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# Risky Move: New Evidence on the Determinants of the Willingness to Migrate

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**Abstract.** Data from a bespoke Totaljobs survey of workers in the United Kingdom are used to revisit issue of workers' willingness to migrate in order to enhance their career opportunities. Demographic variables such as age, gender, and family circumstances are found to have high explanatory power. Education is also an important cofactor, as is the individual's current income – though the latter has a highly nonlinear effect. Workers located in the north east – a region relatively remote from other large population centres, and one with a strong and distinct cultural identity – are significantly less likely to express a willingness to move. The paper is novel in two respects: in identifying the role played by individual income in mobility, and in allowing for the potential endogeneity of variables associated with attitudes to risk-taking.

**JEL classification:** J61

**Key words:** migration

## 1 Introduction

Imbalances between regions within a country have long been a matter of concern to economists (Gabriel et al. 1993, Bentivogli, Pagano 1999). Where some regions are operating close to capacity while others are characterised by slack, there is potential for aggregate economic outcomes to be improved by a rebalancing of regional activity (Gardiner et al. 2013). Labour migration is a key mechanism for achieving such rebalancing (Rowthorn 2010), but, given both the financial and psychic costs of mobility, and given rigidities in the housing market, it is not clear that this can be relied upon to achieve rapid convergence across regions. Indeed, evidence on the rate of convergence of regions is indicative of “significant barriers to factor mobility within countries” (Gennaioli et al. 2014).

A prerequisite for migration is that individuals should be willing to move. There are few data sources that allow this to be examined, however, and so most studies in this area concern actual rather than potential migration. In this paper, we use a novel data set that provides information about workers' willingness to move between regions in the United Kingdom. This allows us to build on previous work conducted rather a long time ago, and in particular enables application of contemporary methods of analysis. To be specific, our research question is this: what factors are associated with individuals' willingness to move, and is there any evidence to support a causal interpretation?

The remainder of the paper is structured as follows. In Section 2, we provide a brief review of the relevant literature. Section 3 introduces the data set used in the analysis, while Section 4 documents the results. Conclusions are drawn in Section 5.

## 2 Literature

Arguably the most direct ancestor of the work reported here is the seminal paper by Hughes, McCormick (1985). Using General Household Survey data, they find that potential migration rises with education and occupational status and falls with age. They also find results concerning housing tenure that have considerable policy importance; council tenants (locked into provision by a specific local authority) are least likely to express willingness to move, while private tenants are the most likely, with owner-occupiers being in the middle. This last finding has stimulated a literature on the role played by housing tenure in exacerbating labour market rigidities; the Oswald (1996) hypothesis of a positive relationship between owner-occupation and unemployment rates has subsequently been investigated by, inter alia, Munch et al. (2006), Battu et al. (2008), Blanchflower, Oswald (2013) and Laamanen (2017).

Another important paper that has focused on potential mobility is due to Drinkwater, Ingram (2009). In common with earlier work, this finds that mobility increases with education and declines with age. It also finds significant gender effects (with women being more reluctant to move than men), and some evidence on the importance of household composition (for example with widowed or divorced respondents being more willing to move). Many of these effects appear to be robust across more than 20 countries studied in their analysis, which uses data collected as part of the International Social Surveys Programme.

Unfortunately, more recent work on potential, as opposed to actual, migration between regions has often been frustrated by a lack of data. Moreover, neither the Hughes and McCormick nor the Drinkwater and Ingram papers make use of data on individuals' incomes, likely to be a key determinant of potential mobility. In the next section, we discuss the data used in the present study.

## 3 Data

Our data were collected by Opinium<sup>1</sup> in January 2019 as part of the "Northern Pound" study conducted by Red Consultancy<sup>2</sup> on behalf of jobs board, Totaljobs<sup>3</sup>. Some 1821 individuals located in and around 9 British cities (London, Liverpool, Manchester, Sheffield, Leeds, York, Newcastle, Glasgow and Edinburgh) were surveyed online. Respondents are screened so that all are in full-time work<sup>4</sup>. The survey comprises a wide range of questions concerning respondents' demographic characteristics (age, gender, marital status, household composition etc.), educational background, industry in which employed, income, housing tenure, commuting practices, and patterns of expenditure. It also gathers information about respondents' willingness to move (both in principle and for various levels of financial inducement)<sup>5</sup>. Finally, the survey collects data about the time spent on activities outside of work. Data on income and gender are incomplete for a small number of respondents, and this leaves 1707 observations that are used in the analyses that follow. To ensure representativeness, we weight respondents by city population data<sup>6</sup>.

