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How to cite this publication

Please cite the final published version:

Nygaard, K., & Villadsen, A. R. (2019). What makes foreign specialists stay? Embeddedness and foreign STEM workers likelihood to stay. *Academy of Management Proceedings*, 2019(1).
<https://doi.org/10.5465/AMBPP.2019.187>

Publication metadata

Title:	What makes foreign specialists stay? Embeddedness and foreign STEM workers likelihood to stay
Author(s):	Nygaard, K., & Villadsen, A. R.
Proceedings:	<i>Academy of Management Proceedings</i>
DOI/Link:	10.5465/AMBPP.2019.187
Document version:	Accepted manuscript (post-print)

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WHAT MAKES FOREIGN SPECIALISTS STAY? EMBEDDEDNESS AND FOREIGN STEM WORKERS LIKELIHOOD TO STAY OR LEAVE DENMARK

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ABSTRACT

We investigate retention of international skilled STEM workers, by the use of a longitudinal research design. We theorize on the effect job embeddedness for STEM immigrant. The results indicates embeddedness create ties in where information is easy accessible due to the ratios of foreigner and other STEM workers.

INTRODUCTION

One central result of the internationalization of businesses is the expanding number of university-educated individuals that choose to become a global worker – thereby permanently working in countries other than their own. Generally, the literature states that skilled immigrants bring diversity thinking to the host country and that they proactively contribute to the development of international human capital in organizations which, in turn, enables them to stay on top of best global practices (Morris, Snell, & Björkman, 2016; Stahl, Tung, Kostova, & Zellmer-Bruhn, 2016). From an individual-level perspective, the topics have been mostly on exploring the motivation among highly educated individuals as they are seeking job opportunities in foreign countries (Cerdin, Diné, & Brewster, 2014). As a parallel to IB literature, scholars of sociology and labor economics have also been interested in immigrants as they are said to have negative and positive influence on diversity at both country-level and smaller (micro) communities of society (Abascal & Baldassarri, 2015; Putnam, 2007). As a result of this research, scholars have been investigating the effects of immigrants sorting into certain neighborhoods and how this sorting mechanism connects to different labor market outcomes, i.e. job retention (Damm, 2014). Moreover, labor economists have been particularly interested in the effect of neighborhood quality, e.g. the effect of embedded network structures in neighborhoods combined with individual characteristics, such as skill level prediction on labor market outcomes for immigrants (Borjas, 1995; Hellerstein, McInerney, & Neumark, 2011).

Skilled professionals emigrate because of job opportunities, career development, and income perspectives (Barrett & O'Connell, 2001; Gill, 2005; Suutari & Brewster, 2001). Despite this initial motivation for going abroad, research has found that skilled immigrants often go native (Gregersen & Black, 1992) and assimilate to host country norms by adaptation and acculturation (Berry, 1997). Skilled immigrants may then become embedded in the host country as it represents a good combination of communities and career choices which the immigrant would be reluctant to sacrifice by leaving the host country. We therefore find it important to extend the understanding of foreign and skilled individuals' embeddedness in a host country. We

say this as it is important to understand not only micro level dynamics of embeddedness (Mitchell, Holtom, Lee, Sablinski, & Erez, 2001; Ragins, Gonzalez, Ehrhardt, & Singh, 2012; Tharenou & Caulfield, 2010), but also as it is important to embrace embeddedness factors unfolding on macro level when investigating skilled immigrants continuing their career in a host country. Given the importance of these university-educated immigrants, we set forth to study how embeddedness influences STEM (Scientists, Technicians, Engineers, and Medical professionals) immigrants working in the Danish private sector.

To gain a greater understanding of why foreign STEMs stay in a country or leave, our analysis focuses on the individuals' within-country embeddedness of foreign STEM workers in Denmark by using the Integrated Database for Labor Market Research (referred to by its Danish acronym, IDA). As speculate, we find, through our longitudinal register data, that embeddedness in different forms ties skilled immigrants to the host country. Particular do international professional workplaces create a need of belonging for skilled immigrants. Similar effect we find for skilled immigrants having spouse versus those without a spouse. On the hand, our findings also give an indication of embeddedness as an access point, to global knowledge and knowhow within their local community, that reinforce the pull of skilled immigrants away from the host country.

