Title: Investigating Migrants' Labor Market Trajectories: Does Health shock explain the migrant-native employment and earnings gap?

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Introduction

Migrants' successful integration into the host society is reflected by their labour market integration (Karlsdottor et al., 2018). Economically integrated migrants are more prone to establish social networks, learn the local language, and engage in community activities, which can facilitate their integration into broader society (Grimm et al., 2023). However, the existing literature on migrants' labor market trajectories consistently underscores the migrant-native employment and earnings gap, particularly for non-Western migrants (Ahmad, 2020; Karlsdottor et al., 2018; OECD, 2023; OECD and European Union, 2015; Sarvimäki, 2011; Vaalavuo & Rask, 2022). The migrants' low employment and earnings outcomes mean a large loss of production and financial repercussions for the host societies in the form of greater welfare payments (Helgesson et al., 2022).

The literature attributes the persistent migrant-native employment and earning gap to various determinants. The determinants related to the migration process include the length of stay (Kahanec & Zaiceva, 2009), year of migration (Borjas, 1985), country of birth (Adsera & Chiswick, 2007; Bratsberg et al., 2018), and citizenship status (Constant & Zimmermann, 2008; Kahanec & Zaiceva, 2009). Personal characteristics such as gender (Adsera & Chiswick, 2007; OECD, 2023), ethnicity (Gorinas, 2014), low returns to human capital (Guzi & Mikula, 2022), and differences in social capital (e.g. language skills, education level) (Huber & Mikula, 2019) explain the employment and earnings gap as well. Discrimination, prejudice, and perceived organizational mismatch also determine the gap (Becker, 2010; Nichols & Virsinger, 2021).

Additionally, the literature suggests that health shock (e.g. diagnosis of new disease/hospitalization) plays a significant role in determining labor market outcomes (Lenhart, 2019). The existing scholarship established that health shocks are a main determinant of early labor market exit (Hagan et al., 2008; Han Au et al., 2005; Van Rijn et al., 2014; Zucchelli et al., 2010). The health shocks

also considerably lower employment rates (García-Gómez, 2011; Pelkowski & Berger, 2004) and earnings (Riphahn et al., 1999; Zucchelli et al., 2010). But the role of migrants' health in their integration into the labor market is not much studied (Helgesson et al., 2022). Few studies using self-reported health determined the effect of poor health on employment status (Bound et al., 2003). I was able to find only one working paper (Jakobsen & Larsen, 2010) in the English language that explored the relationship between health and employment among migrants using an objective measure of health and register data. However, the paper was limited to non-Western migrants born outside of Denmark, the data used was relatively old, only employment rates were compared, and widespread and preventable diseases were used to determine the health status. The relationship between health shocks and labor market outcomes among migrants using full population data, an objective health measure, and including all the migrant groups is still warranted. In the present study, to address the above-mentioned research gap I explored whether health shock explains the migrant-native employment and earnings gap.

Data and Methods

For our longitudinal quantitative study, I obtained full-population data from the linked registers of Statistics Finland, and the Finnish Institute of Health and Welfare (THL). The data on variables such as sex, age, education, marital status, family structure, region of residence, and region of birth was obtained from the Registers of Statistics of Finland. The data on health shocks was retrieved from THL's Hilmo register. Migrants aged between 25 and 58 years who migrated to Finland between 2006 to 2010 and natives of similar age were followed from 2011 to 2019. I included only those individuals in the dataset who remained in Finland throughout the follow-up. I used two measures of outcome. The first measure of outcome was a dummy variable indicating whether or not someone was employed at the end of a calendar year. The second measure was the yearly earnings in euros. I combined the wages, salaries from paid work, and self-employment to generate the total earnings. By using the Household Index of Consumer prices I adjusted the earnings to the 2019 level. The "earnings" was a continuous variable. The primary explanatory variable, "health shock," was defined as a binary indicator denoting whether an individual experienced hospitalization within the initial five years of their residency in Finland due to specific diagnoses outlined in the International Statistical Classification of Diseases and Related Health Problems (ICD-10). These diagnoses encompassed mental and behavioral disorders, diseases of the circulatory and respiratory systems, as well as diseases of the musculoskeletal system and connective tissue. I categorised migrants into nine categories; Western, Russia/USSR, Estonia, Eastern Europe, The Middle East, China, Asia, Africa, and others. The length of stay variable was a

time-varying variable. I adjusted the results for the effect of sex, age, education, marital status, family structure, region of residence, and whether or not living in six big cities.

