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Individual Social Capital and Migration

Julie L. Hotchkiss and Anil Rupasingha

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Abstract: This paper determines how individual, relative to community, social capital affects individual migration decisions. We make use of nonpublic data from the Social Capital Community Benchmark Survey to predict multidimensional social capital for observations in the Current Population Survey. We find evidence that individuals are much less likely to have moved to a community with average social capital levels lower than their own and that higher levels of community social capital act as positive pull-factor amenities. The importance of that amenity differs across urban/rural locations. We also confirm that higher individual social capital is a negative predictor of migration.

JEL classification: R23, D71, C36, C38

Key words: social capital, migration, Current Population Survey, amenities, nonpublic data, factor analysis

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Individual Social Capital and Migration

1. Introduction and background

A growing body of research argues that workers make their migration decisions based on noneconomic factors, in addition to economic factors such as wages (Deller et al., 2001; Graves and Linneman, 1979; Michaelides, 2011; Oehmke et al., 2007). These noneconomic factors include natural and cultural amenities, environmental quality, and other quality of life factors. The most recent addition to this noneconomic set of factors is social capital (David et al., 2010; Kan, 2007). Several questions are associated with the relationship between social capital and migration. First, do the individuals who are invested heavily in social capital activities take such activities into consideration when making migration decisions? Second, do migrating individuals consider social capital of a location as a pull factor when making migration decisions? Third, do the answers to these questions vary depending on different measures of social capital? Fourth, how do individuals weigh in their own social capital investments in relation to community social capital as a pull factor? This paper attempts to answer these questions and uses a unique combination of non-public data to assess the role that both individual social capital investment and the attractiveness of community social capital as a destination amenity have on an individual's migration decision.

The topic of the effects of social capital on migration has not received much attention in the previous literature. The relationship between social capital and migration, however, is emphasized in Putnam (1995a, p. 669): “mobility, like frequent repotting of plants, tends to disrupt root systems, and it takes time for an uprooted individual to put down new roots.” Coleman (1988) discusses how the children's school performance is affected every time a family moves. Glaeser et al. (2002) finds that social capital depreciates when individuals leave their

community (also see DiPasquale and Glaeser, 1999; Putnam, 1995b)). The emphasis of these studies is on how social capital is affected when people move from one location to another. The literature that focuses on how the social capital affects migration is rare with few exceptions. Spilimbergo and Ubeda (2004) show that family ties are the reason for differences in moving decisions between racial groups. Kan (2007), using a measure based on receiving help from nearby relatives or friends (which he refers as “local social capital”), presents evidence that local social capital discourages out-migration. David et al. (2010) build a model with two different equilibria to show the relationship between local social capital (measured using contacts with friends, relatives and neighbors, and local club memberships) and mobility and provide empirical evidence to support their theory. Alesina and Giuliano (2011) and Alesina et al. (2015) present international evidence that individuals who have stronger family ties are less mobile.

The primary focus of these studies on social capital and migration is on a narrowly-defined dimension of social capital which is limited to social ties related to family, friends, and neighbors where individuals derive benefits from social capital due to reciprocal behavior.¹ However, individuals may be invested in other dimensions of social capital such as social interactions through membership in organizations, religious activities, political activism and engagement, and trust in others, in addition to ties with relatives, friends, and neighbors. While these forms of social capital have been studied in other settings, they have not been studied in the context of migration. Another aspect of social capital that has not received much attention is that migrants may be attracted to places of higher social capital, which can be considered as a “pull” factor in the context of migration literature. This hypothesis is built on the rationale that social

¹ A minor exception is David et al. (2010). They use both local friends and family ties and local club memberships.

capital at a destination location is much like a locational amenity such as air quality or school district quality. In this case, whereas people move to areas with better schools or air quality than their current location, if individuals view social capital as such an “amenity” we should expect a similar positive effect. This could also be interpreted as a Tiebout-type sorting where individuals may be sorting to higher social capital locations. The existing literature typically finds pull factors are stronger than "push" factors in affecting migration decisions (e.g., see Boyd, 2002).

We make several key contributions to the literature. The literature presents a case that the effect of social capital on migration is not confined to local family and friend ties and establishes the relative importance of multiple dimensions of social capital on individual migration decisions. In addition to incorporating several dimensions of social capital, we answer several key questions raised above. On the one hand, we explore how migration varies with the level of an individual’s social capital. On the other hand, we investigate how place-based social capital may affect migration in the form of Tiebout sorting or that migrants may be drawn to places with high levels of social capital. Also addressed in the paper is the importance of the relative difference between the individual's level of social capital and the level of social capital in the census tract to which s/he moved. We also investigate the role social capital plays in the reasons for migrating. For example, being socially engaged may be more important in a person's decision to migrate because s/he "wanted better neighborhood/less crime," relative to migrating because s/he has a "new job or job transfer." To what extent the effects of social capital vary for family structure (i.e. marital status) and other demographic and economic structures (i.e. young, old, employment status) will be explored. We also present evidence that rural residents may be different from those who live in urban locations with respect to how social capital affects

migration decisions. We address this issue by re-estimating our empirical specifications for individuals who live in MSA and non-MSA locations separately.

Our results are generally consistent with the predictions of existing literature, but contribute insight as to the relative roles of individual vs. community social capital in the migration decision and how these relationships vary across urban and rural communities. Generally, we find that community level social capital acts as a positive pull amenity in the migration decisions and that individuals with higher levels of social capital are less likely to have moved, overall. Community level differences in social capital appear to be more important than individual level differences in explaining migration probabilities across urban/rural locations, but there is no consistent relationship between reasons for migrating and social capital levels, be it individual or community social capital.

The rest of the paper is organized as follows. Section 2 describes literature related to various dimensions of social capital and presents possible relationships various dimensions of social capital may have with migration. Section 3 presents methodology and Section 4 discusses data. Section 5 reports and discusses our empirical findings and Section 6 concludes the paper.

2. Migration and social capital: related literature and expectations

Numerous studies across various disciplines have established that social capital plays a positive role in economic, community, and social development in a society.² The concept of social capital gained fame in social science with the much-publicized work of Putnam (1995b, 1995a), Coleman (1988), and Woolcock (2001). Putnam (1995b, p. 19) defines social capital as

² While most aspects of social capital would lead to social interactions that may result in social and economic benefits to society, there can be ‘perverse’ social capital as well (Rubio, 1997) that may result in socially undesirable outcomes (such as activities by hate groups).

interactions among individuals through social networks that lead to norms of reciprocity and trustworthiness. Coleman (1988, p. 598) defines social capital as “a variety of different entities, with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions of actors – whether personal or corporate actors – within the structure.” Woolcock (2001) describes social capital as norms and networks that facilitate collective action in the society.

In this paper, we consider social capital as multi-faceted. The expansive literature on social capital will attest to this claim.³ This diverse nature of social capital may have encouraged some to argue that it has “become all things to all people, ...” (Woolcock, 2001, p. 7). Knack (2002) finds that different aspects of social capital may have different effects of social and economic outcomes. Portes (1998) addresses the complex nature of social capital concept and asks for studying all aspects of social capital, their determinants and effects. Our objective of this study is to follow this suggestion and study the effects of several dimensions of social capital on migration decisions. In this section we describe these dimensions of social capital and related literature and present hypothesized relationships, providing the conceptual basis for the empirical analysis.

A. Sociability

The most relevant to the present study are the papers by Kan (2007) and David et al. (2010). Kan (2007) argues that interactions between friends and family members in the neighborhood are sources for help when in need and generate positive externalities such as low crimes and better physical environment. Such benefits can also be accrued by participating in neighborhood clubs (David et al., 2010). Focusing exclusively on local social ties due to

³ See Durlauf (2002a) for a discussion of origins of the term social capital.

relationships between family and friends, Kan (2007) argues that residents derive financial/emotional benefits from local social ties and finds evidence that residents are discouraged to moving to a different location by such social capital. As this kind of social capital is location specific, Kan (2007) argues that the benefits derived are constrained by geographical distance. For empirical analysis, he uses data from Panel Study of Income Dynamics (PSID) and a question in the 1980 wave of the survey on information about respondents' local social capital (i.e., whether there will be someone nearby who can spend a lot of time helping in case of emergency). David et al. (2010) build a model of local social capital and mobility to explain the differences in geographic mobility between the North of Europe and the South of Europe and find empirical evidence to support their theory, showing that local social capital is negatively associated with geographic mobility.

Alesina et al. (2015), based on an argument that labor market deregulation requires geographic mobility, model how geographic mobility in labor markets requires weak family ties and show how moving costs will be high in societies that have stronger family ties. They show empirical evidence to support the equilibria derived from a theoretical model. Spilimbergo and Ubeda (2004) also establish family ties as a factor affecting migration in their study for differences in migration rates between Whites and Blacks in the United States. They find that the reason that Blacks move less than White despite having many factors commonly associated with high migration is because Blacks have higher family ties than Whites. Belot and Ermisch (2009) focus exclusively on friendship ties and migration and find that the three closest friends living nearby and having the opportunity to meet them frequently discourage individuals making long distance moves. Wahba and Zenou (2012) use measures of local family ties to capture the effect of social capital on entrepreneurship of return migrants, assuming that if other members of the

household had migrated out with the potential entrepreneur, this is likely to lead to a loss of social capital at the origin for the return migrant.