THEORY

The work by Portes and Sensenbrenner (1993) highlighted the different forms and importance of social structures for immigrants in the US, and they argue that social embeddedness as a concept is a suitable umbrella to capture different forms in which social structure affects economic action for immigrants. When analyzing how embeddedness into local communities, they suggest the use of social capital to identify social structures important for immigrants. The concept of social capital was well-known in societal research (Bourdieu, 1990; Coleman, 1988) and gained massive momentum during the 1990s within management research (Gulati, 1995; Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Uzzi, 1997). Still today, scholars are using the concept of embeddedness and social capital within both management and sociology studies (i.e. Ebers & Maurer, 2014; Simons, Vermeulen, & Knoben, 2016). Mitchell et al. (2001) introduced the job embeddedness theory as a 'broad constellation of influences on employee retention' following the classic idea of job embeddedness as an 'anti-withdrawal' construct (March & Simon, 1958). To explain how skilled immigrants' embeddedness affects individual retention, the push and pull factors by Toren (1976) are useful. As such, the job embeddedness theory proposes three important dimensions: links, fit, and sacrifice, and the authors further argue that these are not only important on-the-job but should also be considered as off-the-job embeddedness dimensions (Mitchell et al., 2001). The three dimensions are defined as follows: *Link* refers to 'formal or informal connections between a person and institutions or other people', *fit* helps to understand the 'perceived compatibility or comfort with an organization', and *sacrifice* is 'the perceived cost of material or psychological benefits that may be forfeited by leaving a job'. All three dimensions are connected to factors within as well as outside the organization in which they are working (Mitchell et al., 2001). Further, we follow the notion by Singh, Shaffer, and Selvarajan (2018) on organization and community domains for embeddedness: 'organization is where the individual works, and the community is defined as the town, city, or suburb where the individual resides' inspired by Ragins et al. (2012).

METHODOLOGY

In order to study whether foreign STEM workers stay or leave their country of occupation as well as their marital situation and embeddedness in community and workplace, detailed, longitudinal data are necessary. Fortunately, these data are available for Denmark in the Integrated Database for Labor Market Research (IDA). This database is perfectly suited for our needs as the register data contains matched employer-employee data with detailed information about employees' demographic and workplace characteristics. We will explain the data structure and variables below, but first introduce Denmark as a research context for this study.

Denmark is a very good case for the present study. As a small and open economy (Pedersen, 2006), Denmark is a country where firms are used to recruiting foreign specialists for high skilled positions. In the population, there is a high degree of English proficiency, and English is a corporate language in many large firms meaning that there is a low language barrier for most foreigner specialists taking a position in Denmark. For many years Danish governments have tried to attract high skilled foreign employees by offering some years of attractive taxation for foreigners entering the Danish labor market at relatively high salary levels. These characteristics make Denmark a relevant case for this study. We are able to observe a flow of foreign STEM workers taking employment in Denmark and explore the factors that are related to whether they leave the country or stay longer.

Data

Due to availability of some of our key variables, our data set range the period from 1999 to 2010. In total, we include 73,998 individual-year observations as unit of analysis. This is not a sample but the population of foreign professional working in private firms in Denmark in the period of observation.

Variables

The dependent variable of our study of whether an individual leaves the Danish labor market in the following year to any focal year in our longitudinal data. We rely on Statistics Denmark's record of this. We rely on the detailed information in the IDA data to construct our independent variables. Our first hypotheses focused on community embeddedness and whether the place of living affects the likelihood that a STEM worker will leave Denmark. Denmark is divided into 98 municipalities and we focus on these as the community-level. Share of STEM workers in municipality was created by, for each municipality, dividing the number of high skilled professionals with the total number of employed individuals. Finally, in the same way we created indicator for the Share of foreign STEM workers in municipality as the share of foreigners among all high skilled professionals in the municipality.

For the second set of hypotheses, we utilized that the IDA data matches employees to place of employment. In the data each firm is divided into a set of separate workplace if a firm is split in different locations. While the data is anonymized and we do not know what work takes place in each workplace or how it is organized, this does enable us to develop reliable measures of on-the-job embeddedness. Because we are interested in the embeddedness that may develop for an employee in his/her immediate work environment, we choose to focus on the specific

workplace as we develop the next set of variables. We follow the approach from the variables above and create: Share of foreigners in workplace, Share of STEM workers in workplace, and Share of foreign STEM workers in workplace. Recall, that the last variable is the share of foreigners among the group of professionals employed in any given workplace.

The third hypotheses looks into the marital status of an individual. In the data, we can observe whether a person is married or cohabitating in a marriage-like relation (defined by Statistics Denmark). While the latter is difficult to observe in public records, we believe quite few highly paid foreign professionals would cohabit with a person of different gender without being in a relationship. We separate this variable into three. Spouse indicates whether any spouse is present, Danish spouse whether the spouse is a Danish citizen, and Native spouse whether the spouse is from the same foreign country as a focal individual.

Finally, we were interested in whether the workplace was located in the capital area which arguably is the only location in Denmark that can be coined a global city. The capital house the government, most major firms located in Denmark, a range of cultural opportunities and attractions, as well as largest airport in Scandinavia.

