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The Social Attachment to Place

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Abstract:
Many theories either implicitly or explicitly assume that individuals readily move to locations that improve their financial well being. Other forces, however, counteract these tendencies; for example, people often wish to remain close to family and friends. We introduce a methodology for determining how individuals weight these countervailing forces, and estimate how both financial incentives and social factors influence the probability of geographic mobility in the Danish population from 2002 to 2003. Our results suggest that individuals respond to opportunities for higher pay elsewhere, but that their sensitivity to this factor pales in comparison to their preferences for living near family and friends.

Keywords: Location choice, regional migration, social factors, economic incentives

Jel codes: R23; O15; A13

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1 Introduction

Social scientists have long been engaged in documenting and analyzing the movement of people both from one country to another and from one place to another within countries.[1] In part, the migration of individuals is simply an interesting social phenomenon, but our preoccupation with geographic mobility reflects also the fact that a person's location has many important consequences. Even within countries, for example, regions differ in their average wages (Hicks, 1932; Scully, 1969), in their degrees of inequality (Nielsen and Alderson, 1997; Sørensen and Sorenson, 2007), in their levels of crime (Quetelet, 1835; Sampson and Raudenbush, 1999), in the quality of and returns to the education available in them (Card and Krueger, 1992), and in their local cultures (Reed, 1986; Griswold and Wright, 2004). Understanding geographic mobility, therefore, is important to a wide range of topics, including (but not limited to) inequality and stratification, identity and culture, and the evolution of ethnicities, industries and economies.

Perhaps the most commonly proposed driver of geographic mobility is the search for better employment opportunities.[2] Of course, this motivation sits at the heart of economic analyses of both international migration and within-country geographic mobility. Hicks (1932), for example, claimed that the majority of all relocations stemmed from individuals moving from lower- to higher-wage regions. But it also serves as an important component of many sociological analyses. The extensive literature on international migration, for example, frequently points to the prospect of earning more as a critical component underlying the movement of individuals from poorer countries to richer ones

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[1]Quantitative analyses of the phenomenon began more than 100 years ago (Ravenstein, 1885), and continue in earnest to the present day. Any attempt to describe this rich and extensive literature with some degree of justice would require a long article- if not a book-length treatment. For those interested, several reviews already exist. Greenwood (1975, 1997) and Ritchey (1976), for example, summarize the research on geographic mobility within countries, while Borjas (1999) and Peterson (1978) review the literature on international migration.

[2]The desire to escape persecution – whether ethnic, political or religious – also clearly contributes to the propensity to move (e.g., Shumsky, 1962), but it has received less attention in the literature and generally has much less relevance as a determinant of within-country geographic mobility.

(Portes and Borocz, 1989). Consistent with this idea that employment opportunities attract migrants, a long stream of empirical research has found both that movers most frequently cite the acceptance of and search for jobs as the reasons behind their relocations (Lansing and Mueller, 1967), and that relative differences in average incomes can account for a substantial portion of net interregional mobility (Sjaastad, 1962; Treyz et al., 1993).

The counterpoint to the search for improved economic circumstances is the desire to remain close to family and friends. Fewer people move than one would expect if individuals considered nothing more than their financial well being (Sjaastad, 1962), and one usually sees substantial migration flows not simply from lower income regions to higher ones but also in the opposite direction (Ravenstein, 1885). Social connections to family and friends can explain both of these regularities: If people derive satisfaction from their interactions with and propinquity to their loved ones, then they should only move for financial gains that far exceed the direct costs of moving, as the loss of time with family and friends imposes an added indirect cost (sometimes referred to as a "psychic" cost but perhaps more accurately labelled a social one). Some, having moved, may decide that these costs exceed the financial rewards and return to their hometowns. Further evidence of this social dimension appears in the long-lasting links between places: Migration creates social connections between regions; hence, one sees persistent patterns of migration between regions over time even after controlling for their proximity, populations and prosperity (Greenwood, 1969; Herting et al., 1997).

Both of these countervailing forces clearly operate. But as yet, social scientists have a relatively limited understanding of how individuals weight these tradeoffs and whether and how those weightings might vary across individuals. Despite our paucity of knowledge on these questions, the answers to them have important consequences both for regions and individuals. With respect to regions, how people trade off these factors in part

determines the persistence of regional differences in identity and economic well-being. Migrants contribute importantly both to the diffusion of ideas and to the movement of resources from one place to another (Park, 1928). Meanwhile, those individuals that place the greatest weight on remaining near to family and friends are likely to suffer most from regional disparities in income, wealth, health, education and crime.

We believe that two issues in particular have stymied a deeper understanding of how individuals trade off the economic and the social in location choice. On one hand, data appropriate to answering the question have been scarce. Understanding these processes requires individual-level data with information not only on the characteristics of individuals and the locations they might choose, but also ideally a means of measuring where their social connections reside. But perhaps more importantly, social scientists have not developed a methodology for addressing these issues. Of particular importance is the availability of the counterfactual. Even when one has information on individual wages, it is often difficult to say what that same individual might earn in another location. Many have tried to address this problem by focusing on differences in the average wages across regions (e.g., Greenwood, 1969), but wages can vary substantially across individuals and compositional differences from one region to the next – in terms of both the industries represented and the distribution of human capital available (Hanna, 1959; Todaro, 1969) – raise serious questions about the validity of the mean (or median) wage as a measure of the expected wage for any particular individual.

We address the data limitations by drawing on an unusually rich dataset covering all residents in Denmark from 1980 to 2003. In addition to providing detailed economic and socio-demographic information for all individuals in the population, the dataset also allows us to track individuals' residences and places of employment for this entire 23-year period. On the methodological side, we introduce a novel approach for estimating the degree to which individuals weight non-economic factors against potential economic

gain in their location choices. Using the fact that wages for a set of observable human capital characteristics vary from region to region (i.e. the returns to human capital differ across regions), we construct a set of earnings counterfactuals for each individual. We can then see how individuals trade off the potential income gains to moving against social considerations.

Our analyses focus on the decisions of where to work in 2003 among two samples of blue collar employees: (i) a random sample of those working anywhere in 2002, and (ii) all those employed at workplaces that closed sometime in 2002. We consider the latter sample more informative because it addresses the fact that individuals may vary (endogenously) in their propensities to consider changes in employment; indeed, our results suggest that failure to account for this fact leads to substantial *underestimation* of the degree to which individuals value social factors relative to economic ones. We find that individuals value (in order of importance from most to least): (i) proximity to their current homes, (ii) proximity to other places they have lived in the past 22 years, (iii) proximity to their hometowns, (iv) proximity to parents, (v) income, (vi) proximity to siblings, and (vi) proximity to high school classmates. To provide an example of the magnitudes of these preferences, the average Danish blue collar employee appears happy to accept as much as a 30% lower wage to halve the distance between his workplace and his home and a 4% lower wage to halve the distance between his job and the homes of either his parents or his siblings. Individuals, moreover, vary systematically in their preferences. Those with children interestingly value proximity to family and friends more than those without children, while those with spouses place less importance on being near to family and friends. Married individuals nonetheless appear much more sensitive to the distance between their homes and jobs; spouses' jobs appear to act as anchors when married individuals choose new employers.

2 Determinants of mobility

Our analysis of migration decisions assumes that individuals rationally compare the pros and cons of working in one region against those of other regions and then choose the one that offers the greatest net benefit on this calculation. It further assumes that one can decompose the pros and cons that regions provide into an additive set of salient regional characteristics.[3] For example, one region might offer a high salary while another offers proximity to one's parents. Given these assumptions, we can write the satisfaction (utility) that an individual i would receive from living and working in a particular region, j, as:

$$u_{ij} = \beta' x_{ij} + \epsilon_{ij}, \tag{1}$$

where x_{ij} represents a vector of region-specific attributes for individual i (e.g., wage or distance to parent's residence), β denotes a vector of weights that the individual assigns to each of those attributes, and ϵ_{ij} allows for error in individuals' evaluations of the satisfaction that they would receive from locating in region j—for example, because of other unobserved attributes of the region.

