Trade balance contributions of price and non-price factors: a cross-country analysis

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Outline

- **Introduction**

- **Methodology and data**

- **Descriptive analysis:** Price and non-price decomposition of trade balance

- **Econometric analysis:** Trade balance, its components and future growth

- **Conclusion**

Motivation and objectives

- **The divergence in trade performances across countries cannot solely be attributed to price and cost developments.**

- **A metric for non-price factors driving trade balance**

- **Disentangle the respective roles of price and non-price factors to analyse trade balance developments.**

- **Gain insight on tailor-made rebalancing policies**

- **Explore the relationship between trade balance (and its main components) and future growth.**

Methodology

- **We build on Aiginger (1997)** **to decompose trade balance into the parts driven by price and non-price factors.**
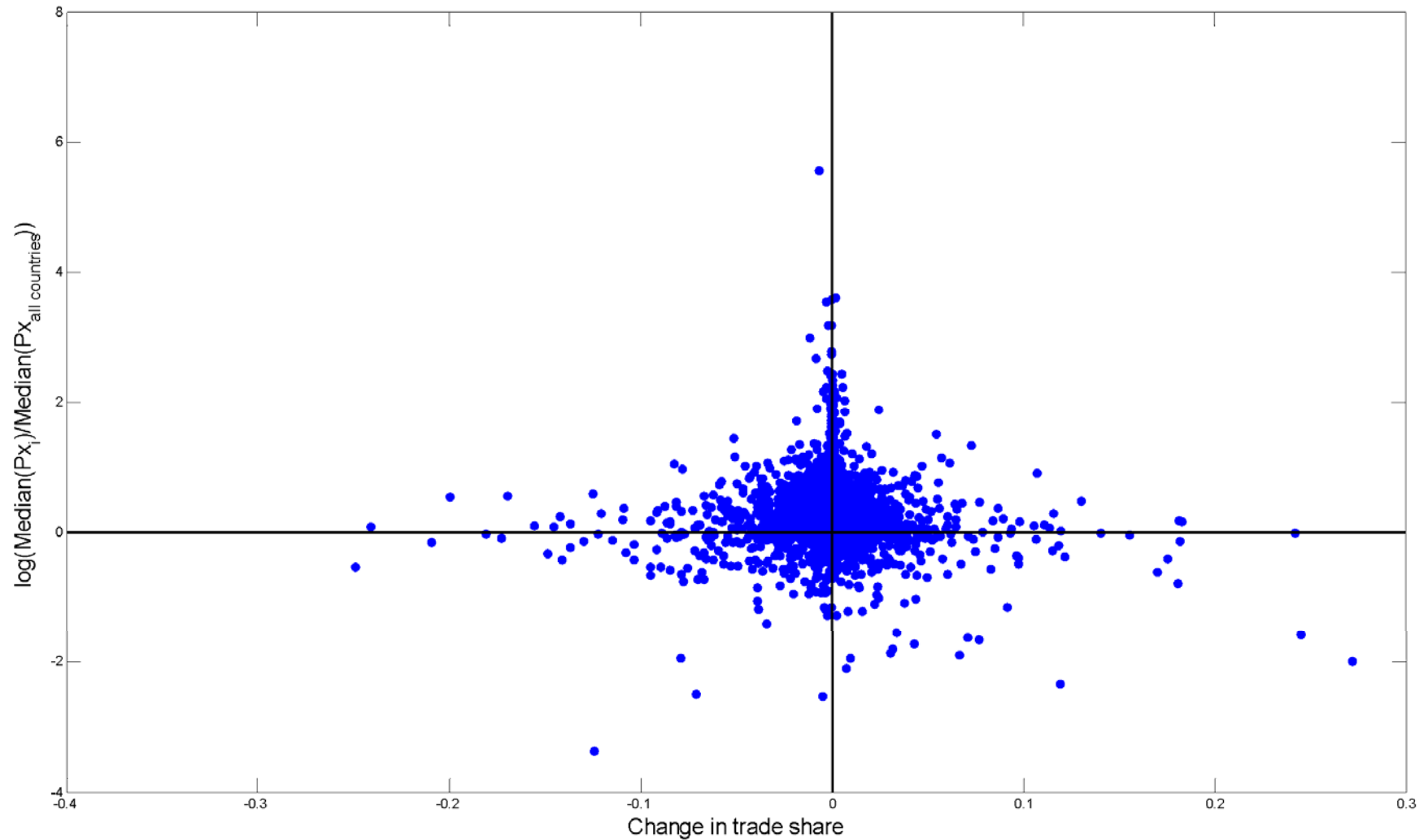
  > **NON-PRICE FACTORS** : *Quality, product reputation and variety, availability and reliability of supplementary services and consumer preferences, efficiency of sales networks, unique placement in the global value chain, geographic orientation, etc.*

- **Our major contributions**

  – **Modify the method:** now based on export data only

  – **Tackle the aggregation** bias by analysing the most disaggregated data

  – **Complete decomposition of the trade balance:** natural resource endowments, price and non-price, 'unclassifiable'

- **Data**

  – United Nations COMTRADE **HS-6 product level (>5000 sectors**)

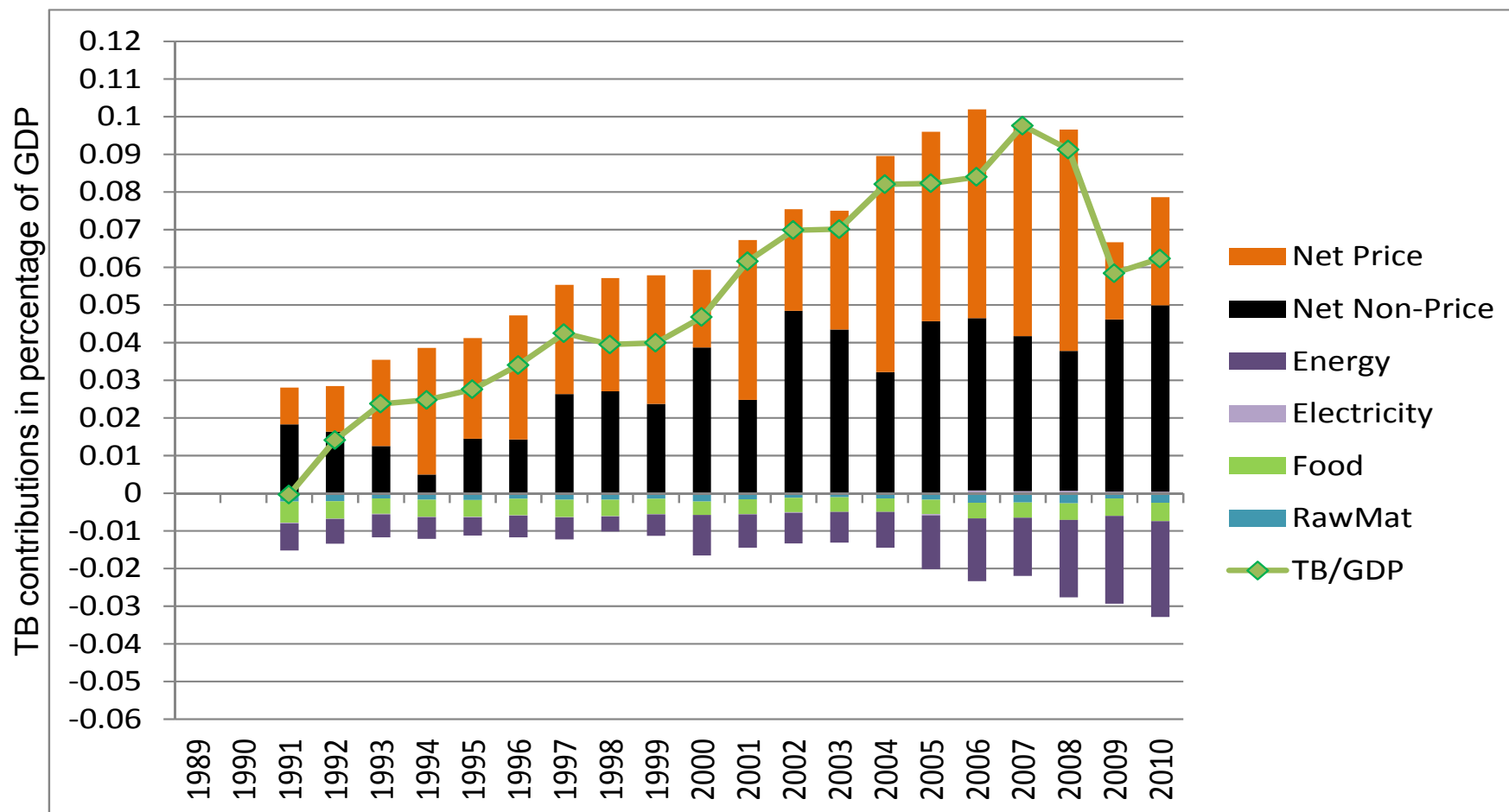 – 61 economies over the period 1993-2010

Competitiveness Regimes based on unit values and trade shares

	Lower Relative Export UV ($UVX^i < UVX^{world}$)	Higher Relative Export UV ($UVX^i > UVX^{world}$)
Trade Share ⬆	**Price-driven competitiveness** *Price +*	**Non-price-driven competitiveness** *Non-price +*
Trade Share ⬇	**Non-price-driven non-competitiveness** *Non-price -*	**Price-driven non-competitiveness** *Price -*

Example: product allocation for Germany, 2010

Scatter plot with x-axis labeled "Change in trade share" ranging from -0.4 to 0.3, and y-axis labeled $\log(\text{Median}(Px_i)/\text{Median}(Px_{\text{all countries}}))$ ranging from -4 to 8.
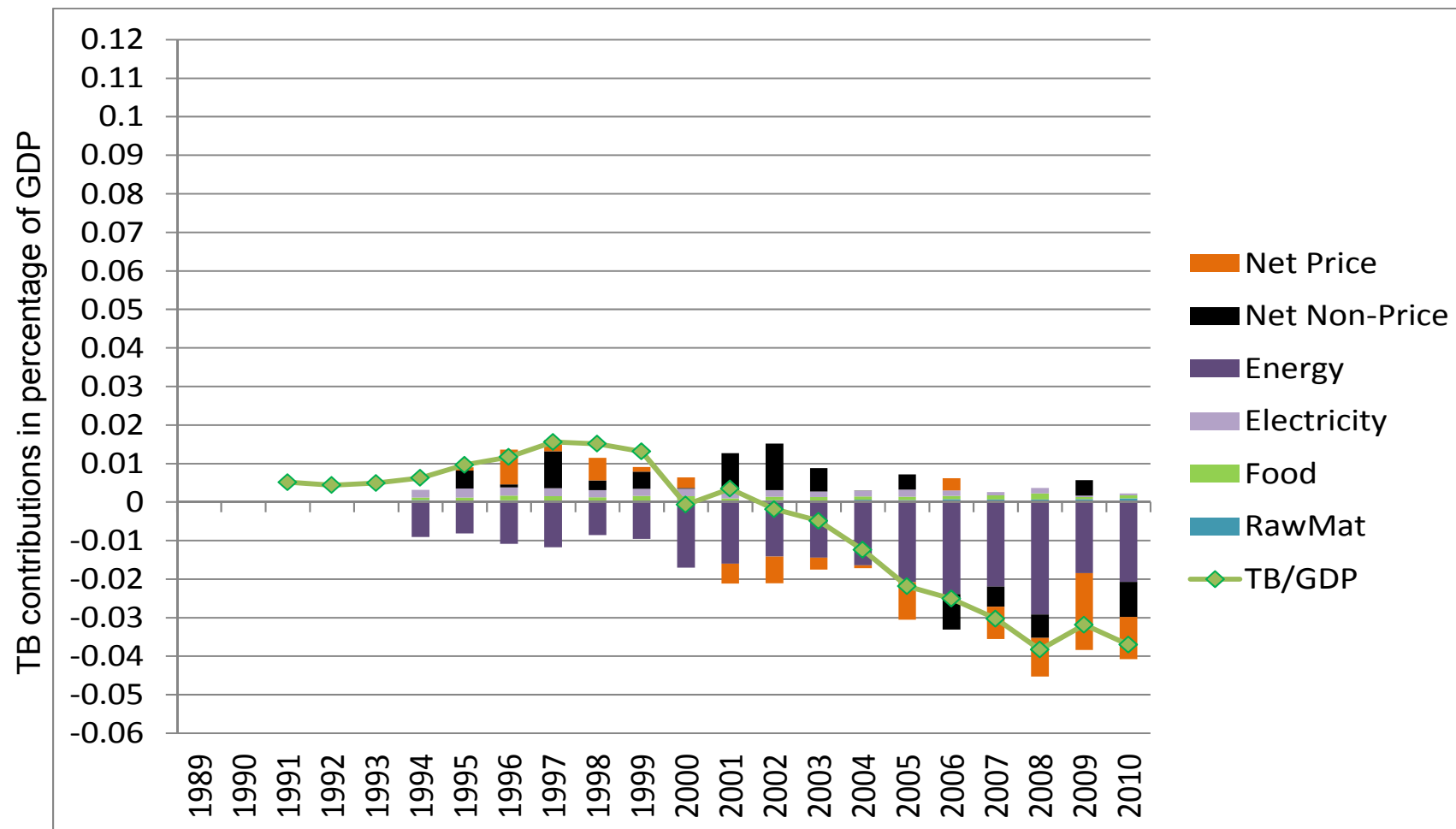
Example: decomposition for Germany

