

The Harrod-Balassa-Samuelson Effect: Reconciling the Evidence

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Discussion by

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The views expressed here are my own and not necessarily those of the ECB.

A glossary

- **HBS: Harrod-Balassa-Samuelson**
- **BCS: Baumeister, Choudri and Schembri**

What the paper does

- **Replicates the usual inconclusive findings for the HBS**
- **Goes a step further from there: can a model extension help?**
 - Traditional model: perfect competition, all tradable goods can be produced in both countries
 - Here: monopolistic competition, i.e. there are different varieties
- **With the new model, different signs result, depending on**
 - η (elasticity of substitution b. home and foreign bundles)
 - ε (elasticity of substitution b. tradable and non-tradable goods)
- **This might help explaining the inconclusive empirical findings**

The empirical evidence is inconclusive

- **16 advanced OECD countries, annual data, 1977-2006**
- **Labour productivity = value added volume per employee**
 - **OECD STAN database**
 - **Separately for tradable and non-tradable sectors**
 - **Weighted cross-sector average, using employment shares as weights**
- **Different numéraire currencies**
 - **“World”, robustness with US and Germany**
- **Impeccable econometrics**

The empirical evidence is inconclusive

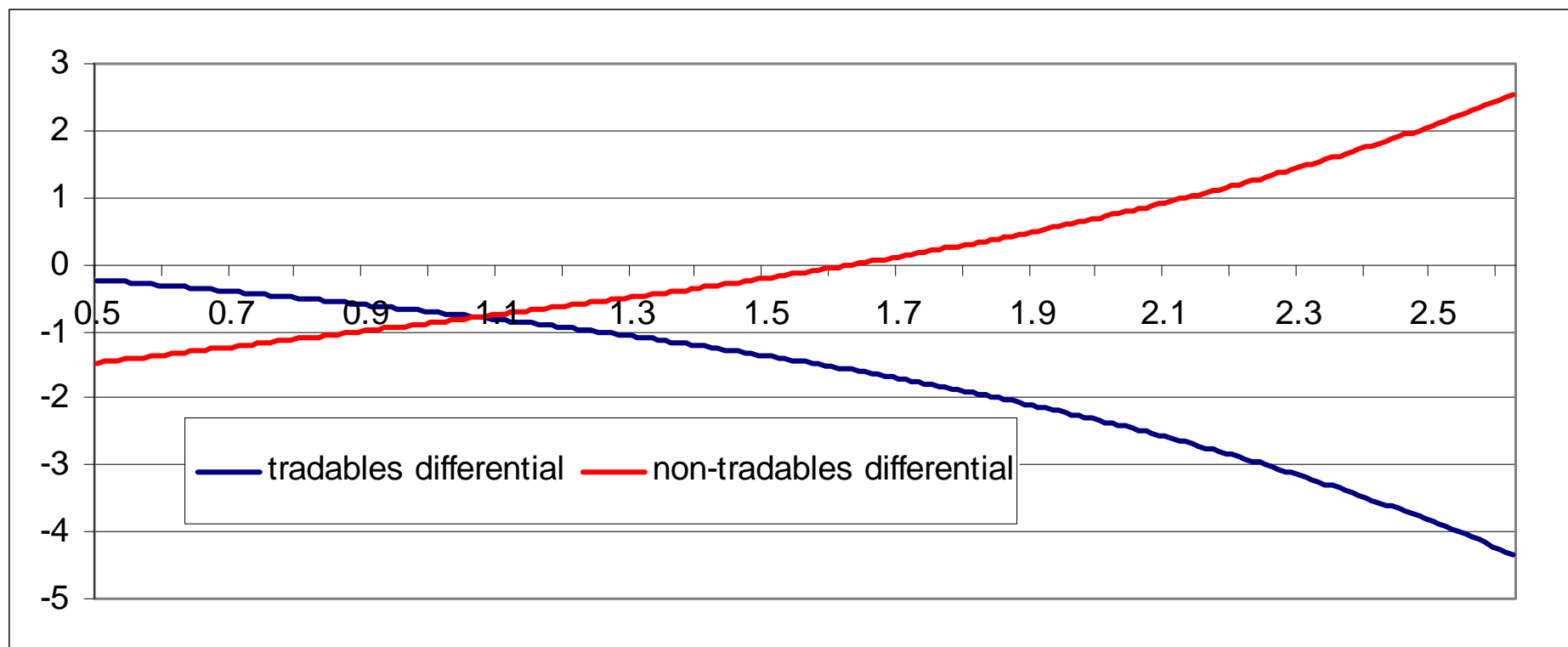
Dependent Variable: log RER	Tradables productivity diff.	Non-tradables productivity diff.
Group-mean panel DOLS estimator	-0.48 ***	0.29 ***
Austria	-0.11	-1.76 ***
Belgium	-0.14	0.74
Canada	-0.36 **	3.13 ***
Denmark	-0.86 **	-0.13
Finland	-0.68 ***	-0.19
France	1.17	-0.29
Germany	0.04	1.87 ***
Italy	0.3	-0.59
Japan	-1.76 ***	3.29 ***
Korea	-0.1	-0.33
Netherlands	0.96 *	-1.68
Norway	-0.23 *	-0.03
Portugal	-1.91 *	1.32
Sweden	0.26	-0.9
United Kingdom	-3.82 ***	-0.11

