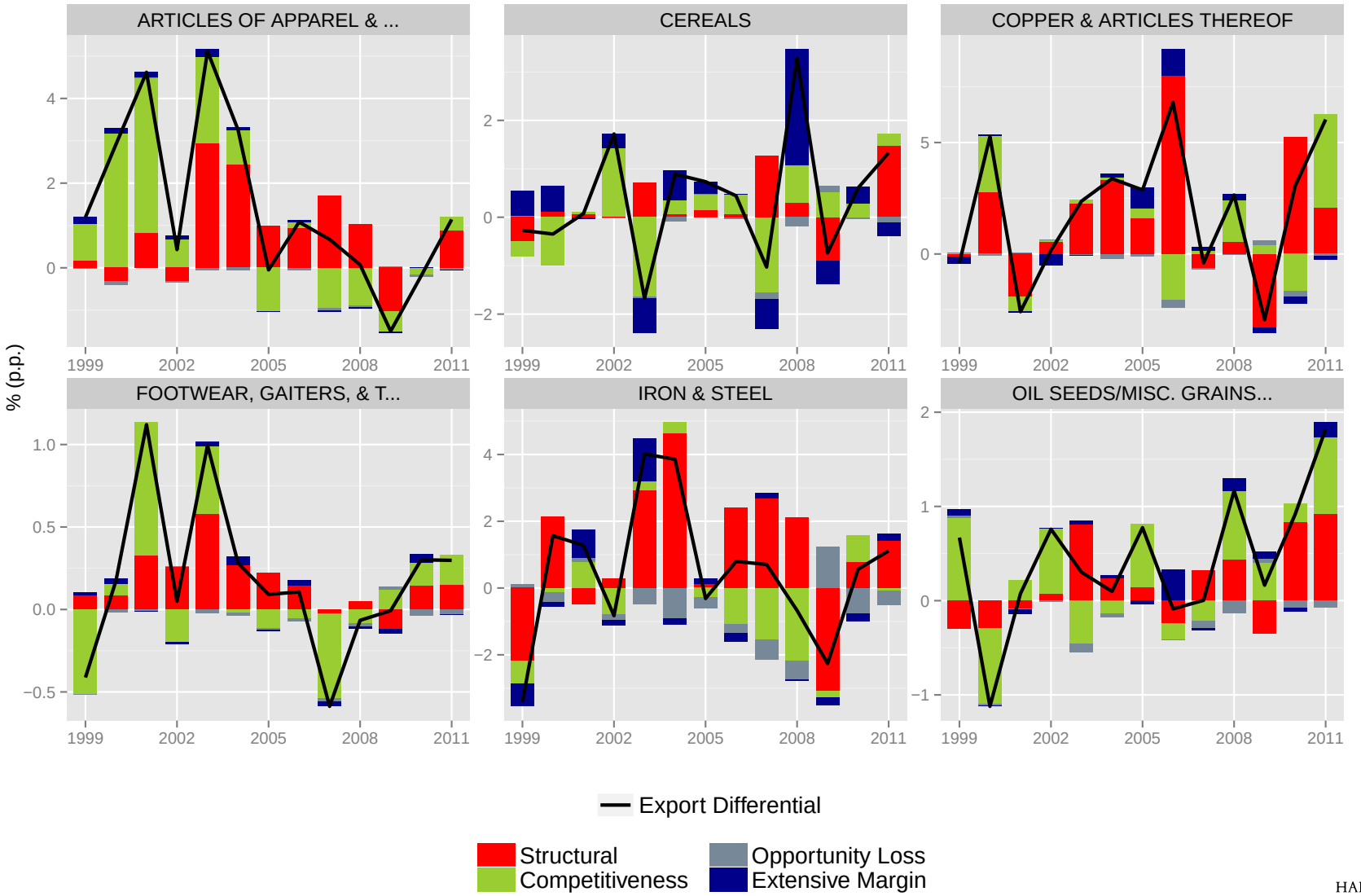
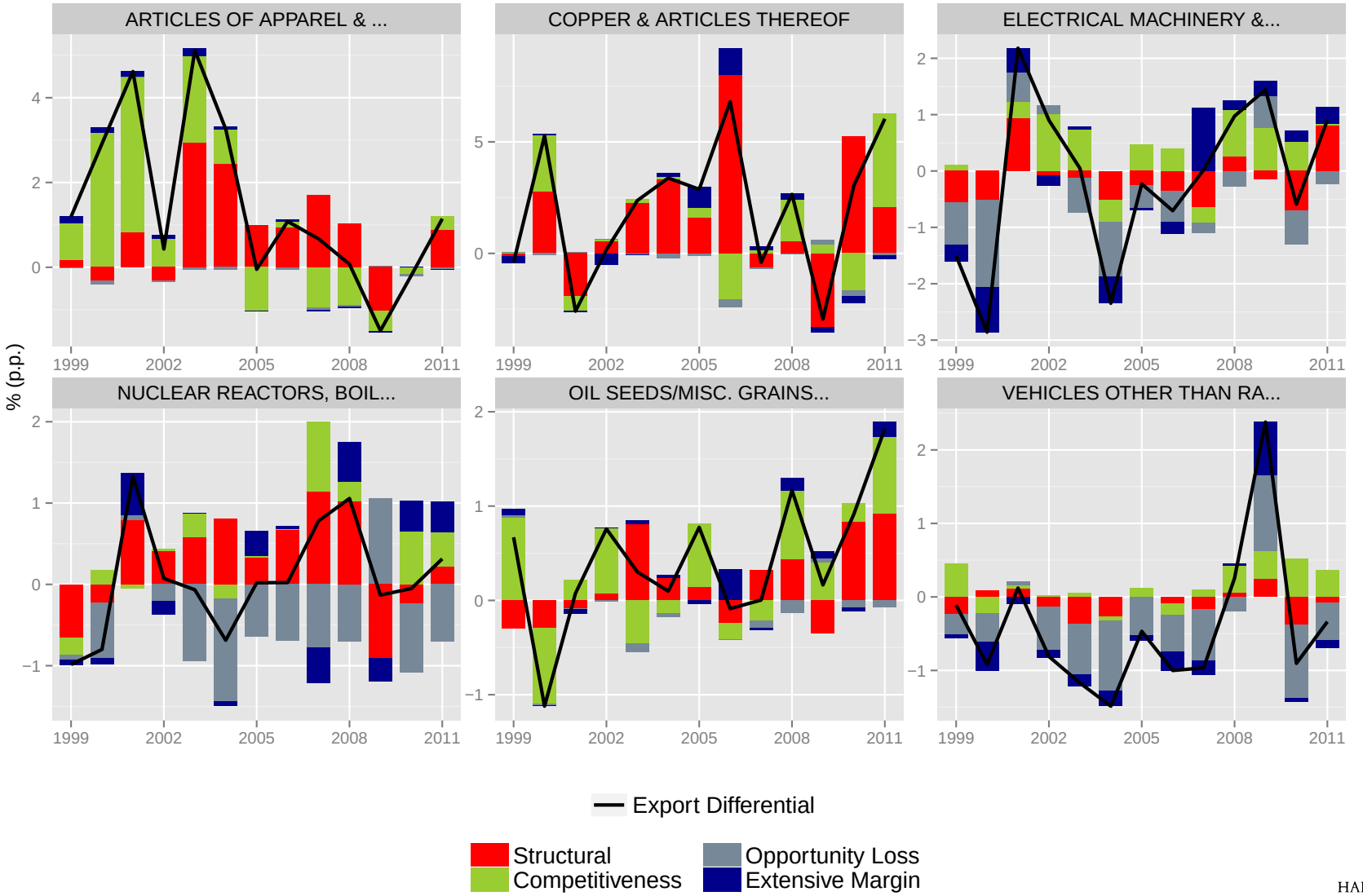
Products, Total Contribution



