Parents, Paths, and Paychecks: Examining Intergenerational Occupational Mobility and Career Choices

Swapnil Landge*

October 2024

Abstract

This paper examines the influence of fathers' and mothers' occupations on their children's occupational outcomes, using a self-selection model to analyze intergenerational career mobility. By constructing and analyzing transition matrices, I estimate the extent of positive and negative self-selection for sons and daughters when they follow either their father's or mother's occupation.

The results reveal distinct patterns for sons and daughters. Sons who follow their father's occupation tend to avoid negative self-selection, particularly in higher-paying fields such as Professional Occupations and Technicians and Related Support Occupations, where negative self-selection is minimal. Conversely, sons following their mother's occupation face higher rates of negative self-selection in lower-wage fields, particularly in Farming, Forestry, and Fishing (35.56%) and Service Occupations (11.11%).

For daughters, negative self-selection varies significantly by occupation and parental influence. Daughters who follow their father's occupation experience substantial negative self-selection in labor-intensive roles, such as Operators, Fabricators, and Laborers (17.62%) and Service Occupations (15.63%). When daughters follow their mother's occupation, negative self-selection is also notable in lower-wage fields, such as Service Occupations (17.63%) and Operators, Fabricators, and Laborers (10.72%).

These findings suggest that children, especially sons, achieve better economic outcomes when they follow their father's career path, particularly in specialized or high-wage fields. However, children, both sons and daughters, who follow their mother's occupation—especially in low-skill, low-wage sectors—face higher rates of negative self-selection.

Keywords: Intergenerational Occupational Mobility, Self-Selection, Parental Influence, Gender Differences, Wage Inequality, Occupational Persistence.

JEL Codes: J62, J24, J16, J31

*The Graduate Center, City University of New York. Email slandge@gradcenter.cuny.edu

I would like to express my deepest gratitude to Professor Miles Corak, Professor of Economics at the Graduate Center, CUNY, and Senior Scholar at the James M. and Cathleen D. Stone Center on Socio-Economic Inequality, for his invaluable guidance, insightful comments, and thoughtful suggestions.

1 Introduction

The occupational choices of individuals have profound implications on their economic well-being, career mobility, and overall life outcomes. However, these choices are often shaped by the environments in which individuals are raised, including the occupations held by their parents. A substantial body of research has explored the intergenerational transmission of occupations, demonstrating that children frequently follow in their parents' career paths. This trend raises important questions about the specific roles that mothers' and fathers' occupations play in shaping the economic and occupational trajectories of their children.

The findings indicate a clear distinction in outcomes based on whether children follow their mother's or father's occupation, with variations between sons and daughters. Sons who follow their father's occupation are more likely to avoid negative self-selection[1], particularly in high-wage fields[2] such as Professional Occupations and Technicians and Related Support Occupations. In contrast, sons who follow their mother's occupation often experience greater negative self-selection, especially in low-wage fields like Farming, Forestry, and Fishing (35.56%) and Service Occupations (11.11%). This suggests that sons benefit more from following their father's career path in skilled and high-wage fields, while following their mother's career—particularly in lower-wage sectors—leads to less favorable economic outcomes.

For daughters, the impact of parental occupation on self-selection varies with the type of occupation. Daughters who follow their father's occupation face higher negative self-selection in labor-intensive roles such as Operators, Fabricators, and Laborers (17.62%) and in Service Occupations (15.63%). On the other hand, daughters who follow their mother's occupation also experience notable negative self-selection in low-wage sectors, such as Service Occupations (17.63%) and Operators, Fabricators, and Laborers (10.72%). These results underscore that daughters face significant negative self-selection in both mother- and father-dominated occupations in lower-wage sectors, while they encounter fewer negative outcomes in professional and skilled fields.

This paper investigates the dynamics of occupational inheritance through the lens of an intergenerational self-selection model, focusing on how parental occupations and associated skill sets impact the occupational outcomes of sons and daughters differently. Specifically, it examines whether children are more likely to follow their fathers' or mothers' occupations and the economic implications of these choices. Understanding the degree to which parental occupations shape children's career decisions is essential not only for analyzing intergenerational mobility but also for assessing the efficiency of career choices in terms of economic rewards.

Prior studies have highlighted significant occupational persistence across generations, especially in high-skill sectors like professional and managerial roles, where children who follow their parents often achieve favorable economic outcomes. However, other fields, particularly service and agricultural sectors, exhibit higher levels of negative self-selection, with children who follow their parents potentially performing better in alternative careers. This paper expands on this literature by comparing the influence of mothers' and fathers' careers on children's occupational choices and examining the resulting economic outcomes for sons and daughters.

The primary research question guiding this paper is twofold: Which parent's occupational skill set has a more substantial influence on their children's career paths, and does this influence lead

[1] Negative self-selection refers to the tendency for individuals to choose occupations where their economic outcomes are lower than they might have been in alternative career paths.

[2] High-wage sectors refer to occupations that offer above-average earnings, typically requiring specialized skills or higher education, such as professional and technical roles.

to positive or negative economic outcomes? By using detailed intergenerational data, the paper analyzes the transition probabilities of children following their parents' careers and assesses the associated wage outcomes across various occupational categories. Furthermore, it investigates the concept of negative self-selection, exploring whether following a parent's occupation supports or hinders a child's economic prospects.

Through this analysis, the paper aims to clarify the differing impacts of fathers' and mothers' occupations on sons' and daughters' occupational mobility. By applying the intergenerational self-selection model, it seeks to contribute to a deeper understanding of how family background and parental careers reinforce or reduce inequality across generations. The findings have critical implications for policymakers and educators striving to promote upward mobility and help children make informed and economically advantageous career decisions.

The paper is structured as follows: Section 2 reviews the relevant literature on intergenerational occupational mobility and self-selection models. Section 3 discusses the primary motivation behind the study, emphasizing the need to understand the influence of parental occupations on children's career outcomes. Section 4 introduces the theoretical model used to explore these dynamics. Section 5 describes the data employed in the analysis, including sources and key variables. Section 6 outlines the calibration of model parameters and the construction of transition matrices. Section 7 presents the Results, focusing on the differences in negative self-selection between following fathers' and mothers' occupations. Finally, Section 8 discusses the policy implications of these findings and the conclusions.

2 Literature Review

The transmission of occupations across generations is a well-documented phenomenon, with numerous studies examining how family background shapes individuals' career outcomes. Central to this research is the observation that children often follow in their parents' occupational footsteps, perpetuating a cycle of occupational inheritance that reinforces economic status across generations. Solon [1999] provides a foundational framework for understanding intergenerational mobility, suggesting that family background plays a crucial role in determining labor market outcomes. Similarly, Corak [2013] emphasizes that in societies with higher income inequality, the persistence of economic status is more pronounced, leading to limited upward mobility for children from lower-income families.

Building on these insights, scholars have examined the factors driving intergenerational occupational persistence. Blanden and Macmillan [2007] argue that non-cognitive skills and educational attainment, often inherited from parents, are key mechanisms through which occupational status is transmitted. Similarly, Erikson and Goldthorpe [1992] show that children of parents in professional or managerial roles are more likely to enter high-status positions themselves, benefiting from both the skills and social capital passed down through generations. This process of occupational inheritance often serves to maintain economic inequality, as access to high-paying and high-status jobs remains concentrated within certain families.

The self-selection model, initially proposed by Roy [1951], provides a useful framework for understanding why individuals choose particular occupations. According to this model, individuals select occupations that maximize their expected earnings, considering their abilities and the opportunities available in the labor market. Borjas [1987] extended this model by examining self-selection among immigrants, demonstrating that they tend to choose occupations based on their skills and economic opportunities in the host country. This model has since been used to analyze occupational choices in various contexts, including intergenerational career mobility.

Parental influence on career choices is well-established in the literature, with studies showing that both fathers and mothers significantly shape their children's occupational paths. Black and Salvanes [2005] argue that the transmission of human capital—such as education and skills—across generations is critical in determining the types of occupations children pursue. Their findings suggest that children from families with higher levels of human capital are more likely to pursue high-status, high-paying careers, perpetuating occupational inheritance and economic inequality. Bowles and Osborne Groves [2005] add that family background contributes not only human capital but also social and cultural capital, which can enhance children's access to certain occupations.

The influence of fathers and mothers on children's career outcomes, however, can differ based on gender. Beller and Hout [2006] find that gender dynamics within families often influence which parent has a stronger impact. This observation aligns with findings by Goldin [2014], who show that gender plays a critical role in career inheritance, especially in households where both parents are professionally successful.

Research on intergenerational occupational persistence suggests that both positive and negative self-selection can occur, depending on the occupational field and parental influence. Chetty and Turner [2014] highlight that intergenerational persistence is especially high in low-wage occupations. Erikson and Goldthorpe [1992] also note that children who inherit their parents' low-skill occupations are often economically disadvantaged, as these jobs offer lower wages and fewer opportunities for advancement.

Recent studies like Blanden et al. [2005] and Lo Bello and Morchio [2022] highlight the importance of family background, education, and social norms in shaping intergenerational mobility and occupational outcomes, with a focus on income inequality (Blanden et al. [2005]) and gendered occupational patterns (Lo Bello and Morchio [2022]).

Wage outcomes are a crucial factor in understanding why certain occupations are more likely to be inherited than others. Hout [1988] and Breen and Jonsson [2005] show that children are more likely to follow their parents into high-wage occupations as these careers provide financial stability and opportunities for progression. In contrast, lower-wage sectors often see children inheriting jobs with limited economic benefits, creating a cycle of limited opportunity and low returns, as discussed by Cunha and Heckman [2007].

By examining the influence of both fathers and mothers on sons' and daughters' career choices and economic outcomes, this paper seeks to enhance the understanding of how family background shapes occupational mobility. While prior research has largely focused on the role of fathers, this study explores the differential impact of both parents, revealing how sons and daughters experience occupational inheritance differently. The insights from Laband and Lentz [1983] and Chetty and Turner [2014] support the importance of analyzing gender-specific patterns in occupational inheritance, as they highlight distinct pathways through which occupational status and economic outcomes are transmitted.