If individuals choose locations to maximize the utility specified in (1) and if we assume that the errors (ϵ_{ij}) arise from independent and identically distributed draws from an extreme value distribution (Type 1), then the probability that individual i chooses region j is:

$$P(y_i = j) = \frac{e^{\beta' x_{ij}}}{\sum_J e^{\beta' x_{ij}}} \tag{2}$$

We can estimate (2) and the weights for the regional characteristics with the conditional logit, also known as a McFadden choice model (McFadden, 1974).[4]

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[3]One can, however, relax the assumption of additivity by incorporating interaction effects in the analysis.

[4]One need not believe that people consciously evaluate all of this information. Individuals, for example, might encode these complex calculations into "feelings" about choices (Mellers et al., 1999). Our approach nonetheless assumes a degree of consistency in the choices made by individuals. To the extent that random or ephemeral factors influence their evaluations, we will have little ability to predict their

The conditional logit does entail an assumption of the irrelevance of independent alternatives (IIA).[5] In other words, the relative attractiveness of alternatives in the choice set should not vary with an expansion or contraction in the set of available options. For example, the addition of a suburb to the choice set should equally draw people from the city adjacent to it as well from more distant locations. Though such an assumption probably seems strong, one must recall that it only pertains to that portion of the choice probability not captured by the covariates in the model. Hence, in practice, the assumption can hold in a well-specified model. We return to this issue in our discussion of the results.

Using this approach, we can estimate the relative importance of the various attributes to individuals' decisions of where to work. Two sets of factors, in particular, interest us: the economic and the social.

2.1   Economic factors

As noted above, the most prominent factor used to describe why individuals move from one place to another is the search for better employment opportunities. Though anecdotal and historical accounts precede his research, Ravenstein (1885) is generally credited with the first quantitative analysis of migration. Using data from the census in the United Kingdom, he found that people systematically moved from rural areas to centers of commerce and industry – where presumably they could earn more – and identified this tendency as one of his "laws" of migration.

Since then, social scientists have found support for the importance of economic factors

choices.

[5]Despite this assumption, the use of the conditional logit has several advantages over other approaches (for an extended methodological discussion in the context of location choice, see Davies et al., 2001). Some, for example, have suggested the use of a nested logit model (White and Liang, 1998), estimating the decision to move in one stage and then the choice of where to move in a second stage. As opposed to the nested logit model, the conditional logit treats the decision of whether to move and where to move as simultaneous (and interdependent). We consider it unusual that people would decide that they should move (in the abstract), and then go about gathering information on alternatives and choosing a location.

to migration using a variety of methods. Some have used surveys to assess the reasons that people move. For example, in a representative sample of the United States, Lansing and Mueller (1967) found that 58% of movers claimed that economic reasons alone accounted for their decisions. Others have analyzed the observed patterns of geographic mobility. Early studies of this sort generally considered the net population flows between regions, such as states within the U.S. (e.g., Greenwood, 1969), but more recent ones have begun to use individual-level data (e.g., Davies et al., 2001; Scott et al., 2005). In both cases, however, researchers generally use the average wage across all employees in a region as a proxy for the quality of the employment opportunities available there.

Each of these approaches has its strengths and weaknesses. Though surveys provide insight into people's thinking, respondents may engage in *post hoc* rationalization. These surveys also select on those individuals that chose to move and therefore may not reflect the attitudes of the population as a whole. Meanwhile, in analyzing patterns of mobility, relying on average (or median) wages to proxy for the employment opportunities available to any particular individual raises a number of issues. For example, regions may differ in human capital and the industries represented in them. As a consequence, the average wage in a region might have little to do with what an individual would receive by moving there. Todaro (1969), for instance, discusses the fact that, though urban areas have much higher average wages than rural ones, an experienced farmhand might nonetheless expect *lower* wages in the city, given the mismatch of his skills to the needs of local employers. This reliance on the mean wage moreover becomes particularly problematic in analyses that explore variation in the propensity to move across individuals. For instance, does the decline in geographic mobility with age reflect the diminishing potential economic gains – or the rising social costs – to moving?

To understand how these employment opportunities might vary across individuals and regions, we would prefer to have a person-specific measure of them. The difficulty

with developing such a measure, however, is that the typical individual only works in one region. One therefore cannot easily say what he or she might earn elsewhere. One approach to addressing this issue, which we explore here, is to decompose the individual into a set of observable abilities and attributes. If we assume that employers would pay (roughly) equivalent wages to those with identical observable characteristics, we can then use the income of similar others in each region to estimate what an individual might expect to earn by moving there.

2.2   Social factors

One could imagine a wide variety of social factors as potentially important to people's choices of where to live and work. We focus here on two classes of factors—family and friends, and choice interdependencies.

Family and friends: One commonly cited reason for why we do not see greater geographic mobility is that people have strong preferences for staying near to family and friends. Propinquity allows for more frequent and more extended interaction between an individual and his or her loved ones. Though researchers have generally not had systematic data on the location of family and friends (for an exception, see Palloni et al., 2001), three lines of investigation appear quite consistent with this proposition. First, studies of mobility consistently find that people appear to move far less (and far shorter distances) than one would expect on purely economic grounds. Sjaastad (1962), for example, found that a $100 increase in the income per capita differential between two states only increased migration by about four percent (at a time when the average income was only $1,225). More recently, Davies et al. (2001) estimated that the average American would only consider a move to another state an attractive alternative if that state had a mean income of $170,820 to $238,659 more than their current state of residence. Since these differences clearly exceed the direct costs of moving to another location (particu-

larly when one considers that the migrant pays the cost of moving once but potentially receives the higher income for many years), the differential between the direct costs and these estimates has been assumed to reflect the utility lost by moving away from family and friends.

Second, the likelihood that any individual moves declines with their tenure in a region. Among movers, new acquaintances from within their regions of residence gradually supplant their old friends from past places. Lansing and Mueller (1967), for example, reported that only 24% of people who have lived in the same region less than two years claim that most of their friends live in the same city, compared to 86% of those who have lived in the same place more than five years. Consistent with the idea that people value proximity to these friends, studies also find that the probability of migration declines with an individual's tenure in the region (Goldstein, 1964; Land, 1969).

An assumption of the importance of social connections also underlies much of the research pointing to consistent patterns of migration between regions over time (Herting et al., 1997). Several mechanisms might support these flows. Friends and relatives that have previously moved to a region and established themselves there can provide social and financial support to those that follow. Connections between regions might also help potential migrants to assess more accurately the employment opportunities available at alternative locations (Greenwood, 1969). Lansing and Mueller (1967), for example, found that two-thirds of the movers in their sample migrated to regions in which a friend or relative of theirs already lived, and studies have consistently found that past migration flows between regions predict future flows (Greenwood, 1969; Herting et al., 1997). Two issues, however, arise in interpreting these results. First, prior movers offer at best a crude measure of the availability of friends and relatives in a particular destination region. The magnitude of this measurement problem moreover grows with the size of the origin region. Someone from a small town might know a large share of those that had moved from there

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to other places, but the probability that someone would know any given mover from one state to another approaches zero. But one also worries about endogeneity in the estimates. Prior migration flows capture any factor that predicts migration and therefore one cannot really say whether a preference for moving to these regions reflects the desire to follow family and friends or some other (potentially non-social) factor.

Choice Interdependencies: Perhaps the most commonly noted social factors in the literature on migration have been choice interdependencies. By interdependencies, we mean the fact that members of households must typically choose jointly to reside in some region. Although parents and children can commute to work and school, they would presumably prefer to limit their travel time and cost. The expected effect of these interdependencies on migration, however, is not clear. One might expect mobility to decline in situations when the decision affects multiple individuals—in married couples and even more so in households with children. Each household member bears the social costs of moving but only one may gain in terms of expected income, and if both spouses work, then both may need to find jobs in the new location (Mincer, 1978). But, one could also imagine the opposite. By moving as a unit, households can reduce the social costs of moving. The nuclear family itself can provide social support in the new location, and family members can share some of the responsibilities for integrating into the new place.