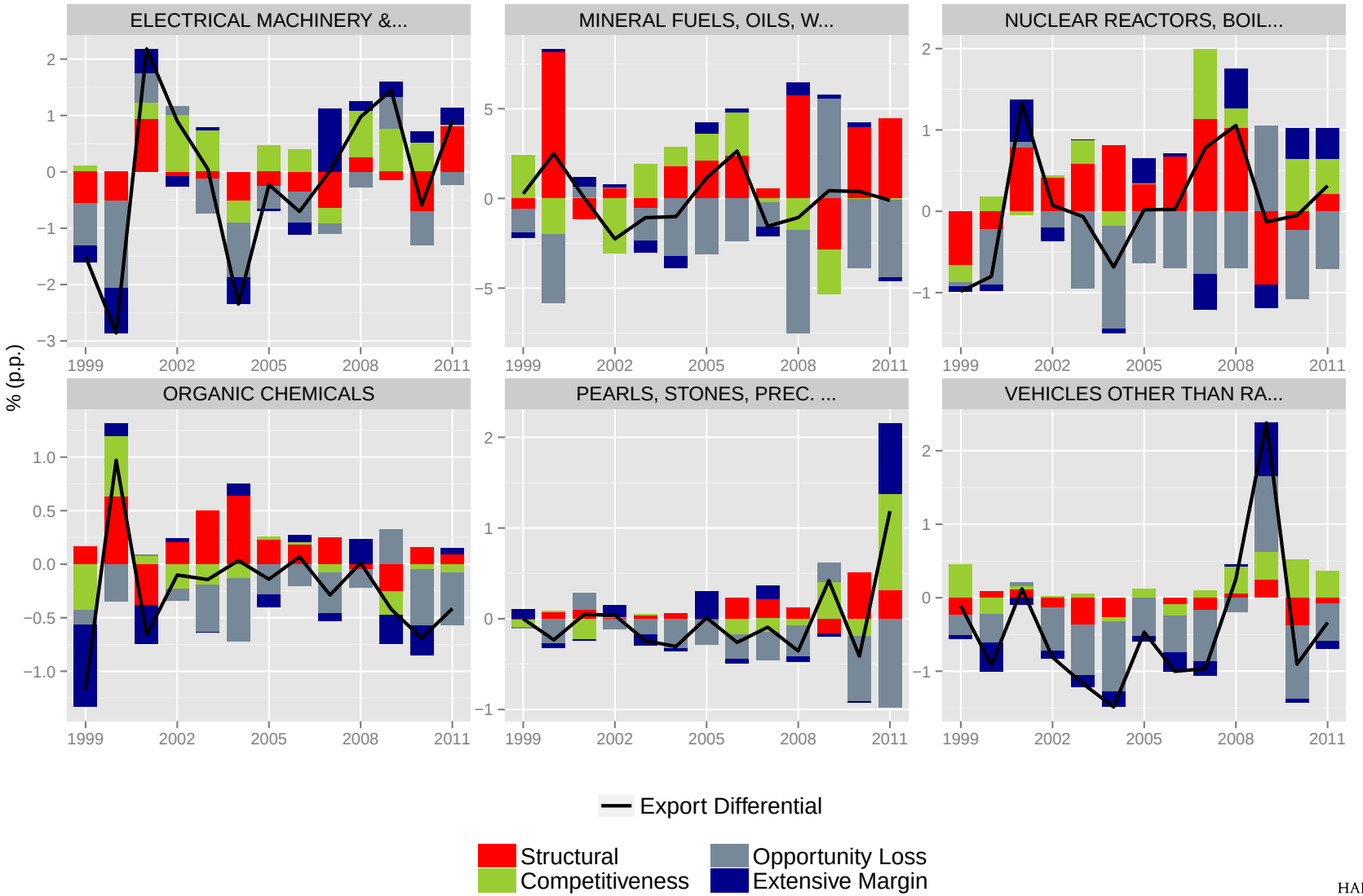
Source: BACI data; Bulgarian National Bank calculations