We define this local social capital as sociability to include a broader set of local social activities such as interactions with friends and neighbors and participation in local sports, arts, and other fun activities. More specifically the measures of sociability include individuals' participation in a sports club, league, or outdoor activity, how often they had friends over to their homes, how often they hung out with friends in a public place, how often they attended a parade, local sports or arts event, how often they played cards or board games with others, how often they took part in an artistic activity with a group, and number of close friends. Based on the arguments presented above with respect to local social capital, we also conjecture in this paper that sociability is negatively associated with individual migration. In terms of sociability as a pull factor in migration, we hypothesize that sociability is a positive amenity at the community level and therefore in-migration is positively associated with community level sociability.

B. Community Involvement

Pioneering researchers of social capital have argued that social capital is enriched when people belong to voluntary groups and associations and participate in group and voluntary activities. For example, Putnam et al. (1994) argues that participation in voluntary associations is the primary means of civic engagement, and attributes the economic success of northern Italy relative to that of southern Italy, to the former's rich organizational participation. Putnam et al. (1994) further claims that individuals' participation in such activities "instill(s) in their members habits of economic cooperation, solidarity, and public spiritedness" (Putnam et al., 1994, pp. 89–90). Previous studies have argued that volunteering is a source of social capital resulting in higher societal well-being. For example, Knack (2002) argues that volunteering reflects the

prevalence of generalized reciprocity and civic cooperation and is expected to be positively correlated with government performance. Other studies argue that social interactions through membership in organizations and groups lead to less imperfect information lowering transaction costs and creating more opportunities for market transactions in output, credit, land, and labor (see Narayan and Pritchett, 1999). The basic argument is that cooperation and information exchange is enabled when individuals have the opportunity to interact within organizations and through group and volunteer activities by repeated interactions.

In the context of the present paper, we classify participation in associations, groups, and volunteering activities as *community involvement*. Activities considered here are an individual's participation in a parent-teacher association or other school support group, neighborhood association, social or welfare organization, service or fraternal organization, and how often an individual attended a public meeting that discussed school, volunteered, or worked on a community project. While previous studies (David et al., 2010) have argued that associations and group involvement type of social capital may be less local and therefore may not discourage individuals from leaving a community, some of these activities such as involvement with parent-teacher associations (PTA) can still be considered local and therefore such activities may still discourage an individual from leaving his/her community. Furthermore, while individuals may be cautious of leaving better organized communities, potential migrants may consider better organized communities in terms of groups and organizations as a positive pull factor. Therefore, we hypothesize that migration is negatively associated with individual community involvement and positively associated with location level community involvement.

C. Trust

Many social capital studies define social capital as trust in others or interpersonal trust and link it to reducing transactions costs, enforcing contracts, and increasing government efficiency. For example, Fukuyama (1995) sees trust as a factor of production that not only lowers transaction costs but also allows transactions otherwise not possible even in a well-functioning legal system. Knack and Keefer (1997) present cross-country evidence that trust increases economic growth. La Porta et al. (1997), also using cross-country data, find that trust increases judicial efficiency and reduces government corruption. Paxton (1999) presents theoretical arguments that trust is important for the functioning of democratic government because a group and its leaders will be reluctant to follow the rules and willingly give up power, if they do not trust opposing groups to follow the rules when they gain control of government. Aghion et al. (2010) present a model to explain how distrust creates public demand for regulation, whereas regulation in turn discourages formation of trust, leading to multiple equilibria. They present cross-country evidence that government regulation is strongly negatively associated with trust.

In the context of migration, we postulate that people who trust others have greater attachment to the communities they live in and therefore trust is negatively associated with migration. We also hypothesize that the trust as a pull factor is positively associated with migration due its societal benefits discussed and found in previous studies. The index of trust used here includes an individuals' responses to questions on whether most people can be trusted, whether they trust neighbors, how much they trust people in stores they shop, how much they trust people of other races, how much they trust local news media, how much they trust local community police, and the number of people each of them can confide in.

D. Political activism and engagement

Another dimension of social capital is how involved individuals are in political activities. Voting, reading a daily newspaper, signing a petition, attending political meetings and rallies, and participating in demonstrations and protests are acts of civic engagement. Existing literature suggests that political participation in the form of civic engagement can make all forms of government more accountable to the public. Knack (2002) argues that political participation by a large segment of the public will make government more accountable in two ways: government officials will be guided as to what constitutes the public interest; and constituents will keep an eye on incompetent bureaucrats and corrupt elected officials. Higher political participation and political competition between political parties have been positively associated with federal spending (Levitt and Poterba, 1999). Political activities encourage elected officials to allocate public funds more in the areas where such activities are higher.

Several measures are used in this paper to gauge the level of political participation of an individual. However, due to distinct nature of some activities, we classify these activities into two main groups: *political activism* and *political engagement*. The political activism group includes activities such as signing a petition, attending a political rally or meeting, participating in demonstrations, boycotts, marches, participation in a political group, belonging to any group that took local action for reform, and participation in an ethnic, nationality, or civil rights organization. The political engagement group includes activities such as whether the respondent read a daily newspaper, registered to vote, and voted in the 1996 presidential election. When looking to relocate, on one hand people may consider how involved are they in political activism and how engaged are they politically. Most of the activities related to political activities in both groups are not bound by the localities people live in and therefore it is hard to argue *a priori* that

such activities will force residents to stay put. On the other hand, both the level of political activism and the level of political engagement in a community create positive externalities to the wider society in terms of increasing the efficiency of government and provision of public goods. Therefore, we hypothesize that more the political activism and engagement in a community, the higher the attractiveness of such communities to potential migrants.

E. Religiosity

Social interactions related to religion have been tied to social and economic outcomes with mixed effects, and in this paper, we try to focus on this aspect as to whether they are related to migration. Several studies present cross-country (Barro and McCleary, 2003), regional (Rupasingha and Chilton, 2009), and individual (Guiso et al. 2003) evidence on religion and economic growth. Barro and McCleary (2003), measuring religiosity using survey questions on religious service attendance and beliefs in God, hell, heaven, and afterlife, find that some aspects of beliefs are positively associated with economic growth while religious service attendance is negatively associated with growth. Rupasingha and Chilton (2009) investigate the independent effects of religious adherence on U.S. county income growth and find that the religious adherence in general is significantly but negatively associated with US county income growth. They also study the effects of main denominations (Catholics, Evangelical Christians, and Mainline Christians) separately and find mixed results for effects of various denominations. Guiso et al. (2003) find that, on average, religious beliefs are associated with better economic outcomes such as higher per capita income and growth. One argument against beneficial growth effects of this type of social capital is that religious practitioners may be less tolerant of activities by outsiders. For example, Guiso et al. (2003) find that religious people are more intolerant of diversity than non-religious people, regardless of the type of religion.

We measure religiosity using several indicators. The indicators used are church or synagogue membership, how often a respondent attended religious services, participation in church activities besides attending service, and participation in an organization affiliated with religion. Since high frequency of such activities of an individual may be an indication of his/her attachment to the neighborhood, we hypothesize that individual religiosity is negatively associated with migration. However, even though high levels of community level activities of religiosity may be attractive to a potential migrant if such activities measure his/her own religion, it is difficult to make a prediction with respect to our general measure of community level religiosity since it does not identify a particular religion.

F. Metro vs. Nonmetro Differences

In the context of social capital, existing studies suggest that rural residents may be different from those who live in urban locations. Putnam (1995b) argues that urban areas are less affable to social connectedness than small towns and rural areas. Browne (2001) maintains that for rural areas, due to their low population density, collective behavior is essential to provide basic services that are normally provided by government in urban areas. Glaeser et al. (2002) on the other hand point out that residents of large cities and individuals who live in apartment buildings are more likely to exhibit higher social capital. Hilber (2010) presents both possibilities: while on one hand urban areas create a more conducive environment for social interactions due to high population density, but on the other hand, more built up areas create an environment of more anonymity making social interactions less likely among immediate neighbors. We address this issue by re-estimating our empirical specifications for individuals who live in MSA and non-MSA locations separately.

3. Methodology

We consider two specifications of an individual's migration decision. The first specification allows the individual and community levels of social capital to affect that decision independently of one another. The second specification considers the *relative* levels of social capital -- how an individual's level of various measures of social capital compare with the average community level of that social capital measure. The incentive to migrate or not to migrate comes from the individual/household welfare differences across space. The standard migration model assumes that the utilities that people derive in different spatial locations are different. These differences depend on the location characteristics such as local labor market conditions and quality-of-life measures and individual characteristics such as age, education, gender, and race.

We make use of the March 2000 Current Population Survey (CPS), which contains a question about whether individuals were living in their current house a year ago, i.e., migrated. We use data from the year 2000 since that is the year for which we have measures of individual social capital activity from the Social Capital Community Benchmark Survey (SCCBS). Since measures of social capital are not contained in the CPS, we use the SCCBS to estimate parameters for variables determining social capital that we then apply to observations in the CPS. We estimate each person's probability of having a low, medium, or high level of the six measures of social capital described above. This process of estimating social capital for observations in the CPS is described in detail in Appendix A.