In terms of the empirical literature, the presence of children in a household has consistently been found to dampen the propensity to move (Long, 1972; Sandefur and Scott, 1981; Nivalainen, 2004). With respect to marriage, however, the evidence has been mixed. Using U.S. census data from 1955-1960, Bogue (1969) found that married couples moved more frequently than single individuals. However, Long (1974) reported the opposite tendency in a study using the 1965-1970 panel. These contradictory findings held even after accounting for differences in the employment status of wives. On the other hand, studies comparing dual-earner couples to single-earner households have consistently found a

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higher probability of migration among the latter (Lichter, 1980; Nivalainen, 2004). These studies nonetheless may confound interdependencies with changes in the potential economic returns to moving to another region over the life cycle.

Although the conditional logit specification prevents us from entering these demographic characteristics directly into the estimation (because they do not vary within individuals across regions and therefore the conditioning effectively purges them from the estimates), we can explore whether the weights assigned to economic and social factors vary within different segments of the population, such as among the married versus among the unmarried. We must do so, however, by effectively interacting these attributes with the characteristics of the regions.

3   Data and results

We analyzed data from government registers collected in the Integrated Database for Labor Market Research (referred to by its Danish acronym, IDA) maintained by Statistics Denmark. IDA holds comprehensive, annual data on every individual residing in Denmark. The database also links individuals to annual information about their respective employers, including their geographic location and industry classification. Most importantly for our analysis, the data allowed us to track the movements of people in geographic space and to connect them to their relatives.

Although we have panel data, our analyses focused on where individuals chose to work in 2003 on the basis of the attributes of those individuals and regions in 2002. Two factors motivated our focus on this single year. First, it allowed us to reduce the effects of unobserved heterogeneity in the data. By focusing on a single year, we effectively eliminated regional and national macroeconomic trends from the data. Second, our choice of a recent year allowed us to track as many individuals as possible to their hometowns.

We estimated our models on three separate samples. In all three cases, we excluded

all individuals under 19 and over 39. Those under 19 often move with their parents, and we could not track those over 39 to their hometowns because they left secondary school before the beginning of the IDA data. Next, we eliminated all employees of the public sector, as their expected wages do not vary meaningfully across regions in Denmark.

We also restricted our analyses to those employed in blue collar occupations in 2002 and 2003. Although blue collar workers only represent about half of the labor force in most modern economies, they nonetheless have two advantages for the purposes of our analysis. First, wages across industries vary far less for blue collar workers than they do for white collar workers, thereby simplifying the task of creating valid counterfactual wages. Second, our analysis in essence assumes that each individual could potentially find a job opening in each region in any particular year. For more specialized jobs, that assumption would almost certainly not hold. But blue collar workers have more fungible skills and therefore more likely can find employment in most regions.[6]

From the 284,882 individuals that met these criteria in 2002, we extracted three samples (all of identical size to ease comparisons across the samples): (1) a simple random sample of 5,627 individuals; (2) a random sample of 5,627 individuals that changed employers from 2002 to 2003 (roughly 13% of the 44,809 eligible); and (3) 5,627 individuals employed at establishments that closed in 2002.[7] Although the simple random sample may appear the obvious one for understanding the relative importance of economic and social factors across the population as a whole, we nonetheless explored these two other

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[6]One might nonetheless worry that this assumption proves overly strict for highly skilled blue collar employees (who more likely have industry-specific skills). To determine whether this assumption might influence our results, we split the sample into unskilled and skilled blue collar occupations. The two subsamples produced statistically equivalent results, so we do not believe that this issue unduly influences our analysis.

[7]We held the number of cases constant across samples so that differences in the significance of the coefficient estimates across samples would reflect real variation in the data rather than differences in statistical power. In the third sample – those employed at establishments that closed – we excluded residents of one kommune from the sample because the layoffs in that community accounted for more than 10% of the labor force. Because of the scale of those layoffs relative to the community size, the affected individuals may not have had viable options for employment within or near to their homes. Across the remaining communities included in the sample, the median closing affected only 0.1% of the local labor force.

samples for a variety of reasons. Most importantly, our methodological approach assumes that individuals consider the available alternatives each year and decide whether or not to continue in their current jobs and regions. Once an initial job has been found, however, many individuals may not consider alternatives unless they become dissatisfied with their employers (Vroom, 1964). As a result, the simple random sample may provide biased estimates of the relative weightings that individuals would place on economic and social factors when actively choosing a job.

A logical alternative would be to look only at those who changed employers, but not necessarily their region of employment (our second sample). These individuals almost certainly considered some alternatives when changing jobs and therefore the assumption that they actively made a choice seems more valid. This sample nevertheless has its own drawbacks. To some extent, it selects on the dependent variable. A whole host of people may have considered the alternatives to their current employers and have decided not to switch. The movers therefore may represent only those cases in which the benefits to moving exceeded the costs, either because they had a lot to gain by moving or because they placed unusually high or low weights on the social side of the equation.

To address the potential endogeneity in the decision to change employers, we considered a sample of individuals that had to find new jobs (for reasons unrelated to their personal performance on the job): those employed at establishments that closed in 2002. Because the closure of these places of business probably had little to do with the turnover of any one individual, we can consider the decision to move in this sample as exogenous to the attributes of the individual and their preferences across regions. As a result, it should offer the most accurate estimates of the weights that individuals place on various factors when actively trading off between locations.

Since our analysis uses the conditional logit to model location decisions, we structured each sample with one observation per person per region (in this case per township). In

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2002 and 2003, Denmark comprised 271 mutually exclusive and exhaustive administrative townships ("kommune" in Danish).[8] We therefore have 271 observations for each of the 5,627 blue collar workers in each of our samples (i.e. 1,524,917 individual-township observations per sample). Figure 1 depicts the distribution of these townships and their populations (with darker shadings representing more populous regions). In choosing an areal unit for analysis, we opted for the smallest unit available to provide the finest grain variation possible in our measures of economic and social attributes. Since we weight nearly all characteristics of regions by distance, the choice of areal unit should have little influence on our estimates.

Dependent variable: Individuals choose a location in which to work in 2003. The variable is set to one in the township chosen and to zero in the other 270 townships. Our models, therefore, estimate factors that influence the choice of where to work. Alternatively, one might imagine estimating the choice of a place of residence. In studies of international migration, these variables are generally one in the same, but in the study of within-country mobility, they potentially capture different factors. Though we suspect that an analysis of residential location could yield additional interesting insights, we focused on the place of work for multiple reasons. First, it should less obviously depend on social factors than place of residence. Even without changing jobs, one might move from one residence to another to be closer to family and friends. The more interesting question from our perspective is the degree to which these social attachments also restrict employment opportunities. Second, individuals may vary in their willingness to commute. Hence, estimates of place of residence potentially conflate these preferences with those for jobs. Finally, whereas we can use the closure of workplaces to identify exogenous changes in employment, we cannot think of similar means of identifying exogenous shifts