Products, Competitiveness Contribution



Source: BACI data; Bulgarian National Bank calculations

Products, OppLoss Contribution



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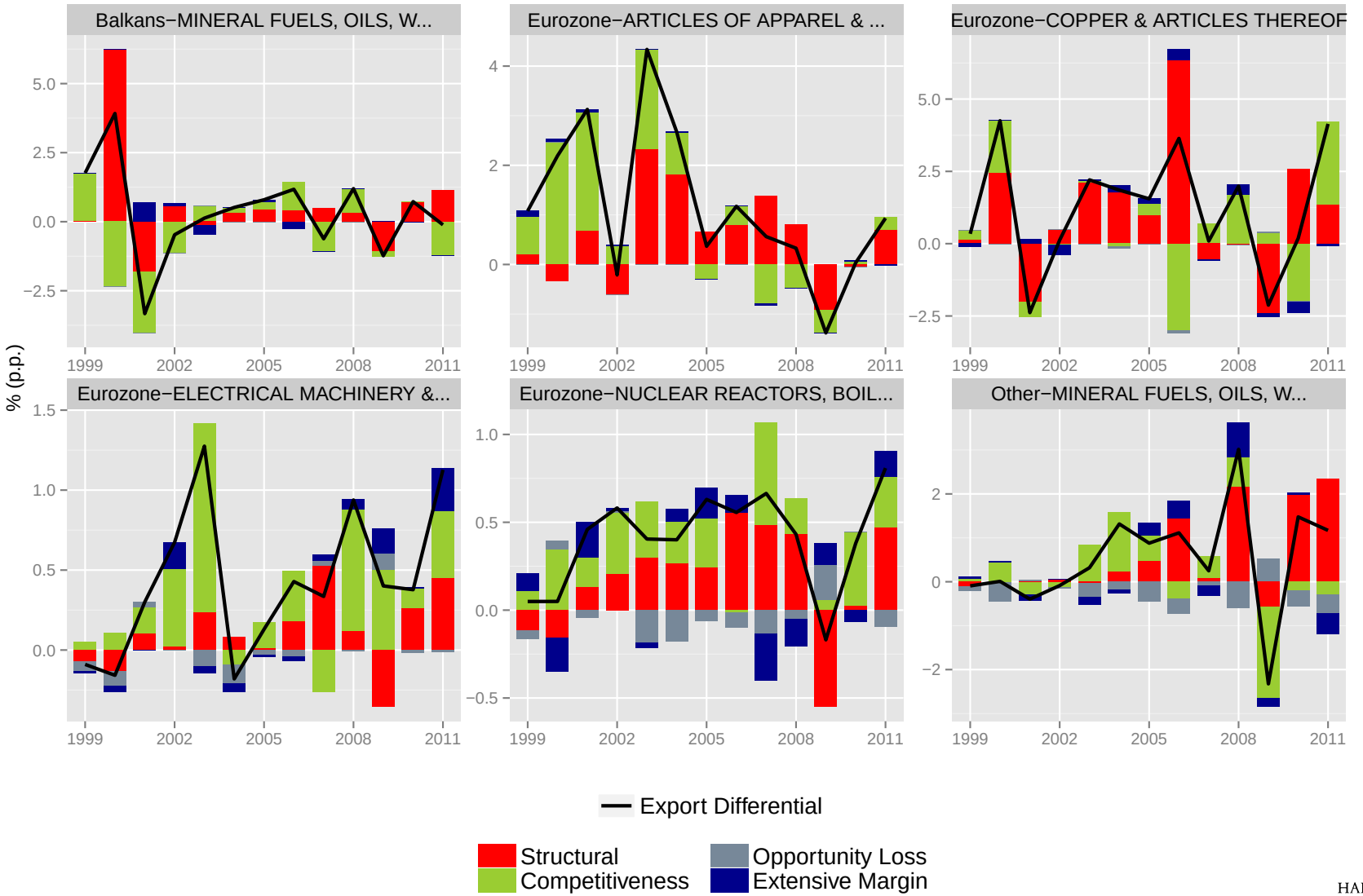
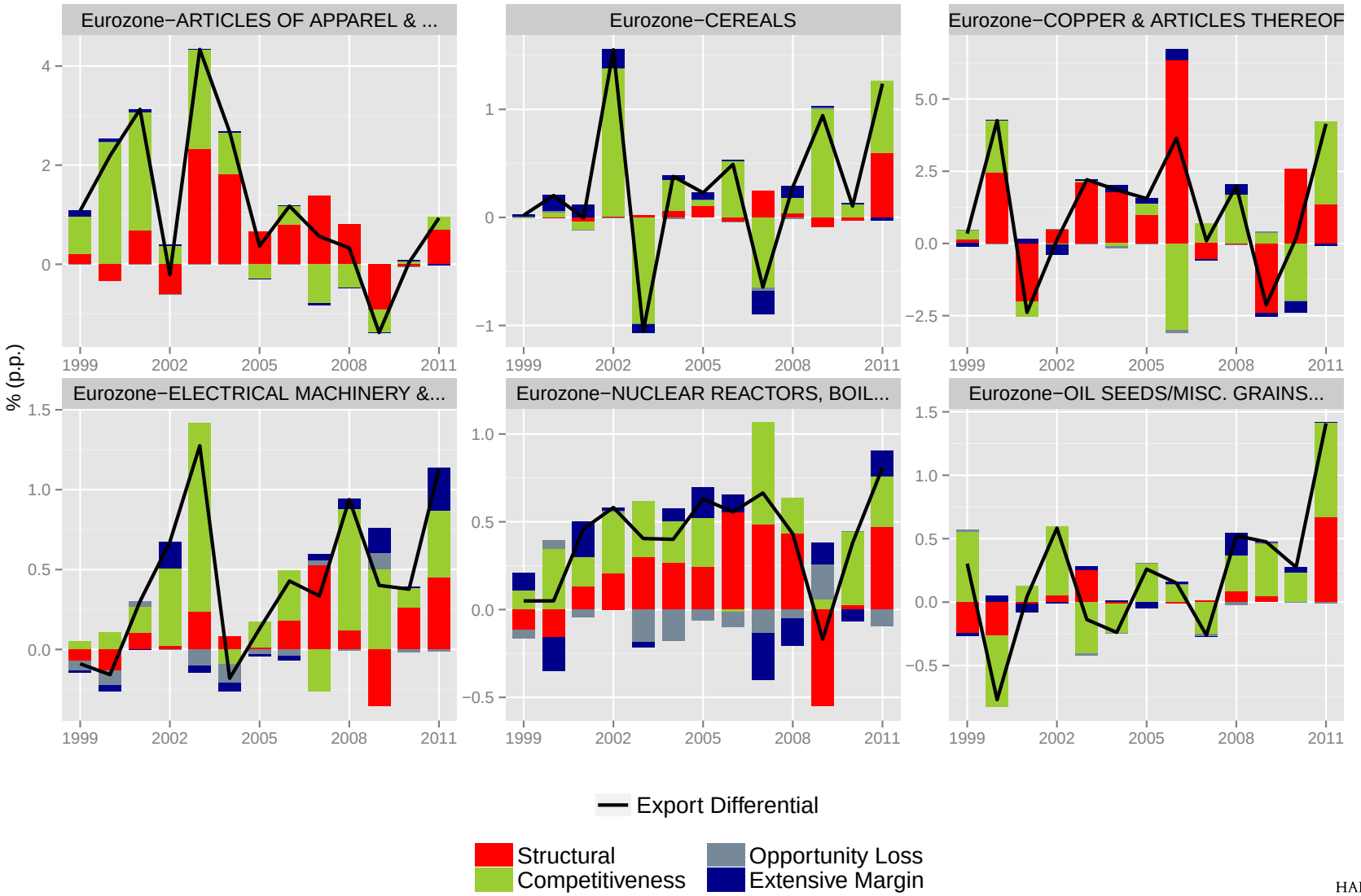
Source: BACI data; Bulgarian National Bank calculations

