Uncertainty and international return migration: some evidence from linked register data

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This article provides the first empirical evidence about the role of uncertainty in international return migration decisions using high-quality and detailed micro-data that cover migrants who were observed in both the source country before emigration and in the host country subsequent to immigration. We find that uncertainty in the initial migration decision might be an important driving mechanism behind the decision to return migrate, because migrants with a worse-than-expected outcome in the host country upon arrival and shortly thereafter have a notably higher probability of return migration than other migrants.

Keywords: return migration; migrant selection; uncertainty; skills

JEL Classification: J61; J20

I. Introduction

In the economic literature, migration is generally considered to be an investment in human capital. A person migrates if the benefits outweigh the costs. However, only with perfect information and perfect foresight would the potential migrant always correctly weigh the advantages and disadvantages of moving to a specific location (DaVanzo, 1983). As a result, the decision to return migrate can arise from two distinctive reasons (Borjas and Bratsberg, 1996). On the one hand, it may be part of the migrant’s optimal resident location plan over the life cycle. In that case, individuals consciously decide to migrate for some years and return home after having accumulated sufficiently large levels of capital or wealth. On the other hand, return migration may occur because of mistakes generated by uncertainty in the initial migration decision. Imperfect information about the economic conditions faced at the destination leads to the decision to return migrate. In that case, some migrants overestimate the net benefits of migrating and take corrective actions by return migrating. Alternatively, migrants can be considered as participants in a lottery of returns, where those who consider themselves as having had bad luck will return home. Either way, the uncertainty approach postulates that migrants who experience worse-than-expected outcomes will return migrate.

Due to lack of adequate micro-data, the documentation on the role of uncertainty in international return migration flows is scarce, and previous empirical studies tend to view all return migration as part of an optimal resident location plan (Co et al., 2000; Barrett and O’Connell, 2001; Coulon and Piracha, 2005). Not surprisingly, these analyses lend weak support to the investment hypothesis as a motive for return migration. Studies on internal migrants have shown that uncertainty must be explicitly accounted for when subsequent moves are to be understood (DaVanzo, 1983; Tunali, 2000).

This article provides the first empirical evidence about the role of uncertainty in international return migration decisions, accomplished by using high-quality and detailed micro-data from population

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II. Theoretical Framework

Our theoretical framework is based on the model of Borjas and Bratsberg (1996). Suppose that individuals originate in country 0, in our case Finland, and consider the possibility of migrating, temporarily or permanently, to country 1, in our case Sweden. The log earnings distributions in the source country and the host country, respectively, are described by

\[ w_0 = \mu_0 + \eta \nu \]

and

\[ w_1 = \mu_1 + \nu + e \]

where \( \mu_0 \) is the mean income in the source country and \( \mu_1 \) is the mean income that would be observed if all persons in the source country migrated to the host country. The random variables \( \nu \) and \( e \) measure deviations from mean incomes. The first reflects ability or skills that are transferable across countries, and is known to the individual. The second reflects an uncertainty component and remains unknown unless the individual moves to the host country. A lower value means more uncertainty. The parameter \( \eta \) is the rate of return to skills in the source country relative to that in the host country. Upon arrival to the host country, the immigrant makes a draw from the known density function \( g(e) \). If the value of the random draw is sufficiently negative the migrant chooses to return to the source country immediately.

In the present case, the above model is extended to include an additional and separate category of migrants with zero earnings, that is, those who fail to find a job upon or shortly after arrival in the host country. A worse-than-expected outcome is therefore characterized not only by the random draw component of the earnings distribution, but also by migrants without any earnings. This group constitutes a large share of all recently arrived Finnish immigrants in Sweden, which is typical for societies characterized by generous transfer systems and compressed wage distributions.

Previous analyses of migrant selection patterns between the two countries have found that out-migrants are negatively selected on observable skills (education), while return migrants are positively selected (Rooth and Saarela, 2007). Hence, the return migrants constitute the ‘best of the worst’ of the initial out-migration flow. This is consistent with the migrant selection theory of Borjas and Bratsberg (1996), since the rate of return to education is higher in Finland than in Sweden (i.e. \( \eta > 1 \)).

