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# HUMAN CAPITAL THEORY AND INTERNAL MIGRATION:

# DO AVERAGE OUTCOMES DISTORT OUR VIEW OF MIGRANT MOTIVES?

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**Abstract**.

Empirical studies on internal labor migration are usually based on observed patterns of net flows into local labor markets with relatively lower unemployment and relatively higher real wages. Evidence here suggests that internal migrants move to enhance returns to their labor. In contrast, major surveys in the USA, the UK and Australia show that less than a third of internal migrants are motivated primarily by employment reasons. A possible explanation for this disconnect revolves around average and individual outcomes from migration. Using a sample of 39 000 Swedish regional migrants, this paper addresses this disconnect by examining the distribution of short and long term migrant income changes, and the factors that predict their placement within this distribution. We show that returns to migration do matter, especially for the more educated migrants. Overall, however, about a third of all migrants had negative short term returns to migration and about 40 percent make below median gains even in the long run. The data support a view that average outcomes are an insufficient way to measure the role of human capital motivated migration.

## 1. Introduction

Models of inter- labor market migration have documented the average gains that accrue from moving from one labor market to another. The nominal gains from migration are used to explain continuing migration up the urban hierarchy and especially to large cities in the hierarchy. Those gains are routinely related to age (younger movers), skill levels, education and occupation. The emphasis in the neo-classical model of migration is on the way in which movers self-select to take advantage of differences in skill specific wages at alternate locations. This idea has been pervasive in research on labor market migration and continues to be a mainstay of research and policy making. Cities are still concerned with attracting high wage migrants and the tax returns that they bring.

However, while the research suggests that there are positive average returns to migration, that is, that on average there are significant gains from moving, we know much less about the distribution of income gains from labor market migration. To place the notion of average gains in context we might think of the following outcome. In a cohort of movers (young, skilled, highly educated) the cohort overall might have an average income gain that could well be related to a selection of movers, even a minority, who "do very well" from the move, but the cohort could also contain a subset of movers who make no gains or even losses. While the average may be positive, it is an incomplete picture of the returns to migration.

The evidence from survey research also questions the notion of simple gains from migration between labor markets (Morrison and Clark, 2011). The survey data suggests that when employment is relatively ubiquitous across a wide range of locations, employment may enter the decision making matrix but it is not necessarily the primary motivation (Chen and Rosenthal 2008). In these situations we might well expect that gains to wages may be a wash – that is, the move does not generate big changes in terms of either gains or losses. The factors behind the move are clearly more complex than a simple return to human capital.

To explore these notions we pose two questions about the nature of labor market migration and the returns to migration: Firstly, how large a share of those moving actually experience an increase in nominal and real income, and how many experience a loss (related to the average increase for the population as a whole)? Second, how does this outcome depend on the characteristics of migrants and the time-frame of analysis?

The sub-questions focus on the distribution of gains across gender, age, and by education and marital status. While the first descriptive section draws out the general empirical pattern – how many, and who make gains? – the second section models the outcome in terms of probabilities, in both the short and long(er) run as measured using nominal as well as real disposable income.

## 2. Previous Research

As we noted previously in human capital models of migration the focus is on the individual's decision to move and argues that it is conditional upon the return he/she

expects to receive from moving in contrast to those expected from staying (Kan, 1999; Khwaja, 2002). These ideas still motivate much contemporary analysis of migration and since Hicks (1932) the argument has reiterated that differences in net economic advantages, chiefly wages, are the main cause of migration. The theme is continued in Sjaastad, 1962, and Harris and Todaro (1972) and more recent research including that by Newbold ( 2011) and Blackburn (2006) and in Boehm and Taylor (2007), and in the New Zealand context by Mare and Timmins (2003), continue to treat the decision to move from one labor market to another as primarily a human capital *investment*. Those approaches are consistent with the theme outlined in our conceptualization of this research.

Despite the evidence in support of a human capital investment approach several papers have suggested that increasingly cities offer not just employment opportunities but a vast array of consumption opportunities from housing to cultural life (Glaeser Kolko Saiz, 2001). In this conceptualization migrant motives are more complex than simply evaluating the best job and moving as a response. Glaeser points to the fact that urban rents go up faster than urban wages in growth cities as a demonstration that there is a demand for living in cities for reasons *beyond* wages, and a recent paper using Swedish data found similar results (Korpi, Clark, and Malmberg, 2010). Survey data on reasons for moves and the intersection with economic outcomes also suggests that mobility responses may be more complex than is suggested by job opportunities. Major surveys in the USA (Panel Study of Income Dynamics and the Current Population Survey), the UK (British Household Panel Survey), and Australia (Household, Income and Labor Dynamics in Australia), all show that less than a third of internal migrants are motivated primarily by employment reasons. Similar results for Sweden can also be found (Niedomysl, 2011). In one study even those households who expressed a job related reason for the move had only modest economic gains. Few migrants showed evidence of having made any employment gains in the short run or expressed the view that they expected employment gains in the long run (Morrison and Clark, 2011). From the survey evidence it seems that migrants are as much concerned about adjusting consumption and/or realigning social relationships as they were about making specific economic gains.