Products-Regions, Total Contribution



Source: BACI data; Bulgarian National Bank calculations

Products-Regions, Competitiveness Contribution



Source: BACI data; Bulgarian National Bank calculations

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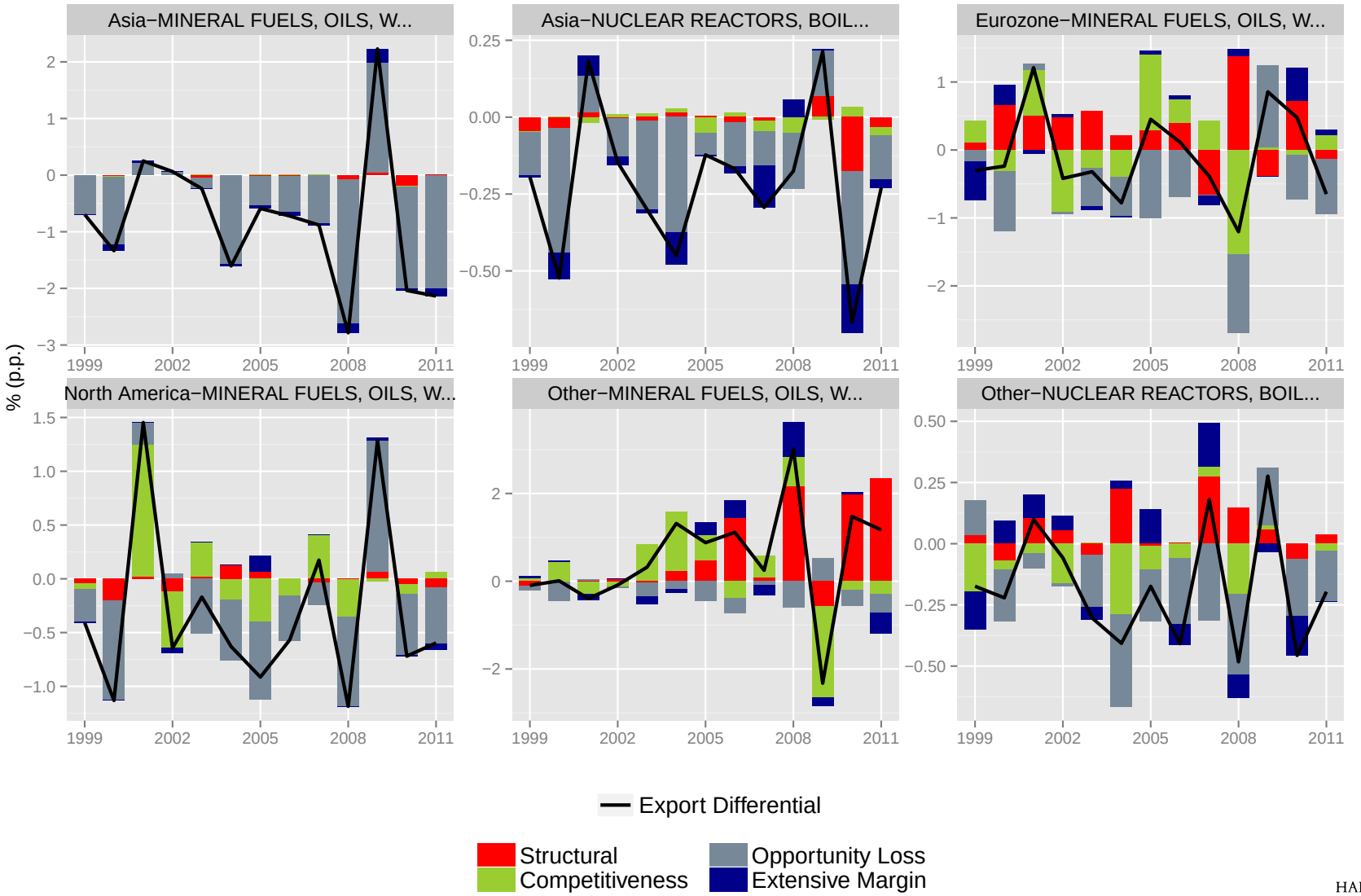
Products-Regions, OppLoss Contribution