The particular contribution of this article is to incorporate uncertainty and study its effect on the likelihood of reversible migration. Introducing uncertainty into the model will not alter the type of selection that characterizes the migrant flow, because the human capital motive and the uncertainty motive have similar implications. Both predict that return migration intensifies the selection that characterizes the original out-migration flow. Incorporating uncertainty can, however, impact on the specific composition of the return migration flow.

In case the correlation between observable skills \( \nu \) and the level of uncertainty \( e \) is 0, the skill composition of the return migration flow is identical to the sorting implied by the human capital model. If the correlation is nonzero, the same conclusion applies if \( \eta < 1 \), because individuals who migrate and return then have both lower \( \nu \)'s and lower \( e \)'s than those who remain and stay.

If \( \eta > 1 \), as is the case for Finland versus Sweden, and the correlation between \( \nu \) and \( e \) is nonzero, the theoretical implications are different. In this case migrants who return will have higher \( \nu \)'s but lower \( e \)'s than those who stay. The vertical line in Fig. 1 gives the selection in return migration when \( e \) equals 0, that is, when uncertainty is not accounted for. Migrants to the left of the line then stay in the host country, while those to the right return to the source country since they have relatively high skills.

![Fig. 1. Selection in return migration when \( e = 0 \) and when \( e \neq 0 \).](image)

**Notes:** When \( e = 0 \), migrants in the areas C and D stay in the host country and those in the areas A and B return to the source country. When \( e \neq 0 \), migrants in the areas D and A stay in the host country and those in the areas B and C return to the source country.

Incorporating uncertainty, meaning that $e$ is nonzero, implies that the line becomes upward sloping. The part of high-skilled migrants with favourable draws from $g(e)$ remains in the host country, whereas the part of low-skilled migrants with unfavourable draws returns to the source country.

The importance of $\nu$ and $e$, respectively, depends on which of the two components dominates in the joint density distribution $h(\nu, e)$. The relative weight of each component may also vary across different parts of the distribution. Separating uncertainty from unobservable characteristics is notoriously difficult in empirical research. However, because $\nu$ and $e$ are expected to work in different directions with respect to the return migration probability, estimating an effect of uncertainty is accomplishable with detailed data of the kind used here. Since a standard wage regression have difficulties in correctly predicting very high earnings, problems are still likely to persist in the rightmost tail of the joint density distribution. If one is unable to control for all variables that determine earnings, the variable used to proxy uncertainty might contain unobserved personal characteristics that promote earnings, and particularly so for very high earnings. In that case, very high $e$'s will correlate positively with the likelihood of return migration, but for a completely other reason than negative draws and zero earnings.

III. Data

The data used were constructed by integrating information on Finnish immigrants in Sweden from population registers in both Sweden and Finland, provided by Statistics Sweden and Statistics Finland. We observe Finns who migrate to Sweden during the period 1988 to 2004. Upon arrival to Sweden, we know if and when the same persons return migrate to Finland up to the end of 2005. Time of migration is known on a monthly basis, whereas information on personal characteristics refers to each calendar year. Observing the same individuals in two different countries was made possible due to the fact that the population register system and taxation authorities in each country keep track of all residents on a continuous basis. By using each individual's unique personal identification, the linkage across countries was fully successful. Since Statistics Finland has a policy of not providing detailed information on complete populations, the data available to us constitute a 90% sample of all migrants.

The recorded migration duration is with great certainty a correction reflection of the actual migration duration, and there are no reasons to expect a lag in registration, because there are strong incentives to register. If not registering upon arrival to Sweden, a person cannot seek accommodation or receive any income from work, nor would he or she be eligible for any social security payments if unemployed or outside the labour market. These claims are further strengthened by the fact that information about the timing of migration according to the Finnish records corresponds to that in the Swedish records.

Since the theory predicts that migrants with poor draws will return immediately, we study the probability of return migration during the same or subsequent calendar year as the person arrived in Sweden.

To put focus on labour migrants only we restrict the data to men who were aged 25–55 years and in the labour force at the time of emigration from Finland, a total of 7729 individuals. A quarter of them, or 1938, return migrated. In the preliminary analyses, we undertook additional restrictions of the data to be assured that nonlabour migrants, such as students and tied migrants, were excluded. We checked for seasonal- and duration-specific patterns, and if the results were applicable only for people who were employed prior to emigration. The results were stable across alternative specifications and the conclusions consequently similar to those reported here.