Additionally, the context in which migration is occurring is changing. Labor markets are arguably more fluid than at any time in the past. Women are now a substantial fraction of workers and this in turn has changed the migration decision making process. Entry and exit from the labor market is much more volatile and so is the nature of participation. Clark and Withers (2002) and Clark and Huang (2006) established that even though migrant wives are not necessarily disadvantaged by family migration there was considerable job fluidity for migrants, local movers and even for those who were residentially stable. While we often conceptualize employment as long spells with one employer and in one occupation, the shift to a service economy has destabilized employment spells. While long spells in employment are clearly relevant for professional workers, in fact, much of the mobility in and out of the labor force is not in the professional occupations and is frequent and unstable. Jobs may not be what motivate change especially in localized situations and especially for the increasing number of women in the labor force.

Thus, it may be that, in the present economic organization of society and with changing family structures, migration may be as much about social process as about economic gains. To understand these changes requires a more nuanced interpretation of the migration process. The questions around which this paper is organized are questions about adjusting consumption and their wider lifestyle and family foci. To reiterate though, it is not that economic factors do not underlie the migration outcomes, certainly, there is evidence that costs of living are important in the decision to move (Korpi, et al 2010), and the unemployed often still move to improve their job prospects just as professional and managerial workers move to enhance their career prospects. But in between there are a wide range of social outcomes which are inter-related with migration decisions. It is unpacking the whole range of mobility outcomes - gains and losses and what inferences we can make about how much jobs matter that is at the heart of our interest in the distribution of economic returns from migration.

## 3. Data and Research Methods

This paper utilizes two data sources. Firstly, we use a balanced sample of 39 000 regional migrants from Statistics Sweden's Mona database for the years 1997-2002. This panel data details place of residence and work plus a series of individual-level data, including educational and occupational status as well as source and level of income. Second, as we are interested in nominal as well as real income, we calculate average regional rent cost for municipalities and labour markets using data from the Swedish Survey of Housing and Rents, BHU. This data is in turn used to adjust nominal income gains with the local levels of housing costs.

The Swedish Survey of Housing and Rents consists of bi-yearly survey data where respondents are surveyed about rents, mortgage payments and nominal housing costs. The total sample size, around 8000 for each survey, is however not sufficient to get statistically accurate geographical data for each Swedish municipality, and we are then faced with a trade-off. Using only municipalities with sufficient sample size for each separate year of the survey, and for each type of tenure, we need to cluster geographical areas into a few larger regional aggregations and the calculated average housing costs of housing for these regions will then hide possibly large geographical variation. On the other hand, when pooling different years of the survey to increase sample size and the geographical level of detail, we will lose accuracy in cost estimates since costs of course change somewhat over time.

In what follows, we choose to compromise between these two aspects and pool the different surveys in pairs with one year in between, using a minimum sample size of twenty to determine geographical level of detail. This minimum sample size is then applied for the three broad types of tenure included in the Housing and Rent Survey; rent housing, small single family houses and privately owned apartments/condos.[1]

[1] As noted, pooling surveys from different years into one sample generates some uncertainty concerning the housing cost estimates, to a lesser degree when it comes to rent housing (Swedish rent housing is mostly a regulated affair and rents increase only slowly), to a larger degree for private homes and apartments which are subject to larger fluctuations over time. As the pooling is done within comparatively short intervals, this problem is however not likely large enough to compromise our results.

Migrants are defined as households moving in between local labor markets. According to the definition of local labor markets used here, Sweden can be divided into 100 local labor markets comprising some 290 municipalities, where the main separation criteria for these are the share of working age population commuting out of a municipality on a daily basis (Statistics Sweden, 2003). For these migrant households, we then calculate the short and long term gains and losses from migration, comparing household disposable income, and household disposable income adjusted for local level housing costs, comparing income the year before the move with income at two later instances – 1999 and 2002.

Our modeling approach can be described as a two stage process. Firstly, we calculate the share of migrants experiencing above or below the median income gain of the Swedish population at large. Second, we specify a logit model where we estimate the probabilities of belonging to either of these two different categories.

The model can be described as follows:

$$P_i = \beta_0 + \beta_1 X_{1,it} + \ldots + \beta_k X_{k,it}$$

where P=1 if an individual experiences an above median income increase related to the move (P=0 otherwise), $\beta_0$ is the intercept and $X_{1,it} + \ldots + \beta_k X_{k,it}$ signifies a set of explanatory dummy variables for individual *i* in time *t* (where t=1995, 1997 and 1999).

