

Measuring Upward Mobility in Times of Change

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in Public Policy Studies in
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ABSTRACT

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Abstract

How can we understand patterns of upward mobility in places undergoing rapid social and economic change? Many of the places where young people are growing up are “developing” countries. These young people are navigating choices quite different than those their parents faced a generation earlier. Both the measures used to describe these young people’s place in their social worlds and the policy implications of social mobility research must adapt, and continue adapting, through this change.

In the first chapter, I consider the socio-economic composition of one elite destination: engineering bachelor’s degrees in India. This national context is one of many where rapid expansion in higher education has taken place in the last decade. Yet it remains unclear whether today’s student body reflects the full spectrum of socio-economic origins for this generation. This question is complicated by gaps in data, poorly specified measures, and the unknown influence of rapid structural change on relative socio-economic origins. This paper addresses these bigger questions by focusing on one potential pathway to socio-economic advantage.

I find five distinct socio-economic origin subgroups within the student body, using Latent Class Analysis, a model-based technique for identifying hidden populations. A significant proportion of India’s engineering students come from backgrounds of mixed advantage and disadvantage, with socio-economic disadvantages cooccurring alongside rural and/or low caste backgrounds. This complexity is less apparent using traditional one-dimensional measures of socio-economic status. Additionally, I find that the process of gaining access likely differs between institutional quality tiers. A higher proportion of groups eligible for affirmative action, and a lower proportion of women, regardless of socio-economic origins, attend top tier institutions. This divergent pattern suggests different attainment processes, and that enrollment policies may provide some narrow support for expanding opportunity. More broadly, these findings suggest that context specific,

multidimensional approaches to social stratification in places experiencing significant change can both improve our understanding of status attainment and more directly inform opportunity enhancing policy.

In a second paper, I zoom out from the specific destination approach in the first paper, instead considering the population level trajectories of the 1980's birth cohort in Indonesia, using panel data from the Indonesia Family Life Survey. I again consider multiple dimensions of status, examining significant changes in the distribution of educational attainment, occupations, and household consumption over 20 years. I find that education, the most common way of measuring upward mobility in developing countries, suggests lower rates of upward mobility than occupation or consumption, but urge caution in making these comparisons given the unique nature of each hierarchy. Significant upward shifts in the education distribution between parents and children, unaccompanied by commensurate shifts in occupation make comparison difficult. Secondly, I measure the occupation, salary, and consumption distributions for those who reach the "top" of the education distribution, finding significant heterogeneity. Taken together, I suggest that untangling these complexities for one cohort is a useful complement to the extant literature on cross-national comparisons of educational mobility.

The final paper represents a departure from the preceding two. This paper is co-authored with Carolyn Barnes who served as lead author. In this paper, we investigate a gap in the literatures on social support, social ties, and childcare. This qualitative study applies concepts from social capital theory to examines 1) how social ties between parents and staff members develop and vary and 2) how parents mobilize these ties for resources. In doing so, we analyze 23 in-depth staff interviews and 48 parent interviews across three after-school programs. We find that a select group of parents develop and activate strong social ties with staff for social support. Strong tie development reflects a distinct social process of rapport building, time, shared experiences, and pivotal moments in which

staff members demonstrate trustworthiness. While distinct, I argue this paper contributes to a broader research agenda on measurement of processes and outcomes within a specific context, here, understanding how low-income families access navigate these resources and challenges, illuminating insights missed by large scale comparisons.

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Introduction

Young adulthood has always been a time of transition: individuals must make choices about education, work, and family. Yet in many places, seismic shifts in employment, education, migration and more mean that today's young people often face different choices than their parents faced at the same age, or even their older cousins and siblings. The most recent adult cohorts in several large developing countries came of age alongside educational expansion, urbanization, technological change, and economic growth. Yet rising inequality has often accompanied recent economic development, increasing the disparity in resources between the haves and have-nots.

Some elements of this change are readily measured: new seats in college classrooms, new apartment buildings in cities for new workers in new jobs. Yet while opportunities are changing, it is harder to understand what this change means about the *distribution* of these opportunities. While some young people have gained admission to a global elite, in education, work, and income, many others still till the family field or work in precarious, informal positions. If new high-status opportunities are mostly occupied by young people from advantaged backgrounds, then even if the rising tide of economic growth has raised standards of living, access to the top remains unequal. Today's growth is stacked on a foundation of long-standing inequalities. What are the chances a particular young person can access these new opportunities?

Measuring the distribution of opportunities proves far more complex than measuring their expansion. Estimates of social mobility summarize the extent to which the circumstances of individuals' early lives influence adult outcomes. Yet a large and growing literature finds that whether a particular society seems very mobile or immobile is highly sensitive to researcher measurement choices. Different datasets, status measures, statistical transformations, parent-child pairings, time periods of observations, and more can suggest divergent results for the same population. Some of

this divergence may be expected, as perhaps mobility in education differs from that of income, or the experiences of daughters differs from son, or prospects change at the tails of the distributions. Yet some differences may reflect measurement error of the “true” underlying association, an alarm that measures are not aligning with real lived experiences. Research on social mobility in the recent past in the U.S. and Europe makes these fraught choices by drawing on decades of prior research and debate. Researchers focused on other contexts have a far more limited set of prior studies to build on or argue against. The tradeoffs inherent in any measurement choice, what findings are expected or unexpected, are harder to document.

A lack of population representative, long-term data poses one challenge. However, even as data becomes increasingly available, simply repeating the approaches used in Europe and the U.S. is likely insufficient in developing countries. Patterns of economic and social life can differ considerably from developed countries, from ways of making a living, to types of work, to family composition. Places experiencing rapid and novel social shifts in the very measures used to calculate social mobility— education, work, income, assets—call for additional caution. The relative meaning of different occupations, education levels, and assets is changing quickly, and definitions from previous eras can lead to misleading estimates. Yesterday’s primary education may not mean the same as today’s in terms of power, status, and opportunities.

Finally, a growing thread of research calls for greater attention to *how* social mobility occurs, in addition to what extent. While cross-country comparisons have long been dominant, elucidating changing processes will require more micro-level snapshots of these processes and the individuals who move through them. In times when the rules of the game are changing, what kinds of people are getting ahead, and how? Answering these questions can help highlight in what ways desirable

opportunities have become more diverse, where barriers remain, and tools for investigating contexts with similar dynamics.

This dissertation takes on these questions by demonstrating two ways of considering access to top position in places undergoing change, with limited empirical foundations. In one paper, I provide an original snapshot of who occupies one position: engineering higher education in India. Using a multi-dimensional, inductive categorization of student's socio-economic origins, I provide a more nuanced view of current engineering students. I find that most engineering students come from quite advantaged backgrounds by any measure. However, by considering multiple measures for each person, I find three groups of students with mixed advantage and disadvantage. This inductive approach also adapts to the population at hand, identifying how students today differ from one another, rather than relying on out-of-date divisions. For example, while previous decades may have focused on parent literacy as a key division, this study finds that parental secondary school education is a more relevant benchmark. By focusing on one narrow pathway, this approach makes clear relevant differences useful to policy-makers, who should consider student origins beyond just the most common student. This method could prove a useful tool for examining populations where socio-economic class schemes have uncertain theoretical and empirical foundations. Such inductive measures may lack generalizability, but a comparison of many fitted subgroups across parts of the population may at least reveal potential aggregation errors in population level estimates.

A second paper considers multiple dimensions of socio-economic status for the 1980's birth cohort in Indonesia, from childhood origins to adult destinations. This paper examines upward mobility in this cohort in education, occupation, and consumption. Coarse categorizations and changing distributions in education and occupation makes drawing inferences from comparison to other nations challenging. For example, this cohort has achieved higher education than their parents,

yet the same shift is not present in considering occupation. Comparisons of upward mobility across countries must wrestle with coarseness and change across a wide variety of contexts. Furthermore, even for individuals who reach top education destinations, occupation and consumption vary considerably. There are more than a few highly educated respondents working as teachers for low pay, or sales associates, or in households with modest consumption patterns. This divergence suggests a need for caution in using education alone to understand broader individual and societal social mobility, perhaps even more so in places where the connection between education, work, and economic well-being is in flux.

A third paper explores social ties between parents and child-care staff, how they form and how they can support low-income families. Parents and staff describe specific institutional and personal characteristics which foster ties. These social ties are important conduits for emotional and material support for families. While distinct from the prior two papers, this paper demonstrates another example of context-specific research illuminating how individuals navigate challenges.

While this dissertation raises more questions than answers about measuring social mobility in developing countries, a few key arguments connect each paper.. Context-specific, narrow studies are a vital complement to broader cross-national studies. By adapting tools to a specific place, time, pathway, we can reveal important assumptions made in aggregation and comparison that might not line up with individual's lived experiences. The rapid change in education distributions, not always accompanied by commensurate opportunities in occupation provides one example. Furthermore, the question of how different young people get ahead or get stuck is distinct from answering where upward mobility is highest, or the role one variable plays in inequality. Again, this is an arena where narrower studies play a key role. This approach can both highlight possible barriers to upward mobility and inform how we can bring more relevant measures to national level comparisons.

Secondly, I argue that the study of social mobility must address different forms of economic life and inequality in developing nations, and that challenge extends beyond data limitations. Rendering individual's origins and destinations within their social hierarchy into rows in a statistical model is an imperfect process. Multi-dimensional measures of social status provide a more holistic snapshot of social mobility in developing countries, distinct from that provided by uni-dimensional measures. In these papers, I focus on modeling person-leveling outcomes by considering multiple dimensions of status for the same person, and making comparisons relative to peers. Future studies can employ their own methods in different contexts to demonstrate how to update and tailor socio-economic status measures, whether in places where education levels are growing more slowly, or where manufacturing employs a larger portion of the workforce, or where conflict has disrupted livelihoods. While my studies fit patterns of upward mobility in India and Indonesia specifically, I demonstrate the potential of inductive social status measures more broadly in the maturation of the social mobility literature for developing countries.

1. Roll Call: The Social Origins of India's Engineering Students

1.1 *Introduction*

Research has suggested that social mobility is lower in developing countries than developed, and this gap remains stubborn over time (Narayan et al., 2018). This broad finding suggests that additional “room at the top” from economic development has not increased upward mobility for disadvantaged young people. Yet limited data has made for low-resolution social mobility measurement, leaving much unknown about pathways and obstacles to upward mobility. Economic development also means rapid change in the institutions inherent to creating and defining mobility: growing higher education enrollments, occupational restructuring, changing patterns of spending, saving, and family formation (Marginson, 2016). These socio-economic shifts heighten the need for up-to-date information on mobility pathways and relative advantage and disadvantage. In times of rapid change, the relative social status signified by working as a farmer, or having a high school degree, or owning a cellphone cannot be uncritically inferred from past work. This delay in both data and measures limits the extent to which policy makers can make incremental decisions to support upward mobility.

In this paper, I focus on one node on a mobility pathway: engineering bachelor’s degrees in India, and use an inductive social origin measure. Engineering enrollments are aspirational, competitive, and connected to prestigious work opportunities, a position which could serve as a key opportunity for disadvantaged young people to achieve upward mobility. Yet the relationship between higher education and upward mobility remains unclear in India. An up-to-date description of the types of students attending, considering the intersections of socio-economic status, caste,

religion, gender and location of origin, could provide important insight on both social mobility and how policy makers may be able to improve it.

Using both original survey data of engineering students and population cohort estimates from the India Human Development Survey, a representative household survey, I ask:

1. What are the socio-economic origins of students attending India's engineering universities?
2. How do these socio-economic origins intersect with other traits known to be important to individual life chances in this context – gender, caste and religion, rurality?
3. How does the student body differ between top tier and below top tier schools?

I define students' socio-economic origins using an inductive method which groups similar students together based on multiple variables, reducing classification errors from relying on a single variable to describe a person's background. More than half of the sampled students come from backgrounds of mixed advantage and disadvantage. I find examples of upward mobility at the margins: while most engineering students are from advantaged backgrounds, and most young people from disadvantaged backgrounds in the age cohort do not become engineering students, there remains a significant proportion of disadvantaged or mixed advantage young people within engineering schools. The students from more disadvantaged origins are more likely to be rural and of low caste than their peers, echoing population level disparities. This finding provides support against the "creamy-layer" argument – that low-caste students in higher education are uniformly economically advantaged. In short, this holistic review of social origins suggests that disadvantaged students are not a few brilliant or lucky outliers, nor are they easily dismissed as a measurement anomaly.

However, comparing students within tiers of engineering education reveals that socio-economic advantage's relationship with school quality is shaped by other student identities. All else equal, socio-economic status is strongly associated with top tier school admission. Yet women from the most advantaged origins are still only as likely to be in top tier schools as men from mid-advantage groups. Students from low caste backgrounds are more likely to be in top tier schools than their high caste peers, at every socio-economic origin level, possibly reflecting the influence of affirmative action policies in funneling the small number of low caste students into better schools. Finally, controlling for socio-economic origin, urban students do not appear to be at an advantage in accessing top tier schools relative to rural students.

Beyond the specific implications for this one setting, this paper demonstrates the potential contribution of inductive and multi-dimensional ways of considering social status, particularly in places with change and uncertainty. Secondly, this paper finds that more pathway-specific studies can provide incremental and more actionable answers to larger questions of development, room at the top, and social mobility. A better understanding of who is occupying the higher number of top positions is an essential foundation to understanding upward social mobility in changing places, and how policy-makers and institutions can adapt their supports to reflect this change

1.2 Literature Review

1.2.1 Educational Expansion and Equity

Most of the world's youth live in places experiencing tertiary educational expansion. In the past ten years a diverse set of places have seen their youth cohort's enrollment grow by over 10 percentage points. Figure 1 shows the change in the percentage of youth enrolled in tertiary education in places with over 1% of the world's youth cohort.

10 Year Change in % of Youth Enrolling in College

54% of the World's Youth Live in Places Experiencing Expansion

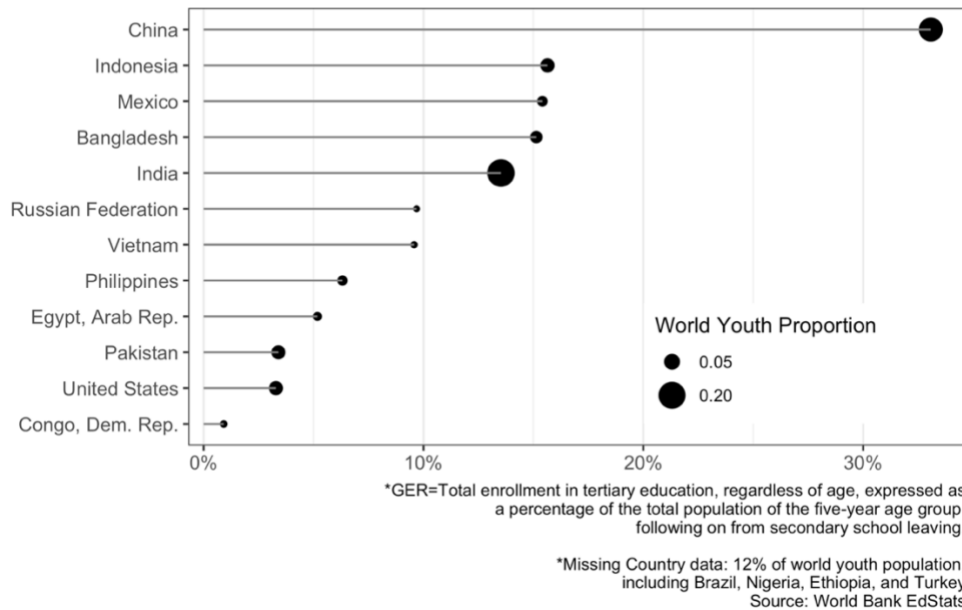


Figure 1: Tertiary Enrollment Expansion

A degree is increasingly a pre-requisite of professional, stable and high paying work (Montenegro & Patrinos, 2014). Politicians, CEOs, and community leaders prioritize tertiary education as way to shape more productive, entrepreneurial, and politically content citizens. These society-level benefits are difficult to prove, yet they feature heavily in the mission statements of actors from UNESCO to grass roots nonprofits (Chabbott & Ramirez, 2000; Hannum & Buchmann, 2005).

Yet educational expansion alone does not automatically bring more equal outcomes for all young people. In particular, this paper considers higher education enrollments by “social origins” as defined by Hout as “the conditions and circumstances of early life” and the ways in which they “constrain success in adulthood.” (Michael Hout, 2015). Conceptually, even when the educational system expands, it does not necessarily change the criteria used in admitting students, nor the

support available to young people hoping to meet those criteria. (Walters, 2000). Young people can still leverage their family advantages to get ahead of their peers with more disadvantaged social origins. Prior empirical explorations of educational growth and equity have found varying results, offering few strong assumptions about trends today (Bloome, Dyer, & Zhou, 2018; Hannum & Buchmann, 2005; Yossi Shavit, 2007; Y. Shavit & Blossfeld, 1993). Secondly, we might want to know why or how more equitable attainment occurs, and how policy can support more equitable access.

1.2.2 Measurement Challenges in Social Status and Mobility

Measurement and data challenges partially explain why the socio-economic origins of today's college students in developing countries is poorly understood. More broadly, describing social hierarchies and placing individuals within them is one of the most active debates within the social sciences (David B. Grusky, 2019). Some studies measure social status through one variable, for example, an individual's income or occupation. Others create more complicated syntheses –socio-economic status indexes, occupational prestige scores, or class schemes. Still others, faced with insufficient data, use one variable to estimate another, for example using education to infer an individual's income (Torche, 2015). An ideal measure of social origins would capture an individual's position with some stability, precision, accuracy, relevancy to current constraints (Michael Hout, 2015). Meeting these conditions is particularly challenging in developing country research.

First, distinct patterns of social and economic life in developing countries make measuring stable and accurate social origins challenging. Work and assets are marked by dynamism over time within families: with households earning a living through a variety of efforts, including farming, labor, and small-scale vending, rather than few household members earning a steady salary. This makes for fluctuation in income with the seasons, and more volatility over years (Chambers, 1995; Krishna, 2010; Rains & Krishna, 2020). Furthermore, this economic cooperation within extended

households makes separately assigning individual income and occupation challenging (M Shahe Emran & Shilpi, 2019). Social class schemes designed in the Global North may poorly fit these places for similar reasons. For example, landownership does not necessarily signal economic security in developing countries, where many farmers are working small subsistence plots. Business ownership can similarly signal anything from a temporary food cart to a formal consulting practice (Torche, 2014b).

Secondly, in many developing countries, many individuals share a common status, sometimes referred to as coarse distribution problem, challenging precise measures of social origins. For example, in India, a large proportion of adults share a few characteristics: basic educational attainment, agricultural work, low number and variety of assets, with only a small elite segment with more advantage attributes -see for example (Asher, Novosad, & Rafkin, 2021; Iversen, Krishna, & Sen, 2017) and a review (Iversen, Krishna, & Sen, 2019). This “coarseness” can mean assigning the same position to half the population, even if the lived realities of individuals within these coarse categories are quite diverse.

Finally, an ideal social origin definition would be relevant to a specific time and place. There’s reason to suspect that places experiencing rapid economic change, like India, may find measures of social status changing just as or even more quickly. For example, in India, GDP per capita rose through much of the 2000s, and poverty fell steadily during the same period (World Bank, 2019). But while average living conditions have improved, inequality in consumption and income appears to have risen along with GDP per capita (Dang & Lanjouw, 2018). Wages have been rising at the top, yet India’s much hyped tech, finance, real-estate and other well-paying sectors only employ a small number of workers (Dang & Lanjouw, 2018). One analysis claims the top 0.1% of earners captured a higher share of total growth than the bottom 50% (Chancel & Piketty, 2017). The

lowest paid 50% of workers only received 12% of all wages paid (International Labour Office, 2016). Almost 90% of working individuals are in informal positions (NCEUS, 2009). Employment in and income from agriculture has been slowly falling, yet it remains a common economic activity in India (OECD & Relations, 2018). All this to say, the relative significance of a given degree, asset, or occupation may be in flux. Examining general trends may prove misleading in understanding measures at the extremes.

This question of updating social measures to reflect change is not unique to developing contexts. A parallel strand of research focused on the U.S. and Europe questions whether measures, particularly social class schemes, currently in use reflect today's relevant inequalities (David B Grusky & Weeden, 2008; Savage et al., 2013; Kim A Weeden & Grusky, 2005; Kim A. Weeden & Grusky, 2012). A related thread examines multiple dimensions of status within individuals, questioning the extent to which dimensions correlate and diverge across time and place (Blossfeld, 2019; Bukodi & Goldthorpe, 2013; Jonathan, David, Jonathan, Timothy, & Jeffrey, 2016).

Reflecting the uncertainty of any one variable in assigning relative socio-economic position in India today, this paper develops a socio-economic origin definition which is inductive, drawing on patterns within the observed student body, and multi-dimensional, incorporating information on student's parent's education, work, and assets in the home. Like a social class scheme, this measure organizes students into types, but minimizes inaccuracies from using a deductive scheme which may not map onto India's context today. Considering multiple dimensions helps resolve some issues with coarseness in any one variable. I elaborate on this definition in the methodology section.

1.2.3 Higher Education and Upward Mobility in India

Having established that the socio-economic origins of college student during times of expansion are both important to policy makers and difficult to measure, I turn to describing the case

of Indian engineering higher education in particular. India has one of the largest higher education systems in the world, comprising over half of all tertiary students in lower middle-income nations, and about fifteen percent of all tertiary enrollments globally (World Bank Ed Stats). India's higher education systems is not only large, but rapidly growing. Higher education Gross Enrollment Ratios (GER) capture the proportion of "college-age" (18-23 years old) individuals who are enrolled in higher education. In 2019, India's GER is 27%, increasing from just 9.5% twenty years ago (WorldBank, 1950-2050), bringing it slightly higher than the average GER for lower middle income countries. Despite growing numbers of students in higher education, research on every node in India's education system suggests high levels of inequality, with disparities in attainment by an individuals caste, religion, gender, rurality, region, and more (Desai & Kulkarni, 2008; Divya Vaid, 2012).

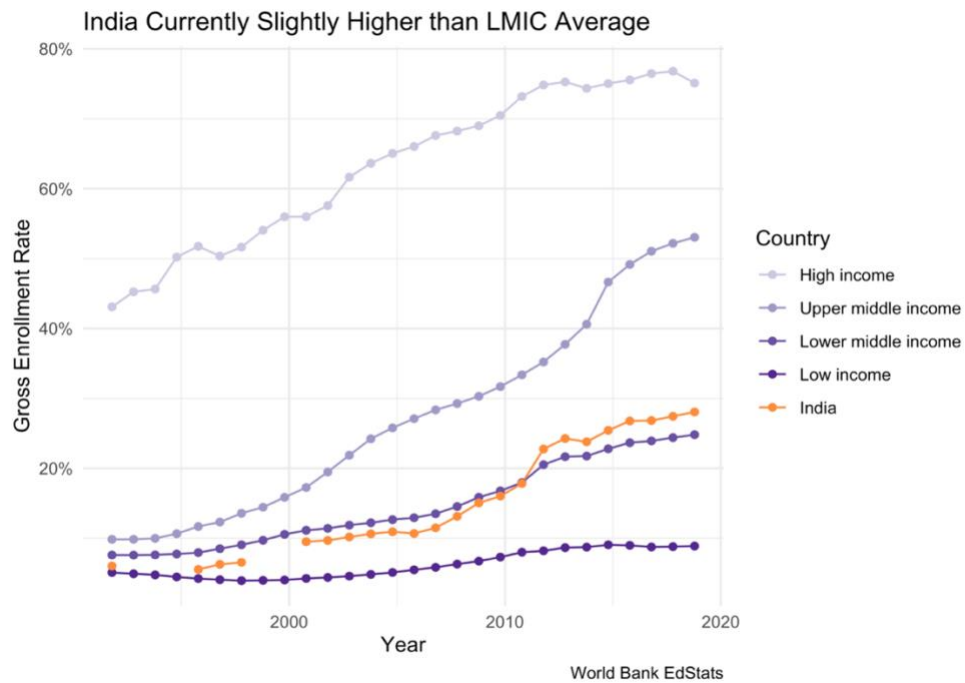


Figure 2: Tertiary Gross Enrollment over Time

Examining the relationship between an individual's socio-economic origins and adult destinations generally suggests low rates of upward mobility in education, with significant measurement debates (M Shahe Emran, Greene, & Shilpi, 2017). A few earlier studies found increasing mobility over time (Hnatkowska, Lahiri, & Paul, 2013; Jalan & Murgai, 2008). However, most recent evidence points to stagnant rates of mobility, or India lagging behind similar economies. (M. Shahe Emran & Shilpi, 2015; Narayan et al., 2018). Urban environments appear to have higher upward mobility than rural, a difference which is particularly stark for women (Asher et al., 2021; M. Shahe Emran & Shilpi, 2015; Divya Vaid, 2016). Scheduled Caste and Tribe groups seem to have become more upwardly mobile over time, possible related to affirmative action (Hnatkowska et al., 2013). Meanwhile new evidence suggest that Muslim Indians have experienced correspondingly lower levels of mobility (Asher et al., 2021).