Descriptive statistics for the variables used in the analysis that follows are reported in Table 1. Willingness to move is self-reported (and coded 1 if the respondent is willing, and

<sup>1</sup><https://www.opinium.co.uk/>

<sup>2</sup><http://bit.ly/2QZglaa>

<sup>3</sup><https://recruiting.totaljobs.com/northern-pound>. The data are used here with permission of Red Consultancy and Totaljobs.

<sup>4</sup>These workers may be more likely than others to invest in migration, since they have greater opportunity to recoup the financial costs of the investment in the move. The results reported here therefore reflect the willingness to migrate only of those who select themselves into full-time work.

<sup>5</sup>As dependent variable, we use a binary indicator of willingness to move. Some of those indicating such willingness may be prepared to move for no wage gain, while others would do so only for substantial wage gain.

<sup>6</sup><http://bit.ly/2QTpXTS>

Table 1: Descriptive statistics

| variable           | mean    | standard deviation |
|--------------------|---------|--------------------|
| willing to move    | 0.7253  | 0.4465             |
| male               | 0.5442  | 0.4982             |
| age                | 43.94   | 11.48              |
| income (£ pa)      | 36409.8 | 22605.0            |
| married            | 0.4862  | 0.5000             |
| number of children | 0.6497  | 0.9365             |
| education          | 0.6087  | 0.4882             |
| suburban           | 0.9350  | 0.2466             |
| mortgage           | 0.4897  | 0.5000             |
| friends            | 0.1793  | 0.3837             |

zero otherwise), and indicates a willingness in principle; thus, respondents who declare themselves willing to move may only be prepared to do so if rewarded by a substantial (say, £20000) increase in annual earnings. This being the case, it is perhaps not surprising to find that over 70% of respondents are prepared to relocate. Nevertheless, a substantial minority are not.

The gender mix of the sample is reasonably representative, with somewhat more than half of all respondents being male. Recall that the sample comprises only full-time workers, and this likely accounts for the fact that women are less likely than men to be included. The average age is around 44 years. Mean income is around £36000, very close to the average for full-time workers reported by the Office for National Statistics (<http://bit.ly/388ewhh>). Just under one half of respondents are currently married, and the number of children living with the typical respondent is quite low – though the range is quite wide, with some respondents living with five children.

Education is coded 1 if the respondent has achieved education at least to the level of a certificate of higher education, and zero otherwise; on this metric, just over 60% of respondents have a high level of education. A substantial majority, some 94%, of respondents live within a 90-minute commute of their place of work, and we describe this in the table as “suburban”. Almost one half have a mortgage. Finally, we find that some 18% of respondents spend 5 or more hours per week socialising with friends; we hypothesise that these may be less likely than others to be willing to move because of the roots they have in their local communities. In the next section a more formal analysis of these data is presented.

#### 4 Analysis

The dependent variable used in our analysis is the willingness to move. Logit results (weighting observations by the population of the urban area from which they are drawn) and the corresponding marginal effects for a variety of specifications are reported in Table 2. Reading from left to right, the columns of this table report a basic model, our preferred model, and the preferred model augmented by a full set of city dummies. In the preferred model, the city dummy for Newcastle is retained because it is, or is close to being, statistically significant at conventional levels in all specifications; none of the other city dummies achieves a  $z$  value as high as one. The coefficient estimates and marginal effects are all reasonably robust across all specifications.

Males are likelier than females to be willing to move, by a large margin. This may reflect differences in risk-taking propensities across gender (see, for example, [Anbarci et al. 2016](#); but, for an important caveat, see [Booth, Nolen 2012](#)), or may be a reflection of perceived historic gender roles. As respondents age, they become less likely to be willing to move. This may be attributable to their roots in a locality, but it may also reflect the fact that the flattening of the income-age relationship over time offers diminished pecuniary incentives to mobility as people age.