Example: decomposition for Italy
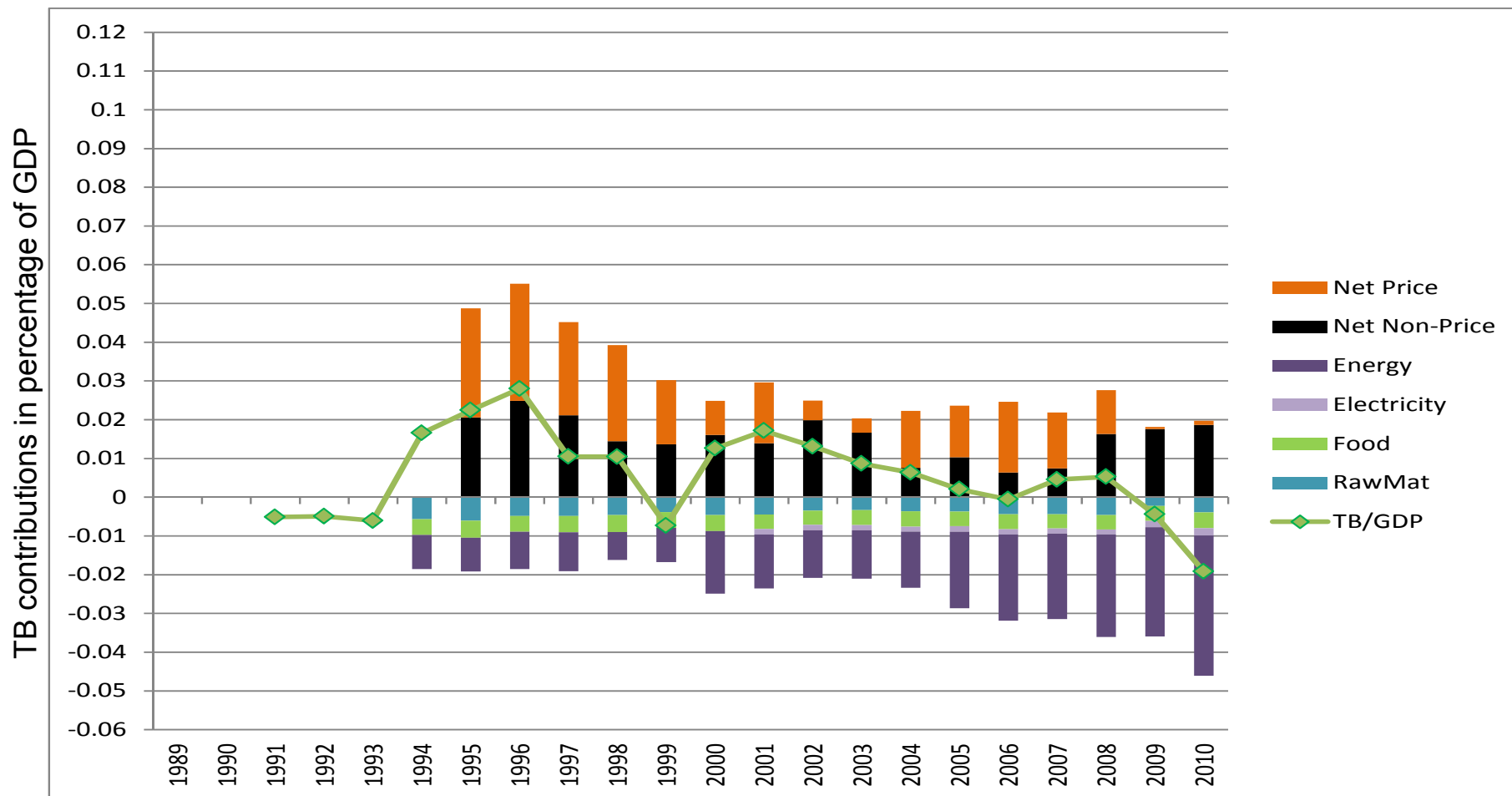
Example: decomposition for France

Caveats for this approach 1/2

- Not using individual product data → products under a HS-6 heading are not completely homogeneous.

- The database only contains data for goods (but service trade can be very important).

- Not all countries report all trade at the 6-digit level (→ cannot decompose all the trade balance: have residual "unclassifiable").

Caveats for this approach 2/2

- For some countries, a large part of the trade flows do not have corresponding quantity data, so that COMTRADE uses "estimated quantities" → Robustness issue and further research

- Hard to distinguish purely demand-driven developments from quantity competitiveness:

  - E.g. a cyclical collapse in domestic demand that leads to a strong reduction of imports across all goods could be picked up as an improvement in price and/or non-price competitiveness.

Effect of data problems for the decomposition for Italy and Germany
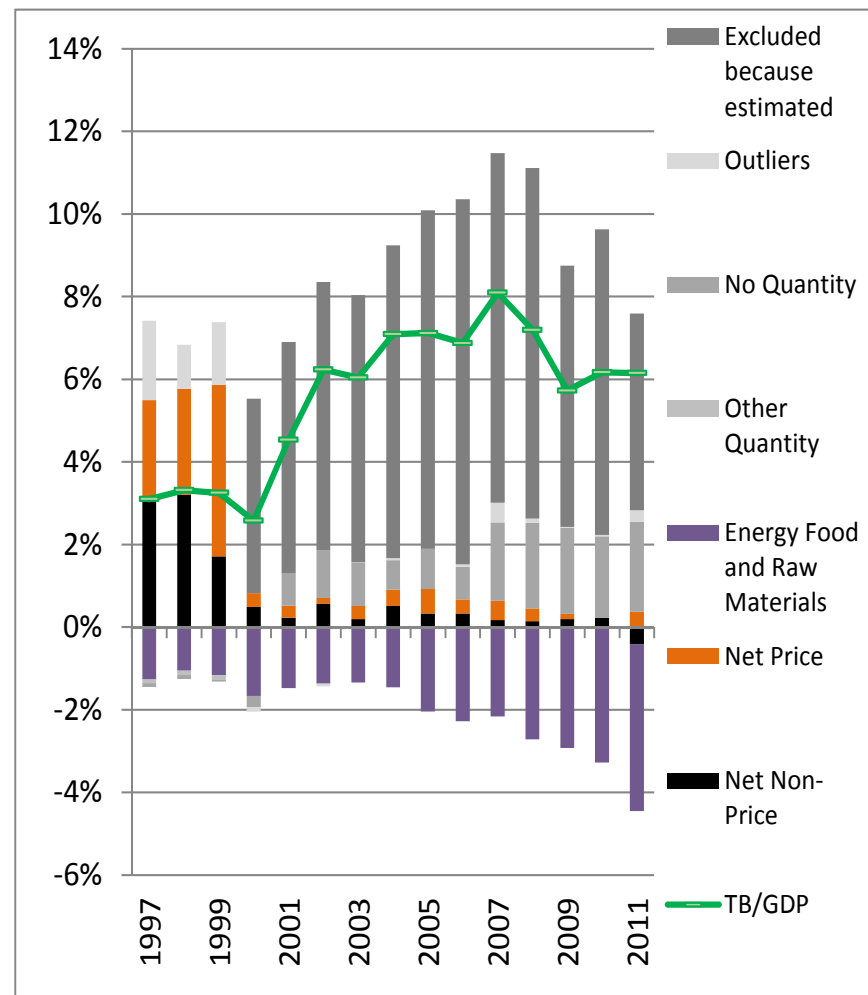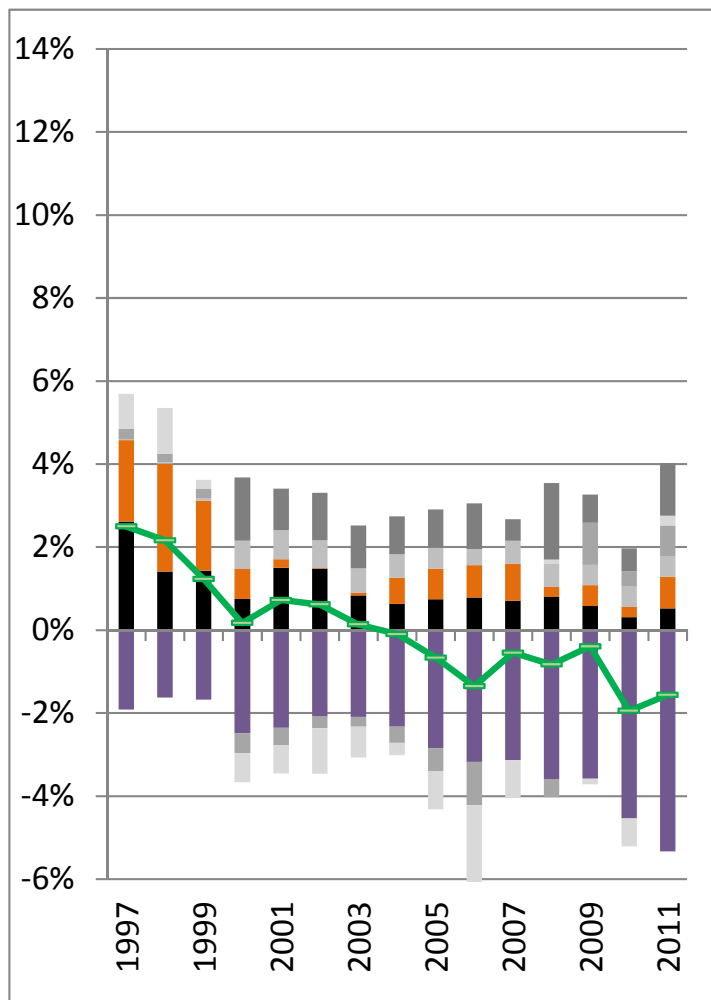
Econometric Analysis: "Good deficits, bad deficits"

Ultimate goal of competitiveness ➡ **generate economic growth.**

- Catching up hypothesis deficit-convergence relation: **Trade deficits can be sustained in catching-up countries**: (higher marginal productivity of capital).
  If this mechanism prevails, **trade deficits should predict higher GDP growth.**

- But if the trade deficit is the result of an **overestimation of permanent income or future productivity**, the constraints imposed by foreign debt reduction or sudden stops in international financing **will lead to lower future GDP growth.**

- **Do different components of TB have different bearings on growth?**

Conclusion

- Decomposition of trade balance into its price/non price components is essential for tailor-made rebalancing policies.

- The preliminary results show that trade surpluses predict higher future growth at various time horizons. This is at odds with the "catching-up" explanation of current account deficits.

- Research Agenda:
    - Much data work still needs to be done to enlarge the coverage of a precise decomposition.
    - Restricting the comparison of unit values to the set of actual competitors (not the whole world). ▶
    - Disentangling the separate effects of the price and non-price components on future GDP growth…
    - …also conditioning on other standard variables used in growth regressions.
    - How can we account for the impact of the GVC?

Refinement of the definition of competitors

Germany Exports of product $_i$	→	Importers of product $_i$ from Germany	←	Other countries exporting product i to Germany's importers of product $_i$

Relative export prices

$$UVX_{i \ Germany} \quad > \text{ or } < \quad UVX_{i \ Other \ exporters}$$

Thank you for your attention!

Trade Balance Decomposition

Austria
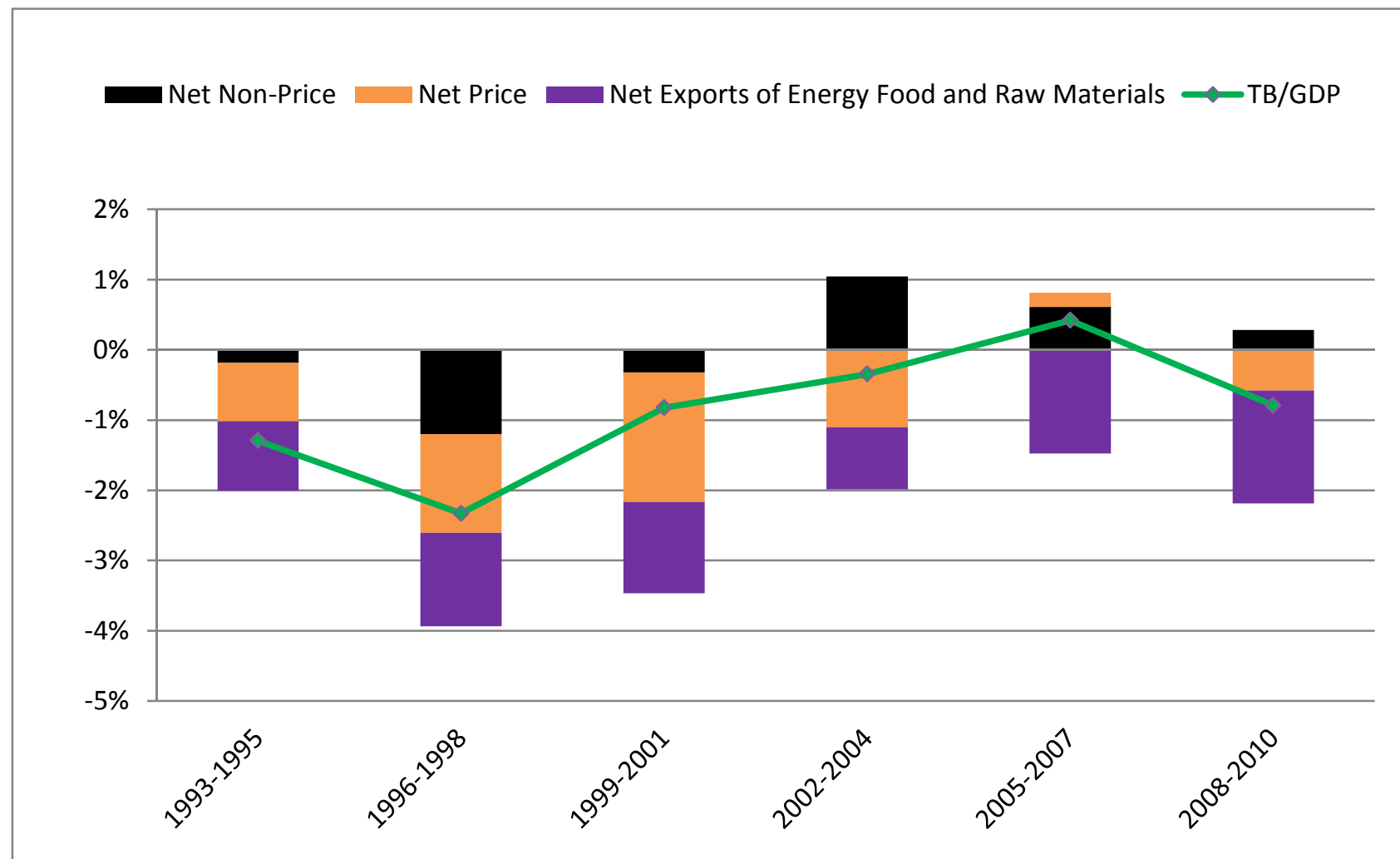
Trade Balance Decomposition

Belgium

Trade Balance Decomposition

Cyprus

Legend: Net Non-Price, Net Price, Net Exports of Energy Food and Raw Materials, TB/GDP

