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Author
Kim, Jae Hong

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Jae Hong Kim
Department of Planning, Policy and Design
University of California, Irvine
206E Social Ecology I, Irvine, California 92697
Phone: 949.824.0449
Fax: 949.824.8566
jaehk6@uci.edu

Residential and Job Mobility: Interregional Variation and Their Interplay in U.S. Metropolitan Areas

Abstract: While studies on residential and job mobility are typically conducted on a micro scale, an examination of region-wide mobility dynamics can also be meaningful, as it can reflect the importance of system-wide factors and complex interlinkages among numerous micro-level decisions. This study explores how region-wide residential and job mobility rates vary in the U.S. and identifies the factors that shape their variation with emphasis on the interplay between the two mobility variables for the periods before (2005–2007) and during (2008–2010) the recent recession. An analysis of the data for 342 U.S. metropolitan areas shows that job mobility had a sizable positive impact on residential mobility during both time spans, while the reverse connection was found to be relatively weaker and context-sensitive. The analysis also detects the critical roles of housing market conditions and regional economic structures, suggesting that mobility decisions are largely shaped by various macro-level factors.

Keywords: Residential Mobility, Job Turnover, Housing Market, Labor Market

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1. Introduction

Residential mobility and job mobility have been extensively investigated in many branches of urban studies (see e.g., Quigley and Weinberg, 1977; Dieleman, 2001; Widmer and Schneider, 2006 for comprehensive syntheses of mobility research), and in recent years, growing attention has been paid to their interplay, i.e., how residential and job turnovers are associated with each other (see e.g., van Ommeren et al., 1999 and 2000; Kan, 2002 and 2003; Kronenberg and Carree, 2012). The determinants and consequences of mobility are critical, as they are strongly related to the growth, decline, and restructuring processes of urban areas. Understanding the interplay between residential and job mobility is even more imperative, as it can enable us to grasp the critical connection between housing and labor markets and to apply housing policies (or other interventions in real estate development, such as land use planning and regulation) in an attempt to achieve favorable labor market outcomes or economic development, and vice versa (see e.g., Johnes and Hyclak, 1999; Glaeser et al., 2006; Vermeulen and van Ommeren, 2009; Kim, 2011 for a discussion of the importance of the interrelationships).

Although previous mobility research reported in the literature has covered a variety of mobility-related issues, the previous research has typically

focused on individuals' perspectives and micro-level decision making. For instance, a majority of the empirical studies that have been conducted to identify the major factors in residential and job mobility have examined when and why an incidence of turnover occurs using individual- or household-level data (Dieleman, 2001). Another set of studies, such as those by South and Deane (1993), South and Crowder (1998), and Bolt and Van Kempen (2010), investigated whether a certain group of the population has limited mobility due to some disadvantages in terms of financial capabilities or access to information, again based on the perspective of individual decision makers. This orientation toward individual-based research is perhaps desirable, because "move or not" is basically the choice granted to and made by individual economic agents.

However, a study on a more aggregated scale, particularly a regional level analysis, can also be meaningful for several reasons. First, a region-based examination can provide a system-wide understanding of the mobility dynamics that is essential not only for academic research purposes but also for policy making and implementation in the field. Secondly, aggregation can enrich and/or facilitate various types of empirical research, because generally data at aggregated scales are more readily available than the individual level, which is often much more restricted due to confidentiality issues. More

importantly, the regional perspective can reflect the importance of the context in which individual decisions are made and the critical interlinkages among the numerous individual turnovers within a regional system (through housing vacancy or job vacancy chains – see e.g., White, 1971; Persky and Felsenstein, 2008; Ben-Shahar and Sulganik, 2011). Therefore, a regional (i.e., macro) perspective can complement micro-level approaches to understanding the nature of mobility dynamics (Cadwallader, 1989 and 1992).

Taking such a regional approach having the aforementioned merits, this study seeks to understand how and why residential and job mobility rates vary across regions. More specifically, the present study explores the interregional variation of mobility in the U.S. using recent American Community Survey (ACS) and Longitudinal Employer–Household Dynamics (LEHD) data for the periods before (2005–2007) and during (2008–2010) the recent economic recession. In addition, it identifies key determinants of residential and job mobility dynamics by employing a simultaneous equations model, in which explicit consideration is given to the interplay between the two mobility variables.

The remainder of this study proceeds as follows. Drawing on the literature, section 2 discusses how macro factors can shape residential and job mobility dynamics. Section 3 explores the interregional mobility variation in

the U.S. A statistical analysis based on a simultaneous equations model is then presented in section 4, followed by a concluding section in which the main findings of this research and their implications are discussed.

2. Residential & Job Mobility: Manifestation of micro decisions under macro forces

As noted earlier and as extensively discussed in the literature, changing the location of residence and/or workplace is a result of an individual household's or worker's choice based on various factors that can affect their lifetime utility. Although it appears that disagreement exists in the literature on whether and to what extent this decision making can be described as rational or bounded-rational behavior, recent studies tend to view residence and job changes as manifestations of choice from the perspective of an individual agent with a certain socio-economic status at a certain life stage (Dieleman, 2001; Winstanley et al., 2002). Furthermore, it has been suggested that residential and job relocation decisions are highly interrelated with each other and sometimes jointly made, because one choice can significantly affect the

outcome of another (Clark and Withers, 1999; van Ommeren et al., 1999 and 2000; Kim et al., 2005; Kronenberg and Carree, 2012).

As the choices are basically contained in an individual decision maker's realm, residential and job mobility can be primarily determined by their interests, capabilities, and perspectives which are highly correlated to the individual's demographic and socio-economic status. The choice, however, can also be largely shaped by many factors outside of the micro agent's control. One's residential or job turnover is inevitably associated with others within the same region through housing and job vacancy chains (White, 1971; Persky and Felsenstein, 2008; Ben-Shahar and Sulganik, 2011). Furthermore, as suggested by institutionalists and political economists, a variety of macro-level forces can generate quite distinct patterns of residential and/or job change trajectory by 1) expanding or constraining available choice options, 2) altering uncertainties and transaction costs and 3) modifying many other elements of the context in which the decision is made, and thus, careful consideration of such macro-level factors is needed to obtain a more complete understanding of the mobility dynamics (Cadwallader, 1992).