Our explanatory variables are as follows:

FEMALE = Coded one if female
UNDER 30 = Coded one if 30 or below
HIGHER = Coded one if an individual has at least a bachelor degree
INTERMEDIATE = Coded one if an individual has completed secondary education, at least 12 years of schooling
OECD = Being an immigrant from an OECD country
NONOECD = Being an immigrant from an non- OECD country
EMPLOYMENT = Going from unemployment to employment in relation to the move
UNEMPLOYMENT = Going from employment to unemployment in relation to the move
JOBCHANGE = Changing jobs in relation to the move
SINGLE HOUSEHOLD= Coded one if the migrant is single
PARTNERSHIP = Forming a partnership in relation to the move, either by marriage or registered partnership
SEPARATION = Dissolving a marriage or registered partnership in relation to the move
GROWTHREGION = Moving into a population growth region, defined as being a local labor market experiencing population growth due to positive net internal migration
DEPOPULATING = Moving into a depopulating region, defined as a local labor market experiencing population decline due to negative net internal migration

EDUC2 = 1 if an individual is an additional household member (in at least a two-person household) that acquires a higher degree of education
EMPLOYMENT2 = 1 if a person is an additional household member (in at least a two-person household) moving from unemployment to employment

UNEMPLOYMENT2 = 1 if a person is an additional household member (in at least a two-person household) moving from employment to unemployment
JOBCHANGE2 = 1 if a person is an additional household member (in at least a two-person household) changing jobs in relation to the move

In effect we are examining the likelihood of an above median gain as evidence of outcomes consistent with a human capital investment conceptualization. If a large group of migrants make significant gains and/or gains related to job changes we can infer they are consistent with human capital investment. If, on the other hand, a sizable share of migrants make around or below median income gains, in both the short and long term, we argue that the behavior of this share of the migrant population is perhaps better understood as driven by motives other than assumed within the traditional human capital maximization approach.

In the appendix, for additional evidence and an alternative take on the data, we also provide results from a multi-nominal modeling approach where the probability of belonging to a group with below, around or above average outcomes is calculated in a similar fashion.

## 4. Descriptive statistics

Turning to descriptive statistics and starting with the short term distribution of earnings, 52.1 percent of migrants make a more than median gain in disposable income, while the rest are below and as much as 34 percent of migrants move for a short term income loss (Table 1 below). This distribution is also considerably skewed upwards with a large share (some 30 percent) making very high gains; more than three times the median gain of 19 000 Swedish crowns, equivalent of around 2500 US dollars.

Looking at these outcomes in the longer run (Table 3), the picture has changed somewhat but not considerably. The share making above the equivalent long run median gain (of 55 000 SEK) is now somewhat larger, at 58.2 percent, and while those still experiencing a loss compared to initial income levels is now lower, 23.7 percent, these migrants still constitute a quite large share of the total.

And as seen on the right hand side of Table 1 and 3, it does not seem to be the case that this picture changes much when looking at real income: Using our real income measure, as defined as disposable income adjusted for housing costs, this distribution of outcomes looks very much the same, with only one or two percentage points that differ using one or the other income measure.

**Table 1.** The distribution of short term changes in nominal disposable income, and disposable income adjusted for housing costs. Regional migrants, 1997-1999. Summarized yearly income, Swedish crowns (SEK)

| Categories. abs. disp. income | Freq. | Percent | Cum. | Categories. abs. adj. income | Freq. | Percent | Cum. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **-35 598 100–76 000** | 6.887 | 17.3 | 17.3 | **-35 598 100–76 000** | 6.789 | 17.1 | 17.1 |
| **-76 000–57 000** | 821 | 2.1 | 19.4 | **-76 000–57 000** | 884 | 2.2 | 19.3 |
| **-57 000–38 000** | 1.096 | 2.8 | 22.1 | **-57 000–38 000** | 1.161 | 2.9 | 22.2 |
| **-38 000–19 000** | 1.702 | 4.3 | 26.4 | **-38 000–19 000** | 1.879 | 4.7 | 26.9 |
| **-19 000–0** | 3.207 | 8.1 | 34.4 | **-19 000–0** | 3.526 | 8.9 | 35.8 |
| **0–19 000** | 5.37 | 13.5 | 47.9 | **0–19 000** | 5.279 | 13.3 | 49.0 |
| **19 000–38 000** | 4.949 | 12.4 | 60.4 | **19 000–38 000** | 4.891 | 12.3 | 61.3 |
| **38 000–57 000** | 3.695 | 9.3 | 69.6 | **38 000–57 000** | 3.661 | 9.2 | 70.5 |
| **57 000–76 000** | 2.708 | 6.8 | 76.4 | **57 000–76 000** | 2.567 | 6.5 | 76.9 |
| **76 000–39 456 500** | 9.386 | 23.6 | 100.0 | **76 000–39 456 500** | 9.183 | 23.1 | 100.0 |
| | | | | | | | |
| | 39.821 | 100 | | | 39.821 | 100 | |