Information on earnings in Sweden is for each calendar year, but since we know the number of months a migrant has spent in the country, we can construct a variable that measures average monthly earnings. Migrants with zero earnings, 19.4% of all, are those who had no earnings during the first and potential second calendar years in Sweden.

The control variables used are each person's age (in years), education (level and field in 44 different categories), mother tongue (Finnish or Swedish), marital status (unmarried, married or previously married), number of children, employment status before emigration (employed or unemployed), county of residence before emigration (20 categories), county of residence in Sweden (25 categories) and year of immigration.

IV. Results

We started by estimating a regression for the migrants' log earnings in Sweden, that is, positive average monthly earnings, adjusting for all control variables mentioned in Section III. The individual-specific residual from this standard Ordinary Least Squares (OLS) model was used as a proxy for each individual's draw from the uncertainty distribution $g(e)$. According to theory, a sufficiently low value of $e$, as well as having zero earnings, should increase the likelihood of return migration.
A negative correlation between $\hat{e}$ and the probability of return migration to Finland is also what we find. Since years of schooling increases the probability to return migrate by 0.015 (not shown), it hints that skills raise the return probability and that $\hat{e}$ then most likely identifies an uncertainty component instead of unobserved skills.

Table 1 summarizes the results. The models are from probit regressions, reporting marginal effects, where the dependent variable is the event of return migration. The variables of particular interest are those that represent each migrant’s $e$ and if a migrant had zero earnings. Estimates for the effects of the control variables are not reported. The fifth and sixth deciles of $g(\hat{e})$ serve as the reference group, according to which each other decile and the zero-earnings category are being compared.

The estimated effect is far from symmetric, but can still be considered supporting the hypothesis of an important role played by uncertainty in international return migration decisions. We find that migrants in the first decile have a 5.4% higher return migration probability, while those in the second decile have a 9.6% higher return migration probability, as compared with those in the reference group (Model 1). The relative probability of return migration for the other deciles is close to 0 and statistically not significant, except for the 10th decile. However, a more detailed categorization of the 10th decile reveals that it is only those 2.5% found in the rightmost part of $g(\hat{e})$ who have a significantly higher return migration probability (Model 2). This is likely an artefact of insufficient control for characteristics that promote high earnings, rather than a reflection of extremely good luck or perfect information. The argument is supported by a closer look at the data (not shown), which indicate that these individuals are overrepresented among somewhat older people with a family who have migrated between the Helsinki and Stockholm areas, suggesting that at least some are posted as higher executives.

The other categorization of uncertainty considers migrants with zero earnings, that is, those who had very bad luck when it comes to finding a job. They constitute the largest group by size, and are found to have an elevated return migration probability, 22.8% higher than migrants in the reference group. Thus, return migration in the short-term perspective is primarily driven by migrants who fail to find a job and to some extent by those with imperfect information or bad luck in terms of low $\hat{e}$’s. They constitute a third of all individuals, but account for almost half of the return migration flow during the first two calendar years.

V. Conclusions

This article shows that uncertainty in the initial migration decision might be an important driving mechanism behind the decision to return migrate in the short run. Migrants with a worse-than-expected outcome in the host country upon arrival and shortly thereafter have a notably higher probability of return migrating than other migrants.
The results have important consequences for research concerned with the motives for international migration and the returns to foreign work experience. They suggest that far from all return migration is part of an optimal resident location plan over the life. Instead, many migrants seem to return migrate to correct for mistakes in the initial migration decision, which occur because of imperfect information or bad luck. Since a substantial share of all migrants who return in the short run cannot be considered having invested in their human capital when being abroad, it is likely that they have no, or very poor, use for their foreign experience at home. This might be a reason to why many studies lend weak support for the investment hypothesis.

In the present case of Finns who had migrated to Sweden, we find that the return migrants are selected with respect to two specific entities: skills and the supposed level of uncertainty. To a great extent, immediate return migrants consist of people with relatively high levels of schooling and of persons who performed worse in the host country than they expected to do. Future studies of the economic returns to return migration need to acknowledge the possibility of heterogeneous effects of this kind, because they are likely associated also with labour market performance in the source country subsequent to return migration.

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References