Gender and Race Differences in Intergenerational Mobility Effects: Novel Method and New Evidence

Liying Luo

Department of Sociology & Criminology

Population Research Institute

Pennsylvania State University

John Robert Warren

Department of Sociology

Minnesota Population Center

University of Minnesota

Version: September 2018

Abstract

Intergenerational mobility and its consequences on individuals' attitudes, behaviors, and various outcomes have been a central topic in sociological and demographic research. Based on a critical assessment of previous methods that often impose simple yet unrealistic constraints, we propose a new method, called "mobility contrast model", for estimating and investigating the effects of intergenerational mobility. This new model is flexible for describing heterogeneity in mobility effects between mobile groups depending on their origin and destination status. Using this method to analyze the data from the General Social Survey 1974-2016, we found little association between mobility and fertility, but substantial and important gender and race differences in mobility effects on divorce rates and overall health.

Introduction

The social science literature has well documented the association between social, economic, and health outcomes and socioeconomic status (SES) including one's parents' SES (status of origin) and their SES in adulthood (status of destination). Sociologists have argued that the difference between origin and destination status—conceptualized intergenerational mobility or status inconsistency—may also affect individuals' behaviors and outcomes in a unique way that is beyond the additive effects of the statuses of origin and destination.[1]

When investigating the influence of status inconsistency or mobility, the analytic problem that has faced researchers for decades is the linear dependence between the three; that is, mobility=status of destination–status of origin. In other words, a mobility model that includes all three variables as additive, independent predictors does not have a unique set of estimates. The state-of-art method for addressing this model identification issue is called "diagonal model" proposed by Sobel (1981). However, as we will explain, the assumption based on which the diagonal model is identified may be too restrictive to investigate heterogeneity in mobility effects.

We propose to model intergenerational mobility as a special structure of the interactions between origin and destination status, which should represent a more flexible operationalization for examining heterogeneity among mobility groups. The objectives of this research are threefold: (1) we introduce an improved method, called "mobility contrast model", for simultaneously estimating and testing the effects of origin, destination status, and intergenerational mobility; (2) we compare and contrast the new model with Sobel's method and show that the status and mobility effects in the latter are in fact a special case of the more flexible new model; (3) we investigate

[1] We use the term "effects" following the convention without causal connotation.

two dimensions of heterogeneity in mobility effects, namely heterogeneous effects among mobile groups and heterogeneous responses to mobility between gender and race groups in several social and demographic outcomes.

The mobility contrast approach has two advantages over conventional methods. First, the new model does not assume any functional form of the mobility effects in relation to the origin and destination and thus is more flexible than other methods where mobility effects estimates depend on a single or a few constraints. Second, unlike previous effort that focuses on one or two aggregate mobility effects, the mobility contrast model allows researchers to explore important heterogeneities in mobility effects that depend on origin/destination status and between social and demographic groups.

Background

Intergenerational mobility including its magnitude, trends, and consequences has been a classic topic in sociology, economics, and elsewhere (see, e.g., Aaronson and Mazumder 2008; Chetty 2014; Duncan 1966; Hauser et al. 1975; Hout 1988; Long and Ferre 2013). At the societal level, intergenerational mobility has immense implications for demographic processes and social structures (Bean and Swicegood 1979; Hauser et al. 2000; Matras 1961; Stevens 1981; Torche 2014). At the individual level, mobility appears to affect individual behaviors and outcomes directly or indirectly through various intervening mechanisms but most notably stress and social isolation (Hout and DiPrete 2006; Simpson 1979; Solon 2014Sorokin 1927; Zimmer 1981) and "relative economic status" (Estaterlin 1975, 1978). There is extensive literature that examines such associations, either positive or negative, between intergenerational mobility and a variety of behaviors, attitudes, and outcomes such as mental conditions (Fox 1990; Houle and Martin 2011;

Kessin 1971), general health and well-being (Ahlburg 1998; Power et al. 1985; Schuck and Steiber 2017;), political attitudes and behaviors (Clifford and Heath 1993; Tolsma et al. 2009; Weakliem 1992), and vital rates (Claussen et al. 2005; Blane et al. 1999; Kasda et al. 1986; Tien 1951, 1967).

However, substantive conclusions about the effects of intergenerational mobility have been inconsistent and sometimes contradictory. For example, some earlier research showed no significant link between number of live births and mobility (Duncan 1965; Jackson 1972; Westoff et al. 1961), supporting the "null hypothesis" (Halaby and Sobel 1979) that suppose no additional mobility effects on fertility beyond an additive influence of origin and destination status. Other studies, however, found supportive evidence for a negative association between mobility and fertility (Billingsley 2012; Greenhalgh 1988; Rosvall et al. 2006; Simpson 1979) that can be attributed to social disintegration (Kasarda and Billy 1985) or relative income (Easterlin 1976).

Whereas some of these discrepancies may be attributed to data differences such as different sample sizes and characteristics or measurement issues, the gap at least partially stems from a disagreement about methods for estimating and inferring the effects of mobility. To motivate and contextualize the model that we propose in the next section, below we review three major methods that have been used in sociological research.

Review of Previous Methods

Social scientists have debated for decades about appropriate methods for estimating and inferring the effects due to mobility, although the discussions have been largely dormant since the 1980s. Lenski (1964) and Blalock (1967) were among the first to explore intergenerational mobility effects. Their models can be expressed using the following analysis of variance (ANOVA) model:

$$g(E(Y_{ij})) = \mu + \alpha_i + \beta_j + \gamma_k, \quad (1)$$

for origin status groups $i = 1,2,\ldots,I$, destination status groups $j = 1,2,\ldots,J$, and mobility $k = 1,2,\ldots,K$. $E(Y_{ij})$ denotes the expected value of the outcome Y for the ith origin group in the jth destination group; g is the "link function"; α_i denotes the mean difference from the global mean μ associated with the ith origin status category; β_j denotes the mean difference from μ associated with the jth destination status category; γ_k denotes the mean deviation associated with the kth mobility category. Lastly, a coding scheme is required to identify any ANOVA model like equation (1).[2]

Unfortunately, when the three predictors are linearly dependent—that is, when any two of the three variables can completely determine the value of the third—the model does not have a unique solution even with the usual constraints.[3] Several approaches have been developed to address this identification issue, most notably Duncan (1966)'s "square additive" model, Hope (1975)'s "diamond model", and Sobel (1981)'s "diagonal model". To contextualize and motivate the model that we introduce in the next session, we review below each approach's strengths and limitations.