The primary contribution of this paper is to compare the influences of mothers' and fathers' careers on sons' and daughters' occupational choices, examining the resulting economic outcomes through a self-selection framework. The findings have implications for policies aimed at promoting upward mobility and addressing the barriers faced by children from low-wage occupational backgrounds.

3 Overview and Motivation

The self-selection model, first introduced by Roy [1951], has been a key framework in understanding how individuals choose occupations based on their comparative advantages. In Roy's model, individuals possess varying levels of occupation-specific skills and self-select into sectors or jobs where their skills yield the highest earnings. The assumption is that the distribution of these skills across individuals is normally distributed, with each person maximizing their income by choosing the occupation that best fits their abilities. This model has been widely influential across many fields, including labor economics and education. For example, Willis and Rosen [1979] used the Roy model to explore how individuals self-select educational tracks that match their career goals, while Borjas [1987] extended the model to analyze self-selection among immigrants, noting how they choose occupations based on skill levels and economic opportunities available in the host country.

However, while the Roy model provides valuable insights into occupational choices, it does not account for the influence of parental occupations on children's career decisions. The idea that skills and career paths are passed down through generations—whether through genetics, cultural transmission, or human capital investments—has been explored by other scholars, most notably Becker and Tomes [1979, 1986]. Their model of intergenerational mobility emphasizes that children's economic outcomes are shaped not only by the investments their parents make in their education but also by the "endowments" they inherit. These endowments, which can include genetic traits, cultural values, and early childhood learning, influence a child's ability to succeed in particular occupations. Becker and Tomes [1986] suggest that these inherited factors play a critical role in determining intergenerational income transmission, thus shaping career paths and economic outcomes.

Despite the clear influence of parental background on career outcomes, there has been limited exploration of how self-selection and parental endowments interact in shaping children's occupational choices. This paper aims to fill that gap by integrating Roy's self-selection model with the intergenerational human capital transmission framework developed by Becker and Tomes [1979]. Specifically, it examines how parental occupations—through both inherited endowments and direct investments—affect the self-selection of children into similar or different occupations. By doing so, this paper seeks to offer a more comprehensive understanding of the forces that drive occupational inheritance and intergenerational mobility.

To capture the complexity of skill transmission across generations, this paper introduces the Fréchet distribution as a way of modeling the diversity and extremity of inherited skills. Unlike the normal distribution assumed in the original Roy model, the Fréchet distribution can account for the heavy-tailed nature of skill inheritance, where certain skills—particularly those relevant to the parent's occupation—are more likely to be passed down. The Fréchet distribution has been used in other areas of economics, such as Eaton and Kortum [2002], who applied it to model technological efficiencies in international trade, and Hsieh et al. [2019], who used it to study talent misallocation in labor markets.Ji [2019] employed the Fréchet distribution to investigate the implications of occupational inheritance on productivity in developing countries from a macroeconomic perspective and to focus on India and China. The two leading causes they found of the prevalence of occupational inheritance are labour market frictions and barriers to human capital acquisition. Cai and Xu [2022] combined spatial economics and intergenerational career choice to study the quantitative impacts of education reform, trade, and immigration on occupational mobility and inequality in China. They used the Fréchet distribution to draw an innate talent for each occupation. They found that an education reform that grants all children the same ex-ante talent distribution generates the largest

intergenerational occupational mobility and welfare gains but, counterintuitively, increases income inequality. By applying this distribution to occupational inheritance, the paper aims to better model the asymmetry in skill transmission—that is, how some children inherit high levels of skills relevant to their parent's occupation, while others inherit average or even below-average abilities.

The motivation for this paper comes from the growing recognition that parental occupations significantly influence children's career outcomes. Yet, the mechanisms through which these influences operate—whether through direct skill transmission, human capital investments, or cultural inheritance—remain poorly understood in the context of occupational self-selection. By merging insights from the self-selection model and the intergenerational mobility framework, this paper provides a new approach to understanding how children inherit and optimize their career paths. In particular, it explores how different occupational categories, such as professional, manual, or service-based jobs, exhibit varying degrees of self-selection and parental influence. This research will provide important insights into the dynamics of occupational mobility, the economic advantages or disadvantages of following parental careers, and the implications for inequality and upward mobility.

In summary, the integration of the Roy model and Becker and Tomes' intergenerational model allows for a more nuanced analysis of how children make occupational choices in the presence of parental influence. By modeling inherited skills through the Fréchet distribution, this paper aims to provide a more accurate representation of the skill inheritance process and its impact on career outcomes. Ultimately, this research seeks to answer the question: How do parental careers shape children's occupational choices, and what are the economic consequences of these decisions?

4 Model

4.1 Model setup

In this model, each person is considered unique and has a distinct set of innate abilities relevant to various occupations within the economy. This implies that everyone has some capability for each available job. For example, one individual might have the skill to replace wipers on their car, demonstrating a mechanic skill; another might be able to solve plumbing problems such as water blockages, indicating a plumbing skill; and yet another might be capable of teaching elementary mathematics, reflecting a teaching skill.

These inherent abilities are significantly shaped by the occupations of one's parents. For simplicity, the model focuses on only two occupations. Each individual j, whose parents are engaged in a occupation $i \in \{h, f\}$, inherits specific skills for these jobs. This inheritance is represented as $s_{ij} = (s_{ih}, s_{if})$, where s_{ih} and s_{if} denote specialized innate talents for h and f, respectively. Skills s_{ih} and s_{if} are influenced by the occupations of parents i. Thus, the model highlights the intergenerational transmission of occupation-specific skills, emphasizing the role of parental influence in shaping an individual's capabilities for particular jobs.

4.2 Distribution of Innate Skills

In this model, each person's innate skills, denoted $s_{ij} = (s_{ih}, s_{if})$, are considered uncorrelated and are drawn independently and identically from a specific distribution. Traditionally, as described in Roy [1951], these skills are drawn from a log-normal distribution, which does not take into account the influence of a parent's occupation on the occupational choices of their child. This paper suggests

a different hypothesis: If a parent's occupation i is f (for example, fishing), the child's j innate skills $s_{ij} = (s_{ih}, s_{if})$ will be more inclined towards f rather than h (hunting).

This inclination can be attributed to several factors Becker and Tomes [1979] refer to these as "endowments of capital" that are determined by the reputation and 'connections' of their families, the contribution to the ability, race, and other characteristics of children from the genetic constitutions of their families, and the learning, skills, goals, and other 'family commodities' acquired through belonging to a particular family culture."

Quantifying the exact influence of a parent's occupation on a child's innate abilities is challenging. To address this complexity, the model utilizes a bivariate Fréchet distribution. This distribution randomly assigns innate skills to a child j whose parent's occupation is i.

The mathematical expression for this distribution is:

$$F_{ij}(s_h, s_f) = e^{-(T_{ih} s_h^{-\theta} + T_{if} s_f^{-\theta})}$$

Here, the location parameters T_{ih} and T_{if} establish the relationship between the impact of the parent's occupation i on the child's innate skills $s_{ij} = (s_{ih}, s_{if})$. The shape parameter θ controls the spread of the distribution, which helps to interpret the variability of skills and the elasticity of substitution between occupations.

4.3 Intergenerational Transmission Mechanism

In this model, the parameters T_{ij}, which include T_{ih} and T_{if}, measure the effectiveness with which occupational skills are transmitted from parents to their children. This transmission is influenced by a combination of family culture, as mentioned in Becker and Tomes [1979], genetic factors, and shared experiences with parents. If the parent's occupation i matches the occupation f, then T_{ff} will be greater than T_{fh}. This suggests a higher probability that the child will have strong innate skills s_{ff} compared to s_{fh}, as outlined in the expected value equation 6 in Appendix A:

$$E[s_{ij}] = T_{ij}^{\frac{1}{\theta}} \, \Gamma(1 - \frac{1}{\theta}) \tag{1}$$

Within this framework, the parameter θ governs the distribution of skills across various occupations and the ease with which one occupation can be substituted for another. An increase in θ reduces the variability of skills between occupations and enhances their substitutability, indicating a decreased occupational preference among workers.

4.4 Intergenerational mobility

Let π_f and π_h represent the skill prices associated with the innate skills s_f and s_h, respectively. The skills s_f and s_h signify an individual's productivity in the occupations f and h, respectively. These skills are influenced by the occupations of the individual's parents through the parameters T_{ij}. Each individual is unique and has a distinct set of innate skills.

The earning of an individual j in a particular occupation is determined by πs_{ij}, where the parents are employed in the occupation i. Specifically, the income from the occupation f is given by $\pi_f s_f$, and the income from the occupation h is given by $\pi_h s_h$. Individuals strive to maximize their income and select the occupation that offers higher earnings, taking into account their parents' occupations.

An individual j, who has innate skills $s_{ij} = (s_{ih}, s_{if})$ and whose parents are employed in the occupation i (where i can be h or f), will choose the occupation f if the income from f exceeds that from h . The following condition represents this decision-making process:

$$\pi_f s_{if} > \pi_h s_{ih}$$

If this inequality holds, the Individual will select the occupation f; otherwise, the Individual will choose the occupation h.

In this model, the innate skills s_{if} and s_{ih} are continuous variables influenced by the occupation of the parents and follow a bivariate Fréchet distribution as described in Equation 1. The probability that the income ($\pi_f s_{if}$) from occupation f exceeds the income ($\pi_h s_{ih}$) from occupation f is expressed as:

$$P_{if}[\pi_f s_{if} > \pi_h s_{ih}] = \frac{T_{if}}{[T_{ih} + T_{if}(\frac{\pi_f}{\pi_h})^{-\theta}]} \tag{2}$$

Refer to Appendix A, Equation 7 for further details. A similar formula exists for P_{ih}, the probability that income from occupation h exceeds income from occupation f.