Access to top positions within higher education has received less attention than the preceding review of mobility between all levels more broadly. Asher et al provide one recent set of estimates from the India Human Development Survey in 2012. For sons born in 1980-1989, 17% achieved any higher education, yet this rate varies significantly by father's education. Only 5-8% of sons with fathers with less than primary education (about half of all fathers) get any higher education, while that number rises to 65% of sons with fathers who themselves have higher education (Asher et al., 2021). Taken together, these population estimates suggest that higher education, at least in 2012, was the domain of children whose parents are more educated. However, 2012 enrollments are prior to some of the fastest growth in India's higher education systems.

Research on the social origins and mobility within engineering is even more limited and out-of-date still. Engineering degrees can be considered some of the "top of the top" positions in the education hierarchy. Indian engineering institutions can range from some of the best in the world to

“fake universities,”- schools so fraudulent the AICTE regulatory body must keep an updated list warning off potential students. In between these extremes, many students will find themselves in middling institutions. Within recognized AICTE institutions, student fees, job placement rates, and median starting salaries can still vary significantly (Ravi, Gupta, & Nagaraj, 2019).

Shaped by the desirability of an engineering degree, particularly at a top-tier and affordable government institutions, enrolling in engineering institution is a many step process.

The pathway to engineering education narrows during the final two years of secondary school, when students must score well on lower secondary exams and select “science” as their focus. Students must score above 50% on their class 12 exams to graduate. At this point, many seek out “coaching” in private institutes to prepare for entrance examinations. Coaching is poorly regulated, time and money intensive, and deeply competitive (Ørberg, 2018). While the flagship national schools (IITs and NITs) share a two-step entrance examination, students can alternatively elect to take state-based entrance examinations, or an exam for a particular network of government aided or private institutions, which then make them eligible for different seat allotment schemes.

For students whose family members may have only a primary school education, navigating to quality institutions can be a bewildering and financially ruinous experience. Indeed, recent qualitative evidence suggest that savvier, often wealthier and better connected, families navigate to higher quality institutions, while lower quality schools happily admit less privileged students alongside their government funded scholarships (Upadhyay, 2016). Regulatory agencies have not been able to keep up with the rapid pace of expansion, in both higher education institutions and the coaching industry (Ravi et al., 2019; Upadhyay, 2016).

Admission is based primarily off a student’s rank on the relevant entrance exams. This rank determines the order students can select from remaining seats in participating institutions. Top

scorers get early priority. Quotas, called “reservations”, make some seats eligible to students based on caste, gender, and/or state residency, and more recently, by economic background. The “management” quota system serves a different set of prospective students: those who negotiate with private institutions to pay a much higher fee and gain admittance without an entrance test score, another avenue for the wealthy to seek higher quality institutions.

However, caste-based reservations, and more recent steps to enact economic based reservations, are particularly consequential to political debate. Detractors of caste-based quotas in higher education argue that caste’s impact on socio-economic inequality has waned in modern India, and therefore quotas are benefitting affluent low caste students to the detriment of poor students from other caste groups, sometimes referred to as “cream-skimming”. Available academic research suggests that students from these reserved groups can and do gain admittance to more competitive institutions, despite lower entrance exam scores, but they are also generally from poorer families than their higher caste peers (Bagde, Epple, & Taylor, 2016; Bertrand, Hanna, & Mullainathan, 2010). Research conflicts on how reservation admits experience college with Badge, Epple et al finding they perform equally well in exams and graduation rates, while Bertrand, Hanna et al and Frisancho and Krishna finding lower classroom performance, job placement outcomes, and heightened mental health problems (Bagde et al., 2016; Bertrand et al., 2010; Frisancho & Krishna, 2016).

Yet as Frisancho and Krishna write is its perhaps “the interaction of poverty and SC/ST status that is most harmful” to grades, mental health, and future earnings. They find that economically well-off lower caste admits, although few in number, have college outcomes commensurate to their higher caste classmates. Krishna in a survey of 671 students at five engineering colleges finds underrepresentation of low caste, female, rural, children of less educated parents, of agricultural workers, and of low asset homes. Students with any combination of these

disadvantages are hardly present. Through interviews, the few “outliers” with multiple forms of disadvantage described their difficulties in navigating the college preparation process while also weathering family hardship (Krishna, 2013).

The Constitution (124th Amendment) Bill 2019 allowed for a 10% quota for “economically weaker” students from upper castes at government institutions. A cutoff on family’s annual income defines “economically weaker”. However, measuring annual income is not straightforward nor are data easy to access. Back of the envelope calculations using IHDS data suggest that 98% of the population qualifies as “economically weaker” according to this cutoff (Deshpande & Ramachandran, 2019). While students in this paper’s sample were enrolled prior to this new quota policy, these debates highlight the pervasive lack of data on intersecting student identities and the ways this confusion hampers public policy.

Finally, a few studies have examined the latter stage of the engineering pathway, the composition of employed engineers. This work suggests that under-representation of those with any disadvantage persists into employment. Working engineers tend to come from elite families, with parents who worked as salaried government employees, engineers, and those with inherited family wealth (Fuller & Narasimhan, 2007; Krishna & Brihmadeesam, 2006).

Taken together, the relationship between higher education and upward mobility in higher education remains unclear in India. Many of the studies listed here focus on college cohorts prior to 2010-2020 expansion, and most measure socio-economic origins through father’s education alone. An up-to-date description of the types of students attending, considering the intersections of socio-economic status, caste, religion, gender and location of origin, could provide important insight on both social mobility and how policy makers may be able to improve it.

1.3 Data and Analytic Strategy

1.3.1 Data

Data on current engineering students comes from a novel survey I distributed in the summer of 2019. The survey was distributed to current undergraduate students via the Aspiring Minds Computer Adaptive Test (AMCAT). Students elect to take this test to demonstrate their proficiency to employers in IT, communications, engineering and more. Institutions sponsor exam days for their students, so students do not pay an exam fee. Students were given the opportunity to participate in this survey after completing the AMCAT test, on the same computer. AMCAT tests and the appended survey took place on institution-specific test days.

While my sample was not drawn at random from all institutions nor all students within institutions, the 32 institutions represent a range of public and private institutions and geographic locations. In comparison to the overall universe of engineering institutions, the universities in this sample skew toward the medium to higher quality tier, based on rankings described in the following section. At the time of writing, there was no available representative dataset on India's engineering students. Given this deficit, I argue that this sample provides a useful summary of engaged students at the broad middle range of engineering institutions.

About 16,000 students opened the survey, of which 10,000 meaningfully engaged with the survey. While I do not know characteristics of the unknown number of students who did not open the survey nor those 5,000 who opened the survey and did not answer the first question, patterns of question non-response suggest high engagement conditional on starting the survey. Nonresponse rates for particular questions are low, between 1-4.% I find similar patterns in responses to socio-economic questions, a module in the middle of the survey, among students who did and did not

complete the final section, on demographics. For more details on the sample and non-response rates, please see Appendix A

I restricted my analytical sample to students pursuing a Bachelors in Engineering (B.E) or Technology (B.Tech) who answered questions about their families and earlier life, demographics, and who I could link with a university. This reduced my sample size to about 8,400 students. I remove a further 300 students who provide difficult to categorize responses¹ to the SES questions, leaving my analytical sample at 8,109.

I compare my sample against two other data sources, listed in Table 1. First, I use available aggregate statistics on the engineering student body from the All India Council for Technical Education (AICTE) from the 2018-2019 academic year, in an effort to check how well my sample compares to the overall engineering population. I find my sample has a higher proportion of women. I also find a slightly higher rate of individuals from “minority” religions, a government designation that includes many Non-Hindu religions. Examining caste, my sample has similar levels of scheduled tribe and caste students, and a slight lower proportion of OBC caste members. Given the lack of micro-data on engineering students in India, I proceed, noting these slight differences.

Secondly, I make comparisons with a “general age cohort” using data from the Indian Human Development Survey (IHDS II), a nationally representative household survey. Within the IHDS II, I select a similar age cohort of all Indians, born in 1996 - 2001. IHDS II collected data in 2012, meaning the cohort of interest was about 11-16 years, old, roughly the same age I ask my

¹ These hard to categorize responses include reporting a parent who was disabled, retired, or deceased, during the respondent’s childhood, as well as any respondent who could not remember the answer for any of the five variables included in the LCA. In essence, I lose 300 respondents from among those who did try to answer by using list wise deletion.

respondents to recall. This cohort includes an unweighted 26,000 individual young people within sampled households, representing a weighted 174,000,000 Indian young people. This quick snapshot shows that the student body, in both my sample and in AICTE data, is quite different from the general age cohort. Engineering students are more male, urban, and General Caste. ST/SC students are underrepresented, despite quotas, as are Muslim students who are not explicitly identified in AICTE statistics.

Table 1: Engineering Student and Age Cohort Demographics

Trait	Engineering Admin (AICTE)	Engineering (This Study)	Age Cohort (IHDS II)
Female	29%	37%	50%
Minority Religion	7%	12%	20%
Christian Sikh Jain or Buddhist	NA	5.5%	1.4%
Muslim		3%	15%
Scheduled Tribe/Schedule Caste	15%	13%	30%
OBC	35%	28%	36%
Rural	NA	34%	71%

1.3.2 Data Analysis

I consider an individual's "social origins" in four interrelated dimensions. I first define socio-economic origins (SEO) using information on student's parents' education, occupation, and assets in the home around age 15. After defining SEO categories for the student sample, I then intersect these identities with the remaining three origin traits, gender, caste/religion, and rurality in the third and fourth analysis. While the relative meaning of caste, religion, geography and gender are also in flux, these attributes are more consistently measured in administrative and scholarly work, and I define these attributes using as many levels as a given comparison allows with data constraints.

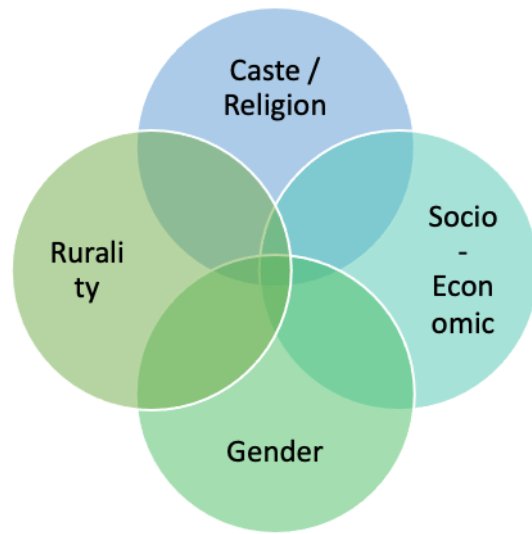


Figure 3: Intersecting Social Origins

1.3.2.1 Variable Level View of Socio-Economic Origins

First, I offer a descriptive look of the socio-economic origins of students in comparison to the general age cohort, using five variables describing the respondent's parent's education, work, and assets. Table 4 describes the five socio-economic origin variables in this analysis. Variables have been broken into three or four categories, depending on meaningful variation in the student body. For example, mother's occupation and the asset categorization did not contain fourth categories with more than 5% of the population. A more disaggregated view of each variable can be found in Appendix A. The level order from Low-High is researcher imposed and color-coded for consistency.

Table 2: Socio-Economic Variable Definitions

Level	High	Med-High	Med-Low	Low
Father's Education	Master's Degree or PhD	Bachelor's Degree	Any Secondary-Diploma (short post-secondary)	Middle School or Less
Mother's Education				
Father's Occupation	Salaried work – educators, government, engineers etc.	Self-Employed Business Owner (SEBO)	Farmer	Daily wage labor (DWL)
Mother's Occupation	Salaried Work		Homemaker	Farmer or daily wage labor
Assets	Any upper-tier asset (computer, car etc.)		Mid-Tier Assets (TV, piped indoor water)	No upper or mid-tier assets

1.3.2.2 Latent Class Analysis of Socio-Economic Social Origins

I next use latent class analysis (LCA) to empirically identify student's socio-economic origins. LCA offers a statistical way to identify unobserved subgroups (latent classes) within a population based on observed information. Instead of isolating the relationship between particular "independent" variables and outcomes of interest, LCA instead empirically describes types of individuals present in my sample. Using LCA allows socio-economic origins to become more nuanced than simply one continuum of disadvantaged-advantaged, and offers more insight on the complexities of individual experience. As such, methodologists have described LCA as a "person oriented" approach, in contrast to more commonly used "variable oriented" approaches to modeling

relationships (Collins & Lanza, 2009; Laursen & Hoff, 2006). . LCA has been used to move from variable observation to broader research on unobservable constructs – e.g. “health”, “risk” or “indigeneity”(Telles & Torche, 2019).

LCA is inductive, in that the model identifies patterns present in individual responses within this sample, not based on prior theory, a useful tool for a setting experiencing rapid change The remainder of this paper refers to latent “classes” as latent “subgroups” to avoid confusion with the concept of “social class” in Sociology.

Using Latent Class Analysis, I identify types of socio-economic origins based on observed response patterns to the five observed socio-economic questions. Engineering students faced with five questions, two with three response levels and three with four response levels could respond with 546 possible combinations of responses ($4*4*4*3*3$). In fact, 44433 (all highest) and 44423(all high except homemaker mother) only comprise 7% of all responses, and 11111 and 22222 each only make up less than 1%. A quick glance at these response patterns suggests complexity, but it’s difficult to make sense of 546 possible combinations, or even the 329/546 patterns I observe in this sample. LCA analysis helps make sense of these possible response patterns, by using these combinations to suggest subgroup membership, a latent variable underlying the observed five variables. Instead of 329 types of individuals, LCA identifies a much smaller number of subgroups.

Each individual in the population is assumed to be a member of one and only one latent subgroup, which are mutually exclusive and exhaustive (Collins & Lanza, 2009). LCA is probabilistic, and estimates are made with some uncertainty as subgroup membership can’t be directly observed, with each individual receiving probabilities of belonging to each subgroup. The number of subgroups the model estimates, as well the names and interpretation of these subgroups, is researcher derived. I document the iterative process model building process and uncertainty estimates in both the

analytical section and appendix. For the engineering sample, five subgroups represented a good balance between model fit and parsimony.

1.1.1.1 Intersections with SES Social Origin Subgroups and Identity Traits

A third analysis builds off the LCA derived subgroups, and explores how gender, caste and religion, and rurality intersect to help better describe the engineering student body.

Caste and Religion: I measure caste and religion following the IHDS II “social group” which considers individuals in several permutations of caste and religion. This is a simplification of a more complicated reality. The broad role and experience of caste in Indian society is somewhat locally determined and dynamic, and there are hundred of castes that comprise the broad categories used here. Very briefly, caste groups have shaped family, work and business, housing, and political voice in India. General Caste (GC) individuals have occupied more privileged places in society, while Scheduled Castes (SC) and Tribes (ST) have traditionally had the lowest status positions. Other Backward Castes (OBC) form a wide-ranging middle of the hierarchy. Individuals in religions other than Hinduism can also have caste identities, however, in many instances being Muslim, Christian, Sikh or Buddhist is coded as the descriptor in the combined caste and religion variable. These large caste categories are government determined, and the site of political activism, as they determine government caste quotas. Most notably for this paper, Scheduled Tribes and Scheduled Castes are eligible for reservations at government institutions of higher education.

Rurality: A student or general age cohort member is coded as rural if they report living in a rural village or small town around age 15. The urban designation includes district capitals, state capitals, and “metro cities.”

Gender: Given data constraints, I code gender as a binary based on respondent selection.

In this analysis, I first examine the intersection of these three traits without accounting for socio-economic origins for the student sample and the general age cohort. I then implement two empirical tests of how each trait co-occurs with socio-economic origins. First as subgroup membership is a latent typology, I use a model-based approach to generate estimates of gender, caste, and rurality within subgroups, incorporating the uncertainty present in my base LCA model. To examine the inverse relationship, how different traits are associated with subgroup membership, I use multinomial logit, with subgroups as the dependent variable and gender, caste and rurality as the independent variables.

1.3.2.3 Associations Between Social Origins, Identity Traits, and Institutional Quality

In a final analysis, I use latent subgroup membership to estimate probability of attending “top-tier” institutions rather than lower tier institutions for different types of engineering students – examining combinations of socio-economic origins and rurality, caste, and gender. Defining an “upper tier” college is a fraught endeavor. An ideal measure of college quality with respect to upward mobility would focus on undergraduate experiences and job placement, and draw from the entire universe of B.E. and B.Tech institutions. However, due in part to rapid expansion in the number and size of institutions, such rankings are in early stages.

I use the average AMCAT score provided by Aspiring Minds for that an institution’s students and assign each of these 1,800 a percentile rank. I define “top tier” status as being in the 85th Percentile of AMCAT institutions. This designation applies to seven out of 32 institutions in my sample. An important note, that while 62% of my respondents come from government or government aided institutions, six out of the seven top tier schools in my sample are government schools, meaning 92% of respondents in top tier schools are in government institutions. While

perhaps more pronounced in my sample, elite schools have traditionally been government institutions, particularly IITs and NITs.

The recent expansion in college seats has overwhelmingly come from new and expanding private institutions. Private schools rely on student fees and attending a private school can be almost twice as costly as a public school. Government aided schools are privately owned, but government funded. For our purposes, I combine these institutions into a government administered category: these aided institutions resemble pure government schools in their lower student fees and in their need to follow government reservation policies. Private unaided schools instead must rely on higher student fees. Private universities and “deemed to be universities” have met certain standards and have greater autonomy than other institution types.

Table 3: Institution Tier Characteristics

Characteristic	LowerTier, N = 5,348 ¹	TopTier, N = 2,761 ¹
Uni Type		
Government	40%	92%
Private University	15%	0%
Unaided Private	46%	7.6%
Caste		
Muslim	3.0%	2.3%
ST/SC	9.1%	16%
OBC	32%	21%
GC+	56%	60%
Teen Location		
Rural	38%	28%
Urban	62%	72%
Gender		
Female	42%	26%
Male	58%	74%
¹ %		

1.3.3 Analysis Limitations

Non-random sample for the engineering student sample limits this paper's conclusions. It's possible that the draw of institutions, or students within institutions, is not representative of engineering students or institutions more broadly. As noted, this engineering student sample does present a useful update to existing academic data on engineering students, which is from previous periods and often smaller samples, and the aggregate statistics available from administrative bodies.

Secondly, each measure presents its own challenges. Despite efforts to create a richer measure of socio-economic origins, researcher decisions around categorizations and levels still shapes the data's interpretation. These categorizations elide over significant diversity within broad categories: farmers and small business owners can have varying degrees of size and success. Salaried work can range from low-level government clerks to well compensated software engineers. What unites this broad group is a steady paycheck, a meaningful distinction in India's economy where 90% of the workforce may be informal (NCEUS, 2009). However broad, these categorizations offer a useful starting point, and alternative divisions do not alter the direction of the results. For more information on variable definitions, please see the appendix.

Finally, I have referred to this measurement approach as "inductive" but one could also call it "ad hoc." The tailored nature of this social origin measure limits comparability to other studies of socio-economic status for other contexts. A latent class analysis conducted for the same cohort in South Africa, or the United States, or even in Indian medical schools would likely identify different subgroup characteristics. Given the strong current weight toward cross-country comparison and uncertainty of socio-economic measures in developing countries, this paper sacrifices comparability, arguing that specificity can provide complementary insights.

1.4 Results

1.4.1 Descriptive Analysis of Socio-Economic Variables

Examining the variable level differences in socio-economic origins between the engineering sample and general age cohort reveals that engineering students are quite advantaged, as displayed in Table 3. Focusing on the bottom coded level, engineering students and the population are most similar in terms of mother's occupation: an engineering student is five times less likely to have a mother working as a farmer or daily wage laborer than the general population. The two groups

diverge to the greatest extent in father's education – an engineering student is eight times less likely to have a father with a middle school education. Comparing at top coded levels, engineering students are a striking 19 times more likely to have mothers with a master's or PhD than the general population, and 11 times more likely to having fathers with the same. In line with the literature on India's social stratification in general, and engineering students in particular, the distribution of individuals within categories is quite "coarse" -the engineering cohort predominately falls in the top one or two categories, while the general age cohort falls in the bottom coded category.

Yet this approach leaves unresolved how these variables come together to form an individual's social origins. If social origins are the concept of interest, the "conditions and circumstances of early life", then we must examine not just the frequency of variables in a population, but the frequency of types of individuals in a population. For this, we move to the next analysis.

Table 4: Socio-economic Comparison of Engineering Students and General Age Cohort

Characteristic	Engineering Sample N = 8109 ¹	IHDS2 N = 26155 ¹	p-value ²
1.Father's Ed			<0.001
Middle School or Less	9.8%	72%	
Any Secondary-Diploma	31%	20%	
Bachelor's	38%	5.4%	
Master's or Ph.D	22%	2.3%	
2.Mother's Ed			<0.001
Middle School or Less	16%	86%	
Any Secondary-Diploma	38%	11%	
Bachelor's	27%	2.2%	
Master's or Ph.D	19%	0.9%	
3.Father's Occ			<0.001
DWL	5.5%	38%	
Farmer	17%	27%	
SEBO	21%	18%	
Salaried	56%	17%	
4.Mother's Occ			<0.001
DWL or Farmer	4.2%	21%	
Homemaker	71%	74%	
Salaried	24%	5.5%	
5.Assets			<0.001
Bottom Tier Assets Only	8.2%	42%	
Some Mid-Tier Assets	33%	49%	
Top Tier Assets	58%	9.0%	

¹ Weighted (%), Unweighted N
² chi-squared test with Rao & Scott's second-order correction

1.4.2 Socio-Economic Origins Typology for Engineering Students

Comparing types of socio-economic origins using LCA subgroups confirms this finding, but also shows that there are a substantial proportion of students from backgrounds of mixed advantage and disadvantage, not summarized well by any one single variable. I identify five subgroups within the student sample. For each subgroup I calculate two sets of probabilities: item response probabilities describe the “typical” students in each subgroup, and subgroup prevalences, which describe relative size of each subgroup in the population.

Item response probabilities, conditional on subgroup memberships, are displayed below in figure x. An item response probability is the probability of response r_j to observed variable j conditional on membership in latent social origin group.

For any given variable j conditional on social origin group c , the probabilities for each response r_j sum to one. Each row is a subgroup, and each column a variable. The multi-shaded bars within each row show item response probabilities. For example, the top leftmost cell shows that individuals in the “1: Working Class” have an estimated probability of 19%, 62%, and 18% for being in low, mid, and high asset levels respectively, summing to a probability of 1.

The item response probabilities in this cell suggest that students in the 1:Working Class group are likely to have a father with low of medium low education. A student in this latent subgroup is quite unlikely to have a father with high education. To see the estimated probability for the other four variables for “Working Class”, read the first row left to right. To see instead the estimated probabilities for each father’s education level for each subgroup, read down the first column. For example, reading the bottom left cell shows that for members in group 5: Privileged parents, the probability of reporting a father with higher education is much higher.