The local housing market structure and associated institutional environment, among other factors, can affect mobility dynamics substantially (Strassmann, 1991; Dieleman et al., 2000). Residential mobility can be

significantly influenced by the size, composition, efficiency, and cycle of local housing markets as well as housing policies (van der Vlist et al., 2002; van Ommeren and van Leuvensteijn, 2005; Ferreira, 2010). Land use regulation matters as well, as it alters local and regional housing market conditions (Glaeser et al., 2006; Saks, 2008; Kim and Hewings, 2013). The well-known spatial mismatch hypothesis (Kain, 1968) and many subsequent studies (e.g., Holzer, 1991; Gobillon et al., 2007) also suggest the importance of housing development and distribution in determining residential mobility and further labor market outcomes by investigating how the difficulty of finding living places close to the potential employers can limit the mobility and create a serious employment problem. Oswald's (1996 and 1997) hypothesis and the follow-up tests (e.g., Green and Hendershott, 2001; Munch et al., 2006) also highlight the point that the housing market can be crucial to the rise and fall of both residential and job mobility.

Similarly, the macroeconomic situation, which determines the availability of job opportunities and the future expectation of forwarding-looking economic agents, can have a significant impact not only on job turnovers but also on residential mobility (Clark et al., 1994). For instance, household relocation can be dampened by an increase in the unemployment rate during a regional economic downturn (Pissarides and Wadsworth, 1989;

Hacker, 2000). Furthermore, the detailed composition of a regional economy, including its industrial structure and the size distribution of firms, can determine regional job turnover dynamics and residential relocation processes (Kalleberg and Van Buren, 1996; Kronenberg and Carree, 2012).

More profound factors include the socio-political and institutional contexts. In fact, the micro decision can be viewed as a "behavioral response" to the "structural context" (Woods, 1985, p.3). Cultural norms, legal constraints, political structures, and many other social circumstances can constrain decision-making processes and alter the choice outcomes, so macro-perspectives are required to thoroughly understand why people change their residences and jobs. These contextual factors may not differ very significantly in a society over short periods of time, but their importance should not be underestimated, as they can govern a variety of individual decision making, including residential and job choice.

Taking these factors into account, the following sections empirically analyze how residential and job mobility rates vary across regions in the U.S. and what factors were critical in shaping their variation before (2005–2007) and during (2008–2010) the recent economic recession.

3. Interregional Mobility Variation in the U.S.

Whereas the long-form survey of the U.S. decennial census (which was replaced by the ACS) asked people if they had changed their places of residence in the last 5 years, the ACS, a new vehicle for a comprehensive survey of American's socio-economic status and behavioral patterns, asks "Did this person live in this house or apartment 1 year ago?" and "Where did this person live 1 year ago? Name of city, town, or post office" (US Census Bureau, 2005). The responses to these survey questionnaires provide a reliable and comprehensive picture of Americans' residential mobility.[1] According to the ACS, 15~17% of the population moves every year in the U.S., which is higher than the rates in many other countries (Long, 1991; Strassmann, 1991). Among others, more than two thirds (11~12% of the total of 15~17%) of the movers living in a metropolitan statistical area (MSA) relocate within the same MSA (figure 1).

<< Insert Figure 1 about here >>

[1] Previous research has typically used Panel Study of Income Dynamics (PSID) data or American Housing Survey (AHS) to examine residential mobility issues. While these data sources have some merits (e.g., repeated survey of the selected sample), their sample sizes are much smaller than the ACS, which includes about two million housing units and their residents in the U.S. every year.

One important point to be stressed is that this pattern of residential mobility is not uniform over space. Substantial heterogeneity (from under 10% to over 30%) exists across regions, as shown in figure 2, in which the percentages of the movers in 342 U.S. MSAs are plotted.

<< Insert Figure 2 about here >>

As explained by Dieleman et al. (2000), a large portion of the variation may be attributable to differences in demographic make-up among regions. In other words, the more people with a high propensity to move live in a region, the higher the residential mobility is. This point is well demonstrated in table 1, which shows that most of the MSAs exhibiting the highest regional mobility levels are so-called college or military towns with a high percentage of young people who tend to move more frequently.

<< Insert Table 1 about here >>

Although the demographic composition would be the most important determinant (as regional mobility is an aggregated outcome of numerous individuals' choices concerning the course of their life trajectories), many macro-forces can also play a critical role in shaping the mobility dynamics of each region. For instance, as discussed in the previous section, the local and regional housing market situation (e.g., housing stocks, house price levels and

fluctuations, mortgage rates, transaction costs, etc.) can significantly influence the rise and fall of residential mobility in spatially divided market systems. Furthermore, residential mobility can be significantly influenced by job mobility in the region, which can be influenced by other factors, such as regional industrial structures and labor market conditions.

Figures 3 and 4 show how residential mobility is associated with job mobility (*Job.Mobility*) in the U.S., which is measured using the average of quarterly accession and separation rates, as a part of the LEHD dataset provided by the US Census Bureau (Abowd et al., 2006, p.108).

$$Job.Mobility_{i,t} = \frac{1}{n}\sum_{q=1}^{n}\frac{(FA_{i,q} + FS_{i,q})/2}{F_{i,q}} \quad (1)$$

where $F_{i,q}$ is the average full-quarter employment in region i during quarter q; $FA_{i,q}$ and $FS_{i,q}$ represent job accession (i.e., flow into full-quarter employment) and separation (i.e., flow out of full-time employment), respectively, during the quarter; and n indicates the number of quarters in the time period t for which job mobility in each region is calculated (e.g., n=12, if t is a 3-year period).

<< Insert Figures 3, 4, and 5 about here >>

As shown in figure 3, residential mobility is positively correlated with job mobility, which varied substantially across regions, in years 2005–2007. This holds true during the current economic recession years (2008–2010), although

the correlation was found to be slightly lower during the latter period (figure 4). The correlation itself, however, does not reveal how the two mobility variables interact with each other under the influences of various macro forces. The mobility dynamics can be better analyzed through a more rigorous examination with consideration of the potential bi-directional interactions and other factors influencing residential and job mobility rates. The next section provides an analysis conducted with such considerations to identify key determinants of the two regional mobility variables and their interplay.