These probability equations are used to calculate the intergenerational occupational transition matrix, which includes various probabilities that individuals choose the occupation f if the parents' occupation is also f and is denoted P_{ff}. This equation incorporates the transmission mechanism parameters T_{fh} and T_{ff}.

4.5 Condition for Positive and Negative self-selection

Positive self-selection occurs when an individual's expected productivity in a chosen occupation, influenced by their parents' occupation, exceeds what it would be if the occupation were selected randomly. In simple terms, positive self-selection implies that only those children who enter their parents' occupation are more productive than the average person in that occupation. Conversely, negative self-selection leads to labour market inefficiencies, as less competent individuals may choose occupations simply because their parents held the same jobs, potentially stunting economic growth.

The condition for an individual to positively select the occupation of his parents f is established by the inequality:

$$E[s_{ff}|\pi_f s_{ff} > \pi_h s_{fh}] > E[s_{ff}]$$

This suggests that the productivity of someone in occupation f who follows their parents' career path is higher than the average productivity in that occupation. Based on the theory of conditional expectation, the expected value of s_{ff} when $\pi_f s_{ff} > \pi_h s_{fh}$ is calculated as:

$$E[s_{ff}|\pi_f s_{ff} > \pi_h s_{fh}] = \int_0^\infty s_{ff} g[s_{ff}|\pi_f s_{ff} > \pi_h s_{fh}]\, ds_{ff}$$

Here, $g[s_{ff}|\pi_f s_{ff} > \pi_h s_{fh}]$ represents the conditional probability density function that reflects the proportion of children who choose the occupation of their parents when their expected income is maximized.

In contrast, the expected value of s_{ff} is calculated as

$$E[s_{ff}] = \int_0^\infty s_{ff} f(s_{ff})\, ds_{ff}$$

Here, $f(s_{ff})$ is the marginal density function that represents the proportion of children who randomly enter the occupation of their parents.

The solutions for these equations are detailed in Appendix A as follows:

$$E[s_{ff}|\pi_f s_{ff} > \pi_h s_{fh}] = [T_{ff} + T_{fh}(\frac{\pi_h}{\pi_f})^\theta]\, \frac{\pi_h}{\pi_f}\, \frac{1}{T_{fh}^{-\frac{1}{\theta}}} \Gamma(1 - \frac{1}{\theta}) \tag{3}$$

$$E[s_{ff}] = T_{ff}^{\frac{1}{\theta}}\, \Gamma(1 - \frac{1}{\theta}) \tag{4}$$

By analyzing these equations 3 and 4, I establish the criteria for positive self-selection, where a highly productive child chooses their parents' occupation. The condition for positive self-selection can be summarized as follows.

$$E[s_1|\pi_1 s_1 > \pi_2 s_2] > E[s_1]$$

$$[T_{ff} + T_{fh}(\frac{\pi_h}{\pi_f})^\theta]\, \frac{\pi_h}{\pi_f}\, \frac{1}{T_{fh}^{-\frac{1}{\theta}}} \Gamma(1 - \frac{1}{\theta}) > T_{ff}^{\frac{1}{\theta}}\, \Gamma(1 - \frac{1}{\theta})$$

$$[T_{ff} + T_{fh}(\frac{\pi_h}{\pi_f})^\theta]\, \frac{\pi_h}{\pi_f}\, (\frac{T_{fh}}{T_{ff}})^{\frac{1}{\theta}} > 1 \tag{5}$$

Equation 5 is the primary condition for self-selection into an occupation influenced by a parent's occupation. The self-selection mechanism is driven by three main factors: the degree of intergenerational occupational transmission from parent to child (T_{ff}, T_{fh}), the relative prices of skills in different occupations (π_f, π_h) and the distribution of skills (θ). The condition essentially states that for an individual to choose an occupation influenced by their parent's occupation, a combination of transmitted skills is adjusted by the relative economic value of skills in various occupations, and the dispersion of these skills must surpass a certain threshold. This implies that the choice to follow in a parent's occupational footsteps is affected not only by inherited skills, but also by economic factors (the market's relative valuation of skills) and the variability of skills across the population.

5 Data

This paper relies on two key data sets: a Parent-Child mapping (both Father-child and Mother-child) and a detailed panel dataset containing information on each individual's occupation and average hourly earnings (for fathers, mothers, and children). Given the specific data requirements and the focus on the United States, Panel Study of Income Dynamics, public use dataset [2023] is employed. The PSID is a large, nationally representative longitudinal study that began in 1968,

initially covering over 18,000 individuals from approximately 5,000 families. It tracks the children of the original 1968 sample into adulthood and continues to collect data on those who become household heads. The survey was conducted annually from 1968 to 1997 and has been biannual since then. Nearly every wave of the survey includes detailed data on occupation and earnings, making it an ideal source for analyzing intergenerational occupational mobility and earnings dynamics.

Parent-Child Mapping

The parent-child mappings are generated using the Family Identification Mapping System (FIMS), which enables matching between children and their parents, grandparents, and great-grandparents within the Panel Study of Income Dynamics (PSID). This study specifically focuses on biological parent-child relationships to better capture genetic and direct familial influences. A summary of the statistics for this mapping file can be found in Table 7 in Appendix C.

Occupation and Earning Data

The sample dataset spans from 1970 to 2015 and includes variables such as the occupation of the head of household, occupation of the spouse, average hourly earnings for both, age, and PSID longitudinal weights[3] for each individual on an annual basis[4]. The dataset is restricted to children whose parents—both father and mother—were employed and held occupational roles. Occupations in the PSID are coded according to classifications developed by the US Department of Commerce and the Bureau of the Census. From 1968 to 2001, the PSID uses the three-digit 1970 Census occupation codes, and from 2002 to 2015, it switches to the 2000 Census codes. To ensure consistency across different periods, all occupation codes were harmonized to the 1990 Census occupation codes, following the mapping methodology established by Autor and Dorn [2013].

In this paper, I examine the impact of fathers' and mothers' occupations on their children's inherent skills, which, in turn, influence the children's career choices. Accordingly, the occupations of fathers and mothers are considered during the period when the child is between 1 and 17 years old.[5] Children's occupations are assessed when they are between the ages of 30 and 55.[6]

The average hourly earnings for each individual per year are adjusted for inflation using the Consumer Price Index for All Urban Consumers (CPI-U) from the Bureau of Labor Statistics (BLS), with 2010 as the base year.

For each father, mother, and child, the most frequent occupation is determined during the relevant periods: fathers' and mothers' occupations when the child is between ages 1 and 17, and children's occupations between ages 30 and 55. The final dataset includes these most frequent occupations, their weighted average hourly earnings, and the corresponding weighted average hourly earnings for fathers, mothers, Sone and daughters. This results in a dataset comprising 2,738 father-mother-child pairs, each with their most frequent occupations and weighted average hourly earnings.

There are over two hundred unique occupation codes for the most frequent occupations of

[3]The PSID longitudinal weights account for changes due to sample attrition, demographic shifts, and initial over-sampling, ensuring that the estimates are both reliable and representative of the national population.

[4]Detailed definitions of these variables can be found in Appendix C

[5]This is the typical age range during which children reside at home and are under their parents' close supervision. In many states in the United States, parental responsibilities generally end when a child turns 18, as supported by findings in studies such as **?** (2016).

[6]Permanent occupational choices aimed at maximizing lifetime income are typically made at or after the age of 30, following concepts from Corak et al. [2011] (2011).

fathers, mothers, and children. For analysis purposes, these occupation codes have been classified into nine broader categories, in accordance with the 1990 Census occupation codes established by the US Department of Commerce and the Bureau of the Census. Table 1 provides an overview of these nine occupation categories.

1990 Census Occupation Code Range	**Occupation Category**
003-037	Management Occupations
043-199	Professional Occupations
203-235	Technicians and Related Support occupations
243-285	Sales Occupations
303-389	Administrative Support Occupations
403-469	Service Occupations
473-499	Farming, forestry and fishing occupations
503-699	Precision Production, Craft and Repair Occupations
703-889	Operators, Fabricators, and Laborers

Table 1: 1990 Census Occupation Code Range and Occupation Category

	Fathers	**Mothers**	**Sons**	**Daughters**
Observations	2738	2738	1783	955
Mean	3.73	2.39	20.60	15.12
Standard Deviation	4.66	3.48	18.80	13.38
Minimum	0.05	0.02	0.09	0.42
Median	2.09	1.11	15.81	11.90
Maximum	81.35	47.72	239.83	175.18

Table 2: Summary statistics for Average Hourly Earnings for Father, Mother, Sons and Daughter