**Table 2.** Descriptive statistics by income gain category, regional migrants, 1997-1999

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **INCOME CHANGE** | **N** | **Female** | **Under30** | **Under35** | **Married** | **Oecd** | **NonOecd** | **Employment** | **Unempl~nt** | **Secondary** | **University** | **JobChange** | **Growthre~n** | **Depopul~g** |
| | | | | | | | | | | | | | | |
| **Above median** | 0.52 | 0.44 | 0.29 | 0.55 | 0.42 | 0.05 | 0.10 | 0.05 | 0.02 | 0.56 | 0.34 | 0.60 | 0.35 | 0.18 |
| **Below median** | 0.48 | 0.47 | 0.36 | 0.54 | 0.25 | 0.05 | 0.10 | 0.06 | 0.04 | 0.64 | 0.20 | 0.45 | 0.37 | 0.18 |

**Table 3.** The distribution of long term changes in nominal disposable income, and disposable income adjusted for housing costs. Regional migrants: 1997-2002. Summarized yearly income, Swedish crowns (SEK)

| Categories, abs. disp. income | Freq. | Percent | Cum. | Categories, adj. disp. Income | Freq. | Percent | Cum. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **-35 446 000-222 000** | 1.653 | 4.2 | 4.2 | **-35 446 000-222 000** | 1.974 | 5.0 | 5.0 |
| **-222 000-166 500** | 1.016 | 2.6 | 6.7 | **-222 000-166 500** | 1.035 | 2.6 | 7.6 |
| **-166 500-111 000** | 1.448 | 3.6 | 10.3 | **-166 500-111 000** | 1.44 | 3.6 | 11.2 |
| **-111 000-55 000** | 1.951 | 4.9 | 15.2 | **-111 000-55 000** | 1.844 | 4.6 | 15.8 |
| **-55 500-0** | 3.365 | 8.5 | 23.7 | **-55 500-0** | 3.14 | 7.9 | 23.7 |
| **0-55 500** | 7.219 | 18.1 | 41.8 | **0-55 500** | 6.435 | 16.2 | 39.9 |
| **55 500-111 000** | 7.15 | 18.0 | 59.8 | **55 500-111 000** | 6.767 | 17.0 | 56.8 |
| **111 000-166 500** | 5.362 | 13.5 | 73.2 | **111 000-166 500** | 5.216 | 13.1 | 69.9 |
| **166 500-222 000** | 3.895 | 9.8 | 83.0 | **166 500-222 000** | 3.947 | 9.9 | 79.9 |
| **222 000-41 004 300** | 6.76 | 17.0 | 100.0 | **222 000-41 004 300** | 8.023 | 20.2 | 100.0 |
| | | | | | | | |
| **Total** | 39.821 | 100 | | **Total** | 39.821 | 100 | |

**Table 4.** Descriptive statistics by income gain category, regional migrants, 1997-2002

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **INCOME CHNGE** | **N** | **Female** | **Und~30** | **Und~35** | **Married** | **Oecd** | **NonOecd** | **Employment** | **Unempl~nt** | **Secondary** | **University** | **ChangeJobs** | **Growthr~n** | **Depopul~g** |
| | | | | | | | | | | | | | | |
| **Above median** | 0.58 | 0.44 | 0.14 | 0.43 | 0.52 | 0.05 | 0.10 | 0.06 | 0.02 | 0.55 | 0.37 | 0.70 | 0.32 | 0.13 |
| **Below median** | 0.42 | 0.47 | 0.23 | 0.41 | 0.24 | 0.06 | 0.11 | 0.07 | 0.08 | 0.65 | 0.19 | 0.47 | 0.31 | 0.14 |

Turning to the question of who these migrants are, in Table 2, we find that the share of women among those making above median gains is lower than those in the below income bracket (since we do not include student migrants the total share of women in our sample is also somewhat lower). Perhaps not surprisingly, among those making above median gains the share of those with at least a university bachelor degree is also higher: 34 as opposed to 20 percent, and a larger fraction of the migrants enjoying above median gains are married. In terms of age however, the shares in the above and below median income brackets do not differ substantially (around 55 percent below age 35 both above and below). If anything, the larger share below age thirty in the lower income gain bracket indicates that being young is a slight disadvantage in terms of making large gains in relation to the move.

As regards the share of foreign-born, divided into migrants with an OECD and non-OECD background, being foreign born does not make a migrant less likely to make above or below median gains when moving within the country. And finally, some 62 percent of migrants in the above median category change jobs in relation to the move and 48 percent in the below category. Somewhat surprisingly, the share of migrants moving from unemployment to employment is rather low in both categories with not much difference between the two (five and six percent, respectively), while the equivalent numbers of those moving into unemployment is two percent in the above and four percent within the below median gain categories.[2]

Noteworthy also, among the above median earners as well as below, a much larger share constitute migrants heading into population growth regions, 35 and 37 percent respectively, as compared with 18 percent in both the above and below categories heading into depopulating regions (defined as labor markets where local population increases/decreases year by year, due to positive/negative net migration).