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[8]The four townships on the island of Bornholm merged in 2003, so we aggregated them for 2002 as well. We also dropped the island of Christiansø, which has only 55 residents, from the analysis.
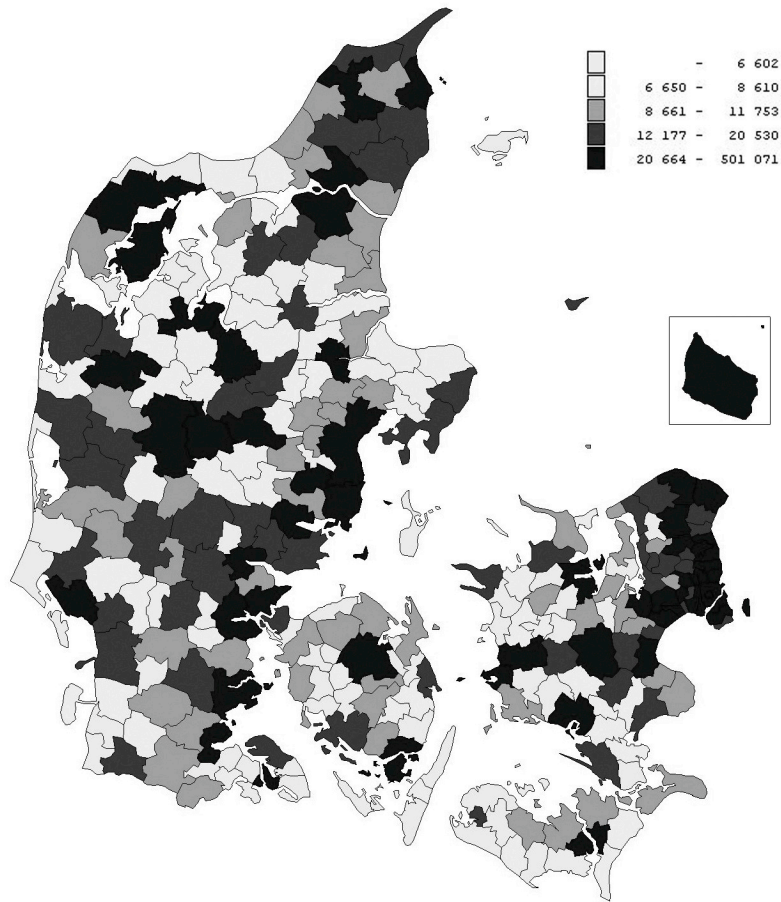
	-	6 602
6 650	-	8 610
8 661	-	11 753
12 177	-	20 530
20 664	-	501 071

Figure 1: Danish townships (kommuner) shaded by population

in residential location.[9]

Expected wages: As a measure of the potential economic gains to moving, we calculated a person-specific expected wage in each township in two stages. In the first stage, we estimated a standard wage equation separately for each township (to allow the values of abilities and attributes to vary across regions), regressing the logged wage of each employee in the region in 2002 on gender, marital status, the interaction between marital status and gender, number of children under the age of two, education, age, labor

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[9]Outside of Denmark, however, researchers might consider using natural disasters as a means of identifying exogenous shifts in residential location.

force experience, labor force experience squared, tenure at the current firm, and indicator variables for occupation level, moving to a new region, and changing employers.[10] Overall these coefficients appeared stable and consistent with prior research; Table 1 reports summary statistics for the coefficients from these 271 regressions (one for each township). We then used those coefficients, combined with the actual characteristics of each person in our sample, to construct individual-specific *expected wages* for each township.

Table 1: Wage equation coefficients

	All		Movers only		T-Test
	Mean	SE	Mean	SE	
Male	0.144	0.051	0.116	0.236	-1.943
Married	-0.036	0.033	-0.071	0.328	-1.736
Male × Married	0.081	0.049	0.116	0.315	-1.860
Children (0-2 years)	0.034	0.034	0.001	0.339	-1.638
Gymnasium	0.088	0.030	0.081	0.242	-0.506
College	0.212	0.097	0.223	0.267	0.652
Age	-0.001	0.002	-0.002	0.043	-0.330
Experience	0.044	0.009	0.048	0.088	0.705
Experience^2	-0.001	0.000	-0.001	0.004	-1.420
Firm tenure	0.001	0.002	0.007	0.045	2.323
Skilled occupation	0.024	0.050	0.034	0.267	0.593
Mover	0.002	0.060			
Job change	-0.113	0.074			
Constant	11.830	0.122	11.881	1.030	0.825
R^2	0.338	0.055	0.367	0.180	
N	2379.4	5130.0	178.9	329.4	
Average actual wage	255,151	83,231	243,654	89,612	
Average expected wage	209,417	45,531	202,512	44,765	

Summary of the results of 271 regressions of 2002 wage, one per township.

Though this construct provides a useful counterfactual for what a specific individual could earn in another township, one might nevertheless question whether movers could really expect the same returns to their attributes as incumbents in a township. For example, those with deep connections in a region might find themselves better positioned

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[10]Exploration of the data suggested that the returns to education occurred in steps more than as a continuous function of years. We therefore coded education into three categories: *Folkeskole* (primary education ending around age 15), *Gymnasium* (three years of secondary schooling) and college. For occupations, the IDA includes two classifications for blue collar workers, corresponding roughly to skilled and unskilled.

in the search for employment and consequently find jobs better suited to their abilities. To address this possibility we re-estimated the wage equations using only those blue collar workers that moved regions (from 2001 to 2002). The right-most column reports t-tests of whether movers had different returns to their abilities and attributes than the population as a whole. Since the two groups differ significantly only on firm tenure (possibly an artifact of the attenuated firm tenure distribution of movers), we report only estimates using the population coefficients.[11]

We used the estimated coefficients from these equations to compute the expected wage an individual with these observable attributes would receive if he or she moved to that region. We do, however, set the firm tenure to zero and mover and job change indicators to one for townships other than the individual's current township of employment. Alternatively, one might substitute the actual 2002 wage for the predicted wage in the township in which the individual worked in 2002, but that causes at least one potential problem.[12] The actual wage captures returns to both observed and unobserved characteristics, while the predicted wage depends only on observable abilities and attributes; mixing the two could potentially bias the comparisons of the current place of employment relative to other opportunities.

Family and friends: We constructed several variables to capture the potential effects of family and friends. First, we calculated the logged distance in kilometers between each person's home address in 2002 and the centroid of each township to which the individual might move (or stay) in 2003 (*distance to home*).[13] Although this variable, in part, captures an individual's interest in staying close to extended family, friends

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[11]Estimates using an expected wage measure created from the coefficients of the wage equations for movers only nonetheless produced similar results.

[12]In practice, however, using the actual wage instead of the predicted wage has no meaningful effect on the point estimates. We nonetheless report only models using the predicted wages for all locations.

[13]A comparison of logged distance to a ten-piece spline showed almost no difference between the two. Consequently, we report estimates using the simpler logged distance specification.

and colleagues, we refrain from interpreting it as primarily reflecting a preference for maintaining social connections. This distance measure might also capture a number of non-social factors, such as the direct costs of commuting or moving.

To measure the influence of family more precisely, we developed two measures: First, we located both parents of each individual and included an indicator variable denoting their location(s) in 2002. We then calculated the logged distance in kilometers from each township to these locations, creating a *distance to parents* measure. If the parents lived at different addresses, we averaged the distance from the township to each parent. Next, we constructed a parallel measure for siblings. Our measure includes half-siblings because we identified siblings as all individuals that shared at least one parent with the focal individual. Once again, our measure, *distance to siblings*, averaged the logged distance in kilometers from these individuals' home addresses in 2002 to the centroid of each township in cases with more than one sibling.

We also developed three measures to assess the importance of friends. First, we attempted to identify each individual's home town(ship). People often maintain particularly strong connections with their hometowns and continue to identify with them even years after moving elsewhere. Although we cannot track where a person lived for the entire duration of his or her childhood (at least not for those over 23 years of age), we can determine the secondary school from which he or she graduated. We therefore calculated *distance to hometown* as the logged distance in kilometers from the location of their secondary school to the centroid of each township. Since people also probably form relationships in every place in which they have lived, we next constructed a second measure: *distance to prior residences*. We first identified every place that the individual has lived since 1980. We then calculated and averaged the logged distance between each of these locations and every township.[14]

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[14]Since friendships within a region form over time, one would expect the intensity of attachment to a region to increase with the time lived there. We therefore experimented with weighting regions according to the time lived there (and the recency of residency). Both of these adjustments incrementally improved

Finally, we included a measure of prior migration flows by probable *friends*. As noted above, in general, measures of prior mobility have the potential to confound social forces with other factors affecting migration (including those with no social component). We nevertheless refined this measure in two ways: (1) To reduce measurement error, we focused on movers in the same high school graduation class as the individual in question. Since friendships sort strongly on age and common membership in organizations (Feld, 1981; McPherson et al., 2001), these individuals represent a set more likely to include friends of the individual in question. (2) To reduce the unobserved heterogeneity problem, we normalized these numbers according to the movement of individuals from *other* cohorts (i.e. other graduating classes) between the two townships. If one assumes that cohorts face a relatively stable set of unobserved influences on their location choices, then this adjustment should net out this unobserved heterogeneity. For each individual then, we counted the number of former classmates from the same graduating year and secondary school living in each township in 2002, and divided this count by the number of individuals from the same school in each township that graduated either one year before or after the focal individual.