[2] Common coding schemes or constraints include omitting one group of each variable as the reference (i.e., dummy or treatment coding) or assuming that the coefficients for each variable are summed to zero (i.e., effect or sum-to-zero coding).

[3] The conundrum of the mobility model presents one of such linear dependency problems. Another well-known example of linear dependence is the age-period-cohort problem, where birth year (cohort) = survey time (period) – age. Methodologists disagree about whether a complete and satisfactory solution exists.

In a method that was later labeled "square additive model", Duncan (1966) suggested modeling mobility as the interaction between origin and destination. That is, instead of including mobility as an independent, additive variable as in model (1), it considers mobility as the interactions between the origin and destination main effects. That is, the additive, independent quantity γ_k is replaced with an interaction term δ_{ij}. Duncan justified his model specification by arguing that we should not expect mobility effects when the patterns in the outcome for a mobility group can be summarized as an additive combination of the origin and destination status (1967: 93). The left panel of Table 1 illustrates the parameterization, where $E(Y_{ij})$, g, α_i, and β_j are the same as defined in model (1); δ_{ij} denotes the interaction of the ith origin group and jth destination group, corresponding to the effect of the ijth mobility category. We omit the grand mean μ from each cell for clarity.

[Table 1 about here]

Duncan's method was used in the 1970s in a few empirical studies to investigate how fertility (Duncan 1966), social participation (Vorwaller 1970), and political attitudes (Jackman 1972; Laumann and Segal 1971) may be related to intergenerational mobility. Contrary to what the researchers had hypothesized, most studies showed either neglectable or non-existing mobility effects in those outcomes (Jackson and Curtis 1972). This model was subsequently subject to criticism that whether it estimates the kind of status and mobility effects that sociologists have theorized. It was in this context that Hope (1975) and Sobel (1981, 1985) developed alternative methods for quantifying the effects of status and mobility.

Specifically, Hope argued that the main effects of each class or status should be restricted to those "life-time" status holder (1975: 336). Following this reasoning, the estimates of each class in Duncan's model was deemed "contaminated" as it blends characteristics of the nonmobile and

mobile individuals from different origins. Hope argued that Duncan's model failed to estimate what the model was purported to test, and subsequently developed a model called the "diamond model".

The diamond model is essentially a manipulation or rearrangement of the parameters specified in Duncan's model. To illustrate, consider the parameterization in the middle panel of Table 1. The rows are defined by the number of upward or downward steps that an individual experience steps regardless of their origin status. The columns are "general status" (GS) groups based on the sum of the ranks of one's origin and destination status. For example, GS 3 consists of individuals from origin status 1 and destination status 2 and those from origin status 2 and destination status 1.

Although it is not unreasonable to focus on upward and downward mobility steps as the rows represent, the more serious challenge with the Hope's method lies in what sociological substance the "general status" groups in the columns actually represent. For example, it is unclear about why GS 3 is a meaningful aggregate for two distinct mobility groups, one from origin status 1 and destination status 2 and the other from origin status 2 and destination status 1. The two groups have experienced opposite mobility and are likely to differ in their economic and social resources. As Sobel (1981: 895) pointed out, the diamond model "is not consistent with Hope's contention that class effects should be parameterized with respect to the diagonal cells of the mobility table." In other words, the model that Hope developed fails because it does not establish a correspondence between sociological substance and statistical quantity.

Sobel (1981) attempted to improve Hope's method by proposing a method that he called the "diagonal model". Similar to the diamond model, the diagonal model excludes movers and relies on stayers for estimating status effects. To quantify mobility effects, the diagonal model

imposes one or more proportional constraints for the parameters in the off-diagonal cells in a mobility table. The right panel in Table 1 illustrates how Sobel's model is parameterized. The parameters in the three cells that lie along the shaded, upper-left to lower-right diagonal are θ_1, θ_2 and θ_3, respectively. The parameters in the off-diagonal cells are expressed as a combination of a constant p that ranges from 0 and 1 and the three parameters in the diagonal cells θ_1, θ_2 and θ_3.

The proportion p can be considered a relative weight between the marginal effects of origin and destination status in Duncan's model and usually interpreted as the relative salience between origin and destination status (Hendrickx et al. 1993). In a modified version, additional p's are included the model so that each status category of origin or destination has their unique value of p but their interpretation is similar. Then following Hope's recommendation, mobility-related constructs—for example, a dummy variable indicating mobility status or a categorical one indicating upward mobility, downward mobility, and nonmobility—can added to the model to obtain a straightforward estimate of mobility effects.

Sobel's model is considered the state-of-the-art method and has been applied in empirical research concerned with the consequences of intergenerational mobility. However, two immediate concerns need to be addressed before the problem may deemed settled.

First, like Hope's method, the diagonal method represents the position that origin and destination status effect estimates should solely pertain to the stayers—individuals whose status in adulthood is consistent with their parents'. This line of reasoning has its root in Sorokin (1959)'s argument that the characteristics of a class should be solely determined by individuals who have maintained their status "for life". As critics pointed out, this is equivalent to assuming that the stayers are the status upholders and the movers must look to them for cues in ideas, behaviors, and attitudes (Brody and McRea 1987; Goldthorpe 1980).

Our position is that although this perspective may be valuable for describing the typical characteristics of a social class, it may lack direct bearings on the kind of status effects in the mobility table. Specifically, we argue that the fundamental problem of such a modeling strategy is its confusing the *effects of origin or destination status* with the *typical characteristics of a social class*; the two are related but distinct substances. Status effects are essential quantities in analyses of intergenerational mobility effects, but they are concerned here in the sense that they are tied to one's origin or destination. In other words, the type of status relevant for intergenerational mobility is not a general social class or status, but a life-course one. To this extent, it is questionable about the degree to which a combination of two life-time status stayers may be deemed a good "referent" for mobile groups.

Technically, the parameter p plays a central role in estimating mobility effects in the diagonal model. As shown in the right panel of Table 1, the means of the off-diagonal cells of the baseline model are parameterized as the weighted sum of the two status effects on the diagonal. The value of p ranges from 0 to 1, implying that the baseline or referent for a mobility group cannot exceed the larger value of the two diagonal statuses effects or be lower than the smaller value of the two. This is a rather restrictive assumption and may not represent the nature or size of mobility effects.

Second, even with origin- or destination-specific proportional constraints (i.e., one p for each origin or destination level), applicants of the diagonal model usually have to assume that (1) a single proportion for all mobile groups or for the groups with the same origin (or destination) status; (2) mobility effects are homogeneous within upward and downward mobility groups. These rather simplified assumptions may not be realistic when there is a large amount of heterogeneity within mobility groups. For example, when the effects of mobility are opposite depending on their

origin and/or destination, the diagonal model may incorrectly conclude that there exist no mobility effects but in fact important mobility effects of opposite directions are cancelling out.