Categories: 1993-1995, 1996-1998, 1999-2001, 2002-2004, 2005-2007, 2008-2010

Y-axis: 4%, -1%, -6%, -11%, -16%, -21%, -26%
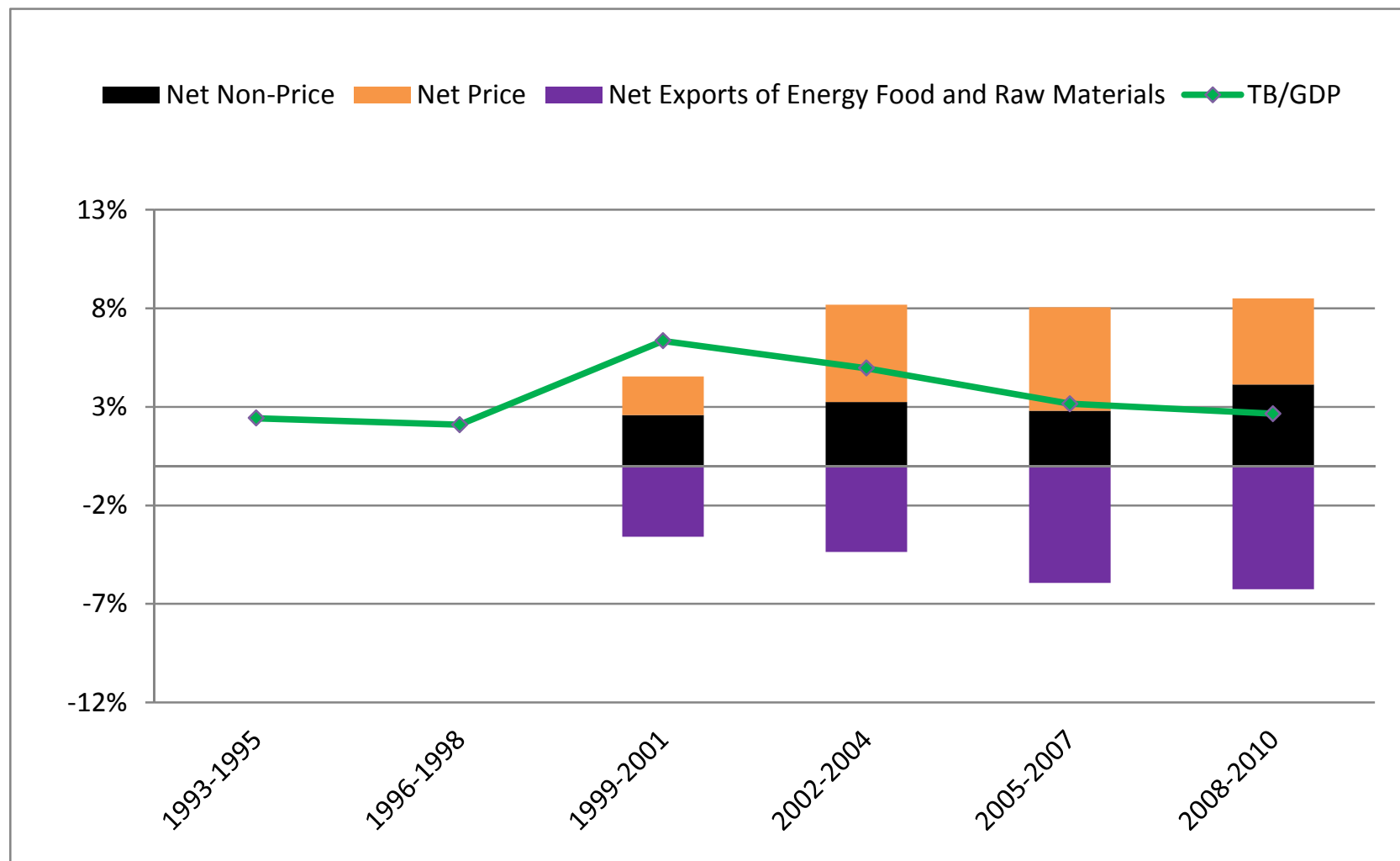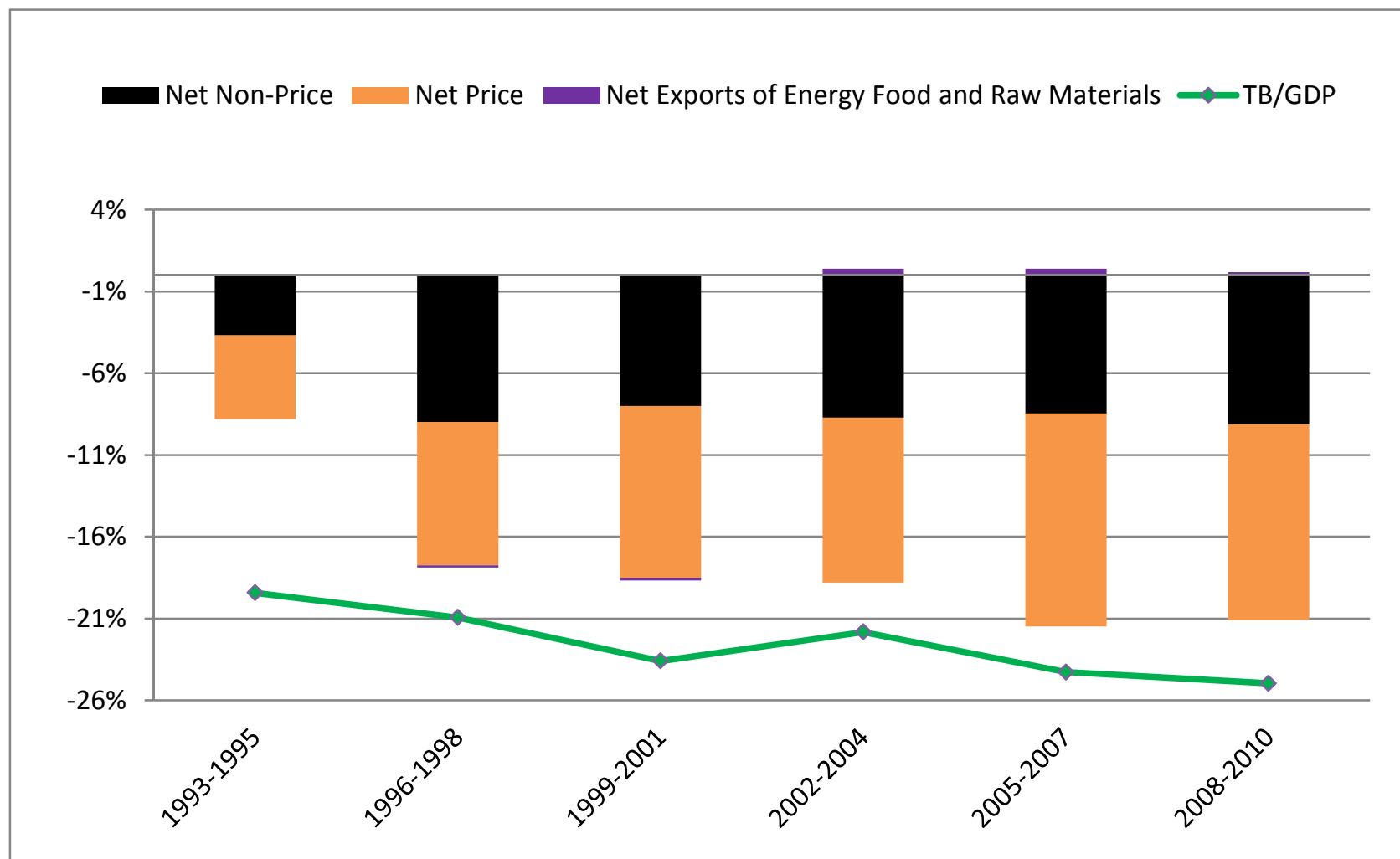
Trade Balance Decomposition