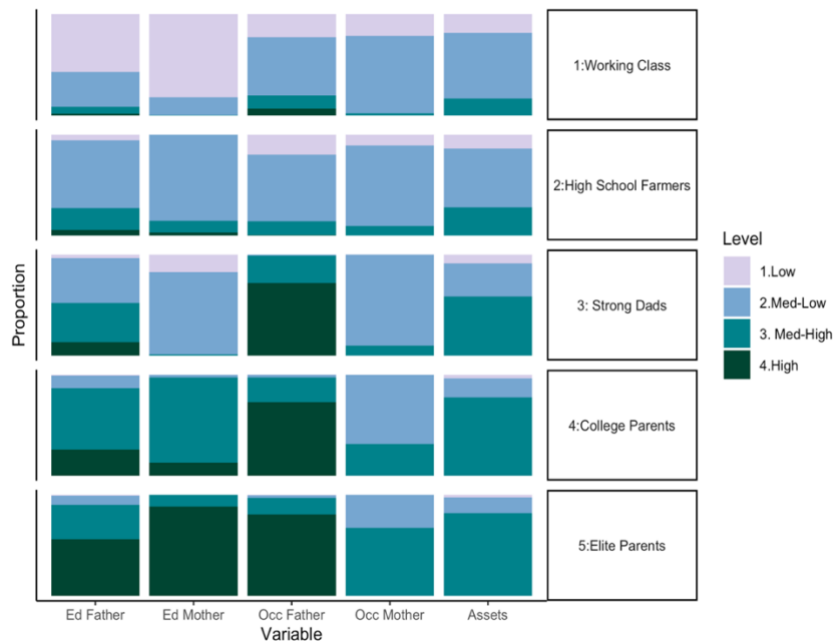


Figure 4: Item Response Probabilities for Latent Subgroups

The first subgroup I call **1. Working Class (1:WC)**. Students in this subgroup have a low probability of having had any top tier assets, both parents likely only gained a middle school or high school education, and fathers mostly work as laborers and farmers. Mothers almost uniformly work at home or as a farmer or laborer.

The second group I call **2. High School Educated Farmers (2:HSFarm)**. This group has a similar profile to the first, except parents are very likely to have at least a secondary school education, and work as laborers, farmers, or occasionally running a business.

Subgroup **3. Strong Dads (3:SD)** members have a higher probability of top tier assets than the previous two groups. Fathers are more likely to have a college degree than the previous two groups, and either run their own business or are salaried workers. Mothers, however, are more likely to have a high school education or lower, and are mostly homemakers. This mismatch in education

and work response probabilities between parents is present in all groups, but it is most marked in this group.

In subgroup **4. College Educated Parents (4: CP)**, it's very likely the student had a top tier asset in the home growing up. Both mothers and fathers likely have a bachelor's degree, and fathers work, like the previous subgroup, is mostly salaried or running a business. Mothers in this group also may work for a salary outside the home.

Finally, subgroup **5. Elite Parents (5:EP)** is distinguished from the previous group by the high probability that parents have a postsecondary degree, and that mothers in this group are the most likely to work as salaried position.

Having described each student origin type, I also consider the relative size of each subgroup within the student sample, and within the general age cohort. The general age cohort estimates apply the same variables and subgroup item response probabilities to assign individuals to socio-economic subgroups, yet with less precision as the subgroup definitions come from the student sample².

Figure 5 displays the estimated subgroup composition of the student sample, on the left, and the general age cohort, on the right. Like the previous variable level analysis, we can see that young people with less advantage are underrepresented in the student sample. Having a father with a high school education and a salaried job, would distinguish your origins from most in the general population, yet this origin is unremarkable in the engineering student body. The across-the-board

² I estimate the general age cohort proportions by assigning individuals to a subgroup based on their highest posterior probability ("modal assignment"). However, by "rounding up" to a probability of 1, I no longer account for the uncertainty inherent in assigning a latent subgroup. This can produce attenuated estimates. (Bray, Lanza, & Tan, 2015).

privilege of the 5. Elite Parents or 4. College Educated Parents is vanishingly rare across the country, but quite common in engineering classrooms.

Yet the additional information on student origins provided by subgroups does reveal diversity *within* the student sample, if not in comparison with the population. Each of these subgroups comprise at least 10% of the student sample, suggesting that these group definitions are capturing significant distinctions within the student sample. Over half the students sampled fall into the three less advantaged groups (1-3), and almost 70 percent fall into groups of mixed advantaged and disadvantage (2-4). The subgroup approach confirms that students are indeed mostly privileged, but that even this privilege takes different forms. Secondly, the existence of the “working class” group shows that there are a small cadre of current engineering students who come from origins consistent with the modal age cohort member. These students are not an anomaly come from relying too much on one variable, or relying on older data on disadvantage, they are strikingly different from their peer’s origins on all accounts. These subgroups do not reverse the conclusion that engineering students are generally well-off, but they do imply that some less well-off students are present as well, and that stopping at the modal student would miss these examples of upward mobility.

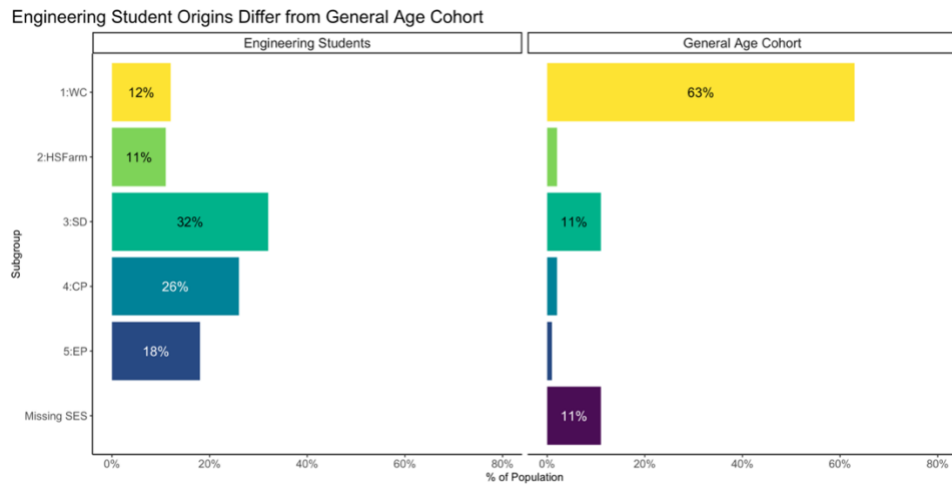


Figure 5: Socio-economic Subgroup Population Proportions

1.4.3 Intersecting Identities

Gender, caste, religion, and rurality of origin are all consequential to young people people’s trajectories. How do the SES subgroups among engineers differ in their gender, caste, and rurality composition? How do these students with a given trait differ in their SEOs? This section uses two distinct approaches to explore the intersections between SEO subgroups and these traits, confirming that within the student sample, lower SEO tend to co-occur with other marginalized identities.

1.4.3.1 Identity Traits in Engineering Student and Age Cohort Population

First, I report the composition of individual’s gender, location of origin, and caste and/or religious group in Figure 6, with student sample on the left and general age cohort on the right. Even without accounting for SEO, privileged identities are overrepresented in engineering. The red, second from the top rectangle on the right-hand side of each population square represents General Caste, urban, male students. This group comprises 21% of the engineering students, but only 4% of

the age cohort. Interestingly, this sample also finds rural ST/SC/OBC groups underrepresented compared to the population, while their urban caste group peers are represented at about the population proportion. This gap appears particularly severe for rural ST/SC young men and women. Muslim students are consistently underrepresented among the engineering sample. Women are less represented than their male peers in each category, however, women are more like their male peers within caste and religious and location groups than to women in other groups.

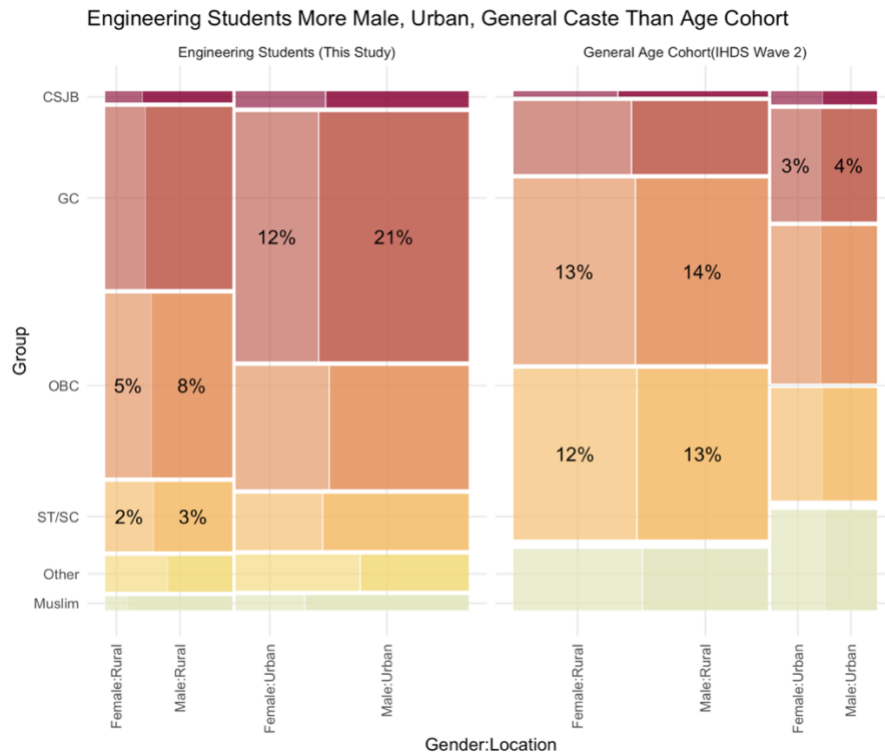


Figure 6: Engineering Students vs General Age Cohort

1.4.3.2 Social Origins and Intersecting Traits

The preceding figure shows that the greater an intersection of disadvantage, the greater the gap between engineering student body and the general age cohort. These intersecting disadvantages persist when considering these traits and SEO in the engineering student body.

I demonstrate this co-occurrence using two empirical approaches. First I calculate the predicted probability that a student has a certain trait, conditional on their estimated SEO. For ease of interpretation, I convert each trait to a binary variable. While gender or caste or rurality is not a time-delayed “outcome” of SEO, determining the proportion of women or rural individuals in each subgroup follows a similar analytical logic. I follow Bolck, Croon, and Hagenaaars (BCH) approach, updated by more recent work and captured in a SAS procedure provided by the Pennsylvania Methodology Center (Bolck, Croon, & Hagenaaars, 2004; Dziak, Bray, & Wagner, 2017; Lanza, Tan, & Bray, 2013). This is a “three step” method. The first is estimating the base SEO model, in the prior analytical section. The second step takes the posterior probabilities of belonging to each subgroup for each individual and assigns each individual a subgroup, adjusted with a weight for uncertainty, using the BCH adjustment. The final step estimates Z , the “distal outcome”, here, the proportion of individuals in the specified trait group incorporating the step two adjusted weight. I repeat this procedure separately for each identity trait.

Figure 7 shows the results of these three models, for each subgroup, for engineering students. The darker bar shows the proportion of each socio-economic subgroup who are female, or not general caste, or rural. The small lighter middle bar represents a 95% confidence interval for this estimate, related to the uncertainty around true latent subgroup membership. The percent label, shifted slightly left, is estimated percent in that identity -the center of the confidence interval. The light bar represents the inverse, either proportion male, General Caste, or proportion urban. This

analysis shows that in subgroups 1-3 around half of students are not general caste. Conversely subgroups 4 and 5 are 70% General Caste, and about 30% all other groups. The starkest difference between subgroups emerges in comparing rurality. Groups 1:2 and mostly rural, while groups 3-5 are increasingly more urban. Gender differences are more limited. With the exception of 1:Working Class which is only a quarter women, the other four groups are 36-42% women.

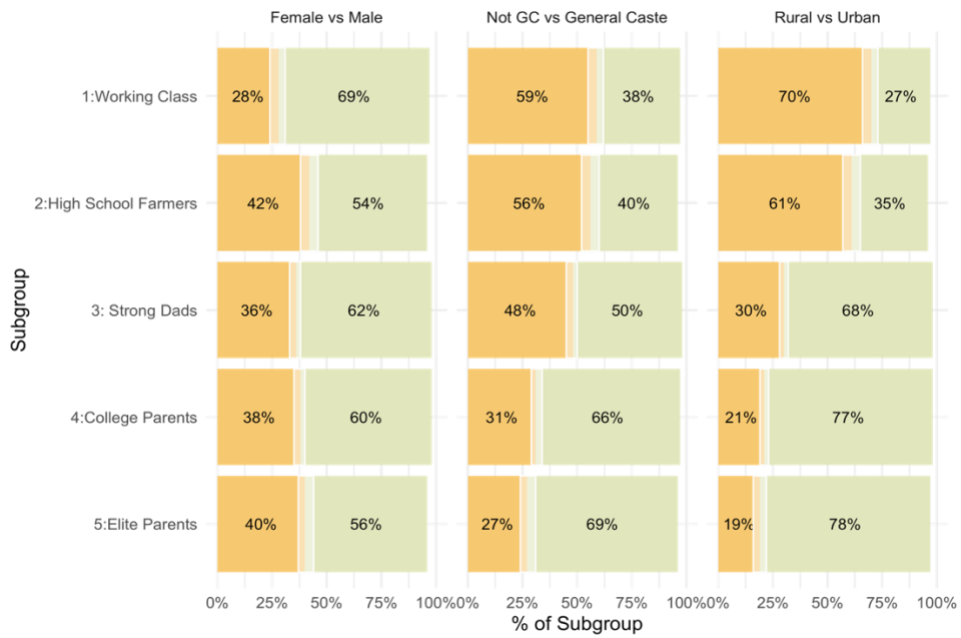


Figure 7: SEO Subgroup Characteristics

Secondly, I consider the socio-economic subgroup distribution within each trait group. I model the three traits as binary covariates in a logistic regression with socio-economic origins as the outcome. Subgroup 5:EP serves as the reference category. This model provides a descriptive summary, not a causal estimate.

$$\log[\pi_{givenclass}/\pi_{5:EP}] = \beta_0 + \beta_1 female + \beta_2 rural + \beta_3 notGC$$

The figure below displays the model results in terms of odds ratios. Odds ratios are the odds of being in a given social origin (on the left hand axis) relative to the reference subgroup, 5:EP. Each point is the estimated odds ratio, with the lines representing a 95% confidence interval. An estimate of 1 as the odds ratio suggests “even odds”, or no association between that variable and that class relative to the reference. For example, being female rather than male does not change the odds of being in any subgroup relative to 5:EP, with the exception of 1:WC, where being female reduces the odds of being 1:WC. Conversely, being not general caste or rural strongly increases the odds of being in subgroups 1-3 relative to the 5:EP class. A student from a Not General Caste background has 3.4 times higher odds of being in group 1:WC, and a student from a rural background is over 10 times more likely to be in 1:WC.

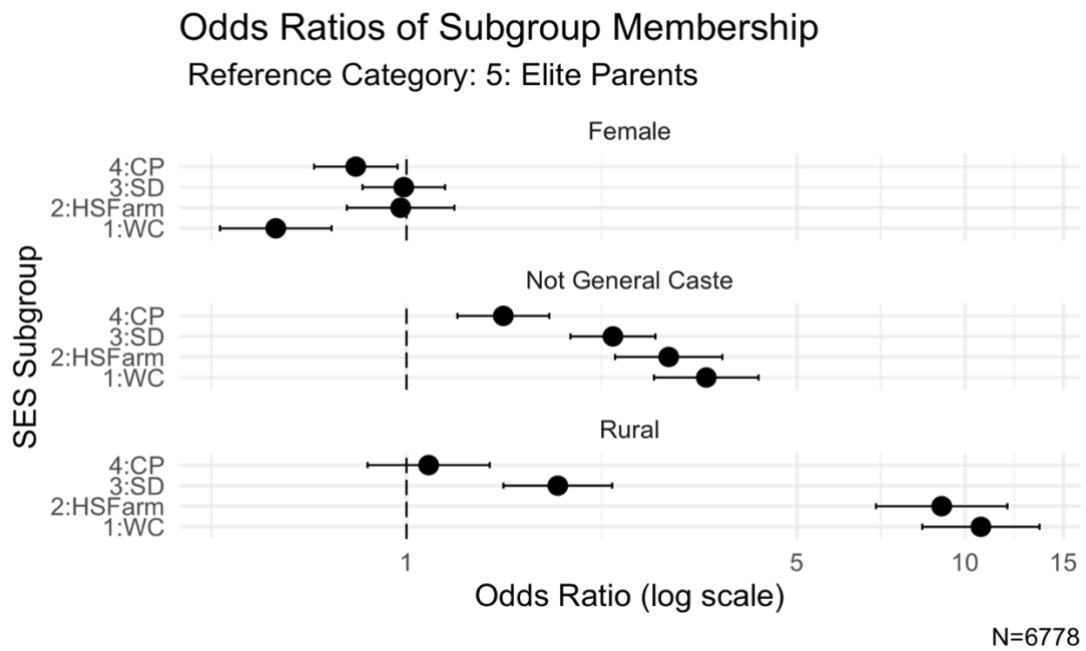


Figure 8 Characteristics Associated with Subgroup Membership

1.4.4 Social Origins and Institutional Quality

What is the association between social origins and institutional quality among engineering students? How do these groups intersect with location, gender, caste and religious identity in terms of college quality? I again use the BCH three step approach, estimating the proportion of individuals in an upper-tier institutions within each socio-economic subgroup of students.

1.4.4.1 Socio-Economic Origins Alone

Thirty-four percent of my respondents were enrolled in an institution in the top 15% of all AMCAT test taking institutions. I compare each social origin group against this overall average. The predicted probability of being in a top tier institution has a wide range by socio-economic subgroup, even without considering any additional student identities. For students who come from 1: Working Class and 2: High School Farmer backgrounds, the predicted probability of being in a top tier institution is just 20%, versus 80% predicted to be in lower tiers. This is in contrast with students from the higher SEO groups, who are two times more likely to be in top tier institutions than students in groups 1 and 2. The light color square represents a 95% confidence interval.

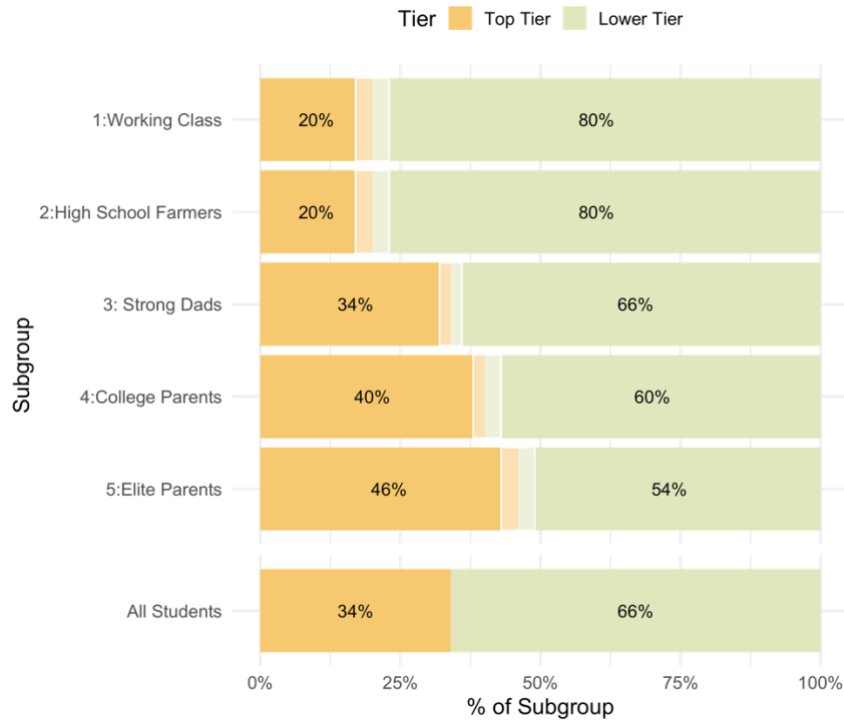


Figure 9: Predicted Proportions Within Tiers

1.4.4.2 Rurality of Origins

Without considering SEO, rural students have a lower proportion of students in top tier schools, 29% vs 40%. However, within rural and urban students there is substantial range in predicted probabilities by SEO. Both rural and urban students from lower SEO groups have lower predicted probabilities of being in top tier institutions. The ten percent difference in urban and rural top tier rates may be mostly related to the higher proportion of low SEO students with rural backgrounds. Being urban alone does not appear to offer much higher rates of access to top tier institutions, rather it's the much higher proportion of high SEO students from urban backgrounds that associates urban origins with higher tier access.

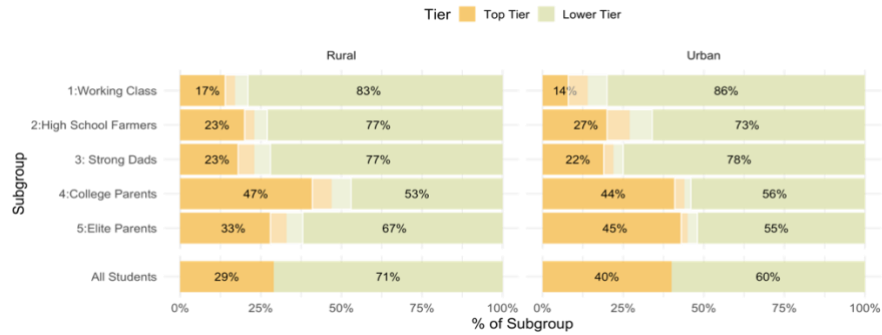


Figure 10: Predicted Proportions Within Tiers by Rurality

1.4.4.3 Caste

Strikingly, ST/SC students are more likely to be at top tier schools than any other caste group, conditional on SEO. While few in number, ST/SC students from SEO 4: College Parents, and 5: Elite Parents appear particularly able to navigate to top tier institutions. OBC students find the lower representation at top tier schools of any caste group, and there is not much difference in the predicted probability of attending top tier schools across all SEO groups. Conversely, there is substantial range within the General Caste student SEO groups. Only 8% of 1: Working Class GC students are in Top Tier schools, in comparison to 20% of GC students in groups 2: HsFarm and 3: SD. Almost half of their more advantaged SEO GC classmates are in top tier institutions. Muslim students provided too small a sample to reliably estimate differences by SEO group. Given their underrepresentation at every institution type, the hurdle for Muslim students of any socio-economic origin appears to be at enrollment, not tier.

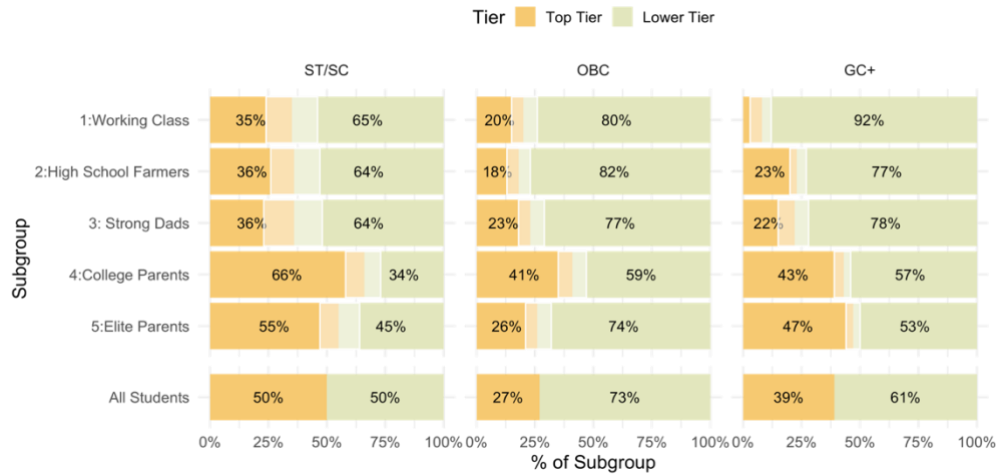


Figure 11: Predicted Proportions Within Tiers by Caste

1.4.4.4 Gender

Women students emerge as having some of the lowest predicted probabilities of being in a top tier institution of any group. The disparity in proportion of women who are in top tier institutions is particularly stark for lower SEO group women. While the predicted probabilities follow the same generally lower to higher pattern by social origin subgroup within gender, the predicted probability for women even in the 5: Elite Parent group never exceeds the sample average. This suggests the daughters of mothers who went to college and possibly got a post-secondary degree, and work a salaried job are still no more likely to be in a top tier school than their male counterparts with less educated mothers and more mid-range assets (3:Strong Dads). Similarly, even comparing students from the 1:WC origin, male students are still much more likely to be in a top tier school. This finding suggests that the even among women already enrolled, very few make it into the best institutions, even women from the absolute most advantaged families.