The Mobility Contrast Model

We propose a new method, called "the mobility contrast" model, for simultaneously estimating the effects of origin, destination status, and intergenerational mobility. Whereas the specification of the mobility contrast model in its simplest form is the same as Duncan's model, we advance his classical method by directly testing the difference between movers and stayers after removing the effects of their origin and destination status. That is, on the one hand, for reasons explained above, we include both movers and stayers for quantifying the effects of origin and destination from a life course perspective. On the other hand, we agree with the critics that the unstructured interaction, δ_{ij}, may not be directly related to the sociological substance of mobility. For example, when using the sum-to-zero constraint, δ_{ij} is usually interpreted as the deviation from the grand mean associated with the ijth mobility group. Such a deviation usually differs from the sociological idea of mobility that is usually defined as the difference origin and destination status. This discrepancy is, we argue, the main problem that Duncan's "additive square" model cannot address.

To address this gap, we create a set of contrasts that can be used to directly estimate and test the difference between movers and stayers after purging the main effects. For example, the mobility effects for the group who arose from the most disadvantaged background (i.e., origin status 1) to the highest status in adulthood (destination status 3) can be estimated and tested using the difference between the interaction terms δ_{13} and δ_{11} that correspond to the two-step upward mobility group and the nonmobility group from the same origin.

Formally, the structured interaction model consists of two steps. First, we fit a simple ANOVA model that includes the origin main effects, destination main effects, and their interactions:

$$g(E(Y_{ij})) = \mu + \alpha_i + \beta_j + \delta_{ij}, \quad (2)$$

where $E(Y_{ij})$, g, α_i, β_j, and δ_{ij} are the same as defined earlier, and the usual ANOVA sum-to-zero constraint applies.

Second, we further investigate mobility effects by focusing on a set of contrasts of the interactions. This is a critical improvement of Duncan's the additive square model, in which analysts rely on the unstructured δ_{ij}'s to examine mobility effects. The mobility contrast model models intergenerational mobility by estimating and testing *special structures or contrasts of these interactions that are origin-specific.* Intuitively, this idea can be understood as that after considering the general effects of origin and destination status, we directly compare the deviations between stayers and movers of the same origin. In the next section, we illustrate how to use the mobility contrast model using empirical examples. We provide exemplary R code in the Appendix to implement this step (we will add this by the time of PAA).

In fact, Sobel's diagonal model can be considered a special case of the mobility contrast model. Specifically, Hendrikx et al. (1993: 342-343) showed that the origin proportion p_{ii} is the ratio between origin or destination main effects and their sum $\rho_{ii} = \frac{\alpha_i}{\alpha_i+\beta_i}$ and destination ratio $\rho_{jj} = \frac{\beta_j}{\alpha_j+\beta_j}$. To illustrate, suppose that each cell in the mobility table like those in Table 1 has a unique proportion. Then the referent for each group from origin i and destination j is $\rho_{ii}\theta_{ii} + \rho_{jj}\theta_{jj}$. For example, the referent for the group from origin 1 and destination 2 can be expressed as $\rho_{11}\theta_{11} + \rho_{22}\theta_{22}$. Replacing ρ_{11} with $\frac{\alpha_1}{\alpha_1+\beta_1}$, θ_1 with $\alpha_1 + \beta_1$, ρ_{22} with $\frac{\beta_2}{\alpha_2+\beta_2}$, and θ_2 with

$\alpha_2 + \beta_2$ results in the referent being simply $\alpha_1 + \beta_2$. We provide simulation evidence in the Appendix (we will add this by the time of PAA), where the cell means estimates based on the main effects and the mean mobility contrasts are identical to that obtained using Sobel's model.

To summarize, this mobility contrast model may be preferred to the diagonal model for two important reasons. First, because the mobility contrast model considers the effects of mobility as a set of non-parametric interaction contrasts between origin and destination categories, so it does not assume any functional form of the mobility effects in relation to the origin and destination. As a result, it is more flexible than the diagonal model where mobility effects estimates depend on a single or a few proportional constraints.

Second, by modeling mobility effects as the interaction between origin and destination status, our method represents the theoretical thinking that mobility should be considered in relation to origin and destination status. Moving up or sliding down on the status ladders may have very different meanings depending on their status of origin and destination. For example, a child born to parents with doctoral degrees or alike whose highest education level is college—one step downward mobility on the education degree hierarchy—may not experience any significant amount of decline of life quality, stress or, social network disruption. In contrast, an individual from a high-school educated family who did not complete high school may experience a qualitative downgrade of living conditions and a great deal of stress. That is, it is not promising to focus on an aggregate mobility group, which may mask meaningful and important heterogeneities among mobility groups.

In the following sections, we apply the mobility contrast model to the data from the General Social Survey 1974-2016 to test several hypotheses that predict mobility effects in three demographic outcomes. We show that this method can help reveal two dimensions of

heterogeneity in mobilities effects, namely heterogeneity in mobility effects between mobile groups and heterogeneous responses to mobility between gender and race groups. These substantively meaningful heterogeneities, as we will show, are otherwise undetectable or concealed using Sobel's method.

Hypotheses

Stress, relative income, and selection are three major theoretical perspectives for explaining the association or lack of thereof between intergenerational mobility and individual behaviors and outcomes. Because the ways in which these mechanisms operate are likely to vary between the outcome or response variables, for simplicity but without loss of generality and for reasons to be explained in the next section, we consider three social and demographic outcomes including number of children, divorce, and general health. We develop outcome-specific hypotheses according to each of the three mechanisms and specify the expected signs of possible mobility effects in Table 2.

Specifically, stress and psychological strain are anticipated when mobile individuals experience difficult acculture and rejection by the origin and destination strata (Kessin 1971; XXX). Consequently, as shown in the first row of Table 2, intergenerationally mobile individuals, especially when their mobility is extreme, is often hypothesized to desire fewer number of children, experience more marriage disruption, and poor overall health. These detrimental consequences are expected to occur to both upward and downward mobile groups.

[Table 2 about here]

The second conceptual framework is what Esterline (1975, 1978) termed "relative economic status". Relative economic income can be understood as the ratio of lifetime income to

consumption reference formed in one's origin family. When relative lifetime or permanent income is high relative to tastes and desire for consumer goods established during one's informative age, one may have more resources to raise children, maintain marriage, and stay healthy. In contrast, because downward mobility means lower relative status, it suggests lower fertility, more marriage disruptions, and poorer health.

