

TERMS OF REFERENCE



**Kompetenzzentrum Forschungsschwerpunkt Internationale
Wirtschaft (FIW): Forschungsagenda**

**Research Centre International Economics (FIW):
Research Agenda**

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1. The financial and economic crisis of 2007-2010 and the European economy

The vehemence and global nature of the financial and economic crisis which erupted in the summer of 2007 came as a surprise to economists and policy-makers and will be an area of research for years to come. This Work Package is designed, firstly, to encourage Austrian researchers to participate in the analysis of specific features of the crisis particularly of its international dimension and, secondly, to cover specific areas of research which are of particular interest to Austria.

Proposals from the following areas are invited:

- The international spillover mechanisms of previous crises with contagion features such as the various Latin American crises, the Russian crisis and the Asian crisis have been studied in detail. Among the most prominent transmission channels figure international trade linkages (Eichengreen – Rose – Wyplosz, 1996), including third country trade and competitive devaluation (Kaminsky – Reinhart, 2000) and financial linkages, including the role of common creditors (Frankel – Schmukler, 1998; Calvo, 2000; Kaminsky – Reinhart, 2000) and financial centres (Reinhart – Kaminsky, 2008). How and to what extent have these spillover and contagion mechanism been operating in the spread of the crisis of 2007-2010? What are features in the current crisis, which are new and which are similar to previous crises? What are the models that can explain the spillover mechanisms and do we need new models and insights in the mechanisms of financial and real economy interactions?
- The current crisis showed a wide array of policy reactions. They range from fiscal stimulus packages to expansionary monetary policy and exchange rate interventions. Most industrialized countries also implemented bank rescue operations and guarantees for bank credits and deposits. Despite commitments on multilateral and global levels for international cooperation, action was taken mostly at national levels. Applicants should evaluate the differentiated policy reactions as well as the obstacles for well-coordinated policy actions at multilateral and European levels. What are the moral hazard problems and spillover effects of uncoordinated policy interventions? Evaluate these in economic analytical and political-economy frameworks. What are the implications for larger or smaller countries, for higher and lower income economies and for countries with different financial structures? Which institutional reforms would lead to better outcomes in case of future shocks?

- Austria has been and most likely will be strongly affected by the impact of the crisis on the Central and Eastern European economies (CEECs). More detailed analysis suggests that these economies were quite differentially affected depending upon country characteristics such as EU and EMU membership; the exchange rate regime and exchange rate policies chosen; their prior current account and fiscal positions; which types of export and import specializations characterized their links to the outside world; the states of private debt levels and of their financial systems. The differentiated impact of the crisis upon CEECs should be examined using analytical macroeconomic frameworks and by means of quantitative analysis.
- What will be the medium- to longer-run impact of the crisis on international trade, foreign direct investments and growth scenarios in countries (Germany, Italy, United States,...) and regions (EU members, CEECs, Russia, Asian economies), which are important for Austria's international economic relations? The current crisis is seen as having hit international trade, foreign direct investment and other international capital flows particularly hard. Work dealing with the likely time path and extent of recovery of trade and international capital flows over the medium-term is invited.
- The global economic crisis is expected to have longer-run effects on growth trajectories of important trading partners of Austria (EU members, CEECs, Russia, China and other Asian economies) and on global patterns of growth. It is likely that the economic crisis has changed the weights of different global regions as a result of both their differentiated performance during the crisis and the longer term impact on growth. Important factors affecting future growth paths include the rise in saving rates in the US, lower current account disequilibria of the US, China and other emerging markets, exchange rate re- and devaluations, etc.

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2. Modelling the Effects of Trade Policy and the Transmission Mechanisms of the Economic Crisis on the Austrian Economy

This topic consists of two components which are further described below:

2.1 Austrian Linkages to the European Economy and the Transmission Mechanisms of Economic Crisis

In Austria there is a demand for a good model to assess the impacts of trade and investment related linkages to the broader European economy.

The most immediate reason is to better understand channels of real transmission of the economic crisis between Austria and neighbouring economies. During the financial crisis, GDP in the OECD has dropped at a rate of as much as 6% in some countries (Japan, the UK), while trade has fallen as much as 30 %. Though China's economy has quickly recovered its growth trajectory, the shock to the OECD economies is forecast to last much longer. The financial crisis has clearly played a key role in setting off the current global recession. However, the follow-on channels linking Austrian industry to dimensions of the crisis in regional industries (especially in Germany) have also played an important role in the pattern of trade, employment, and demand shocks that have followed.

