

# List of Projects

## Mahdi Ghodsi

### **Industry 4.0, migration and the labour market adjustment: an intra-European perspective** (*wiiw Team Leader*)

*Anniversary Fund of the Oesterreichische Nationalbank*

*October 2021 - March 2024*

The mechanism through which robot adoption affects the labour market, skill composition and wage levels, and consequently the pull and push factors of migration, is the main focus of the study. The project will comprehensively study this phenomenon by analysing various interactions between the adoption of robots, labour demand and wages, and migration patterns in four work packages. First, the impact of robot adoption on wages and skills by sector will be studied. Second, the impact of robot adoption in manufacturing industries on migration flows by sectors and skills in selected EU countries will be analysed, also controlling for other factors. Third, the impact of the gap in automation defined by the difference in robot intensity (i.e. robot stocks per employee) between the origin and destination countries on bilateral migration flows will be analysed. Fourth, push and pull factors affecting the intention to migrate will be studied at the individual level.

### **Untangling the impacts of technological transformations, globalisation and demographic change to foster shared prosperity in Europe (UNTANGLED)**

*European Commission, Horizon 2020*

*February 2021 - January 2024*

Technological transformations, globalisation and demographic changes are the three key mega-trends posing socio-economic challenges and opportunities for the EU. UNTANGLED aims to fill knowledge gaps about these trends by pursuing three main goals: (1) to provide detailed analyses at the macro-, regional-, sectoral-, and micro-level concerning the effects of these trends on labour market outcomes and inequality, and their winners and losers; (2) to develop comprehensive, model-based scenarios of the impacts of these trends in the next decades, overall and for various subpopulations, sectors and regions; (3) to develop policy recommendations fostering shared prosperity. The project is commissioned to a consortium coordinated by the Catholic University of Leuven. wiiw is one of 14 partners and leads a workpackage on meso-level analysis.

### **Research Centre International Economics (Forschungsschwerpunkt Internationale Wirtschaft, FIW)**

*Austrian Federal Ministry of Education, Science and Research*

*October 2011 - February 2022*

wiiw is part of a consortium which is setting up a "Centre of Excellence on International Trade". It provides the appropriate infrastructure and assistance for a research community in international trade. Thus it can achieve a sustainable coordination among different research projects, research institutes and other activities in the broad field of economics of international trade (FIW German abbreviation). This project will also create a network of experts and assure the integration of international projects. The Centre of Excellence fulfils the following tasks: (1) to develop a research programme which assists external political decisions and activities concerning the European Union and other multinational organisations in a sustainable fashion, (2) to provides access to relevant databases in an easy and transparent way, and (3) to encourage and enhance the development of know-how with regard to foreign economic affairs in Austria. This Centre of Excellence will be an important source of information for the research community in Austria, the Austrian government with regard to foreign affairs as well as the social partnership. It collects and increases the knowledge of the given research institutes and provides it to the public in a user-friendly manner.

<http://www.fiw.ac.at/>

## **The production side of 'digitalisation' and its impacts** (wiiw Team Leader)

*Anniversary Fund of the Oesterreichische Nationalbank*

*September 2019 - October 2021*

The project comprises four main tasks linking the production and use side of the digital sector. In the first task the production and supply side of the ICT goods and services sectors is studied. An overview of the ICT industry across countries is provided based on various data sources at the industry and firm level. Determinants of ICT industries' performance and drivers of investment by ICT superstars across the European Union are analysed. The second task then focuses on the patterns of trade of ICT goods and services linking the supply side of the digital sector to its demand. Furthermore, the impact of technical regulations and standards embedded within Technical Barriers to Trade (TBT) on patterns of trade flows of ICT goods are analysed. Task three focuses on the investment in ICT capital assets and building up of an ICT capital stock across countries and industries. Gross capital formation and capital stocks in different asset types and their contribution to employment and value added growth will be studied. Finally, the fourth task is devoted to a comparative analysis of the bias of ICT driven technical change - that is expected to be in general labour-saving and capital using in the industrialised countries though differing across countries and industries. Finally, in the last part of task we study whether and how ICT driven technical change impacts on structure of labour demand by various groupings.

