



Abschließender Sachstandsbericht  
Leibniz-Wettbewerb

Worker Flows, Match Quality and Productivity – Evidence from  
European Micro Data  
Antragsnummer: K201/2015

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**Federführendes Leibniz-Institut:** RWI – Leibniz-Institut für Wirtschaftsforschung

**Projektleiter/in:**

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## Executive Summary

The project aimed at analysing different dimensions of worker flows. On the one hand, this included the role of worker flows for accommodating external shocks such as the increase in imports upon the accession of China to the World Trade Organisation (work package 1); on the other hand, their importance for worker-firm match quality and resulting productivity/wages (work package 2). In these contexts, the role of labour-market institutions such as employment protection legislation or unemployment benefit duration were of particular interest.

In order to conduct the analyses, the project team mainly used representative worker-level data for a large number of European countries in work package 1, and linked employer-employee data mainly for Germany in work package 2. In the latter work package, a novel econometric methodology for computing match effects was further developed and applied. In addition, country-specific analyses for other European countries, i.e. France and Spain, were conducted. Finally, a theoretical analysis computed the potential gains from reducing costs of worker mobility.

The key results of the project are as follows. First, worker flows play a key role in accommodating external shocks, and through labour-market matching have important effects on subsequent match quality. Second, labour-market institutions, and especially employment protection and unemployment benefit duration, strongly shape worker flows. Third, short-run welfare effects may be large, but worker mobility can reduce these effects in the long run. Furthermore, economic policy can play an accommodating role in this context.

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## 1. Zielerreichung und Umsetzung der Meilensteine

The project was structured along two main work packages (WPs), which were each divided into several sub-work packages. We describe the progress of the project along these lines. The first work package was WP1: “Shocks, the allocation of labour, and labour market institutions”. The first sub-package was WP1.1: “Worker flows in the EU and their contribution to productivity growth”. In this work package, worker flows were computed and the basic data preparation performed. Furthermore, this work package made it possible to produce a research paper from a related project (Bachmann/Bechara/Vonnahme, 2020). The second sub-package was WP1.2: “Institutions, worker reallocation and productivity growth”. Here, a number of analytical papers were produced, focusing on different shocks to worker flows in European labour markets (economic and financial crisis – Bachmann/Felder, 2020; accession of China to the World Trade Organisation – Aghelmaleki/Bachmann/Stiebale, 2019), as well as the link between a labour market institution (employment protection) and innovations/productivity for a case study country, Spain (Garcia-Vega/Kneller/Stiebale, 2019). WP1.3: “Theoretical modelling of adjustment processes on the labour market” focused on adjustment processes in response to migration (Braun/Weber, 2016). This means that all milestones in WP1 were achieved.

WP2: “Match quality, search of workers and firms, and labour market” started with a preparatory work package WP2.1: “The estimation of match effects”, laying the foundation for the following work packages. WP2.2: “Search behaviour of workers: Natives vs. migrants” looked at the native-migrant wage gap with a focus on the role of the match between immigrant workers and exporting firms (Marchal/Sabbadini, 2020). In WP2.3: “Search behaviour of firms: High-productivity vs. low-productivity jobs”, the relocation of firms – which can be interpreted as a type of search behaviour, because the pool of available workers changes as firms relocate – in response to the institutional framework prevailing in a specific country was analysed (Dewit/Görg/Temouri, 2018). Furthermore, the regional mobility of workers, and especially its effect on match quality and resulting wages (as a measure of productivity) was examined (Fehn/Frings, 2020). WP2.4: “Search frictions, labour market institutions and match quality” analysed the impact of a specific institution, unemployment benefit duration, on subsequent match quality and wages/productivity (Felder/Frings/Mittag, 2020).

Overall, the project produced 9 research papers for seven work packages, and the goals and milestones were met.

## 2. Aktivitäten und Hindernisse

The activities of the project partners mostly evolved as planned and detailed in the project proposal. Accordingly, the project partners were involved in several research projects, leading to cooperation across institutions and the joint production of research outputs and activities.