4. Analysis of Key Determinants and Interplay

4.1. Model & Variables

To better analyze residential and job mobility dynamics, the present analysis employs a simultaneous equations model, in which explicit attention is paid to the interplay between the two variables of interest (i.e., the effect of residential mobility on job turnovers and vice versa). More specifically, residential mobility (*Res.Mobility*) and job mobility (*Job.Mobility*), discussed in the previous section, are set as functions of their influence on each other and other (potential) determinants, as follows.

$$\text{Res.}Mobility_{i,t} = \alpha^R + \theta^R \cdot Job.Mobility_{i,t} + \sum_j \beta^j \cdot X_{i,t}^j + \varepsilon_{i,t}^R \qquad (2)$$

$$Job.Mobility_{i,t} = \alpha^J + \theta^J \cdot \text{Res.}Mobility_{i,t} + \sum_k \beta^k \cdot Z_{i,t}^k + \varepsilon_{i,t}^J \qquad (3)$$

where *i* and *t* denote regions and time periods, respectively; α^R and α^J are the constants of the residential and the job mobility equations; θ^R and θ^J are the coefficients which reflect one type of mobility's effect on the other (i.e., the interplay between residential and job mobility); $X_{i,t}^j$ and β^j are the *j-th* factor of the residential mobility and its coefficient; $Z_{k,i,t}$ and β^k are the *k-th* factor of job mobility and its coefficient; and $\varepsilon_{i,t}^R$ and $\varepsilon_{i,t}^J$ are independent and identically distributed error terms.

The model can handle the potential simultaneity between regional residential and job mobility, when estimated through two-stage least squares (2sls) regression or other appropriate estimation techniques, and can determine how the two mobility variables interact with each other and what other factors shape interregional variation of mobility. Based on the discussion in section 2, this analysis considers a broad range of factors, including not only each region's demographic make-up but also macro settings that may affect residential and/or job turnover rates in metropolitan areas. More specifically, the shares of two groups of young households – 1) those with householders aged 15~24 and 2) those with householders aged 25~34 – are included in both

X and *Z*, representing potential determinants of residential and job mobility rates. In addition to these age-cohort variables, consideration is given to the residents' race (share of white population), ethnicity (share of Hispanic population), educational attainment (share of the population aged 25 and over with a bachelor's degree or higher), and home ownership status (share of owner-occupied housing units) in each region. Furthermore, the analysis includes several variables to capture the effects of housing market conditions (e.g., the median age of the housing stock, the house price level normalized by the median household income in each region) and a group of regional economic indicators (e.g., the shares of several industries that exhibit a relatively higher level of turnovers, i.e., construction, retail, and accommodation/food services, and the percentages of small and large businesses). To take other contextual factors into account, the analysis also includes the population and employment sizes of the metropolitan areas, the mean commuting times and the Right-to-Work (RTW) status of each region which characterizes the labor market context across states in the U.S.[2]

[2] In the U.S., more than 20 states have implemented RTW laws that "typically state that no person will be required to become a union member or, conversely, be required to abstain from union membership as a condition of obtaining or retaining employment." (Lumsden and Petersen 1975, p.1237). While some studies suggest that RTW legislation often remains symbolic, many others show that the legislation can have substantial impacts on union activities and other aspects of the economy (see e.g., Moore and Newman 1985 and Moore 1998 for detailed reviews). Therefore, RTW status is considered in this study as a key contextual factor that can shape regional job mobility. It needs to be noted that the regions in

4.2. Data

As noted in the previous section, this study utilizes ACS and LEHD data to analyze region-wide residential and job mobility during the two time periods of interest, before (2005–2007) and during (2008–2010) the economic recession. The data for demographic and housing characteristics are also obtained from ACS, one of the most comprehensive datasets provided by the U.S. Census Bureau. The analysis also uses County Business Pattern (CBP) and Regional Economic Information Systems (REIS) data on regional economic indicators. Table 2 presents a summary of the variables and data sources employed in the study. From the sources of information, data for 342 MSAs are compiled without any missing values. The 342 regions account for approximately 92% of the total MSAs in the U.S. (defined as of the year 2005).

<< Insert Table 2 about here >>

4.3. Results

Through 2sls regression, the simultaneous two-equation model is estimated for the two distinct time periods. The estimation outcomes are summarized in

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Indiana, which became the 23rd RTW state in the U.S. in 2012, are regarded as a non-RTW case, since this study focuses on the periods, 2005-2007 and 2008-2010.

tables 4 and 5, in which the ordinary least squares (ols) estimation results are also presented for comparison purposes. The r-squared values (0.70~0.75 for residential mobility and 0.45~0.59 for job mobility) seem to suggest that the model explains a satisfactory, if not great, extent of the variation of mobility, although the model's explanatory power is relatively poorer, when it is applied to the second time period (i.e., 2008–2010, during the current economic recession). The 2sls F-test and the Sargan test statistics also show that the 2sls estimation is basically sound, with valid instruments that are significantly correlated with endogenous variables but not correlated with residuals.

<< Insert Table 3 about here >>

Residential mobility in 2005–2007 (i.e., before the recession) is found to be significantly influenced by a region's job mobility. One percentage point of increase in the quarterly job turnover rate seems to induce nearly 0.9 of a percentage point of increase in annual residential mobility in the metropolitan areas (table 3). The magnitude of this effect exceeds the expected amount of residential mobility change in response to a unit change in any other major factors, including *Household.Age15-24.Share* (+0.331), *Household.Age25-34.Share* (+0.246), and *Owner.Share* (-0.349).

Demographic composition is also found to play a critical role in determining the level of residential mobility. Two variables related to the

shares of young household groups (i.e., those with householders aged 15~24 and 25~34), show significant positive effects on residential mobility, as anticipated. In addition, a higher level of residential mobility is detected in the regions with larger percentages of white, non-Hispanic, highly educated, and renter populations.

More importantly, the housing market variables (i.e., *Median.Housing.Age* and *Housing.Price*) turn out to be significant with expected signs. In detail, the estimation results suggest that residential mobility is relatively lower in the MSAs, in which the regional housing stock consists of a small share of newly constructed houses, as indicated by high *Median.Housing.Age* levels (i.e., a relative shortage of housing supply). The significant negative coefficient (-0.003) of *Housing.Price* also seems to imply that the mobility rates tend to be lower in areas where housing is expensive (even after normalized by the region's income level), which is consistent with the findings of earlier studies on the mobility implications of housing market conditions.