## **Analysis of value chains in the Western Balkans economies - Enriching potential for regional cooperation in priority areas**

*Joint Research Centre (JRC)*

*January 2021 - May 2021*

The overall objective of this project was to provide guidance, methodological support and capacity building in smart specialisation processes in the Western Balkans economies. One goal of the support to smart specialisation in the region was to identify promising industrial areas (domains) for the Western Balkan economies with higher value-added as well as to analyse and identify possibilities for wider cooperation in the South-East Europe in these identified areas. The analysis of value chains in the Western Balkans (WB) was expected to deliver an advanced contextual overview of the competitive position of the present and potential smart specialisation priority domains, and to identify opportunities for upgrading the position of the whole region and individual economies in European and global value chains; finding new market niches and areas of economic cooperation.

## **Nearshoring Potential in the Western Balkans**

*Federal Ministry for Economic Cooperation and Development, Germany*

*August 2020 - May 2021*

This study aims to analyse whether and how the Western Balkan economies could benefit from near-shoring trends after the COVID-19 pandemic. It begins by discussing recent trends in foreign investment, and then presents an econometric analysis of determinants of foreign direct investment in the Western Balkans and East Asia. This is followed by a set of surveys, interviews and case studies, of different actors involved in global supply chains and investment, including foreign companies that have invested in the Western Balkans, foreign companies that are considering investing in the Western Balkans, local companies from the Western Balkans, and investment promotion agencies from these economies. The study concludes that Western Balkan economies can indeed benefit from near-shoring trends in the post-pandemic world, but would have to go beyond low labour costs in order to achieve that. Putting a focus on skilled labour, investment in education and training, improving infrastructure and governance would be the most important things to do.

## **Quality of goods imports: Which role for non-tariff measures?** (wiiw Team Leader)

*Anniversary Fund of the Oesterreichische Nationalbank*

*January 2019 - December 2020*

One major feature of non-tariff measures (NTMs) is their opacity and complexity of their effects. Regulatory standards embedded within NTMs might cause significant trade frictions, while some could stimulate trade due to positive externalities. When NTMs become very trade restrictive and discriminatory, trade disputes may arise. Specifically, when technical NTMs are not improving the quality of the imported product but mostly as an unnecessary obstacle to trade, the implications of those NTMs might be regarded as protectionism. The study will provide information for trade policy makers to have a better understanding of the current stocks of technical barriers to trade (TBT) and Sanitary and Phytosanitary (SPS) measures and their effects with a focus on quality. In fact, by knowing how these trade policy measures affect quality differently from price and quantity of trade, the study will provide insights on motives behind their implementation.

## **Innovative modeling of non-tariff measures in trade**

*Anniversary Fund of the Oesterreichische Nationalbank*

*September 2018 - June 2020*

Starting in the 1960s, non-tariff measures (NTM) have been continuously replacing tariffs as the core element of trade negotiations. The number of types of non-tariff measures and the number of countries making use of these instruments increases continuously. Therefore, many different approaches have developed recently for the evaluation of NTM and free trade agreements (FTA). Starting from models using simple dummy variables for the indication of NTM or FTA, today there is a wide range of databases available varying in content (i.e. capturing different aspects of NTM and FTA) and in applied methodologies (e.g. extracting information from legal texts, survey data, notifications to the WTO). Our contribution to the existing literature was at least threefold: First, it aimed at modelling non-tariff measures in a Structural Gravity framework. Second, it assessed the value added of different data on the structure of FTA and NTM by means of evaluating their ability to predict the trade effects of the EU-South Korea Free Trade Agreement. The third contribution laid in the estimation of effects of the EU-Japan Economic Partnership Agreement.

## **Of Smile Curves and Global Value Chains: The Role of Functional Specialisation for Economic Growth**

*Anniversary Fund of the Oesterreichische Nationalbank*

*January 2018 - June 2019*

The central insight of the smile curve is that different functions (or 'tasks') that need to be performed along a firm's value chain have different potentials for generating value added, with the production stage often being the least promising one. Project-level data on greenfield crossborder investments with information on both the industry and the function they serve are used to identify countries' functional specialisation. A metric labelled 'relative functional specialisation in global value chains' and a related measure, the 'relative production specialisation index', are developed. The descriptive part of the project will use these indicators to create 'portraits' of functional specialisation of EU Member States, NAFTA and the South East Asian region. In a second step, the implication of the smile curve, i.e. that countries specialised in the pre-production and post-production tasks of the value chain should capture higher value added, is tested econometrically. To this end the relative function specialisation measure and the relative production specialisation index are embedded into an empirical endogenous growth model.