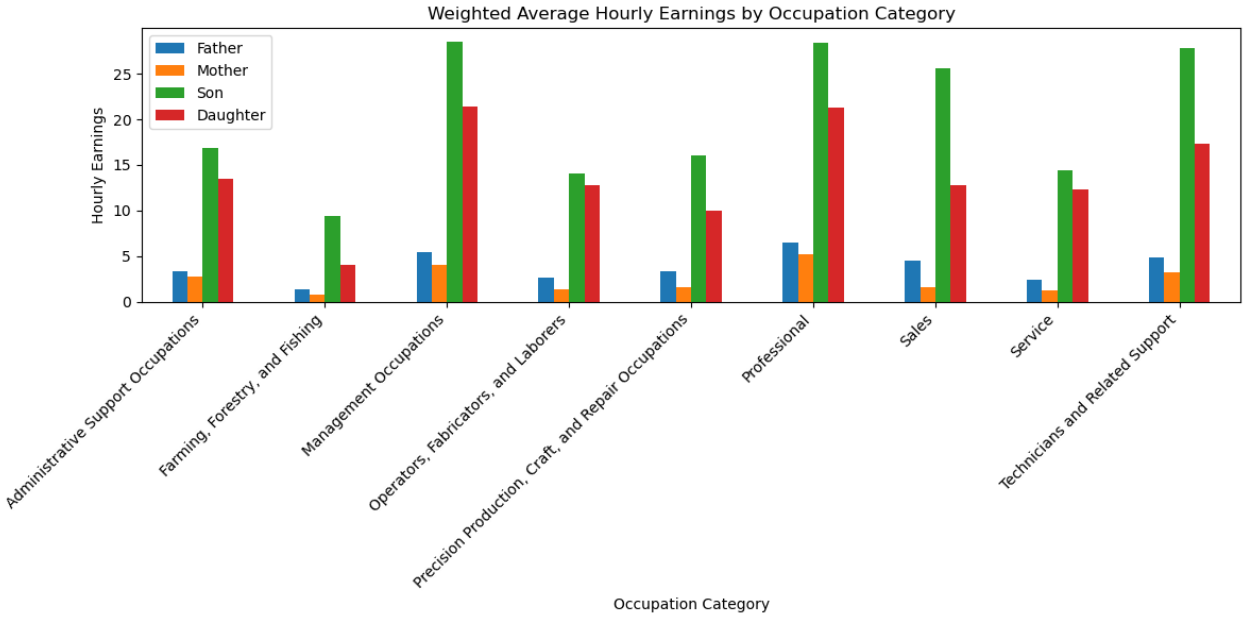


Figure 1: Average hourly earnings distribution for Father, Mother Son and Daughter

Fathers	Mothers	Sons	Daughters
Operators, Fabricators, and Laborers	Service Occupations	Precision Production, Craft, and Repair Occupations	Service Occupations
Precision Production, Craft, and Repair Occupations	Administrative Support Occupations	Operators, Fabricators, and Laborers	Administrative Support Occupations
Management Occupations	Operators, Fabricators, and Laborers	Management Occupations	Professional Occupations
Professional Occupations	Professional Occupations	Professional Occupations	Management Occupations
Service Occupations	Sales Occupations	Service Occupations	Operators, Fabricators, and Laborers

Figure 2: Most Followed Occupations by Fathers, Mothers, Sons and Daughters in Ascending Order

The table 2 highlights key descriptive statistics for average hourly real wages, showing that sons earn the highest mean hourly wage of 20.60, followed by daughters at 15.12, while fathers and mothers earn significantly lower mean wages of 3.73 and 2.39, respectively. The disparity in wages among the groups underscores gender-based differences in income.

Figure 1 illustrates the weighted average hourly earnings by occupation category for fathers, mothers, sons, and daughters. It highlights significant variations in earnings across occupational categories and generational as well as gender differences Sons dominate the higher-paying categories, such as “Professional Occupations” and “Technicians and Related Support,” reflecting upward mobility compared to their parents. Daughters also show relatively higher earnings compared to mothers in categories like “Administrative Support Occupations” and “Professional Occupations,” indicating upward generational progress. The data also indicate that sons earn significantly more than daughters across most occupational categories, pointing to persistent gender wage gaps.

Overall, the figure reveals both intergenerational mobility, with children generally transitioning into higher-paying roles, and enduring gender disparities in wages within the same occupational categories.

The table 2 provides insights into the most common occupations by group. Fathers and sons show a tendency toward occupations like "Operators, Fabricators, and Laborers" and "Precision Production, Craft, and Repair," while mothers and daughters are more aligned with "Service Occupations" and "Administrative Support." This highlights both intergenerational continuities and gendered occupational preferences.

Overall, the data suggest a notable intergenerational shift in occupational outcomes, with sons and daughters moving toward higher-paying and more diverse roles compared to their parents. Gender-based disparities persist, particularly for mothers and daughters, though daughters show some upward mobility compared to mothers.

A detailed explanation of the definitions of the variables in the dataset is given in Appendix C.

6 Calibration

To validate the self-selection model expressed in equation (5), several key parameters must be determined: θ, T_{ij}, π_f, and π_h. The parameter θ represents the dispersion of occupational skills. In this study, I employ the value of $\theta = 2$, consistent with the findings of Hsieh et al. [2019]. However, it's worth noting that other studies, such as Ji [2019], have calibrated θ to be 3.48 for the US context. Consequently, while $\theta = 2$ serves as the baseline for this analysis, results are also presented for $\theta = 3$ and $\theta = 4$ to explore the robustness of the findings under different skill dispersion scenarios.

The parameter T_{ij} captures the influence of innate skills passed from parent to child, which affects their occupational choices. In Backer and Tomes' words, this captures the "Culture" that is transmitted from parents to children. Thus, I calibrate T_{ij} using Equation (2). The probability P_{ff} represents the likelihood that a child adopts the parent's occupation when the parent is in occupation f, while P_{fh} denotes the probability that the child does not pursue the parent's occupation f and instead chooses the occupation h.

To estimate P_{ff} and P_{fh}, I utilize a probit model based on the observed occupational data for parents and children. The probability of a child following the parent's occupation is given by:

$$P_{ff} = Pr(Y^c = 1|X^f = j) = \phi(\beta_0 + \sum_{j=1}^{n} I(X^f = j))$$

Where: - j represents occupation codes. - ϕ is the cumulative function of the standardized normal distribution. - Y^c is a dummy variable that takes the value 1 if the child follows the parent's occupation category. - X^f is a categorical variable that denotes the different occupations of the parents. - $I(X^f = j)$ is an indicator function that takes the value 1 if the parent has occupation j and 0 otherwise.

To calibrate the parameters π_f and π_h, which represent the relative prices corresponding to the skills s_f and s_h, respectively, use the earning income equation. The earning income from the occupation f is given by $w_f = \pi_f s_{ff}$, and from the occupation h, it is $w_h = \pi_h s_{fh}$. These equations are instrumental in determining π_f and π_h.

The calibration of T_{ij}, π_f, and π_h is performed using the Generalized Method of Moments (GMM). For a detailed explanation of the method, see Appendix B. The moment conditions, which

depend on the parameters T_{ff}, T_{fh}, π_f, and π_h, are as follows:

1. Moment condition for P_{ff}:

$$m_1(\gamma) = P_{ff} - \frac{T_{ff}}{T_{ff} + T_{fh}\left(\frac{\pi_f}{\pi_h}\right)^{-\theta}}$$

2. Moment condition for P_{fh}:

$$m_2(\gamma) = P_{fh} - \frac{T_{fh}}{T_{fh} + T_{ff}\left(\frac{\pi_h}{\pi_f}\right)^{-\theta}}$$

3. Moment condition for the expected earnings w_f:

$$m_3(\gamma) = \bar{w_f} - \pi_f T_{ff}^{\frac{1}{\theta}} \Gamma\left(1 - \frac{1}{\theta}\right)$$

4. Moment condition for the expected earnings w_h:

$$m_4(\gamma) = \bar{w_h} - \pi_h T_{fh}^{\frac{1}{\theta}} \Gamma\left(1 - \frac{1}{\theta}\right)$$

The GMM objective function is written as:

$$Q_N(\gamma) = m(\gamma)' W m(\gamma)$$

where $m(\gamma)$ is the vector of moment conditions and W is a weighting matrix. The identity matrix is used as the weighting matrix in the first stage.

Using these moment conditions and the GMM framework, I can accurately calibrate the parameters needed to confirm the self-selection model. This comprehensive approach ensures that the analysis is robust and accounts for various factors influencing occupational choices and earnings outcomes between generations.

6.1 Calibration Results

The calibration process described above represents the standard methodology used in this paper. However, it is essential to note that due to the diversity of occupations and the different earnings associated with each individual (reflecting the concept of heterogeneous agents), each person will have their unique parameter T_{ij} influenced by their parents' occupations.

I have calibrated the parameters T_{ii}, T_{ij}, π_i, and π_j for various scenarios, each involving two occupations category. For example, if the parent's occupation is in Professional Occupations category (d) and the child's occupation is also Professional Occupations (d), this scenario is classified as an occupation follower case. Here, P_{ii} represents the probability that the child will follow the parent's occupation, and T_{ii} denotes the transmission parameter that reflects the influence of the parent's occupation on the child's choice also to be in Professional Occupations . If the parent's occupation is Professional Occupations (d), but the child follows Sales Occupations (t), this scenario is classified as a non-follower occupation case. In this context, P_{ij} represents the probability that the child will choose a different occupation from the parent, and T_{ij} denotes the transmission parameter reflecting the influence of the parent's occupation on the child's decision to pursue a different career path.

For each pair of Father-Child and Mother-Child, the relevant parameters (T_{ii}, T_{ij}, π_i, and π_j) are estimated using the earning income equations and the Generalized Moments Method (GMM) as previously described. This involves using the observed occupational and earning data to derive these parameters. Table 8 and Table 9 in Appendix D shows the calibrated results for Mother -Child pair and Father-Pair respectively.

6.2 Intergenerational occupational transition matrix

Using the logit model, I calculate the probabilities P_{ii} and P_{ij}, which indicate the likelihood of children following or not following their parents' occupation which is called intergenerational occupational transition matrix. Figure 3 show the intergenerational occupational transition matrix between parents and child.

The intergenerational occupational transition matrices reveal the likelihood of children following their father's or mother's occupation across various categories. In the father-daughter matrix, daughters exhibit the strongest occupational persistence in "Service Occupations" (28%) and "Administrative Support Occupations" (24%). Similarly, in the mother-daughter matrix, daughters have a 34% probability of following their mother into "Administrative Support Occupations" and a 38% probability in "Service Occupations," highlighting a significant continuity in gendered occupational roles.

For sons, the father-son matrix shows a strong tendency to follow their fathers into "Precision Production, Craft, and Repair Occupations" (25%) and "Operators, Fabricators, and Laborers" (23%). In the mother-son matrix, notable transition probabilities appear in "Service Occupations" (31%) and "Technicians and Related Support Occupations" (38%), suggesting some degree of mobility into technical roles traditionally not dominated by mothers.