Durlauf (2002b) cautions about various identification issues in the application of social capital concept in empirical literature. One concern in the present context is that individuals' social capital might be a function of their probability of migrating or that there are unobservables

that affect both a person's social capital and their probability of migrating. However, we are able to mitigate this concern since our measure of individual social capital is predicted using the SCCBS (as described in the appendix). This methodology is often referred to as two-sample two-stage least squares (2S2SLS), and has the effect of "instrumenting" the problem regressor by using a separate data set to predict it. The fact that social capital is not provided in the data set with which we estimate the migration model actually works in our favor here. It is highly unlikely that any of the observations in the SCCBS are the same respondents completing the sample of the CPS, and because the two samples are from the same population, it is akin to applying split sample IV.

There is some concern that social capital in a person's census tract may be endogenous to that person's level of social capital. In other words, there are unobservable factors both affecting a person's level of social capital activity and social capital in the location where that person has chosen to reside (e.g., someone with high levels of social capital may choose to locate in that census tract because of the high degree of social capital in the location). Of course, the degree of potential endogeneity may vary, or be non-existent, by types of measure of social capital.⁴ This potential for endogeneity is why social capital in *surrounding* census tracts will be used as the instrument, rather than social capital levels in the person's census tract. These surrounding social capital levels will be weighted by the distance (from centroids) of the census tract from that person's census tract. This method of construction of an instrument in the face of potential

⁴ Also, the use of a measure at a more aggregated geographical level (tract) in itself can be considered as an instrument for individual level response variables here. A similar identification strategy was proposed by Brueckner and Largey (2008), who use population density measures at the MSA-level to identify tract-level density.

endogeneity has been applied in the empirical literature (for example, see Lee and Gordon, 2005).

A. Empirical Specifications

We estimate two versions of the binary choice model to investigate the role of social capital on individual i 's decision to have migrated to census tract c :

$$P(\text{Migrate} = 1)_i = \beta_0 + \beta_1(\widehat{SK}_i^k = \text{high}) + \beta_2(\overline{SK}_{nc}^k = \text{high}) + \beta_3 AM_{cty} + \beta_4 EC_c + \beta_5 X_i + \varepsilon_i \quad (1)$$

$$P(\text{Migrate} = 1)_i = \theta_0 + \theta_1 SK_i^{\text{higher}} + \theta_2 SK_i^{\text{lower}} + \theta_3 AM_{cty} + \theta_4 EC_c + \theta_5 X_i + \varepsilon_i \quad (2)$$

The first specification (equation 1) includes both the individual and community levels of social capital separately as regressors. $\overline{SK}_{nc}^k = \text{high}$ is equal to one if the near-census tract level of social capital k (a distance weighted mean of social capital in surrounding census tracts) is high (as opposed to a medium or low level); AM_{cty} are amenities of county cty ; EC_c are measures of the economic condition of census tract c ; X_i are individual demographic characteristics; and $\widehat{SK}_i^k = \text{high}$ is equal to 1 if individual i has a high level of social capital k (separate equations are estimated for each of six different types of social capital -- community involvement, sociability, religiosity, trust, political activism, and political engagement).

The second specification (equation 2) includes the relative difference between the individual's level of social capital and the level of social capital in the census tract to which he/she moved. The social capital "difference" is defined in the following way:

$$SK_i^{\text{same}} = \mathbf{1}(\widehat{SK}_i^k = \overline{SK}_c^k)$$

$$SK_i^{\text{higher}} = \mathbf{1}(\widehat{SK}_i^k > \overline{SK}_c^k)$$

$$SK_i^{\text{lower}} = \mathbf{1}(\widehat{SK}_i^k < \overline{SK}_c^k)$$

$\forall k \in \{\text{sociability, community, trust, religiosity, pol. activism, pol. engagement}\}$,

where $\mathbf{1}(\ast)$ is the indicator function that is equal to one when the statement is true and zero otherwise. We speculate that perhaps rather than merely the independent levels of social capital (individual and community), how an individual's social capital compares to the location to which he/she moved is important. For example, a person may seek out communities with a level of social capital that is complimentary to their own, or maybe substitutes for their lack of social capital. Parameters for the two specifications will be estimated via maximum likelihood probit.

An advantage of the CPS is that if a respondent has moved in the previous year, he/she is asked their reason for moving. This question allows us to investigate whether social capital plays a different role in migration decisions by reason. We find that while different levels of social capital can help to explain a person's probability of moving, it is not as important as other factors in determining different reasons for migrating. The analysis that considers the role of social capital in the reason for moving can be found in Appendix B.

B. Hypotheses

We propose the following hypotheses for the role that social capital plays in determining migration decisions:

$$H_0^1 : \frac{\partial \text{Migrate}}{\partial (\overline{SK}_i^k = \text{high})} < 0; \text{ Individuals with high social capital are less likely to move relative to}$$

the individuals with medium or low social capital. This relationship is expected to be true for all dimensions of social capital considered here except political activism and engagement, about which we are unable to make an *a priori* prediction.

$$H_0^2 : \frac{\partial \text{Migrate}}{\partial \overline{SK}_{nc}} > 0; \text{ Individuals whose current census tract has a high level of social capital are}$$

more likely to have migrated there. This relationship expected to be is true for all dimensions of community social capital except religiosity, about which we are unable to make an *a priori* prediction.

$H_0^3 : \frac{\partial \text{Migrate}}{\partial SK_i^{\text{lower}}} > 0$; Individuals with social capital that is lower than their census tract social capital may be *less* likely to have migrated there if they are drawn to areas with the same level of social capital as themselves; individuals whose social capital is lower than their current community level of social capital may be *more* likely to have migrated if they are seeking a substitute for their low level of social capital.

$H_0^4 : \frac{\partial \text{Migrate}}{\partial SK_i^{\text{higher}}} < 0$; Individuals with social capital that is higher than their census tract social capital may be *less* likely to have migrated there if they are drawn to areas with the same level of social capital as themselves or if their preferences for community social capital are bounded from below by their own individual level of social capital.

The predictions for hypotheses 3 and 4 are less clear. If people think of community social capital as a complement to their own, they would be attracted to communities with the same/similar levels of social capital and we would expect a lower probability of migrating to a census tract with a social capital level either higher or lower (as opposed to the same), so the marginal effects in hypotheses 3 and 4 would both be negative. If individuals view community social capital as a substitute for their own, we would expect the marginal effect of hypothesis 3 to be positive, but it's difficult to argue that people would seek out communities with social capital lower than their own. Therefore, we predict the marginal effect in hypothesis 4 to be negative; either individuals are drawn to communities with complementary social capital, or their own individual social capital acts as a lower bound on their community social capital.

4. Data

We make use of the 2000 Current Population Survey (CPS) to measure migration and migration decisions. We use the year 2000 since that is the year for which we have social capital

indicators with which to predict individual social capital levels. There are about 85,000 individual level responses in the CPS.⁵ Social capital is estimated for all individuals according to the process described in Appendix A. We use indicators of low, medium, and high for individual social capital in our analysis, based on an estimate of whether a person's specific estimated level of a social capital measure falls in the bottom, middle, or top third of the sample distribution for that specific measure. We categorize a person's level of social capital since any continuous metric would be uninterpretable. The choice of three categories is arbitrary, but provides for a distinction between high and low levels for which we likely have a greater chance of identifying differences in behavior.

Migration is measured as an indicator variable that equals one if the individual answered yes to the following question: “[Were you] living in this house (apt.) 1 year ago (that is, on March 1, 1999)?” About 12,000 individuals in the sample indicated they had migrated. Furthermore, migrating respondents are asked, “What was your main reason for moving?” Table 1 shows the distribution of movers by type of moves across geography and by reason of moving.

[Table 1 here]

The largest share of movers stayed within the same county. This is why having access to census tract data is important in trying to capture variation in social capital (or anything else) in the determination of migration -- if we only had county level measures, 57 percent of the movers would have no variation in social capital measured at the county level. Additionally, there is a good deal of variation across reasons for moving, with the greatest share of movers doing so for Housing and Family reasons.

⁵ Throughout the paper, numbers of observations are rounded to satisfy disclosure restrictions.

For measures of amenities, the US Department of Agriculture's Natural Amenities Scale is utilized. This scale “is a measure of the physical characteristics of a county area that enhance the location as a place to live.” This scale is created taking into account a county's average January temperature, average number of sunny January days, average low winter/summer temperature gap, low average July humidity, topographical variation, and water area as a proportion of the total county area.⁶

Economic regressors are census tract characteristics reflecting the share of the labor force in the census tract that is unemployed and the share of households with incomes greater than or equal to \$30,000. Finally, individual demographic controls consist of variables such as marital status, level of education, age, citizenship status, race, and ethnicity.

Table 2 provides sample means for the full sample, those living in MSAs, and for those living in non-MSAs. On average, individuals exhibit higher levels of social capital in most dimensions than communities as a whole. Exceptions include higher levels of sociability in non-MSA communities and religiosity overall. Consequently, these are the only dimensions in which an individual's social capital is more likely to be lower than the community's in which they live.