The empirical evidence is inconclusive

- **BCS find**
 - **Wrong signs, often insignificant parameters**
 - **Cross-country heterogeneity**
 - **Different coefficient magnitudes on productivity differential in tradable and non-tradable sector**
- **They are in very good company**
 - **Supportive for HBS: De Gregorio et al. 94, Chinn 97, Canzoneri et al 99, Fuentes and Meehan 07, Mihaljek and Klau 08**
 - **More sceptical: Froot and Rogoff 81, Asea and Mendoza 94, Chinn and Johnson 99, Chinn 00, Mihaljek and Klau 03, Drine and Rault 05, Cheung et al. 07, Lothian and Taylor 07, Peltonen and Sager 09**
 - **Interesting: Hauner, Lee and Takizawa 2011, IMF WP find that exchange rate forecasts have a role for HBS!**

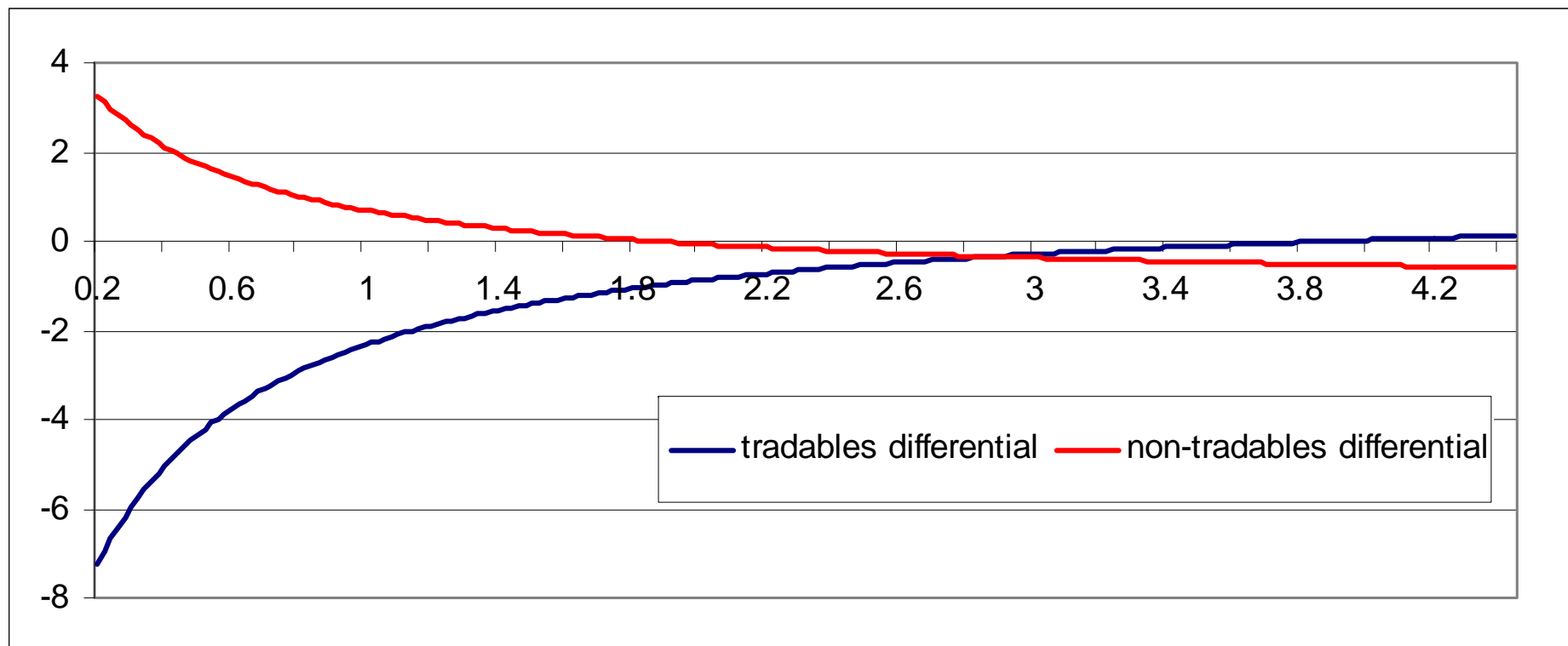
An extension of the underlying model

- The expected sign of the parameter estimates varies with ε (elasticity of substitution b. tradable and non-tradable goods) ; here plotted for $\eta=1$



An extension of the underlying model

- The expected sign of the parameter estimates varies with η (elasticity of substitution b. home and foreign bundles); here plotted for $\varepsilon=2$



What is a plausible magnitude for η ?

- **Magnitude is debated in the literature**
 - “Elasticity pessimism” based on time series evidence (Bergin 2006, Lubik and Schorfheide 2005: < 1)
 - Endogeneity bias and aggregation bias
 - “Elasticity optimism” based on disaggregated trade data (Imbs and Mejean 2009: 6-7)
 - Armington (1996) assumption: substitutability between two imported varieties of the same good is the same as the substitution between an imported variety and a domestic one