Controls: We also controlled for two other features of regions that may influence individuals' choices of locations. First, we included an indicator variable for the township of an individual's employment in 2002. This variable, *work region*, should help to account for the fact that many people may not actively consider alternative jobs each year and therefore remain employed in the same township. But it also controls for the possibility that the potential employers for an individual cluster in some location, thereby limiting the availability of choices elsewhere. Second, we included the *region size*, measured in terms of the logged number of employees in the township. More populous regions of-

the fit, but we report this simpler measure for ease of interpretation and comparison.

Table 2: Descriptive statistics

Variable	Random sample Mean	SD	Employer change Mean	SD	Plant closings Mean	SD
Expected wage (Danish kroner)	209,417	45,531	202,512	44,765	208,458	45,147
Ln expected wage	12.228	0.222	12.194	0.224	12.224	0.221
Distance to home (km)	74.196	39.157	74.420	39.683	79.363	44.085
Ln distance to home	4.119	0.745	4.115	0.758	4.167	0.780
Distance to parents (km)	45.410	47.531	51.042	47.714	48.709	50.561
Ln distance to parents	2.517	2.093	2.821	2.014	2.599	2.101
Distance to siblings (km)	60.272	45.497	59.494	45.899	62.305	48.788
Ln distance to siblings	3.349	1.742	3.304	1.770	3.341	1.782
Distance to hometown (km)	63.932	44.783	66.773	44.300	67.293	47.968
Ln distance to hometown	3.533	1.601	3.673	1.471	3.580	1.605
Distance to prior residences (km)	73.316	38.016	73.375	38.279	78.019	42.541
Ln distance to prior residences	4.120	0.708	4.119	0.712	4.166	0.738
Friends	0.474	2.464	0.520	2.573	0.499	2.371
Work region	0.004	0.061	0.004	0.061	0.004	0.061
Region size	6,941	17,419	6,941	17,419	6,941	17,419
Ln region size	8.096	1.049	8.096	1.049	8.096	1.049
N (individuals)	5,627		5,627		5,627	
N (regions)	271		271		271	

fer a wider range of amenities and potential employers, but people may also prefer the lower cost of living and social integration of small towns. Descriptive statistics for these variables appear in Table 2.

4 Results

Table 3 reports the results of our first set of analyses, comparing the three samples. Across all three samples, we can see that both economic and social factors influence individuals' location choices. The results also change quite substantially from the simple random sample (model 1) to the samples of those changing employers (model 2) and of those previously employed at establishments that closed (model 3). The latter two appear much *less* sensitive to wage differentials across regions and somewhat more concerned with locating near to parents and friends. These differences most probably stem from selection

bias in the random sample. Most of the information in the conditional logit comes from the movers (the stayers load heavily on the *work region* variable). In the random sample, we essentially assume that all individuals actively choose each year whether to stay at their jobs or to move to a new one. But in the random sample, this assumption almost certainly does not hold. Moreover, the likelihood of engaging in such calculations probably varies across individuals. Those more ambitious and career-oriented more frequently look for and move to new employers. The results from the random sample therefore over-represent their preferences. The samples of job changers therefore should provide better information about the relative valuation of the various factors in the population as a whole.

Table 3: Conditional logit estimates of work location in 2003

	Model 1 Random sample	Model 2 Employer change	Model 3 Plant closing
Ln expected wage	2.726**	0.916**	0.710**
	(0.388)	(0.194)	(0.218)
Ln distance to home	-0.487**	-0.632**	-0.546**
	(0.046)	(0.023)	(0.026)
Ln distance to parents	-0.007	-0.034	-0.085**
	(0.044)	(0.021)	(0.023)
Ln distance to siblings	-0.176**	-0.129**	-0.080**
	(0.038)	(0.017)	(0.019)
Ln distance to hometown	-0.142**	-0.115**	-0.162**
	(0.035)	(0.017)	(0.018)
Ln distance to prior residences	-0.533**	-0.524**	-0.479**
	(0.067)	(0.034)	(0.036)
Friends	0.017**	0.032**	0.037**
	(0.004)	(0.002)	(0.002)
Work region	5.021**	1.276**	2.378**
	(0.059)	(0.044)	(0.041)
Ln region size	0.363**	0.652**	0.689**
	(0.025)	(0.013)	(0.014)
Pseudo-R^2	0.86	0.49	0.60
Log-likelihood	-4,257	-15,996	-12,536
N	5,627	5,627	5,627

Standard errors reported in parentheses.
Significance levels :   † : 10%   ∗ : 5%   ∗∗ : 1%

Between the two samples of job changers, the estimates do not differ drastically. We

nonetheless focus for the remainder of the paper on the results from the sample of those employed in 2002 at work locations that closed. The second sample, those that changed employers from 2002 to 2003, conflates at least two groups – those that moved voluntarily and those laid off or fired (potentially for poor performance) – that may differ from each other as well as from the population as a whole. By contrast, the job losses in the third sample stem from factors exogenous to the preferences or abilities of any particular employee.[15]

In model 3, all economic and social factors significantly predict choices of where to work. The more interesting information therefore regards the relative magnitude of these coefficients. In interpreting these magnitudes, we find it useful to convert the coefficients into dollar equivalents.[16] We do so by calculating the point at which the average individual would consider the increased satisfaction due to an increase in their expected wage (Δ_{wage}) equally attractive to the lost satisfaction from being further from family and friends (Δ_x):

$$\beta_{wage}\Delta_{wage} = \beta_x\Delta_x, \tag{3}$$

where β_{wage} and β_x are the conditional logit coefficients for, respectively, the expected wage and some social factor. For those variables specified in terms of logged distance, the tradeoff expected for a one unit increase in distance varies as a function of distance. One intuitive way to interpret these coefficients is in terms of the effect of a doubling in distance:

$$\Delta_{wage} = \exp^{\frac{\beta_x \ln 2}{\beta_{wage}}} \tag{4}$$

Equation 4 produces figures in terms of percentage differences in income (because of the logging of expected income in the models), but we can convert them to average dollar

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[15]Consistent with this assumption, comparisons of the demographics of the third sample to the blue collar workforce as a whole did not reveal any significant differences between the two.

[16]We converted the values from Danish kroner to U.S. dollars using the exchange rate on Jan 1, 2003: 7.0761 DKK = 1 USD.

equivalents by evaluating these percentage changes in income at the average expected wage. Table 4 reports these values.

Table 4: Tradeoffs for annual income (U.S. dollar equivalents)

	Random sample	Employer change	Plant closing
Doubling distance to home	$2,190	$9,434	$11,185
Doubling distance to parents	$28	$401	$1,374
Doubling distance to siblings	$732	$1,578	$1,290
Doubling distance to hometown	$588	$1,399	$2,722
Doubling distance to prior residences	$2,322	$7,487	$9,471
More friends (1 SD)	$490	$2,633	$4,549
Average wage	$31,993	$30,769	$31,770

Consider, for example, the results from model 3 (plant closing). When comparing two potential jobs – one six miles from her home and the other twelve miles away (i.e. double the distance) – an individual would prefer the closer job unless the more distant job paid at least $11,185 more per year. Imagine that she also lived next door to her sister, then the more distant job would need to pay at least $12,475 ($= 11,185 + 1,290$) more for her to prefer it. These values are large. The average blue collar worker in Denmark earned roughly $32,000 in 2003, so the results imply that the typical individual would need to expect a substantial increase in income to justify even a short move. Longer potential moves, that would entail more than a doubling of distance, would require even larger offsetting expected wage gains.