The third—often less explicitly discussed—mechanism concerns selection. Because children require time, energy, and social and financial resources, individuals with no or fewer children may find it easier to maintain the social position of their parents' or achieve a gain than those with a large number of children to support (Blau and Duncan 1967:368). Divorce can be selective of couples in that, as demographers often note, that divorce is financially costly and emotionally difficult so that it may lead to downward mobility, especially so for a former spouse who do not work outside the home (XXX). The health selection of intergenerational mobility is also well documented (Hayward et al. 1989; Palloni 2006): when growing up, good health promotes cognitive and social development and education; in adulthood, illness and disability limits labor force attachment and restrict job choice.

We assess these hypotheses below with due awareness that these competing mechanisms may be canceling each other's effects. For example, XXX

Another interesting implication of their often-opposite predictions of these hypotheses raise questions about the assumption of dependence of mobility effects on the degree or steps of mobility. Social scientists have argued that mobility effects are mostly likely to occur with extreme mobility—mobility that across several SES categories, e.g., from the lowest origin status to highest status. However, XXX

Data

To test the above hypotheses, we used the mobility contrast model (2) to analyze the 1974-2016 General Social Survey (GSS) data. We restricted our analyses to US-born participants of age between 25-64 so that the respondents in the sample have likely completed their formal education. With attention to the gender and racial differences in the effects of origin, destination, and mobility, we fitted separate models for men, women, whites, and blacks[4] with the recommended individual weight "wtsall".

We selected three outcomes that have interested sociologists and demographers, namely, the number of children (0 – 8), divorce (1=ever been divorced if ever married, 0=never been divorced), and self-reported overall health (1=excellent or good overall health, 0=fair or poor health). The choice was based on (1) the continuity of the GSS collected information; (2) their conceptual and empirical importance in the literature. Key predictors in the analysis of education mobility are respondent's education level (less than high school, high school graduate, and college degree), the higher degree between respondents' parents, and the interaction between the two. Predictors in the analysis of income mobility are respondents' self-assessed family income level (less than average, average, and above average), family income level when the respondent was age 16, and the interaction between the two. The only covariates included in our analyses were age

[4] The numbers of black men and women participants in the GSS are limited, resulting in few observations when collapsing between the outcome categories. Our strategy for investigating gender differences is to compare men and women of both races, and for racial differences to contrast whites and blacks of men and women. We discuss the implications of this strategy in "Discussion".

linear and quadratic terms. See Tables 3 and 4 for more distributions and descriptive statistics of the variables.

[Tables 3 and 4 about here]

Results

Tables 5 through 8 present the estimated effects of the SES of one's origin family, their current status, interaction effects, and mobility contrasts in each of the four outcomes separately for men, women, whites, and blacks. For reasons explained earlier, we used the effects or sum-to-zero coding, so the main effects and interaction effects estimates can be interpreted as deviation associated with each group from the grand mean. The unstructured interaction effects tables are helpful for detecting meaningful deviations associated with each stayer/mobility group from a hypothetical average person. However, these interaction effects may not represent the kind of mobility effects that sociologists and demographers are interested in. To directly and accurately investigate mobility effects, we conducted a set of more focused tests of the difference between stayers and those who experienced upward or downward mobility from the same origin status. In the other words, to quantify mobility effects, we compare movers " (individuals whose destination education or income level is lower or higher their parents') with "stayers" (individuals whose destination education or income level is consistent their parents') of the same origin status.

Gender Difference

As expected and consistent with previous research, for both men and women, higher current education or relative income level was associated with fewer children, lower divorce rages, higher labor force participation rates, and better overall health, although their magnitudes vary across outcomes and between the two sexes. The ways in which origin status—here measured as

their parents' higher education level and the respondents' self-reported relative family income when they were 16—is related to destination status are more complex for women than for men. Specifically, while having better-educated and/or better-off parents was usually associated with fewer children born to the respondents, parents' status did not appear affecting their sons' likelihood of divorcing[5], participating in the labor force, or self-rated health.

[Tables 5 and 6 about here]

For women, the links between parents' education and relative income are more nuanced due to the presence of substantial interaction effects. Daughters born to parents in the lowest education and relative income category tended to have more children and report poorer health than a hypothetical average woman. However, parents' education or income, on average, did not relate to women respondents' divorce or labor force participation status. Our analyses that included origin-destination interactions showed that this may be related to the effects of a woman's origin family depending on the respondents' current status. For example, a disadvantaged family background implied higher divorce odds and higher LFP rates for those college-educated women, but average or lower divorce odds and participation rates for those from lowest-educated families (we will return to this point below). In other words, we cannot accurately measure or correctly interpret coefficient estimates of origin or destination status effects without considering the differential effects of one status depending on the other. In the following discussion, we focus on both the statistical significance and substantive significance of the directions and magnitudes of

[5] While parents' relative income did not seem related to divorce, divorce seemed more common among men with high-school graduate parents and less common among men whose parents did not finish high school than a hypothetical average man.

the interaction contrasts between origin and destination status, and how men and women differ with these respects.

The coefficient estimates in the "Interaction Effect" panels show the amount of deviation associated with each origin-destination combination from the mean determined by the main effects of origin and destination status. Among men, there seemed little substantively or statistically significant deviation associated with any of the nine origin-destination groups in the four outcomes. This suggests that for men, family SES background and current SES were related to fertility, divorce, labor force participation rates, and health status mostly in an additive way. In other words, status changing between generations did not explain a significant amount of variation in these outcomes among men besides the sum of origin and destination main effects.

In contrast, women's likelihoods of getting a divorce and participating in the labor force appear to vary between the origin-destination groups. Most notably, as shown in Table 4, women college graduates whose parents did not have a high-school diploma were more likely than an average woman to divorce (exp(.197)=1.218, $p<.01$) and participate in the labor force (exp(.167)=1.182 higher odds, $p<.05$). For relative income, as shown in Table 5, women stayers, especially women with an average current income from average-earning origin families, had lower divorce rates (exp(-.106)=, $p<.01$), whereas those with an average or lower-than-average income from a high-earning or average-earning origin family, respectively, were more likely to divorce (exp(.126)=1.134, $p<.01$ and exp(.09)=1.094, $p<.05$, respectively).