This Work Package is supposed to fill a gap in this domain of research. 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 questions by quantifying cross-border linkages between and across industries. A multi-sector approach also allows analysis of differential impacts across sectors. The purpose of this Work Package is to take advantage of expertise in the area of scenario and linkages modelling, ongoing database analysis, and elasticity estimation. Contributions by applicants are expected to be based on a combination of simulations obtained from a multi-sector structural model of the Austrian economy with trade linkages to major European and extra-EU partners, and detailed analysis of cross-border input-output linkages. 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 to examine the extent to which industrial demand for Austria depends on general conditions of industrial production and trade in Europe. The goal should be, at least in part, to identify the magnitude of real transmission channels (intermediate and final demand) in explaining the industrial pattern of the reces-

sion as it has affected Austria. 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 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), or the WIOD database combined with comparable trade data.

Suggestions for detailed analysis are:

- What are the quantifiable linkages between recession-related output shocks in major European industry (for example machinery in Germany) and Austrian patterns of trade, production, and employment?
- What are the likely impacts of industry-level productivity gains in major European economies for the pattern of trade and employment in Austria?
- Trade has fallen much more than GDP in the current crisis. To what extent can we explain the divergence between trade and GDP shocks by differences between the composition of Austrian trade and of overall GDP?

2.2 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 an existing gap in this field.

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 multi-sector model allows analysis of differential impacts across sectors. The purpose of this Work Package is to expand expertise in the area of scenario modelling, ongoing database analysis, and Non-Tariff-Barrier (NTB)-estimation. All contributions by appli-

cants 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 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 7 comparable global data for the year 2004. 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 proposed EU-FTAs, e.g. with Korea or with India, for the Austrian economy?
- What would be the likely impact of a successful Doha Round conclusion on the Austrian economy?
- What is the likely impact of reduction of trans-Atlantic trade barriers on the Austrian economy?

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3. The Gravity Equation: New theoretical foundations and estimation techniques

Estimation of international trade flows has a long tradition. Tinbergen (1962) pioneered the use of gravity equations in empirical specifications of bilateral trade flows, in which the volume of trade between two countries is proportional to the product of an index of their economic size and to measures of “trade resistance” between them. Linnemann (1966) improved this approach considerably, however, without a theoretical foundation.

Anderson (1979) undertook the first attempt to underpin the gravity equation with theory. Bergstrand (1985, 1989, and 1990) and Deardorff (1998) incorporated theoretical elements by adding monopolistic competition or a Heckscher-Ohlin structure to explain specialization or intra-industry trade. The new development of theoretical foundation started only recently, firstly by Anderson and van Wincoop (2003) including multilateral resistance variables and hence, developing the bilateral framework of the gravity equation to yield a general equilibrium setting. Trade resistance is decomposed into three components: (i) the bilateral trade barrier between region i and region j , (ii) i 's resistance to trade with all regions, and (iii) j 's resistance to trade with all regions.

The next important step was done by Helpman, Melitz and Rubinstein (2008). They developed a simple model of international trade with heterogeneous firms based on the findings of the “new-new trade theory” that is consistent with a number of stylized features of the data. In particular, the model predicts positive as well as zero trade flows across pairs of countries, and it allows the number of exporting firms to vary across destination countries. This model yields a generalized gravity equation that accounts for the self-selection of firms into export markets and their impact on trade volumes. Their method provides estimates of the intensive and extensive margins of trade as analysed also by Felbermayr and Kohler (2006). The Helpman-Melitz-Rubinstein approach generalizes the Anderson and van Wincoop gravity equation. An important innovation of the Helpman-Melitz and Rubinstein model is that it does not need firm-level data to estimate the gravity equation although they allow firm heterogeneity.

The gravity equation experienced a revival after the opening-up of Eastern Europe. Many authors used this approach to estimate the trade potential of East-West trade in view of the transformation of the CEECs towards market economies. A recent paper deals with the ex post evaluation of the Europe Agreement (e.g. Spies and Marques, 2009).

The novelty of this approach is that one has the opportunity to estimate bilateral trade relations – within the EU (intra-EU or intra Euro area trade or Austrian exports with trading partners) – with gravity equations which have (in contrast to the old

generation of such estimations) a theoretical sound foundation and are no longer biased due to the omission of the extensive margin. In addition, the effect of the number of exporting firms varies across country pairs according to their characteristics. This variation is large and particularly so for trade between the highly developed old EU member states and the less developed new EU member states.

Purpose of this research topic is the support of research in Austria in the area of new gravity equation models. Present gravity equations studies have relied on poor theoretical foundations. The call will provide research funding in the area of the new theoretical approaches of the gravity equation and its empirical estimation refinements in the following fields:

- Exploration of Austria's and EU's or Euro area's trade relations with other countries or with each other (the trade gains of the introduction of the Euro).
- Re-estimation of the welfare implications of the opening-up of Eastern Europe and in particular the evaluation of the Europe Agreements for old and new EU member states.
- The analysis of the new trade potentials of Austria outside Europe. Which are the advantages or disadvantages of a deeper participation in globalization?
- The interaction of trade and FDI – horizontal and vertical outsourcing versus trade.