As initiator and leader of the project, RWI was actively involved in most work packages, i.e. WPs 1.1, 1.2, 2.1, 2.2, 2.4. This implied getting acquainted with the necessary data sets as well as the econometric methodology, in particular the estimation of match fixed effects, and conducting the analyses described above. The Czech partner (CERGE, Prague), contributed mainly to the econometric analysis of match fixed effects (WP2.1), the core of WP2, as well as the analyses and papers in WPs 2.3. and 2.4. The University of Düsseldorf contributed mainly to WPs 1.1 and 1.2. The Institut für Weltwirtschaft (IfW) contributed to WPs 1.3, 2.3 and 2.4. The Bundesbank worked on WP 1.3. At the beginning of the project, the partner from the University of Aarhus, Kenneth Lykke Sorensen, was actively involved, visiting RWI and accommodating a researcher from the RWI in Aarhus for an extended research visit. However, when he changed jobs and in doing so left academia, the collaboration with the University of Aarhus (which had no financial dimension) was not pursued further. Furthermore, it turned out that the data from CompNet was not as useable for the project as expected, and other data

sources turned out to be more interesting; therefore, collaboration with this project partner was not carried through during the whole duration of the project. On the other hand, due to one key researcher from the IfW (Sebastian Braun) moving to the University of Bayreuth, an additional project partner emerged.

The project started slightly late (mid-2016). Therefore, the duration of the project was extended to mid-2019.

### 3. Ergebnisse und Erfolge

The project produced a number of research papers, some of them published by the first quarter of 2020, and all of them presented at high-quality, refereed conferences such as the 21. Göttinger Workshop "Internationale Wirtschaftsbeziehungen" (2019), the 21st European Trade Study Group (ETSG) conference, Bern (2019), the European Association of Labour Economists (several years), the yearly conference of the Verein für Socialpolitik (several years), the IZA Summer School in Labor Economics (2018), and the European Association of Research in Industrial Economics (2019).

Aghelmaleki, H., R. Bachmann and J. Stiebale (2019), The China shock, employment protection, and European jobs. DICE Discussion Paper No. 328.

Bachmann, R., and R. Felder (2020), Labour market transitions, shocks and institutions in turbulent times: A cross-country analysis. Forthcoming in Empirica.

Bachmann, R., P. Bechara und C. Vonnahme (2020), Occupational mobility in Europe: Extent, determinants and consequences. De Economist 168 (1): 79-108.

Braun, S., and H. Weber (2016), How do regional labor markets adjust to immigration? A dynamic analysis for post-war Germany. Kiel Working Paper 2025. Revise and resubmit at Journal of International Economics.

Dewit, G., H. Görg, Y. Temouri (2018), Employment protection and firm relocation: Theory and evidence. Economica 86(344): 663-688.

Fehn, R. and H. Frings (2020), What explains the urban wage premium – sorting, learning, or agglomeration. Mimeo. Discussion paper expected in mid-2020.

Felder, R., H. Frings and N. Mittag (2020), Search frictions, labour market institutions and match quality. Mimeo. Discussion paper expected in mid-2020.

Garcia-Vega, M., R. Kneller and J. Stiebale (2019), "Labour market reform and innovation: Evidence from Spain". University of Nottingham Research Paper Series 2019/17.

Marchal, L. and G. Sabbadini (2020), When immigrants meet exporters: A reassessment of the immigrant-native wage gap. Mimeo. Discussion paper expected in mid-2020.

As for PhD students, the project involved a number of PhD students who benefited from the project output as part of their PhD thesis. The paper Felder et al. (2020) was part of the PhD thesis of Rahel Felder (RWI), which she successfully defended in 2019 at the Ruhr-Universität Bochum. The paper Aghelmaleki et al. (2019) will be part of the PhD thesis of Hedieh Aghelmaleki (University of Düsseldorf), and the paper Fehn/Frings (2020) will be part of the PhD thesis of Rebecca Fehn (RWI).

At a more senior level, the paper Felder et al. (2020) was part of the tenure package of Nicolas Mittag (CERGE) at the University of Prague, and tenure was granted in 2019. Sebastian Braun

(initially IfW Kiel) gained a W3 professorship at the University of Bayreuth in 2018. Ronald Bachmann (RWI) gained an adjunct professorship at the University of Düsseldorf (one of the project partners) in 2018.

As for project acquisitions, two of the project partners (RWI and IfW) were successful in acquiring a project from the “Expertenkommission Forschung und Innovation” (EFI), which will contribute to a continued collaboration between the two Leibniz institutes (more information at <http://www.rwi-essen.de/forschung-und-beratung/arbeitsmaerkte-bildungsbevoelkerung/projekte/441/>).

At the end of the project, a final project workshop was organized in Hattingen (Ruhr). This brought together all members of the project, as well as a number of external researchers who are experts in the research fields of the project, e.g. Simon Woodcock (Simon Fraser University), Boris Hirsch (Leuphana-Universität Lüneburg), Priscila Ferreira (University of Minho) and Pedro Raposo (Católica Lissabon). The workshop had the aim of receiving some final feedback on the project results, and of fostering future collaborations amongst the participants (more information at <http://www.rwi-essen.de/presse/veranstaltungen/pakt-workshop>).