Analysis

As the dependent variable is dichotomous indicator of whether a person leaves Denmark (1) or not (0) we employ a series of logistic regressions. We use year dummies to account for the longitudinal nature of the data and clustered standard errors to address non-independence of our panel data. It is well known that care must be taken when interpreting outcomes of non-linear models like the logit. Coefficients provides estimates at the mean but these may change over the range of the variables. Therefore, we calculated predicted probabilities over the full range of our independent variables and display those as our main results. Statistical significance test can be found in table 1.

RESULTS

The result of our analysis reveals that some of the hypotheses are confirmed while others are not; figure 1 show predicted effects of embeddedness based on the logit analysis.

Figure 1 about here

Firstly, we tested social embeddedness, and our analysis predicts that overall, foreign STEM workers are a bit more likely to stay in the host country when the municipality has higher ratios of other foreigners than others. By a share change of foreigners in the foreign STEM workers municipality from .05 to .3 the prediction for leaving the host country drops by nearly 2%. The share of other STEMs, both locals and foreigners, indicate that foreign STEM workers are more likely to leave as this increases. For shares of STEM workers in the municipality, an alteration in a foreign STEM worker in term other STEM professional by .35, increases the likelihood of leaving by 1%. When assessing the share of other foreign STEM workers in the municipality, the predictions on

a foreign STEM worker's likelihood of leaving, we find that with an increasing share, the likelihood of exits increases. We find this to be a strong predictor as we see in plot in figure that, figure that, by an increase of the share from only .02 to .12 the exit predicting increases by nearly 5%.

Next, in our analysis, we tested the on-the-job embeddedness in terms of shares of other foreigners, other STEM professionals, and other foreign STEM workers. First, we hypothesized that increasing shares professional networks in terms of other STEM workers at the work place is positively decreasing the likelihood for foreign STEMs to leave. Our analysis, on the other hand, indicates that there is no effect of this, and we therefore find no support. Following this, we tested the effect of a more multicultural work place on foreign STEM workers' retention. We found that with increased shares of foreigners at the work place, foreign STEM professionals are more likely to leave the host country. This result provides support for hypothesis. We then tested the likelihood of leaving by the share of other foreign professionals at the workplace. Our test finds support for the hypothesis as we find that with increasing shares of foreign STEMs at the work place, the likelihood of individual foreign STEMs leaving the host country is decreasing.

Furthermore, we assess the cohabitation in terms of living together with a spouse, a spouse of same nationality, or a local spouse. We find that cohabitation in general decreases the likelihood of foreign STEMs leaving compared to those who do not live together with another person. Hereafter, we tested the push effect of the cohabitant being from the same country as the foreign STEM worker. The result indicates a push away from the host country as foreign STEMs are more likely to leave the country when the cohabitant originates from them same country. We then assessed the pull effect toward the host country by testing the likelihood of foreign STEMs staying due to cohabitation with a local. We find that this lowers the likelihood of foreign STEM workers leaving the host country.

DISCUSSION AND CONCLUSION

This paper attempts to address one key question: To what extent does an individuals' job and social embeddedness matter in foreign STEM workers decision to stay in or leave the host country? Thus, our research adds to our understanding of on-the-job and off-the-job embeddedness for factors that may be associated with skilled immigrants' individual embeddedness. We furthermore investigate if such individual embeddedness is somewhat driven by firm agglomeration strategies by the workplace being situated in the Capital city.

Our study contributes to skilled immigrants' embeddedness and retention, and by the use of longitudinal register data, we proposed a set of macro indicators for job embeddedness capturing important factors on-the-job as an off-the-job. We furthermore displayed very individual factors such as the spousal effect for foreign STEM workers, and we therefore add to the understanding of push and pull effects in spousal relations. We furthermore tested if the embeddedness is driven by global city and agglomeration effect, which, in most instances, is not the case for skilled immigrants working in private sector companies. Lastly, we contributed to literature on resettlement and assimilation to host-country just as Qin (2015) did, and our findings extend our understanding of working skilled immigrants' host-country embeddedness.

In conclusion, his paper explores on-the-job and off-the-job embeddedness for STEM immigrants in Denmark. The off-the-job embeddedness were assessed by weak ties through the degree of either professionals or foreigners in the individual STEM immigrants' neighborhoods, but also assesses by the effect of a spouse, and these predicted different outcomes for staying or

leaving Denmark. Overall, do having a spouse and be living in multi ethnic community increase the likelihood of the individual foreign STEM to stay in Denmark. We assesses the on-the-job embeddedness by the degree of professional and immigrants in the STEM immigrants work place, and we find that overall are STEM immigrants in companies that have higher ratios of foreign professionals is going to increase the likelihood for foreign STEMs worker to stay in Denmark. We discussed these outcomes, and found them useful for both companies and policy maker to address, thus ensuring retention of STEM immigrants in the future.

REFERENCES AVAILABLE FROM THE AUTHORS

Figure 1. Embeddedness and predicted exit from host country*

* Left panel is community embeddedness. Right panel is organization embeddedness. All predictions are based on logit analysis.