Some might worry that these values seem too large. But of course if people placed lower values on staying near to family and friends then we would expect much higher rates of geographic mobility (unless some other factor produced geographic inertia). Moreover, our estimates actually appear modest compared to those found in prior studies. For example, in one of the few other studies that attempted to estimate the gains in expected income required to move – using average per capita wages in a state to proxy for expected income – Davies et al. (2001) calculated that the average American in 1996 would only

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consider some other state equally attractive if it had per capita income of at least $170,820 more than his or her current state of residence (more than six times the average per capita income).

Table 5: Standardized coefficient estimates

	Random sample	Employer change	Plant closing
Distance to home	-.345	-.479	-.426
Distance to prior residences	-.378	-.373	-.354
Distance to hometown	-.228	-.169	-.260
Distance to parents	-.015	-.068	-.179
Expected wage	.561	.190	.146
Distance to siblings	-.306	-.229	-.143
Friends	.042	.083	.088

Though the dollar equivalents help us understand how individuals trade off income versus social factors, they do not provide direct intuition regarding the relative importance of various factors in the choice of where to work. To assess this relative importance, in table 5, we report the regression coefficients standardized by normalizing the independent variables to have means equal to zero and standard deviations of one (Menard, 2004). We continue to focus on the estimates from the sample employed at workplaces that closed. Among this sample, the most important factor in choosing a new job is its proximity to the person's home in 2002. Though one might consider this effect "social", this measure captures not only the value of extended family and friends not directly observed but also such non-social factors as the direct costs of commuting or moving households. Next most important is proximity to places where the person has lived in the past (both prior residences and hometown). These places probably proxy for relationships to the people living there, though people may also simply develop preferences for familiar places. Following these places, proximity to parents weights next most heavily in choices of work locations, followed by the potential to earn more income, proximity to siblings and proximity to friends. Among all the factors influencing the choice of locations, the

potential for income gain actually ranks quite low.

Table 6: Conditional logit estimates of location choice in 2003 by age

	Model 4 Age 19-25 Random sample	Model 5 Age 26-32 Random sample	Model 6 Age 33-39 Random sample	Model 7 Age 19-25 Plant closing	Model 8 Age 26-32 Plant closing	Model 9 Age 33-39 Plant closing
Expected wage	1.931**	3.079**	3.102**	-0.299	1.095**	0.993**
	(0.662)	(0.655)	(0.700)	(0.435)	(0.366)	(0.351)
Distance to home	-0.165†	-0.464**	-0.643**	-0.380**	-0.548**	-0.592**
	(0.098)	(0.078)	(0.077)	(0.066)	(0.042)	(0.039)
Distance to parents	-0.046	-0.084	-0.049	-0.129*	-0.137**	-0.069†
	(0.091)	(0.075)	(0.081)	(0.054)	(0.037)	(0.039)
Distance to siblings	-0.162*	-0.197**	-0.111†	-0.034	-0.104**	-0.068*
	(0.068)	(0.064)	(0.065)	(0.042)	(0.032)	(0.031)
Distance to hometown	-0.212**	-0.113†	-0.165*	-0.288**	-0.159**	-0.086**
	(0.058)	(0.060)	(0.065)	(0.034)	(0.029)	(0.031)
Distance to prior residences	-0.670**	-0.568**	-0.463**	-0.602**	-0.410**	-0.494**
	(0.145)	(0.119)	(0.108)	(0.098)	(0.062)	(0.053)
Friends	0.049**	0.017*	0.013**	0.066**	0.037**	0.033**
	(0.006)	(0.008)	(0.003)	(0.007)	(0.005)	(0.003)
Work region	4.571**	4.988**	5.311**	1.902**	2.332**	2.619**
	(0.114)	(0.098)	(0.101)	(0.093)	(0.067)	(0.062)
Region size	0.446**	0.331**	0.335**	0.746**	0.695**	0.662**
	(0.049)	(0.041)	(0.041)	(0.032)	(0.023)	(0.022)
Pseudo-R^2	0.80	0.86	0.90	0.59	0.59	0.62
Log-likelihood	-1,266	-1,491	-1,441	-2,779	-4,596	-5,101
N	1,154	1,886	2,587	1,209	2,017	2,401

Standard errors reported in parentheses. Significance levels : $\dagger$: 10% $*$: 5% $**$: 1%

Table 6 explores how the weights that individuals assign to various factors shift with age.[17] These changes appear quite intuitive. With age, the importance of income increases substantially. Individuals also appear to become somewhat more attached to their homes over time. This second trend may reflect the greater costs to moving that home owners face, but we cannot test whether it stems from home ownership directly because we do not know whether the individuals in our sample rent or own their places of residence. The strength of most more clearly social factors, however, from the attachment to one's hometown to the importance of living near to family and high school classmates declines.

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[17]Gender is another obvious dimension along which to examine differences. We explored these differences, but, given the complexity of the results, decided that they should appear in a separate paper.

Table 7: Conditional logit estimates of location choice in 2003 by family status

	Model 10 No children Random sample	Model 11 Children Random sample	Model 12 Single Random sample	Model 13 Married Random sample	Model 14 No children Plant closing	Model 15 Children Plant closing	Model 16 Single Plant closing	Model 17 Married Plant closing
Expected wage	3.161**	1.950**	3.429**	0.973	1.015**	0.349	0.689**	0.823*
	(0.490)	(0.637)	(0.465)	(0.703)	(0.291)	(0.331)	(0.266)	(0.384)
Distance to home	-0.441**	-0.519**	-0.452**	-0.514**	-0.429**	-0.677**	-0.448**	-0.717**
	(0.062)	(0.071)	(0.059)	(0.078)	(0.035)	(0.038)	(0.033)	(0.043)
Distance to parents	-0.074	0.012	-0.022	-0.058	-0.095**	-0.093**	-0.095**	-0.062
	(0.057)	(0.071)	(0.053)	(0.081)	(0.031)	(0.035)	(0.028)	(0.040)
Distance to siblings	-0.212**	-0.090	-0.176**	-0.154*	-0.067**	-0.090**	-0.099**	-0.033
	(0.048)	(0.061)	(0.045)	(0.068)	(0.026)	(0.029)	(0.024)	(0.034)
Distance to hometown	-0.145**	-0.159**	-0.153**	-0.146*	-0.168**	-0.158**	-0.185**	-0.123**
	(0.044)	(0.059)	(0.042)	(0.067)	(0.024)	(0.028)	(0.022)	(0.033)
Distance to prior residences	-0.437**	-0.679**	-0.500**	-0.629**	-0.580**	-0.361**	-0.550**	-0.369**
	(0.090)	(0.102)	(0.085)	(0.113)	(0.051)	(0.053)	(0.046)	(0.060)
Friends	0.026**	0.013**	0.024**	0.013**	0.041**	0.034**	0.039**	0.035**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Work region	4.849**	5.261**	4.866**	5.365**	2.255**	2.504**	2.304**	2.496**
	(0.076)	(0.097)	(0.070)	(0.112)	(0.055)	(0.060)	(0.050)	(0.069)
Region size	0.370**	0.363**	0.365**	0.371**	0.692**	0.706**	0.677**	0.736**
	(0.032)	(0.040)	(0.030)	(0.045)	(0.019)	(0.022)	(0.017)	(0.025)
Pseudo-R^2	0.84	0.89	0.85	0.89	0.59	0.62	0.60	0.61
Log-likelihood	-2,572	-1,661	-2,915	-1,322	-7,056	-5,452	-8,352	-4,157
N	2,929	2,698	3,566	2,061	3,076	2,551	3,700	1,927

Standard errors reported in parentheses. Significance levels : † : 10% * : 5% ** : 1%

We also explored whether choice interdependencies influence the weighting of economic and social factors. In particular, do those with children or spouses behave differently in their choices of work locations. The estimates of these analyses appear in table 7. Table 8 reports the conversions of these coefficient into dollar values.

Comparing the estimates from the random sample to those from the sample employed at plants that closed reveals an interesting fact. In the random sample, those facing choice interdependencies – either because they have spouses or children – appear to place a lower value on wages. But, in the plant closing sample, the relative weighting reverses for those with spouses: married individuals place higher weights on the relevance of wages. As we noted above, the random sample reflects disproportionately the values of those with stronger career orientations. The heterogeneity in career orientation appears more pronounced among those without independencies—the unmarried and the childless. Indeed, the most career-oriented individuals may even forgo these interdependencies to concentrate on their jobs.