[Table 2 about here]

There are some notable differences in the sample means across MSA and non-MSA samples. Individuals in MSA's are more likely to have higher levels of only community involvement and political activism -- individuals living in more rural non-MSA locations are more likely to have higher levels of all other types of social capital. We also see, as expected,

⁶For more details about this index, see <https://www.ers.usda.gov/data-products/natural-amenities-scale.aspx>. Lee and Lin (2017) use (and make available on their website) amenities at the census tract level, but only for census tracts in MSAs. Since we want to include non-MSA observations, we opted to measure amenities at the county level.

that individuals in MSAs, on average, have higher education levels, are less likely to be white non-Hispanic, younger, less likely to be married and to be citizens, and are more likely to have moved than individuals living in non-MSA census tracts. Incomes and unemployment are higher in MSAs than in non-MSAs, and more urban communities have more amenities.

5. Results

A. Separate Individual and Community Social Capital Measures

Table 3 contains the average marginal effects from estimating equation (1) via maximum likelihood probit. Separate estimates are reported for the full sample and for individuals in MSA and non-MSA areas.

[Table 3 about here]

Full Sample. Hypothesis 1 suggested that individuals with higher levels of social capital would be less likely to move. This is because a higher level of social capital is indicative of greater community involvement and integration, making moving more costly. The results in Table 3 support this hypothesis. All dimensions used to measure individual social capital have negative and significant effects on mobility. For example, a person with a high level of sociability is 0.14 percentage points less likely to have migrated than someone who has a medium or low level (this is less than half of a standard deviation in the average probability of moving - see Table 2). This is not unexpected since we might expect these measures of social capital to be strong indicators of a deeper integration in one's community, making migration more costly. These findings are in line with Kan (2007) who studies the effect of local social capital in the form of social interactions with family and friends on migration and finds a

negative relationship. David et al. (2010) also find similar results, measuring social capital as contacts with friends/relatives and neighbors, and local club memberships.

As far as the role that community social capital as a pull factor plays in the migration decision, the results are not as robust. Recall, Hypothesis 2 suggested that if a community's level of social capital acted as a positive amenity, we should see a positive influence of community level social capital on the probability that a person has moved there. Only three types of social capital have a significant relationship with migration in the full sample -- community involvement, sociability, and political activism. It's not difficult to imagine that how a "neighborly," or social, community could be viewed positively, or how active community members would generate positive externalities. However, political activism has been viewed as both a positive or negative attribute of a community, primarily depending on the cause (Martin, 2007); the results in Table 3 suggest that, on average, the impact of political activism on migration decisions is more positive than negative. The opposite signs of political activism (positive) and political engagement (marginally negative) suggest that not all political activities are created equal. The positive draw of activism is consistent with the results of Cho et al. (2013) who report that individuals who are particularly partisan seek out communities that share their political beliefs, which is, of course, more obvious in communities with high levels of political activism. Our measure of political engagement consists of much more passive activities, such as reading the newspaper and voting.

The effects of some of the other controls on the probability of migrating are unexpected. For example, we would expect that a high unemployment rate in a census tract would be a negative pull on migration. While the point estimate for the full sample is negative for this regressor, it is not statistically significantly different from zero. A potential reason may be that

individuals consider labor markets areas that are larger than census tracts for jobs availability. We might also expect that having a higher average income would mean a census tract was economically attractive, however the negative influence on migration might mean those census tracts are less accessible because of housing prices. Additionally, we would expect a higher amenities scale to act as a positive pull influence on migration; it is negative but statistically insignificant for the full sample, yet statistically significantly negative in for the MSA sample. Similar to the result of the income variable, high amenity census tracts may be unattractive to potential migrants due to high housing prices in such areas. However, it does prove as a positive (although statistically insignificant) pull for non-MSA areas.

Other regressors perform as we might expect, based on results from earlier migration literature (Haapanen and Tervo, 2012; Jaeger et al., 2010; Sjaastad, 1962; Wozniak, 2010). Migration is typically a young person's game, which is what we see in Table 3 with the negative marginal impact of age. Higher education typically reduces the cost of information gathering and increases opportunities, increasing the probability of migrating (e.g., see Böheim and Taylor, 2002), as was found here, as well. We also see that married individuals and non-citizens are less likely to move.

*MSA vs. Non-MSA.*⁷ As indicated earlier, several studies have commented on the differences in social capital between rural and urban residence. Here our distinction between resident types is whether or not the resident is in an MSA or not. We are not aware of any study

⁷In 2000, the MSA distinction didn't necessarily cover whole counties. This leads to a discrepancy in some census tracts' designation as part of an MSA. This discrepancy occurred once in our data. Certain individuals in the particular census tract had their MSA indicator =1 while other individuals in the same census tract had their MSA=0. A judgment call was made and the MSA distinction was made such that the tract in question had the same value for all individuals.

looking at social capital differences between urban and rural residents and its effects on migration. For delineating urban vs. rural, we explored stratifying the sample based on percent of individuals who live in an urban area for a given census tract (25, 50, and 75 percent), sometimes referred to as "urbanicity." Marginal effects are similar along all stratifications. We retain the MSA/non-MSA stratification since that is a clearly defined geographical distinction that is exogenously determined. The "urbanicity" stratification requires an arbitrary determination of what percent of the population living in urban areas is required to classify a census tract at "urban." The literature is not clear how to make this determination.

At the individual level, while there are some slight differences, the magnitude of the negative impact of each social capital type on the probability of having moved to a MSA or non-MSA census tract is quite similar. There are more differences in the role that community social capital plays in the migration decision across geographic designation. For example, whereas the level of trust in a census tract did not appear to influence the migration decision of individuals in the full sample, it has a statistically significant and opposite effect for decisions to move to an MSA vs. non-MSA. A high level of trust *reduces* the probability that a person has moved to a census tract in an MSA, but *increases* the probability of having moved to a census tract in a non-MSA. One might expect that a sense of trust is particularly important in areas perceived to have less anonymity and more homogeneity, such as more rural locations. Additionally, a high level of community involvement and sociability appears to be a positive pull for people moving to census tracts in an MSA, but is unimportant in non-MSAs. Only with a few exceptions, the influence of other demographics on the migration decision appears similar regardless of whether the person moved to an MSA or non-MSA.

B. Individual vs. Community relative Social Capital

Table 4 presents the average marginal effects from estimating equation (2) via maximum likelihood probit. This specification includes relative social capital difference measures between individual and community social capital levels. Recall these measures are indicators and therefore the omitted category is one where individual social capital and census tract average social capital are the same. Again, marginal effects are presented separately for the full sample and also for those in MSA and non-MSA areas.

[Table 4 about here]

Full Sample. For the most part, we see a higher probability of an individual having migrated to a census tract if their individual social capital is lower than the social capital of the census tract, and vice versa. These results suggest that individuals are not particularly concerned about complementary community social capital, but, rather, that individuals see the community social capital substituting for their lower levels. The negative influence of community social capital that is lower than an individual's level suggests that an individual's preference for community social capital is bounded from below by their own individual social capital. Also note that much of the other controls are similar to the previous specification.

MSA vs. Non-MSA. The influence of relative social capital when the individual's level is greater than the community's is very similar across the MSA/non-MSA distinction. In the case where an individual's social capital is less than the community's, the influence is typically significantly stronger among those in rural areas. The identification of an individual with the community is likely stronger in rural areas because of lower population density -- each individual contributes a greater share of the social capital total. This means, potentially, that a person's identification with the community characteristics (including social capital) will influence the migration decision to that community.

C. Sensitivity Checks

We undertake three sensitivity checks for the results presented here. Kaplan and Schulhofer-Wohl (2012) say that imputation of migration behavior might be a problem. A small percentage of our full sample has their migration status imputed. However, the percent of the sample that migrates is similar whether we exclude or include those with imputed migration status. We re-estimate the model excluding those with imputed migration status and the results and conclusions are essentially the same.⁸

Since those who migrated within the same county represent 57 percent of movers, there is a chance these results are not very generalizable to migration decisions of longer distances. Additionally, restricting the sample to either within-county or outside-county movers only can tell us something about how important relegating point-of-origin community influences for the determination of social capital might be. The theory being that those moving from outside the county would bring more dissimilar (unobserved) point-of-origin community influence to affect the estimated relationship between predicted social capital and migration decisions. The results are not significantly different between the two samples.

Lastly, we include a person's near census tract social capital characteristics, rather than own census tract characteristics for potential endogeneity concerns. To investigate whether this is materially affecting the conclusions about the role community social capital plays in migration decisions, we re-estimate the model using the person's own census tract, rather than near census tract social capital measures. The results are essentially unchanged for the full specification, but in a specification where individual social capital regressors are excluded, the marginal effects on community social capital become more significant when own census tract characteristics are

⁸ These results were not disclosed, but are quite similar to those reported in Table 2.

used rather than near census tract. This suggests that using potentially endogenous own census tract social capital characteristics is likely to over-state the impact of community social capital on migration decisions.

6. Conclusion

While we are considering only half of the migration decision (the pull factors), we are able to conclude that not only do individual levels of social capital influence the decision to have migrated, but that some census tract level social capital characteristics work as pull factors in those migration decisions. Often in the social capital literature, social capital is measured as some sort of community effect or amenity that results from the networks and connections of its constituents. Our analysis digs deeper to uncover individual's own social capital, utilizing a unique survey specifically related to social capital. Our results suggest that social capital can help explain the probability of migrating, but not necessarily the reason for migrating.