- **These numbers would place us clearly on either side of the crossing point**
 - Pick the one that generates our results, and we are done?
 - But what explains cross-country heterogeneity?

New evidence from Corbo and Osbat (2011)

- **Eurostat COMEXT data for EU countries, 1995-2009**
 - Trade data for up to 270 partners
 - Longer and richer panel than previously
- **Use bootstrap estimation techniques**
 - Elasticity is inferred as a function of 2 estimated parameters, which is not always defined and can be explosive
 - In case of theory-inconsistent parameters, literature either discards the sectors (Feenstra 1994), or searches best fit over admissible values via grid search (Broda and Weinstein 2006)
 - Corner solutions might be an issue
 - Here: estimate parameters with OLS and IV, then obtain 5000 theory-consistent bootstrap estimates (keep track of number of invalid draws)

New evidence from Corbo and Osbat (2011)

Country	OLS+Grid	Boot. mean	Boot. median	Boot. mode
Austria	21462306	15.12	5.29	4.54
BeLux	5.12	10.85	3.34	2.95
Denmark	4.30	8.04	3.71	3.33
Finland	11.18	13.36	4.77	4.02
France	7.65	11.78	5.01	4.45
Germany	6.01	9.58	4.17	3.82
Greece	7.49	33.45	5.25	4.47
Ireland	9.68	9.32	3.82	3.30
Italy	7.74	31.53	6.40	5.49
Netherlands	3.72	6.51	3.36	3.02
Portugal	6.78	9.38	4.62	4.03
Spain	6.79	12.36	5.34	4.68
Sweden	5.49	9.20	4.42	3.91
U.K.	12.56	14.14	5.34	4.61

Example of a “difficult” sector: Germany, 1549 (Manufacturing of other food products, n.e.c.)

