

## Terms of Reference for five research topics



Kompetenzzentrum Forschungsschwerpunkt Internationale  
Wirtschaft (FIW): Forschungsagenda

Research Centre International Economics (FIW):  
Research Agenda

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# 1. Microeconomic Analysis based on Firm-level Data

## including Issues of Firm Location, FDI Decisions, Trade Flows and Labour Markets

New new trade theory is a fast expanding research line in international economics (started with a contribution by Melitz, 2003; and synthetically presented by Helpman, 2006) which emphasizes heterogeneity across firms in different modes of internationalization (in international trade, through foreign subsidiaries, international licencing, etc.). New new trade theory has built on previous empirical research (see Tiebout, 2003, Bernard and Jensen, 2004, Bernard, Eaton, Jensen and Kortum, 2003) which has emphasized the differentiated responses of different types of firms (differentiated by size, performance criteria such as productivity, organizational features, etc.) to the opportunities of internationalization. Internationalization activities in turn affect performance and growth and hence tackling the causality issue has been a persistent feature of applied research in new, new trade economics.

The research line opened up by new new trade economics (encompassing theory and applications) has expanded rapidly over the past years and can be seen as one of the areas of most intense current research in international economics. The reasons for this are, on the one hand, the over-due recognition of the importance of differentiated behavior across firms in the field of international economics (which has so far only analyzed differentiation at the sectoral or product level), but also that firm level data-sets have increasingly become available to undertake applied economic research on internationalization.

Purpose of this Work Package is the support of research in Austria in the area of new new trade economics. Such research has so far been hampered by the difficulty to access firm level data to pursue research questions in this line of research. The call will provide research funding in the area of new new trade theory and applications in the following fields:

- Exploration of Austrian and Europe-wide firm level data-sets to study the issues raised by new new trade theory
- Explorations of specific new questions theoretically and through applied economic research in new new trade economics
- Analysis of the dynamics of innovation, trade, location decisions, productivity and repercussions on labour markets at the firm level.
- The analysis of the recent experience of East-West European integration through firm-level data is particularly encouraged, but also the analysis of internationalization at the firm level in more far away markets (such as China and India).

Applicants should spell out which questions of new, new trade economics they will address, which firm level data they intend to acquire for this purpose (the research is not limited to using Austrian data-sets) and how they will proceed methodologically. It is encouraged that the research is framed in such a way that specific industrial and trade policy conclusions can be drawn from the research.

**Literature:**

Bernard, A.B., Jensen, J.B. (2004): Why Some Firms Export?, *Review of Economics and Statistics*; 86; pp. 561-569.

Bernard, A.B., J. Eaton, J.B. Jensen and S. Kortum (2003): Plants and Productivity in International Trade; *American Economic Review*, 93, pp. 1268-1290.

Fujita, M., Krugman, P., Venables, A.J., "The Spatial Economy – Cities, regions and international trade", The MIT Press, Cambridge, Massachusetts, 1999.

Helpman, E. (2006): Trade, FDI and the Organization of Firms; *Journal of Economic Literature*, XLIV, 3, pp. 589-630.

Melitz, M.J. (2003): The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity, *Econometrica*, 71, pp. 1695-1725.

Tybout, J. (2003): Plant and Firm-level Evidence on 'New' Trade Theories; in: E.K. Choi and J. Harrigan, eds.: *Handbook of International Trade*; Blackwell, Oxford; pp. 388-415.