The mean commuting time, however, does not exhibit a significant coefficient, although it is anticipated that a long commuting time can motivate

individuals to change their residence or job locations.[3] The insignificant coefficient of this term needs to be interpreted with caution. It does not indicate that commuting does not matter. Rather, as an outcome of a metropolitan scale analysis, it may suggest that a metropolis with longer commuting does not necessarily have a higher residential rate. This finding seems to be associated with the fact that the sample used in the analysis includes a large number of small and medium-sized metropolitan areas in which commuting time is not a serious concern for the majority of residents. Even in a large metropolitan area, commuting time would not always trigger moves, since "relocation is not an "all-or-nothing" decision, … rather … individuals try on average to maintain commuting times" (Levinson, 1997, p.469).

Job mobility during the 2005–2007 period (i.e., before the recession) is also found to be affected by residential mobility, although the significance and the magnitude of this effect are much weaker than those in the opposite direction. The estimation results also reveal the significance of many other determinants of job mobility in U.S. metropolitan areas. Specifically, with respect to the regional industrial structure, unit increases in the shares of the construction, retail, and accommodation/food service sectors are found to raise

[3] It needs to be noted that no significant effects were found, even when alternative commuting metrics, such as the percentage of workers spending 60 minutes or longer for their commuting in each region, were tested.

regional job turnover rates by +0.113, +0.081, and +0.058, respectively. Furthermore, the RTW variable shows a significant, positive impact on job mobility, even though the size of the effect is relatively small. This finding is consistent with the notion that employment in RTW states is not as stable as in non-RTW areas, where labor union activities are more vibrant and influential, although a more rigorous examination is required to determine if the gap detected here is really attributable to the employment insecurity and/or a lower barrier to entry in RTW states. In contrast, the share of large businesses (100+ employees) exhibits a significant, negative coefficient as also found by Rebitzer (1986) and Idson (1993), while the share of small firms (1~4 employees) in the region is insignificant. As for residential mobility, no significant influence of commuting time is detected.

<< Insert Table 4 about here >>

The estimation outcome for the recent economic recession period (i.e., the second period of time: 2008–2010) is not the same as that for the first time period (2005–2007). While residential mobility is found to be largely influenced by job mobility and housing market factors during both periods, the estimate of *Household.Age25-34.Share* turns out to be insignificant (+0.012, not statistically significant even at the 10% level) for the latter period, although it shows a significant, positive impact on residential mobility (+0.246,

significant at a level of 0.1%) for the 2005–2007 period. This finding indicates that householders aged 25-34 tended to remain in the same place longer during the economic recession, whereas they moved more frequently than people in other age groups in the pre-recession period. The finding also highlights the fact that mobility patterns can significantly vary by context, as individual decision making is inevitably bound by macro-level conditions.

In the case of the estimates for job mobility, the differences between the first and second periods are even more substantial. The effect of residential mobility turns out to be insignificant during the second time period, 2008–2010, which were recent years of an unusual economic recession. This result may suggest that workers tried to hold their jobs during these years given extraordinarily tough job market situation, even when they needed to or wanted to change their living places. The RTW status also shows an insignificant coefficient during this period, suggesting that there was no significant gap between RTW and non-RTW states in terms job mobility during the recession, while the RTW status had a significant effect on job mobility in the three-year period before the economic crisis started. In addition, the retail sector share is insignificant during the second period, although it exhibits a significant coefficient during the earlier period of time. These differences may be related to the complex and heterogeneous nature of

mobility dynamics under the influences of various factors at multiple scales. In other words, residential and job mobility can be understood more effectively through consideration of a broad range of system-wide forces and circumstances, in addition to individuals' viewpoints.

5. Summary & Discussion

In an attempt to better understand the mobility dynamics that underlie the growth, decline, and restructuring processes of metropolitan areas, this study explores how residential and job mobility rates vary across regions in the U.S. with an emphasis on the interplay between the residential and job mobility. In addition, it attempts to identify the macro factors that shape the interregional variation in mobility. This is accomplished by analyzing recent ACS and LEHD datasets covering two distinct time periods: before (2005–2007) and during (2008–2010) the economic recession.

It is found that both residential and job mobility rates differ significantly across regions in the U.S., and demographic compositions play a critical role in determining the level of mobility in each region, as suggested by a number of studies in which mobility at individual scales has been

investigated. The results of this study, however, also show that many other system-wide factors (e.g., housing market conditions, regional economic structures, and other contextual settings) can constrain or facilitate individuals' moving decisions and thus have significant effects on mobility dynamics. Furthermore, the results suggest that residential and job mobility rates are tightly connected and thus need to be managed with consideration of their interplay.

More specifically, the outcomes of the estimation of the simultaneous equations model highlight the significant influence of job turnovers on residential relocation processes. This connection is found to be strong not only in 2005–2007, a period of ordinary economic growth, but also in 2008–2010, a period of economic recession. The connection may imply that a change or an intervention in labor markets can have substantial impacts on the behavior of local and regional housing markets. This suggests the possibility of modifying housing market outcomes (e.g., managing housing vacancies or promoting homeownership) through interventions in labor markets (e.g., enhancing employment security or removing barriers to information and equal opportunities). At the same time, the connection can be regarded as a signal to urban planners and other policy makers to watch for unexpected consequences

for housing markets when changes occur in labor markets or in associated economic circumstances.

Although relatively weak, residential mobility is also found to have an effect on mobility in labor markets during the period, 2005–2007. This finding seems to indicate another important connection in the other direction, suggesting that labor market dynamics can also be affected by housing or land use polices that can significantly modify residential relocation processes. However, during the recession period analyzed (2008–2010), the connection appears to become insignificant.

The distinct pattern of the interplay seems to underscore the point that mobility behaviors are likely to be heterogeneous in different contexts. Presumably, this point has widely been acknowledged, but surprisingly little is known about it. Under what circumstances do people tend to move or stay, even if they are supposed to stay or move in other contexts? How does such a shift in decision making affect the long-term trajectory of the decision maker's lifetime utility and the behaviors of other agents in the system? Does the shift have disproportionate effects on different population groups? To gain a more complete understanding of the critical mobility dynamics involved, close attention needs to be paid to various macro-scale conditions that can reshape

the dynamics by formulating the joint residential-job choice problems of individual agents differently.