Overall, the matrices highlight both persistence and mobility in occupational outcomes. Sons show greater persistence in technical and labor-intensive occupations inherited from fathers, while daughters exhibit a strong tendency to inherit traditionally female-dominated roles from mothers. Despite these patterns, occupations like "Service Occupations" and "Administrative Support Occupations" reflect the highest levels of intergenerational stability, indicating that parental occupations play a significant role in shaping children's career choices.

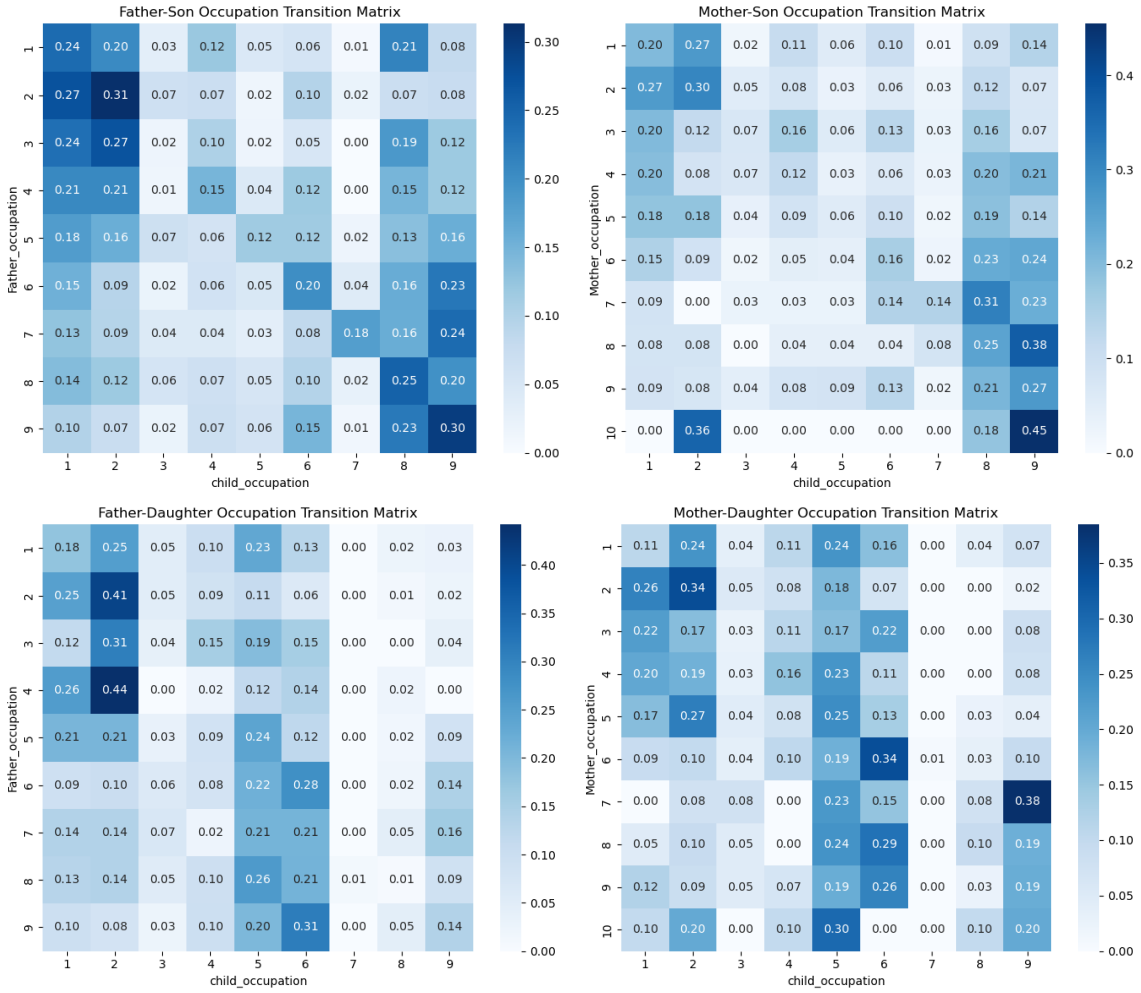


Figure 3: The intergenerational occupational transition matrix presents the predicted probabilities of children either following or not following their father's or mother's occupation. The occupation categories are defined as follows: 1: "Management Occupations", 2: "Professional Occupations", 3: "Technicians and Related Support Occupations", 4: "Sales Occupations", 5: "Administrative Support Occupations", 6: "Service Occupations", 7: "Farming, Forestry, and Fishing Occupations", 8: "Precision Production, Craft, and Repair Occupations", 9: "Operators, Fabricators, and Laborers."

7 Results

The analysis explores the phenomenon of negative self-selection across occupational categories, focusing on sons and daughters who inherit their parent's occupation Using the positive self-selection criterion derived from equation (5). Negative self-selection is identified as the proportion of children who, by following their parent's occupation, achieve lower productivity or wages than peers in

alternative occupations.

7.1 Sons Following Mothers' and Fathers' Occupations

Sons exhibit varying degrees of negative self-selection when following their mother's and father's occupations. For sons inheriting their mother's occupation summarized in Table 3, the highest negative self-selection is observed in *Farming, Forestry, and Fishing Occupations* (35.56%), followed by *Service Occupations* (11.11%) and *Operators, Fabricators, and Laborers* (4.45%). Interestingly, almost no negative self-selection is observed in technical, professional, or administrative roles.

When following their father's occupation ummarized in Table 4, sons show the highest negative self-selection in *Service Occupations* (20.74%), followed by *Farming, Forestry, and Fishing Occupations* (12.4%) and *Administrative Support Occupations* (5.56%). Lower negative self-selection in *Precision Production, Craft, and Repair Occupations* (2.05%) and *Operators, Fabricators, and Laborers* (2.84%), suggesting better alignment in these traditionally male-dominated roles.

Occupation category	**Negative self selection %**
Management Occupations	6.57
Professional Occupations	0.68
Technicians and Related Support Occupations	0.52
Sales Occupations	1.85
Administrative Support Occupations	1.98
Service Occupations	11.11
Farming, Forestry, and Fishing Occupations	35.56
Precision Production, Craft, and Repair Occupations	0.72
Operators, Fabricators, and Laborers	4.45

Table 3: Negative Self Selection when Son following Mother's Occupation.

Occupation category	**Negative self selection %**
Management Occupations	1.63
Professional Occupations	1.07
Technicians and Related Support Occupations	0.68
Sales Occupations	0.71
Administrative Support Occupations	5.56
Service Occupations	20.74
Farming, Forestry, and Fishing Occupations	12.4
Precision Production, Craft, and Repair Occupations	2.04
Operators, Fabricators, and Laborers	2.84

Table 4: Negative Self Selection when Son following Fathers' Occupation.

7.2 Daughters Following Mothers' and Fathers' Occupations

Daughters demonstrate notable negative self-selection patterns when following their mother's occupation summarized in Table 5. The highest negative self-selection occurs in *Service Occupations*

(17.63%) and *Operators, Fabricators, and Laborers* (10.72%). Moderate levels are observed in *Administrative Support Occupations* (3.03%) and *Professional Occupations* (1.71%), while no negative self-selection is identified in technical or craft-related fields.

In contrast, daughters following their father's occupation , summarized in Table 6 , face the highest negative self-selection in *Operators, Fabricators, and Laborers* (17.62%) and *Service Occupations* (15.63%). Moderate levels of negative self-selection are seen in *Administrative Support Occupations* (5.55%) and *Management Occupations* (3.45%).

Occupation category	**Negative self selection %**
Management Occupations	0.4
Professional Occupations	1.71
Technicians and Related Support Occupations	0.2
Sales Occupations	4.45
Administrative Support Occupations	3.03
Service Occupations	17.63
Farming, Forestry, and Fishing Occupations	0.35
Precision Production, Craft, and Repair Occupations	0.36
Operators, Fabricators, and Laborers	10.72

Table 5: Negative Self Selection when Daughter following Mother's Occupation.

Occupation category	**Negative self selection %**
Management Occupations	3.45
Professional Occupations	3.03
Technicians and Related Support Occupations	0.4
Sales Occupations	0.7
Administrative Support Occupations	5.55
Service Occupations	15.63
Farming, Forestry, and Fishing Occupations	0.3
Precision Production, Craft, and Repair Occupations	0.9
Operators, Fabricators, and Laborers	17.62

Table 6: Negative Self Selection when Daughter following Fathers' Occupation.

Key Insights

- **Gender Differences:** Sons exhibit higher negative self-selection when inheriting traditionally female-dominated roles from their mothers, such as *Service Occupations* and *Farming, Forestry, and Fishing Occupations*. Conversely, daughters face greater negative self-selection in male-dominated roles inherited from fathers, such as *Operators, Fabricators, and Laborers*.
- **Role of Occupation Type:** Both sons and daughters exhibit minimal or no negative self-selection in technical and professional roles, suggesting that these occupations align better with skill sets across genders.

- **Intergenerational Continuity and Disruption:** Negative self-selection is more prominent in occupations where intergenerational continuity clashes with traditional gender norms, underscoring the importance of skill compatibility and societal expectations.

These findings highlight the complex dynamics of occupational inheritance and stress the significance of promoting crossing gender-based occupational boundaries to minimize negative self-selection occurrences.

8 Conclusion

This paper investigates the dynamics of intergenerational occupational mobility through the lens of self-selection, focusing on the relative influence of fathers' and mothers' occupations on the career outcomes of sons and daughters. The findings reveal notable differences in how following a parent's occupation impacts economic outcomes, with distinct patterns emerging based on the child's gender and the parent's occupation.

Sons tend to benefit more from inheriting their father's occupation, particularly in traditionally male-dominated and higher-paying fields such as management, professional, and technical occupations. These roles often foster positive self-selection, where sons leverage inherited skills, social networks, and industry-specific knowledge to achieve favorable economic outcomes. However, sons exhibit higher negative self-selection when inheriting their mother's occupations, especially in lower-wage sectors such as farming and service occupations, highlighting the challenges of transitioning into traditionally female-dominated fields.