This picture from Table 2 does not change substantially when looking at Table 4 and the longer run. A larger share of those making above median gains, 72 percent, have now changed jobs but the share that moved from unemployment to employment is still quite small in both above and below median gain categories (six and seven percent respectively). Unemployment among migrants is now also somewhat higher, mainly in the category making below median gains where the numbers is eight percent as compared to four previously. These numbers no doubt also reflect the fact that 2002, our last year of observation, is a year still marked somewhat by the recession following the bursting of the IT-bubble in 2000/2001.

## 5. Modeling the Migration Outcome

We construct two models of short and long(er) run migrant outcomes in terms of disposable income. In the first logit model, our main approach, we examine the variables related to moving and the likelihood of making above the median income gain (of the total non-migrant population) versus moving and making a below

[2] The fact that some migrants make above median gains while still ending up as unemployed is due to unemployment being registered at the end of the year while income is summarized over the whole calendar year.

median gain (in both the short and long run). In the second, as to provide an alternative take on the data, we provide a multinomial logit analysis estimating the likelihood of migrants being within a high-earner category and a low earner/loss-category, with the interquartile range as reference category (also calculated using the interquartile range of income gains among the non-migrant population).

The results of this modeling exercise by and large confirm the descriptive information provided in the previous section. The descriptive results for movements associated with above median increases emphasized university trained migrants, versus those who had lower levels of education, as well as those changing jobs in relation to the move. As seen below in Table 5 and the right hand column showing marginal effects, the model coefficients for movements with greater than median gains show strong positive outcomes for those with tertiary, and to a lesser extent intermediate, education levels, indicating a ~21 and ~10 percent higher likelihood of making above median gains when belonging to either of these migrant categories. Somewhat surprisingly, even though younger workers are usually on a steeper earnings likelihood trajectory, being younger (YOUNGER) does not substantially affect the likelihood of making above median gains. Of somewhat lesser significance than higher education, moves (from unemployment) to employment (EMPLOYMENT) and job changes (JOBCHANGE) both increase that likelihood by around 10 percent (8.6 and 10.5 percent), an outcome which is consistent with the argument that moves which bring greater returns to migration are more closely connected with employment decisions. That is, even though moves from unemployment to employment constitute a quite small share of the total migration, it is employment related migration which is creating the above median returns.

As perhaps we could expect given the small differences seen in the descriptive section, originating from either an OECD and non-OECD country does not significantly (statistically) predict one ending up making either above or below income gains. There are however significant effects, although not great in terms of size, depending on the direction of migration; moving into a population growth region increases those chances by around four percent, and conversely, moving into a depopulating region decreases those chances by a similar amount.

that the longer run may be the more relevant time frame of analysis when estimating migrant outcomes. Thus, the pay-off to higher education now increases the likelihood of migrants making above median long term gains with ~24 percent. Likewise, it seems that job changes related to the move also has a somewhat larger effect in the longer run, with results indicating around 19 percent increased likelihood of belonging to the above median category when seen over the longer run. The effect of moving for employment is also larger than in the short run (13 compared to 8.6 percent), while the long term negative effects of unemployment is somewhat larger than the short run effects.

**Table 5.** Logistic model, determinants of migrant households making above median gains in disposable income, short term, 1997-1999

| VARIABLES | (1) Disposable inc. change | (2) odds ratio | (3) mfx |
|---|---|---|---|
| FEMALE | -0.313*** | 0.731*** | -0.078*** |
| | (0.024) | (0.017) | (0.006) |
| YOUNGER | 0.218*** | 1.244*** | 0.054*** |
| | (0.026) | (0.033) | (0.007) |
| HIGHER | 0.844*** | 2.325*** | 0.207*** |
| | (0.041) | (0.094) | (0.010) |
| INTERMEDIATE | 0.387*** | 1.473*** | 0.096*** |
| | (0.036) | (0.053) | (0.009) |
| OECD | -0.037 | 0.964 | -0.009 |
| | (0.051) | (0.049) | (0.013) |
| NONOECD | 0.018 | 1.018 | 0.005 |
| | (0.041) | (0.042) | (0.010) |
| EMPLOYMENT | 0.345*** | 1.412*** | 0.086*** |
| | (0.060) | (0.085) | (0.015) |
| UNEMPLOYMENT | -1.169*** | 0.311*** | -0.262*** |
| | (0.092) | (0.029) | (0.017) |
| JOBCHANGE | 0.422*** | 1.525*** | 0.105*** |
| | (0.027) | (0.041) | (0.007) |
| GROWTHREGION | 0.148*** | 1.159*** | 0.037*** |
| | (0.026) | (0.030) | (0.007) |
| DEPOPULATING | -0.173*** | 0.841*** | -0.043*** |
| | (0.032) | (0.027) | (0.008) |
| SINGLEHOUSEHOLD | -0.539*** | 0.583*** | -0.134*** |
| | (0.028) | (0.017) | (0.007) |
| PARTNERSHIP | 2.457*** | 11.672*** | 0.466*** |
| | (0.078) | (0.905) | (0.008) |
| SEPARATED | -4.439*** | 0.012*** | -0.605*** |
| | (0.103) | (0.001) | (0.004) |
| EDUC2 | 0.594*** | 1.811*** | 0.145*** |
| | (0.208) | (0.377) | (0.048) |
| EMPLOYMENT2 | 0.794*** | 2.212*** | 0.190*** |
| | (0.113) | (0.251) | (0.025) |
| UNEMPLOYMENT2 | -0.515*** | 0.597*** | -0.125*** |
| | (0.119) | (0.071) | (0.028) |
| JOBCHANGE2 | 0.655*** | 1.926*** | 0.160*** |
| | (0.046) | (0.090) | (0.011) |
| Constant | -0.159*** | 0.853*** | |
| | (0.042) | (0.036) | |
| Pseudo R2 | 0.22 | 0.22 | |
| Observations | 39,821 | 39,821 | 39,821 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