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Table 1. MSAs with the Highest Mobility Levels

Rank	Metropolitan Statistical Areas	Residential Mobility (Mover's %)	% of households w/ h.holders aged 15~24	% of households w/ h.holders aged 25~34
Year 2005~2007 (ACS 2005-2007 3 Year Estimates)				
1	Ames, IA	32.3%	18.8%	19.9%
2	Hinesville-Fort Stewart, GA	31.7%	10.7%	26.0%
3	Ithaca, NY	30.9%	14.5%	23.1%
4	Jacksonville, NC	30.6%	11.6%	21.4%
5	Lawrence, KS	29.3%	14.9%	20.7%
6	College Station-Bryan, TX	29.3%	21.7%	20.5%
7	Corvallis, OR	28.9%	14.1%	16.8%
8	State College, PA	28.7%	15.4%	18.1%
9	Lafayette, IN	27.9%	13.5%	20.6%
10	Blacksburg-Christiansburg-Radford, VA	27.3%	13.1%	18.7%
cf. Mean of the 342 MSAs considered		*18.4%*	*6.1%*	*16.7%*
Year 2008~2010 (ACS 2008-2010 3 Year Estimates)				
1	Ames, IA	30.1%	22.0%	19.8%
2	Jacksonville, NC	29.9%	16.3%	22.6%
3	College Station-Bryan, TX	29.9%	22.5%	19.6%
4	State College, PA	29.2%	16.7%	16.7%
5	Lawton, OK	28.9%	6.9%	20.3%
6	Lawrence, KS	28.8%	17.4%	21.7%
7	Muncie, IN	27.7%	10.8%	12.9%
8	Ithaca, NY	27.5%	11.7%	19.0%
9	Columbia, MO	27.4%	14.3%	20.6%
10	Bloomington, IN	27.0%	12.9%	18.0%
cf. Mean of the 342 MSAs considered		*17.0%*	*5.8%*	*15.8%*

Table 2. Variables & Data

Variables	Description	Data Sources
Res.Mobility.	Residential mobility in each region	ACS 05-07 and 08-10 [a]
Job.Mobility	Job mobility in each region	LEHD [b]
Household.Age15-24.Share	Share of households with householders aged 15~24	ACS 05-07 and 08-10
Household.Age25-34.Share	Share of households with householders aged 25~34	ACS 05-07 and 08-10
White.Share	Share of white population	ACS 05-07 and 08-10
Hispanic.Share	Share of Hispanic population	ACS 05-07 and 08-10
High.Education.Share	Share of population age 25 and over with bachelor's degree or higher educational attainment	ACS 05-07 and 08-10
Owner.Share	Share of owner-occupied housing units	ACS 05-07 and 08-10
Median.Housing.Age	Median age of the housing units in each region	ACS 05-07 and 08-10
Housing.Price	Regional house price level [c]	ACS 05-07 and 08-10
Construction.Sector.Share	Share of *Construction* sector in terms of employment	CBP 2005 and 2008 [d]
Retail.Sector.Share	Share of *Retail trade* sector in terms of employment	CBP 2005 and 2008
AccommFoodService.Sector.Share	Share of *Accommodation and food services* sector in terms of employment	CBP 2005 and 2008
SmallBiz.Share	Share of small businesses (1~4 employees) in terms of the number of establishments	CBP 2005 and 2008
LargeBiz.Share	Share of large businesses (100+ employees) in terms of the number of establishments	CBP 2005 and 2008
Log.Population.Size	Log of regional total population	ACS 05-07 and 08-10
Log.Employment.Size	Log of regional total employment	REIS, BEA [e]
Mean.Commuting.Time	Region's mean travel time to work	ACS 05-07 and 08-10
RTW [f]	Right-to-work state dummy	NRTW [g]

[a] American Community Survey 3-year estimates
[b] Longitudinal Household-Employer Dynamics dataset, US Census Bureau
[c] = (Median value of specified owner-occupied housing units) / (Median household income)
[d] County Business Pattern data, US Census Bureau
[e] Regional Economic Information System, US Bureau of Economic Analysis
[f] If a metropolitan area is located in two different states (one RTW state and the other a non-RTW state), a value of 0.5 is assigned to this variable for the region. Otherwise, a value of 0 (non-RTW) or 1 (RTW) is assigned to each region.
[g] National Right-to-Work Legal Defense Foundation, Inc.

Table 3. Estimation Result: Period 1, 2005–2007 (n = 342 U.S. metropolitan areas)

Variable	2SLS				OLS			
	Residential Mobility (*RMOBR*)		Job Mobility (*JMOBR*)		Residential Mobility (*RMOBR*)		Job Mobility (*JMOBR*)	
	Estimated Coefficient	Standard Error	Estimated Coefficient	Standard Error	Estimated Coefficient	Standard Error	Estimated Coefficient	Standard Error
C (intercept)	0.273 ****	0.042	-0.025	0.032	0.322 ****	0.037	-0.007	0.022
Res.Mobility			0.187 *	0.111			0.102 ****	0.028
Job.Mobility	0.875 ****	0.165			0.513 ****	0.088		
Household.Age15-24.Share	0.331 ****	0.065	-0.033	0.055	0.364 ****	0.062	-0.001	0.035
Household.Age25-34.Share	0.246 ****	0.064	0.007	0.060	0.220 ****	0.061	0.047	0.031
White.Share	0.066 ****	0.014	-0.033 ****	0.008	0.058 ****	0.013	-0.030 ****	0.007
Hispanic.Share	-0.029 ***	0.009	0.014 ***	0.005	-0.026 ***	0.009	0.012 ***	0.004
High.Education.Share	0.069 ****	0.021	-0.034 ***	0.013	0.055 ***	0.019	-0.030 ***	0.011
Owner.Share	-0.349 ****	0.038	0.096 ***	0.031	-0.338 ****	0.036	0.076 ****	0.018
Median.Housing.Age	-0.001 ***	0.000			-0.001 ****	0.000		
Housing.Price	-0.003 ***	0.001			-0.003 **	0.001		
Construction.Sector.Share			0.113 ****	0.032			0.124 ****	0.029
Retail.Sector.Share			0.081 **	0.039			0.086 **	0.038
AccommFoodService.Sector.Share			0.058 ***	0.023			0.068 ****	0.019
SmallBiz.Share			0.037	0.025			0.036	0.024
LargeBiz.Share			-0.520 **	0.208			-0.582 ***	0.189
Log.Population.Size	-0.003	0.002			-0.002	0.002		
Log.Employment.Size			0.002 **	0.001			0.002 **	0.001
Mean.Commuting.Time	-0.00029	0.00055	0.00002	0.00027	-0.00037	0.00053	-0.00001	0.00027
RTW			0.005 ***	0.002			0.006 ****	0.001
R2	0.749		0.591		0.760		0.601	
Adj. R2	0.740		0.572		0.752		0.583	
2sls f-test	f = 19.88 (p=0.000)		f = 7.27 (p=0.000)					
Sargan test	s = 4.27 (p=0.640)		s = 3.90 (p=0.142)					