We next turn to testing a set of contrasts that correspond to upward and/or downward mobility. The "Mobility Effect" panels in Tables 4 to 7 test whether there exists significant difference in the four outcomes between the stayers and the movers for each origin status. While mobility did not appear associated with any of the four outcomes under investigation among men,

women seemed subjective to the influence of education and income mobility in divorce rates and labor force participation. The substantively meaningful positive association between mobility and divorce appeared to hold for both upward and downward move on the education or income ladder, although not all of the contrasts were statistically significantly. In particularly, graduating from college was associated with 1.418 (exp(0.349), $p<.05$) times higher odds to divorce for women from the least-educated origin family than those did not move up. For women with college-educated parents, graduating from high school—one-step downward mobility—was associated with 1.201 (exp(.183), $p<.05$) higher odds of divorce than those had a college degree. Moving one-level down from their parents' income level was associated with 1.217 (exp(.196), $p<.01$) and 1.196 (exp(.179), $p<.05$), respectively, higher likelihood of divorce than the stayers.

Education mobility, but not income mobility, also seemed to be positively related to labor force participation for those born to the lowest and highest educated parents. Most notably, for those whose parents did not have a high school diploma, women college graduates were1.276 (exp(.244), $p=.128$) more likely to participate in the labor force than the stayers. For those moving one-level down from a college-educated origin family, the odds increased by 1.269 (exp(.238), $p<.01$) than those who obtained a college degree as their parents did.

Ethnicity Difference

Tables 7 and 8 focus on white-black differences in the effects of origin, destination, and mobility on the same four outcomes. For both whites and blacks, higher current education and relative income were associated with fewer children, lower divorce, higher labor force participation, and better overall health. For fertility and self-reported health, origin status was associated with these outcomes but to a lesser degree than destination status.

[Tables 7 and 8 about here]

The interaction panels in Tables 7 and 8 reveal the heterogenous ways in which origin, destination, and mobility are linked to marriage disruption labor force participation, and health, but not fertility between whites and blacks. For both ethnic groups, there existed substantively meaningful and statistically significant interaction effects between origin and destination status for both whites and black. Interestingly, the associations often differ in signs between the two ethnicities. For example, white respondents who experienced either upward or downward mobility seemed more likely to divorce: 1.474 times (exp(.388), $p<.05$) more likely for those made college from origin families with less than high school education and 1.131 times (exp(.123), $p<.05$) more likely than high school graduates whose parents were college-educated. In contrast, education mobility showed some protective effects for black respondents, except for high-school dropouts whose parents finished high school. For example, blacks with college degree from the most disadvantaged family had 0.920 (exp(-.803), $p<.05$) lower divorce rates than the stayers.

A similar negative association between marriage stability and relative income mobility existed for whites. The odds of divorce for the average-to-greater-than-average income were 1.127 (exp(.120)=, $p<.05$) higher than the average-to-average group; and the likelihood of divorce was 1.211 (exp(.192), $p<.01$) times higher than those maintain the greater-than-average income level.

There were no clear patterns in how income mobility was related to divorce among blacks and the mobility contrasts were not statistically significant for the black sample. However, the magnitudes/sizes of some mobility effects were comparable to the scale of the origin effects; for example, the average-to-greater-than-average income group experienced exp(.222)=1.249 higher odds of divorce than the average-to-average stayers.

A reverse black-white difference was observed in mobility effects on labor force participation. For whites, education and income mobility were mostly positively associated with participation. For example, college education for those from the most disadvantaged group was associated with 1.236 (exp(.212), p=) higher odds of patriating in the labor force, and no college degree implied 1.391 (exp(.277), p<.001) higher odds for the college-to-high school education group than the stayers. For another example, moving two steps on the relative income scale was associated with 1.296 (exp(.259), p<.01) times higher likelihood to participate than those who stayed in the less than average income group.

For blacks' labor force participation, although the interaction and contrast estimates are not statistically significant, the magnitudes or sizes of coefficient estimates are worth discussion. With respect to education mobility, although none of the interaction effects or mobility contrasts are statistically significant, all mobility contrasts are negative and their effect range from -0.401 to -0.101, which are greater or at least comparable to the sizes of the origin status (-0.188, -0.023, 0.211, none significant at 0.05 level). This suggests that both education mobility, even upward mobility, may be negatively associated with the likelihood of participating in the labor force, whereas stayers were more likely to participate.

The signs of the estimated effects of relative income mobility on blacks' participation rates depend on their origin, although none of the contrasts were statistically significant. Moving upward for those from the most disadvantaged origin family was associated with lower likelihood (exp(-0.153)=.858 for moving up to earn an average income and exp(-.278)= .757 for moving up to earn more than average income) to participate, whereas upward mobility was related to exp(.138)=1.148 times higher participation odds than the stayers for those coming from an average-earning origin family.

Interestingly, as we note in Tables 5-8, Sobel's method is able to detect mobility effects in divorce but not in overall health. Moreover, such aggregate mobility effects estimates cannot describe the heterogeneity between mobile groups.

Discussions and Conclusions

In this research, we developed a more flexible method, called "mobility contrast model", for investigating the heterogenous effects of intergenerational mobility on social and demographic outcomes. The main strength of the mobility contrast model is that it does not assume a homogenous upward or downward mobility effects and is flexible enough to detect differences between these groups. Using this method, we examined the 1974-2016 data from the General Social Survey (GSS) and found that mobility was associated with social and demographic outcomes in heterogenous ways between mobility groups, between men and women, and between whites and blacks.

One may concern that modeling mobility as the interaction terms between the main effects of origin and destination status appears to prioritize the two status over mobility. It is true that in many cases, interaction may be difficult to interpret other than suggesting that the effects of one variable depends on the other. In the context of mobility research, however, we may be uniquely positioned to interpret the interactions in a substantively meaningful way as intergenerational mobility. Although origin and destination statuses are modeled as main effects, it does not mean that they are more important than their interactions. As we demonstrated using the GSS examples, the interaction terms are substantially larger in size and substantively more meaningful. It is fair to say that to certain degree, origin, destination statuses, and mobility are all abstractions created by reflection.

The methodological exposition and empirical examples in the current research focus on intergenerational mobility between two generations, i.e., parents and children. The idea of the mobility contrast can straightforwardly be extended to multigenerational studies where more than two generations are concerned. For example, two sets of interaction contrasts, one between status of parents and children and the other between grandparents and children, can be specified to gauge the effects of multigenerational mobility effects.