Estonia
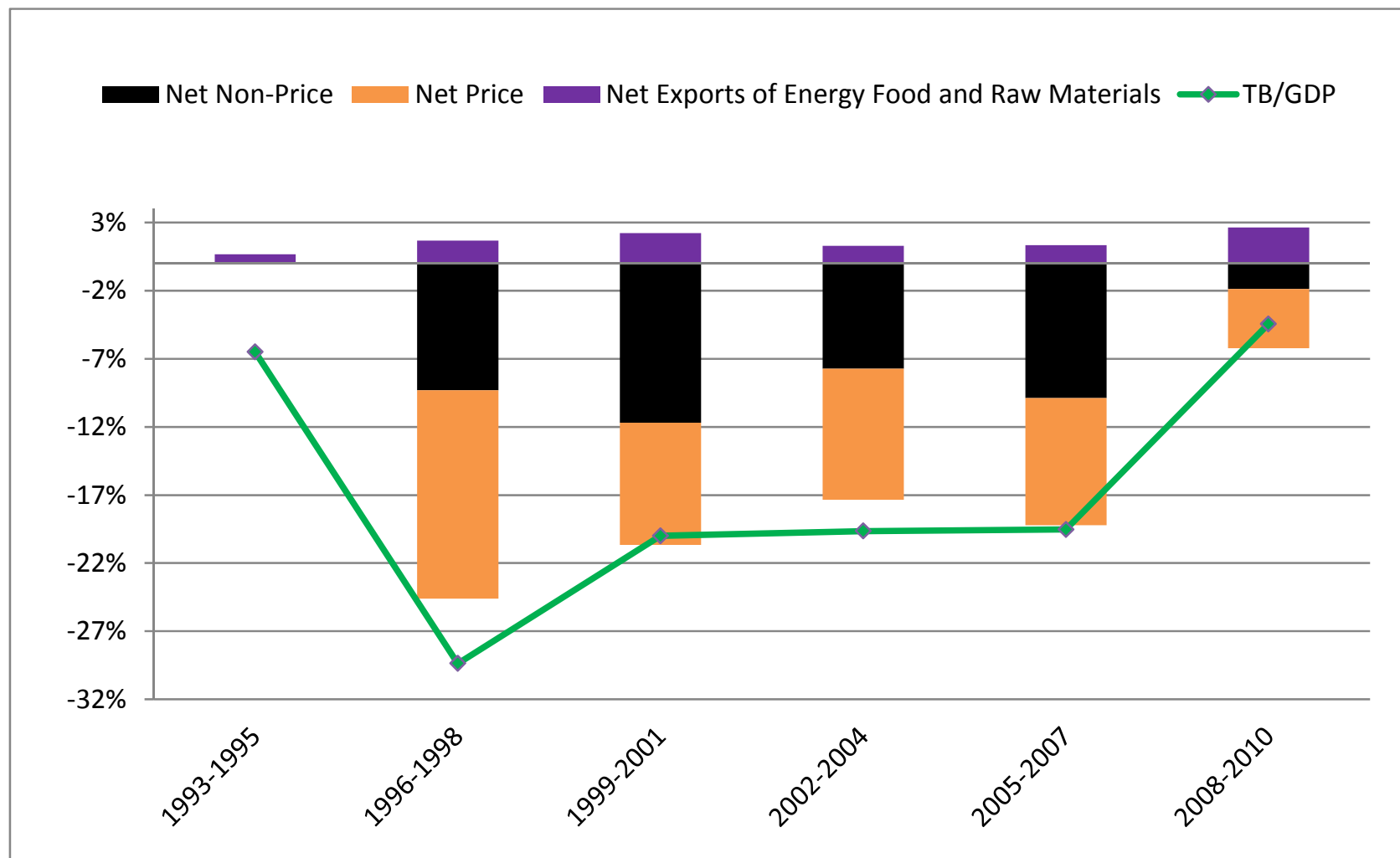
Trade Balance Decomposition

Ireland
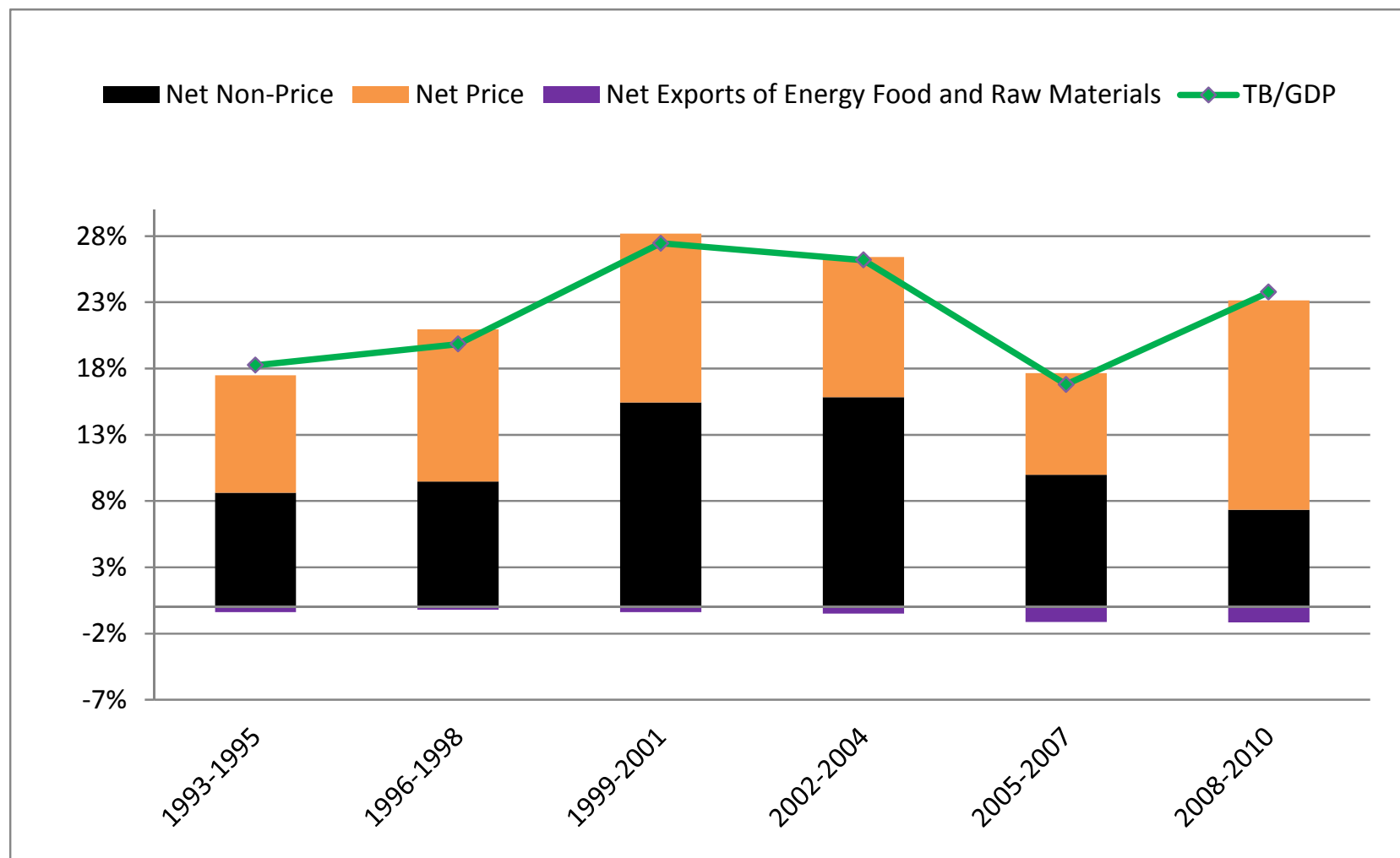
Trade Balance Decomposition

Portugal
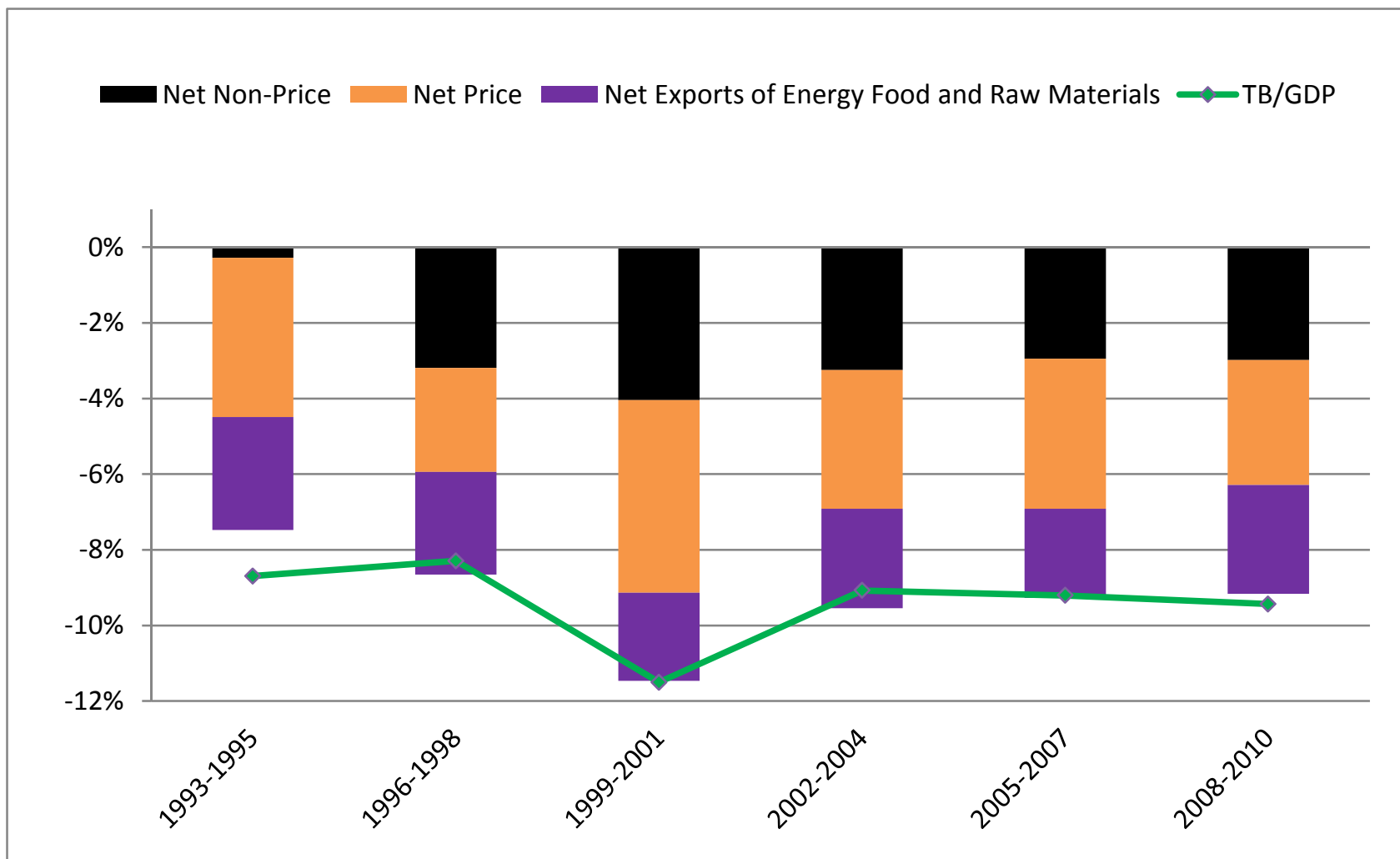
Trade Balance Decomposition

Finland
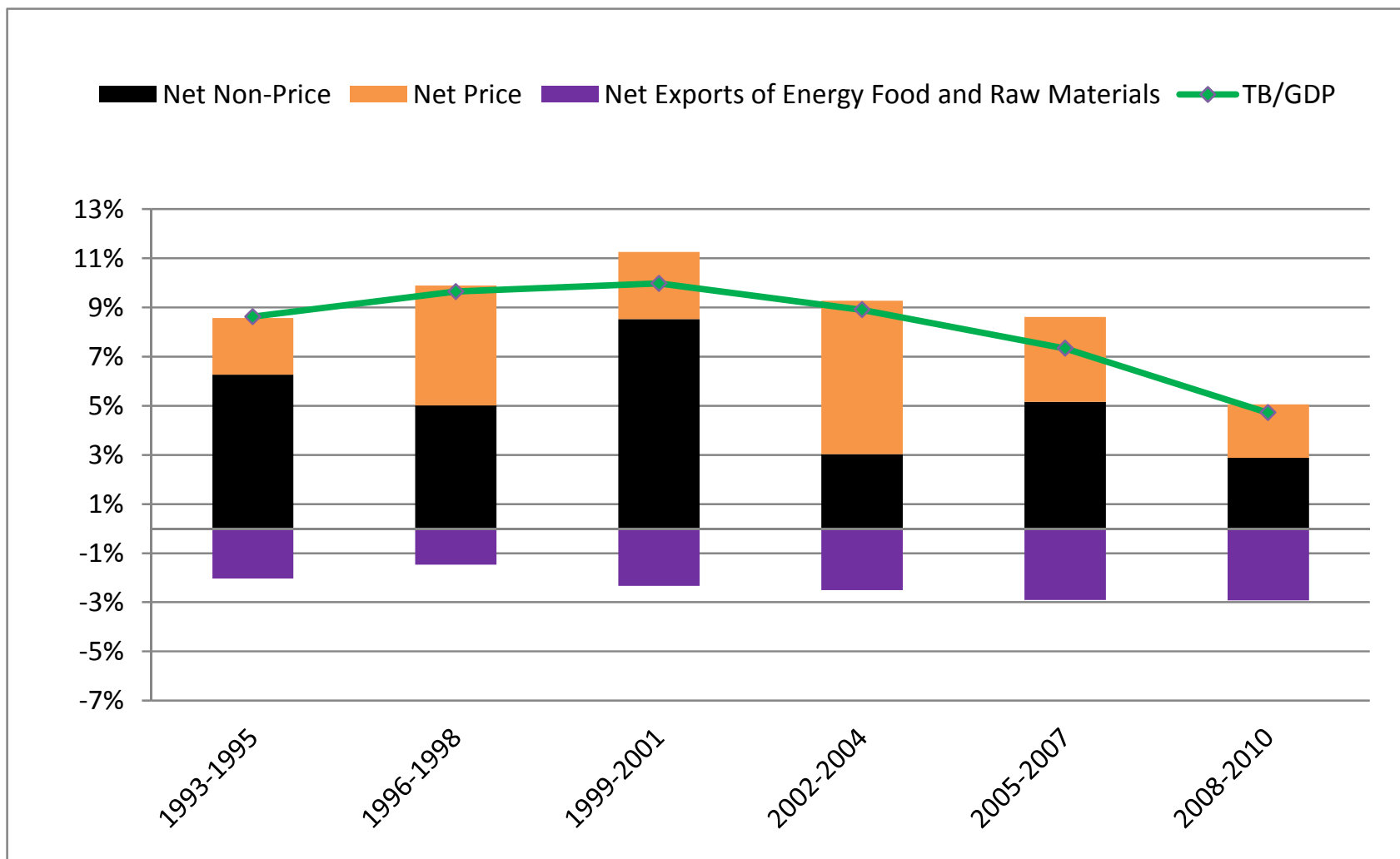
Trade Balance Decomposition

France
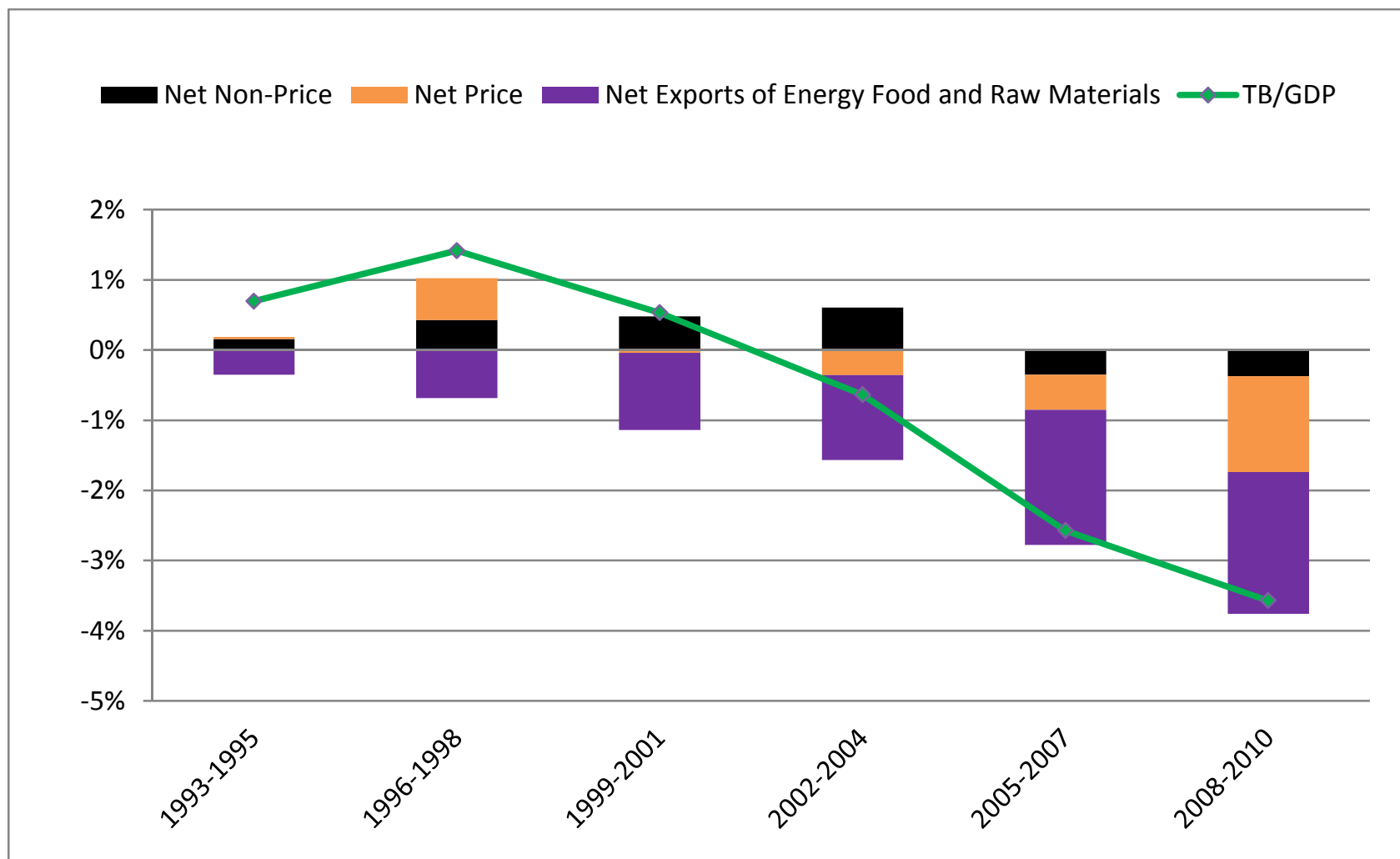
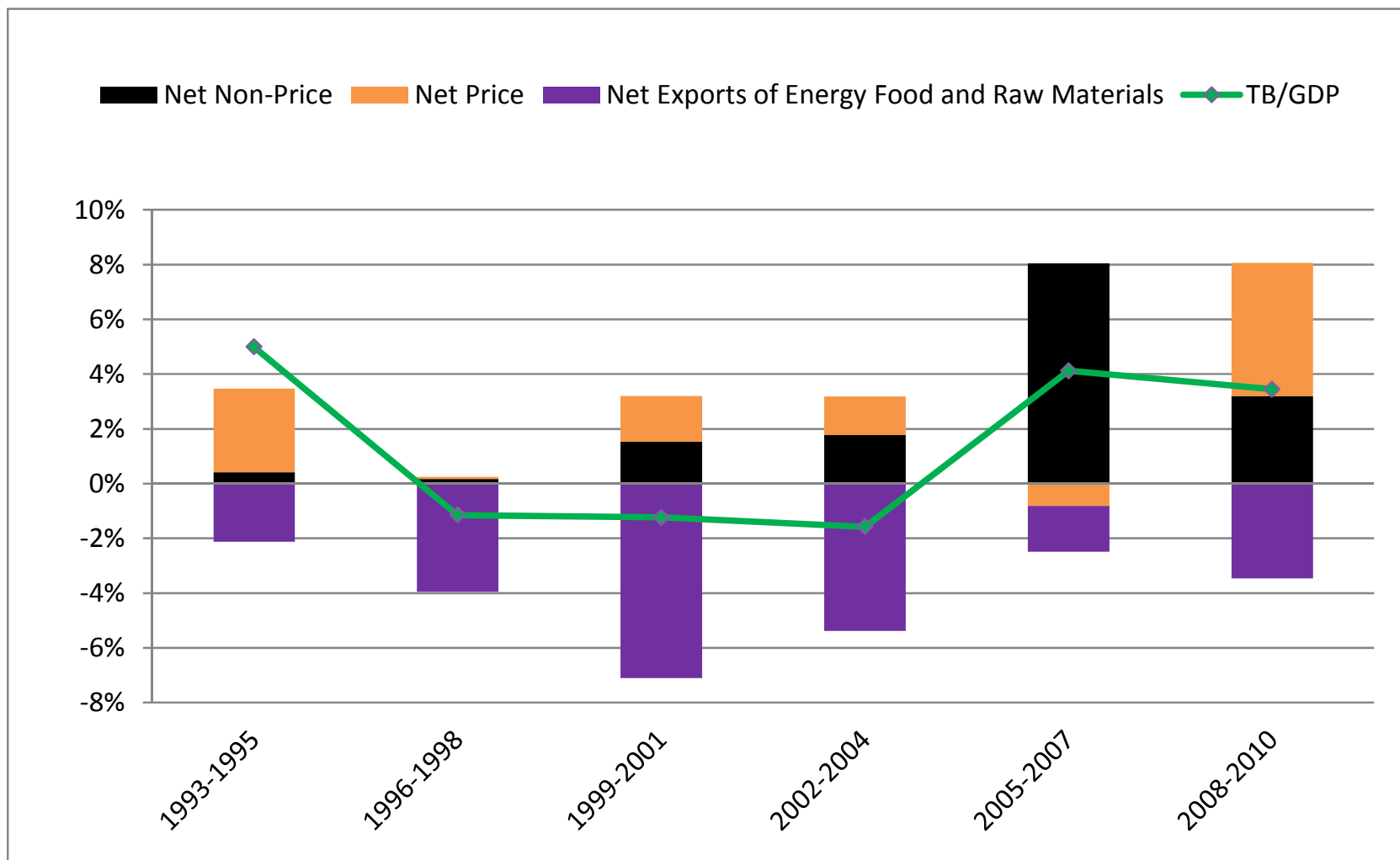# Trade Balance Decomposition