Source: BACI data; Bulgarian National Bank calculations

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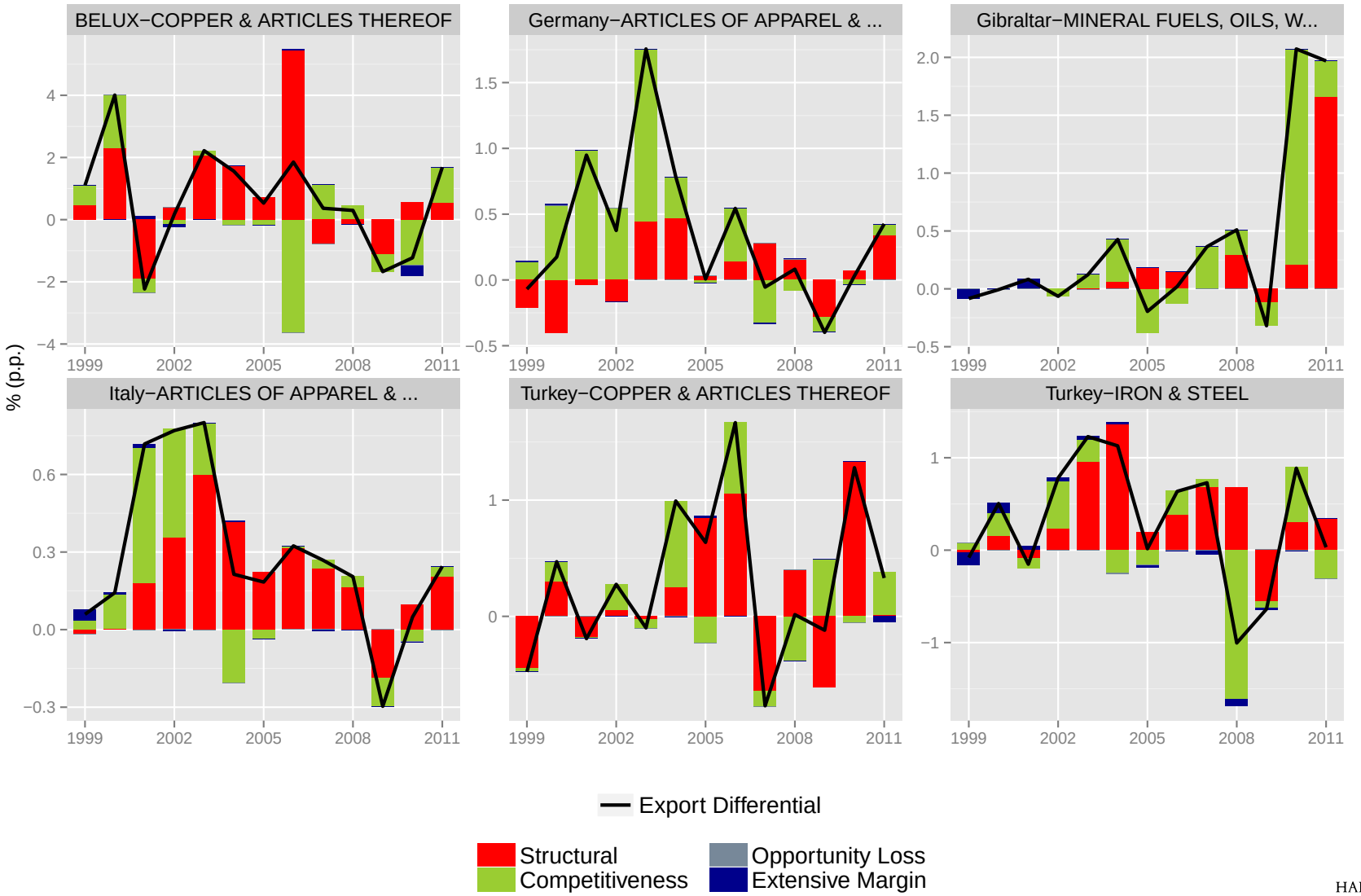
Products-Partners, Total Contribution