We find that individuals with higher levels of social capital are less likely, overall, to migrate, and that community level social capital acts as a significant positive pull factor in the overall migration decision. We also illustrate that not only do individual and community level social capital affect migration decisions, but that a person's level of social capital *relative* to their community's may be even more important. Additionally, community level differences in social capital appear to be more important than individual level differences in explaining migration probabilities across urban/rural locations.

Higher community levels of social capital have been associated with better schools (Hanifan, 1916), faster economic development (Knack and Keefer, 1997), more effective economic development (Isham, 2002), lower crime (Akçomak and ter Weel, 2012; Buonanno et

al., 2009) and more effective government (Boix and Posner, 1998). If communities are interested in increasing their levels of social capital to benefit from these relationships, the results in this paper suggest that they will have difficulty trying to import it; individuals are much less likely to have moved to communities with social capital levels lower than their own. A community's recourse, then, is to try to develop social capital among those already in the community, rather than trying to attract it. A bit dated, but concrete, example is offered by Hanifan (1916, p. 131), who provides an example of how a community in rural West Virginia, "in a single year actually developed social capital and then used this capital in the general improvement of its recreational, intellectual, moral and economic conditions." The success of growing social capital within that community derived from focusing residents' attention on activities centered on already existing community infrastructure -- specifically schools were used as local community centers. Schools provided a local focus of individual interests and infrastructure for extra-school community activities. Others provide more current, although similarly themed, examples of building social capital within a community. For example, Chupp (2008) identifies the importance of uncovering common interests and communication in building community social capital.

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Table 1 Details of movers in the CPS.

Distribution Category	Percent of Migrants
<i>Migration across geography</i>	
Within Same County	57%
Different County, Same State	19%
Different State, Same Division	10%
Different Division, Same Region	3%
Different Region	7%
From Abroad	4%
<i>Reason for moving</i>	
Housing (Wanted to own, wanted better, wanted cheaper, other housing)	43%
Family Status (change in marital status, establish own household, other family, retired, leave/attend college)	32%
Economic (new job or transfer, look for work, closer to work, other job related)	16%
Amenities (Wanted better neighborhood, change climate, health)	6%
Other	2%

Note: Total number of movers is about 12,000 (sample sizes are rounded to the nearest 1,000 for disclosure purposes).

Table 2 Means of samples used for analyses.

Variable	Whole Sample	MSA Sample	non-MSA Sample
Lived in area less than a year (Migrant)	0.1416 (0.3487)	0.1450 (0.3521)	0.1302 (0.3365)
Individual Social Capital			
High level of Community Involvement	0.2088 (0.4064)	0.2140 (0.4102)	0.1909 (0.393)
High level of Sociability	0.3001 (0.4583)	0.2785 (0.4483)	0.3736 (0.4838)
High level of Religiosity	0.2825 (0.4502)	0.2597 (0.4385)	0.3602 (0.4801)
High level of Trust	0.3398 (0.4736)	0.2875 (0.4526)	0.5173 (0.4997)
High level of Political Activism	0.1496 (0.3567)	0.1652 (0.3713)	0.0967 (0.2956)
High level of Political Engagement	0.2855 (0.4517)	0.2826 (0.4503)	0.2955 (0.4563)
(Near) Census Tract Social Capital			
High level of Community Involvement	0.0376 (0.1901)	0.0428 (0.2024)	0.0198 (0.1392)
High level of Sociability	0.2315 (0.4218)	0.1593 (0.366)	0.4766 (0.4995)
High level of Religiosity	0.4727 (0.4993)	0.4408 (0.4965)	0.5810 (0.4934)
High level of Trust	0.1928 (0.3945)	0.1323 (0.3388)	0.3983 (0.4896)
High level of Political Activism	0.0125 (0.1109)	0.0150 (0.1217)	0.0036 (0.0601)
High level of Political Engagement	0.1096 (0.3124)	0.1042 (0.3055)	0.1278 (0.3338)
Relative Social Capital: Individual SK < (near) Census Tract SK			
Community Involvement	0.1615 (0.3680)	0.1403 (0.3473)	0.2337 (0.4232)
Sociability	0.1273 (0.3333)	0.0878 (0.2829)	0.2615 (0.4394)

Variable	Whole Sample	MSA Sample	non-MSA Sample
Religiosity	0.3339 (0.4716)	0.3368 (0.4726)	0.3243 (0.4681)
Trust	0.0912 (0.2879)	0.0801 (0.2714)	0.1288 (0.3350)
Political Activism	0.0019 (0.0439)	0.0022 (0.0465)	0.0011 (0.0338)
Political Engagement	0.1185 (0.3232)	0.1075 (0.3097)	0.1559 (0.3628)
Relative Social Capital: Individual SK > (near) Census Tract SK			
Community Involvement	0.3154 (0.4647)	0.3188 (0.4660)	0.3040 (0.4600)
Sociability	0.3168 (0.4652)	0.3396 (0.4736)	0.2390 (0.4265)
Religiosity	0.1924 (0.3942)	0.195 (0.3962)	0.1835 (0.3871)
Trust	0.3894 (0.4876)	0.3916 (0.4881)	0.382 (0.4859)
Political Activism	0.1390 (0.3460)	0.1523 (0.3593)	0.0941 (0.2919)
Political Engagement	0.4450 (0.4970)	0.4394 (0.4963)	0.4639 (0.4987)
Other Controls			
High school education=0,1	0.3345 (0.4718)	0.3198 (0.4664)	0.3842 (0.4864)
Some college education=0,1	0.2605 (0.4389)	0.2606 (0.4390)	0.26 (0.4386)
College graduate=0,1	0.21 (0.4073)	0.2264 (0.4185)	0.154 (0.361)
Hispanic=0,1	0.1629 (0.3693)	0.1895 (0.3919)	0.0725 (0.2594)
Black, non-Hispanic=0,1	0.0961 (0.2947)	0.1093 (0.312)	0.0512 (0.2204)
Other race, non-Hispanic=0,1	0.0369 (0.1885)	0.0395 (0.1949)	0.028 (0.165)

Variable	Whole Sample	MSA Sample	non-MSA Sample
Age	45.62 (17.75)	45.09 (17.66)	47.40 (17.96)
Married=0,1	0.573 (0.4946)	0.556 (0.4969)	0.6308 (0.4826)
Citizen=0,1	0.8369 (0.3694)	0.803 (0.3977)	0.9521 (0.2135)
Female=0,1	0.5263 (0.4993)	0.5277 (0.4992)	0.5213 (0.4996)
Unemployment rate from the DC	0.0203 (0.0121)	0.0208 (0.0127)	0.0189 (0.0098)
Income \geq 30K rate from the 2000 DC	0.7366 (0.1573)	0.7556 (0.1621)	0.6719 (0.1185)
Live in MSA=0,1	0.7726 (0.4192)	--	--
Amenities scale	1.310 (3.316)	1.604 (3.497)	0.3105 (2.345)
Observations	85,000	66,000	19,000

Notes: Standard deviations in parentheses. Number of observations are rounded to the nearest thousand for disclosure purposes.

Table 3 ML probit marginal effect estimates on the probability of having migrated within the past year, individual and community social capital enter separately.

Regressors	Full Sample (1)	MSA Only (2)	Non-MSA Only (3)
<i>Indicators for High Level Individual Social Capital</i>			
Community Involvement	-0.0665*** (0.0041)	-0.0701*** (0.0047)	-0.0603*** (0.0082)
Sociability	-0.1372*** (0.0030)	-0.1377*** (0.0034)	-0.1448*** (0.0061)
Religiosity	-0.1290*** (0.0029)	-0.1283*** (0.0034)	-0.1303*** (0.0062)
Trust	-0.0366*** (0.0041)	-0.0310*** (0.0049)	-0.0597*** (0.0075)
Political Activism	-0.0759*** (0.0042)	-0.0755*** (0.0048)	-0.0656*** (0.0100)
Political Engagement	-0.0356*** (0.0045)	-0.0417*** (0.0051)	-0.0205** (0.0095)
<i>Indicators for High level of (near) Census Tract Social Capital^a</i>			
Community Involvement	0.0338** (0.0166)	0.0505** (0.0200)	0.0236 (0.0297)
Sociability	0.0175*** (0.0064)	0.0216** (0.0084)	0.0134 (0.0134)
Religiosity	-0.0031 (0.0046)	-1.45x10 ⁻⁵ (0.0051)	-0.0029 (0.0133)
Trust	-0.0113 (0.0085)	-0.0423*** (0.0085)	0.0677*** (0.0247)
Political Activism	0.1442*** (0.0453)	0.1158** (0.0553)	0.1499*** (0.0477)
Political Engagement	-0.0135* (0.0073)	-0.0055 (0.0094)	0.0094 (0.0144)
<i>Other Controls</i>			
Census tract average unemployment rate ^a	-0.0500 (0.1127)	-0.1200 (0.1247)	0.2851 (0.2734)
Share of HH in census tract with income ≥ \$30,000 ^a	-0.0492*** (0.0097)	-0.0541*** (0.0107)	-0.0374 (0.0264)
Age	-0.0131*** (0.0004)	-0.0132*** (0.0005)	-0.0129*** (0.0009)
Age squared	9.35x10 ⁻⁵ *** (4.33x10 ⁻⁶)	9.39x10 ⁻⁵ *** (4.97x10 ⁻⁶)	9.75x10 ⁻⁵ *** (8.37x10 ⁻⁶)
High school education = 1	0.0125***	0.0120***	0.0191***