****: 0.1% level, ***: 1% level, **: 5% level, *: 10% level significant

Table 4. Estimation Result: Period 2, 2008–2010 (*n* = 342 U.S. metropolitan areas)

Variable	2SLS				OLS			
	Residential Mobility (*RMOBR*)		**Job Mobility (*JMOBR*)**		**Residential Mobility (*RMOBR*)**		**Job Mobility (*JMOBR*)**	
	Estimated Coefficient	**Standard Error**	**Estimated Coefficient**	**Standard Error**	**Estimated Coefficient**	**Standard Error**	**Estimated Coefficient**	**Standard Error**
C (intercept)	0.342 ****	0.044	0.040 *	0.025	0.380 ****	0.040	0.035 *	0.020
Res.Mobility			0.019	0.075			0.045 *	0.025
Job.Mobility	0.789 ****	0.208			0.361 ****	0.103		
Household.Age15-24.Share	0.396 ****	0.071	0.072	0.051	0.445 ****	0.067	0.059 *	0.034
Household.Age25-34.Share	0.012	0.063	0.047	0.033	0.007	0.061	0.040	0.028
White.Share	0.053 ****	0.014	-0.019 ***	0.007	0.045 ****	0.013	-0.019 ***	0.007
Hispanic.Share	-0.023 **	0.010	0.012 ***	0.004	-0.016 *	0.009	0.012 ***	0.004
High.Education.Share	0.059 **	0.024	-0.031 ***	0.011	0.046 **	0.023	-0.031 ***	0.011
Owner.Share	-0.365 ****	0.042	0.047 **	0.023	-0.343 ****	0.040	0.052 ***	0.017
Median.Housing.Age	-0.001 ****	0.000			-0.001 ****	0.000		
Housing.Price	-0.006 ****	0.002			-0.006 ****	0.001		
Construction.Sector.Share			0.146 ****	0.028			0.145 ****	0.028
Retail.Sector.Share			0.012	0.037			0.008	0.036
AccommFoodService.Sector.Share			0.048 ***	0.019			0.047 ***	0.018
SmallBiz.Share			0.029	0.023			0.028	0.022
LargeBiz.Share			-0.564 ***	0.186			-0.551 ***	0.182
Log.Population.Size	-0.002	0.002			-0.002	0.002		
Log.Employment.Size			0.001	0.001			0.001	0.001
Mean.Commuting.Time	0.00013	0.00055	-0.00022	0.00025	0.00004	0.00053	-0.00022	0.00025
RTW			0.002	0.001			0.002	0.001
R2	0.704		0.447		0.718		0.449	
Adj. R2	0.694		0.422		0.708		0.424	
2sls f-test	*f* = 15.97 (p=0.000)		*f* = 13.18 (p=0.000)					
Sargan test	*s* = 12.09 (p=0.060)		*s* = 4.49 (p=0.106)					