As a further result of the project, Joel Stiebale (University Düsseldorf) and Sebastian Braun (University Bayreuth) became members of the RWI Research Network which aims at deepening new or existing collaborations with external researchers (more information at <http://www.rwi-essen.de/forschung-und-beratung/network>).

#### 4. Chancengleichheit

The project contributed to gender equality by involving female researchers at all levels: Project managers (Hanna Frings, RWI), senior researchers (Léa Marchal, IfW), PhD students (Hedieh Aghelmaleki, University of Düsseldorf; Rahel Felder, RWI; Rebecca Fehn, RWI). Therefore, by providing valuable time for research, as well as the opportunity to extend networks to other institutions, the project contributed to the career advancement of these female researchers.

Gender equality was also strongly adhered to with respect to hirings decisions. In particular, the three persons explicitly hired for the project (Léa Marchal, Hedieh Aghelmaleki, Rebecca Fehn) are all female.

#### 5. Qualitätssicherung

The adherence to Open Access and good scientific practice was an important principle guiding the project. With respect to Open Access, all papers have been (or will be, in case of mimeos) published in highly visible discussion paper series (in addition to the publication in journals) which have no access barriers whatsoever. As for the data and the programs that were collected and written in the project, RWI is currently setting up a system of Open Access which adheres to the FAIR principles (FAIR stands for „Findable, accessible, interoperable, reusable“). For details see M.D. Wilkinson, M. et al. (2016). "The FAIR Guiding Principles for scientific data management and stewardship". *Scientific Data.* 3: 160018. doi:10.1038/sdata.2016.18.). This system will be retrospectively applied to all the papers of the project with direct RWI involvement.

With respect to good scientific practice, the principal investigators at every institution involved were responsible for adherence to the respective principles in the overall research project. In addition, the senior researcher for every specific research project (i.e. scientific paper) was responsible for adhering to these principles when producing and publishing the paper.

## 6. Zusätzliche eigene Ressourcen

This question is extremely difficult to answer. The project involved a lot of basic research, especially with respect to methodology, which was then applied to specific research questions. Therefore, a clear dividing line between research tasks that belong to the project and research tasks that do not is extremely hard. An informed guess is that the participating Leibniz Institutes as well as the university cooperation partners (CERGE, U Düsseldorf) each contributed 12 person-months out of own funds to the project.

## 7. Strukturen und Kooperation

The project consortium was stable during the project except for CompNet and Aarhus University, which were not part of the project for the entire period (see point 1 above). This did not endanger the progress of the project, and there were no dedicated funds for these two partners, i.e. there were no financial consequences.

The cooperation was centred around specific research projects between the different partners: CERGE-RWI (Felder et al., 2020), Düsseldorf-RWI (Aghelmaleki et al., 2019), IfW-Bundesbank (Braun/Weber, 2016). In addition, there were institution-specific research projects. There was a lot of mutual exchange through research visits (Rahel Felder spending several weeks in Prague, Hanna Frings visiting Aarhus for a research stay), presentations in the RWI research seminar by Kenneth Lykke Sorensen (Aarhus), Léa Marchal (IfW), Nikolas Mittag (CERGE), Sebastian Braun (IfW/U Bayreuth), Joel Stiebale (U Düsseldorf). Furthermore, there was a yearly project workshop bringing together researchers from all institutions, with additional external researchers for the final workshop.

## 8. Ausblick

One of the key challenges facing labour markets worldwide, and especially in Europe and Germany, is the ongoing technological progress with e.g. robotization and the increased use of artificial intelligence (see Acemoglu/Restrepo, 2020, and Graetz/Michaels, 2018, for seminal papers). The methodologies used and results obtained in the Match quality project provide a good starting point for investigating these issues further. For example, one interesting research question is how countries with differences in their institutional framework, e.g. employment protection, differ in the employment effects of robots. This is a similar analysis as in Aghelmaleki et al. (2020).

Another strongly debated issue is the impact of technological progress on the structure of the labour market, especially changes in the balance of power between employers and employees (Azar et al., 2019 a, b). This in turn has important effects on wage levels and the distribution of wages. The question how strong employer (i.e. monopsony) power is, and how it is affected by technological progress, is clearly an important one. The analyses with respect to worker flows – with worker mobility being a factor limiting monopsony power – in the project are again a good starting point for research on the issue of labour market structure.

## References

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