INTRODUCTION

Family members’ life trajectories and transitions, in terms of when and where to attend school, work, and live are intricately linked (Elder 1985). Every event and turning point in parents’ careers arguably influence not only the childhood experiences of offspring, but have implications for offspring’s future career paths—the beginning, ending, and orderliness of their socioeconomic histories. The interlocking trajectories of parents and offspring, albeit well-established in the sociological theory, have rarely been the focus of empirical studies on intergenerational social mobility. The present study fills this gap by incorporating a life course perspective into intergenerational mobility research and linking intragenerational mobility patterns across generations. We introduce the concept of “linked mobility trajectories” to illustrate associations between parents’ and offspring’s lifetime mobility patterns using income mobility as an example.

Our study straddles intragenerational mobility research that examines stability and change in individuals’ economic positions over lifetimes (e.g., Cheng 2014; DiPrete 2002; Sørensen 1977; Spilerman 1977; Warren, Sheridan, and Hauser 2002) and intergenerational mobility research that examines the transmission and inheritance of socioeconomic statuses across generations (e.g., Blau and Duncan 1967; Featherman and Hauser 1978; Goldthorpe and Erikson 1992). Traditional mobility studies ignore the life course trajectory of individuals’ social statuses by either measuring parents’ and offspring’s statuses at a single point in time snapshot or removing the transitory fluctuations in one’s characteristics based on averages over years. In both approaches, changes in socioeconomic status during one’s lifetime are considered as nuanced, insignificant factors that lead to biased mobility estimates, rather than an essential aspect of social status that can be transmitted across generations. We show that the socioeconomic trajectory in each generation, both its growth patterns and amount of fluctuations, have important implications for intracohort economic inequality as well as the transmission of inequality across generations.

THEORETICAL FRAMEWORK

We propose three possible mechanisms that illustrate the ways in which parents’ life course mobility trajectories influence offspring’s mobility trajectories.
Table 1. Summary of Three Mechanisms for Intergenerational Association of Intragenerational Income Mobility

<table>
<thead>
<tr>
<th>Mechanisms</th>
<th>Intragenerational mobility patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Initial advantage</td>
<td><img src="image1" alt="Graph 1" /></td>
</tr>
<tr>
<td>(intergenerational association in career starting point)</td>
<td></td>
</tr>
<tr>
<td>(2) Accelerated advantage</td>
<td><img src="image2" alt="Graph 2" /></td>
</tr>
<tr>
<td>(intergenerational association in career income growth)</td>
<td>(a) linear (b) non-linear</td>
</tr>
<tr>
<td>(3) Volatility</td>
<td><img src="image3" alt="Graph 3" /></td>
</tr>
<tr>
<td>(intergenerational association in career stability)</td>
<td></td>
</tr>
</tbody>
</table>

**Initial Advantage**

Differentiations in income trajectories, like many other dimensions of social inequality, are path-dependent. The advantage of one group over another may simply result from their unequal initial positions at the beginning of individuals’ careers. When describing this mechanism, Merton (1988) illustrates that “the ways in which initial comparative advantage of trained capacity, structural location, and available resources make for successive increments of advantage such that the gaps between the have-nots widen” (p.606). If success begets success, parents in advantaged groups may help their offspring launch a career with a higher baseline income, thereby leading to a long-term advantage of their offspring over their counterparts of offspring from disadvantaged families. Even if offspring from all families follow the same growth trajectories thereafter, offspring who begin with a favorable position will always gain more throughout their working years, but that the income gap between high and low income groups remains fixed over time. We illustrate this mechanism in Table 1 graph (1).