****: 0.1% level, ***: 1% level, **: 5% level, *: 10% level significant

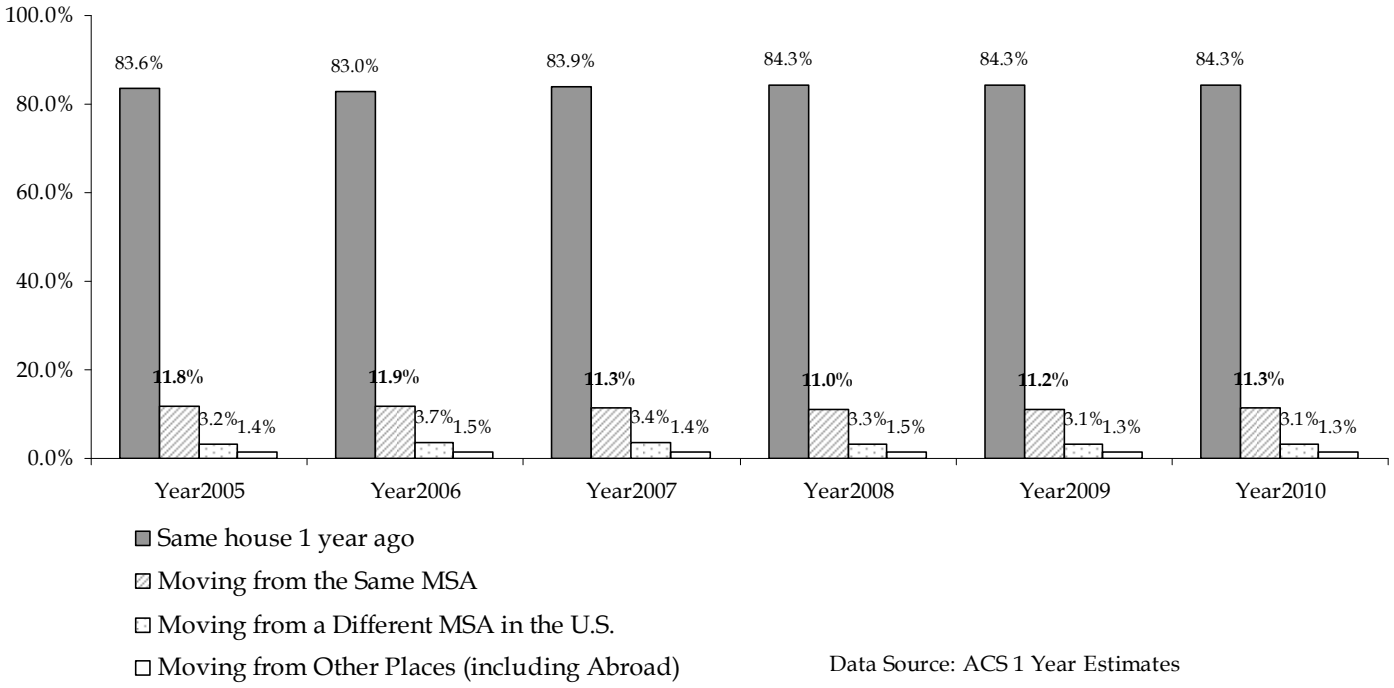

Figure 1. Residential Mobility Pattern in the United States

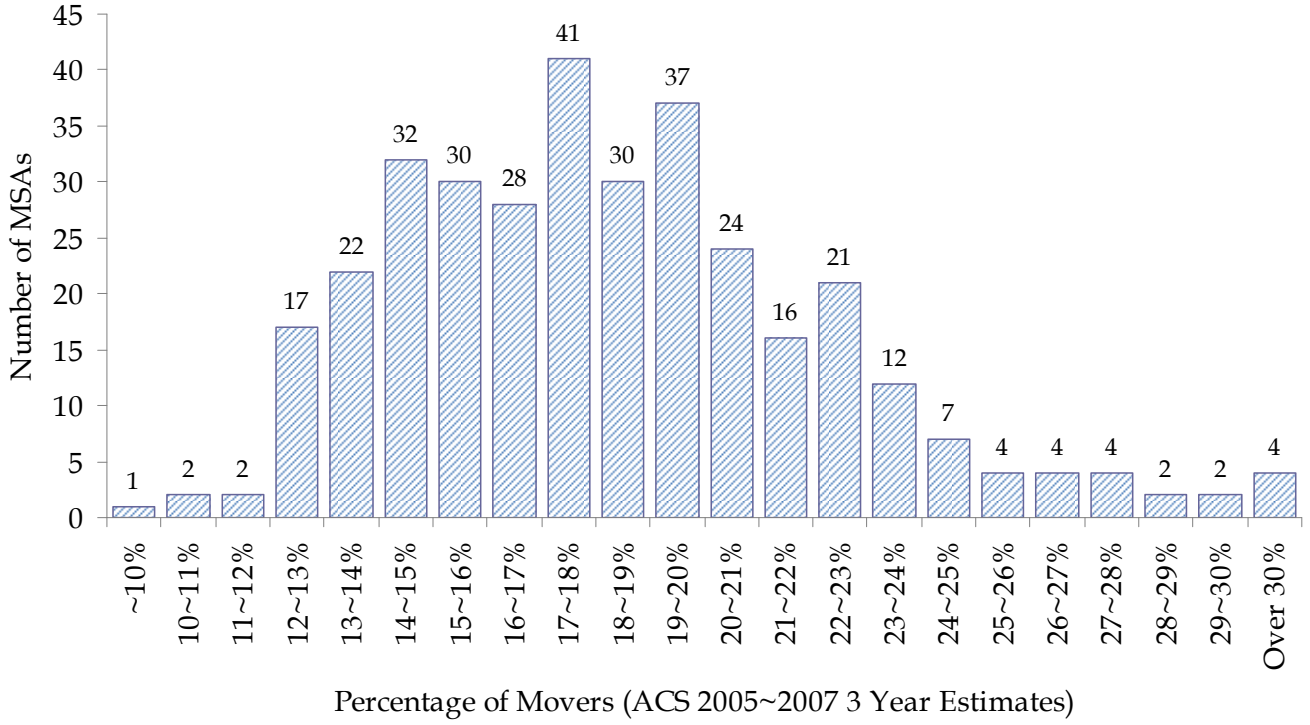

Figure 2. Interregional Variation of Residential Mobility

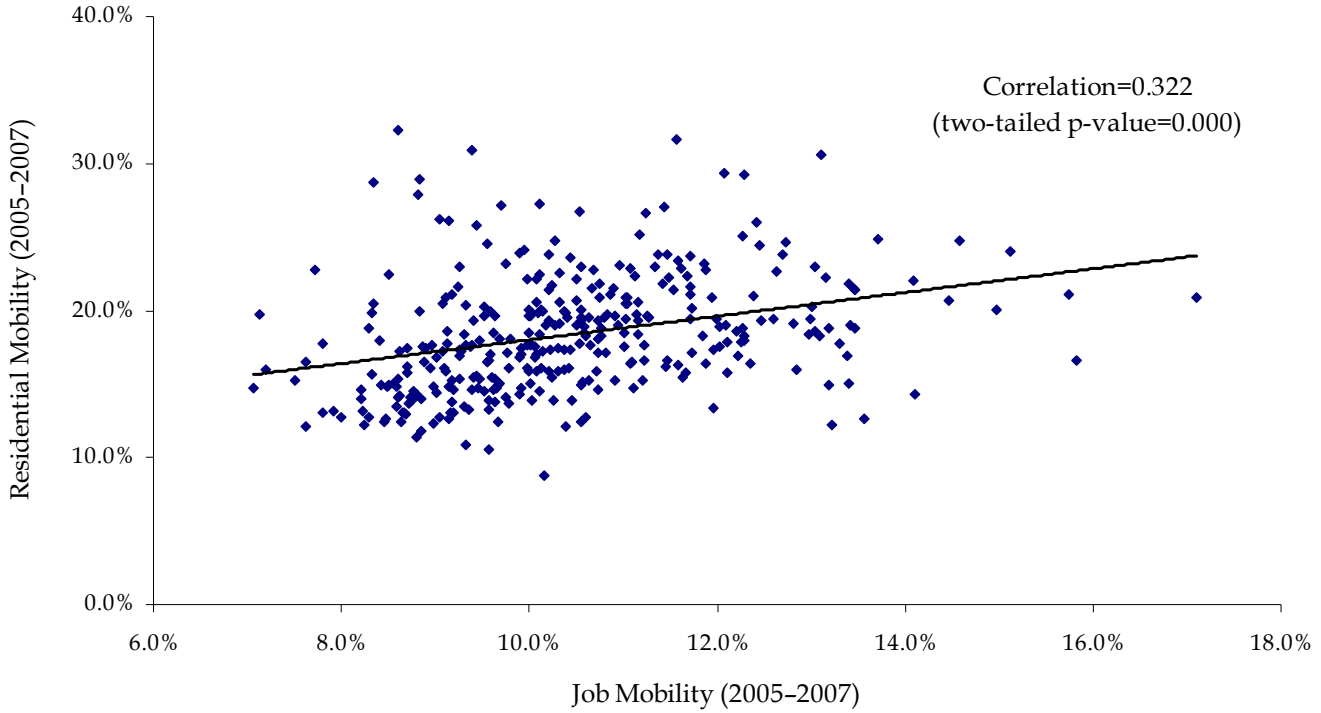