The estimates from the sample of those employed at plants that close therefore suggest an interesting pattern not seen in prior research. Though many have interpreted the fact that married individuals move less as evidence of the fact that they place greater value on family and friends, when forced to find a new job, these individuals actually appear more sensitive to the potential for income gain. Given that others often depend on their income as well, it seems sensible that they would care about the income offered by various potential jobs. The lesser mobility of these individuals instead probably reflects some combination of: (i) a much lower likelihood of looking for a new job, (ii) an increased attachment to home location (perhaps due to home ownership), and (iii) self-selection of the most career-oriented out of these sets.

Table 8: Tradeoffs for annual income (U.S. dollar equivalents)

	Random sample		Plant closing	
	No children	Children	No children	Children
Doubling distance to home	$1,525	$3,043	$5,067	$42,224
Doubling distance to parents	$246	-$64	$998	$3,020
Doubling distance to siblings	$715	$488	$697	$2,913
Doubling distance to hometown	$485	$873	$1,810	$5,487
Doubling distance to prior residences	$1,511	$4,100	$7,234	$15,603
More friends (1 SD)	$608	$492	$3,077	$7,970
Average wage	$30,004	$34,244	$29,771	$34,382

	Random sample		Plant closing	
	Single	Married	Single	Married
Doubling distance to home	$1,437	$1,645	$8,476	$15,736
Doubling distance to parents	$67	$177	$1,493	$958
Doubling distance to siblings	$544	$475	$1,559	$502
Doubling distance to hometown	$472	$450	$3,045	$1,961
Doubling distance to prior residences	$1,597	$2,036	$11,000	$6,691
More friends (1 SD)	$516	$993	$4,400	$3,248
Average wage	$30,616	$34,519	$30,342	$34,692

In addition to some limitations in our ability to measure certain factors (e.g., home ownership), our estimation approach has at least one potential weakness. As noted above, the conditional logit model assumes an equal probability of choosing each region, net of the observed characteristics (the IIA assumption). We assessed the sensitivity of our results to this assumption in two ways. First, we ran tests of the sensitivity of the results to the removal of each of the regions from the choice set. Although these tests suggested that our models do not violate the IIA assumption, monte carlo simulations have found that such tests can generate false negatives even in large samples (Cheng and Long, 2007). We therefore re-estimated models 1 through 3 using the mixed logit, which does not assume IIA, with random coefficients for each of the independent variables (Train, 2003).[18] Since the mixed logit produced similar average coefficients and the coefficients generally varied little across individuals, we have reasonable confidence that the IIA assumption does not prove a problem in these models.

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[18]The mixed logit nevertheless comes at a cost, in terms of the time required to estimate the models. Even with exclusive access to a state-of-the-art server, the estimation of all of our models using the mixed logit would have required multiple weeks of computer time.

5 Discussion

Dozens if not hundreds of studies on within-country and international migration have pointed both to economic and to social factors as important determinants of why and where individuals move. Despite this enormous body of research, we nevertheless have relatively little sense of the relative importance of these factors for two reasons: First, researchers have generally either not been interested in, or have not had data appropriate to testing, both sorts of explanations. Second, researchers have found it difficult to assess the potential economic gains that an individual might accrue by moving to a new location.

We have advanced this body of research by exploiting an unusually rich data source, covering all residents of Denmark, and by developing a methodology for estimating expected wages in each region specific to the individual, on the basis of regional differences in the returns to education, experience and demographic characteristics. We have further refined prior research by identifying a sample of individuals who choose new employers for reasons exogenous to their own preferences and abilities and attributes, and consequently where selection bias does not plague the results: those employed at workplaces that close.

Our results reveal that Danish blue collar workers place very high weights on social factors when considering where to work. From most to least important, Danes care about proximity to their current residence, proximity to past places they have lived, proximity to their hometown, proximity to their parents, income, proximity to their siblings and proximity to their high school classmates. For the typical Dane, therefore, social factors swamp economic considerations in their choices of where to work.

Although we interpret these findings as primarily reflecting individuals' preferences for family and friends, it is also possible that family and friends serve as sources of information on job opportunities and the prevailing wages in other regions. Individuals therefore may move near to them because those are the regions in which they have the best information about the available jobs.

Though we believe that the unusual quality of the data justified focusing on the Danish case, one might worry that our results would not extrapolate to other countries, particularly ones such as the United States where people have more recent roots in regions. Two facts, however, suggest otherwise. First, within geographic units of similar size (i.e. within state mobility in the U.S.), Danes appear as mobile as Americans (if not more so). Granted, it is difficult to extrapolate to larger scales because the equivalent in distance of a move from Boston to Los Angeles would land a Dane in Kuwait or the Canary Islands, but the similarity in mobility rates at smaller scales at least suggests some comparability. Second, estimates of how Americans trade off gains in expected income against moving have found even lower sensitivity to income gains (Davies et al., 2001; Kennan and Walker, 2003; Bayer and Jussen, 2006), hinting that Americans may value family and friends *more* highly on average and therefore exhibit less mobility than Danes.

Perhaps a larger issue in terms of extrapolation stems from our decision to include only blue collar workers in our samples. As a consequence, we cannot address the potential differences between white and blue collar employees in their location decisions. Although we leave this question for future research, we nonetheless consider it important for at least two reasons. First and foremost, white collar workers appear to differ from blue collar workers in that they move more frequently (Bogue, 1969). Whether that movement reflects greater differences across regions in the amount that they might earn or lower levels of social attachment, however, remains an open question, though we suspect the former. Second, given the increasing centrality of white collar workers to modern economies, their mobility has important implications for whether and at what level – local, state or national – governments should subsidize their training.

The fact that individuals weight social factors much more heavily than economic ones in deciding where to work and live nonetheless has important implications for both research and public policy. Most immediately, it suggests that labor markets operate at

quite local levels. Since even relatively large differences in income are insufficient to entice most individuals to move, the set of jobs realistically of interest to the typical individual would include only those in a relatively restricted geographic radius from his or her home. In this sense, our results suggest a slight reinterpretation of the spatial mismatch literature. That research has proposed that the gap between minorities and non-minorities on a variety of employment outcomes stems from the fact that residential segregation leaves minorities further from and consequently less able to travel to high quality jobs than non-minorities (Kain, 1968; Wilson, 1987; for a review, see Fernandez and Su, 2004). But even if minorities had better transportation options available, our results suggest that distances on the order of tens of miles would still reduce the attractiveness of more distant employment opportunities.

In terms of public policy, the reluctance of individuals to move for economic reasons suggests that policies aimed at dealing with depressed regions should probably target the creation of jobs in those regions rather than trying to encourage residents of the region to move elsewhere. Consistent with this idea, past attempts to encourage people to move have often failed. For example, Sweden experimented from 1959 to 1987 with providing grants for the employed to move to new locations (where presumably they could more easily find jobs). Westerlund (1998) found no evidence that these grants had any effect on the geographic mobility of the unemployed. Of course, given that these grants never amounted to more than about 10% of what an average employee earned in a year, our estimates would also predict that they should have had little to no effect.

The fact that individuals primarily attend to social factors in the choice of where to work further suggests that even very large differences in wages across regions can persist indefinitely. If individuals rarely move to higher paying regions to arbitrage these wage differentials, then the primary force for equilibration comes from companies moving to regions with lower wages. But even from the side of the employer, investments in physical

plant and the training of existing employees – who themselves would prefer not to move – strongly anchors existing firms to their current locations.

Indeed, the importance of social factors to location choice suggests that differences in a wide range of behaviors and outcomes can remain stable across regions, even within countries, over long periods. Most individuals will not move because doing so would distance them from family and friends. Those individuals that do move, moreover, may move precisely because they have been more weakly integrated into the local community (Wirth, 1938). When they move then, they may do little to draw others out of the old community and into the new one. As a result, communities remain somewhat isolated through choice. Differences in culture and language persist even to the modern day in the face of rapid communications and relatively cheap and plentiful transportation.