**Accelerated Advantage**

While the initial advantage leads to constant disparities in income between groups with unequal origins, income trajectories of groups diverge if their growth rates vary. We illustrate three scenarios in Table 1 graph (2). In all three graphs, the baseline incomes of two groups are the same, but one group experiences faster income growth, resulting in greater inequality between the two groups over time. The trajectories may be linear or nonlinear—the difference depends on whether the growth rate itself is a function of time. Overall, the accelerated advantage mechanism generates heterogeneous income growth trajectories in a population. To explain such heterogeneity, previous research has examined effects of individual-level social and demographic factors, such as gender, race, and marriage and childbearing behaviors. However, none have linked it to labor market experiences of previous generations of a family, especially patterns of parents’ income growth over lifetime.
Volatility

Disparities in income growth trajectories may result from changes in permanent income that have a lasting effect on income levels in all subsequent years (as illustrated in the second mechanism), or changes in transitory income that are largely random from period to period and eventually have no impact on the original path of income growth (Gottschalk and Moffitt 2009). In the intragenerational income mobility literature, transitory income over time is also known as income instability, volatility, or random variability and oftentimes measured by the variance of changes in income between two consecutive years. A large body of research has shown that rising economic inequality in the United States since the 1970s was largely driven by an increase in the income volatility in the labor market, especially in the right tail of the volatility distribution (e.g., Jensen and Shore 2015; Shin and Solon 2011). However, few studies have discussed the intergenerational implications for the increasing income volatility. It is possible that the random component of income fluctuations is inheritable, leading to more chaotic career development for some families than others because of intergenerational associations in jobs, occupations, industries, career plans, and personal characteristics.

Overall, the distinction between families’ mobility trajectories across generations may result from a mixture of the three mechanisms aforementioned, leading to a process of cumulative advantage that shapes the evolution of intergenerational inequality in society (DiPrete and Eirich 2006).

DATA

To test the three mechanisms discussed above, we use empirical data from the Panel Study of Income Dynamics (PSID) by combining all waves from 1968 to 2013. The PSID provides an excellent sample for studying intragenerational and intergenerational mobility in tandem because of its longitudinal and genealogical design. Begun in 1968, the PSID started with over 18,000 household members from roughly 5,000 families. The study follows these individuals annually until 1997 and biennially thereafter. All these individuals as well as their offspring are considered to carry the PSID “gene” and thus become permanent PSID respondents. Their socioeconomic information, especially detailed income data is asked in each wave of the PSID survey and can be linked across years.

The PSID project also provides a “Family Identification Mapping System (FIMS)” tool that allows users to link family members across generations. We create a data file that includes 5,682 father-offspring dyads with at least 3 person-year non-missing income observations for the child, 4,488 father-offspring dyads with at least 5 person-year non-missing income observations for the child, 2,685 father-offspring dyads with at least 10 person-year non-missing income observations for the offspring, and 1,714 father-offspring dyads with at least 10 person-year non-missing income observations for the offspring. Our preliminary results rely on father and offspring dyads only, but we plan to add mother-offspring mobility into the analysis of the final paper.
METHODS

We denote $Y_{i,t}$ as the income for an offspring $i$ at year $t$ in the labor market with the special case of $Y_{i,0}$ as the income received at the beginning of a person’s career. Likewise, we use $X_{i,t}$ to denote the income for the parent generation. Assuming that income growth rates in each generation are time-invariant (denoted as $\gamma_i$), we have the following relationship between $Y_{i,t}$ and $Y_{i,0}$ according to Cheng (2014):

$$\ln Y_{i,t} = t \cdot \ln(1 + \gamma_i) + \ln Y_{i,0} + e_{i,t}$$  \hspace{1cm} (1)

where $e_{i,t}$ is a random component that illustrates the amount of volatility in intragenerational income growth in the parent generation. Equivalently,

$$\ln Y_{i,t} = \theta_{1i} \cdot t + \theta_{0i} + e_{i,t}$$  \hspace{1cm} (2)

where $\theta_{1i} = \ln(1 + \gamma_i)$ and the coefficient of $\ln Y_{i,0}$ is fixed at 1.

To model whether the baseline and growth rate of offspring’s income depend on parents’ income trajectories, we can further specify the following models in simple linear functional forms among many other alternatives. For the initial income advantage of the offspring generation,

$$\theta_{0i} = \beta_0 + \beta_1 \cdot X_{i,0} + \beta_2 \cdot \gamma_i' + u_{0i}$$  \hspace{1cm} (3)

where $\gamma_i'$ is constructed by estimating model (1) for the parent generation.