Table 1. Unobserved Parameters in Three Mobility Models

Duncan's Model

Status of Origin	Status of Destination 1	2	3
1	$\alpha_1+\beta_1+\delta_{11}$	$\alpha_1+\beta_2+\delta_{12}$	$\alpha_1+\beta_3+\delta_{13}$
2	$\alpha_2+\beta_1+\delta_{21}$	$\alpha_2+\beta_2+\delta_{22}$	$\alpha_2+\beta_3+\delta_{23}$
3	$\alpha_3+\beta_1+\delta_{31}$	$\alpha_3+\beta_2+\delta_{32}$	$\alpha_3+\beta_3+\delta_{33}$

Hope's Model

Mobility Step	General Status 2	3	4	5	6
-2			$\alpha_3+\beta_1+\delta_{31}$		
-1		$\alpha_2+\beta_1+\delta_{21}$		$\alpha_3+\beta_2+\delta_{32}$	
0	$\alpha_1+\beta_1+\delta_{11}$		$\alpha_2+\beta_2+\delta_{22}$		$\alpha_3+\beta_3+\delta_{33}$
1		$\alpha_1+\beta_2+\delta_{12}$		$\alpha_2+\beta_3+\delta_{23}$	
2			$\alpha_1+\beta_3+\delta_{13}$		

Sobel's Model

Status of Origin	Status of Destination 1	2	3
1	θ_1	$\rho\theta_1+(1-\rho)\theta_2$	$\rho\theta_1+(1-\rho)\theta_3$
2	$\rho\theta_2+(1-\rho)\theta_1$	θ_2	$\rho\theta_2+(1-\rho)\theta_3$
3	$\rho\theta_3+(1-\rho)\theta_1$	$\rho\theta_3+(1-\rho)\theta_2$	θ_3

Table 2. Mechanims and Hypothese for Three Outcomes

	Number of Children		**Divorce**		**Health**	
	up	*down*	*up*	*down*	*up*	*down*
Stress	−	−	+	+	−	−
Relative Income	+	−	−	+	+	−
Selection	−	+	−	+	+	−

Table 3. Distribution of Parent's and Respondent's Degree, GSS 1974-2016.

		Frequency Distribution of Parent's and Respondent's Education Degree			Percentage Distribution of Parent's and Respondent's Education Degree			
Men								
		Respondent's Education				**Respondent's Education**		
		<HS	**HS**	**Col**		**<HS**	**HS**	**Col**
Parent's Education	**<HS**	1,318	2,219	443	**<HS**	8.9%	15.1%	3.0%
	HS	572	5,247	2,026	**HS**	3.9%	35.6%	13.7%
	Col	42	1,129	1,748	**Col**	0.3%	7.7%	11.9%
N		14,744						
Women								
		Respondent's Education				**Respondent's Education**		
		<HS	**HS**	**Col**		**<HS**	**HS**	**Col**
Parent's Education	**<HS**	1,643	3,487	454	**<HS**	9.0%	19.2%	2.5%
	HS	611	6,637	2,179	**HS**	3.4%	36.5%	12.0%
	Col	38	1,248	1,901	**Col**	0.2%	6.9%	10.4%
N		18,198						
White								
		Respondent's Education				**Respondent's Education**		
		<HS	**HS**	**Col**		**<HS**	**HS**	**Col**
Parent's Education	**<HS**	2,074	4,224	709	**<HS**	7.7%	15.6%	2.6%
	HS	870	9,970	3,748	**HS**	3.2%	36.8%	13.8%
	Col	62	2,066	3,374	**Col**	0.2%	7.6%	12.5%
N		27,097						
Black								
		Respondent's Education				**Respondent's Education**		
		<HS	**HS**	**Col**		**<HS**	**HS**	**Col**
Parent's Education	**<HS**	746	1,244	154	**<HS**	15.4%	25.7%	3.2%
	HS	254	1,623	365	**HS**	5.2%	33.5%	7.5%
	Col	10	252	197	**Col**	0.2%	5.2%	4.1%
N		4,845						

Table 4. Distribution of Parent's and Respondent's Relative Income, GSS 1974-2016.

	Frequency Distribution of Parent's and Respondent's Relative Income			Percentage Distribution of Parent's and Respondent's Relative Income			
Men							
	Respondent's Income				**Respondent's Income**		
		<Ave	**Ave**	**>Ave**		**<Ave**	**Ave**	**>Ave**
Parent's Income	**<Ave**	1,406	1,572	772	**<Ave**	12.3%	13.7%	6.7%
	Ave	1,310	2,930	1,284	**Ave**	11.4%	25.6%	11.2%
	>Ave	409	731	1,047	**>Ave**	3.6%	6.4%	9.1%
N	11,461							
Women							
	Respondent's Income				**Respondent's Income**		
		<Ave	**Ave**	**>Ave**		**<Ave**	**Ave**	**>Ave**
Parent's Income	**<Ave**	1,991	1,991	615	**<Ave**	14.3%	14.3%	4.4%
	Ave	1,919	3,765	1,182	**Ave**	13.8%	27.1%	8.5%
	>Ave	575	993	874	**>Ave**	4.1%	7.1%	6.3%
N	13,905							
White							
	Respondent's Income				**Respondent's Income**		
		<Ave	**Ave**	**>Ave**		**<Ave**	**Ave**	**>Ave**
Parent's Income	**<Ave**	2,209	2,692	1,199	**<Ave**	10.6%	13.0%	5.8%
	Ave	2,579	5,682	2,278	**Ave**	12.4%	27.4%	11.0%
	>Ave	818	1,508	1,789	**>Ave**	3.9%	7.3%	8.6%
N	20,754							
Black							
	Respondent's Income				**Respondent's Income**		
		<Ave	**Ave**	**>Ave**		**<Ave**	**Ave**	**>Ave**
Parent's Income	**<Ave**	1,005	719	141	**<Ave**	26.4%	18.9%	3.7%
	Ave	561	822	151	**Ave**	14.7%	21.6%	4.0%
	>Ave	136	177	99	**>Ave**	3.6%	4.6%	2.6%
N	3,811							

Table 5. Gender Differences in the Effects of Origin Degree, Destination Degree, and Education Mobility on Three Outcomes among US-Borns, GSS 1974-2016.