## 2. Model Simulations for Trade Policy Analysis

There is a need in Austria to have a good model to assess the impacts of trade policy scenarios in the context of changing global economic conditions such as the rise of China as an economic power and soaring fuel prices. This Work Package is supposed to fill this gap. International computable general equilibrium models (CGE model) but also other models which rely on detailed input-output analysis and include multiple regions are useful for answering “what-if” questions by simulating market equilibria under different assumptions. By comparing different simulation settings one can evaluate the impact of policy changes or alternative projections on the model outcome. A multisector model allows analysis of differential impacts across sectors. The purpose of this Work Package is to expand expertise in the area of scenario modeling, ongoing database analysis, and Non-Tariff-Barrier (NTB)-estimation. All contributions by applicants are expected to be based on simulations obtained from a multi-sector structural model of the Austrian economy with trade linkages to major European and extra-EU partners (China, the US, etc). In their work applicants should make explicit the formulation of the linkages of the Austrian economy to the European Union of which it is part of and which is the economic entity that in fact determines Austria’s trade policy. The structure of the remaining EU-countries and the type and degree of sectoral disaggregation should be clarified. Research proposals would have to demonstrate that the assumptions contained in the models used are sufficiently realistic for drawing policy relevant conclusions with respect to the research question dealt with. Finally, the linkages to the rest of the world, e.g. whether they are limited to trade flows or include e.g. foreign direct investment and, furthermore, how the impact on production and employment levels will enter the simulations, must be clearly formulated. Applicants may use the data set provided by the Global Trade Analysis Project (GTAP) (see homepage below). GTAP offers in its latest version GTAP 6 comparable global data for the year 2001 comprising 87 countries (regions) and 57 commodities (sectors). The proposals could encompass the offer by the GTAP network and use its models to analyse the impact of trade policy scenarios and global developments more generally (including the repercussions on the Austrian economy).

Suggestions for scenario analysis are:

- What is the impact of possible outcomes of the current WTO round, including different scenarios for agriculture, manufacturing and services, on the Austrian economy?
- What are the effects of continued medium term growth in emerging markets, especially in Asia and Latin America, on the structure of the Austrian economy; what price effects (due to increased demand for raw materials) are to be expected and how do they impact the commodity composition of both exports and imports.

- What is the impact of rising transport costs – given current fuel price developments - on the structure of regional and global production and trade (like China's exports to the EU) and how do they affect the Austrian economy?

### *Literature:*

Bouët, Antoine (2008) The Expected Benefits of Trade Liberalization for World Income and Development. Opening the "Black Box" of Global Trade Modeling, Food Policy Review No. 8, IFPRI Publications.

Breuss, F., (1995), "The Impact of the Uruguay Round on Austria: A General Equilibrium Analysis", in: Breuss, F. (Ed.), The World Economy after the Uruguay Round, Service Verlag, Wien 1995, pp. 367-393.

Breuss, F. / Tesche, J. (1991), "A CGE Model of Austria. Some Implications of Trade Liberalization", Empirica, Vol. 18, No. 2, 1991, pp. 135-165.

Francois, J.F. / van Meijl, H. / van Tongeren, F. (2005), "Trade Liberalization in the Doha Development Round", Economic Policy, Vol. 20, Issue 42, April 2005, pp. 349-391.

Francois, Joseph F. & Reinert, Kenneth A. (1998) Applied Methods for Trade Policy Analysis: A Handbook, Cambridge University Press

GTAP homepage: <https://www.gtap.agecon.purdue.edu/>

Piermartini R. / Teh, R. (2005), Demystifying Modelling Methods for Trade Policy, WTO Discussion Paper No. 10, World Trade Organization, Geneva, 2005.

### 3. Migration Issues focusing on Education, Training and Competitiveness

The recent years have seen a rapid increase of research on international migration, its determinants and its effects in both source and host countries. Nevertheless, many facets of international migration are still insufficiently understood, in particular in the European context.

This Work Package aims at fostering existing knowledge on migration in Europe. Applicants are encouraged to focus on education, skills, and productivity. These aspects of migration are particularly relevant in the context of labour market effects of migration in sending and receiving countries, including the labour market integration of migrants. However, other relevant dimensions of migration can be investigated as well. Research proposals do not need to be confined to Austria. A European dimension is encouraged.