Luxembourg
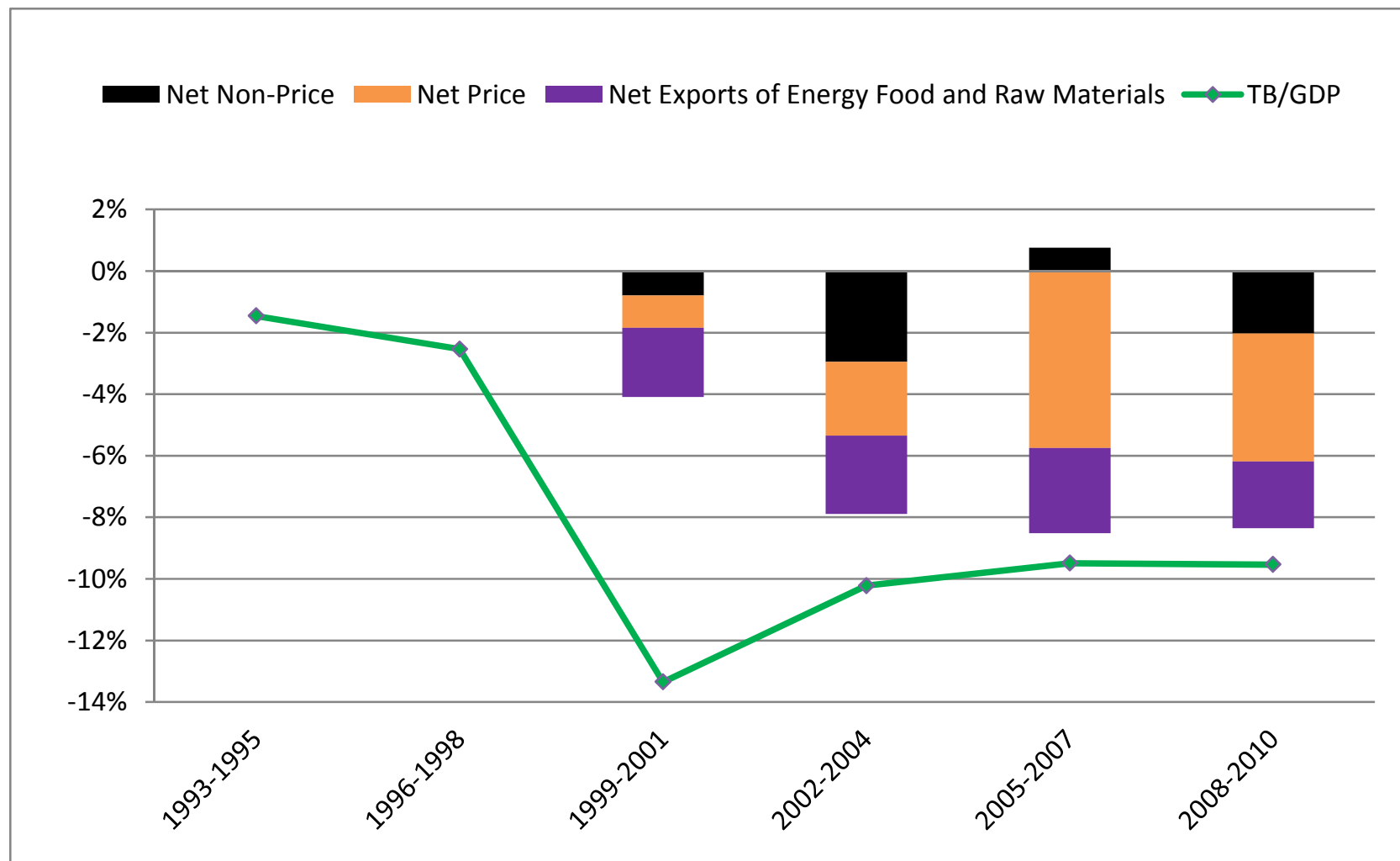
Trade Balance Decomposition

The Netherlands
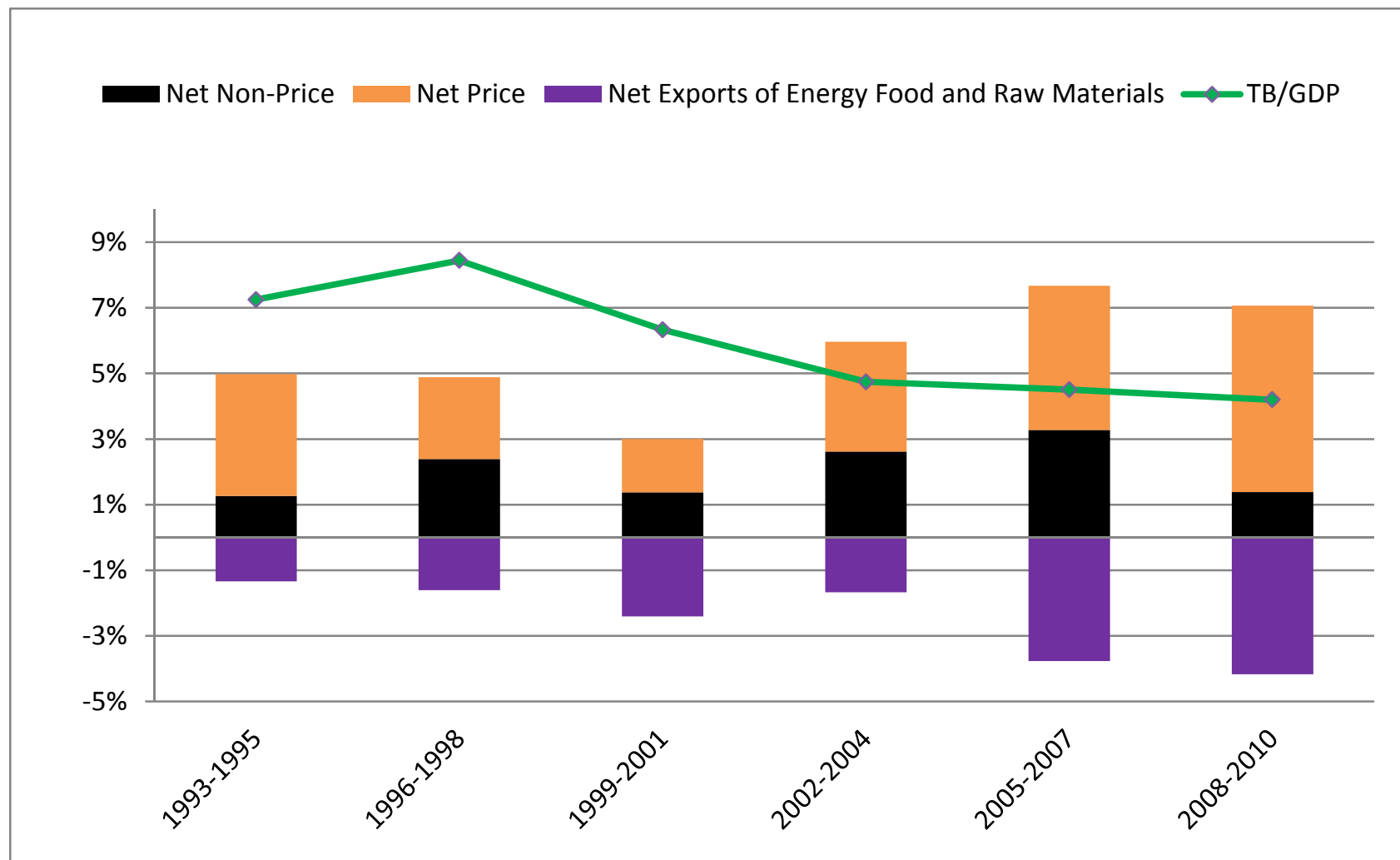
Trade Balance Decomposition

Slovak Republic
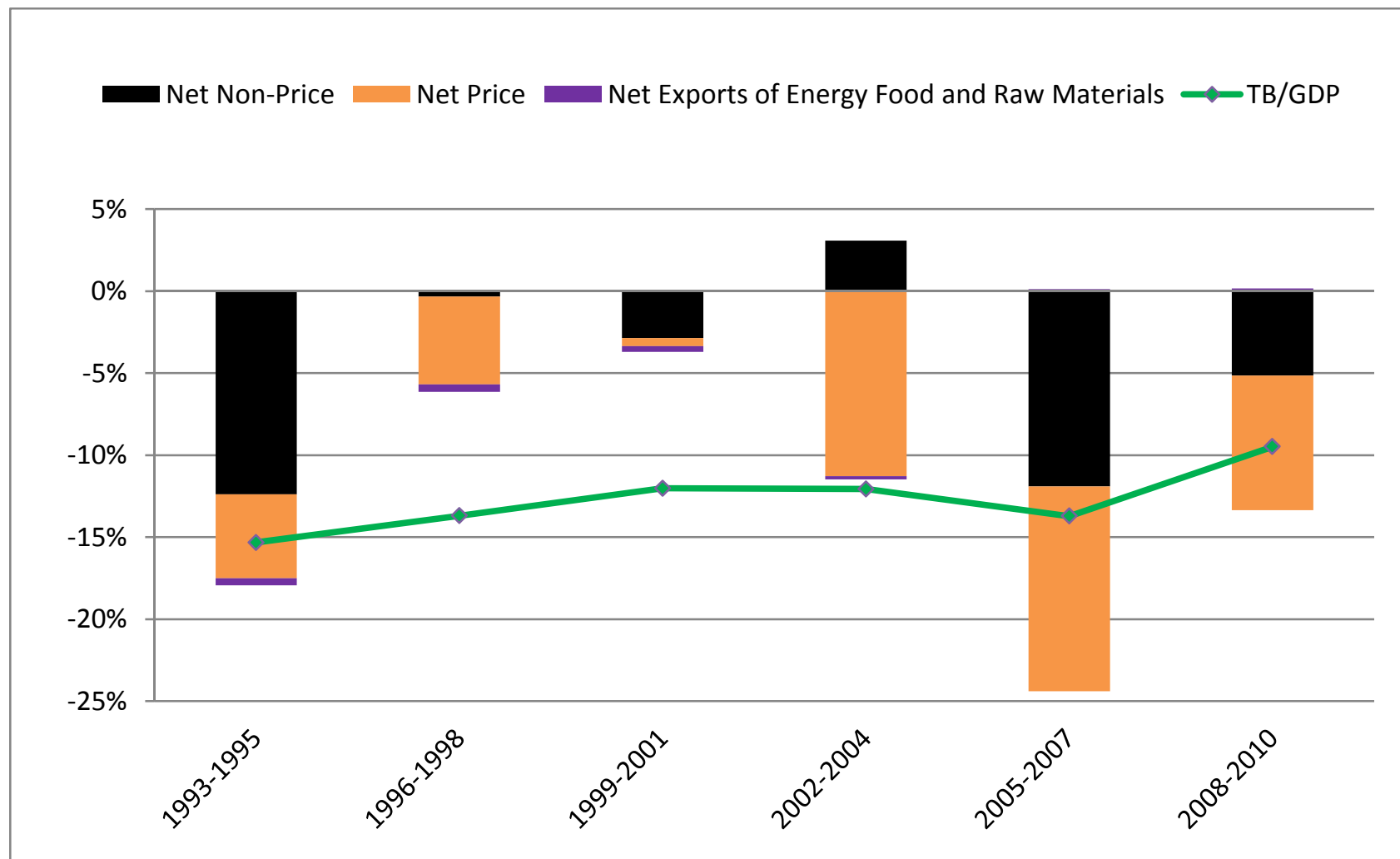
Trade Balance Decomposition

Slovenia

Legend: Net Non-Price · Net Price · Net Exports of Energy Food and Raw Materials · TB/GDP