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4. Macroeconomic Aspects of European Integration: Trade Integration and the European Business Cycle

Synchronisation in business cycles across countries appears to have increased over the last decades. Most recently, high synchronisation has become evident by the speed with which the financial crisis has affected economic activity across the world.

In recent years, synchronisation in economic activity has gained increased interest in economic research with the majority of studies confirming an increase in synchronisation over time (e.g. Artis, 2004; Stock and Watson, 2005; Koopman et al., 2008). Similarly, studies have pointed to the presence of a strong global component in inflation (Buseti et al., 2006, 2007).

This process may have been particularly important within the European Union as economic integration and the emergence of the euro area might have led to higher synchronisation. In turn, the topic is particularly important for European economic policy, as high synchronisation is a prerequisite for a well-functioning monetary union has implications for fiscal coordination.

One key factor in European integration is intensified trade. This applies in particular to intermediate products reflecting the international integration in production chains (Burstein et al., 2008). Studies also have pointed to increased financial linkages as another driving force, but the results are mixed (Garcia-Herrero et al., 2008).

So far, studies on business cycle synchronisation in Europe have focused on single variables, either economic activity or inflation. Studies that would address the process of synchronisation in a multi-variate context, inspecting simultaneously e.g. economic activity, trade and measures of relative labour costs (e.g. real exchange rates), are missing. In particular, studies that would investigate the role of increased trade in this process are missing.

However, as noted above, understanding the role of increased trade in the process of economic adjustment within Europe seems important for various policy questions, notably the co-ordination of fiscal and labour market policies in the Euro area. It can also contribute to the debate whether the endogenous optimum currency area (OCA) theory (see e.g. Frankel-Rose, 1998) can help to explain the increased synchronisation of the European Business Cycle – if there is any - via stronger intra-EU trade integration.

Submitted proposals should explore the following issues:

- An assessment of the process of synchronisation at the European level, inspecting economic activity, inflation, trade and other key economic variables. Studies might apply multivariate time series models, such as structural co-integrated VARs (e.g. Artis et al, 2004) or dynamic factor models (e.g. Negro et al., 2008).
- In particular, studies should address the role of trade integration on increased synchronisation in economic activity and other key economic variables (e.g. productivity, labour costs).
- The impact of increased trade integration on the Austrian business cycle: assessing shifts in the degree of synchronisation over time and the importance of individual countries (incl. the New Member States).
- The implications for fiscal and monetary policy co-ordination that arise from higher synchronisation. Such investigation would require the use of a macro-economic model.

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5. Effects of International Integration on Income Distribution

This work package aims at analysing the relationships between income distribution at the micro level and the developments in international competitiveness at the industry and the macro economic levels. This research could yield interesting results as we are now in a position where micro level variables are much more detailed and comparable across countries than in earlier times (see e.g. European Union Statistics on Income and Living Conditions, EU-SILC data base). This allows cross-European research and research based on panel data.

Since comparable and comprehensive European wide micro data exist for only a few years now, European research on income distribution connecting the micro, meso and macro level is still rather scarce. Lohmann (2008) is one of the few examples. He shows in a two level model, combining a micro and macro approach (households and countries) and using a Europe-wide sample: While bargaining centralisation proves to be relevant for the distribution of pre-transfer incomes only, the set-up of the social security system in particular impacts the extent of poverty reduction. Earlier studies had to rely on much less comparable surveys for a specific country or region in a certain year, such as in the multilevel (personal, company and industry) analysis of Stephan and Gerlach (2003) on the issue of wage differentials and collective agreements. Several other studies of similar scope focused on the multi-level relationship between income and human capital (see e.g. Xiao, 2001, Naderi and Mace, 2003 and Liu and Xiao, 2006).

The new cross-European data opens up a wide range for innovative research on the issue of income distribution and internationalisation combining micro, industry and macro data. The following three areas of research are of general European interest and of particular interest for Austrian employees, businesses, and policy makers:

- Especially in small, open economies, a more flexible and comprehensive macro economic policy (Rodrik, 1998) can be performed and consensus in social partnership found (Calmfors and Driffill, 1988). This should pay off in higher wages and/or lower unemployment. This is a hypothesis to be tested both at the micro as well as the macro level. Here, macro economic indicators, especially in the sphere of real exchange rate policies (i.e. nowadays in the EU mainly wage policy) are of interest. Cross-country analysis should be performed. Wage bargaining at the industry level can be taken into account as well.