Daughters, on the other hand, face a greater risk of negative self-selection when inheriting their father's occupations in labor-intensive roles, such as operators or fabricators. In contrast, daughters who follow their mother's occupation exhibit negative self-selection in service and administrative roles, which are often associated with lower wages and limited upward mobility. These findings underscore the persistence of gendered occupational norms and their influence on intergenerational outcomes.

The distinction between sons and daughters, and the differential impacts of fathers' and mothers' occupations, has significant policy implications. Policymakers should aim to foster opportunities for sons and daughters to break traditional occupational patterns, particularly in lower-wage sectors where negative self-selection is prevalent. Expanding access to higher-paying and skilled professions through education, mentorship, and skill development programs is crucial for reducing the intergenerational transmission of disadvantage.

In the context of gender and occupational mobility, these results highlight the need for targeted interventions that address the structural barriers limiting daughters' entry into high-skill, lucrative professions, and support sons transitioning into nontraditional roles. Reducing the gendered occupational divide and promoting access to equitable opportunities for both sons and daughters can help mitigate negative self-selection and enhance intergenerational mobility.

By examining the nuanced dynamics of how fathers' and mothers' occupations influence sons' and daughters' career outcomes, this study provides a foundation for policymakers to design more effective strategies that promote economic equality and upward mobility across generations.

Appendix A Derivation Self-selection condition

s_1 and s_2 are the random independent variables drawn from bivariate Fréchet distribution (Extreme value distribution) where T1, T2 and θ are exogenous.

$$F(s_1, s_2) = e^{-(T_1 s_1^{-\theta} + T_2 s_2^{-\theta})}$$

Marginal density function is given by

$$f(s_1) = T_1 \theta s_1^{-\theta-1} e^{-(T_1 s_1^{-\theta})}$$

The expected value of s_1 is

$$E[s_1] = \int_0^\infty s_1 T_1 \theta s_1^{-\theta-1} e^{-(T_1 s_1^{-\theta})}\, ds_1$$

let $y = T_1 S_1^{-\theta}$, $dy = -T_1 \theta s_1^{-\theta-1}\, ds_1$

$$E[s_1] = T_1^{\frac{1}{\theta}} \int_0^\infty y^{-\frac{1}{\theta}} e^{-y}\, dy$$

$$E[s_1] = T_1^{\frac{1}{\theta}}\, \Gamma(1 - \frac{1}{\theta}) \tag{6}$$

The joint probability density function is given by

$$f_{s_1,s_2}(s_1, s_2) = T_1 T_2 \theta^2 s_1^{-\theta-1} s_2^{-\theta-1} e^{-(T_1 s_1^{-\theta} + T_2 s_2^{-\theta})}$$

Probability of $\pi_1 s_1$ greater than $\pi_1 s_2$ is given by

$$\begin{aligned} P[\pi_1 s_1 > \pi_2 s_2] &= \int_0^\infty \int_0^{\frac{\pi_1}{\pi_2} s_1} T_1 T_2 \theta^2 s_1^{-\theta-1} s_2^{-\theta-1} e^{-(T_1 s_1^{-\theta} + T_2 s_2^{-\theta})}\, ds_2\, ds_1 \\ &= \int_0^\infty T_1 \theta s_1^{-\theta-1} e^{-T_1 s_1^{-\theta}} \int_0^{\frac{\pi_1}{\pi_2} s_1} T_2 \theta s_2^{-\theta-1} e^{-T_2 s_2^{-\theta}}\, ds_2\, ds_1 \end{aligned}$$

let $u = T_2 S_2^{-\theta}$, $du = -T_2 \theta s_2^{-\theta-1}\, ds_2$

$$\begin{aligned} &= \int_0^\infty T_1 \theta s_1^{-\theta-1} e^{-T_1 s_1^{-\theta}} [-\int_\infty^{T_2 (\frac{\pi_1}{\pi_2} s_1)^{-\theta}} e^{-u}\, du]\, ds_1 \\ &= \int_0^\infty T_1 \theta s_1^{-\theta-1} e^{-T_1 s_1^{-\theta}} e^{-T_2 (\frac{\pi_1}{\pi_2} s_1)^{-\theta}} \\ &= \int_0^\infty T_1 \theta s_1^{-\theta-1} e^{-[T_1 + T_2 (\frac{\pi_1}{\pi_2})^{-\theta}] s_1^{-\theta}} \end{aligned}$$

let $v = [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]s_1^{-\theta}$, $dv = -\theta[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]s_1^{-\theta-1}\,ds_1$

$$= \frac{T_1}{[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]} \int_0^{\infty} e^{-v}\,dv$$
$$= \frac{T_1}{[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]}[1]$$

Therefore

$$P[\pi_1 s_1 > \pi_2 s_2] = \frac{T_1}{[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]} \tag{7}$$

The conditional probability density function is given by

$$g[s_1|\pi_1 s_1 > \pi_2 s_2] = \frac{\int_0^{\frac{\pi_1}{\pi_2}s_1} f_{s_1,s_2}(s_1,s_2)\,ds_2\,ds_1}{P[\pi_1 s_1 > \pi_2 s_2]}$$
$$= \frac{\int_0^{\frac{\pi_1}{\pi_2}s_1} T_1 T_2 \theta^2 s_1^{-\theta-1} s_2^{-\theta-1} e^{-(T_1 s_1^{-\theta} + T_2 s_2^{-\theta})}\,ds_2\,ds_1}{P[\pi_1 s_1 > \pi_2 s_2]}$$
$$= \frac{T_1 \theta s_1^{-\theta-1} e^{-T_2(\frac{\pi_1}{\pi_2}s_1)^{-\theta}}}{\frac{T_1}{[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]}}$$

$$= [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]\theta s_1^{-\theta-1} e^{-T_2(\frac{\pi_1}{\pi_2}s_1)^{-\theta}}$$

Expected value of s_1 given $\pi_1 s_1 > \pi_2 s_2$ is given by

$$E[s_1|\pi_1 s_1 > \pi_2 s_2] = \int_0^{\infty} s_1\, g[s_1|\pi_1 s_1 > \pi_2 s_2]\,ds_1$$
$$= \int_0^{\infty} s_1 [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]\theta s_1^{-\theta-1} e^{-T_2(\frac{\pi_1}{\pi_2}s_1)^{-\theta}}\,ds_1$$
$$= [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}] \int_0^{\infty} s_1 \theta s_1^{-\theta-1} e^{-T_2(\frac{\pi_1}{\pi_2}s_1)^{-\theta}}\,ds_1$$

let $w = T_2(\frac{\pi_1}{\pi_2}s_1)^{-\theta}$, $dw = -\theta s_1^{-\theta-1} T_2(\frac{\pi_1}{\pi_2})^{-\theta}\,ds_1$

$$= [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}] \int_0^{\infty} (\frac{w}{T_2})^{-\frac{1}{\theta}} \frac{\pi_2}{\pi_1} e^{-w}\,dw$$
$$= [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]\, \frac{\pi_2}{\pi_1}\, \frac{1}{T_2^{-\frac{1}{\theta}}} \int_0^{\infty} w^{-\frac{1}{\theta}} e^{-w}\,dw$$
$$= [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}] \int_0^{\infty} (\frac{w}{T_2})^{-\frac{1}{\theta}} \frac{\pi_2}{\pi_1} e^{-w}\,dw$$
$$= [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}]\, \frac{\pi_2}{\pi_1}\, \frac{1}{T_2^{-\frac{1}{\theta}}} \Gamma(1 - \frac{1}{\theta})$$

$$E[s_1|\pi_1 s_1 > \pi_2 s_2] = [T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}] \frac{\pi_2}{\pi_1} \frac{1}{T_2^{-\frac{1}{\theta}}} \Gamma(1 - \frac{1}{\theta}) \tag{8}$$

Comparing Equation 1 and Equation 3 to find the condition for

$$E[s_1|\pi_1 s_1 > \pi_2 s_2] > E[s_1]$$
$$[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}] \frac{\pi_2}{\pi_1} \frac{1}{T_2^{-\frac{1}{\theta}}} \Gamma(1 - \frac{1}{\theta}) > T_1^{\frac{1}{\theta}} \Gamma(1 - \frac{1}{\theta})$$

$$[T_1 + T_2(\frac{\pi_1}{\pi_2})^{-\theta}] \frac{\pi_2}{\pi_1} (\frac{T_2}{T_1})^{\frac{1}{\theta}} > 1 \tag{9}$$

Appendix B Generalized method of moments (GMM) for estimating parameters

Given the two expected earning equations and Probabilities:

$$E[w_1] = \pi_1 E[s_1] = \pi_1 T_1^{\frac{1}{\theta_1}} \Gamma\left(1 - \frac{1}{\theta_1}\right)$$

$$E[w_2] = \pi_2 E[s_2] = \pi_2 T_2^{\frac{1}{\theta_2}} \Gamma\left(1 - \frac{1}{\theta_2}\right)$$

$$P_1 = P[\pi_1 s_1 > \pi_2 s_2] = \frac{T_1}{T_1 + T_2\left(\frac{\pi_1}{\pi_2}\right)^{-\theta}}$$

$$P_2 = P[\pi_2 s_2 > \pi_1 s_1] = \frac{T_2}{T_2 + T_1\left(\frac{\pi_2}{\pi_1}\right)^{-\theta}}$$

we can use these equations to calibrate the parameters T_1, T_2, π_1, and π_2 using GMM. We have the following moment conditions:
The known probabilities:

$$P_1 = \frac{T_1}{T_1 + T_2\left(\frac{\pi_1}{\pi_2}\right)^{-\theta_1}}$$

$$P_2 = \frac{T_2}{T_2 + T_1\left(\frac{\pi_2}{\pi_1}\right)^{-\theta_2}}$$

The expected earnings equations:

$$E[w_1] = \pi_1 T_1^{\frac{1}{\theta_1}} \Gamma\left(1 - \frac{1}{\theta_1}\right)$$

$$E[w_2] = \pi_2 T_2^{\frac{1}{\theta_2}} \Gamma\left(1 - \frac{1}{\theta_2}\right)$$

Using the observed data for the earnings (w_1 and w_2) which is denoted as their sample means as $\bar{w_1}$ and $\bar{w_2}$ and the probability that the child will follow the occupation of the parents (P_1) and not the occupation of the parents (P_2 from the observed data.