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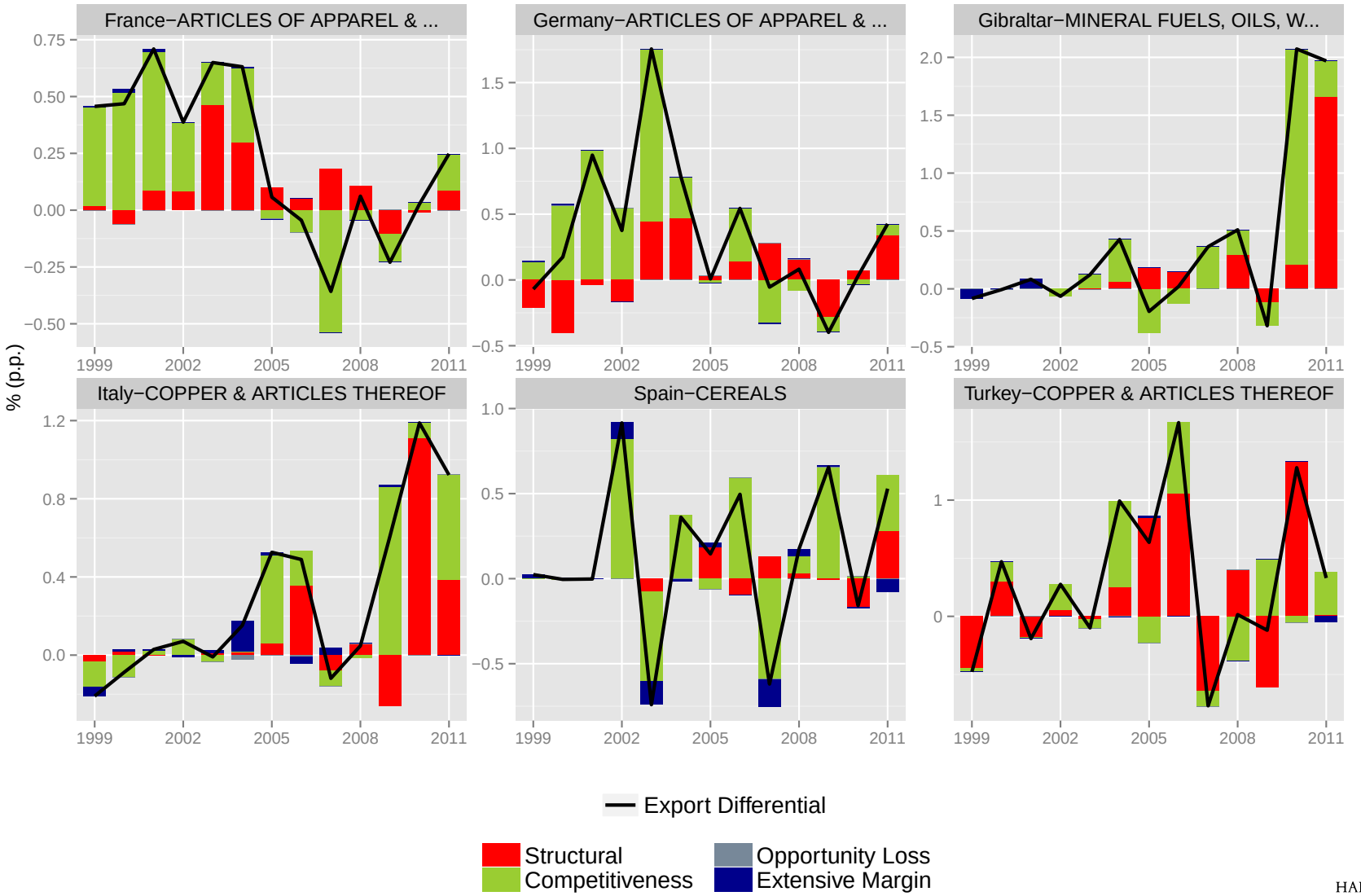
Source: BACI data; Bulgarian National Bank calculations