## **Background paper contribution for the Industrial Development Report 2020 'The Future of Industrialization' (wiiw Team Leader)**

*UNIDO*

*November 2018 - March 2019*

There is a general expectation that the global economy is currently facing a new wave of technological change - Industry 4.0 - that is based on digitalisation and information and communication technologies (ICT) such as artificial intelligence, additive manufacturing and blockchain. As a background paper to UNIDO Industrial Development Report 2020, this project initially analyses the impact of total factor productivity (TFP) growth (i.e. a measure on technological progress) on employment, labour share, and value added growth of industries in emerging and transition countries. The analysis will take in to account the direct industry-own effects in addition to indirect impact across both national and international backward and forward linkages. Furthermore, wiiw analyses the corresponding impacts on employment, the labour share, and value added that arise from introduction of industrial robots, a prominent phenomenon in Industry 4.0.

## **Austria's Economic Competitiveness in a Neighbourhood Context**

*Anniversary Fund of the Oesterreichische Nationalbank*

*August 2016 - July 2018*

Since the Eastern enlargement of the EU in 2004, Austria has lost global export market shares. At the same time exports to Central, East and Southeast Europe have gained a significant portion of Austria's total exports. Moreover, in recent years Austrian GDP growth has slowed down and unemployment increased. In this context our main research question is whether the opening to the East had a structural lock-in effect for Austria's economy. In a novel approach on the territorial lock-in effect we will apply a multi-perspective view from a microeconomic (firm-level), mesoeconomic (industry-level) and macroeconomic (country-level) perspective. As regards data, we will have exclusive access to an update of the world input-output database including data for the Western Balkans. The new data will add substantially to the project, the current discussion on Austria's competitiveness and the development of policy recommendations.

## **Economic policy implications of the Belt and Road Initiative for CESEE and Austria**

*Embassy of the Peoples Republic of China*

*October 2017 - March 2018*

The Belt and Road Initiative (BRI), a vision to revive the ancient 'Silk Road', was first presented by the Chinese President Xi Jinping in 2013. This initiative will affect more than forty countries throughout Eurasia and Africa. For Austria, it is particularly interesting, due to the country's strong economic relations with Eastern Europe and the Western Balkans. China has identified this region as the gateway to Western European markets, and emphasised its strategic importance with the initiation of a diplomatic initiative titled '16+1'. Furthermore, this region has a particularly high need for infrastructure investment, which form the core of the BRI. An analysis of developments in trade and investment, accompanied by the evaluation of the need for infrastructure investment in sixteen countries in Central, East, and Southeast Europe (CESEE), should allow for the identification of potential fields of cooperation between China and Austria in the context of the 'new Silk Road'.

## **Productivity, Non-Tariff Measures and Openness (PRONTO)**

*European Commission, 7th Framework Programme*

*February 2014 - January 2018*

Over the past fifty years, there has been significant progress in lowering tariff barriers to international trade. With the rising importance of global sourcing, multinational enterprises and increased tradability of non-tangible products, Non-Tariff Measures (NTMs) have attracted growing attention from policy makers and academic scholars alike. Against this background, PRONTO aims to compile new data, develop better methodologies and increase our understanding of the impact of NTMs on international investment and trade. The proposed research project is divided into seven Work Packages (WPs). The first three provide the foundation for work in the project by consolidating existing and developing new NTM measures. The fourth WP acts as a bridge by establishing a methodological framework for using these measures in estimations and policy analysis. The fifth and sixth WPs use this framework and the new NTM indicators to consider the effect of NTMs on a variety of social and economic outcomes, providing both useful estimations for policy and a framework for future academic exploration of NTMs. The final WP focuses on dissemination of the data, methodologies, and results of the other six WPs. The project was funded by European Commission, 7th Framework Programme and received additional funding by the Austrian Federal Ministry of Education, Science and Research within the research program TOP.EU.