The moment conditions as functions of the parameters T_1, T_2, π_1, and π_2.

1. Moment condition for P_1:

$$m_1(\theta) = P_1 - \frac{T_1}{T_1 + T_2\left(\frac{\pi_1}{\pi_2}\right)^{-\theta_1}}$$

2. Moment condition for P_2:

$$m_2(\theta) = P_2 - \frac{T_2}{T_2 + T_1\left(\frac{\pi_2}{\pi_1}\right)^{-\theta_2}}$$

3. Moment condition for the expected earnings w_1:

$$m_3(\theta) = \bar{w_1} - \pi_1 T_1^{\frac{1}{\theta_1}} \Gamma\left(1 - \frac{1}{\theta_1}\right)$$

4. Moment condition for the expected earnings w_2:

$$m_4(\theta) = \bar{w_2} - \pi_2 T_2^{\frac{1}{\theta_2}} \Gamma\left(1 - \frac{1}{\theta_2}\right)$$

The GMM objective function can be written as

$$Q_N(\theta) = m(\theta)' W m(\theta)$$

Where $m(\theta)$ is the vector of moment conditions and W is a weighting matrix, which I used as the identity matrix in the first stage.

Appendix C Variables Definitions

Parent-Child Mapping Dataset

- Variable Definitions and Codes in this file are as follows

Variable Name	Variable Label
G1ID68	1968 INTERVIEW # OF G1 INDIVIDUAL
G1PN	PERSON # OF G1 INDIVIDUAL
G1TYPE	PERSON TYPE OF G1 INDIVIDUAL
G1POS	GENERATION POSITION OF G1 INDIVIDUAL
G2ID68	1968 INTERVIEW # OF G2 INDIVIDUAL
G2PN	PERSON # OF G2 INDIVIDUAL
G2TYPE	PERSON TYPE OF G2 INDIVIDUAL
G2POS	GENERATION POSITION OF G1 INDIVIDUAL

G#TYPE: This set of variables defines whether the individual is known to have children, whether they are a biological/adoptive mother/father, and whether they have not been verified to have had children.

Code Value	Definition
M	Mother
F	Father
AM	Adoptive Mother
AF	Adoptive Father
I	Individual (not known to be a parent)

G#POS: These columns refer to the generational position of the individual. For example, if an individual is the child of an original sample member, and also has a child of their own, they will appear in a row as their parent's child (G2POS=2), as well as in a row as their child's parent (G1POS=2). With each data release, new information is added to these files to display the most up to date information available.

- Table 7 shows the summary statistics for this mapping file.

	G1ID68	G1PN	G1TYPE	G1POS	G2ID68	G2PN	G2TYPE	G2POS
Observations	89177	89177	89177	89177	57777	57777	57777	57777
Unique Categories			3				3	
Categories counts			F 24788 I 31400 M 32989				F 6659 I 42837 M 8281	
mean	4587.09	47.25		1.40	4679.07	211.27		2.62
std	2666.75	84.85		0.72	2658.80	352.71		0.82
min	1	1		1	1	1		1
25%	2127	3		1	2240	5		2
50%	5303	3		1	5366	32		2
75%	6590	35		2	6646	172		3
max	9308	982		6	9308	993		7

Table 7: Summary statistics of Parent-Child raw mapping file

Individual Occupations and earnings Dataset

- Following are the definitions of the main variables.

  "OCCUPATION OF HEAD"

  PSID survey asked the following questions
  -What is your main occupation? (What sort of work do you do?)
  -Tell me a little more about what you do.
  -What are your most important activities or duties?
  This version of occupation was retroactively coded using original PSID reports and the three-digit 1970 Census occupation codes for a selected sample of PSID Heads.

  "AVERAGE HOURLY EARNINGS - HEAD"

  The values for this variable represent the Head's average hourly earnings in dollars and cents per hour. The formula used for this variable's generation is as follows: Labor Income of Head/Hours of Work of Head in each year.

Appendix D Calibration Results

Mother Occupation Category	Child Occupation	T_ff	T_fh	pi_h	pi_f
Management Occupations	Professional Occupations	2.90	2.27	4.83	3.44
	Technicians and Related Support Occupations	3.21	4.64	4.60	6.90
	Sales Occupations	3.04	2.87	4.72	4.39
	Administrative Support Occupations	3.14	3.30	4.64	4.91
	Service Occupations	3.24	4.62	4.58	6.69
	Farming, forestry, and fishing occupations	3.30	4.18	4.54	5.75
	Precision Production, Craft, and Repair	3.00	2.73	4.75	4.20
	Operators, Fabricators, and Laborers	3.28	4.54	4.55	6.33
Professional Occupations	Management Occupations	2.27	2.90	3.44	4.83
	Technicians and Related Support Occupations	2.42	4.72	3.34	6.84
	Sales Occupations	2.24	2.70	3.47	4.53
	Administrative Support Occupations	2.30	3.09	3.43	5.07
	Service Occupations	2.43	4.67	3.33	6.65
	Farming, forestry, and fishing occupations	2.40	3.99	3.35	5.89
	Precision Production, Craft, and Repair	2.22	2.57	3.49	4.32
	Operators, Fabricators, and Laborers	2.43	4.50	3.33	6.35
Technicians and Related Support	Management Occupations	4.64	3.21	6.90	4.60
	Professional Occupations	4.73	2.42	6.83	3.33
	Sales Occupations	4.68	3.03	6.87	4.28
	Administrative Support Occupations	4.59	3.36	6.94	4.87
	Service Occupations	4.29	4.21	7.18	7.01
	Farming, forestry, and fishing occupations	4.27	3.75	7.20	6.07
	Precision Production, Craft, and Repair	4.70	2.90	6.86	4.08
	Operators, Fabricators, and Laborers	4.28	4.06	7.18	6.69
Sales Occupations	Management Occupations	2.87	3.04	4.39	4.72
	Professional Occupations	2.69	2.24	4.53	3.47
	Technicians and Related Support Occupations	3.03	4.68	4.28	6.87
	Administrative Support Occupations	2.92	3.24	4.36	4.95
	Service Occupations	3.05	4.66	4.27	6.66
	Farming, forestry, and fishing occupations	3.08	4.14	4.25	5.78
	Precision Production, Craft, and Repair	2.79	2.69	4.46	4.23
	Operators, Fabricators, and Laborers	3.08	4.56	4.24	6.31
Administrative Support Occupations	Management Occupations	3.30	3.14	4.91	4.64
	Professional Occupations	3.09	2.30	5.07	3.42
	Technicians and Related Support Occupations	3.36	4.59	4.87	6.94
	Sales Occupations	3.24	2.92	4.96	4.36
	Service Occupations	3.39	4.58	4.84	6.72
	Farming, Forestry, and Fishing Occupations	3.49	4.20	4.78	5.74
	Precision Production, Craft, and Repair	3.20	2.78	4.98	4.17
	Operators, Fabricators, and Laborers	3.45	4.51	4.81	6.35
Service Occupations	Management Occupations	4.63	3.24	6.68	4.57
	Professional Occupations	4.69	2.43	6.64	3.33
	Technicians and Related Support Occupations	4.21	4.29	7.01	7.18
	Sales Occupations	4.66	3.06	6.65	4.26
	Administrative Support Occupations	4.58	3.40	6.71	4.84
	Farming, Forestry, and Fishing Occupations	4.18	3.75	7.03	6.08
	Precision Production, Craft, and Repair	4.68	2.92	6.65	4.06
	Operators, Fabricators, and Laborers	4.20	4.05	7.02	6.70
Farming, Forestry, and Fishing	Management Occupations	4.18	3.30	5.75	4.53
	Professional Occupations	3.99	2.41	5.89	3.35
	Technicians and Related Support Occupations	3.75	4.27	6.07	7.19
	Sales Occupations	4.14	3.08	5.78	4.25
	Administrative Support Occupations	4.20	3.49	5.74	4.77
	Service Occupations	3.75	4.18	6.08	7.03
	Precision Production, Craft, and Repair	4.11	2.93	5.80	4.06
	Operators, Fabricators, and Laborers	3.74	4.02	6.09	6.72
Precision Production, Craft, and Repair	Management Occupations	2.73	3.01	4.20	4.75
	Professional Occupations	2.57	2.22	4.33	3.48
	Technicians and Related Support Occupations	2.90	4.70	4.08	6.86
	Sales Occupations	2.69	2.79	4.24	4.45
	Administrative Support Occupations	2.78	3.20	4.17	4.98
	Service Occupations	2.92	4.67	4.06	6.65
	Farming, Forestry, and Fishing Occupations	2.93	4.11	4.06	5.80
	Operators, Fabricators, and Laborers	2.95	4.56	4.05	6.31
Operators, Fabricators, and Laborers	Professional Occupations	4.55	3.29	6.32	4.54
	Technicians and Related Support Occupations	4.52	2.44	6.34	3.32
	Sales Occupations	4.06	4.29	6.70	7.18
	Administrative Support Occupations	4.56	3.09	6.31	4.24
	Service Occupations	4.52	3.45	6.34	4.80
	Farming, Forestry, and Fishing Occupations	4.05	4.20	6.70	7.01
	Precision Production, Craft, and Repair	4.02	3.74	6.72	6.09
	Precision Production, Craft, and Repair	4.56	2.95	6.31	4.05

Table 8: Calibrated T_{ii} , T_{ij} ,π_i and π_j for Mother-Child occupations pair