Products-Partners, Competitiveness Contribution



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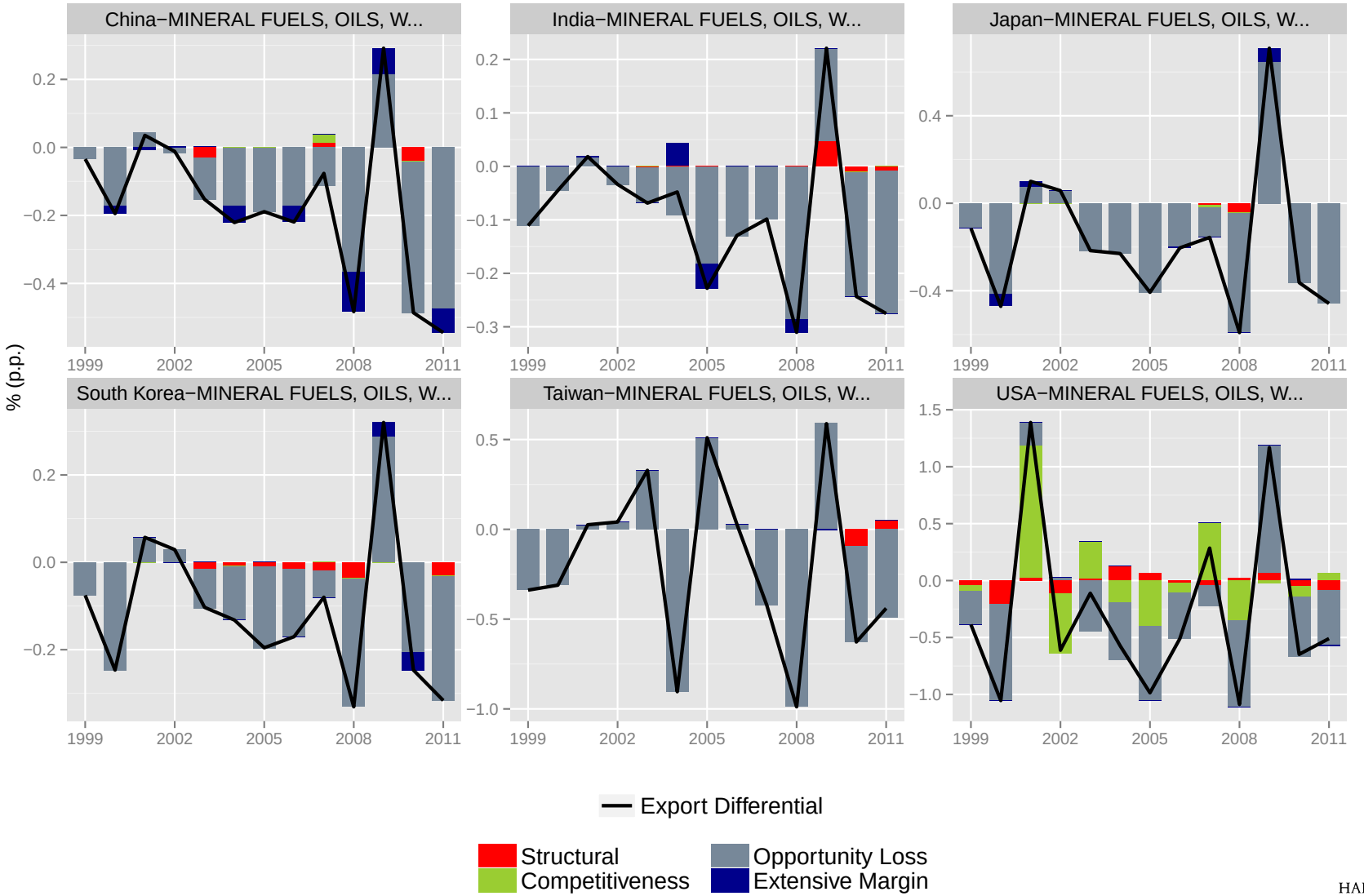
Source: BACI data; Bulgarian National Bank calculations

Products-Partners, OppLoss Contribution



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Source: BACI data; Bulgarian National Bank calculations

Thank you!

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