- Did globalisation leave the wage earners worse off? What is the influence of increased trade flows on income in different industries? How do trade developments influence inter- and intra-sectoral wage dispersion? What are the effects of increased competition for income earners in the tradable as compared to the non-tradable sectors? The questions in this area of research can be answered by combining micro income data with trade data at the industry level. Also the difference in the impact of intra- vs. extra-EU trade flows can be analysed.
- What is the current state of rent sharing in Europe? What is the state of play in different industries? Has the pattern shifted over the years? These questions mark a research area of high political relevance. The analysis will have to draw on micro level wage data and – if available – matched employer-employee datasets and/or industry level profit data.

For all the above research areas, it is encouraged to take explicit account of individual, household, industry and country characteristics. This could, for instance, involve the use of sub-samples according to levels of income, levels of education attained, employment status, etc. Furthermore, differences in the impact of internationalisation upon urban and rural regions, export and import-substituting industries and high-tech vs. low-tech industries could be looked at. At the country level, comparisons between small and large, high- and lower income countries, as well as between country specific schemes of wage bargaining and social support systems could be of interest.

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6. New Energy Policy and Security of Gas Supply: what are the next steps for the EU's policy-makers?

The European Union is on the move with regards to energy policy and security of gas supply. In December 2008 the European Parliament approved the Commission's New Energy Policy (the 20-20-20 targets). The demand scenarios presented by the Commission in November 2008 indicate that the New Energy Policy (NEP) may lead to a substantially lower demand path for imported natural gas in 2020 than would be the case in the 'baseline' scenario¹. The final approval for the NEP, i.e. changes to the EU Emission Trading System (ETS) and the introduction of national plans to reach targets for renewables and transport fuel, was given by the European Council² (the member state governments) on 6 April 2009. On 18 May 2009 the Commission launched a call for proposals for the European Energy Programme for Recovery (EPR). In particular, the EPR allocates € 1.44 billion for gas infrastructure projects³, of which more than half concern the New Member States. One major goal of those projects is to increase the resilience of gas transportation systems in Central and Eastern Europe.

On July 16, 2009 the Commission published two draft regulations concerning energy policy. The first draft regulation deals specifically with security of gas supply and how to prepare for substantial delivery failures⁴, a possibility it describes as "realistic". The second draft regulation suggests a new coordinating mechanism for large energy investments in the Union⁵, with the Commission and other Union-level institutions playing a role in terms of information exchange and processing.

In light of these developments it is clear that the Commission and the Member States are trying to ameliorate the Union's energy security position, while pursuing an ambitious agenda in terms of climate change mitigation. Beyond what has already been firmly committed to, the fast-moving nature of the legislation process suggests that

¹ Ref: COM(2008) 781 final, page 19

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0781:FIN:EN:PDF>

² Ref: 8434/09 (Presse 77) <http://register.consilium.europa.eu/pdf/en/09/st08/st08434.en09.pdf>

³ Ref: IP/09/804

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/804&format=HTML&aged=0&language=EN&guiLanguage=en>

⁴ Ref: COM(2009) 363 final

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0363:FIN:EN:PDF>

⁵ Ref: COM(2009) 361 final

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0036:FIN:EN:PDF>

new conceptual, theoretical and simulation analyses need to be made in order to provide Member State governments and Community-level institutions with useful benchmarks for an increasingly united and coherent European energy policy. The type of analysis that is the most useful at the current juncture is therefore of a prospective or forward-looking nature. For this purpose the Austrian Ministry of Economy, Family and Youth (hereafter BMWFJ) seeks the submission of proposals for methodological studies addressing the following topics with respect to security of gas supply.

- A conceptual and methodological framework for assessing and modelling energy vulnerability and energy resilience, and the risks and potential effects of future supply disruptions; the contribution should include insights from reliability theory and/or control theory; possible target functions for the various actors, namely suppliers, consumers and transit countries, should be explicitly modelled; the analysis should lead to relevant future policy options for EU member states.
- A theoretical and/or simulation assessment of information asymmetry and bargaining power asymmetry in bilateral gas relations, notably within a “N-versus-1” set-up; the effects of various potential options for greater information disclosure should be explicitly modelled and discussed; the following scenarios should also be modelled and discussed: the creation of a *single European gas purchasing agency* (and variations thereof); market-sharing and/or cartel-type arrangements on the part of suppliers; and a scenario comprising both (“bilateral monopoly”).

Contributions should be grounded in recent peer-reviewed research from economics (and other disciplines as necessary, especially for topic 1), and should strive towards developing new modelling frameworks, definitions and concepts. All the analyses made should therefore be scientifically sound, innovative and forward-looking, so as to identify future policy options under clearly-stated assumptions. Also, contributions should explicitly take into consideration the broader energy policy context, in particular the New Energy Policy and the projections for natural gas demand in 2020 that are presented in *COM(2008) 781 final* (page 19).

Submitted proposals should address *both* of the research questions presented above.

Literature:

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