Mother Occupation Category	Child Occupation	T_ff	T_fh	pi_h	pi_f
Management Occupations	Professional Occupations	2.90	2.27	4.83	3.44
	Technicians and Related Support Occupations	3.21	4.64	4.60	6.90
	Sales Occupations	3.04	2.87	4.72	4.39
	Administrative Support Occupations	3.14	3.30	4.64	4.91
	Service Occupations	3.24	4.62	4.58	6.69
	Farming, forestry, and fishing occupations	3.30	4.18	4.54	5.75
	Precision Production, Craft, and Repair	3.00	2.73	4.75	4.20
	Operators, Fabricators, and Laborers	3.28	4.54	4.55	6.33
Professional Occupations	Management Occupations	2.27	2.90	3.44	4.83
	Technicians and Related Support Occupations	2.42	4.72	3.34	6.84
	Sales Occupations	2.24	2.70	3.47	4.53
	Administrative Support Occupations	2.30	3.09	3.43	5.07
	Service Occupations	2.43	4.67	3.33	6.65
	Farming, forestry, and fishing occupations	2.40	3.99	3.35	5.89
	Precision Production, Craft, and Repair	2.22	2.57	3.49	4.32
	Operators, Fabricators, and Laborers	2.43	4.50	3.33	6.35
Technicians and Related Support	Management Occupations	4.64	3.21	6.90	4.60
	Professional Occupations	4.72	2.42	6.84	3.34
	Sales Occupations	4.68	3.03	6.87	4.28
	Administrative Support Occupations	4.59	3.36	6.94	4.87
	Service Occupations	4.29	4.21	7.18	7.01
	Farming, forestry, and fishing occupations	4.27	3.75	7.19	6.07
	Precision Production, Craft, and Repair	4.70	2.90	6.86	4.08
	Operators, Fabricators, and Laborers	4.28	4.06	7.18	6.69
Sales Occupations	Management Occupations	2.87	3.04	4.39	4.72
	Professional Occupations	2.70	2.24	4.53	3.47
	Technicians and Related Support Occupations	3.03	4.68	4.28	6.87
	Administrative Support Occupations	2.92	3.24	4.36	4.95
	Service Occupations	3.05	4.66	4.27	6.66
	Farming, forestry, and fishing occupations	3.08	4.14	4.25	5.78
	Precision Production, Craft, and Repair	2.79	2.69	4.46	4.23
	Operators, Fabricators, and Laborers	3.08	4.56	4.25	6.31
Administrative Support Occupations	Management Occupations	3.30	3.14	4.91	4.64
	Professional Occupations	3.09	2.30	5.07	3.42
	Technicians and Related Support Occupations	3.36	4.59	4.87	6.94
	Sales Occupations	3.24	2.92	4.96	4.36
	Service Occupations	3.39	4.58	4.85	6.72
	Farming, Forestry, and Fishing Occupations	3.49	4.20	4.78	5.74
	Precision Production, Craft, and Repair	3.20	2.78	4.98	4.17
	Operators, Fabricators, and Laborers	3.45	4.51	4.81	6.35
Service Occupations	Management Occupations	4.63	3.24	6.68	4.57
	Professional Occupations	4.69	2.43	6.64	3.33
	Technicians and Related Support Occupations	4.21	4.29	7.01	7.18
	Sales Occupations	4.66	3.06	6.65	4.26
	Administrative Support Occupations	4.58	3.40	6.71	4.84
	Farming, Forestry, and Fishing Occupations	4.18	3.75	7.03	6.08
	Precision Production, Craft, and Repair	4.68	2.92	6.64	4.06
	Operators, Fabricators, and Laborers	4.20	4.05	7.02	6.70
Farming, Forestry, and Fishing	Management Occupations	4.18	3.30	5.75	4.53
	Professional Occupations	3.99	2.41	5.89	3.35
	Technicians and Related Support Occupations	3.75	4.27	6.07	7.19
	Sales Occupations	4.14	3.08	5.78	4.25
	Administrative Support Occupations	4.20	3.49	5.74	4.77
	Service Occupations	3.75	4.18	6.08	7.03
	Precision Production, Craft, and Repair	4.11	2.93	5.80	4.06
	Operators, Fabricators, and Laborers	3.73	4.02	6.09	6.72
Precision Production, Craft, and Repair	Management Occupations	2.73	3.00	4.20	4.75
	Professional Occupations	2.57	2.22	4.33	3.48
	Technicians and Related Support Occupations	2.90	4.70	4.08	6.86
	Sales Occupations	2.69	2.79	4.24	4.45
	Administrative Support Occupations	2.78	3.20	4.17	4.98
	Service Occupations	2.92	4.67	4.06	6.65
	Farming, Forestry, and Fishing Occupations	2.93	4.11	4.06	5.80
	Operators, Fabricators, and Laborers	2.95	4.56	4.05	6.31
Operators, Fabricators, and Laborers	Professional Occupations	4.55	3.29	6.32	4.54
	Technicians and Related Support Occupations	4.52	2.44	6.34	3.32
	Sales Occupations	4.06	4.29	6.70	7.18
	Administrative Support Occupations	4.56	3.09	6.31	4.24
	Service Occupations	4.52	3.45	6.34	4.80
	Farming, Forestry, and Fishing Occupations	4.05	4.20	6.70	7.02
	Precision Production, Craft, and Repair	4.02	3.74	6.72	6.09
	Precision Production, Craft, and Repair	4.56	2.95	6.31	4.05

Table 9: Calibrated T_{ii} , T_{ij} ,π_i and π_j for Father-Child occupations pair

References

David Autor and David Dorn. The growth of low skill service jobs and the polarization of the u.s. labor market. *American Economic Review*, 103(5):1553–1597, 2013. doi: 10.1257/aer.103.5.1553.

Gary S. Becker and Nigel Tomes. *An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility*, volume 87. University of Chicago Press, 1979.

Gary S. Becker and Nigel Tomes. Human capital and the rise and fall of families. *Journal of Labor Economics*, 4(3):S1–39, 1986.

Emily Beller and Michael Hout. Intergenerational social mobility: The united states in comparative perspective. *The Future of Children*, 16(2):19–36, 2006.

Devereux Paul J. Black, Sandra E. and Kjell G. Salvanes. Why the apple doesn't fall far: Understanding intergenerational transmission of human capital. *American Economic Review*, 95(1): 437–449, 2005.

Gregg Paul Blanden, Jo and Lindsey Macmillan. Accounting for intergenerational income persistence: Noncognitive skills, ability and education. *The Economic Journal*, 117(519):C43–C60, 2007.

Jo Blanden, Paul Gregg, and Stephen Machin. Intergenerational mobility in europe and north america. *Report supported by the Sutton Trust*, 2005.

George J. Borjas. Self-selection and the earnings of immigrants. *American Economic Review*, 77 (4):531–553, 1987.

Gintis Herbert Bowles, Samuel and Melissa Osborne Groves. *Unequal Chances: Family Background and Economic Success*. Princeton University Press, Princeton, 2005.

Richard Breen and Jan O. Jonsson. Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility. *Annual Review of Sociology*, 31:223–243, 2005.

Jie Cai and Yanhua Xu. Intergenerational occupational mobility and inequality in a spatial model with trade and immigration. *Journal of International Economics*, 135:103576, 2022. doi: 10.1016/j.jinteco.2021.103576.

Hendren Nathaniel Kline Patrick Saez Emmanuel Chetty, Raj and Nicholas Turner. Is the united states still a land of opportunity? recent trends in intergenerational mobility. *American Economic Review*, 104(5):141–147, 2014.

Miles Corak. Income inequality, equality of opportunity, and intergenerational mobility. *Journal of Economic Perspectives*, 27(3):79–102, 2013.

Miles Corak, Lori Curtis, and Shelley Phipps. The intergenerational transmission of employers. *Journal of Labor Economics*, 29(1):37–68, 2011. doi: 10.1086/656371.

Flavio Cunha and James J. Heckman. The technology of skill formation. *American Economic Review*, 97(2):31–47, 2007.

Jonathan Eaton and Samuel Kortum. Technology, geography, and trade. *Econometrica*, 70(5): 1741–1779, 2002.

Robert Erikson and John H. Goldthorpe. *The Constant Flux: A Study of Class Mobility in Industrial Societies*. Clarendon Press, Oxford, 1992.

Claudia Goldin. A grand gender convergence: Its last chapter. *American Economic Review*, 104 (4):1091–1119, 2014.

Michael Hout. More universalism, less structural mobility: The american occupational structure in the 1980s. *American Journal of Sociology*, 93(6):1358–1400, 1988.

Chang-Tai Hsieh, Erik Hurst, Charles I. Jones, and Peter J. Klenow. The allocation of talent and u.s. economic growth. *Econometrica*, 87(5):1439–1474, 2019.

Ting Ji. Aggregate implications of occupational inheritance in china and india. *Journal of Development Economics*, 139:22–39, 2019. doi: 10.1016/j.jdeveco.2019.02.001.

David N. Laband and Bernard F. Lentz. Like father, like son: Toward an economic theory of occupational following. *Southern Economic Journal*, 50(2):474–493, 1983.

Stefano Lo Bello and Iacopo Morchio. Intergenerational occupational persistence in comparative perspective. *Journal of Labor Economics*, 40(3):783–827, 2022.

Panel Study of Income Dynamics, public use dataset. Produced and distributed by the survey research center, institute for social research, university of michigan, ann arbor, mi, 2023. URL `https://psidonline.isr.umich.edu/`. Accessed: 2023.

A. D. Roy. Some thoughts on the distribution of earnings. *Oxford Economic Papers*, 3(2):135–146, 1951.

Gary Solon. Intergenerational mobility in the labor market. *Handbook of Labor Economics*, 3: 1761–1800, 1999.

Robert J. Willis and Sherwin Rosen. Education and self-selection. *Journal of Political Economy*, 87(5):S7–S36, 1979.