For the accelerated growth rate of the offspring generation,

$$\theta_{1i} = \mu_0 + \mu_1 \cdot X_{i,0} + \mu_2 \cdot \gamma_i' + u_{1i}$$  \hspace{1cm} (4)

We define the income volatility of offspring $Var(e_{i,t})$ and predict it by income trajectory parameters of parents

$$Var(e_{i,t}) = \pi_0 + \pi_1 \cdot X_{i,0} + \pi_2 \cdot \gamma_i' + \epsilon_i$$  \hspace{1cm} (3)

Essentially, our model is a special case of the multilevel growth curve model, in which level 1 includes the person-year income observations of the offspring generation, and the level 2 includes income trajectory parameters of the parent generation. The model can be extended by incorporating more individual level income determinants, such as education, race, and gender of the offspring generation.

PRELIMINARY RESULTS

What differentiates our study from earlier work is that instead of focusing on a single point in life, we will analyze the intergenerational association across the father’s and offspring’s
life course. Table 2 presents the intergenerational income association at different age combinations of the father-child dyad. The numbers suggest that the strength of intergenerational income association based on logged income may vary by the age group of fathers as well as offspring. The strongest association tends to happen when the fathers are in their 30s, and the offspring are in their later 20s to early 30s (see the shaded area in Table 2). This descriptive pattern may be, in part, a result of the fact that the father’s intragenerational income trajectory and the offspring’s intragenerational income trajectory overlaps most intensely within these age groups. Our future statistical analysis will explore in depth the variations in associations across the two generation’s life course.

Table 2. Intergenerational Income Association by Age Combinations of the Father-offspring Dyad.

<table>
<thead>
<tr>
<th>Father Age Group</th>
<th>Offspring Age Group 25-30</th>
<th>31-35</th>
<th>36-40</th>
<th>41-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>0.2043</td>
<td>0.1745</td>
<td>0.2025</td>
<td>0.1416</td>
</tr>
<tr>
<td>31-35</td>
<td>0.2268</td>
<td>0.2454</td>
<td>0.2066</td>
<td>0.2078</td>
</tr>
<tr>
<td>36-40</td>
<td>0.2347</td>
<td>0.2405</td>
<td>0.2061</td>
<td>0.1834</td>
</tr>
<tr>
<td>41-45</td>
<td>0.2014</td>
<td>0.222</td>
<td>0.2172</td>
<td>0.1966</td>
</tr>
</tbody>
</table>


In addition to the cross-age income associations, we are also interested in the linkage between income trajectories across generations. In the preliminary analysis, we examine the shapes of intragenerational income trajectories by father’s income level. For each father-offspring dyad, we first calculate the father’s average income during age 25 to 35, and group the dyads into four equal-size groups by father’s income quartiles. Then, we plot the mean of log income by age for the fathers and offspring in each group respectively, using the Lowess-smoothing method. Figure 1 presents that preliminary results on linked trajectories between fathers and offspring by father’s income quartile at age 25 and 35. As the figure shows, the children of higher-quartile fathers tend to not just earn higher income at age 25, but also experience faster income growth over the life course (particularly for the highest income quartile). We plan to conduct further analyses to model the association between the two trajectories and test the three mechanisms discussed earlier in the abstract.
**Figure 1.** Intragenerational Income Trajectories for Fathers and Offspring, by Father’s Income Quartile


**FUTURE PLANS**

In sum, our preliminary analysis illustrates that (1) intragenerational variations are an important component of the father-offspring income association, and (2) intergenerational mobility research has much to gain by linking the life course trajectories within each family. In the future analysis for the project, we will employ the statistical models as described in the methods section to examine the patterns of such associations. We also plan to extend the scope of our analysis in several ways. First, we plan to incorporate the income trajectories of fathers as well as mothers, and we plan to break down the child sample by sons and daughters to explore the potential gender differences in intergenerational associations. Second, we plan to break down the sample by birth cohorts to examine possible cohort changes.
REFERENCES