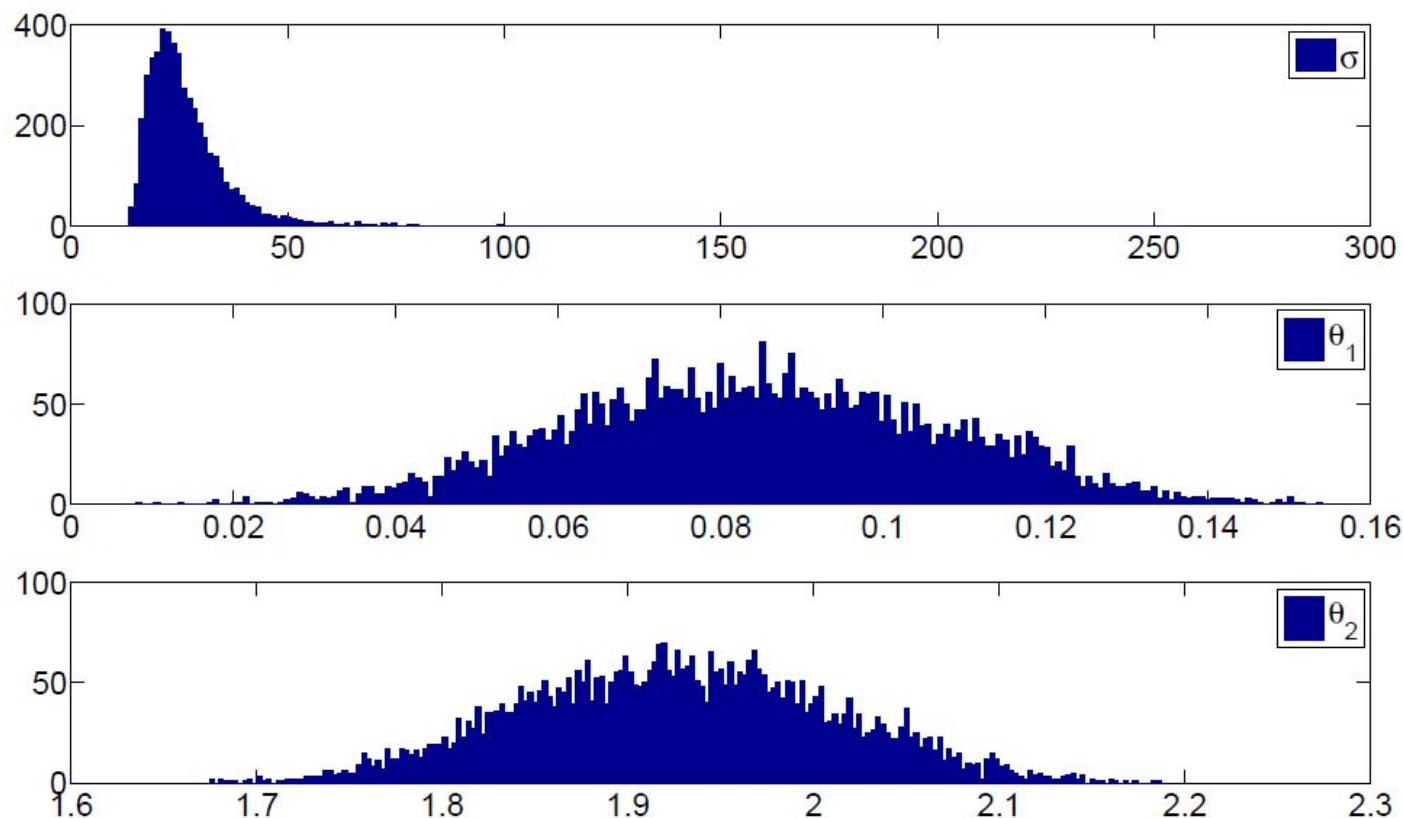


Figure 1: Bootstrap distributions of σ and of the regression parameters for sector 1549 (Manufacture of other food products n.e.c.)

New evidence from Corbo and Osbat (2011)

- **Estimates are in between the optimists and the pessimists (elasticity “realists”?)**
 - This puts us right in the interesting region
- **Substantial heterogeneity across countries**
 - Could be promising to get at cross-country differences
- **A proposal: get country-specific estimates, regress these on country's η and other factors**

Other questions

- **The BCS model still relies on perfect labour mobility across sectors: another avenue to explain cross-country differences and inconsistencies?**
- **HBS should apply in particular to EMEs (more variation in the data): why restrict to advanced OECD economies**
 - **STAN contains 32 countries, e.g. Mexico, a number of Eastern European countries**
 - **No balanced panel required**
- **Production function in labour only, no role for capital**
 - **STAN allows to construct multi-factor productivity, see e.g. Scarpetta and Tressel 2002, OECD WP, or Nicoletti and Scarpetta Economic Policy 2003**

Other questions

- **What role for the sector split into (non-)tradables**
 - **E.g. agriculture in EU distorted? Transport tradeable? Retail services not tradable?**
 - **Why aggregate ex ante, could estimate for each sector as in Peltonen and Sager 2009, ECB WP**
- **8 out of the 16 countries are EMU members: implications for HBS?**
- **Error in variables with downward bias?**
- **Some uncertainty as to data construction**
 - **E.g., FN 15: “ we omit mining and quarrying entirely” : only in PT?**