Regressors	Full Sample (1)	MSA Only (2)	Non-MSA Only (3)
	(0.0038)	(0.0044)	(0.0074)
Some college education = 1	0.0989***	0.0891***	0.1598***
	(0.0050)	(0.0055)	(0.0122)
College graduate = 1	0.2967***	0.2830***	0.4063***
	(0.0077)	(0.0082)	(0.0202)
Hispanic = 1	-0.0137***	-0.0162***	0.0044
	(0.0043)	(0.0047)	(0.0124)
Black, non-Hispanic = 1	0.0130**	0.0124**	0.0165
	(0.0051)	(0.0056)	(0.0137)
Other race, non-Hispanic = 1	-0.0685***	-0.0703***	-0.0504***
	(0.0049)	(0.0055)	(0.0114)
Married = 1	-0.0064**	-0.0043	-0.0124**
	(0.0029)	(0.0033)	(0.0060)
Citizen = 1	0.0105***	0.0104**	0.0056
	(0.0040)	(0.0043)	(0.0124)
Female = 1	-0.0027	-0.0040	0.0018
	(0.0027)	(0.0031)	(0.0055)
Live in MSA = 1	0.0019		
	(0.0038)		
Amenities	-0.0017	-0.0022*	0.0022
	(0.0010)	(0.0012)	(0.0024)
Observations	85,000	66,000	19,000

Notes: Robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$) State fixed effects were included but are not reported. Observations are weighted with the CPS person weight. Sample sizes are rounded to the nearest 1,000 for disclosure purposes.

^a Estimated at the census tract level from the 2000 Decennial Census.

Table 4 ML probit marginal effect estimates of the probability of having migrated within the past year, measures of individual relative to community social capital are included.

Regressors	Full Sample (1)	MSA Only (2)	Non-MSA Only (3)
<i>Individual SK < (near) Census Tract SK^a</i>			
Community Involvement	0.0756*** (0.0048)	0.0748*** (0.0046)	0.0660*** (0.0079)
Sociability	0.0499*** (0.0056)	0.0478*** (0.0063)	0.0857*** (0.0085)
Religiosity	0.1166*** (0.0039)	0.1059*** (0.0040)	0.1364*** (0.0078)
Trust	0.0345*** (0.0058)	0.0237*** (0.0063)	0.0769*** (0.0093)
Political Activism	0.0460 (0.0429)	0.0042 (0.0432)	0.1788*** (0.0482)
Political Engagement	0.0153*** (0.0050)	0.0165*** (0.0056)	0.0202** (0.0089)
<i>Individual SK > (near) Census Tract SK^a</i>			
Community Involvement	-0.0794*** (0.0035)	-0.0858*** (0.0047)	-0.0820*** (0.0088)
Sociability	-0.1065*** (0.0032)	-0.1292*** (0.0044)	-0.0957*** (0.0088)
Religiosity	-0.0905*** (0.0035)	-0.1119*** (0.0058)	-0.1150*** (0.0116)
Trust	-0.0253*** (0.0038)	-0.0241*** (0.0044)	-0.0591*** (0.0087)
Political Activism	-0.0868*** (0.0038)	-0.1028*** (0.0062)	-0.0844*** (0.0132)
Political Engagement	-0.0575*** (0.0037)	-0.0558*** (0.0044)	-0.0681*** (0.0083)
<i>Other Controls</i>			
Census tract average unemployment rate ^a	0.0626 (0.1095)	-0.0078 (0.1207)	0.1493 (0.2651)
Share of HH in census tract with income ≥ \$30,000 ^a	-0.0497*** (0.0096)	-0.0604*** (0.0105)	-0.0172 (0.0260)
Age	-0.0074*** (0.0004)	-0.0083*** (0.0005)	-0.0053*** (0.0009)
Age squared	4.69x10 ⁻⁵ *** (4.31x10 ⁻⁶)	5.34x10 ⁻⁵ *** (4.93x10 ⁻⁶)	4.02x10 ⁻⁵ *** (8.30x10 ⁻⁶)
High school education = 1	0.0276*** (0.0037)	0.0251*** (0.0042)	0.0489*** (0.0071)

Regressors	Full Sample (1)	MSA Only (2)	Non-MSA Only (3)
Some college education = 1	0.1539*** (0.0055)	0.1309*** (0.0049)	0.1859*** (0.0094)
College graduate = 1	0.3577*** (0.0075)	0.2821*** (0.0061)	0.3180*** (0.0130)
Hispanic = 1	-0.0011 (0.0045)	-0.0056 (0.0050)	0.0082 (0.0118)
Black, non-Hispanic = 1	0.0238*** (0.0053)	0.0205*** (0.0054)	0.0166 (0.0126)
Other race, non-Hispanic = 1	-0.0713*** (0.0047)	-0.0927*** (0.0078)	-0.0583*** (0.0144)
Married = 1	0.0217*** (0.0030)	0.0230*** (0.0034)	0.0268*** (0.0060)
Citizen = 1	0.0475*** (0.0036)	0.0517*** (0.0047)	0.0354*** (0.0118)
Female = 1	0.0142*** (0.0026)	0.0121*** (0.0030)	0.0232*** (0.0054)
Live in MSA = 1	0.0094*** (0.0036)		
Amenities	-0.0015 (0.0010)	-0.0024** (0.0012)	0.0050** (0.0023)
Observations	85,000	66,000	19,000

Notes: Robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$) State fixed effects were included but are not reported. Observations are weighted with the CPS person weight. Sample sizes are rounded to the nearest 1,000 for disclosure purposes.

^a Estimated at the census tract level from the 2000 Decennial Census.

Appendix A: Estimating Social Capital for Observations in the CPS

In 2000 the Roper foundation conducted a national survey, the Social Capital Community Benchmark Survey (SCCBS), to gauge the level of a multitude of dimensions of individual social capital. A more recent 2006 SCCBS survey exists, however it does not contain indicator for census tract, which is important for constructing an instrument for individual social capital (see <https://ropercenter.cornell.edu/2006-social-capital-community-benchmark-survey/>). We use the SCCBS as the source for estimating social capital determinants. Parameter estimates are obtained from the SCCBS data that can be used to predict social capital in the CPS. Fortunately, the SCCBS and the CPS are fairly harmonious with respect to their measures of demographics. This is fortunate, since we are restricted to those variables that are found in both surveys in order to use the estimated parameters from one data set to predict social capital in the second.

A.1 Creating Weights to use in the SCCBS. Since we are predicting out of sample, however, and in spite of the fact that both the CPS and the SCCBS are both national surveys, we are also interested in how the two samples compare in their distributions across demographics. In other words, we want to be sure that the parameter estimates obtained from the SCCBS sample are likely to be applicable, at least at the means, to observations in the CPS. Both the SCCBS and CPS surveys contain individual weights designed to generate a random national sample. Using just the CPS provided weights, 93 percent of the weighted means of the common variables in the CPS and SCCBS are statistically different from one another at least at the 95 percent confidence level.

To estimate the social capital equation on a sample that is more representative of the CPS (for which the prediction will be made), we use an inverse probability weighting methodology, akin to the one used in DiNardo et al. (1996), in order to create a counterfactual distribution of

the SCCBS that is much more similar to the CPS. This amounts to estimating, in the combined CPS and SCCBS samples, the probability of an observation being observed in SCCBS, using as explanatory variables as many demographics and their cross-multiples as is feasible:

$$P(\text{observation } i \in \text{SCCBS}|X) = \Lambda(X'b) . \tag{1}$$

The parameter estimates from this logit model are then used to construct the inverse probability ratio, $\frac{\Lambda(X'\hat{b})}{1-\Lambda(X'\hat{b})}$, for each observation in the SCCBS. This is the re-weighting function used to modify the individual weight provided in the SCCBS.

There is significant improvement using the inverse-weighted adjustment to the means in the SCCBS. Using the constructed inverse probability weights, the percent of common variables that are statistically different from one another is reduced to 61 percent, with 96 percent of the re-weighted means of all variables being significantly closer to the CPS mean than they were using the survey supplied weights (additional details of the means comparisons are suppressed for confidentiality reasons).

A.2 Identifying a Person's Unobserved Social Capital. We make use of factor analysis to elicit the common factor from multiple questions related to a specific measure of social capital. This type of analysis uses the responses to those questions in the SCCBS in order to uncover a person's latent degree of social capital. From this analysis, we obtain a single value for each person for each type of social capital. The questions from the SCCBS that are combined, via factor analysis, to construct each social capital measure are contained in Table A1.

[Table A1 about here]

The factor, or latent measure, does not have an easy interpretation and is ordinal by construction. We, therefore, translate it into a categorical value. We specify three “levels” of social capital: high, medium, and low. We then estimate an ordered probit to estimate the

relationship between a person's observable characteristics and their level of each type of social capital. Creating three categories is, of course, arbitrary, but offers an easy interpretation for low, medium, and high values.