When estimating the equivalent model for outcomes in the long run (Table 6), the results seen in Table 5 are similar and to some extent also stronger, thus indicating As seen in both Tables 5 and 6, the largest estimated effects are related to variables controlling for the formation and termination of marriages/partnerships (PARTNERSHIP, SEPARATED) as well as the labor market behavior of additional household members (EDUC2, EMPLOYMENT2, UNEMPLOYMENT2, JOBCHANGE2). While the first two of these are intuitive and easily explained, the somewhat larger estimates as concerns the variables

**Table 6.** Logistic model, determinants of migrant households making long term above median gains in disposable income, 1997-2002

| VARIABLES | (1) Disposable inc.change | (2) odds ratio | (3) Mfx |
|---|---|---|---|
| FEMALE | -0.203*** | 0.816*** | -0.048*** |
| | (0.026) | (0.021) | (0.006) |
| YOUNGER | 0.048 | 1.049 | 0.011 |
| | (0.033) | (0.034) | (0.008) |
| HIGHER | 1.077*** | 2.936*** | 0.238*** |
| | (0.046) | (0.136) | (0.009) |
| INTERMEDIATE | 0.501*** | 1.650*** | 0.120*** |
| | (0.041) | (0.068) | (0.010) |
| OECD | -0.134** | 0.875** | -0.032** |
| | (0.055) | (0.049) | (0.014) |
| NONOECD | 0.054 | 1.055 | 0.013 |
| | (0.045) | (0.047) | (0.011) |
| EMPLOYMENT | 0.588*** | 1.801*** | 0.130*** |
| | (0.061) | (0.110) | (0.012) |
| UNEMPLOYMENT | -1.346*** | 0.260*** | -0.322*** |
| | (0.083) | (0.022) | (0.017) |
| JOBCHANGE | 0.801*** | 2.229*** | 0.187*** |
| | (0.031) | (0.070) | (0.007) |
| GROWTHREGION | 0.179*** | 1.196*** | 0.042*** |
| | (0.029) | (0.034) | (0.007) |
| DEPOPULATING | -0.357*** | 0.699*** | -0.087*** |
| | (0.038) | (0.026) | (0.009) |
| SINGLEHOUSEHOLD | -0.986*** | 0.373*** | -0.237*** |
| | (0.032) | (0.012) | (0.007) |
| PARTNERSHIP | 2.131*** | 8.423*** | 0.387*** |
| | (0.057) | (0.484) | (0.006) |
| SEPARATED | -3.863*** | 0.021*** | -0.667*** |
| | (0.070) | (0.001) | (0.004) |
| EDUC2 | -0.198 | 0.820 | -0.048 |
| | (0.201) | (0.165) | (0.050) |
| EMPLOYMENT2 | 1.069*** | 2.914*** | 0.212*** |
| | (0.107) | (0.311) | (0.016) |
| UNEMPLOYMENT2 | -0.852*** | 0.426*** | -0.210*** |
| | (0.097) | (0.042) | (0.023) |
| JOBCHANGE2 | 0.739*** | 2.093*** | 0.163*** |
| | (0.047) | (0.099) | (0.009) |
| Constant | -0.122** | 0.885** | |
| | (0.048) | (0.042) | |
| Pseudo R2 | 0.30 | 0.30 | |
| Observations | 39,821 | 39,821 | 39,821 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

related to additional household members are somewhat perplexing. These larger estimates do however not affect our conclusions drawn from our main variables of interest. For example estimating our models using only single households give similar results (not shown).[3]

[3] Nor, we should add, do the estimates differ substantially running our models substituting our real income measure (adjusted for housing costs), for nominal

Lastly, turning to our second and alternative modeling approach, Tables A1 and A2 in the appendix show the results of our multi-nominal logit analysis of the spread of migrants' outcomes using the inter-quartile range as base category. Here, the conclusions and results from our main modeling approach are further underlined. Thus, here also, the main characteristic affecting the chances of ending up making gains above the inter quartile range, our high earner income bracket (see columns 2 and 4), is the level of education. Having at least a bachelor's degree or equivalent here doubles those odds, and even triples them in the longer run (Table A2).