Income enters the model in nonlinear form. The turning point is at a very low level

Table 2: Logit results

| variable                                 | coeff.            | marg. eff.        | coeff.            | marg. eff.        | coeff.            | marg. eff.        |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| male                                     | 0.8587<br>(3.39)  | 0.1297<br>(3.24)  | 0.7962<br>(3.22)  | 0.1085<br>(3.07)  | 0.7901<br>(3.18)  | 0.1075<br>(3.01)  |
| age                                      | -0.0746<br>(6.37) | -0.0106<br>(6.76) | -0.0633<br>(5.27) | -0.0081<br>(5.07) | -0.0622<br>(4.98) | -0.0080<br>(4.62) |
| income ( $\times 10^{-6}$ )              | -42.1<br>(2.15)   | -5.99<br>(2.15)   | -46.8<br>(2.36)   | -5.99<br>(2.40)   | -47.1<br>(2.37)   | -6.03<br>(2.43)   |
| income <sup>2</sup> ( $\times 10^{-7}$ ) | 37.6<br>(2.12)    | 5.34<br>(2.15)    | 36.4<br>(2.06)    | 4.67<br>(2.12)    | 36.4<br>(2.06)    | 4.67<br>(2.13)    |
| number of children                       |                   |                   | -0.3608<br>(1.13) | -0.0463<br>(1.12) | -0.3643<br>(1.14) | -0.0466<br>(1.13) |
| number of children<br>× suburban         |                   |                   | 1.0046<br>(2.93)  | 0.1288<br>(2.96)  | 1.0095<br>(2.93)  | 0.1293<br>(2.96)  |
| education                                |                   |                   | 0.6010<br>(2.24)  | 0.0859<br>(2.06)  | 0.5839<br>(2.18)  | 0.0831<br>(1.98)  |
| married                                  |                   |                   | 0.0576<br>(0.22)  | 0.0074<br>(0.22)  | 0.0654<br>(0.25)  | 0.0084<br>(0.25)  |
| mortgage                                 |                   |                   | -0.3256<br>(1.29) | -0.0425<br>(1.31) | -0.3113<br>(1.21) | -0.0406<br>(1.22) |
| friends                                  |                   |                   | -0.4654<br>(1.65) | -0.0657<br>(1.53) | -0.4710<br>(1.66) | -0.0665<br>(1.54) |
| Newcastle                                |                   |                   | -0.4806<br>(2.19) | -0.0718<br>(1.97) | -0.5314<br>(1.85) | -0.0805<br>(1.68) |
| constant                                 | 4.8623<br>(7.39)  |                   | 4.1495<br>(6.04)  |                   | 4.1596<br>(6.03)  |                   |
| pseudo R2                                | 0.1271            |                   | 0.1820            |                   | 0.1829            |                   |
| number of observations                   | 1707              | 1707              | 1707              | 1707              | 1707              | 1707              |

Notes:  $z$  values in parentheses. The specification in the last two column includes a full set of city dummies (not reported for reasons of space). “coeff.” = “coefficient”, “marg. eff.” = “marginal effect”.

of income, so the interesting feature of the nonlinearity concerns the relatively modest impact of income on willingness to move at low income levels, contrasted with a much higher (positive) impact at higher levels. Higher income respondents are likely more able than others to bear the costs of migration, and may also perceive greater economic returns to that migration.

The presence of children in the household reduces the likelihood that a respondent is willing to move, but the effect is not significant at conventional levels. For those who live within a 90-minute commute of their place of work, however, having more children is associated with a greater willingness to move. This might reflect a desire to access greater living space or superior amenities.

Those educated to Certificate of Higher Education or beyond are markedly more willing to move than others, with a marginal effect of over 0.08. As with the gender variable, there may be differences between highly educated individuals and others in attitudes to risk. This issue is explored further in the sequel.

Marital status has no significant effect. Other variables that are significant only at generous levels include owner-occupation with a mortgage (those with a mortgage may be less likely to be willing to move) and time spent socialising with friends (those spending 5 hours a week or more are less likely to be willing to move).

Finally, those currently living in or around Newcastle (a city in the north east of England, fairly remote from other major centres of population in the country) are less likely to be willing to move than other respondents. This effect is significant in some specifications at the 5% level, and is borderline significant in others. Numerically, the effect is substantial, with a marginal effect of between 0.07 and 0.08.

