

# Polish immigrants stimulate innovation in Germany



Even in an immigration system that is not based on skill selection, immigrants have positive innovation effects. They are directly engaged in patenting activities but they also have positive spillover effects on inventors already living in the country. With this finding we contribute to the ongoing public debate on the costs and benefits of immigration.

Immigration policy has been an important and recurring topic in public debate in Germany over the last 30 years. Often, the attention centres around concerns of decreasing wages and abuse of the social systems whereas it is also a well-established fact that the country needs qualified immigration. Empirical analysis of immigrants' contributions to growth in Germany is scarce, though. This study relates immigration to innovativeness focusing on the largest immigrant group from the new member states joining the EU in 2004: the Poles.

Before and after the EU enlargement, Poles of all qualification levels could obtain work permits in Germany. Furthermore, the freedom to set up a company applied immediately with the accession in 2004. This is in contrast to the US where candidates for the H1-B visa program must possess at least a bachelor's degree in order to be granted a work visa. We therefore juxtapose the effects of Polish immigration to Germany, which covered all qualification levels, to H1-B immigration to the US, which is restricted to highly qualified individuals.

We find that in the years 2001-2010, for 10 per cent more Polish immigrants coming to Germany the number of Polish inventors increased by 0.29 per cent. This contribution seems to be small but it is still 1/8th of the direct patenting effect of qualification-selected immigrants in the US, found by Kerr and Lincoln (2010). The same rise in Polish immigration is also associated with an increase of 0.31 per cent in the number of German inventors. So the new arrivals do not replace locals but stimulate their work. For the US there is no such significant spillover effect.

What do we learn from these results? First of all, Polish immigrants do patent in Germany. Second, spillover effects from Poles on German inventors are even slightly higher than the direct contribution. This means that immigrants' innovation effect comes rather from complementary jobs than from Polish inventors. Polish migrants brought important complementary skills or knowledge, such as ideas for new products, access to new markets, particular management or consulting capabilities, which pushed Germans to patent more.

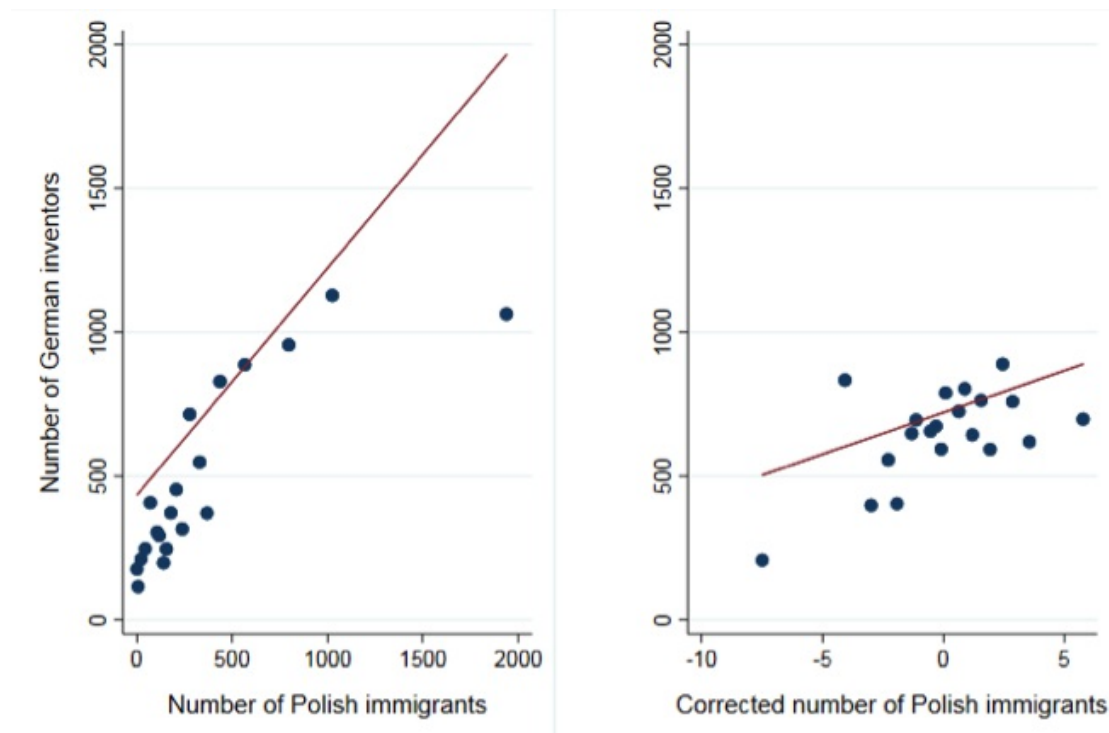
Results for the US show a contrasting pattern. Direct effects, i.e. patenting by H1-B immigrants, are significant whereas spillovers to local inventors are statistically null. It is interesting to notice that spillover effects in the US are smaller than in Germany. Polish immigrants to Germany are known for their smooth integration or even assimilation. This does not necessarily apply to the Chinese and Indian H1-B immigrants subject to the US study: They might be less in touch with locals. Our results therefore point to the fact that integration can be an important driver for beneficial innovation effects in the host country.