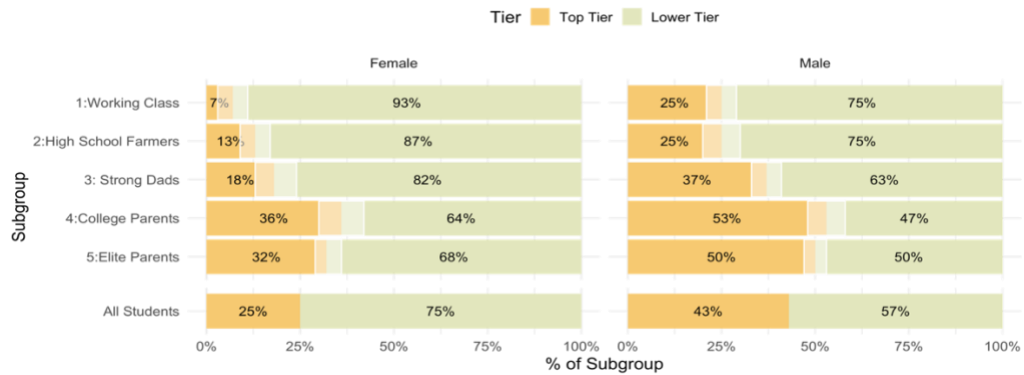


Figure 12: Predicted Proportions Within Tiers by Gender

1.5 Discussion

This study finds that the modal engineering student has well-educated, professionally employed parents with many household assets, and this modal student is also male, urban, and from a general caste background. This modal student is quite different from the modal young person in the general age cohort, whose parent work in agriculture or manual labor, with less than a secondary education and with few assets. Despite this cohort coming of age during a period of both economic growth and educational expansion, these findings are in line with prior work on social mobility in India and developing countries more broadly, work from earlier period with smaller tertiary enrollments. As such, this paper's evidence does not find evidence of expansion increasing access to engineering tertiary education.

Nevertheless, this paper both provides a view of students beyond that modal student, and a method that would allow for further intersectional snapshots, both over time in Indian engineering education, and in other important destinations for mobility, even when markers of disadvantage and advantage are in flux. If the modal student is an alarm that equity problems remain entrenched, then the non-modal students described in this paper offer greater clarity on emergent mobility that may be further encouraged, or at least suggest useful comparisons beyond the country-level estimates that

have dominated the social mobility literature to-date. This paper provides several examples of policy-relevant insights.

First, this paper finds more access by underrepresented groups than traditional measures identify. While differences in socio-economic access have long been a concern, describing student's complex origins through available data has proven challenging. By using an inductive and multi-dimensional measure of origins, this paper can accurately convey key distinctions in the student body and age cohort today, without relying on outdated measures. This specificity reveals that a substantial portion of students come from backgrounds of disadvantage or mixed advantage, particularly in comparison to that modal student, and that socio-economic disadvantage tends to go along with being rural and lower caste.

Secondly, there remain important distinctions within the engineering student body by quality tier. Even when lower socio-economic groups enroll in engineering programs, they tend to be in lower-tier institutions. Yet focusing on just socio-economic origins or gender alone, for example would miss the even larger gap for lower SEO women, who appear siloed into lower quality institutions. Initiatives to increase access to top tier schools may require further exploration of why women enroll in lower-tier schools, and the intersectionality suggests that lower-socio-economic status is likely one of many factors at play. For example, recent work suggests Indian women prioritize safe commutes over institutional quality (Borker 2021).

Thirdly, this paper's intersectional approach finds that this specificity is not splitting hairs. What types of students should receive additional support in accessing higher education is a matter of intense debate in India, and it's significantly hampered by a lack of intersectional data which accurately describes today's disparities. A larger scale and more representative version of this paper's

analysis could provide context on several key debates. First, the “creamy layer” accusation that low-caste wealthy individuals are overly benefitting from caste-based reservations. This paper suggests that low caste students tend to be from disadvantaged origins, although low caste students of all socio-economic backgrounds do access higher tier schools, perhaps reflecting these reservations. Secondly, the targeting of “economically weaker sections” as proposed by the 124 Amendment would benefit from this sort of inductive description of relevant and relative economic difference, as others have pointed out available data suggests that this economic cutoff is too high to advance economic access. Third, the disparities this paper finds for women, Muslim, and rural youth are important signals these identities also deserve attention in policy debate.

Finally, in addition to offering specific insight to policy debate, this study’s approach reveals mobility at the margins. Despite pervasive inequities, a small number of students with multiple minoritized identities and socio-economic disadvantage are enrolled in engineering degrees. The comprehensive and intersectional measures reduce the likelihood that these students are simply the result of measurement error. Their presence, and the suggested influence of caste-based reservations suggests there may be other minoritized students at this pathway’s later stages, who could benefit from modest supports.

Policy supports can take forms beyond caste-based reservations which simply change how a student’s score is considered, at only a portion of engineering institutions. A wider range of additional learning opportunities, financial support and guidance may provide a key boost for students who’ve graduated secondary. Another policy approach could consider the system of exam preparation, exam scoring, and institutional matching more broadly. The current process, while ostensibly based on raw merit, incurs substantial cost, risk, and distress for students, particularly those with fewer resources and savvy. Aspirants risk failing to match to any institution, or paying

large amounts of money for a lower quality education. Limiting costs and low-quality institutions, while expanding access to mid and high tier institutions may reduce some of this risk. At the very least, engineering institutions themselves may consider how to better serve their diverse student body, beyond the modal student.

Beyond this specific context, this paper's findings suggest the potential of inductive and multi-dimensional measures of social status measures, particularly in changing places where data coverage is less than ideal. Issues of bias and precision are particularly important when scholars use cross-national comparison to infer which policy environments may support upward mobility, or in decomposing the role of a particular origin variable -e.g. mother's education. However, current data limits progress on these important measurement debates. Even in a future with robust data, social structures will continue to evolve. How often must we update our markers of success, of the power and resources represented by occupations, educational achievements, and other attributes? How can we use the data that are available to make incremental improvements in how we measure concepts in flux?

While the field of social stratification and mobility must continue tracking population level dynamics, there remains much to learn in taking a more micro-view of social locations of particular importance- new educational pathways, livelihoods falling by the wayside, or identity groups among young people. Inductive and focused enquiry can help the discipline challenge assumptions, update tools, and better understand the changing world young people must navigate. Inductive and specific approaches like the one taken here offer a way for the discipline to evolve to understand today's challenges.

2. Upward Mobility Across Status Hierarchies: Education, Occupation, and Consumption Upward Mobility in Indonesia

2.1 Introduction

Most estimates suggest that developing countries have lower upward mobility for young people in disadvantaged families, than developed nations (Narayan et al., 2018). In many of these places, the average education level has shifted sharply upward, yet children with less educated parents are still unlikely to reach the top of this upgraded education hierarchy. Nevertheless, these findings come from a comparative literature that has focused heavily on educational mobility. While the social mobility literature within and between developing countries has explored income, occupation, and wealth hierarchies, providing a richer glimpse of mobility processes through times of change, this breadth has been limited in developing countries. This lack limits our understanding of what policies may better help address this apparent low upward mobility.

What relevant information might be missing from summarizing a population's upward mobility via education alone, and how can we compare between status types in places experiencing their own unique development trajectories? This paper compares upward mobility in one population, the 1980's birth cohort in Indonesia, across three status hierarchies: education, occupation, and consumption. More specifically, I ask:

2. How have these status hierarchies changed between the time of this cohort's early life and early adulthood?
3. To what extent have individuals from lower origins been able to access top destinations in each of the status hierarchies, considered separately?

4. To what extent do top positions cohere for individuals across hierarchies? How does this change the interpretation of top positions?

My findings corroborate prior work suggesting low rates of upward mobility across all three status hierarchies. However, the results also demonstrate that contextual detail on hierarchical change over time is critical to interpreting and comparing upward mobility estimates. For this cohort, education levels have shifted strongly upward in one generation, while occupational positions have only shifted in the lower middle portion of the distribution. Documenting hierarchical change for the cohort of interest is perhaps more important in data-constrained, developing contexts, where simplifying assumptions prove not so simple. While the estimated upward mobility rates for each hierarchy appear relatively low, I find that the comparative approach often used to label contexts as high or low mobility is challenging in developing countries. Finally, I find that education is a poor proxy for other hierarchies, as having high levels of education is associated with a wide range of occupations, salaries and consumption positions. Many highly educated young people are working vocational jobs, earn low salaries, and/or have lower patterns of consumption.

While the empirical results apply to the population of focus, the challenges raised contribute to a broader conversation about social mobility measurement and interpretation in data-constrained, rapidly changing contexts. Given the importance of both inferences from education hierarchies alone and comparison across populations with very different hierarchy structures in this literature, this paper calls for caution in relying on such measures alone in policymaking.

2.2 Literature Review

In this section, I describe the relationship between comparative social mobility and policy, review the literature on comparing differences in mobility rankings by status hierarchies across

populations and individuals, highlight difficulties in measuring mobility in developing countries, and define the mobility measure of interest in this paper.

2.2.1 Social Mobility and Policy

Social mobility concerns the extent to which an individual's "origins" – their family and early life resources -are associated with their later life "destinations" – their own household resources in adulthood. In contexts where individual origins tend to be highly associated with their adult destinations, social mobility is considered low. Upward mobility focuses on part of this broader association pattern, the individuals who reach top destinations who start from bottom origins. This literature review discusses social mobility more broadly before narrowing on upward mobility.

Low social mobility raises concerns about whether individuals from lower starting origins are unfairly prevented from accessing higher destinations, and whether those from higher origins are maintaining their positions through unfair means. Assessing fairness with population level statistics is of course a challenging feat, and much of the social mobility literature has focused instead on comparing mobility statistics by time and place, finding some places more mobile and others less. In the absence of straightforward ways to measure the causal impact of various policies and environmental features on population level mobility, much of the literature on social mobility promoting policy relies on associations. For example, the "Great Gatsby Curve" finds that places with high inequality tend to have low social mobility, or the OECD's emphasis on how places with higher rates of educational spending have higher social mobility. These studies are upfront about the complications of associational inferences and policy recommendations, but they are nevertheless frequently cited in policy speeches and proposals (Corak, 2013; OECD, 2018).

For example, U.S. cities labeled as "low mobility" in studies by Raj Chetty and collaborators have put substantial policymaking effort into increasing opportunity (Chetty, Hendren, Kline, &

Saez, 2014; Ziliak, 2015). The lower upward mobility rates for black Americans revealed by further iterations of this research has galvanized calls for policy which address barriers for black men more specifically (Chetty, Hendren, Jones, & Porter, 2020).

Such comparison driven policy recommendation has been limited in developing contexts. Hertz et al label Latin America as particularly low mobility, and Torche has reviewed the differences between Latin American countries (Hertz et al., 2008; Torche, 2014b). Later work by the Fair Progress report suggests that Latin American countries have perhaps become more mobile, with Sub-Saharan Africa and South Asia proving persistently immobile (Narayan et al., 2018). Nevertheless, these broad regional comparisons across places in quite different economic positions make inferences about even associational policy challenging. The literature building up to these suggested rankings has been marked by has been marked by significant measurement debates and sample limitations, a point I return to in a following section. These issues are not unique to developing countries, but a literature addressing them remains small and scattered, even for educational mobility, the most well-represented status hierarchy (Torche, 2021).

2.2.2 How Well Does Education Describe Other Hierarchies?

Theoretically, individuals occupy status positions in multiple dimensions in a stratification system. More empirically, it is possible to estimate the same mobility measure across multiple hierarchies for the same population, and for the same individual. In many ways, some differences are expected between hierarchies, as they reflect different facets of an individual's life and societal opportunity structure. At the same time, an implicit assumption that these hierarchies reflect some latent concept of socio-economic status or power or wellbeing, would predict some amount of coherence. Educations' use as a stand-in for all other hierarchies in developing countries is a

particular concern, and it's worth investigating the extent to which education coheres with other hierarchies when additional data is available.

Available cross-national estimates have suggested education and earnings tend to rank countries similarly, and that both are negative correlated with inequality (Blanden, 2013). The recent Fair Progress report updates this finding with additional developing country estimates, finding that developing countries tend to have an even stronger correlation between education and earning mobility estimates, a finding Torche has also documented in Latin America (Narayan et al., 2018; Torche, 2014b). Nevertheless, the report highlights some discordant cases. Other work suggests that rankings based on occupation or class measure tend to diverge from education and earnings. For example, Latin American countries and the United States have been ranked middle of the pack in social class, and highly immobile in education and earnings (Beller & Hout, 2006; Blanden, 2013; Torche, 2014b).

Individuals occupying divergent positions in status hierarchies provides one possible reason for divergent mobility statistics. The correlations between an individual's positions on various status hierarchies is sometimes called "status crystallization" or class crystallization. (David B. Grusky, 2019). In general, individuals who get high levels of education are in good positions to get prestigious work with high incomes, maintaining high levels of consumption and accruing wealth. Yet there are important ways these measures can diverge. For example, families may maintain consumption while accruing debt, reducing wealth. The "(economic) returns to education" vary across time and place. Fears about unemployment and underemployment reflect a potential disconnect between occupation and education for the same individual.

The empirical examination of cross-hierarchy status for the same individual, rather than the same population as described previously, has perhaps even less coverage in the developing world.

Some work has described highly educated but underemployed young people as central to the Arab Spring revolutions and religious revival (Binzel & Carvalho, 2017; Campante & Chor, 2012). Indeed, this is a point of interest in places with a much richer literature base. In the U.S, Bloome et al question the extent to which shifts in inequality in income and wealth, occupational organization, and educational expansion have complicated class crystallization within and between racial groups (Bloome et al 2019-conference paper). Fisher et al have been considering how wealth, consumption conjointly determine economic well-being (Fisher, Johnson, Smeeding, & Thompson, 2022).

If status is very crystalized, measuring an individuals' rank in one measure should be a sufficient proxy for the rest. Additional dimensions would not add novel information or change conclusions. Yet this relationship has not been well-documented. Much of the work cited above, the Fair Progress report for example, focuses on 1960's and 1970's birth cohorts and does not provide income mobility for many populous countries, including Indonesia. Secondly, most of these comparisons focuses on a measure that summarizes both upward and downward mobility into one estimate, intergenerational elasticity, a different approach than the one taken in this paper. Our lack of knowledge about how education mobility correlates with other hierarchy mobilities in developing countries for a population, and for an individual, is pressing given the reliance on education.

2.2.3 Social Mobility Measures

A wide array of measures and concepts fall under the social mobility umbrella, and their respective uses and interpretations form a lively debate in a variety of literatures (Fields, 2019; Torche, 2014a). In this paper, I focus on just one concept of social mobility: measures of **upward**

positional mobility³. For each hierarchy, I find an individual's position on a hierarchy relative to their generational peers, in early life (“origin”), and their relative position at a later period, in adulthood, (“destination”) in reference to those same peers. Having observed all these movements up and down between origin and destination, I isolate the trajectories of those individuals starting from the bottom half of the origin distribution, calculating two summary statistics:

“Poverty to Privilege Rate”: share of individuals from bottom (half) origins who reach top (quartile) destinations. This has been used by the Fair Progress report, and a more precise statistic – bottom quintile to top quintile, is reported by Chetty et al as the “American Dream” rate (Chetty, Hendren, Kline, & Saez, 2014; Narayan et al., 2018).

“Bottom Half Mobility”: Mean rank of children at destination, conditional on bottom half origins. This measure has been put used by Asher et al, and a similar statistic, the mean rank of children whose parents at the 25th percentile, is used by Chetty et al (Asher et al., 2021; Chetty, Hendren, Kline, & Saez, 2014)

By focusing on rank, these measures seek to isolate whether those from the bottom can reach the top, from greater structural change over time. I borrow Hout's definition of structural change, described by Torche as “Structural mobility is interpreted as a consequence of exogenous economic and demographic factors such as technological change, economic policy, foreign trade, fertility and immigration ”(M. Hout, 1989; Torche, 2014a). Educational and occupational upgrading

³ A note concerning the terms “relative” and “absolute” mobility: these terms have been used variably in the literature – I do refer to relative position or rank – but this is not necessarily the same as others have defined relative and absolute mobility. For example, Chetty et al define a measure as absolute if it describes the trajectories of one part of the distribution – e.g. children at parent's 25th percentile -rather than the distribution as a whole .

are structural forces present in this study. For example, an individual can have more years of education as an adult than their parents, yet still occupy a lower position relative to their peers, as the overall distribution of education has shifted upward in the destination period.

Both measures, observing whether an individual has more education than their parents or whether an individual has a higher position against their peers than their parents did against their own peers, are important to track, yet it is the later that forms the focus of this paper. In rapidly developing countries in particular, the pace of change between periods means that structural changes can emphasize movements upward in attainment, while obscuring changes in positions.

2.2.4 Types of Status and Measurement Issues in Developing Countries

Having narrowed down the concepts and measure of mobility of interest in this paper, I turn to the practical measure of applying them to populations and hierarchies in the developing world. Much has been written on data constraints in the study of social mobility in developing countries. I structure this literature review slightly differently, focusing first on conceptual measurement challenges for commonly used hierarchies, and then consider data limitations and mobility modeling choices. Building off work by Torche and others, I posit that measuring an individual's position on a hierarchy in developing countries cannot uncritically adopt methods developed for the global north, as there are important differences in daily life, and rapid changes in inequality and range across each hierarchy (Torche, 2014b). These challenges pose a first-order concern prior to data constraints.

2.2.4.1 Education

Educational hierarchies have dominated social mobility research in developing countries. Education occupies an interesting role as a way station toward adult work and income, and an end goal with its own intrinsic value. Education years offer an easy to recall, stable, and common

surveyed question (Torche, 2021) Education years have been treated as a continuous variable, amenable to regression analysis and rank transformation.

However, there are both issues with education, both on its own and especially as a broader proxy. Significant heterogeneity in education quality poses one threat to measuring relative education through education years alone. Twelve years of education at a poorly resourced rural public school may not offer the same opportunities as 12 years in an urban private school with powerful name recognition. In places experiencing rapid educational expansion, these disparities in quality may be particular-wide, as new educational institutions rapidly constructed and staffed to meet government objectives may not match the quality of more established schools attended by more advantaged young people.

Secondly, education years tend to be a “lumpy” or “coarse” variable, with large proportions of individuals falling at a few key junctures. The distribution of education years can only range from 0 to 20, and in reality, most individuals have education years which match graduation junctures. Yet this issue has often been confined to the footnotes of ambitious comparative papers⁴. A related set of concerns considers if educational attainment should be considered linear given that the value of *any* additional year of school likely varies by *which* additional year is under consideration. Graduating

⁴ For examples of an earlier cross-national comparison of parent child education correlations in 42 countries, footnote 3 – “Thus there is no invariant mapping from units of the standard deviation to educational percentiles. As an example, consider that in Ethiopia one can find 92 percent of parents within not two but rather one-half of a standard deviation from the mean (the mean number of years of education being 0.12).” (Hertz et al 2007, pg 3). The recent Fair Progress report states “Years of schooling may be considered a continuous variable analogous to individual earnings, which is often the way they are viewed in the literature.” (Narayan et al 2018, p 74) Asher Novosad and Rafkin provide a table of papers which feature coarse education and occupational rank bins. (Asher et al 2021).

with a degree might provide many more opportunities than being a few months shy before dropping out, while the same one-year difference between years within a given education level might not make an appreciable difference in job opportunities or the regard of others.

More recent work has tried to address these concerns in a few ways. Most straightforwardly, the authors of the World Bank report “Fair Progress” provide a range of educational mobility statistics for 148 countries. They regress children’s education years on their parents in one set of analyses, and in another they assign individuals to rank quartile bins. When a particular cohort-country group features more than a quarter of respondents at the same education year, the report authors randomly assign tied individuals to create balanced quartile bins Narayan et al. (2018). The “poverty to privilege rate” reports the proportion of young people born to parents in the bottom half of their educational distribution that make it to the top quartile. This statistic is relative in that it allows for some comparisons of important quantile transitions across time and place, independent of differences in education context, but provides a somewhat misleading sense of precision. As Asher, Novosad, and Rafkin point out, this poses significant challenges in places like Ethiopia, where 80% of parents are in the bottom coded category, meaning the bottom three quartiles are equivalent even as the report offers a “poverty to privilege” measure (Asher et al., 2021). The Fair Progress report authors compare their random assignment tie breaks to Asher, Novosad et al’s approach and find the strongest differences in developing countries in earlier birth cohorts, where coarseness is most severe (pg87) (Narayan et al., 2018).

Asher Novosad and Rafkin propose an alternate, if more complicated, approach to assigning parents to ordered education bins. They pose that there is a continuous, but latent, educational rank within observed educational categories -some individuals are higher than others, and are thus able to generate analytic bounds on educational ranks. They use this new approach to describe “Bottom half

Mobility” – the expected rank of a child born to parents in the bottom half of the education rank distribution. Later versions of the World Bank Global Database on Intergenerational Mobility also adopt this measure.

Other authors avoid the problem of specifying rank position with coarse educational data entirely but focusing on explicit educational transitions. Alesina et al focus on the proportion of young people whose parents did not complete primary school, who complete primary school themselves, in a comparison of African nations. This has the benefit of a clear approach, and reveals significant heterogeneity, from 79% of these youth getting primary education in South Africa to just 4% in South Sudan (Alesina, Hohmann, Michalopoulos, & Papaioannou, 2021). Similar approaches of specific educational attainment conditional on parent background are taken in Neidhofer et al, Derenoncourt, and Card in considering modern Latin America and the early 20th century U.S. respectively (Card, Domnisoru, & Taylor, 2018; Derenoncourt, 2022; Neidhöfer, Serrano, & Gasparini, 2018). However, this approach makes comparison a bit more challenging as every context has different parent and child distributions, and changes across generations. It does not isolate ability to move upward separately from education changes more generally. These types of measures are sometimes referred to as “absolute” in that they do not adjust for “relative” positions in generational cohorts.

2.2.4.2 Occupation

Knowing an individual’s line of work conveys an idea of how they spend their days, their skills, knowledge, social contacts, and economic resources. Occupations have been used both on ordinal “prestige scales” and as a way to assign “social class”. Conceptually, social class breakdowns divide individuals into discrete groups based on their ownership of valued assets both concrete (income) and conceptual (power). Empirically, scholars have used elements of working life to assign

individual class positions. The most used classifications concern whether individuals are employers, employees or self-employed, their compensation, authority in the workplace skill level, and sector. In theory at least, recalling occupation for oneself or one's parents is relatively straightforward and stable over the life course, allowing for use of a less long-term survey data.

However, there are several key differences between developed and developing countries which make uncritical translation of occupational schemes dubious. First, these schemes anticipate that individuals have formal contracted employment within one primary position, a departure from informal and fluctuating livelihoods of many workers in developing countries. Secondly, many individuals would be assigned as farmers or small business owners, categories which present a much wider degree of heterogeneity in wellbeing in developing countries than in developed. While there are farmers and small business owners similar to developed countries, with large properties and machinery or many employees and well-documented market transactions, there are many more where small land plots, informal family labor, evolving family profit sharing and extreme swings in profits across seasons and market cycles are more common (Torche, 2014b). Assigning individuals within these two large categories to the same position misses these important distinctions, and the size of these occupational groups makes these issues more consequential in developing countries (Heath & Zhao, 2019; Heath; & Zhao, 2021; Y. Li & Heath, 2016). There are numerous ways the many class schemes, both ordered and categorical, macro and micro, could be adjusted to match these context-specific complexities, yet there is not a broad literature demonstrating how to make these adjustments. Scholars have instead attempted to developed more tailored schemes based on local distinctions or importance and what information is available in a given dataset, and/or by focusing on binary distinctions: farm/non-farm, informal vs formal employment (Azam, 2015; Bossuroy & Cogneau, 2013; Iversen et al., 2017; Y. Li, Zhang, & Kong, 2015; D. Vaid, 2018)

2.2.4.3 Income

Income and/or earnings have been the measure of choice for decades of economic inequality and mobility research in the global north. In an ideal format, a researcher will have access to longitudinal, panel, data on individual and household economic activity, observing an individual's income at various point in their life and combining these observations to approximate "permanent income." In recent years, access to detailed, yearly, data on individuals from administrative tax records has allowed for more precise estimates of income mobility within cities, and across racial and gender groups in the U.S (Chetty et al., 2020; Chetty, Hendren, Kline, Saez, & Turner, 2014).