<http://prontonetwork.org/>

## **Technical Assistance for the Preparation of CEFTA Investment Report**

*Central European Free Trade Agreement (CEFTA)*

*October 2016 - December 2017*

The aim of this Service Contract is to provide technical assistance for the preparation of a CEFTA Investment Report. Beneficiaries are the Parties of the Central European Free Trade Agreement (CEFTA) 2006. The Report will support the CEFTA Parties in fostering FDI in order to meet common development goals and promote the region as an attractive investment site. Systematic collection and methodologically sound assessment of FDI-related data including those on foreign affiliates (FATS) is an indispensable tool in the hands of policy-makers to stimulate and, if necessary, direct the foreign direct investment process for achieving the expected positive effects. To this end, the CEFTA Working Group on Trade in Services Statistics, FATS and FDI Statistics has set the objective to improve the quality of statistics across the CEFTA region and harmonise statistics with those of the European Union. Part A will present and analyse FDI trends in CEFTA Parties. This part deals with the current trends of FDI in the Region with reference to the period 2009-2015. Part B will provide a detailed analysis of the pattern of multinational enterprises' (MNEs) involvement in the manufacturing sector and its impact on local economies.

## **Background paper contributions for the Industrial Development Report 2018, 'The Demand for Manufacturing. Inclusive and Sustainable Industrial Consumption, in a Globalized Economy'**

*UNIDO*

*October 2016 - February 2017*

The UNIDO Industrial Development Report (IDR) series is a unique UN publication monitoring and analysing industrial developments in industrialised and industrialising economies across the world. It covers 85 countries in Europe, North America, Asia and the Pacific and serves as an established source of reference for policymakers, as well as public and private stakeholders. wiiw will support UNIDO in producing the next IDR and draft two background papers for chapter 4 of the report. The first background paper will analyse unit prices in manufacturing exports from advanced and developing countries, and explore whether there are significant difference in unit values

of similar goods exported from developing and advanced economies to the same markets. The second background paper will discuss whether some segments of manufacturing production are becoming 'commodified' and what are the implications for developing countries and trade.

### **The evolving composition of intra-EU trade over time**

*European Commission, DG Growth*

*January 2016 - July 2016*

Global trade in goods and services was severely hit by the economic crisis in 2008, which initiated a pronounced but short-lived trade collapse. Until 2011 trade flows recovered relatively quickly, but since then global trade in goods has been rather anaemic. This development is partly the result of the low dynamics of EU-related trade which accounts for a large share of global trade flows. Regarding intra-EU trade a strong increase in overall bilateral trade intensities is observed. The process of EU integration before the crisis and differentiated growth patterns of goods and services exports implied that exporting activities became slightly less concentrated across EU Member States. However, specialisation dynamics implied an increasing geographic clustering and specialisation of goods and services exports across Europe. These changes in the geographical patterns of intra-EU trade activities were mostly driven by changes in the patterns of trade in the medium-quality segment which can be interpreted as a 'climbing up' phenomenon of less advanced countries. Results from a gravity framework suggest a structural break of these trends after the crisis. Another aspect of the increasing trade intensity is the role and magnitudes of intra-firm trade and potential determinants thereof. However, research on this is hampered by a severe lack of data and only a few insights can be gained, mostly for extra-EU trade. Results based on foreign affiliates' trade statistics (FATS) data indicate that intra-firm trade flows were responsible for more than half of total trade between the EU and the US in 2012. Results also suggest that intra-firm trade has been more resilient to the trade crisis despite the more difficult global environment for foreign direct investment and export activities. Based on a gravity approach, overall EU intra-firm trade is estimated to be lower, though these results need to be interpreted with caution. In a case study based on Irish firm-level data it is shown that intra-firm trade accounts for 30% of exports and 25% of imports.

### **Provision of updated input-output and supply-use tables of the World Input-Output Database (WIOD)**

*European Commission, DG Economic and Financial Affairs*

*January 2016 - June 2016*

The EU/Seventh Framework project WIOD (as well as other ongoing initiatives such as OECD-WTO TiVA, EORA, EXIOPOL) produced comprehensive sets of internationally linked supply and use and/or input-output tables which have been widely used by academic researchers and policy-makers. Given the urgent requirement for having such data for recent years and the fact that the WIOD tables (as other efforts) are becoming outdated quickly, the need for an update of the WIOD arose. WIIW provided a revision and update of these data which - to the extent possible - are consistent with the existing data.

<http://www.wiod.org>