NUMBER OF CHILD

		Men				Women			
Intercept		0.708 ***			**Intercept**		0.871 ***		
Age		0.035 ***			**Age**		0.024 ***		
Age sqaured		-0.001 ***			**Age sqaured**		-0.001 ***		
Status of Origin Main Effect	**<HS**	0.128 ***			**Status of Origin Main Effect**	**<HS**	0.066 ***		
	HS	0.027				**HS**	-0.022		
	Col	-0.155 ***				**Col**	-0.044		
Status of Destination Main Effect	**<HS**	0.132 **			**Status of Destination Main Effect**	**<HS**	0.346 ***		
	HS	0.005				**HS**	0.006		
	Col	-0.138 ***				**Col**	-0.352 ***		
Mobility Effect		**<HS - Origin**	**HS - Origin**	**Col - Origin**	**Mobility Effect**		**<HS - Origin**	**HS - Origin**	**Col - Origin**
Status of Origin	**<HS**	—	-0.059	-0.066	**Status of Origin**	**<HS**	—	0.035	0.054
	HS	0.062	—	-0.017		**HS**	-0.030	—	0.013
	Col	-0.145	-0.025	—		**Col**	0.097	0.032	—

EVER DIVORCED

		Men				Women			
Intercept		-0.420 ***			**Intercept**		-0.124 *		
Age		0.036 ***			**Age**		0.028 ***		
Age sqaured		-0.002 ***			**Age sqaured**		-0.002 ***		
Status of Origin Main Effect	**<HS**	-0.142 *			**Status of Origin Main Effect**	**<HS**	-0.036		
	HS	0.118 *				**HS**	0.040		
	Col	0.024				**Col**	-0.004		
Status of Destination Main Effect	**<HS**	0.349 ***			**Status of Destination Main Effect**	**<HS**	0.466 ***		
	HS	0.165 **				**HS**	0.025		
	Col	-0.514 ***				**Col**	-0.491 ***		
Mobility Effect		**<HS - Origin**	**HS - Origin**	**Col - Origin**	**Mobility Effect**		**<HS - Origin**	**HS - Origin**	**Col - Origin**
Status of Origin	**<HS**	—	0.109	0.135	**Status of Origin**	**<HS**	—	0.108	0.349 *
	HS	0.107	—	-0.060		**HS**	0.173	—	-0.058
	Col	-0.033	-0.035	—		**Col**	0.118	0.183 *	—

HEALTH

		Men				Women			
Intercept		1.385 ***			**Intercept**		1.389 ***		
Age		-0.028 ***			**Age**		-0.025 ***		
Age sqaured		0.000			**Age sqaured**		0.000		
Status of Origin Main Effect	**<HS**	-0.134			**Status of Origin Main Effect**	**<HS**	-0.206 **		
	HS	0.106				**HS**	0.047		
	Col	0.028				**Col**	0.159		
Status of Destination Main Effect	**<HS**	-0.955 ***			**Status of Destination Main Effect**	**<HS**	-0.889 ***		
	HS	0.032				**HS**	0.059		
	Col	0.923 ***				**Col**	0.829 ***		
Mobility Effect		**<HS - Origin**	**HS - Origin**	**Col - Origin**	**Mobility Effect**		**<HS - Origin**	**HS - Origin**	**Col - Origin**
Status of Origin	**<HS**	—	-0.018	-0.147	**Status of Origin**	**<HS**	—	-0.083	-0.021
	HS	0.020	—	0.054		**HS**	0.039	—	-0.017
	Col	-0.113	-0.075	—		**Col**	-0.078	0.045	—

Table 6. Gender Differences in the Effects of Origin Income Level, Destination Income Level, and Income Mobility on Three Outcomes among US-Borns, GSS 1974-2016.

NUMBER OF CHILD

		Men				Women			
Intercept		0.762	***			0.869	***		
Age		0.036	***			0.027	***		
Age sqaured		-0.002	***			-0.001	***		
Status of Origin Main Effect	**<Ave**	0.057	***		**Status of Origin Main Effect**	**<Ave**	0.085	***	
	Ave	-0.011				**Ave**	0.011		
	>Ave	-0.045	**			**>Ave**	-0.095	***	
Status of Destination Main Effect	**<Ave**	0.025			**Status of Destination Main Effect**	**<Ave**	0.116	***	
	Ave	0.015				**Ave**	0.007		
	>Ave	-0.040	**			**>Ave**	-0.123	***	
Mobility Effect		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**	**Mobility Effect**		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**
Status of Origin	**<Ave**	—	-0.013	0.004	**Status of Origin**	**<Ave**	—	-0.040	-0.054
	Ave	0.024	—	0.002		**Ave**	0.011	—	0.010
	>Ave	-0.019	0.019	—		**>Ave**	-0.056	-0.005	—

EVER DIVORCED

		Men				Women			
Intercept		-0.416	***			-0.194	***		
Age		0.031	***			0.028	***		
Age sqaured		-0.002	***			-0.001	***		
Status of Origin Main Effect	**<Ave**	-0.058			**Status of Origin Main Effect**	**<Ave**	-0.011		
	Ave	-0.009				**Ave**	-0.075	*	
	>Ave	0.067				**>Ave**	0.086	*	
Status of Destination Main Effect	**<Ave**	0.414	***		**Status of Destination Main Effect**	**<Ave**	0.694	***	
	Ave	-0.005				**Ave**	-0.136	***	
	>Ave	-0.408	***			**>Ave**	-0.558	***	
Mobility Effect		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**	**Mobility Effect**		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**
Status of Origin	**<Ave**	—	-0.060	0.012	**Status of Origin**	**<Ave**	—	-0.003	0.055
	Ave	0.018	—	0.089		**Ave**	0.196	** —	0.122
	>Ave	0.083	0.161	—		**>Ave**	-0.020	0.179 *	—

HEALTH

		Men				Women			
Intercept		1.436	***			1.501	***		
Age		-0.037	***			-0.032	***		
Age sqaured		0.000				0.000			
Status of Origin Main Effect	**<Ave**	-0.092			**Status of Origin Main Effect**	**<Ave**	-0.187	***	
	Ave	0.067				**Ave**	0.071		
	>Ave	0.025				**>Ave**	0.116	*	
Status of Destination Main Effect	**<Ave**	-0.772	***		**Status of Destination Main Effect**	**<Ave**	-0.778	***	
	Ave	0.042				**Ave**	0.070		
	>Ave	0.730	***			**>Ave**	0.708	***	
Mobility Effect		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**	**Mobility Effect**		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**
Status of Origin	**<Ave**	—	-0.104	0.087	**Status of Origin**	**<Ave**	—	-0.114	0.147
	Ave	-0.057	—	-0.043		**Ave**	-0.115	—	-0.205
	>Ave	0.100	0.147	—		**>Ave**	0.057	0.055	—

Table 7. Racial Differences in the Effects of Origin Degree, Destination Degree, and Education Mobility on Three Outcomes among US-Borns, GSS 1974-2016.