Figure 3. Residential – Job Mobility Interrelationship: Year 2005–2007

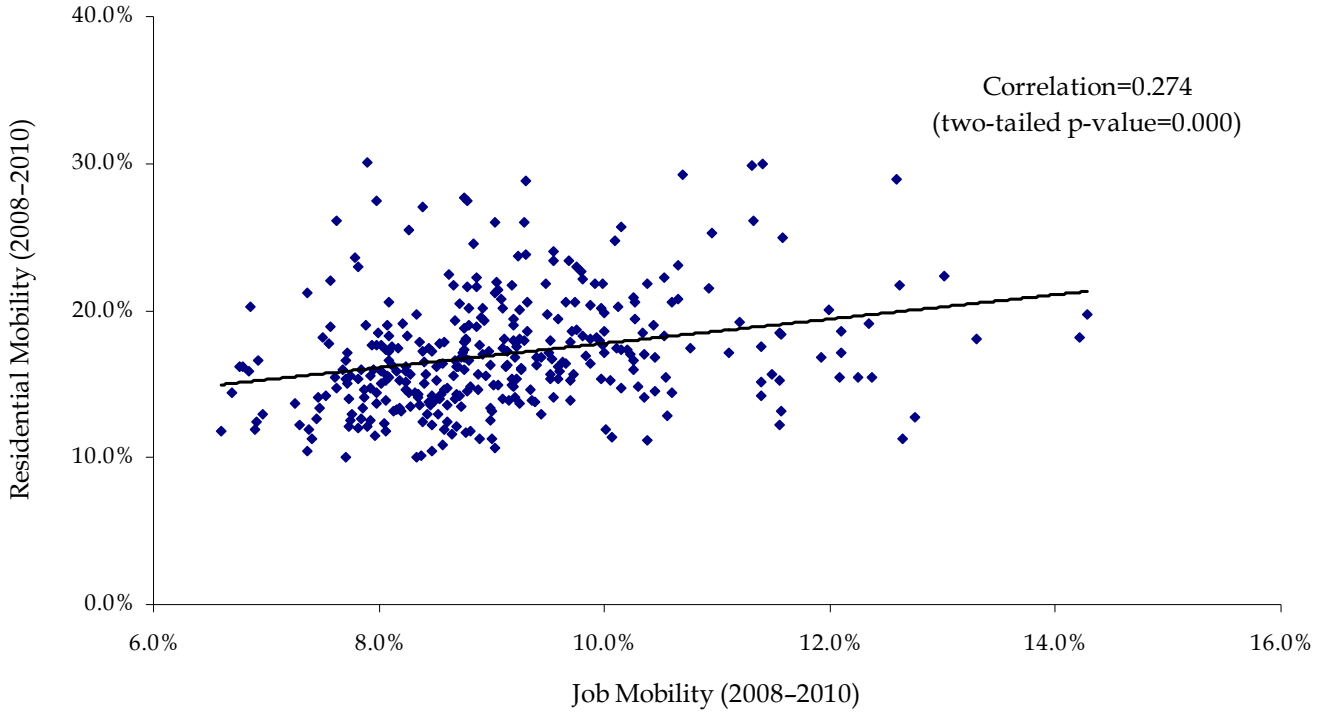

Figure 4. Residential – Job Mobility Interrelationship: Year 2008–2010

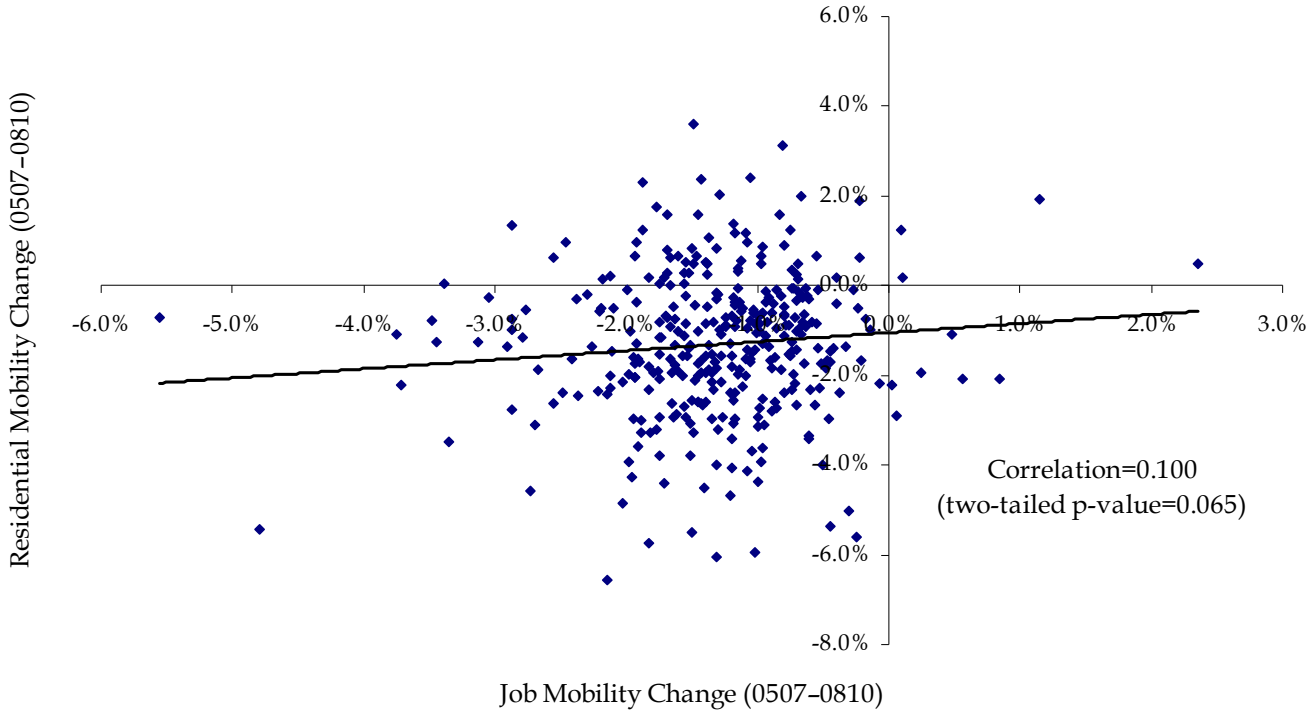

Figure 5. Residential – Job Mobility Change Interrelationship