Categories: 1993-1995, 1996-1998, 1999-2001, 2002-2004, 2005-2007, 2008-2010

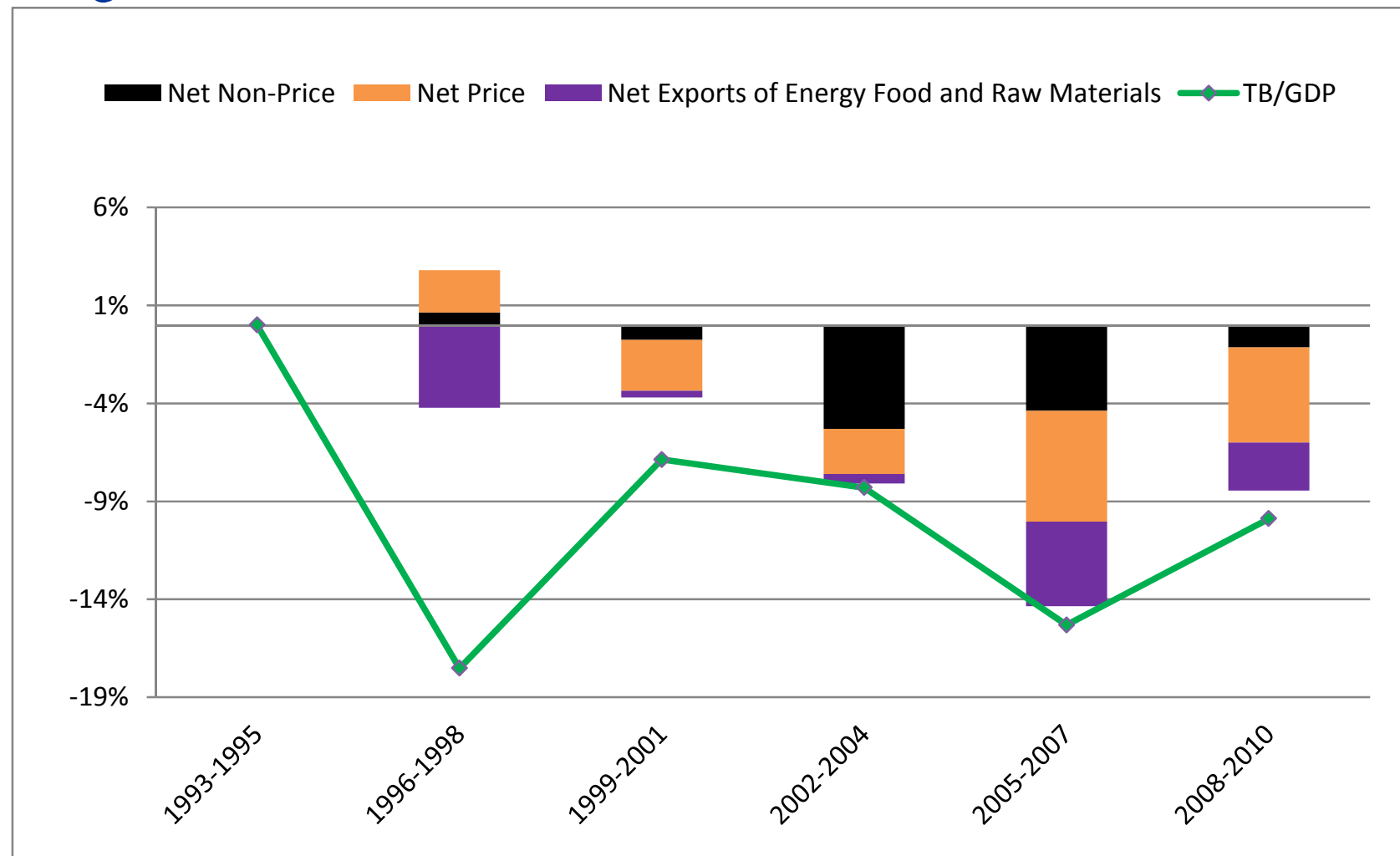Y-axis: 1%, 0%, -1%, -2%, -3%, -4%, -5%
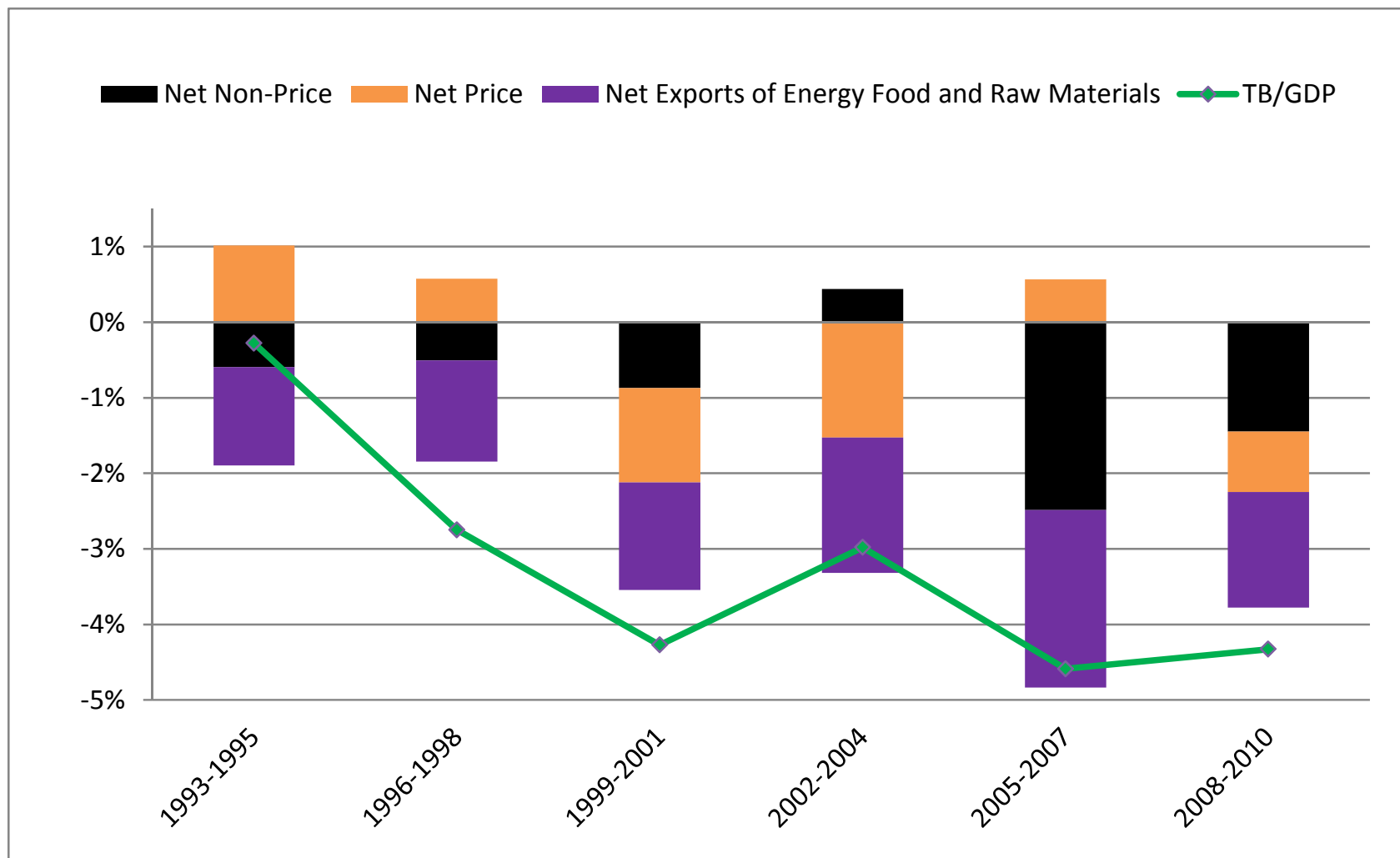
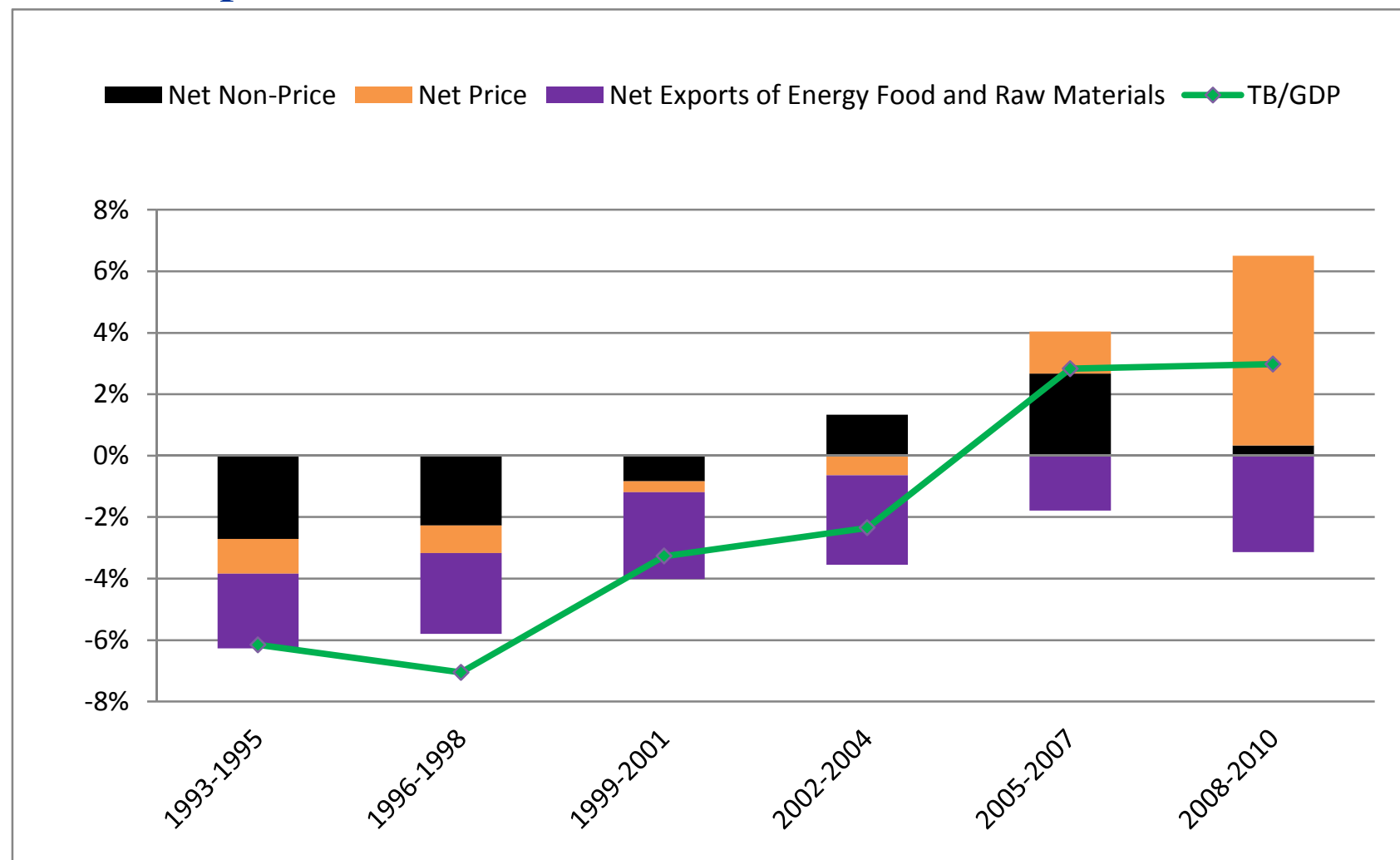# Trade Balance Decomposition
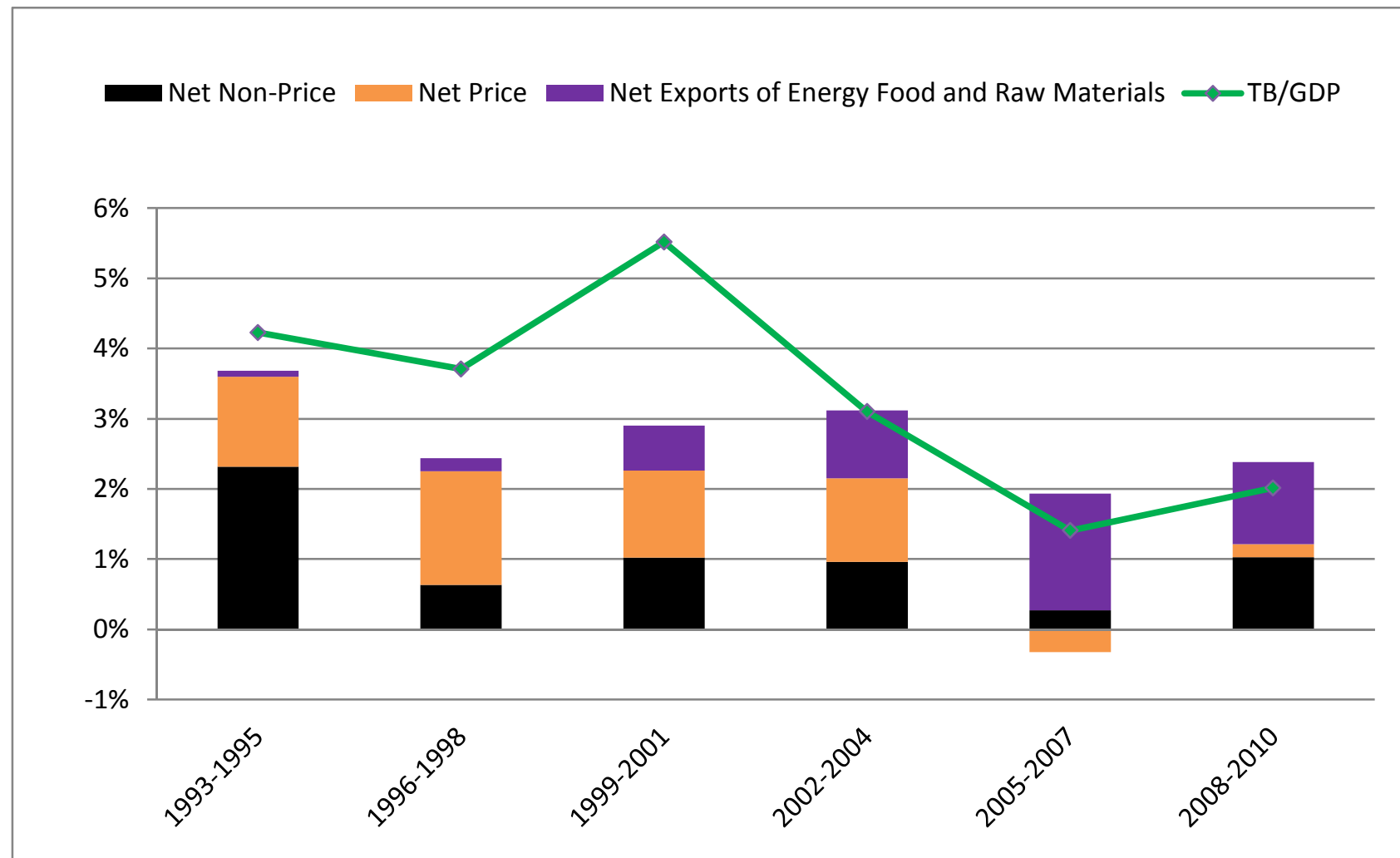
Malta