For the statistical analysis, I used Growth curve models. These models are used to capture the initial variation in the outcome within individuals and the trajectories over time (Jackson, 2015). Since I was interested in the trajectories over time these models serve our purpose best. Given my expectation of a non-linear association between time and the labor market trajectory, I opt for curvilinear models with a random intercept and random slope components by the migrant group. To estimate the curvilinear effect of time I included $\beta_i(time_i)$ and $\beta_i(time_i)^2$ in the model:

$$ln(y_{it}) = \alpha_i + \beta_i\,(time_i) + \beta_i\,(time_i)^2 + \varepsilon_{it}$$

For the migrant group-specific random slopes estimation I used the following model:

$$\beta_x = \delta_0 + \delta_1 country_i + \delta_k x_k + v_i$$

Results

The study found that the migrant population was predominantly female (55%), with a significant proportion being young (64% under 36 years old) and possessing basic education (54%). Nearly half of the migrants were married (49%) and resided with a partner, with or without children (47%). The majority lived in the capital region of Uusimaa (59%) and hailed mainly from Estonia (21%), Russia/USSR (17%), Asia (13%), and Western countries (13%). On average, migrants had been in Finland for 6.4 years (SD 2.9). Approximately 6.9% of migrants were hospitalized during their first five years in Finland.

The descriptive analysis revealed notable variations in employment rates and earnings among migrant groups. Migrants from Western countries exhibited the highest employment rates (71%), while those from the Middle East had the lowest (47%). Regarding earnings, migrants from Western countries had the highest average annual earnings (€34,103), followed by Estonian migrants (€28,324). In contrast, Middle Eastern migrants had the lowest earnings (€11,972). Among migrant women, Estonian women had comparatively higher earnings, whereas those from the Middle East faced the greatest disadvantage in terms of earnings.

The findings from the study indicate that health shocks had a significant negative impact on both employment rates and earnings trajectories for both migrants and natives, with migrant men experiencing a more pronounced negative effect. Specifically, among migrants from the Middle East and Africa, distinct patterns emerged. Middle Eastern migrants without health shocks displayed a positive trend in employment rates, contrasting with those who experienced health

shocks within the same group. Similarly, African migrants without health shocks initially experienced a positive employment trend, which plateaued after seven years in Finland, while those with health shocks saw a decline in employment rates after six years. Although earnings trajectories for all migrant groups showed an overall upward trend over the study period, this trend was dampened among those who experienced health shocks.

Discussion and Conclusion

The results of our study supported the previous findings (Jakobsen & Larsen, 2010; Vaalavuo & Rask, 2022). Jakobsen & Larsen (2010) identified a significant negative impact of health shocks on the employment rates of both non-Western migrants and native Danes. Similarly, the study confirms this effect while also revealing a heightened negative effect for migrants originating from the Middle East and Africa. The possible explanation of the finding could be the humanitarian reasons for the migration of these migrant groups and migrants' cultural distance. Despite my anticipation of a greater adverse impact of health shocks on migrant women, influenced by traditional gender roles, the study revealed a higher negative effect on migrant men. This unexpected finding may be attributed to several factors. Firstly, migrant men tend to be concentrated in physically demanding and precarious job sectors, which can exacerbate the consequences of health shocks. Additionally, migrant men often face relatively higher levels of discrimination in the labor market, further compounding their vulnerability to adverse health events.

In the study, I aimed to analyze the employment and earnings trajectories of migrants and to investigate how health shocks contribute to the employment and earnings disparities between migrants and natives. While the findings reveal that health shocks account for a portion of the employment and earnings gap, there remains a significant portion of the gap unexplained, indicating the need for further investigation. One crucial policy implication of our study's results is the potential for targeted interventions to improve the health outcomes of Middle Eastern and African migrants, which could subsequently positively impact their labor market integration.

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