Data used for this research stems from OECD's REGPAT as well as from German and Polish administrative data and social security statistics. Our central dataset from the World Intellectual Property Organization (WIPO) covers further information on inventors in Germany. First of all, it includes inventors' nationality which we use to precisely attribute inventors to the immigrant or the local group. Second, we use the information on inventors' place of residence to exploit regional variation across Germany.

The major empirical challenge is that migrants with a qualification suited for patenting activities are more likely to go to cities or locations where they can find a job in an innovative firm or industry cluster. This would bias our results in a simple model. For our empirical strategy we therefore exploit the fact that immigrants often also follow existing networks and tend to live in locations with a higher share of people of similar cultural or ethnic background.

This approach has been used by Kerr and Lincoln (2010) and can also be applied to the case of Poles in Germany. It allows us to analyse a causal effect of Polish immigration of all qualification-levels on the number of inventors in Germany. The left-hand side of the graph below represents the relationship between the number of Polish immigrants and the number of German inventors at the regional level. In the panel on the right, immigration is corrected for the selection bias and for regional characteristics including population. After correction the relationship is weaker which is why the line is flatter. This is – with small modifications – the causal effect of Polish immigration on German patenting we are estimating.

**Figure 1. Polish immigrants and German patenting**



**Notes:** In the right-hand panel immigration numbers are corrected for selection biases. Sample: 326 West-German counties, numbers aggregated to the time period 2001-2010. Data sources: WIPO, REGPAT, German statistical offices, IAB, Statistics Poland.

We conclude from our results that even in a non-selective immigration system, the innovation effects of immigrants can be positive. In the case of Polish immigration to Germany, the new arrivals do not substitute for locals, but are complements to their innovation activities. In the public debate, which is often focusing on the costs of immigration, such complementarities should be taken into account. Furthermore, integration of the new arrivals can be an important driver of the benefits of immigration to the host country.



**Notes:**

- This blog post is based on the authors' research on [Immigrants' Contribution to Innovativeness in Germany](#), presented at the Royal Economic Society Annual Conference, Brighton, 2018.
- The post gives the views of its authors, not the position of LSE Business Review or the London School of Economics.
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**Katharina Candel-Haug** is a Junior Economist and Doctoral Student at the Center for Industrial Organization and New Technologies at the Ifo Institute, Munich, Germany. In her research she studies the creation and diffusion of innovations and their effects at the firm and regional level. She holds a Diploma, equivalent to a Master of Science, in Economics from the University of Erlangen-Nuremberg. Prior to joining Ifo she was a consultant to the World Bank Group (IFC Investment Climate, Istanbul) as well as an advisor at KCW, a competition policy consulting firm in Berlin.



**Alexander Cuntz** heads the Creative Economy Section of the World Intellectual Property Organization (WIPO), an United Nations agency located in Geneva. Between 2011 and 2016 he was a scientific advisor at the Federal Commission of Experts for Research and Innovation, a policy think tank based in Berlin. He studied innovation economics and international economics. The views expressed in this article are those of the author and do not necessarily reflect the views of the WIPO or its member states.



**Oliver Falck** is the Ifo Professor of Empirical Innovation Economics at Ludwig-Maximilians-University (LMU) Munich, Germany, and Director of the Center for Industrial Organization and new Technologies at the Ifo Institute, Germany. He is also the Program Director of CESifo, the world's third largest, Europe-based research network in economics. He received his Ph.D. in Economics from Technical University of Freiberg in 2006, and received his Habilitation from LMU in 2011 on innovation and regional economic development. He has extensive experience in applied innovation and entrepreneurship research and is co-editor of the best-selling Handbook of Research on Innovation and Entrepreneurship. He has extensively advised corporations and governments on innovation and growth strategies, and has been principal investigator on various studies for German federal ministries, the local government, foundations and companies for the last eleven years