Trade Balance Decomposition

Bulgaria

Trade Balance Decomposition
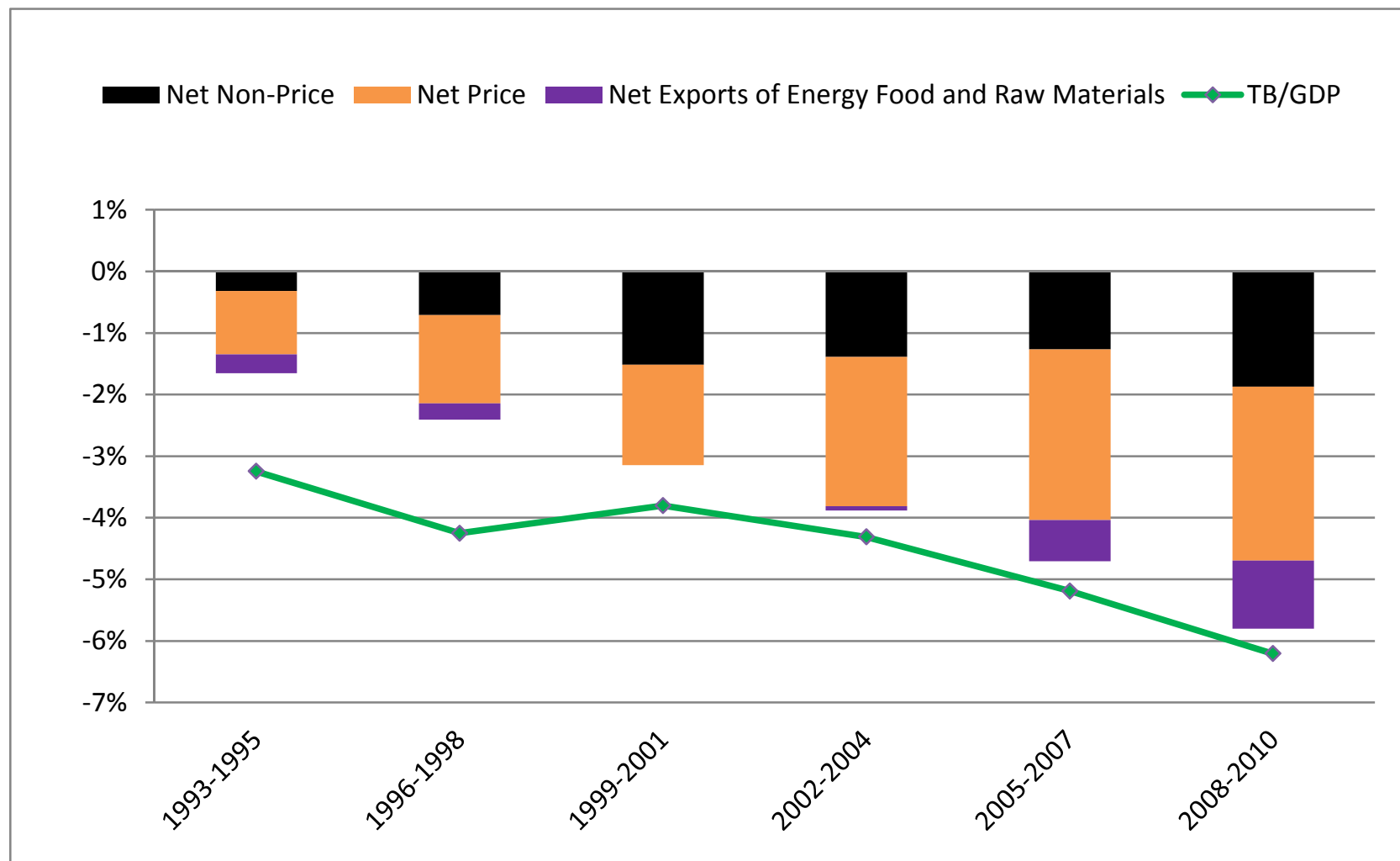
Czech Republic
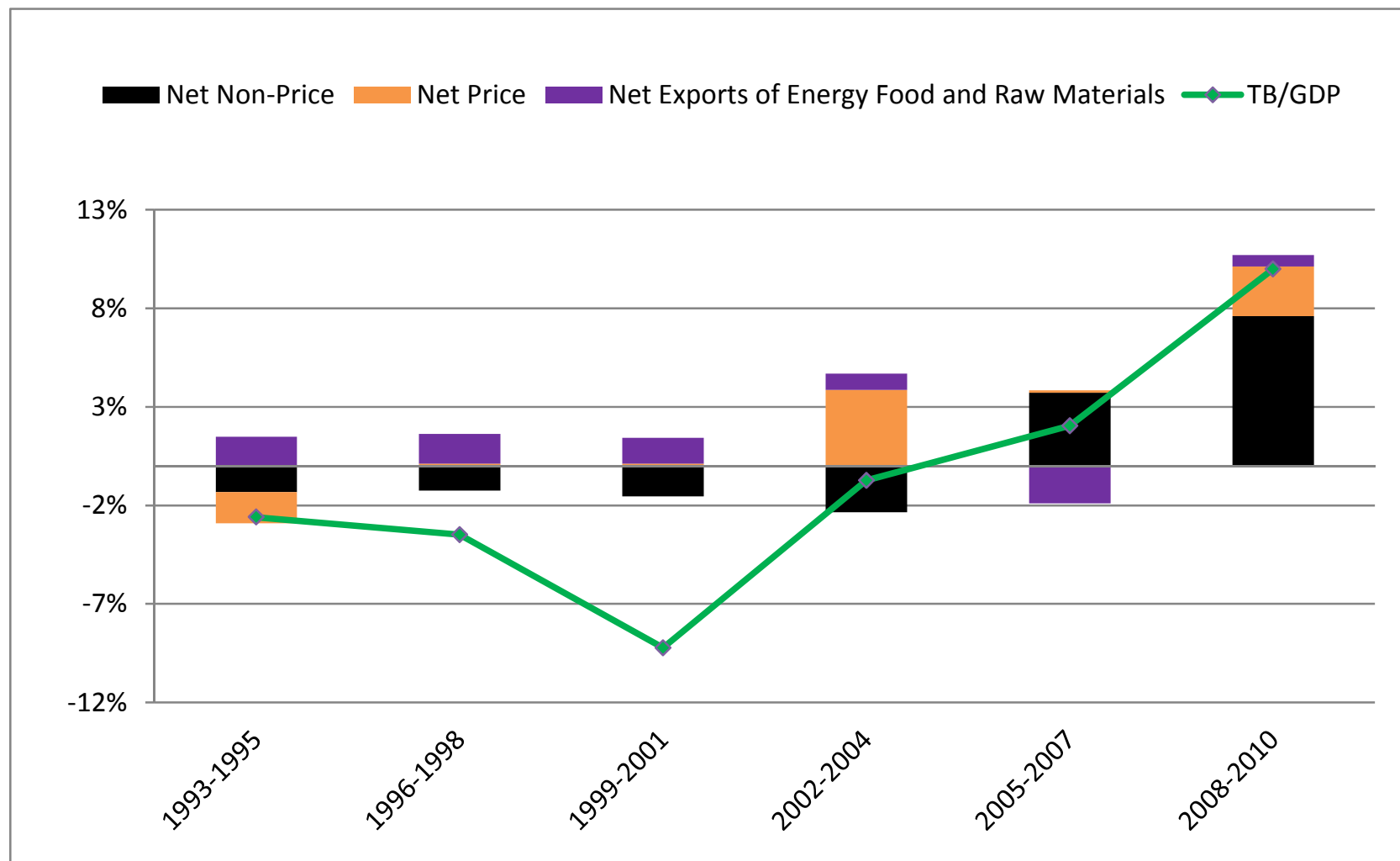
Trade Balance Decomposition

Denmark

Trade Balance Decomposition
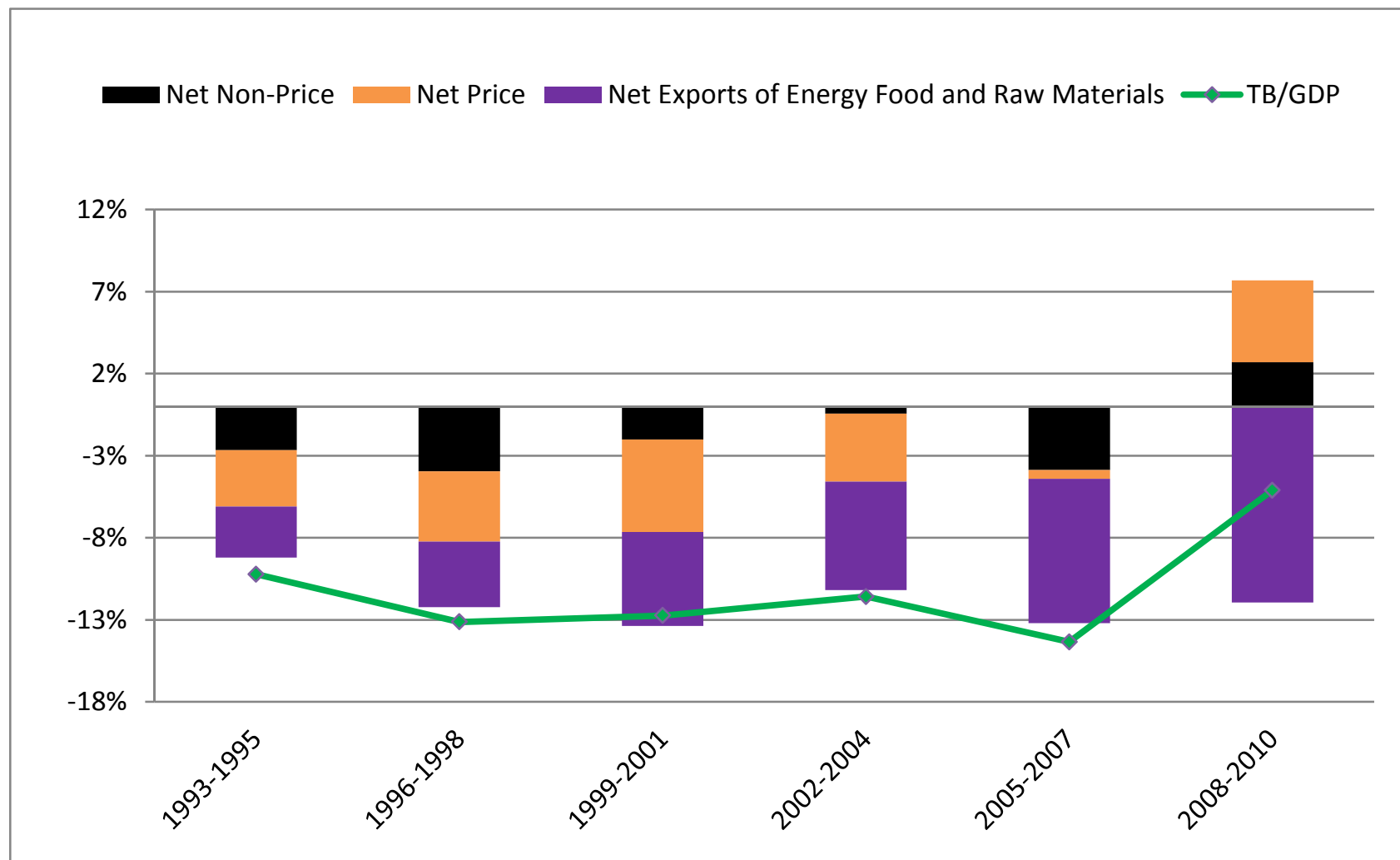
United Kingdom
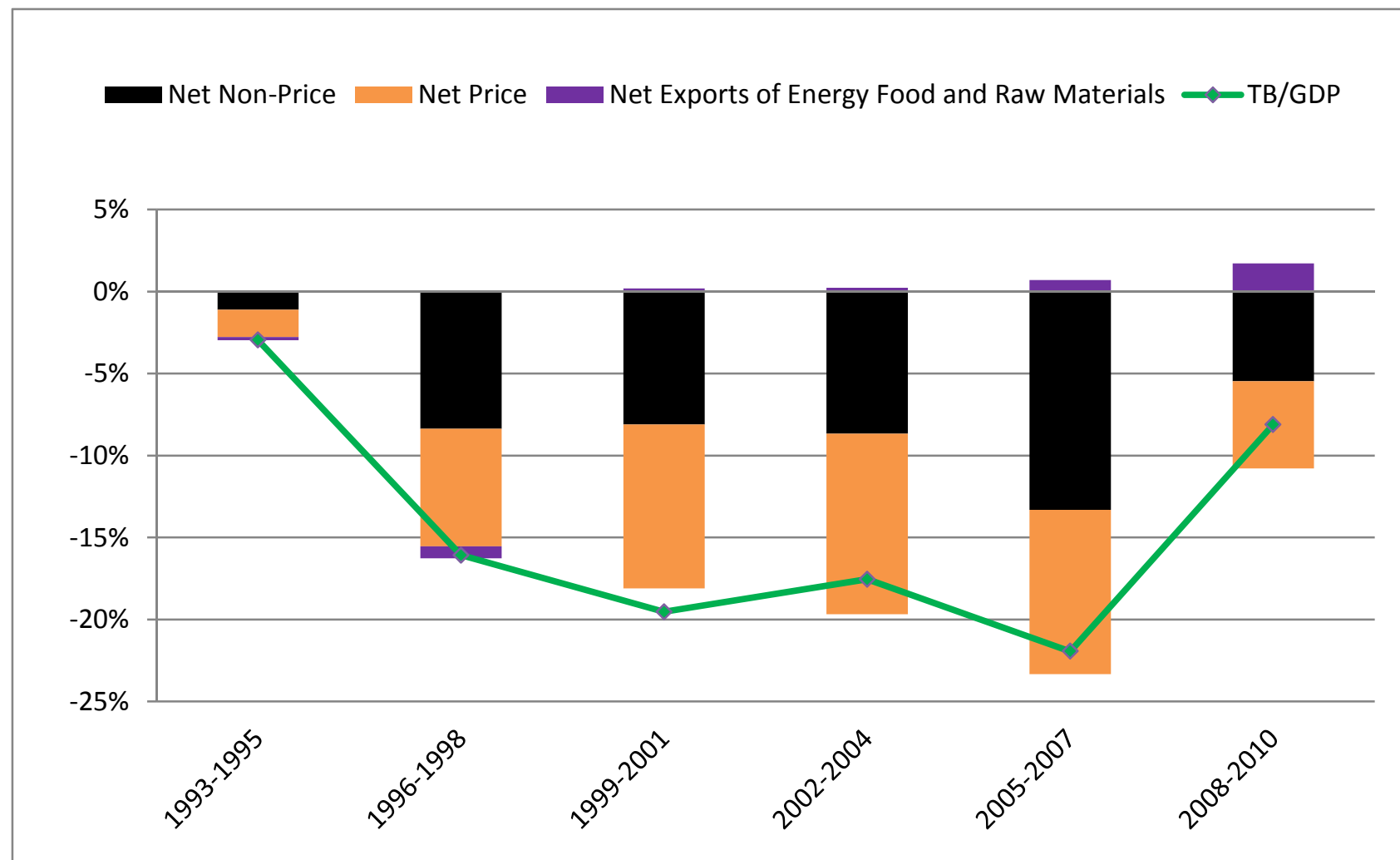
Trade Balance Decomposition