Implicit in relying on individual income is an assumption that individuals receive a somewhat steady, regular, paycheck, accounting for changes like a raise or a new job by averaging over several time observations. However, in places with agricultural and or informal work, even short-term income can fluctuate quite a bit, as individuals' patch together income from farming family plots, working on other's land, piece work, small-scale vending and other informal and ad hoc income sources. For many household members, a great deal of labor is within the household and or extended family, never reaching a formal economic exchange that could be measured as payment. This different pattern of labor has been described as building up a livelihood versus an occupation (Chambers, 1995). Considerations of total household income rather than individual may solve some of the intra-family aggregation concerns, but informal compensation is still present in extended families and small-scale businesses. It's important to remember that developing country measures would also need to consider top of the distribution income sources- capital gains, large-scale farming income, salaries, and bonuses.

2.2.4.4 Consumption

Household consumption offers another potential measure of economic status. Household consumption may better reflect intra-household economic cooperation, and how households adjust to economic ups and downs, being preferred by some to income as a measure of “permanent income.” Households can draw from both income and accumulated wealth, as well as credit and debt, when making consumption decisions. Generally speaking, the inequality between rich and poor households is less in consumption than income or wealth, as higher income households direct a higher proportion of their income to savings over consumption than do low-income households. Regardless, while consumption has received attention as another facet of economic well-being in poverty dynamics more broadly, it has not had the same coverage in the social mobility literature (Lanjouw, 2020).

2.2.5 Data Challenges

No matter the measure, researchers aim to capture some sense of long-term status in these measures, rather than short term setback or windfall. Researchers studying income mobility in developed countries have pinpointed two issues to reliability with short term data: life cycle bias – where getting an early adulthood estimate of income may underestimate the permanent income for eventual high earners, as they take longer in school and will continue to be promoted throughout their careers, and secondly measurement error from short-term observation. Both tend to attenuate the relationship between parent and child income, suggesting more mobility than the reality (Haider & Solon, 2006; Mazumder, 2005; Nybom & Stuhler, 2016; Solon, 1992). These findings and improvements come from very thorough, long term data collection, which is not available in developing countries. Indeed, many papers examining income in developing countries are not able to observe even one point in time for both parents and their adult children, instead relying on imputed

data from separate cross sectional observations, in a processes known as Two-Sample Two-Stage Least Squares (TSTSLS)(Jerrim, Choi, & Simancas Rodríguez, 2014). Some researchers have taken advantage of household surveys, comparing parents to their co-resident adult children. Emran, Greene et al define the bias resulting from using these types of households as stand-ins for the non-coresident adult children as “co-residency bias” (M Shahe Emran et al., 2017).

These data constraints have led to a social mobility literature deeply reliant on education level and years, as one point in time surveys can ask adults to recall their parent’s education. A smaller subset of paper’s use occupations for the same relative ease of recall. This strategy puts a great deal of weight on education as a meaningful indicator of an individual’s position across status hierarchies.

2.3 Context: Intergenerational Mobility in Indonesia

I turn now to considering these broader issues in the context of this study, Indonesia’s 1980’s birth cohort. This cohort experienced significant structural change in each hierarchy, including educational upgrading, occupational shifts, and an economic crisis in 1997 which disrupted a trend toward greater consumption. Rapid urbanization and growing inequality (measured in consumption) shaped daily life (Kanbur & Zhuang, 2013). GDP per capita has risen by about 5.4% per year from 2000-2014 and the poverty rate has fallen from 23.4 to 11.2 in the same time period (ESCAP, 2017). Despite overall development, stark differences in life experiences remain, particularly between provinces, rural and urban areas, and by parent education (ESCAP, 2017). Agricultural work has decreased, industrial jobs growth has stalled, and the service economy, which tends to employ individuals in informal positions has boomed in recent decades (Allen, 2016). Individuals whose first job is in informal, low tier work have low rates of finding formal or high tier work in later roles (Rizky, Suryadarma, & Suryahadi, 2020)

Yet explicit measures of the how an individual's starting position is associated with their later positions in this changing structure have been limited. The Fair Progress report describes this cohort as having a higher proportion of children surpassing their parents in education years, and a “poverty to privilege” - rate in lower middle of the distribution – 93 out of 154 economies. Several studies focus on the impact of a 1970's government primary school construction initiative on successive generations' educational attainment, finding generally positive results (Duflo, 2001; Hertz & Jayasundera, 2007; Mazumder, Rosales-Rueda, & Triyana, 2019). Recent work finds greater mobility for sons of rural fathers in educational attainment at the lower end of father's education, but lower absolute educational attainment than urban peers, who experience less mobility but higher attainment (Ahsan, Emran, & Shilpi, 2020). The curves for rural vs urban fathers cross, and when fathers have more than 9 years of schooling, relative mobility is higher for urban sons.

2.4 Data and Analytic Approach

Instead of comparing one measure in one hierarchy across different populations, this paper instead compares multiple hierarchies for the same measure and populations. Instead of trying to locate comparatively more or less mobile contexts, this paper instead describes the different mobility narratives in each hierarchy. The analysis concludes with an examination of how hierarchies cohere at the individual level for those who reach top destinations. I first provide detailed context on the structure and changes in multiple hierarchies. Secondly, I estimate upward mobility rates within each hierarchy and compare what each suggests about upward mobility for this cohort. Finally, I demonstrate the extent to which reaching the top in education is indicative of reaching the top across other measures.

2.4.1 Data

The Indonesian Family Life Survey covers 13 out of 27 provinces in Indonesia and is representative of 83% of the Indonesian population. The IFLS is a panel survey consisting of five waves, 1993, 1997, 2000, 2007, and 2014. The IFLS waves reinterview original 1993 households, as well as households which split off, allowing for updated information about children even as they leave the family home, with high recontact rates (Strauss, Witoelar, & Sikoki, 2016).

I focus my analysis on individuals living in IFLS households during the first wave, in 1993, with birth dates between 1980-1989. This cohort is between 3-13 years old at first sample, and between 25 and 34 in the fifth wave in 2014. Focusing on this cohort allows for detail about conditions of early life, parent's circumstances, and household dynamics, beyond what would be possible with recall data. The longitudinal and comprehensive nature of this dataset allows me to consider multiple status hierarchies over time for the same individuals, a relatively unique possibility for a developing country cohort.

From this cohort, I exclude any individual who is missing records of both parents. I also drop respondents who are not present in 2014, however I allow for individuals miss intervening waves. This results in an analytical sample of 5,186 respondents, though exact sample size will vary across analysis. In all analyses, I use longitudinal, person level weights, which update weights to represent the 1993 sample, accommodating for attrition between 1993 and 2014.

2.4.2 Origins and Destination Measurement

I assign respondents "origin" and "destination" ordered positions within the distribution of each status measure in their age cohort. Origin variables are meant to capture an individual's "starting point" in life, the kinds of resources, information, and connections their childhood household had to prepare them for adulthood. Destination variables describe individual's adulthood socio-economic

positions, shaped by their work, education, and family formation. I use education, occupation, and consumption measure to approximate this broader, latent concept of socio-economic position.

For both education and occupation origin, I use the highest parent's education and occupation level respectively, comparing across all waves to select the highest position. This flexibility accommodates individuals with one living or co-resident parent, those parents who continue education and/or move up in work after 1993, and wave-specific missingness. For education and occupation destinations, I use an individual's highest education and occupation across all waves. Restricting these measures to 1993 for origins and 2014 for destinations does not significantly change results.

2.4.2.1 Education

I use education years to determine an individual's position at origin and destination, however, I note that most respondents report education years which match up with discrete education levels: primary, junior secondary, senior secondary and four-year tertiary. This pattern limits treating education years as a truly continuous variable. I do not make any adjustments for quality of education received⁵.

2.4.2.2 Occupation

Assigning and then ordering occupational levels provides additional challenges. First, many individuals do not have a formal occupation, working within the home, and/or informally outside an

⁵ For more on school (ine)quality in Indonesia see Ashan, Emran, Shilpi 2021

occupation. The proportion of women who are primarily engaged in work inside the home remains high for both parent and child generations, at just over 50% of women. Out of 5,186 respondents, 5,102 have a defined origin through at least one parent with an occupational code, and 4390 children have an occupation code themselves. This lower number reflects that highest parent can be male or female, but the child measure includes many women who do not have an occupational code.

There is no occupational prestige score system, or established occupational class category in Indonesia. Recent work also using the IFLS identifies the challenges in assigning individuals to even broad categories of informal versus formal, low tier and high tier (Rizky et al., 2020).

From the 99 occupation codes, I create a five-category occupation scheme.

1. Manual Labor made up of mostly agricultural workers, with some portion of fathers and sons working construction and a few working in fishing and hunting.
2. Lower Vocational contains many transportation worker, maids and housekeeping, and food and beverage processing.
3. Higher Vocational includes sales associates, shop assistants, individuals working in catering, food preparation and lodging, farmers, and various skilled crafts including machinists, tailors and more.
4. Clerical includes roles in managerial role in agriculture, manufacturing, retail, bookkeeping, cashiers, and various business services.
5. Professionals, includes teachers, managers, doctors, lawyers and many other small groups.

2.4.2.3 Consumption

I calculate household consumption as regular, non-durable consumption, including food purchased and self-produced for consumption, household supply purchases, and education expenses (Deaton, 2003; Deaton & Zaidi, 2002). I omit housing expenses, as most households own and do not provide a rental value estimate and secondly, prior work confirms that housing has generally not been used by households in consumption smoothing in this context— families stay in place during times of economic hardship (Frankenberg, Smith, & Thomas, 2003). Using more and less inclusive definitions of consumption does not dramatically change the results. From these totals, for each household/wave I report monthly “per capita” – with child household members counting as 1/3 of an adult equivalent-in real 2014 \$USD -first converting Indonesia Rupiah amounts to 2014 Indonesian Rupiahs, and then converting this to 2014 \$USD hereafter, simply “consumption”

I define “origin” consumption as an individual’s household average consumption over two waves, 1993 and 1997 to better approximate consumption over time – however it’s notable that 1997 households were weathering an economic crisis⁶. An individual’s 2014 household consumption serves as the “destination” consumption. Finally, I assign a percentile rank to each household in the origin and destination distributions.

⁶ For more on IFLS households weathering Indonesia’s economic crisis see Frankenberg, Elizabeth, James P. Smith, and Duncan Thomas. “Economic Shocks, Wealth, and Welfare.” *The Journal of Human Resources* 38, no. 2 (2003): 280–321. <https://doi.org/10.2307/1558746>.

2.4.2.4 Annual Salary from Primary Employment

I use a measure of annual salary related to primary work to describe children at their adult destinations. This measure follows the same adjustment and conversion to 2014 \$USD. Only 58% of children with an occupation report a salary, and this percentage drops to 43% for children working in manual occupations. This low percentages reflects the livelihoods pattern of work in this context, and many of the individuals without a salary may report revenue from a small business or farm, or other forms of income, which may be shared among a household or extended family partnership. Comparing these forms of income is not straightforward, and the lack of salary information at the bottom of the distribution prevents unbiased upward mobility calculations. I use salary with caution in describing individuals with top education, as these individuals' have a higher salary reporting rate.

2.5 Results

2.5.1 Status Origin and Destination Distributions

Education, occupation, and consumption each experience different patterns of inequality and change over time important to interpreting bottom to top mobility. Education features a dramatic shift upward from parents' highest level of education in the 90's, to the education children have achieved by 2014. While the origin distribution shows median parent attainment at the primary school level and a few additional clusters at the junior secondary, secondary, and tertiary, (9, 12 and 16 years respectively), the norm shifts strongly to secondary school education in the children's cohort. This finding aligns with other work showing relatively equal enrollment rates for young people from different origins (gender, family consumption, and rural vs urban) up until junior secondary (World Bank, 2016). This shift upward means that children can reach higher levels of education than their parents without moving higher in their own distribution – a junior secondary or even senior secondary degree is no longer the bar for entry to the top of the distribution. Instead,

achieving at least some post-secondary education emerges as the new frontier of distinction. Children with tertiary education comprise 17% of the cohort, a little smaller than the top quartile typically used to represent “top” categories across contexts- a point I return to shortly.

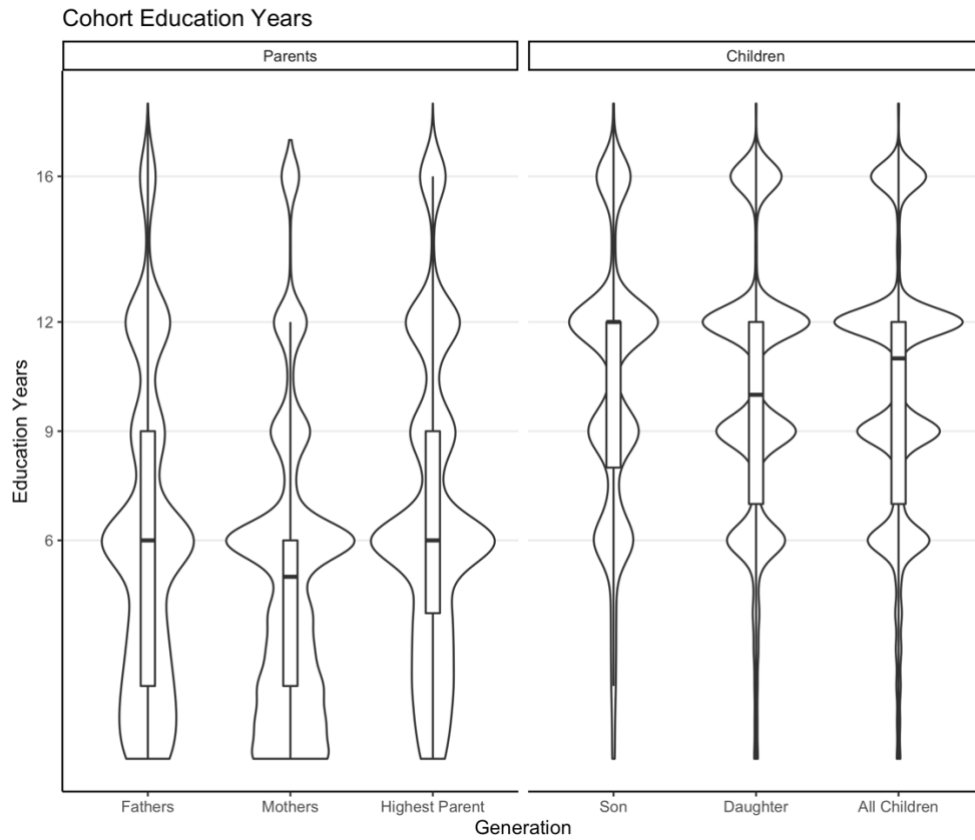


Figure 13: Education Distribution by Generation and Gender

Occupational opportunities do not shift to the same extent as education. There are not significantly more top positions available among children in 2014 than their top parent held in the 90's, although there is some shuffling in the lower middle of the distribution. Daughter's occupation is the exception, with a greater proportion of working daughters than working mothers in top positions.

It's possible that more micro level occupations have been shifting size within these big categories. For example, within category 1. Manual Labor, agriculturalists comprise 81% and construction 7% of highest working parents but 61% and 18% respectively of working children. While there is no work using these type of occupational classification specifically, work focused on economics sectors that find that sectors with low pay and high degrees of informality continue to have the most jobs, and even as agricultural employment shrinks, new jobs are concentrated in construction, personal services and retail, which generally fall under manual, lower or upper vocational in this paper's categorization (World Bank, 2016).

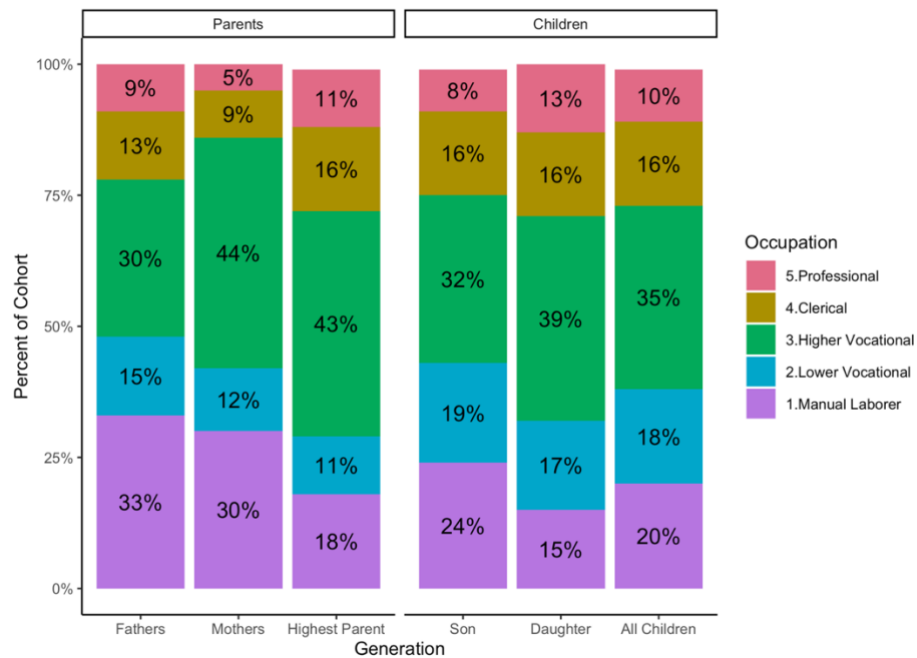


Figure 14: Occupation Distribution by Generation and Gender

Consumption provides a far more granular distribution, with the same shift upward between origins and destinations. Inequality, as measured through a Gini Coefficient, is lower in the destination period, falling from .69 in the origin distribution to .5 in the destination.

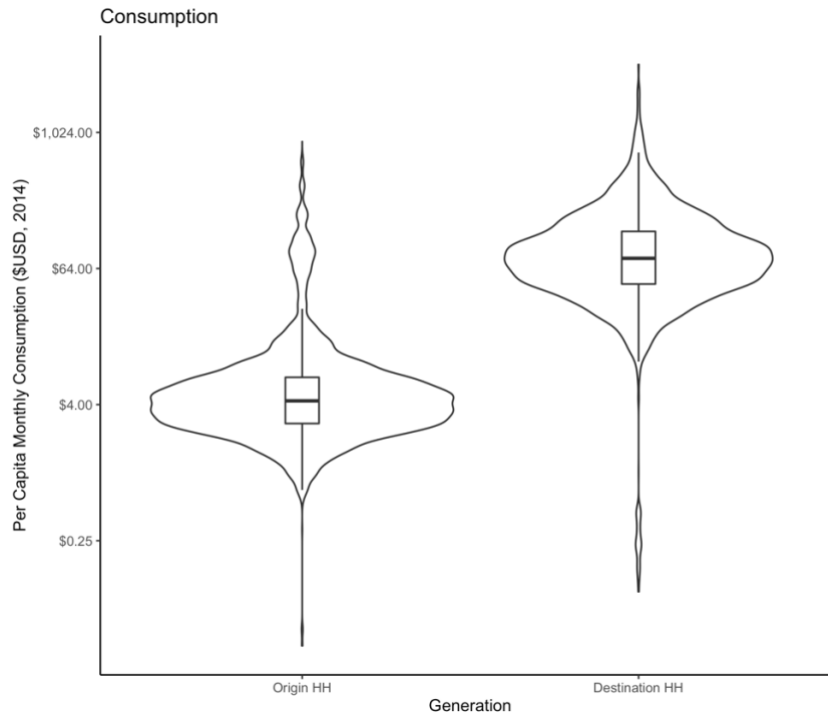


Figure 15: Household Consumption Distribution by Generation

This reduction of inequality applies to top households as well. The proportion of consumption belonging to the top 5-10% of households falls by almost half in the destination period.

Table 5: Top Household Consumption Share by Generation

Top Household Consumption Share			
	Top Household Share		
	Top 5	Top 10	Top 20
Origin	58%	66%	74%
Destination	26%	38%	54%

2.5.2 Measuring Upward Mobility

To what extent does starting with a lower position on a given hierarchy seem associated with reaching the top? In the following table, each row documents the criteria for an individual belonging

to “bottom origin” and “top destination” in each hierarchy. Criteria are chosen to get as close to the bottom half of the distribution and top quarter as possible given coarse rank categories. As the previous section demonstrated, there has been change in each hierarchy between origin and destination periods, although the shape of that change differs. Focusing on relative position tries to separate out these structural changes and instead reveal positional mobility.

The first mobility measure captures the percent of individuals from the defined bottom origin who reach the top destination. This approximates the World Bank’s “Poverty to Privilege” rate, which they calculate using education years assigned to quartiles, initially using random tie breaks to solve the issue of coarse data. The second mobility statistic calculates the median expected destination rank for individuals from bottom origin, with the acknowledgement that these destination ranks roughly correspond to broad categories in education and occupation. This measure approximates Asher, Novosad and Rafkin’s measure of “Bottom Half Mobility,” although without the latent interval assignment procedure to solve coarse origin ranks.

Table 6: Upward Mobility by Status Type

Status	Bottom Origin Category			Top Destination Category			Mobility Estimates		
	Category	Proportion	N	Category	Proportion	N	Top Destination Bottom Origin	Mean Destination Rank Bottom Origin	Destination Rank Equivalent
Education	Primary or Less	61%	2732	Any Tertiary	17%	919	6%	28	Junior Secondary
Occupation	Manual Laborer or Lower Vocational	30%	1453	Clerical or Professional	26%	1196	17%	28	2. Lower Vocational
HH Consumption	Bottom	52%	2573	Top	24%	1299	18%	43	\$71 Monthly Per Capita

Note: All % are adjusted by weight, all N are unweighted

Do those from lower origins access top positions? The answer appears to be “somewhat.” Six percent of those from the bottom origin whose most educated had a primary school education, or even no education –reach the top destination: tertiary education. This is a lower proportion than the 17% we would expect if origins had no association with destinations, in that 17% comprises the

“space” at the top – the proportion of the cohort in top destinations. Again, if there were no associations, we would expect the destination rank for those individuals to be 50, not 28. For occupation, 17% of young people whose parents are manual laborers or lower vocational workers become clerical or professional workers, lower than the 26% that makes up the “top” for this cohort. Consumption shows a similar pattern.

Much of the interpretive work behind social mobility research comes from comparison. Yet no other study matches the exact context. We could compare the proportion of similar age peers with a parent with primary education or less that reach tertiary – yet this comparison would capture the difference between education opportunity structure as much as mobility. Secondly, perhaps because of the importance of context in choosing discrete transition levels, it’s challenging to find studies for the same transitions.

For example, Alesina et al’s work explores the percent of children whose parents have less than primary education, who finish primary themselves, finding an average of 40% across African nations sampled (Alesina et al., 2021)⁷. Reflecting higher levels of education overall, work on the OECD average focuses on parents with less than secondary as the bottom origin, and tertiary as the top destination – finding 23% of such children are in tertiary, but also tertiary is far more common – 43% of all children vs. 17% here (OECD, 2014).

Alternatively, we can seek other studies trying to maintain the focus on position rather than discrete educational transitions. Neidhofer et al motivate their measures in the same reasoning I use –

⁷ They do calculate the primary – tertiary transition -but it’s not easily visible in paper or appendixes -all sample, eyeballing a visual -it’s somewhere between 1.5 and 5% .

“probability of bottom upward mobility” – those from “low” education parents reaching “high” finding 13.9% as an average, though it ranges from 9% in Chile to 20% in the Dominican Republic. They also include the U.S. and Germany for reference (21.8% and 17.8% respectively)-

These figures are quite different from the 6% I find, but the paper runs into the same coarse categorization I face – they are forced to use a low, middle, and high “quantile” for each country-cohort, and instead of steady quartiles (Neidhöfer et al., 2018). My best attempt to look under the hood finds that for the 1980’s birth cohort- the mean parent education ranges from 3 years (Guatemala) to 10.5 (Chile)-these different origin means suggest that the bin sizes for low medium and high would also be quite different from one another.

In updated versions since its initial publication, the World Bank’s Global Database on Intergenerational Mobility has adopted Asher et al rank bin bounding method instead of random tie-breaks, and they use these to create 50% bottom origins and 25% top destinations instead of the discrete education levels I use. My discrete levels limit how I can compare to these countries with very different education distributions – where the proportion of parents with primary or less ranges from 6% to 66%, in this set of comparisons I choose.