NUMBER OF CHILD

		White				Black				
Intercept		0.779	***			0.890	***			
Age		0.029	***			0.023	***			
Age sqaured		-0.001	***			-0.001	***			
Status of Origin Main Effect	**<HS**	0.084	***		**Status of Origin Main Effect**	**<HS**	0.112	***		
	HS	-0.003				**HS**	-0.022			
	Col	-0.081	**			**Col**	-0.091			
Status of Destination Main Effect	**<HS**	0.223	***		**Status of Destination Main Effect**	**<HS**	0.294	***		
	HS	0.009				**HS**	0.020			
	Col	-0.232	***			**Col**	-0.314	***		
Mobility Effect		**<HS - Origin**		**HS - Origin**	**Col - Origin**	**Mobility Effect**		**<HS - Origin**		**HS - Origin**	**Col - Origin**
Status of Origin	**<HS**	—		-0.006	-0.008	**Status of Origin**	**<HS**	—		-0.016	0.065
	HS	-0.020		—	-0.002		**HS**	0.071		—	-0.048
	Col	0.010		-0.004	—		**Col**	-0.055		0.033	—

EVER DIVORCED

		White				Black				
Intercept		-0.280	***			-0.065				
Age		0.029	***			0.038	***			
Age sqaured		-0.002	***			-0.001	***			
Status of Origin Main Effect	**<HS**	-0.170	***		**Status of Origin Main Effect**	**<HS**	0.005			
	HS	0.045				**HS**	0.171			
	Col	0.125				**Col**	-0.176			
Status of Destination Main Effect	**<HS**	0.489	***		**Status of Destination Main Effect**	**<HS**	-0.081			
	HS	0.060				**HS**	0.224			
	Col	-0.548	***			**Col**	-0.143			
Mobility Effect		**<HS - Origin**		**HS - Origin**	**Col - Origin**	**Mobility Effect**		**<HS - Origin**		**HS - Origin**	**Col - Origin**
Status of Origin	**<HS**	—		0.218	0.388 **	**Status of Origin**	**<HS**	—		-0.463	-0.803 *
	HS	-0.022		—	-0.047		**HS**	0.690		—	-0.039
	Col	0.363		0.123 *	—		**Col**	-1.532 *		-0.379	—

HEALTH

		White				Black				
Intercept		1.446	***			1.134	***			
Age		-0.026	***			-0.037	***			
Age sqaured		0.000				0.000				
Status of Origin Main Effect	**<HS**	-0.160	**		**Status of Origin Main Effect**	**<HS**	-0.102			
	HS	0.091				**HS**	-0.083			
	Col	0.069				**Col**	0.185			
Status of Destination Main Effect	**<HS**	-0.926	***		**Status of Destination Main Effect**	**<HS**	-0.669	***		
	HS	0.054				**HS**	-0.041			
	Col	0.873	***			**Col**	0.709	***		
Mobility Effect		**<HS - Origin**		**HS - Origin**	**Col - Origin**	**Mobility Effect**		**<HS - Origin**		**HS - Origin**	**Col - Origin**
Status of Origin	**<HS**	—		-0.060	-0.162	**Status of Origin**	**<HS**	—		0.210	0.478
	HS	0.032		—	0.062		**HS**	-0.217		—	-0.433 *
	Col	-0.132		-0.041	—		**Col**	0.263		-0.165	—

Table 8. Racial Differences in the Effects of Origin Income Level, Destination Income Level, and Income Mobility on Three Outcomes among US-Borns, GSS 1974-2016.

NUMBER OF CHILD

		White				Black			
Intercept		0.797 ***			**Intercept**	0.966 ***			
Age		0.031 ***			**Age**	0.028 ***			
Age sqaured		-0.001 ***			**Age sqaured**	-0.001 ***			
Status of Origin Main Effect	**<Ave**	0.061 ***			**Status of Origin Main Effect**	**<Ave**	0.038		
	Ave	0.014				**Ave**	-0.039		
	>Ave	-0.075 ***				**>Ave**	0.000		
Status of Destination Main Effect	**<Ave**	0.043 ***			**Status of Destination Main Effect**	**<Ave**	0.154 ***		
	Ave	0.017				**Ave**	-0.027		
	>Ave	-0.060 ***				**>Ave**	-0.128 ***		
Mobility Effect		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**	**Mobility Effect**		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**
Status of Origin	**<Ave**	—	-0.025	-0.014	**Status of Origin**	**<Ave**	—	0.034	0.023
	Ave	0.040	—	0.000		**Ave**	-0.019	—	-0.036
	>Ave	-0.053	0.011	—		**>Ave**	0.006	-0.047	—

EVER DIVORCED

		White				Black			
Intercept		-0.337 ***			**Intercept**	0.111			
Age		0.027 ***			**Age**	0.037 ***			
Age sqaured		-0.002 ***			**Age sqaured**	-0.001 **			
Status of Origin Main Effect	**<Ave**	-0.056 *			**Status of Origin Main Effect**	**<Ave**	-0.205 **		
	Ave	-0.045				**Ave**	0.101		
	>Ave	0.100 **				**>Ave**	0.104		
Status of Destination Main Effect	**<Ave**	0.567 ***			**Status of Destination Main Effect**	**<Ave**	0.502 ***		
	Ave	-0.073 **				**Ave**	-0.231 **		
	>Ave	-0.495 ***				**>Ave**	-0.271 **		
Mobility Effect		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**	**Mobility Effect**		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**
Status of Origin	**<Ave**	—	-0.048	0.024	**Status of Origin**	**<Ave**	—	0.195	-0.075
	Ave	0.112	—	0.120 *		**Ave**	0.169	—	0.222
	>Ave	0.031	0.192 **	—		**>Ave**	-0.022	-0.048	—

HEALTH

		White				Black			
Intercept		1.543 ***			**Intercept**	1.020 ***			
Age		-0.034 ***			**Age**	-0.046 ***			
Age sqaured		0.000			**Age sqaured**	0.000			
Status of Origin Main Effect	**<Ave**	-0.145 ***			**Status of Origin Main Effect**	**<Ave**	0.000		
	Ave	0.077 *				**Ave**	0.039		
	>Ave	0.068				**>Ave**	-0.038		
Status of Destination Main Effect	**<Ave**	-0.761 ***			**Status of Destination Main Effect**	**<Ave**	-0.713 ***		
	Ave	0.045				**Ave**	0.224 *		
	>Ave	0.717 ***				**>Ave**	0.488 ***		
Mobility Effect		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**	**Mobility Effect**		**<Ave - Origin**	**Ave - Origin**	**>Ave - Origin**
Status of Origin	**<Ave**	—	-0.065	0.154	**Status of Origin**	**<Ave**	—	-0.282	-0.075
	Ave	-0.083	—	-0.090		**Ave**	-0.114	—	-0.571 *
	>Ave	0.147	0.129	—		**>Ave**	-0.532	-0.364	—