Suggestions for research topics:

- Assimilation of work migrants: how has the labour market status and occupational attainment of migrants in the host country/countries evolved over time? How have migrants' earnings evolved in comparison with natives' earnings? Is there any evidence of assimilation?
- Brain Drain, Brain Gain and Brain Waste: How does the qualification structure of emigrants from and immigrants to Austria compare to other European countries? In which occupations do highly qualified workers work, and how much human capital is wasted? What determines the choice of destination country of highly skilled workers and how do the chances of integration and brain waste impact on this choice?
- Family members of migrants: family members often enter host countries via family reunification; their migration decision is not (only) based on their own labour market characteristics. What are the human capital characteristics of and labour market outcomes for dependent family members of various types of work migrants? How do these evolve over time?
- Human capital acquisition and integration of the second generation: what is the experience on educational attainment and labour market integration for the immigrant second generation?
- Effects on migration on human capital and productivity: are there any effects of return migration on skill levels and productivity in the sending countries of tempo-

rary migrants? Has there been any evidence of skill upgrading of natives and earlier migrants in host countries as a response to (expected) migration?

- Productivity and growth effects of the age composition of migrant flows: The likelihood to participate in work migration is highest at early stages of workers' careers. Larger scale work migration thus affects the demographic structure of both the sending and the receiving countries. What are the impacts on productivity and growth via the channel of demographic composition in the home and host countries of work migration?
- New forms of migration: migration is increasingly realised as temporary, circular, and transnational. What are the determinants, characteristics and effects of such new forms of migration in the affected economies?
- The impact of migration policies on economic integration and growth: How do different immigration policies affect other channels of economic integration, in particular trade and FDI? How would different migration policy scenarios impact on competitiveness of growth of the Austrian economy in particular?

#### *Literature:*

Barrett, Alan, and David Duffy, 2007, "Are Ireland's immigrants integrating into its labour market?", IZA discussion paper no. 2838.

Borjas, George, 1994, "The economics of immigration", *Journal of Economic Literature* 32, pp. 1664-1717.

Constant, Amelie, and Klaus Zimmermann, 2007, "Circular Migration: Counts of Exits and Years Away from the Host Country", IZA discussion paper no. 2999.

Crul, Maurice, and Hans Vermeulen, 2003, "The second generation in Europe", *International Migration Review* 37 (4), 765-986.

Katseli, Louka, Robert E.B. Lucas, and Theodora Xenogiani, 2006, "Effects of migration on sending countries: What do we know?", OECD Working paper no. 250.



## 4. Trade, Energy and Environment

Recent increases in commodity prices (in particular oil) seem to be heralding a new regime of higher costs for core elements of national and global economic systems, in particular for energy, food and transport costs. These challenges are concomitant to both climate change and efforts to mitigate climate change, leading to complex linkages between policy areas at both the Member State and Community levels.

The goal within this research topic is to focus on two specific areas of empirical research that require clarification in order to enable appropriate formulation of energy and environmental policies. The first is the (re-)assessment of the mechanisms that lead to oil price formation. The second is the carbon content of international trade flows.

### 4.1 Oil price formation

High oil prices can lead to substantial impacts on core areas of economic activity (for a recent overview see Christie et al., 2008). Recently, oil prices have risen to record levels, have been more volatile, and have more often than not confounded the expectations and forecasts of leading energy analysts and institutions. A better understanding of oil price formation would therefore be highly useful for economic policy formulation as well as for private economic agents in Austria and beyond.