## 6. Concluding discussion

In this research we disaggregate the average returns to migration and model the distribution of income gains from migration. The focus is thereby not on modeling the gains across migrants as is standard in most econometric models of wage related migration, but rather on the distribution of outcomes. We examine who makes gains, how big the gains are as well as the factors that determine the placement of migrant households within this distribution. By examining the distribution of outcomes we can make inferences about the role of jobs and employment in migration and we find that indeed the human capital model works just where it should; for the well-educated and it works even better over time. Still, the evidence also shows that quite large proportions of movers do not make gains, and indeed, a substantial proportion does not even achieve a wash in their migration.

In our analysis, we examined the distributional outcomes by constructing two models of migration and outcomes in terms of both nominal and real disposable income adjusted for housing costs. In the first logit model, we examine the variables related to moving and making above median income gains. Here, the model coefficients for movements with greater than median gains have strong positive outcomes those with tertiary education. Using this model we also find a significant positive effect related to (moves to) employment, as well as moves related to changing jobs. At the same time, as of course we would expect, movements from employment to unemployment have a negative effect in the above median category.

In the second modeling approach, modeling outcomes above and below an average category defined by the interquartile range, the conclusions from our main approach are even more pertinent; the big gains from migration are captured by the well-educated, and even more so when viewed over the longer run.

Overall, the outcome of this analysis is consistent with our argument that moves which bring greater returns to migration are more closely connected with employment decisions. In other words, it seems that it is employment related migration that to a large extent is creating the above median returns to that migration. The other outcomes provide strong evidence that people are moving for complex reasons other than jobs and that they are often willing to take a loss in the move, a loss that is not even recovered over the near term. Even though we cannot make direct inferences as regards motives from these outcomes (one possibility is

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disposable income. These tables are available upon request but cannot be included here.

of course that these moves associated with below median gains and losses are human capital motived but 'failed' migrations), by showing that above median outcomes are captured by a subset of migrants, we argue that these outcomes are much more in line with results from qualitative studies of migration and survey data.

Despite the gains for a subset of migrants the fact that about one third of all migrants have negative short term returns to migration and more than 40 percent of migrants make below median gains even in the long run, and movements from unemployment to employment does not constitute a substantial share of moves, suggest that there must also be significant other explanations for the relocation behavior in the labor market.

**Appendix 1.**

Table A1. Estimates of the likelihood of migrants being below or above the inter-quartile range of migrant outcomes. Disposable income, short term, 1997-1999

| | Coefficient estimates | | Odds ratios | |
|---|---|---|---|---|
| VARIABLES | Below IQR | Above IQR | Below IQR | Above IQR |
| FEMALE | -0.031 | -0.467*** | 0.969 | 0.627*** |
| | (0.030) | (0.027) | (0.029) | (0.017) |
| YOUNGER | 0.080** | 0.161*** | 1.083** | 1.174*** |
| | (0.033) | (0.031) | (0.036) | (0.036) |
| HIGHER | -0.138*** | 0.840*** | 0.871*** | 2.317*** |
| | (0.050) | (0.048) | (0.043) | (0.112) |
| INTERMEDIATE | -0.092** | 0.354*** | 0.912** | 1.424*** |
| | (0.043) | (0.045) | (0.039) | (0.064) |
| OECD | -0.144** | -0.115* | 0.866** | 0.891* |
| | (0.064) | (0.059) | (0.055) | (0.053) |
| NONOECD | -0.573*** | -0.478*** | 0.564*** | 0.620*** |
| | (0.052) | (0.047) | (0.029) | (0.029) |
| EMPLOYMENT | -0.030 | 0.308*** | 0.970 | 1.361*** |
| | (0.075) | (0.070) | (0.073) | (0.096) |
| UNEMPLOYMENT | 0.877*** | -0.733*** | 2.405*** | 0.481*** |
| | (0.083) | (0.127) | (0.200) | (0.061) |
| JOBCHANGE | -0.414*** | 0.087*** | 0.661*** | 1.091*** |
| | (0.034) | (0.032) | (0.023) | (0.035) |
| GROWTHREGION | 0.045 | 0.147*** | 1.046 | 1.158*** |
| | (0.033) | (0.030) | (0.035) | (0.035) |
| DEPOPULATING | 0.115*** | -0.097*** | 1.122*** | 0.907*** |
| | (0.040) | (0.037) | (0.045) | (0.034) |
| SINGLEHOUSEHOLD | -0.640*** | -1.193*** | 0.527*** | 0.303*** |
| | (0.036) | (0.033) | (0.019) | (0.010) |
| PARTNERSHIP | -0.286** | 2.487*** | 0.751** | 12.031*** |
| | (0.117) | (0.075) | (0.088) | (0.898) |
| SEPARATED | 3.873*** | -1.075*** | 48.105*** | 0.341*** |
| | (0.092) | (0.151) | (4.421) | (0.052) |
| EDUC2 | -0.801** | 0.319* | 0.449** | 1.375* |
| | (0.329) | (0.192) | (0.148) | (0.264) |
| EMPLOYMENT2 | -0.328** | 0.826*** | 0.721** | 2.285*** |
| | (0.162) | (0.118) | (0.117) | (0.270) |
| UNEMPLOYMENT2 | 0.595*** | 0.071 | 1.813*** | 1.074 |
| | (0.142) | (0.150) | (0.257) | (0.161) |
| JOBCHANGE2 | -0.266*** | 0.495*** | 0.766*** | 1.640*** |
| | (0.062) | (0.050) | (0.048) | (0.082) |
| Constant | -0.096* | -0.112** | 0.909* | 0.894** |
| | (0.051) | (0.050) | (0.046) | (0.045) |
| Observations | 39,821 | 39,821 | 39,821 | 39,821 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