Academics – particularly those at research-oriented universities – often feel that the world has become flat and that individuals lead increasingly global lives. Our social networks span states if not continents. Moving from one institution to another almost requires moving from one city or region to another. But our experience is more the exception than the rule. The majority of people even in the modern Western world lead highly local lives, not by constraint but by choice. As a result, location importantly influences a range of outcomes, from health and wealth to happiness and safety.

References

Bayer, Christian and Falko Jussen. 2006. "A generalized options approach to aggregate migration with an application to U.S. federal states." Working paper, University of Dortmund.

Bogue, Donald J. 1969. *Principles of Demography*. New York: Wiley.

Borjas, George J. 1999. "The economic analysis of immigration." In *Handbook of Labor Economics*, edited by A.C. Ashenfelter and D. Card, volume 3. Amsterdam: Elsevier.

Card, David and Alan B Krueger. 1992. "Does school quality matter? Returns to education and the characteristics of public schools in the United States." *Journal of Political Economy* 100:1–40.

Cheng, Simon and J. Scott Long. 2007. "Testing for IIA in the multinomial logit model." *Sociological Methods and Research* 35:583–599.

Davies, Paul S., Michael J. Greenwood, and Haizheng Li. 2001. "A conditional logit approach to U.S. state-to-state migration." *Journal of Regional Science* 41:337–360.

Feld, Scott L. 1981. "The focused organization of social ties." *American Journal of Sociology* 86:1015–1035.

Fernandez, Roberto M and Celina Su. 2004. "Space in the study of labor markets." *Annual Review of Sociology* 30:545–569.

Goldstein, Sidney. 1964. "The extent of repeated migration: An analysis based on the Danish population register." *Journal of the American Statistical Association* 59:1121–1132.

Greenwood, Michael J. 1969. "An analysis of the determinants of geographic labor mobility in the United States." *Review of Economics and Statistics* 51:189–194.

Greenwood, Michael J. 1975. "Research on internal migration in the United States: A Survey." *Journal of Economic Literature* 13:397–433.

Greenwood, Michael J. 1997. "Internal migration in the United States: A survey." In *Handbook of Population and Family Economics*, edited by M.R. Rosenzweig and O. Stark. Amsterdam: Elsevier.

Griswold, Wendy and Nathan Wright. 2004. "Cowbirds, locals, and the dynamic endurance of regionalism." *American Journal of Sociology* 109:1411–1451.

Hanna, Frank A. 1959. *State Income Differentials*. Durham, NC: Duke University Press.

Herting, Jerald R, David B Grusky, and Stephen E van Rompaey. 1997. "The social geography of interstate mobility and persistence." *American Sociological Review* 62:267–287.

Hicks, John R. 1932. *The theory of wages*. London: Macmillan.

Kain, John F. 1968. "Housing segregation, negro employment and metropolitan decentralization." *Quarterly Journal of Economics* 82:175–197.

Kennan, John and James R Walker. 2003. "The effect of expected income on individual migration decisions." Technical report, NBER Working Papers 9585.

Land, Kenneth C. 1969. "Duration of residence and prospective migration: Further evidence." *Demography* 6:133–140.

Lansing, John B and Eva Mueller. 1967. *The Geographic Mobility of Labor*. Ann Arbor, MI: Institute for Social Research.

Lichter, Daniel T. 1980. "Household migration and the labor-market position of married-women." *Social Science Research* 9:83–97.

Long, Larry H. 1972. "The influence of number and ages of children on residential mobility." *Demography* 9:371–382.

Long, Larry H. 1974. "Women's labor force participation and the residential mobility of families." *Social Forces* 52:342–348.

McFadden, Daniel. 1974. "Conditional logit analysis of qualitative choice behavior." In *Frontiers of Econometrics*, edited by P. Zarembka, pp. 105–142. New York: Academic Press.

McPherson, J Miller, Lynn Smith-Lovin, and James M Cook. 2001. "Birds of a feather: Homophily in social networks." *Annual Review of Sociology* 27:415–444.

Mellers, Barbara, Alan Schwartz, and Ilana Ritov. 1999. "Emotion-based choice." *Journal of Experimental Psychology* 128:332–345.

Menard, Scott. 2004. "Six approaches to calculating standardized logistic regression coefficients." *American Statistician* 58:218–223.

Mincer, Jacob. 1978. "Family migration decisions." *Journal of Political Economy* 86:749–773.

Nielsen, François and Arthur S Alderson. 1997. "The Kuznets curve and the great U-turn: Income inequality in U.S. counties, 1970 to 1990." *American Sociological Review* 62:12–33.

Nivalainen, Satu. 2004. "Determinants of family migration: Short moves vs. long moves." *Journal of Population Economics* 17:157–175.

Palloni, Alberto, Douglas S Massey, Miguel Ceballos, Kristin E Espinosa, and Michael Spittel. 2001. "Social capital and international migration: A test using information on family networks." *American Journal of Sociology* 106:1262–1298.

Park, Robert E. 1928. "Human migration and the marginal man." *American Journal of Sociology* 33:881–893.

Peterson, William. 1978. "International migration." *Annual Review of Sociology* 4:533–575.

Portes, Alejandro and Jozsef Borocz. 1989. "Contemporary immigration: Theoretical perspectives on its determinants and modes of incoporation." *International Migration Review* 23:606–630.

Quetelet, Adolphe. 1835. *Sur l'Homme et le Developpement De Ses Facultes*. Paris: Bachelier.

Ravenstein, E G. 1885. "The laws of migration." *Journal of the Statistical Society of London* 48:167–235.

Reed, John Shelton. 1986. *The Enduring South: Subcultural Persistence in Mass Society*. Chapel Hill, NC: University of North Carolina Press.

Ritchey, P. Neal. 1976. "Explanations of migration." *Annual Review of Sociology* 2:363–404.

Sampson, Robert J and Stephen W Raudenbush. 1999. "Systematic social observation of public spaces: A new look at disorder in urban neighborhoods." *American Journal of Sociology* 105:603–651.

Sandefur, Gary D and Wilbur J Scott. 1981. "A dynamic analysis of migration: An assessment of the effects of age, family and career variables." *Demography* 18:355–368.

Scott, Darren M, Paul A Coomes, and Alexei I Izyumov. 2005. "The location choice of employment-based immigrants among U.S. metro areas." *Journal of Regional Science* 45:113–145.

Scully, Gerald W. 1969. "Interstate wage differentials: A cross section analysis." *American Economic Review* 59:757–773.

Shumsky, Abraham. 1962. "Motivation to change: A study of Western immigration to Israel." *Journal of Educational Sociology* 36:190–192.

Sjaastad, Larry A. 1962. "The costs and returns of human migration." *Journal of Political Economy* 70:80–93.

Sørensen, Jesper B. and Olav Sorenson. 2007. "Corporate demography and income inequality." *American Sociological Review* 72:766–783.

Todaro, Michael P. 1969. "A model of labor migration and urban unemployment in less developed countries." *American Economic Review* 59:138–148.

Train, Kenneth. 2003. *Discrete Choice Methods with Simulation*. Cambridge University Press.

Treyz, George I, Dan S Rickman, Gary L Hunt, and Michael J. Greenwood. 1993. "The dynamics of U.S. internal migration." *Review of Economics and Statistics* 75:209–214.

Vroom, Victor H. 1964. *Work and Motivation*. New York: Wiley.

Westerlund, Olle. 1998. "Internal migration in Sweden: The effects of mobility grants and regional labour market conditions." *Labour* 12:363–388.

White, Michael J and Zai Liang. 1998. "The effect of immigation on the internal migration of the native-born population, 1981-1990." *Population Research and Policy Review* 17:141–166.

Wilson, William J. 1987. *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago: University of Chicago Press.

Wirth, Louis. 1938. "Urbanism as a way of life." *American Journal of Sociology* 44:3–24.