Table 7: Education Upward Mobility Cross-National Comparison

Country	Parents have Primary or Less	Children Have Tertiary Education	Bottom Half to Top Q with Asher Adjustment	Expected Rank of children from bottom half with Asher Adjustment
Brazil	63%	27%	9%	36
Nigeria	57%	26%	11%	35
China	41%	25%	12%	38
United States	3.9%	54%	12%	37
Indonesia	67%	16%	13%	40
India	66%	25%	9%	36

	Parents have Primary or Less	Children Have Tertiary Education	Bottom 61% - Top 17%	Expected Destination Rank of Bottom 61%
This Study				
Indonesia	61%	17%	6%	28

The question of measure comparability is pedantic but necessary given the strong precedent of gauging how “mobile” a place is, and the effectiveness of different policies, given this comparison. Using education years to measure positional movements obscures that there is not easily recognizable “bottom half” of an education distribution, and in more educated contexts, “top quarter” also becomes harder to define. A lack of coherent definitions of and data on occupation, and even income, consumption, wealth and assets limits comparisons in these hierarchies across contexts. Approaches that address education year bins as an “interval censoring” problem provide on path forward. Ensuring that more descriptive statistics are brought to bear on interpreting these statistics provides another. Finally, considering statuses beyond education within the same context and even the same individual can also augment these estimates.

2.5.3 Heterogeneity at the Top

In this section, I consider what reaching a “top” destination in education means for this cohort in terms of occupation, consumption, and salary to a limited extent. Find that top education is only a moderate signal of top status in other status hierarchies. I find that only 31% of individuals with tertiary education also have professional occupations and are in the top consumption quartile. Eighteen percent have a tertiary education with neither top consumption nor professional or clerical work.

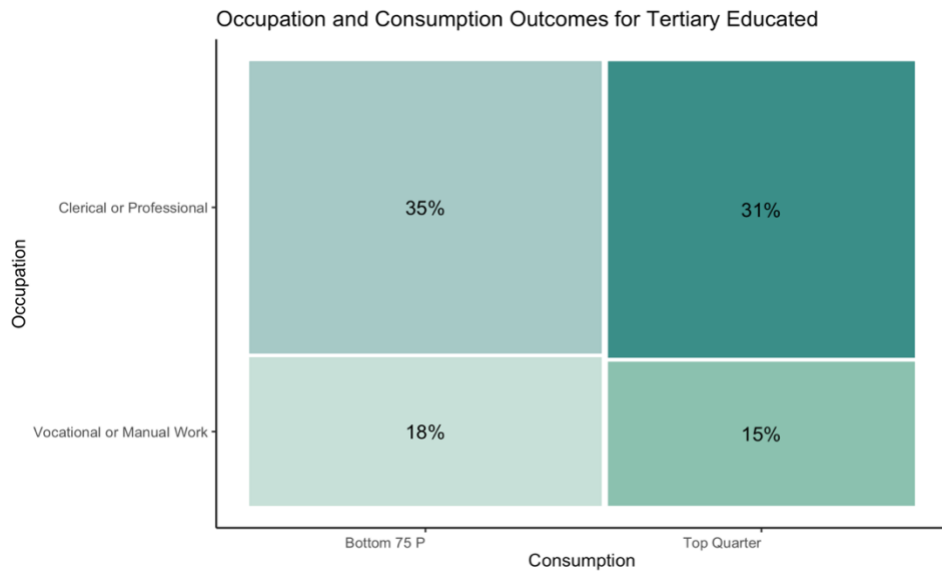


Figure 16: Occupation and Consumption Outcomes for Tertiary Educated

First, I describe the occupational outcomes for individuals with tertiary education, before considering consumption. A third of tertiary educated individuals in the sample work in manual or vocational roles. I report the most common occupational characteristics in more detail, including non-work statuses for those without occupations⁸. Given the comparatively higher proportion of salaries reported by tertiary educated respondents, I include salary measures. Teaching is the most common occupation for tertiary educated respondents by a wide margin, yet these tertiary educated teachers report comparatively low salaries. A few professional roles report higher pay, though the two occupations with highest pay, wholesale proprietors and bookkeeping, have salary information from a smaller proportion of respondents. Finally, the common vocational roles, sales and maids and

⁸ Housekeeping here is “Stay at Home Spouse” equivalent

housekeepers, have lower end salaries, although sales again has a low salary reporting rate.

Conspicuously absent are lawyers, doctors, computer operators, writers, and other professional roles who make up a very small portion of professional occupation holders, each less than 3% each of tertiary educated respondents.

Table 8: Tertiary Educated Respondents Common Occupational Characteristics

Tertiary Educated Respondent's Common Occupational Characteristics					
Occupation	Percent of Respondents	Avg Annual Salary	Percent Reporting Salary	N (Unweighted)	Category
Teachers	24%	\$1,804	96%	228	Clerical or Professional
Salesmen, shop assistants and related workers	7%	\$2,644	34%	84	Vocational or Manual Work
Housekeeping	5%	\$0	0%	48	Other
Nurses, midwives, x-ray technicians, traditional medicine	5%	\$2,411	98%	48	Clerical or Professional
Working proprietors (wholesale and retail trade)	5%	\$4,262	10%	48	Clerical or Professional
Bookkeepers, cashiers, and related workers	4%	\$4,742	86%	43	Clerical or Professional
Clerical and related workers not elsewhere classified	4%	\$2,308	94%	41	Clerical or Professional
No Work Listed	4%	\$0	0%	37	Other
Government executive of officials	3%	\$2,368	100%	28	Clerical or Professional
Insurance, real estate, securities and business services salesman and auctioneers	3%	\$2,943	95%	23	Clerical or Professional
Maids and related housekeeping service workers NEC	3%	\$1,891	89%	27	Vocational or Manual Work
Working proprietors (catering and lodging services)	3%	\$2,541	54%	29	Vocational or Manual Work

I next consider education's relationship to salaries. In comparison to respondents who achieve less education, tertiary educated working respondents do seem to avoid the lowest salaries, but there is not strong differentiation in the middle range of salaries across education levels. However, the lower percentage of salary reporting at lower levels of education clouds this relationship.

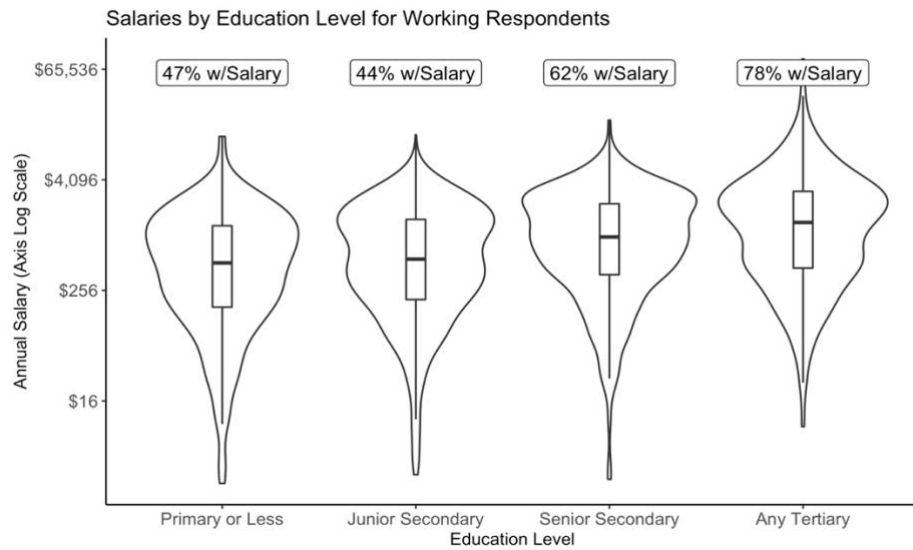


Figure 17: Distribution of Salaries by Destination Education

Consumption percentiles exhibit a similar pattern for tertiary educated respondents, with education appearing to avoid bottom positions and increase the likelihood of top positions, but the range remains quite broad, with half in the bottom three quarters of the distribution. Household dynamics, including marriage, children, and labor market decisions play a large role in consumption, as does credit and debt beyond a person’s individual income. Nevertheless, it’s worth noting that there are still highly educated individuals at lower levels of consumption, and the findings are in line with the more individual level look at salary.

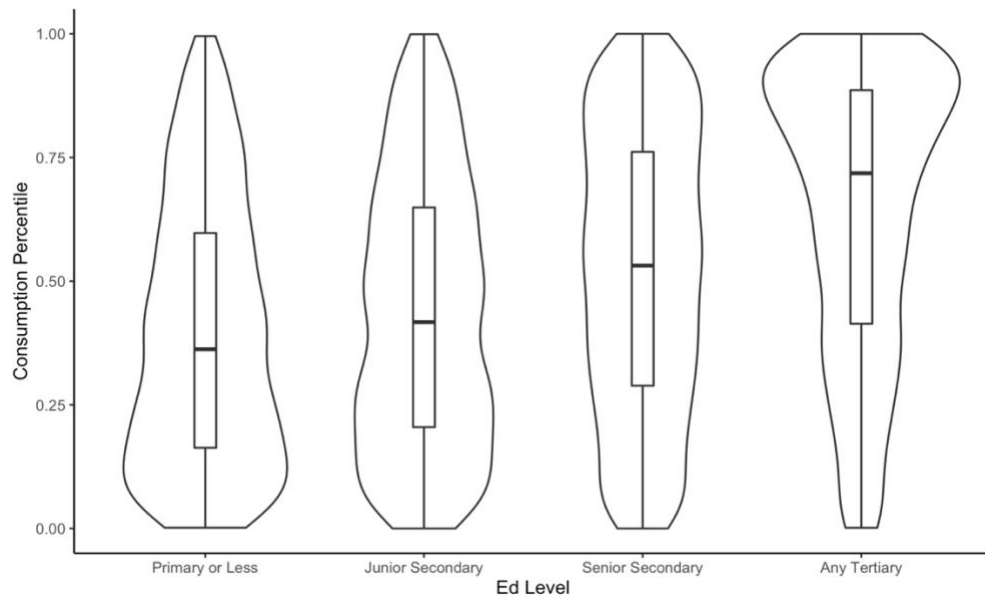


Figure 18: Consumption Distributions by Destination Education

In short, an individual reaching a top position in education signals exactly that, and perhaps a reduced likelihood of being in the bottom of the other status hierarchies. There remains a large proportion of highly educated individuals working manual positions for likely lower pay. Even those who occupy both a top position in education and occupation are mostly teachers, with a wide range of salaries. To what extent have well-educated teachers with mid-level pay, or well-educated sales associates shaped conclusions about educational upgrading, and upward mobility in the developing world?

2.6 Discussion

This study of the Indonesian 1980's birth cohort illuminates choices and challenges inherent to studying upward mobility in developing countries, in addition to provide estimates for the cohort at hand. If developing countries are in part defined by changing social structures, this change can obscure positional movements underneath broader structural change. Comparing time periods and

populations with their own strong but distinct structural change patterns further complicates understandings of high or low rates of upward mobility. Given that strong patterns of change over time are likely to persist, empirical comparative work has a few paths forward. One is considering approaches like Asher et al, which seek to better define parent's occupying bottom half positions across contexts with different education distributions. Another is the approach taken here, of better transparency of difference.

Alternatively, comparative work does not always need to be cross-national to be a useful tool. This paper compares status hierarchies for the same cohort, finding education mobility to slightly lower than occupational and consumption mobility. The divergence of occupation, consumption and salary positions for those children who grow up to have top education positions offers one glimpse of intriguing variation with policy relevance- what may block some college educated individuals from finding professional work? Are certain origins associated with lower transitions from higher education to professional work? Does the disconnection between education and occupation lie with quality of education, or search criteria of employers, or some other policy-relevant domain? Does an individual getting tertiary education and professional work as a teacher for a low salary constitute a desirable outcome for the policy maker interested in upward mobility and economic growth?

Understanding dynamics within a country, at the person level, might present a useful addition to cross-country single status comparisons. This sort of specificity has been prevalent in the U.S. the U.K and Sweden, and data availability has limited drawing the same study design to developing countries. Yet more limited studies might still provide useful detail, or at least bounds of what education status and mobility may capture. The Fair Progress report's reporting of limited sub-national mobility rates, while still far coarser than the U.S. neighborhood analyses is one example.

The report's literature review of studies that describe pathways to mobility, which we may think of more in the education and labor literature than social mobility, is another positive step to broadening the literature beyond cross-national comparison alone. Greater dialogue between economics and sociology literatures may also help build more robust multi-dimensional views of mobility beyond education as a proxy for income. As demonstrated here, we can use a series of imperfect measures trying to describe a population undergoing social change to perhaps better define relevant measures in future work. The developed country social mobility literature has gone through many rounds of such debate, and while developing world studies should build off this foundation, a variety of methods still must grapple with important contextual difference.

More than just data constraints, some restrictions on studying social mobility in developing countries are philosophical. Row by row household survey data and statistical transformations struggle to define different patterns of everyday life – in measuring and ordering individuals on one hierarchy, and in considering how individuals occupy different positions across hierarchies and time periods. If we compare just the mobility summary statistics without comparing the imprint of these other differences, we might miss important distinctions which would shape opportunity. While this paper poses more questions than conclusions, I'd argue that iterative attempts to describe upward mobility beyond using education years and hoping it captures something broader will build a more policy-relevant research base.

3. Professionals, Friends, and Confidants: After-School Staff as Social Support to Low-Income Parents

3.1 Introduction

Scholars have long acknowledged the importance of family engagement in child care and school settings (Bromer & Weaver, 2014; Epstein & Dauber, 1991; Hoover-Dempsey & Sandler, 1997). Whether it is school-based activities such as parent-teacher conferences and volunteering or home-based strategies, family engagement has been linked to academic achievement and positive child development outcomes (Boonk, Gijsselaers, Ritzen, & Brand-Gruwel, 2018; Wilder, 2014).

Scholars have identified one element of family-engagement, parent teacher or parent-staff relationships as crucial to promoting parent involvement, improving positive child development, and boosting academic achievement (Galindo & Sheldon, 2012; Hoover-Dempsey & Sandler, 1997; Park, Stone, & Holloway, 2017; Reynolds, Crea, Medina, Degnan, & McRoy, 2015). For example, studies link positive provider parent relationships in early-childhood education settings to school readiness, literacy, and socio-emotional development (Bromer & Weaver, 2014; Powell, Son, File, & San Juan, 2010). Education scholars find similar positive relationships between parent-teacher relationships and academic achievement in schools (Castro et al., 2015; Domina, 2005; Kraft & Rogers, 2015; A. Li & Fischer, 2017).

Beyond supporting child development and academic achievement, parent-staff relationships also provide critical social support to disadvantaged families. Research suggests that child care centers can provide informational aid, material assistance, and emotional support (Bromer & Henly, 2004; Domínguez & Watkins, 2003; Small, 2006) These kinds of supports are especially important for low-income families in distressed community contexts who often experience social isolation and unreliable social networks(Henly, Danziger, & Offer, 2005; Lin, 2000; Wilson, 2012).

In examining how child care staff assume supportive roles, studies point to broader factors that contribute to staff-parent relationships, namely care-type, family engagement policies and practices, and staff and parent characteristics (Bromer & Henly, 2004; Bromer & Weaver, 2014). Yet scholars seldom examine how parents' relationships with staff members vary within child care settings or the social process that guides the development of positive supportive relationships. In other words, the process of how staff members transition from child care professionals to sources of social support remains unexplored (Waanders, Mendez, & Downer, 2007).

Finally, research has yet to examine staff-parent relationships in school-aged after-school programs. After-school programs are widely used among low-income families and may provide social support to parents as their children transition into middle childhood and early adolescence—a period when parent-teacher relationships become more distant and complex (Epstein, 1986; Hill, 2015). Further, staff members at after-school programs may provide supportive relationships with low-income African American parents who often experience contentious relationships with school teachers (Adams & Christenson, 2000; Lareau & Horvat, 1999; A. Li & Fischer, 2017).

To fill this gap in research, this study applies key insights from social capital theory to examine variation in parent-staff relationships and how parents' leverage their relationships with staff members for resources. This study is driven by four questions: in the context of afterschool care, how do staff-parent relationships vary within programs? How do these relationships develop? Who do parents turn to for help? Finally, what kinds of social support do parents gain from their relationships with staff members?

To answer these questions, we analyze in-depth qualitative interviews of 23 staff members and 48 parents across three federally funded after-school programs in inner city Chicago. Our analysis deepens extant research on family engagement by demonstrating how family engagement

works on the ground. We move beyond identifying model practices to reveal the social processes that influence the extent to which child care settings can support low-income parents.

3.2 Literature Review

3.2.1 Social Capital and Social Support among Low-Income Families

Scholars' definitions of social capital vary, ranging from obligations, expectations, and norms (Coleman, 1988) to “the ability of actors to secure benefits by virtue of membership in social networks or other social structures”(Portes, 1998) the “quantity or quality of resources” available for use, and the “location” of social networks (Lin, 2000)

Scholars do agree that social capital depends on social structures and social ties and that different kinds of social ties yield distinct types of resources. For example, scholars describe strong ties as close, personal connections between similar individuals characterized by frequent interaction, mutual confiding, trust, and reciprocity over time (M. Granovetter, 1974). These ties are insular and dense and tend to yield social support or “getting by” capital: resources that help individuals “cope with everyday challenges that life presents,” including “flat tires and divorces,” “confiding distresses to a friend, or listening as a confidant” (de Souza Briggs, 1998).

More specifically, social support includes emotional support—demonstrations of care, value, and encouragement, and instrumental support—forms of material assistance, and informational support—advice for problem-solving (Thoits, 2011), p. 146). Weak ties - or social ties with acquaintances – often provide “getting ahead capital” or resources like access to education and employment that facilitate social mobility. Distinct from insular dense strong ties, weak ties act as “bridges” to other social groups, resources, and opportunities (Mark Granovetter, 1983; Wilson, 2012). Social capital offers a number of benefits including facilitating educational attainment and

social mobility(Coleman, 1988) shoring up coping capacity during hardship (Henly et al., 2005; Thoits, 2011) and improving health outcomes (Cohen & Syme, 1985; Uchino, 2006).

Research suggests that low-income families often lack the social capital that would lead to greater opportunities for economic mobility and buffer the negative effects of economic hardship (Lin, 2000; Masarik & Conger, 2017; McConnell, Breitzkreuz, & Savage, 2011; Wilson, 1996). In particular, low-income individuals form ties with others who share similar socioeconomic backgrounds and rely on kin ties. While useful in providing instrumental support, these ties are not always supportive and can be draining and a source of psychological distress (Domínguez & Watkins, 2003; Henly et al., 2005; Offer & Fischer, 2017). Furthermore, broader contextual environments can reinforce social isolation and hinder ties with members from other social groups, resulting in “resource-poor” capital (Lin, 2000, p.786).

3.2.2 Social capital and Social Support through Childcare Centers

A growing body of research suggests that child care centers can be sources of social capital and social support for low-income parents (Domínguez & Watkins, 2003; Small, 2006, 2009) As organizations, childcare centers are embedded within resource-rich networks and can “broker” or connect parents to other parents, staff members, and other organizations(Small, 2009). Child care settings can structure cooperative relationships between parents that lead to social ties and exchanges of information and resources. In addition, centers can passively connect parents to resources by providing information through bulletin boards and informational workshops, through direct referrals to service providers, and through membership benefits (Small, 2009)

Staff members can be an important source of social support for low-income parents(Bromer & Henly, 2004; Domínguez & Watkins, 2003; Reid, Martin, & Brooks-Gunn, 2017; Small, 2006).

Some studies suggest that parents develop relationships with staff members that resemble strong ties, wherein staff members become “like family” and crucial sources of information, emotional support, and material assistance (Dominguez & Watkins, 2003, p. 122–123). For example, Bromer and Henly (2004) found that family child care staff choose to “bond with parents” and “extend their caregiving beyond the direct care of children” (947) to include flexible child care hours, financial gifts or loans, advice, and religious guidance (Bromer & Henly, 2004)

3.2.3 Predictors of Supportive Parent-Staff Relationships

The degree to which parents develop strong ties with staff members depends on a number of policy, organizational, and individual level factors. To be sure, studies suggest that staff-parent relationships are not always positive or supportive. A substantial body of research points to distant relationships that consist of cursory exchanges about the child's behavior and seldom broach personal topics (Bromer & Henly, 2009; Endsley & Minish, 1991; Gittell & Douglass, 2012). Or studies describe contentious relationships wherein staff and parents report conflict over child-rearing practices or express disappointment with the levels and forms of contact (Shpancer, 1998).

Whether and how staff take on supportive roles for parents can depend on child care settings. Formal bureaucratic settings like childcare centers may limit staff's personal connections to parents by prescribing narrow “consumer/professional” exchange as the standard of care (Bromer & Henly, 2004, P. 948, Douglass & Gittell, 2012). In contrast, informal and home-based settings provide more personal tailored interactions and support (Bromer, 2001; Bromer & Henly, 2009). Family engagement policies and professional development on effective family engagement practices can cultivate a warm welcoming environment that contributes to the quality of staff-parent relationships (Baker, Wise, Kelley, & Skiba, 2016; Bromer & Henly, 2004; Bromer & Korfmacher, 2017; Dunst & Espe-Sherwindt, 2016; Perlman & Fletcher, 2012)

Providers' demographic characteristics, professionalism, and motivations can also influence parent-caregiver relationships. Studies suggest that when parents and provider share racial identities, parents report satisfaction with provider contact and relationships (McWayne, Foster, & Melzi, 2018; Mundt, Gregory, Melzi, & McWayne, 2015). Child care providers may also adopt distinct views of their professional roles that lead them to emotionally distance themselves from parents (Douglass & Gittell, 2012) or hold beliefs about parents that influence their relationships with parents (Dunst, 2002). Finally, staff may be motivated by a moral obligation to provide support or by cultural norms that encourage social support (Bromer & Henly, 2004).

Finally, research suggests that parents' demographic characteristics can inform the nature and quality of parent-staff relationships. Several studies show that child care staff report less frequent communication and poorer quality relationships with Latino and African American parents, parents who have less education, low-income parents, and parents who live in distressed neighborhoods . In addition, working parents and single parents report less communication with childcare staff (Bromer & Weaver, 2014; Fantuzzo, Tighe, & Childs, 2000).

In sum, this literature points to broader policies and practices that encourage supportive staff-parent relationships and the individual level factors that constrain or enhance these relationships. Yet this body of research has not sufficiently addressed four points. First, studies do not examine or explain variation in parent-staff relationships within a childcare setting or how this variation emerges.

Second, this line of research has not examined parent-staff relationships as a social process. The extant literature provides rich insights on the contextual and individual level factors that contribute to parent-staff relationships but offers very little theory about how parents develop relationships with childcare staff on the ground or how parents activate these ties for

resources. Related research on parent-teacher relationships in K-12 school settings is also limited in this way, focusing on the factors like parent contact and school climate (Galindo & Sheldon, 2012), the role of teachers attitudes and practices in shaping the quality of parent-teacher relationships (Berkowitz, Moore, Astor, & Benbenishty, 2017; Hoover-Dempsey & Sandler, 1997; Lawson, 2003) and the unique challenges low-income African American and Latino parents face in forging positive relationships with teachers and school administrators (Baquedano-López, Alexander, & Hernández, 2013; Hughes & Kwok, 2007; Lareau & Horvat, 1999; McKay, Atkins, Hawkins, Brown, & Lynn, 2003; Nzinga-Johnson, Baker, & Aupperlee, 2009). Yet this emphasis on the factors that promote or undermine positive relationships obscures the social process that shapes how parents develop relationships with staff members. Understanding this process is especially important for low-income racial minorities who tend to experience barriers to positive relationships with teachers and childcare providers.

Finally, most research on parent-staff relationships focus on early childhood and K-12 education settings and seldom investigates parent staff relationships in school-aged after-school care. After-school programs are widely used among low-income families and may provide more accessible supportive relationships for parents who otherwise experience social exclusion in school settings or distant relationships with school teachers (Lareau & Horvat, 1999).

3.2.4 Social tie formation and activation

Sociological theory on social tie formation and activation can help explain how social ties develop between parents and staff members and how parents activate these ties for resources.