**Table A2**. Estimates of the likelihood of migrants being below or above the inter-quartile range of migrant outcomes. Disposable income, long term, 1997-2002

| | Coefficient estimates | | Odds ratios | |
|---|---|---|---|---|
| VARIABLES | Below IQR | Above IQR | Below IQR | Above IQR |
| FEMALE | -0.069** | -0.265*** | 0.933** | 0.767*** |
| | (0.032) | (0.029) | (0.030) | (0.022) |
| YOUNGER | 0.420*** | 0.102*** | 1.522*** | 1.108*** |
| | (0.039) | (0.038) | (0.059) | (0.042) |
| HIGHER | -0.112** | 1.187*** | 0.894** | 3.277*** |
| | (0.055) | (0.054) | (0.049) | (0.175) |
| INTERMEDIATE | -0.137*** | 0.519*** | 0.872*** | 1.681*** |
| | (0.046) | (0.050) | (0.040) | (0.083) |
| OECD | -0.089 | -0.149** | 0.915 | 0.861** |
| | (0.067) | (0.062) | (0.061) | (0.053) |
| NONOECD | -0.649*** | -0.327*** | 0.522*** | 0.721*** |
| | (0.056) | (0.048) | (0.029) | (0.035) |
| EMPLOYMENT | -0.697*** | 0.298*** | 0.498*** | 1.347*** |
| | (0.076) | (0.069) | (0.038) | (0.093) |
| UNEMPLOYMENT | 0.998*** | -1.013*** | 2.713*** | 0.363*** |
| | (0.070) | (0.113) | (0.189) | (0.041) |
| JOBCHNGE | -0.654*** | 0.410*** | 0.520*** | 1.508*** |
| | (0.038) | (0.036) | (0.020) | (0.055) |
| GROWTHREGION | 0.022 | 0.213*** | 1.022 | 1.238*** |
| | (0.036) | (0.031) | (0.037) | (0.039) |
| DEPOPULATING | 0.077* | -0.308*** | 1.080* | 0.735*** |
| | (0.045) | (0.042) | (0.049) | (0.031) |
| SINGLEHOUSEHOLD | -0.431*** | -1.539*** | 0.650*** | 0.215*** |
| | (0.040) | (0.035) | (0.026) | (0.007) |
| PARTNERSHIP | -0.737*** | 1.961*** | 0.478*** | 7.106*** |
| | (0.089) | (0.050) | (0.043) | (0.353) |
| SEPARATED | 2.960*** | -1.818*** | 19.305*** | 0.162*** |
| | (0.061) | (0.104) | (1.185) | (0.017) |
| EDUC2 | -0.077 | -0.274 | 0.926 | 0.760 |
| | (0.274) | (0.196) | (0.253) | (0.149) |
| EMPLOYMENT2 | -0.424*** | 0.948*** | 0.655*** | 2.581*** |
| | (0.154) | (0.102) | (0.101) | (0.264) |
| UNEMPLOYMENT | 0.662*** | -0.482*** | 1.939*** | 0.618*** |
| | (0.110) | (0.119) | (0.212) | (0.074) |
| JOBCHANGE | -0.238*** | 0.638*** | 0.788*** | 1.893*** |
| | (0.064) | (0.049) | (0.051) | (0.092) |
| Constant | -0.186*** | -0.326*** | 0.830*** | 0.722*** |
| | (0.056) | (0.056) | (0.046) | (0.040) |
| Observations | 39,821 | 39,821 | 39,821 | 39,821 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

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