Hungary

Trade Balance Decomposition
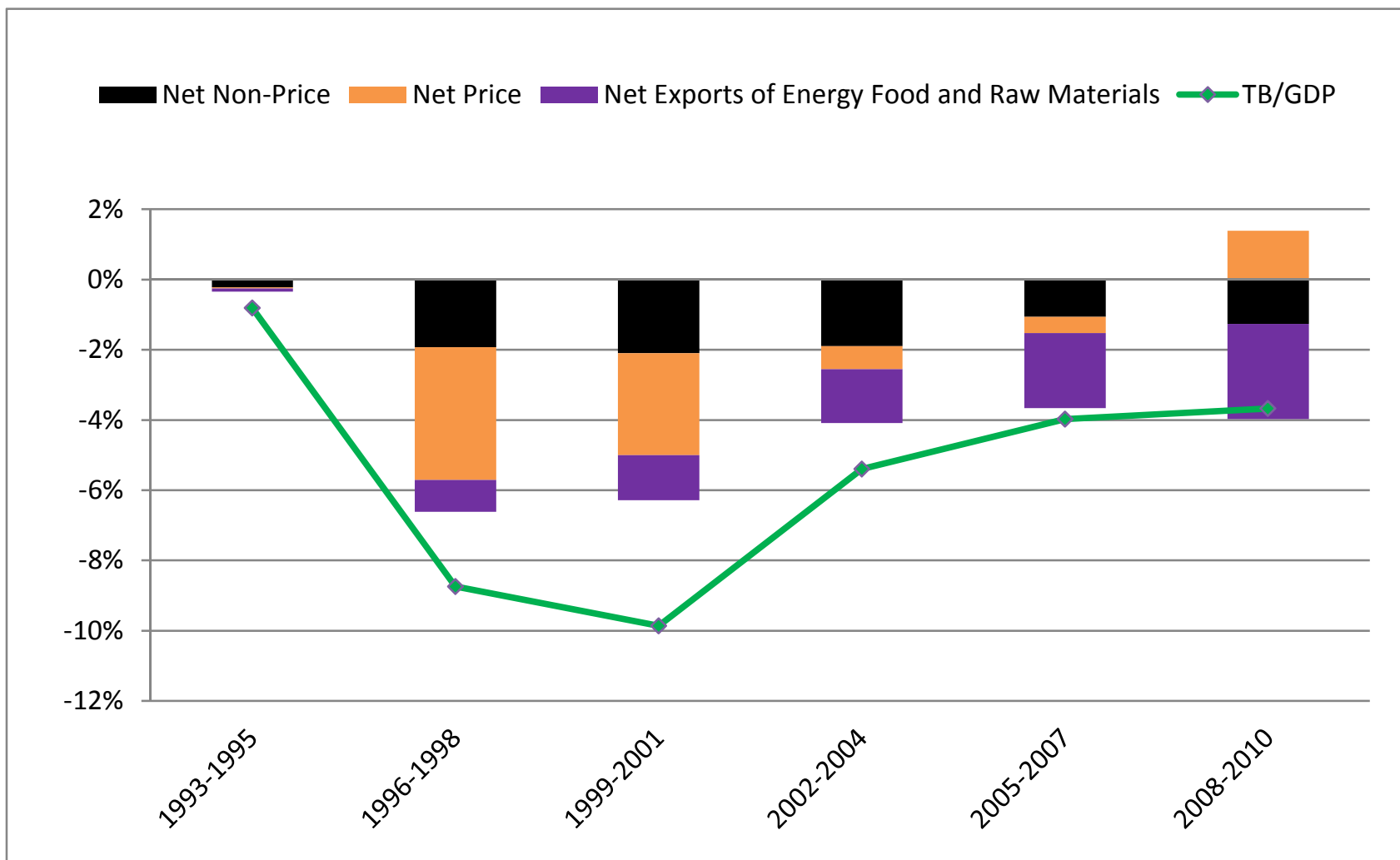
Lithuania

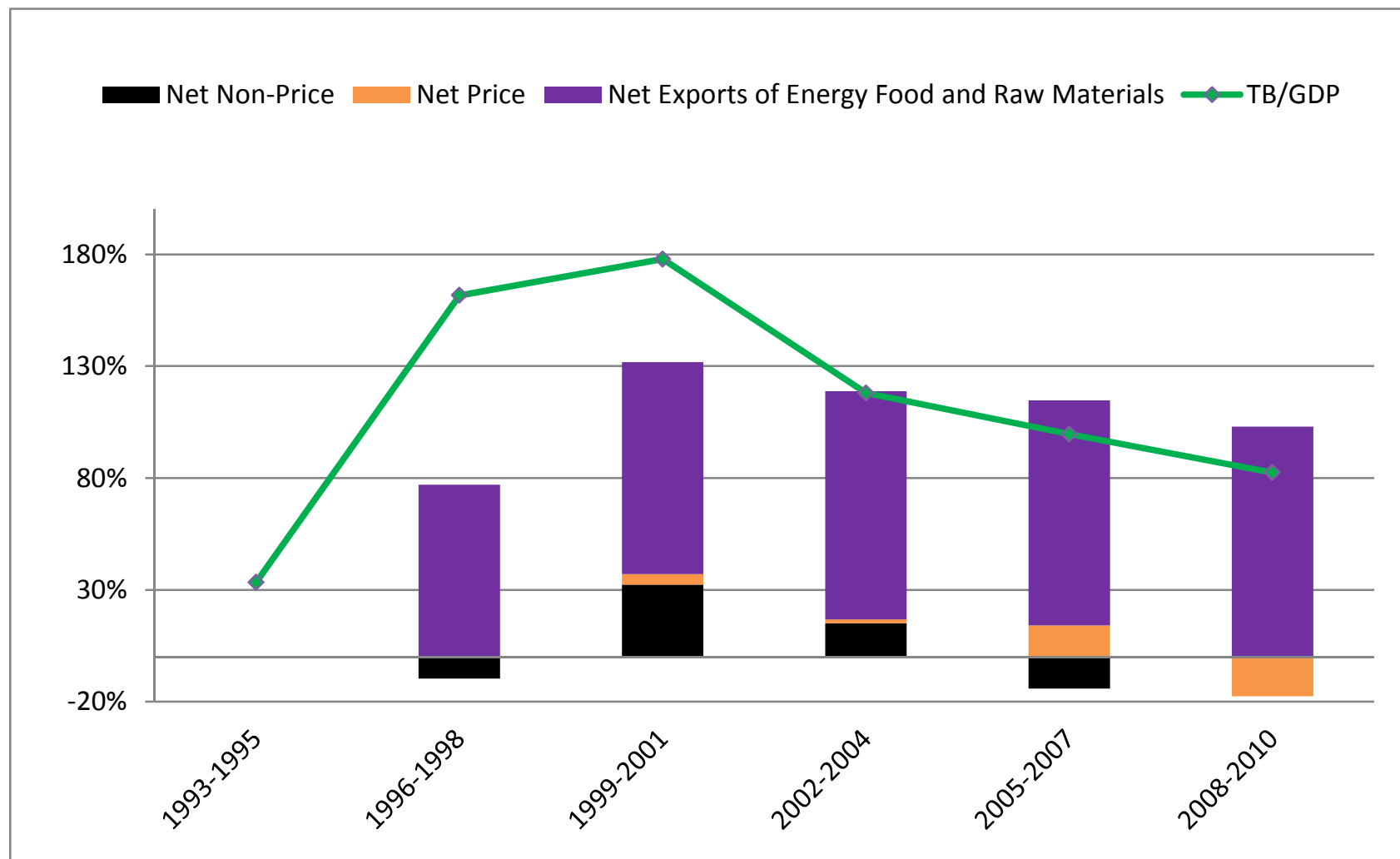# Trade Balance Decomposition
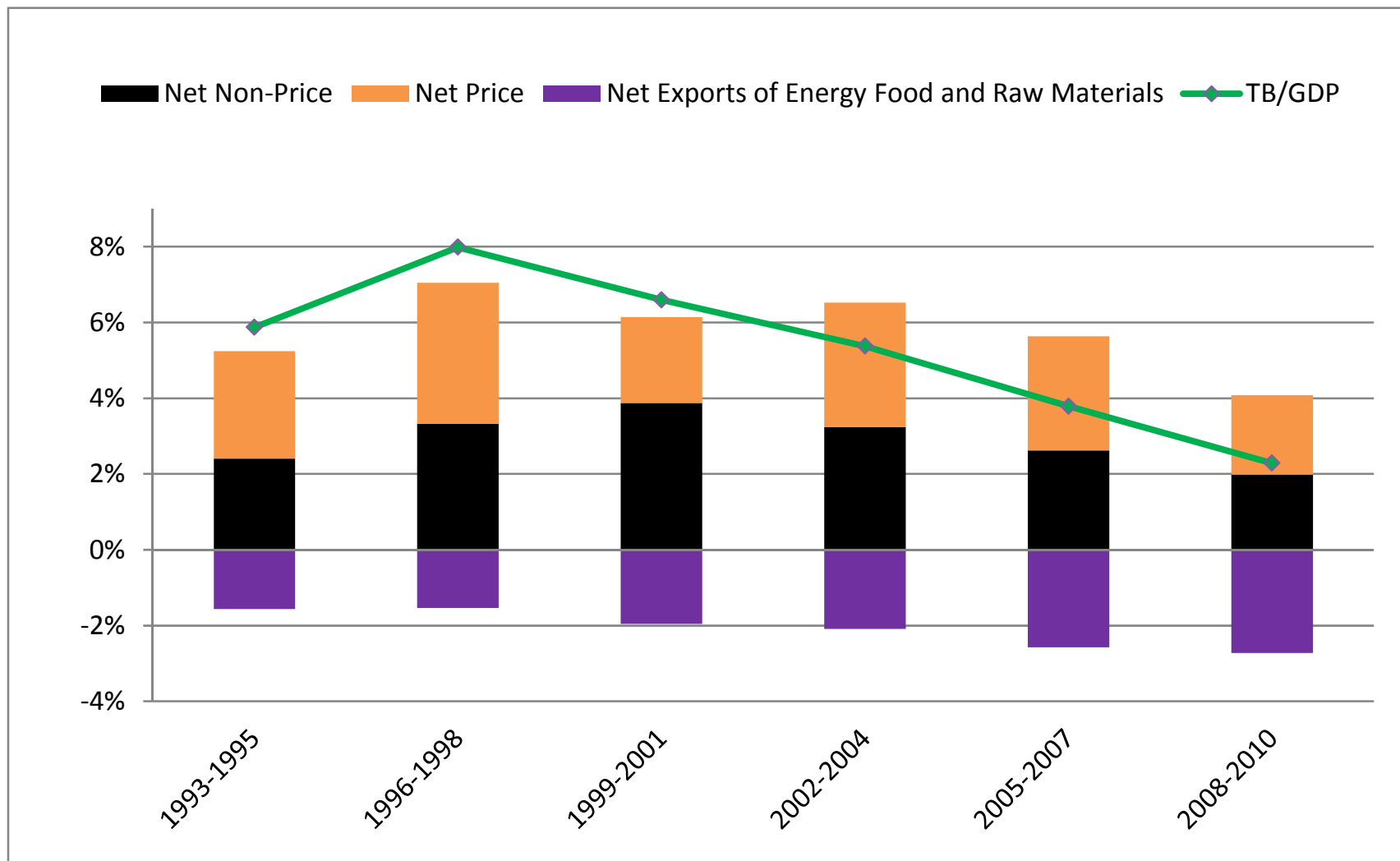
Latvia

Trade Balance Decomposition

Poland

Trade Balance Decomposition

Romania

Trade Balance Decomposition

Sweden

The impact of trade balance on future GDP growth

	1-year ahead	3-year ahead	5-year ahead	1-year ahead	3-year ahead	5-year ahead
Constant	0.03	0.01	-0.03	0.04	0.03	0.00
	(0.85)	(0.94)	(0.90)	(0.82)	(0.87)	(0.99)
Initial GDP/capita	0.00	0.00	0.00	0.00	0.00	0.00
	(0.87)	(0.99)	(0.86)	(0.82)	(0.88)	(0.99)
TB	**0.10**	**0.20**	**0.22**			
	(0.00)	(0.00)	(0.00)			
TB goods				**0.08**	**0.20**	**0.22**
				(0.01)	(0.00)	(0.00)
TB services				**0.07**	**0.08**	**0.10**
				(0.01)	(0.01)	(0.00)
Adj. R^2	0.7%	3.8%	4.5%	0.8%	4.0%	4.7%

Low R-square, but growing with time horizon, and highly significant, positive effect of trade balance on future growth, also increasing with the horizon.

Notes: bold indicates significance at 95% level; p-values in parentheses.

All regressions are based on standardized data; fixed effects are substituted by the initial GDP per capita (average of first 10 years to account for ragged beginning of data)

The contribution of price and non-price factors to future growth

$$\text{Growth}_{it+n} = \alpha + \beta_0 \text{initialGDP}_i + \beta_1 X_{it} + \gamma r_t + \varepsilon_{it}$$

Growth : cumulative growth rate of per capita income at different time horizons in country *i* at the year *t*

InitialGDP : level of GDP per capita in 1993 in US dollars

X : matrix of regressors

r: time fixed effects

ε : stochastic error term