A.3 Estimating Social Capital. Since the categories of each social capital measure are ordered from lower to higher levels of the social capital variable in question, we estimate the parameters of each social capital equation as an ordered logit. The probability that individual i , living in census tract t , has social capital level k of type j (j =sociability, community involvement, trust, political activism, political engagement, and religiosity) is formally expressed as:

$$Pr[SK_i^j = k] = Pr[\mu_{k-1} < \alpha_0 + A'X_i + B'Z_t + u_i \leq \mu_k] , \quad (A1)$$

where u_{it} is assumed to be logistically distributed and the estimated cutpoints $\mu=1,2$ separate three possible outcomes k = low, medium, high for each type of social capital.

Regressors X_i reflect person i 's demographics that are also included as determinants in the migration equations. Regressors unique to the social capital equation are reflected through Z_t . For these identifying (or, excluded) regressors, we construct average census tract characteristics for each observation. The theory is that the characteristics of those in close proximity influence one's level of social capital. Potential key average characteristics are the share of employment near the person's census tract employed in "social" occupations and in social industries which include individuals employed as independent artists, performing arts, and spectator sports (NAICS 856); by bowling centers (858); by religious organizations (916); by civic, social, advocacy organizations and grantmaking services (917); by labor unions (918); and by business, professional, and political organizations (919) (see Asquith et al., 2017; Rupasingha et al., 2006).

There is some concern that characteristics *in* a person's census tract may be endogenous to that person's level of social capital. In other words, there are unobservable factors both affecting a person's level of activity and the location where that person has chosen to reside. This potential for endogeneity is why average demographic characteristics in *surrounding* census tracts will be used as the instrument (i.e., excluded regressors), rather than the value of those variables *in* the person's own census tract. These surrounding characteristics were inverse-weighted by the distance (from centroids) of the census tract from that person's census tract. Census tracts in the person's own and surrounding states were used to construct the average. This method of construction of an instrument in the face of potential geographic endogeneity has been widely applied in the empirical literature (for example, see Lee and Gordon, 2005). The parameter estimates from these ordered logits are then used to predict the level of each type of social capital for respondents in the CPS ($\widehat{SK}_i^k = high$ in equations 1.1 and 2.1). Results from this first stage analysis have not been disclosed in the interest of parsimony.

In sum, we believe that a person's current social capital is a function of their current characteristics (X_i), their current environment that can be quantified by the average characteristics of the people surrounding them (Z_t), and unobserved factors, such as the environment in which they have lived in the past (relegated to the error term). In a perfect world, we would be able to observe the environment from which they've moved and control for the differences in that environment and their current environment. The best we could do to know how important that unobservable is, is to see whether results vary for those moving within or from outside their current county. If not controlling for point-of-origin community influences led to biased results, we would expect results for samples excluding within-county movers and including within-county movers only to be quite different. The theory being that those moving

from outside the county would bring more dissimilar point-of-origin community influence to affect the estimated relationship between predicted social capital and migration decisions. The results are not significantly different between the two samples.

To apply the 2S2SLS methodology with some confidence (i.e., that our predicted social capital levels in the CPS are believable), our first stage estimation should demonstrate a good fit of the data. While most studies using 2S2SLS spend very little time on this issue, we report the goodness of fit for each ordered logit analysis in Table A2.

[Table A2 about here]

We do well, generally, predicting low and high levels of each social capital measure, but not so well predicting a medium outcome. In particular, no one in the SCCBS was predicted with a medium level of political activism. However, the pseudo R squared statistics from the ordered logit estimations reported at the bottom of Table A2, compare favorably with first-stage R-squared statistics reported by others who have employed this methodology. Dee and Evans (2003) make use of predictions from a first stage estimation with R-squared statistics less than 0.02; Carroll et al. (2003) report first-stage adjusted R-squared test statistics between 0.28 and 0.48; Currie and Yelowitz (2000) report a first-stage R-squared statistic less than 0.1; Fang et al. (2008) and Keane and Stavrunova (2014) contain similar analyses using the same data and first-stage R-squared statistics ranging from 0.02 to 0.25.

An analogous process is followed to obtain community social capital measures (\overline{SK}_{nc} in equations 1.1 and 2.2). However, instead of using the CPS, we use the 2000 Decennial Census in order to have enough observations to obtain estimates for all census tracts. We then take an added step to ensure against endogeneity and use the inverse distance weighted average of

community social capital in the person's near census tracts. In all first-stage regressions, the unique regressors (Z_t) are jointly statistically different from zero.

Table A1. Questions used to construct each social capital measure via factor analysis.

Variable from SCCBS	Description
Community Involvement	
GRPPTA	Participate in parent association or other school support
GRPNEI	Participate in neighborhood association
GRPSOC	Participate in social or welfare organization
GRPFRAT	Participate in service or fraternal organization
PUBMEET2	How often attended a public meeting discussing school
VOLTIME2	Number of times volunteered
PROJECT	Worked on community project in past 12 months
Sociability	
GRPSPORT	Participate in sports club, league, or outdoor activity
FRNDHOM2	How often had friends over to your home
FRNDHNG2	How often hung out with friends in a public place
PARADE2	How often attended parade, local sports or arts event
CARDS2	How often played cards or board games with others
FRIENDS	Number of close friends
ARTIST2	How often took part in artistic activity with group
Religiosity	
RELMEM2	Church or synagogue member
RELATEN2	How often attend religious service
RELPART2	Participate in church activities besides attending service
GRPREL	Participate in organization affiliated with religion
Trust	
TRUST2	Whether most people can be trusted
TR2NEI	How much trust neighbors
TR2SHOP	How much trust people in stores you shop
RACETRST	How much trust people of other race
TR2NEWS	How much trust local news media
TR2COP	How much trust local community police
CONFIDE	Number of people you can confide in
Political Activism	
PETITION	Signed a petition in past 12 months
RALLY	Attended a political rally or meeting in past 12 months

Variable from SCCBS	Description
MARCH	Participated in demonstrations, boycotts, marches
GRPPOL	Participate in political group
REFORM	Belong to any group that took local action for reform
GRPETH	Participate in ethnic, nationality, or civil rights organization
Political Engagement	
PAPER	Days in past week respondent read a daily newspaper
REGVOTE	Currently registered to vote
VOTEUS	Voted in 1996 presidential election

Table A2. Actual and predicted categories of social capital measures (goodness-of-fit) within the SCCBS data set.

VARIABLES	Religiosity	Trust	Political Activism	Political Engagement	Community Involvement	Sociability
Actual Level of Low						
Predicted level of Low	42.65%	65.46%	91.70%	68.60%	69.86%	67.66%
Predicted level of Medium	42.57%	20.81%	--	24.62%	20.47%	14.83%
Predicted level of High	14.78%	13.73%	8.30%	6.78%	9.67%	17.51%
Actual Level of Medium						
Predicted level of Low	26.57%	31.60%	80.50%	18.39%	49.11%	48.84%
Predicted level of Medium	46.25%	30.67%	--	51.98%	25.56%	20.97%
Predicted level of High	27.18%	37.73%	19.50%	29.64%	24.33%	30.20%
Actual Level of High						
Predicted level of Low	11.07%	14.25%	67.02%	7.31%	29.13%	32.71%
Predicted level of Medium	39.68%	31.51%	--	32.43%	26.89%	21.09%
Predicted level of High	49.25%	54.25%	32.98%	60.25%	43.98%	46.20%
Ordered Logit Pseudo R sq.	0.07	0.12	0.08	0.25	0.09	0.07
Correlations between actual and predicted categories across individuals	0.35	0.44	0.26	0.59	0.37	0.30

Appendix B: The Role of Social Capital in Reason for Migration

This appendix reports the results from investigating the role social capital plays in the different reasons for moving, as opposed to simply moving for any reason. We have aggregated the many reasons for moving given by respondents in the CPS into five categories, which are given, along with the distribution of movers in Table 1 in the text. All non-movers are excluded from this analysis. Most people who move do so for housing reasons (e.g., wanting better or cheaper housing). The next most common reason for moving was for family reasons (e.g., change in marital status, retire, leave college). Economic reasons, such as job transfer or searching for a better job, is the third most common reason for moving.

We estimate one specification of the multinomial logit model that describes the different reasons for moving -- one that includes the individual and community social capital levels separately. Results from the specification that includes an individual's social capital relative to the community did not yield any additional insights and are available upon request. We do not examine MSA/non-MSA differences, since the sample is too small to disaggregate reasons by MSA and non-MSA. The estimating equation takes the following form:

$$P(\text{Migrate Reason} = 1,2,3,4,5 | \text{Migrate}=1)_i = \alpha_0 + \alpha_1(\widehat{SK}_i^k = \text{high}) + \alpha_2(\overline{SK}_{nc}^k = \text{high}) \\ + \alpha_3 AM_{cty} + \alpha'_3 EC_c + \alpha'_4 X_i + \alpha'_6 Cty_i + e_i \quad (\text{B.1})$$

As in the text, $\overline{SK}_{nc}^k = \text{high}$ is equal to one if the near-census tract level of social capital k (a distance weighted mean of social capital in surrounding census tracts) is high (as opposed to a medium or low level); AM_{cty} are amenities of county cty ; EC_c are measures of the economic condition of census tract c ; X_i are individual demographic characteristics; and $\widehat{SK}_i^k = \text{high}$ is equal to 1 if individual i has a high level of social capital k (separate equations are estimated for

each of six different types of social capital -- community involvement, sociability, religiosity, trust, political activism, and political engagement).