While the role of market tightness (lack of spare production capacity, low stockholdings, tight refining capacity) is clearly recognised, recent empirical research, e.g. Dées et al. (2008), finds stronger results than previously estimated for the role played by commercial stocks in oil importing countries. Wirl (2008) finds that recent price increases were mostly driven by a demand shock (from China and other emerging economies) which exceeded industry expectations. Interestingly, and in contrast to Slaibi et al. (2006), Wirl (2008) finds that purely political factors have very limited explanatory power. Finally, much of the research on “longer-term” oil price formation (typically based on monthly time series) implicitly attributes a non-existent role to financial markets by focusing on fundamentals only. However new research is necessary given the large increase in derivatives markets activity in the last few years. For instance, Domanski and Heath (2007) suggest that the expectations of financial investors reflected on oil futures markets could affect real industry decisions in terms of inventory (stock) holdings, thereby affecting real demand flows. Last but not least, the relationship between oil price formation and exchange rate fluctuations would also require further investigation.

Submitted proposals should explore, theoretically and/or empirically, the extent to which recent oil price fluctuations can be explained by the following four core groups of factors:

- A demand shock caused by the rise of China and other emerging economies
- The role of derivatives markets and the formation of expectations
- The investment cycle in producing countries
- A change in the strategic balance of relations between leading producing and consuming countries

The research should focus on explaining monthly (or quarterly) price movements (rather than higher frequency data) and include testing for regime switches and structural stability questions.

### 4.2 The carbon content of international trade flows

International trade leads to a gap between environmental impacts of production within a country and environmental impacts induced by the consumption within a country. This process can be driven by offshoring/outsourcing of energy and emission-intensive parts of domestic production. Additionally this process increases emissions linked to transport activities accompanying trade. Certain policies or developments in national economies can lead to leakage of emissions between countries, thereby distorting the emission balance of the single countries.

The gap between 'emission responsibility' and emission accounting becomes especially relevant, when international agreements on emission mitigation foresee global targets for groups of countries and individual country targets at the same time. This is the case for CO<sub>2</sub> emissions, regulated in the Kyoto Protocol and in the new EU-Climate and Energy-Package.

The analysis of emissions embodied in international trade usually was based on single country analysis or bilateral trade and – with a few exemptions – carried out for some base years. For Austria such an analysis is still missing. An analysis should ideally take a time series perspective, as the Kyoto targets are also defined in relation to a base year (1990).

Interesting issues of this analysis are:

- development of emission embodiment in imports and exports
- driving factors of specialization according to emission intensity
- the contribution of transport induced and production induced emissions

The analysis should use recent databases (especially input-output tables) and also reach beyond existing studies in some critical areas (e.g. relaxing the assumption of identical emission intensities for imports and domestic production of each commodity)

## Literature

Aune F.R., Mohn K., Osmundsen P. and Rosendahl K.E. (2007), "Industry restructuring, OPEC response – and oil price formation", Discussion Paper No. 511, Statistics Norway Research Department, July.

Ahmad, N. and Wyckoff, A. (2003), "Carbon dioxide emissions embodied in international trade of goods", OECD, Science, Technology and Industry Working papers, 2003/15, OECD.

Christie E., Pellenyi G., Barta J., Hegedus M., Holzner M., Oszlay A. and Sass M. (2008), "Economic and trade policy impacts of sustained high oil prices", wiiw Research Reports, No. 346, April.

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Dietzenbacher, E. and Serrano, M., (2008), "Responsibility and trade emission balances: two approaches for the same concept?", Paper presented at the International Input Output Meeting on Managing the Environment, July 9 -11, 2008, Seville (Spain).

Dietzenbacher, E. and Mukhopadhyay, K., (2007), "An empirical examination of the pollution haven hypothesis for India: towards a green Leontief paradox?", Environmental and Resource Economics, 36 (4), 427 – 449.

Domanski D. and Heath A. (2007), "Financial investors and commodity markets", BIS Quarterly Review, Bank for International Settlements, March.

Slaibi A., Chapman D. and Daouk H. (2006), "An Econometric Evaluation of a Geopolitical Theory of Oil Price Behavior", Working Paper, Department of Applied Economics and Management, Cornell University.

Wirl F. (2008), "Why do oil prices jump (or fall) ?", Energy Policy, 36 (3), 1029-1043.