To understand social tie formation, sociologists have identified predictors of social tie formation, examined individual's motivation to form social ties, and explored the role of social contexts in cultivating social ties. On the predictors of social ties, scholars point to the role of shared

background characteristics and suggest that individuals form ties with others who are similar to themselves (McPherson, Smith-Lovin, & Brashears, 2006) The frequency and nature of interactions between individuals can also determine whether ties develop and the strength of ties. For example, Granovetter (1973) noted the importance of frequency and duration of social interaction in forming strong social ties. Accordingly, strong ties emerge through routine interactions over long periods of time. Finally, trust can also be an important dimension of social tie formation (Coleman, 1988; M. Granovetter, 1974). Individuals form ties with others when they deem them trustworthy or unlikely to disappoint them and assess trustworthiness by gathering information through social interactions. Trust is especially important for strong ties which are characterized by intimacy and mutual disclosure of personal information and needs. Individuals must be sure that those they confide in can be trusted with disclosures and the task of providing support (M. Granovetter, 1974)

Another prominent perspective examines how an individual's motivation informs whether social ties emerge. Scholars view social ties as the result of the rational deliberate efforts to invest in relationships with people who can meet particular needs in the present or future (Blau, 1986; Bourdieu, 2011; Coleman, 1988; Lin, 2000).

Finally, social contexts can cultivate social ties by creating opportunities for social interactions. Social contexts like school, work, and voluntary organizations can provide focal activities that put people in close proximity to each other (Feld, 1981). Social contexts can determine the frequency and duration of social interactions and whether interactions are cooperative or competitive (Small, 2009). Social contexts that encourage frequent, long-term, cooperative interactions can help foster strong social ties. For example, Small (2009) found that childcare centers structure routine cooperative interactions between parents, who over time cultivate strong-ties that vary in the degree of intimacy.

To explain how individuals activate ties, sociologists point to many of the same factors that bring about social tie formation—motivation, trust, background characteristics, and the role of social contexts. Some scholars describe individuals as rational and deliberate in help-seeking (Pescosolido, 1992) From this view, people assess their own needs and the resources of those in their social networks and turn to individuals who are most useful (Perry & Pescosolido, 2010). Other scholars argue that people turn to those who are in the core discussion network, a dense small network of trustworthy family and friends. Individuals may activate weaker ties outside of their core discussion network who have expertise in a specific domain (Perry & Pescosolido, 2010; Small, 2013). or activate ties spontaneously, turning to whoever is available rather than consulting with experts or close friends and family. From this lens, social contexts can provide accessible useful ties that can offer assistance (Small, 2017)

In sum, sociologists surmise that people form social ties with those who are similar, whom they routinely interact with overtime, whom they trust, and whom they view as meeting a particular need. Social contexts can shape social tie formation and activation by influencing who people meet and the nature of interactions. Individuals activate ties deliberately or incidentally, turning to close friends for help or useful, knowledgeable acquaintances.

Surprisingly, these perspectives are seldom used to explain how parents and staff develop relationships in childcare settings or how parents activate these ties for social support. Yet many of these insights can help explain why staff-parent relationships vary within programs and how parents leverage these relationships for resources. In particular, shared characteristics can help identify who parents are drawn to, while routine contact, time, and trust can explain how ties emerge, the strength of these ties, and who parents turn to for help. For example, parents may decide not to invest in relationships with the staff because they have little in common with staff members or lack sufficient

time in programs that would strengthen these relationships. Or parents may maintain weak professional ties with staff and forgo disclosing needs because staff members have not demonstrated trustworthiness with personal matters beyond the scope of childcare services.

3.3 The Current Study

The current study builds on previous studies of parent-staff relationships by extending these sociological insights into after-school care. Like previous research, we argue that childcare settings provide opportunities for social interactions between parents and staff members.

We depart from extant research by reconceptualizing parent-staff relationships as guided by a dynamic social process that shapes variation in staff-parent relationships, informs how parents form strong ties with staff members, and can influence how parents leverage these ties for social support. In doing so, we analyze 48 parent and 23 staff interviews to examine the role family engagement practices, time, similar others, and trust in the development of social ties between parents and staff and the activation of these ties.

3.3.1 After-school programs as a case study

To date, very few studies examine staff-parent relationships in afterschool programs. Yet, after-school programs are important contexts for examining staff-parent relationships. First, after-school programs are widely used among low-income families. 10.2 million children participated in an after-school program in 2014, up from 8.4 million in 2009, 6.5 million in 2004, and 1.7 million in 1991 (James-Burdumy, Dynarski, & Deke, 2008). In 2014, nearly one in four families enrolled a child in an after-school program (Alliance, 2014) And nearly one out of four low-income school-aged children participates in an after-school program (Alliance, 2014)

Second, these programs implement similar family engagement guidelines that are found in early childhood education programs and schools. For example, the 21st Century Community Learning Center grant supports that support after-school programs encourages programs to collaborate with parents and increase parent involvement in children's education (21st Century Community Learning Centers, 2019). In addition, many after-school programs are supported by the federal childcare subsidy, the Child Care Development Block Grant (CCDBG) through parent vouchers for care. These programs are subject to federal childcare policy which distinguishes family engagement as an indicator of quality and requires states to strengthen partnerships with parents and promote parent involvement. Many states reward providers for family engagement programming. For example, in Illinois, the childcare subsidy program offers financial bonuses or “add-ons” for every child receiving a subsidy to providers with the highest tier of quality which prioritizes family engagement (Gold Circle of Quality - ExceleRate Illinois, 2019). In receiving subsidy reimbursement, afterschool programs can benefit from financial incentives that reward family engagement. Finally, Title 1 funding also emphasizes family engagement, requiring parent partnership and routine communication between parents and staff members. In sum, many after-school programs supported by state and federal funding routinely engage parents about student's academic progress and incorporate parents into programs.

In addition to implementing family engagement policies, afterschool programs can become important sources of social and educational support for parents of upper elementary and middle school students. Research suggests that parent-teacher communication shifts after the third grade (Epstein & Dauber, 1991) and parent-teacher relationships become more distant in middle school as students interact with more teachers and teachers communicate directly with

students about academic progress instead of parents ((Hill, Witherspoon, & Bartz, 2018; Wang, Hill, & Hofkens, 2014).

While most research on family engagement focuses on the positive effects of social support from early childhood education programs (Bromer & Henly, 2004; Powell et al., 2010; Reid et al., 2017; Small, 2009) or the academic benefits of positive parent-teacher relationships in schools (Epstein & Dauber, 1991; Kraft & Rogers, 2015), it is important to study after-school programs as a critical source of social support for parents. After-school staff members provide important forms of social support to parents adjusting to the new academic and developmental needs of their children as they transition into middle childhood and early adolescence.

Finally, after-school programs may provide accessible connections for low-income African American parents who are often alienated from formal school contexts and experience contentious relationships with school teachers and administrators (Berkowitz et al., 2017; Lareau & Horvat, 1999; Lawson, 2003)(Berkowitz et al., 2017; Lareau & Horvat, 1999; Lawson, 2003).

3.4 Methods

The data collected is from a larger ethnographic study of three afterschool childcare providers in two inner-city neighborhoods in Chicago approved by the University of Michigan Institutional Review Board. Pseudonyms are used to refer to the agency, program participants, and program staff. The three after-school programs (Jackson Elementary, Progress Youth Development, and South End Community Center) were selected to serve similar communities— inner-city, high poverty, predominately African American communities. Both neighborhoods had approximately 20,000 residents. At the time of these interviews, 90% of Westfield's and South End's population were African American. Nearly 40% of Westfield and 30% of South End's population reported

household incomes at or below the poverty line. Westfield's unemployment rate was 16% and South End's unemployment rate was 17%.

As a part of the broader study's aims, providers were selected to vary by funding source and non-profit status. Nevertheless, each program was subject to federal or state policies that required family engagement. A multi-service nonprofit community center administers South End's after-school program, and child care subsidy reimbursements fund the program. Progress Youth Development's after-school program is delivered through a community-based nonprofit and funded by 21st Century Community Learning Center grant. Finally, the Jackson Elementary after-school program is supported by Title I funding through the Elementary Secondary Education Act and is administered by a public elementary school on Chicago's west side. Jackson Elementary and Progress Youth Development are located in the same neighborhood. Jackson Elementary and Progress's After-school program served grades K-8th and children ages 5–14. South End's after-school program provided care for children ages 5–13.

Over the course of 24 months (August of 2012 to November 2014) and a short period in the spring of 2016, the first author volunteered at each program as an after-school, tutor, teacher, and administrative support at each program. The first author conducted 48 in-depth parent interviews and 23 staff member interviews across these three programs.

3.4.1 Sample

All of the parents included in the sample are low-income, African American parents in their early 30s. Single-parent households were common across all three groups but most prevalent among Jackson parents. Family size varied and the average age of children varied slightly across programs. Parents' at Progress and South End had at least a high school diploma and, in rare instances, some college experience. The Jackson Elementary parents interviewed were the least educated, having

obtained less than a high school diploma or equivalent. Table 1 provides an overview of parents' characteristics.

Household sizes ranged from two to eight at Progress, two to six at South End, and the two to six at Jackson Elementary' after-school program. Parents across all three programs had household incomes near the poverty line. With the average household sizes ranging from four to five, parents' average household income at South End's (\$28,000) and Progress (\$26,000) near the federal poverty line.³ At the time of the interviews, Jackson parents experienced deep poverty. Several parents reported long stints of unemployment in the past year. Nearly all of the parents received some sort of public assistance ranging from Medicaid to public housing.

Table 9: Parent Characteristics

	Progress youth development (n = 15)	South end community center (n = 15)	Jackson elementary (n = 18)
Mean Age	33	30	33
Race	100% African American	100% African American	100% African American
Marital Status	60% Single/Divorced	71% Single/Divorced	100% Single
Mean Number of Children	4 (1-6)	3 (1-4)	3 (1-5)
Mean Age of Children in Years	12	9	9
Mean Education Level in Years	13.8	14.5	11.3
Mean Income	\$26,000	\$28,000	\$8000
Public Assistance	86%	86%	80%

3.4.2 Staff Characteristics

Staff members vary across these programs by age, race, and education, tenure, and full- or part-time status. Table 2. displays staff characteristics by each program.

Of the three programs, Jackson Elementary's after-school staff members were on average the oldest (35 years old), most educated (71.4% of staffed earned graduate degrees), and the most experienced (over 9 years of experience). All of Jackson's after-school staff held fulltime positions. Jackson's after-school staff members were also the most diverse of the three groups by gender and race. Two staff members (28.5%) were men and five (71.4%) were women. Three staff members (42.8%) were African American, two (28.5%) were white, one staff member was Hispanic (14.2%)

and another, Asian American (14.2%). At Progress, most staff members (71.4%) earned a bachelor's degree and two staff members (28.5%) earned graduate degrees. Progress staff members were less racially diverse than Jackson's staff. Two (28.5%) staff members were African Americans, four (57.1%) were white, and one staff member (14.2%) was Hispanic. On average, staff members were 31 years old with over six years of experience. Finally, South End's after-school staff were, on average, the youngest (27 years old), least educated (28% earned a bachelor's degree or more), and least racially diverse. All of South End's staff members were African American. Most were also former program participants and residents of the South End community. All of the part-time youth workers had at least three years of program experience.

Table 10: Staff Characteristics

	Jackson Elementary After-school Program (n = 7)	Progress Youth Development Corp After-school Program (n = 9)	South End Community Center After-school Program (n = 7)
Mean Age	35	31	27
Race			
Black	3 (42.8%)	2 (28.5%)	7(100%)
White	2 (28.5%)	4 (57.1%)	
Hispanic	1 (14.2%)	1 (14.2%)	
Asian	1 (14.2%)		
Gender			
Male	2 (28.5%)	2 (22%)	2 (28.5%)
Female	5 (71.4%)	7 (77%)	5 (71.4%)
Education			
High School			2 (28.5%)
Some College	1 (14.2%)		3 (42.8%)
Bachelors	1 (14.2%)	5 (71.4%)	1 (14.2%)
Graduate Degree	5 (71.4%)	2 (28.5%)	1 (14.2%)
Mean Tenure	9.42	6.5	6.6
Full Time	7 (100%)	7 (100%)	1 (14.2%)
Part Time			6 (85.8%)

3.4.3 Procedures

The first author recruited parents through flyers that were sent home to parents and also approached parents during program hours, at program dismissal, and at program events. The first author purposively sampled parents that varied in the number of children they enrolled in the program and the number of years their children were enrolled in the program. Staff members were notified of the study through fliers posted at each after-school program and fliers that were distributed to students. Interviews ranged from 60 to 90 min and were conducted on-site or at a location chosen by the respondent. The first author obtained consent to audio record all interviews for parents and staff members. Respondents received \$30 cash for participating in the study.

3.4.3.1 Interview Questions

The semi-structured interview protocol asked parents to describe their decisions to enroll their children in programs, their initial impressions of staff, and the nature and frequency of their interactions with staff members at each program. Parents were also asked to describe whether and how staff had been supportive throughout their time in the program. Staff members were asked to describe the enrollment process and their relationships and communication with parents. Probes asked staff to distinguish parents whom they feel they have more personal relationships with from parents whom they interacted with only as professional service providers. Staff members were also asked to describe what factors they viewed as contributing to the kinds of relationships they developed with parents.

3.4.3.2 Analysis

Audio recordings were transcribed and analyzed in a qualitative software package Nvivo 11. The first author is an experienced qualitative researcher and teaches qualitative methods courses. She trained the second author—a graduate student—through qualitative methods courses and individual

training on the coding scheme and process for this study. The first and second author simultaneously coded several initial interviews, discussed differences in coding, and refined the codes using the interpretive approach. An interpretive approach to data analysis prioritizes how parent and staff made sense of their program experiences (Haverland & Yanow 2012; Shea & Yanow, 2013). Our analytical approach was abductive in which we deductively drew from previous studies of social capital and social support and inductively created new themes from the data (Haverland & Yanow 2012). We started with a line-by-line coding of interview responses that described how parents and staff viewed their relationships with each other.

During this stage of coding, we applied a priori codes drawn from previous research on family engagement, social capital, and social support to initially organize the data. These codes included key concepts like the strength of social ties, the frequency of interactions, length of time in the program, similar others, trust, emotional support, informational aid, and instrumental aid. For example, we coded parent and staff relationships at strong ties when parents referred to staff members as “family” or close friends or when parents indicated personal relationships with staff members in which they disclosed personal matters (e.g. “I can talk to them about anything”). Staff members responses were coded in a similar manner. Phrases that indicated more kin-like relationships or personal relationships were coded as indicating strong ties. To capture the importance of time in social tie formation, we coded instances when staff members and parents remarked on time spent in the program as contributing to the quality of their relationships. We coded parents' statements like “they've known me for so long,” “my children have been here for years,” as indicating the importance of time in the program. For staff, we coded comments like, “parents who have been here for years,” “We've gotten to know them over time,” as indicating the role of time in

the development of their relationships. Using this coding scheme, every three interviews were double coded with 90% reliability.

We then inductively generated additional themes about the process of social tie development and the mobilization of resources and refined these themes through an iterative comparison of client responses. We clarified the conditions in which personal relationships emerged and when they did not, and when and how parents leveraged relationships for resources. We wrote theoretical memos to create analytic categories on the emergence of social ties between parents and staff and the exchange of resources.

3.5 Results

3.5.1 Parent's Varied Relationships with Afterschool Staff Members

We find variation in the strength of parent-staff relationships within and across programs. Over half (55%) of all parents interviewed reported personal relationships with staff members, while the remaining parents (45%) described more professional relationships with the childcare staff. Parents who had weaker professional ties with staff members reported brief conversations with staff about upcoming program events and the child's behavior and progress in the program.

In contrast, parents who reported strong ties (n=27) with staff members frequently described the staff as close friends and members of their support network. For example, Brandy, a mother of three at the Progress after-school program, described her connections with Progress staff as “life-long friendships” and noted that she can “call any of them about just about anything.”

Similar to previous research, we find some evidence that broader factors like parent preferences for personal relationships with staff members and staff members' motivations influence whether they invest in developing strong ties. A small group of parents (n=5, 10.4%) interviewed reported preferences for professional relationships or noted time constraints as limiting stronger ties

with staff members. Most (n=20, 86.9%) staff across all three programs valued strong ties with parents, although a small number of staff members at South End expressed preferences for professional relationships (n=3, 13.1%).

Staff similarly reported variation in the strength of their ties with parents. Most staff members across all three programs (n=16, 69.6%) reported experiencing strong ties with parents and described relationships that included frequent interactions and conversations about family life and personal hardships. Seven staff members (30.4%) reported professional relationships in which interactions focused on child behavior and progress and the services provided.

3.5.2 Strong tie formation in staff-parent relationships

Among the parents and staff who forge strong ties, interviews suggest a common social process across programs that fostered these connections. Parents who reported strong ties with staff noted the rapport building efforts of staff over time, described bonding with staff members who shared characteristics and life stages, followed by pivotal moments in which staff demonstrate trustworthiness. This social process promoted the disclosure of needs and the exchange of resources. The figure below summarizes the conceptual model of strong tie formation and activation.

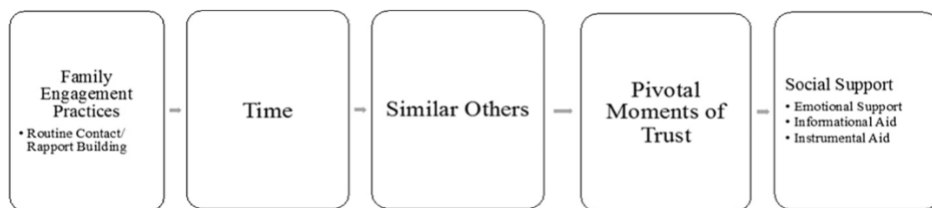


Figure 19: Conceptual Model of Social Process of Strong Tie Formation and Activation

The following table summarizes the prevalence of these themes by the strength of parent-staff social ties. We report parents' description of strong or weak ties with staff members, the steps in social tie formation and activation, and the kinds of support parents receive provide. In the following

section, we also discuss these themes in greater detail and report instances where staff members emphasize these steps and describe resources they have offered to parents.

Table 11: Strong Tie Formation and Activation

Social process	Strong ties (n = 27)	Weak ties (n = 21)
Rapport	26 (96.3%)	15 (71.4%)
Time	11 (40.4%)	
Time in Program	4.4 Years	2 years
Similar Others	19 (70.4%)	12 (57.1%)
Confided in Similar Other	5(18.5%)	
Pivotal Moments of Trust	19 (70.4%)	
Social Support	22 (81.5%)	2 (9.5%)
Emotional Support	19 (70.4%)	2 (9.5%)
Instrumental Aid	18 (66.6%)	7 (30%)
Informational Aid	15 (55.5%)	2 (9.5%)

3.5.3 Rapport Building Through Family Engagement

For all three programs, family engagement practices influenced the frequency and nature of interactions between parents and staff members. Staff strived to create warm welcoming environments, to inform parents of children's well-being and behavior, and to provide activities for families. These practices usually included routine check-ins at parent pick-up, monthly phone calls or meetings, family events, and parent volunteer opportunities. Many staff members (n=10, 43.5%) across all three programs viewed these practices as a way to establish a personal rapport. For example, Ms. Celeste, South End's after-school program director, used her regular one-on-one meetings with parents to build rapport. She meets with parents weekly to discuss the child's behavior, payment, or general concerns. In these weekly meeting, Celeste builds, what she describes as “good relationships” with parents by “listening.” She explains,

The thing is, them being able to explain to me what may be going on, or me just listening to their thoughts about things is a real big help. Or me just being understanding.....So, um, I think that that's a help. And just greeting the parents. Just talking to them, and just being

friendly to them, even if they're not having a friendly day or not being friendly to you. I think that is a help to them.

At Jackson, Ms. Beverly tries to be “friendly” to parents in her interactions at parent pick-up. She explained, “I just try to be friendly, be nice and sometimes people are having a bad day, still trying to talk to them, calm them down...But I just try to be friendly to everyone.”

At Progress, staff used routine contact with parents as a starting point for relationship building. For example, David, the program's director, encouraged staff to use monthly phone calls as a way to “get to know the parents” who are less involved with the program. Although these calls consist of updates on student's behavior, David explained the additional purpose of the phone calls as a way to build relationships with parents “through the child:”

Those regular phone calls can help to build that relationship... like “hey I just want to tell you ...'Johnny has been doing fantastic in the program he won student of the day five times,' ...[...] we can really build that relationship, even through the child, we can start to build that relationship with the parent and get to know them a little bit.

Most parents with strong ties to staff members (26, 96.3%) emphasized the importance of staff members' kindness and warm demeanor in these routine interactions. For example, many parents emphasized Ms. Beverly's consistently warm demeanor and genuine interest in their well-being. Parents described Ms. Beverly as “easy to talk to,” “lovable,” and a “good spirit.” In Shelia's words, Ms. Beverly “knows every parent in here,” and that she “has time to listen... She just don't let you just walk on out.”

South End parents' mixed views of rapport with staff illustrate the importance of rapport in whether parents forged strong ties with staff members. On the one hand, some parents found staff members to be engaging and with children and families. While other parents expressed concerns about the staff's maturity and organization and did not always view Ms. Celeste as warm and

engaging. For example, this young single mother did not perceive Ms. Celeste as warm towards her.

She explained,

She's kind of strong when it comes to, you know, first impressions. It wasn't nothing bad. It wasn't nothing good. But it was just like, I don't know, I have to see what's up with this lady right here. If you meet somebody and you might not get like nothing, so much of a warmness. So how do I go about being with her....Will I be comfortable talking to her or make sure I pay my copay, pick up my child, and just leave it at that.

Her assessment of Celeste's warmth influenced whether she would share personal information with Celeste. She chose to limit her interactions with Ms. Celeste to consumer/professional exchanges because she did not perceive Ms. Celeste as warm or approachable.

3.5.4 Time

In addition to rapport building, time spent alongside staff can strengthen parents' ties with staff members. As indicated by the social capital literature, time was instrumental in shaping the nature of interactions between parents and staff at all three programs. Not surprisingly, parents who had long-term program experiences often reported stronger ties staff members. To be sure, parents who reported strong ties with staff members had, on average, over four years of program experience. In contrast, parents reporting weaker professional ties had two years or less of program experience.

Among parents reporting strong ties with staff, many (n=11, 40.4%) attributed their relationships to long-term interactions with staff members. Long-term interactions created familiarity with staff and opportunities to bond. For example, Charlene felt comfortable disclosing parenting concerns to Progress staff because they've known her children "for so long." As a result of her conversations with the staff, she felt more confident in parenting.

It's given me confidence that I can be a better parent. And just the confidence to ask the questions and to know that I have help, I have support if I need it. I just need to ask. I can just go up to one of the youth staff and say, I'm having this problem with either one of my

kids, how would you approach it, what do you think I should do knowing the situation. Because you've known me for so long, you've known my kids for so long.

Staff members (n=12, 52.1%) similarly emphasized the role of time in strengthening ties with parents. For example, South End's director, Ms. Celeste, shared that the parents who talked to her “about everything.....divorces, relationships, the kids, “have been with the program for several years.” She explained, “parents that have been in the program for several years, they just attach to me,” and “make it they business to come in here and talk to me.”

3.5.5 Similar Others

In some instances (n=5, 18.5%), parents noted that they developed strong ties with the staff members who they viewed as similar to them, a condition largely supported by social capital literature and family engagement studies. In the case of Jackson and South End, parents forged personal relationships with staff members over shared racial identities and socioeconomic backgrounds. When asked to describe who they most frequently interacted with, most parents (19, 74%) identified with staff members who were black women. Moreover, in instances where staff did not share similar socioeconomic and racial characteristics, parents bonded with staff over the shared experience of parenthood. For example, at Progress's after-school program, where parents are predominately African American and less educated and many staff members are educated and white, parents connected with specific staff members over parenting. The shared identity as parents fostered social connections between seemingly different parents and staff members.

Despite racial differences, Brandy developed stronger ties with staff members who have school-aged children and remarked that she can “connect on a different level” with staff who are older and share similar life circumstances:

But I talk to Lauren a lot. You know because personally she and I have a lot in common and so she can relate more to some of my situations than maybe Amanda in some instances. So when it comes to certain situations, I'll call Lauren But um I just think there's a part of

you that once you experience certain things you're able to connect on a different level. You know when you are young and still trying to feel your way through life there's just certain things you don't get you don't understand. And so I think I connected with them in a way that I did because they're a little bit older than me and they've experienced things that I'm kind of going through right now. They can help navigate me through the process.

Jackson Elementary parents similarly bonded with select staff members over the shared identity of motherhood. For example, Margaret, a Jackson parent, grew close to Ms. Beverly beyond her professional role, as “another teacher,” because they had “so much in common,” namely having children. She explained, “When I met her, at first it was like, oh, she's just another teacher.... We have so much in common. We've got the kids... We was pregnant at the same time so it was like I just was so comfortable with her.”