Since there is some evidence that distance of move is related to the reason a person moves, we also include in this analysis an indicator for whether a person's move is within-county ($Cty_i=0,1$). (Niedomysl, 2011) finds that short distance moves (e.g., more likely to be within-county) are more associated to housing related moves, whereas longer moves are undertaken for employment reasons (also see (Böheim and Taylor, 2002; Schachter, 2001)). The estimated marginal effects for this model are found in Table B.1. Statistically significant marginal effects are bolded. Reviewing first the controls other than social capital that affect reasons for moving, across both specifications, we see some patterns consistent with the literature. For example, individuals with a college degree are most likely to have moved in the past year for job reasons (also see (Schachter, 2001)). Unsurprisingly, we see that a person is more likely to have moved to a census tract high in amenities if the reason they give for moving is to be amenities. In addition, a person who is more likely to have moved to an area with high amenities is less likely to have moved there for job reasons, which is consistent with the trade-off found by (Chen and Rosenthal, 2008) in their investigation of migration reasons. The results that those moving within-county (shorter distances) are more likely to do so for housing and less likely to do so for job reasons are consistent with (Böheim and Taylor, 2002; Niedomysl, 2011; Schachter, 2001).

[Table B.1 about here]

We also see evidence consistent with (Williams et al., 1986) that women are less likely than men to migrate for job reasons and, although not statistically significant, more likely to move for amenity reasons. Unlike what is reported in (Reichert, 2002), however, here, age is negatively related to having moved for family and amenity reasons. We also see that married

individuals are less likely to move for family reasons, but more likely to move for job and housing reasons -- perhaps to improve access to better schools for children, etc.

We expected to see higher unemployment at the census tract to be negatively correlated with the probability of migrating. This is true for when a person moves due to amenity and other reasons, and marginally for job reasons. The effect of labor market conditions is statistically positive, and very large, for having moved for housing reasons. Perhaps high unemployment foretells falling housing prices, making a census tract more attractive for someone wanting to trade-up their housing.

Turning now to the marginal effects for the social capital regressors, we see that high religiosity and high political engagement at the individual level do not contribute to explaining any reason for moving. A mover with high community involvement is more likely to have moved for housing related reasons, and less likely to have moved for family reasons, relative to someone with medium or low community involvement. Movers with high levels of trust are less likely to move for housing reasons, but no more or less likely to have moved for any other reason. Movers with high levels of sociability, are less likely to have moved for housing reasons, but more likely to have moved for family and job-related reasons. It's not clear how each social capital dimension might affect reasons for migration, but we might expect high sociability people to consider family and co-workers to be important in their optimization decisions, which is consistent with these results. For example, (Bähr and Abraham, 2016) find that contacts and networks are particularly important in interregional job moves.

The only community level social capital characteristics related to any reason for moving are political activism and political engagement. Having moved for housing reasons is associated with communities with lower political activism, but higher political engagement. Additionally, a

community with high levels of political engagement is associated with a decreased probability that someone moved to that community for job reasons. (Cho et al., 2013) suggests that individuals are likely to value "like-minded partisans" when making re-location decisions, which is consistent with a community's level of political engagement (whatever the partisan leaning) being relevant for housing migration decisions.

Overall, we do not see any particular pattern of influence of either individual or community level social capital in the determination of different reasons for moving. So while we find that different levels of social capital can help to explain a person's overall probability of moving, it is not as important as other factors in determining different reasons for migrating.

Table B1 Marginal effects from a multinomial logit estimation of the probability of moving for different reasons, individual and community social capital enter separately.

Variable	Reason for Migrating				
	Family	Job	Housing	Amenities	Other
<i>Indicator for High Level Individual Social Capital</i>					
Community Involvement	-0.0709*** (0.0210)	-0.0034 (0.0143)	0.0660*** (0.0224)	0.0102 (0.0122)	-0.0018 (0.0080)
Sociability	0.0395** (0.0156)	0.0217* (0.0116)	-0.0554*** (0.0154)	-0.0033 (0.0074)	-0.0025 (0.0051)
Religiosity	-0.0027 (0.0230)	-0.0051 (0.0158)	0.0100 (0.0219)	0.0020 (0.0109)	-0.0042 (0.0074)
Trust	0.0241 (0.0202)	0.0080 (0.0135)	-0.0391** (0.0190)	0.0118 (0.0113)	-0.0048 (0.0054)
Political Activism	-0.0058 (0.0243)	-0.0066 (0.0153)	0.0072 (0.0235)	0.0165 (0.0154)	-0.0113** (0.0056)
Political Engagement	0.0156 (0.0275)	-0.0013 (0.0199)	-0.0092 (0.0248)	-0.0099 (0.0102)	0.0048 (0.0095)
<i>Indicator for High Level of (near) Census Tract Social Capital</i>					
Community Involvement	0.0227 (0.0339)	-0.0109 (0.0197)	0.0009 (0.0341)	-0.0108 (0.0136)	-0.0020 (0.0097)
Sociability	-0.0272 (0.0179)	0.0187 (0.0133)	0.0012 (0.0186)	0.0164 (0.0115)	-0.0091* (0.0051)
Religiosity	0.0073 (0.0140)	-0.0119 (0.0106)	0.0080 (0.0142)	-0.0099 (0.0073)	0.0066 (0.0051)
Trust	-0.0159 (0.0227)	0.0203 (0.0172)	-0.0074 (0.0229)	-0.0124 (0.0118)	0.0154 (0.0121)
Political Activism	-0.0321 (0.0482)	-0.0265 (0.0351)	-0.1010* (0.0572)	0.0435 (0.0445)	0.1161** (0.0558)
Political Engagement	-0.0056 (0.0222)	-0.0637*** (0.0124)	0.0637*** (0.0237)	0.0060 (0.0147)	-0.0004 (0.0079)
<i>Other Controls</i>					
Census tract average unemployment rate ^a	0.0140 (0.4150)	-0.0928 (0.2954)	1.1354*** (0.4029)	-0.6913*** (0.2154)	-0.3652** (0.1627)
Share of HH in census tract with income \geq \$30,000 ^a	-0.0781** (0.0328)	0.1125*** (0.0258)	0.0636* (0.0330)	-0.0755*** (0.0164)	-0.0225** (0.0102)
Age	-0.0133*** (0.0018)	0.0113*** (0.0019)	0.0041** (0.0019)	-0.0024*** (0.0007)	3.82x10 ⁻⁴ (0.0006)
Age squared	1.39x10⁻⁴*** (2.09x10 ⁻⁵)	-1.62x10⁻⁴*** (2.34x10 ⁻⁵)	-1.46x10 ⁻⁵ (2.15x10 ⁻⁵)	4.10x10 ⁻⁵ *** (7.80x10 ⁻⁶)	-3.43x10 ⁻⁶ (5.82x10 ⁻⁶)
High school ed = 1	0.0485*** (0.0146)	0.0362*** (0.0117)	-0.0749*** (0.0140)	-0.0125* (0.0066)	0.0028 (0.0047)
Some college ed = 1	0.0323** (0.0161)	0.0288** (0.0127)	-0.0530*** (0.0155)	-0.0099 (0.0073)	0.0018 (0.0054)

Variable	Reason for Migrating				
	Family	Job	Housing	Amenities	Other
College graduate = 1	-0.0068 (0.0201)	0.0898*** (0.0167)	-0.0522*** (0.0197)	-0.0375*** (0.0075)	0.0067 (0.0076)
Hispanic = 1	-0.0689*** (0.0157)	0.0386*** (0.0127)	0.0215 (0.0167)	0.0116 (0.0095)	-0.0028 (0.0050)
Black, NH=0,1 = 1	-0.0043 (0.0171)	-0.0331** (0.0129)	0.0453** (0.0176)	-0.0107 (0.0079)	0.0028 (0.0072)
Other race, NH = 1	-0.0071 (0.0239)	-0.0002 (0.0176)	-0.0341 (0.0244)	0.0347** (0.0172)	0.0067 (0.0095)
Married = 1	-0.0913*** (0.0105)	0.0168** (0.0079)	0.0932*** (0.0105)	-0.0046 (0.0054)	-0.0141*** (0.0030)
Citizen = 1	-0.0250 (0.0162)	-0.0195* (0.0114)	0.0284* (0.0155)	0.0222*** (0.0065)	-0.0061 (0.0056)
Female = 1	0.0056 (0.0099)	-0.0143* (0.0073)	0.0110 (0.0099)	0.0042 (0.0051)	-0.0065* (0.0033)
Live in MSA = 1	-0.0171 (0.0142)	-0.0059 (0.0102)	-0.0025 (0.0141)	0.0193*** (0.0061)	0.0062 (0.0040)
Amenities	-0.0042 (0.0030)	-0.0042* (0.0023)	0.0037 (0.0030)	0.0036** (0.0016)	0.0011 (0.0009)
Same County move = 1	-0.0747*** (0.0098)	-0.2182*** (0.0077)	0.3196*** (0.0097)	-0.0078 (0.0050)	-0.0189*** (0.0034)
Observations = 12,000					

Notes: Robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$) Region fixed effects were included but are not reported. Observations are weighted with the CPS person weight. Sample sizes are rounded to the nearest 1,000 for disclosure purposes.

^a Estimated at the census tract level from the 2000 Decennial Census.