Table 3: Average treatment effects

| variable  | nearest neighbour |      | IPWRA       |      |
|-----------|-------------------|------|-------------|------|
|           | coefficient       | $z$  | coefficient | $z$  |
| educated  | 0.0360            | 1.37 | 0.0460      | 1.95 |
| male      | 0.0838            | 3.31 | 0.0808      | 3.71 |
| married   | -0.0029           | 0.10 | -0.0280     | 1.17 |
| mortgage  | -0.0383           | 1.52 | -0.0152     | 0.71 |
| friends   | -0.0065           | 0.20 | -0.0206     | 0.75 |
| newcastle | -0.0755           | 1.63 | -0.0781     | 2.19 |

As noted earlier, attitudes to risk are likely to influence the dependent variable and some of the explanatory variables. Establishing that the link between, say, education and the willingness to move is causal therefore requires further analysis. Our data lack any intervention that can be used as a discontinuity in order to establish causality, and so we appeal to matching methods<sup>7</sup>. In Table 3, we report on the average treatment effect (ATE) associated with education in a logistic propensity score nearest neighbour matching model with one match per observation<sup>8</sup>. This has a positive value, indicating that education does indeed impact positively on willingness to move; however it falls short of statistical significance, and the numerical value of the effect is somewhat less than half that of the corresponding marginal effect in the analysis reported in Table 2. It would be heroic therefore, on the basis of this evidence, to conclude that education has a causal effect on willingness to move.

For completeness, we also report in Table 3 the ATEs associated with other binary explanatory variables. In almost every case the magnitude of the effect is smaller than reported in Table 2; the exception is the Newcastle dummy. Only the gender dummy has an ATE that is significant at conventional levels.

There are many variations on the simple propensity score matching model, and so as a robustness check Table 3 reports also results obtained from an inverse probability weighted regression adjustment (IPWRA) model. The results are broadly similar, but in this case the coefficient on Newcastle is significant at better than 5%.

Typically, earlier analyses of the willingness to move have not provided a causal analysis; while recognising that matching methods do not provide a panacea for this deficiency, the weakening of the coefficients reported here nevertheless suggests that the results of these earlier analyses should be treated with caution.

## 5 Conclusion

In response to the promise of higher earnings, a high proportion of workers are willing to consider migrating within country. Nevertheless, this willingness varies systematically across respondents according to demographic characteristics. Furthermore, we find that income and education are important influences on the willingness to move; in the case of education, the size and the significance of the effect is weakened somewhat when estimated using matching models.

The data set used in this study is unusual in that it was conducted on behalf of a private organisation interested in researching labour markets. The sampling strategy involved a focus on a number of cities around the United Kingdom. While the statistical analysis conducted in the paper uses information on the geographical distribution of respondents to weight observations, future work would benefit from use of a truly representative sample drawn from across the country.

<sup>7</sup>See [Stuart \(2010\)](#) for a discussion of how matching models allow a causal interpretation. She notes the recent development of methods such as coarsened exact matching ([Iacus et al. 2012](#)) that can improve balancing between treated and untreated groups. Application of such methods are not considered here owing to the preponderance of binary variables in the analysis.

<sup>8</sup>This is estimated using the `teffects psmatch` command in Stata, with default values of options, and with all variables included in the preferred model of Table 2 used to predict treatment assignment.

Several of our findings have policy relevance. Gender differences in willingness to move are unsurprising, but may nonetheless cause inefficient allocation of resources across an economy. The relative reluctance of women to move may be due in part to longstanding social norms, and continued efforts to promote women's aspirations as they progress through education and into the labour market may serve to weaken this reluctance. More generally, increased education (which is borderline significant in the IPWRA estimates) may promote mobility. The finding that those located in and around Newcastle are less likely than others to contemplate relocation is particularly interesting and suggests that policies aimed at disseminating information about positive opportunities elsewhere may be needed if further mobility is to be promoted.

Potential mobility is not, of course, the same as actual mobility. Those who are willing to move may not do so for a variety of reasons, including weak financial incentives. It is nonetheless instructive to examine the factors that influence such willingness. The survey used in the present note is unusual in that it enables research on this issue. It is hoped that further data collection will allow further insights to be gained in this space.

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