In rare instances (n=3, 13%) staff members emphasized the importance of shared characteristics in cultivating positive relationships with parents. For example, David at Progress commented on how his identity as a “white, middle class male,” “having not grown up in a community like Westfield,” provokes suspicion among parents. David remarks that while parents are cordial and appreciative of services, they are distant:

Since I came to Progress I've been very, very welcomed by parents. Parents say “it's so great to see you thank you so much for what you do at Progress. We're so glad that you're here. My kids really enjoy the program.” That's very different from being friends with somebody. That is something that has been growing

He intentionally hired a diverse staff to ensure that parents could find someone to connect with. He explained:

We're a fairly, we're a fairly diverse team. Really kind of only two generations: my generation and then, a little bit in between, and then there are a bunch of folks that are still, that are in their twenties. I think parents in general, if they're looking, could develop a great trustworthy relationship with David or Amanda, and not necessarily with me. But they could still feel very connected to the program.

3.5.6 Pivotal Moments of Trust

Trust also emerged as an important step in the development of strong ties between parent and staff members. Most parents discussed trust as a factor contributing to their choice of care and selected providers that they trusted to provide enriching activities, safety, and adequate supervision. However, trust was also instrumental in their decision to form strong ties with staff members. While trustworthiness was demonstrated over time, many parents (n=19, 70.4%) recalled a turning point in their relationships in which staff demonstrated trustworthiness that strengthened relationships from superficial rapport to strong ties. In these instances, parents “fell in love”, “just clicked” or “just knew” that staff members were trustworthy.

Parents gauged trustworthiness by assessing staff members motivations in caring for children and through staff members' distinct demonstrations of care that extended beyond the scope of their professional roles. Parents across all three programs emphasized the importance of knowing that staff members were motivated solely by children's well-being. For instance, Kevin, a longtime Progress parent reflected on the moment he knew he would develop a close relationship with David and Claire – the program's directors. Kevin viewed the two staff members as motivated by a love for children. “It was all about the kids,” he explained,

They came right in and showed that they cared about the kids. It wasn't about making money, it was about the kids...That's how I could tell.... It wasn't about they self...One of the staff members said they would take a pay cut to put the money to give to the kids, out they paycheck. And so that's how I knew it was about the kids. It wasn't about getting paid

Similarly, Cheryl also assessed whether Ms. Lauren, a Progress staff member, was trustworthy from the way she demonstrated care for her and her son during the initial application process. Cheryl's son had epilepsy and she encountered difficulty finding a childcare arrangement that would meet his developmental needs. She immediately felt comfortable with Ms. Lauren because she was the “first person who didn't flinch” when she mentioned her son's condition. She explained,

“Ms. Lauren was like the first person who didn't flinch when I said epilepsy. And she just acts like I was just a normal conversation. She never acted surprised or nothing.” Further, Ms. Lauren's attentiveness throughout the application process put her at ease. The “small things,” such as helping her fill out the application and reassuring her that she was excited to care for her son, conveyed that Ms. Lauren could be trusted.

It's just like the small things that you do for parents, I guess. Because I remember...I sat down to fill out the application and she came and sat next to me at the children's table. So we were both sitting there eye to eye and she said just said so much love. I'm filling out an application and this lady is like, actually like, ‘I really want your son in here. He is no different from anybody else.’ I just knew then, she was going to treat him right. Because of the way she treated me. She could have stood up and finished her paperwork or anything, but the fact that she sat down next to me....she just really made me feel so comfortable.

At Jackson, Ms. Beverly's conduct with children was a clear indicator of sincerity and trustworthiness. Parents observed how she interacts with children and used their perceptions of those interactions as an indicator of motive. Many concluded that “she's here for the kids” by observing her warm yet constructive interactions with children. Because Ms. Beverly cared so deeply for the students, parents felt as though they could disclose more personal and serious matters to her. Jaime's experiences with Ms. Beverly illustrated this. A mother of four, Jamie commented that she “clicked on [Ms. Beverly] real good” because Ms. Beverly frequently updated her on her child's progress. Her remarks demonstrated the shift from distant connection to a trusting relationship with Ms. Beverly, based on her care for children.

I love Ms. Beverly because she all for the kids and I love people that's all for the kids ... From day one since my kids been here, I didn't know her then and I clicked on her real good because she always came to me, “John did this or Leah out of line or they doing good and I want to keep them on the right track,” and all that, and I like that. I like that about her.

In some cases (n=4, 17.4%), staff commented on their efforts to demonstrate trustworthiness to parents. Sarah an after-school staff member at South End, described an instance

where she tried to build trust with a parent whose adopted child was having difficulty adjusting to the family and the after-school care arrangement. Her way of building trust was by disclosing personal information about her own experience with her brother's adoption. She explained that her transparency conveyed to the parent that she could be trusted with personal information.

I would show a parent that they can trust because I'm very honest. To a certain extent, you have to be transparent...So, in that situation, I told the parent, "I know what you're going through because my little brother was adopted. He did not adjust well at all. So, I, I bonded with her. I had to tell her a little of my story just so she'll feel comfortable. I had to become a little transparent on that issue and we were able to build trust.

To summarize, parents who reported strong ties with staff members experienced staff's rapport-building efforts through family engagement practices such as routine contact. These parents also interacted with staff members over long periods of time, having, on average, 2 additional years of program experience in comparison to parents reporting weaker professional ties with staff members. Parents' who formed strong ties with staff members, often developed these relationships with staff members who shared their demographic characteristics and life stages. Finally, parents who reported strong ties with staff members also emphasized turning points in their relationships with staff, wherein staff demonstrate trustworthiness that warrants further investment in a personal relationship.

Parents who reported weak professional ties with staff members emphasized staff's rapport-building efforts as positive aspects of their program experiences, most frequently interacted with staff who shared characteristics, but lacked long-term experiences with staff members to develop strong ties. These parents trusted staff members to provide after-school care for their children but had not reported instances where staff demonstrated trustworthiness with personal matters beyond the services they provided.

3.5.7 Types of Social Support Received by Parents

Parents who developed strong ties with staff members, activated these ties for three kinds of social support: emotional support, instrumental aid, and informational.

3.5.7.1 Emotional Support

Nearly all of the parents (n=19, 70.4%) who reported strong ties with staff members, drew emotional support from childcare staff, venting personal struggles to staff members. Six staff members (26%) reported giving this kind of support to parents. Of those who received emotional support, most shared marriage and parenting struggles with select staff members. For example, Kyla, a mother of five girls, described relying on Ms. Beverly as a confidante, “like anything that I'm going through personally, I can just sit and talk to Ms. Beverly about... she always listens.”

Parents at Progress similarly drew emotional support from select staff. Rita, a single mother of five described the emotional support she has received from Claire—a Progress staff member—during a difficult divorce and periods of financial hardship. For Rita, Claire has become like a “sister” to her, providing a listening ear, encouragement, laughter, and empathy when she needs it.

She's so supportive, you know, supportive in me just being a single mother. She knows that I'm divorced. She knew when I was married. And so she, you know, kind of like, I can share a lot with Claire. And she knows how to just go in and out with me with the conversation. She'll let me talk or we can laugh about it, we can joke about the situation. It can be kind of serious, but we can laugh and joke about it and still keep it moving. And that's what I like about Claire. She knows how to just take it and like “Ok girl, what's next? We're gonna move right along.” You know but she would still have that empathy for me, you know if I needed it. Or not, not saying that I had some little sad story, but we just got this kind of like relationship.

3.5.7.2 Instrumental Aid

Most parents (n=18, 66.6%) who reported strong ties with staff members received some form of instrumental aid that ranged from school uniforms and supplies to food, clothing, and bus

fare. At Jackson's after-school program, Elaine's strong tie with Ms. Beverly led to much-needed assistance during a stint of homelessness. Reluctant to appear as a “charity case,” Elaine valued the rapport and relationship she had with Beverly, who discretely ensured that Elaine's children received school supplies, clothing, bus cards, and food. Elaine described a recent instance when Ms. Beverly was especially helpful and sensitive towards her. She recalled a frank discussion she had with Ms.

Beverly about her situation:

I said, well, you know, a lot of people don't want you to say anything about that type of situation. I said, whether it's because embarrassed or just don't want anybody to know or – [Ms. Beverly] was like, yeah, I understand what you saying but how do you expect to get help if you don't let somebody know what's going on?

Elaine went on to share how Ms. Beverly provided her son, Eli, new shoes and a school uniform. She described a hand-written note Ms. Beverly sent home:

I'm writing a note to let you know it was nothing personal or feeling like you couldn't afford to buy him a pair of shoes, it was just that he saw them and he really wanted them and so – but he could fit them, I gave them to him, if that's okay.

Other mothers with strong ties to Ms. Beverly described similar experiences. Jamie, a recent divorcee, commented on Ms. Beverly's efforts to provide bus cards and uniforms for her children. Jamie gained access to these resources through her frequent check-ins with Ms. Beverly. She explained, “I talked to her about that, that I'm not working. I don't have nothing right now. And she told me the program that would fit me...and she put us in the program...now they get bus cards to come to school.”

Parents at Progress and South End's after-school program also report mobilizing material resources through their strong ties with staff members. For many Progress parents, strong ties with staff often led to food, clothing, bus cards, furniture, and vouchers to private schools. At South End, parents who had strong ties with Ms. Celeste received instrumental aid. This group of parents benefitted most from leniency around payment and occasional referrals to other resources. For

example, this mother explained how Celeste “worked with her” by offering discounts and flexibility in payment when she was having “money problems.”

When I was having money problems, she actually worked with me, she kinda worked with, as far as the price and like payments, so I can be able to let them go. So, I was able to split my payments down... once a week to kinda fit my actual paychecks.

Staff members (n=8, 34.7%) across all three programs reported providing instrumental aid to parents either through direct referrals to other agencies or using their own resources to assist parents. For example, Ms. Celeste used her relationships with parents to learn about parents' needs and connected parents to resources she identified in her “resource book” which has job and apartment listings and information about other programs. Ms. Celeste also “asks around” for parents when a specific need arises: “If a person is looking for an apartment or a person is looking for somewhere to buy healthy something, you know, I have a resource binder, but I try to just, I ask around for them, you know. I'll try to connect them in some type of way.”

3.5.7.3 Informational Aid

Finally, many parents (n=15, 55.5%), parents who had strong ties with staff received informational aid which included parenting advice, information about community resources, and information on how to apply for means-tested assistance. For example, Yvette, a single mother of four, recalls seeking advice from Ms. Karen, a program assistant to address her daughter's recent behavior problems. Her daughter created a social media account without permission. Yvette describes how Ms. Karen offered specific strategies to curb her daughter's use of social media.

My daughter, it's like when she turned 12 she lost her mind...Ms. Karen...was like what's going on? I was like girl I don't know, girl she could have a Facebook...I don't know what to do and they were like well yeah we're going through the same things with the Facebook thing. Ms. Karen said that her daughter had changed her password and wouldn't give it to her so she like deleted the whole page and she was like you just have to put your foot down... That's what I ended up having to do I ended up having to unplug an entire desktop and removing the cords...But I would have never thought of that, to take the cords away from the computer, I was just like oh my god what to do.

South End parents reported receiving help with the childcare subsidy application. This single mother at South End explained how Ms. Celeste helped her complete her application for the “Action for Children” to increase her chances of getting approved for assistance. She explained, “she, um, helped print the paperwork and everything, showed me how to fill it out correctly so that it wouldn't get rejected.” Parents at the Jackson Elementary after-school program reported learning about job and housing opportunities through information shared by staff members.

Seven staff members (30.4%) provided these kinds of supports to parents. For example, Amanda at Progress remarked that parents' needs can range from, “basic needs you know of food, clothing, housing, shelter... to, yeah, the psychological,” She described recent instances where parents needed housing, a working stove, and beds and how she helps connect parents to resources:

It could be like they need food, I need food in my house. So typically, I will direct them to our food pantry.... I have a mom right now who is kind of in a homeless semi homeless situation where her and her and daughters as far as I know still don't necessarily have a place to live, they're just floating from house to house and so you know she's requested some help, I tried to connect her again with the case workers downstairs who can really provide better help. So, I mean it could be anything like that it could be like I have a mom who doesn't have a working stove right now so she needs a stove right now in her house. Um, a mom who needed some beds for her kids because they had bed bugs and their mom had to throw all their beds and stuff away for her kids.....And she was, thankfully, ... able to get some new beds for her children through a donor like randomly called and wanted to know who needed beds.

Parents who reported weak professional ties seldom reported receiving emotional or information aid. When this group reported informational aid, they received information through the after-school program's bulletin board or newsletter—not through their relationships with staff members. When parents with weak ties to staff members received emotional support, they described staff members' flexibility or small personal gestures during times of hardship. For example, this South End mother recalled two experiences in which staff “went out of their way” to provide support—when staff members sent her flowers and a card after a death in the family and when staff waited with her child when she was late for parent pickup. She explained,

I had a death in the family and the staff bought me a card and sent flowers. Or I was running an hour, a half hour late from work and staff, a staff member sat with my child while, you know, until I came and picked- So there are different, I guess different times where the staff has gone out of their way to be supportive.

This mother did not report strong ties with staff members but nevertheless benefitted from staff members' demonstrations of care and flexibility. She viewed these gestures as a part of the centers' "norms" and practices.

While parents with weak professional ties to staff members reported very little emotional support or informational aid, a third of these parents reported receiving some form of instrumental aid from the program. These resources ranged from food, backpacks, and coats and were provided through program events. Access to these resources did not depend on the strength of parents' ties with staff members. For example, Jackson Elementary partnered with a local nonprofit to implement a monthly food pantry that benefitted many after-school parents. Progress parents similarly received food, clothing, and school supplies from annual drives that after-school program implemented for parents.

3.6 Discussion

This study draws from parent and staff perspectives to examine parent-staff relationships in after-school settings. We depart from previous research emphasizing the factors and practices that promote positive parent-staff relationships to reconceptualize staff-parent relationships as a dynamic social process. We also attend to how parents leverage these relationships for resources, a topic that is seldom examined. In short, the study aimed to demonstrate how parents form social ties with staff members and how they mobilize these ties for forms of social support. Within these broader goals, we apply key insights from social capital theory to examine how parent-staff relationships vary within

programs, how strong ties develop between parents and staff members, who parents turn to for help, and the kinds of social support parents received.

Across all three programs, we find variation in staff-parent relationships. For some parents, after-school staff members are simply

service providers. Yet others describe the staff as key sources of social support during difficult parenting problems, divorces, poverty, and instances of homelessness. Our findings suggest that this variation can be explained—in part—by a distinct social process that occurs between parents and after-school staff members. Parents who form strong ties with staff describe a process that consists of staff members' rapport building efforts through family engagement, time, shared experiences, and pivotal displays of trustworthiness. This process enabled parents to disclose needs and receive social support.

On family engagement, we find that routine contact with parents through phone calls, parent-pick up, and program events allow staff and parents to build social rapport and familiarity with each other. Parents emphasize staff's warmth in routine communication as a positive aspect of their program experiences and note how a lack of rapport influences their decision to invest in more personal relationships with staff members. Thus, rapport building through family engagement is an important first step to positive supportive parent-staff relationships.

However, family engagement practices alone do not ensure strong ties between staff and parents or the exchange of resources. Our findings suggest that quality of parent-staff relationships is dynamic and shaped by time. Parents who report strong ties with staff members have longer program experiences, an insight that previous cross-sectional studies of family engagement and staff-parent relationships do not capture. Future panel surveys and longitudinal analysis could examine how the quality of parent-staff relationships change over time.

In addition, the role of time in strengthening parent-staff relationships also affirms the benefits of continuity in child care. A long line of research shows that child care continuity can improve parents' capacity to manage work and family responsibilities and child development outcomes (Bratsch-Hines, Mokrova, Vernon-Feagans, & Investigators, 2015; Claessens & Chen, 2013; Pilarz, 2018; Pilarz & Hill, 2017). Strong ties between parents and staff members may be potential mechanisms of such positive benefits. As this study suggests, parents activate strong ties with staff members for social support—a buffer against the negative effects of hardship on parenting and child development (Huang, Costeines, Kaufman, & Ayala, 2014; McConnell et al., 2011)(Huang, Costeines, Kaufman, & Ayala, 2014; McConnell et al., 2011). Our study suggests that the benefits of continuity extends to after-school care. Continuity or time in programs can cultivate strong ties between parents and staff members that positively influence family processes and child developmental outcomes.

Our findings also support previous insights from family engagement research and insights from social capital theory on the role of shared characteristics in shaping staff-parent relationships. Parents who reported strong ties with staff members connected with staff members who shared their demographic characteristics and bonded with staff members who shared similar experiences as neighbors, former classmates, and most importantly as parents. To be sure, many parents develop strong ties with staff members despite racial, educational, and socioeconomic differences because they shared the common experiences in family life. Parents bonded with staff members over the challenges of parenting and sought out advice and emotional support.

Along with shared characteristics, we find that trust was a key aspect of strong tie formation. While parents trusted staff members to provide adequate supervision and after-school care, parents developed strong ties with staff members who demonstrated sincere motives and exceptional care for

families. Contrary to predictions of social capital theory, parents' trust in staff members was not always cultivated over time. Instead, we find that trust emerged in pivotal moments in which staff demonstrated trustworthiness with personal matters beyond afterschool care. Sometimes this moment occurred during initial enrollment processes while other times staff demonstrated trustworthiness with personal gestures that parents interpreted as going above and beyond the scope of their professional roles. Many parents described these moments as turning points in their relationship with staff members in which relationships shifted from consumer-provider exchanges to strong personal ties.

On activating relationships with staff members for resources, our findings complicate predictions from the social capital theory. While we find some evidence that parents activate weak professional ties for resources, turning to staff as accessible well-resourced experts (Perry & Pescosolido, 2010; Small, 2013), this kind of mobilization was rare. When parents seek out assistance, they overwhelmingly turn to staff with whom they have strong ties. Parents with weak ties to staff members received significantly less support from staff, reporting some instrumental aid and information that was largely independent of staff members efforts and access to instrumental aid that was available to all parents.

3.7 Limitations

Our sample size and number of cases limit the generalizability of our findings. Nevertheless, our in-depth qualitative study deepens our understanding of staff and parents' experiences and highlights plausible factors and processes that contribute to parent-staff relationships and parents' receipt of social support (Small, 2009b). Thus, our study points to key aspects of parents' experiences with after-school care providers that can be explored in future research.

For example, our observation that parents have distinct preferences about how they interact with staff leaves open the question of why parents vary in preferences. We lack the data to examine whether parents who preferred more professional relationships with staff had richer social ties and sources of social support outside of the program relative to parents who preferred personal relationships with childcare staff. Previous studies suggest that low-income individuals turn to social service providers and childcare centers for social support to avoid depleting their own limited networks (Dominguez & Watkins, 2003). Thus, parents who relied on staff for social support may have lacked such ties outside of the program. Future qualitative studies and network analysis can situate childcare providers within parents' social networks to explain why parents vary in their preferences for personal or professional relationships with their childcare providers. Further, situating childcare providers as members of social networks can also clarify what kinds of needs parents present to childcare staff and those which they direct towards other members of their networks. These insights can inform family engagement training and professional development for child-care staff.

This study points to how after-school care can alleviate the burden of reciprocity characteristics of strong ties among low-income women (Henly et al., 2005; Offer & Fischer, 2018) but is limited in demonstrating the costs staff incur from providing social support to parents. We do not explore reciprocity in staff-parent relationships—whether staff received forms of social support from parents or whether parents sought to provide support to staff members. While support is beneficial to parents, providing support may drain staff.

One form reciprocity within strong parent-staff ties may be the extent to which parents give their time to parent involvement and volunteer opportunities in response to staff members' provision of social support. Parents may lack the capacity to repay support in-kind

but may offer resources, time, or skills to short-term parent involvement roles or long-term parent leadership and volunteer opportunities. Research shows that parents who have strong ties with staff members often become active within these programs taking on administrative support roles, volunteering in classrooms, and serving on leadership boards (Barnes, Forthcoming). Parent participation in these roles helps staff members meet family engagement benchmarks prescribed by state and federal policies (Barnes, Forthcoming). Nevertheless, parent involvement in program activities may not redress the burden of social support that staff may experience. Future studies should examine how the socially supportive roles after-school staff play are associated with staff's job satisfaction and experience of burnout.

Along these lines, the prevalence of social support received by parents in these after-school programs suggests that additional family engagement training and resources should be directed to after-school programs. Scholars have found that family engagement training in early childhood education settings improves staff members confidence and efficacy in supporting families through crises (Bromer & Korfmacher, 2017; Bromer & Weaver, 2014). After-school staff members could benefit from similar training to buffer the potentially draining effects of parents' needs.

In addition, our findings suggest that after-school staff can provide meaningful relationships for parents who are least engaged in schools. As previously discussed, research finds that African American parents living in distressed communities face the greatest barriers to school and home-based parental involvement and experience strained relationships with teachers and school administrators (Lareau & Horvat, 1999; Li & Fischer, 2017; Wang, Hill, & Hofkens, 2014b). This study shows that after-school programs may connect parents—who are otherwise disconnected from schools—to their children's academic experiences.

Although the after-school programs in this study targeted a broad age range of students (ages 5–14), the strong ties with after-school staff may provide useful social support to parents with older school-aged children and adolescents. Research shows that children need more autonomy and encouragement towards academic success as they transition into adolescence (Hill, 2015; Hill et al., 2018). In particular, scholars find that academic socialization—parents' efforts to communicate expectations for achievement and the value of education, link schoolwork to future success, foster aspirations and goals, and encourage planning for the future—is more effective in boosting adolescents' academic achievement than conventional home or school-based parental involvement strategies (Hill, 2015). This kind of socialization occurs primarily through parent-adolescent relationships. After-school staff members are uniquely positioned to support parents as they pursue academic socialization for their children. Staff may help develop strategies alongside parents that are sensitive to adolescents needs for autonomy, work with parents to communicate expectations for achievement, and help parents set goals for their children. As this study has shown, many parents turned to staff members for parenting advice and emotional support to cope with their child's changing developmental and academic needs. Future studies should examine how this social support from after-school staff informs parenting practices, academic socialization, and adolescents' developmental and academic outcomes.

Appendix A

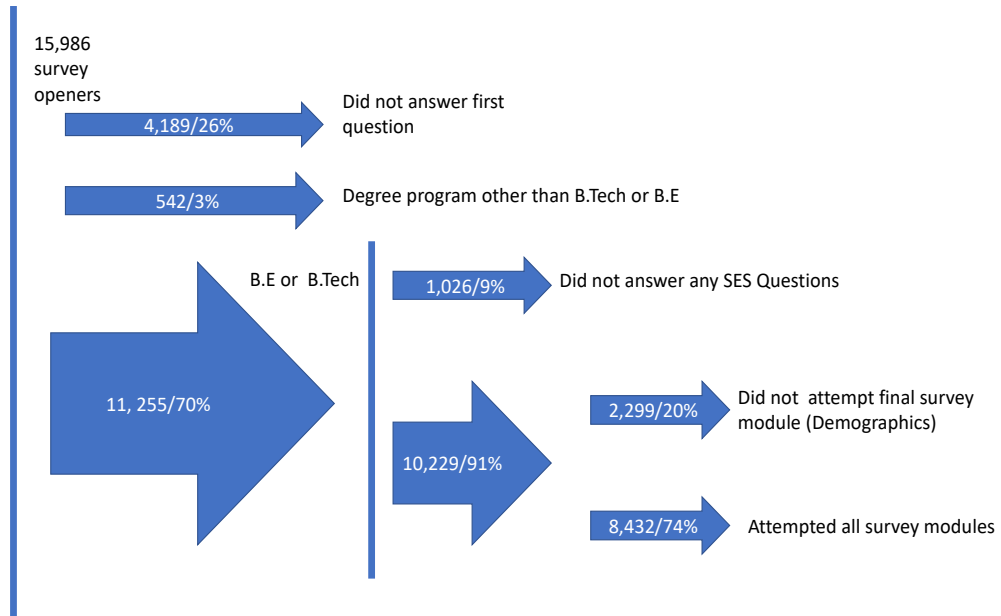


Figure A. 1: Survey Response Patterns

Socio-Economic Variable Categorizations Engineering Student Sample

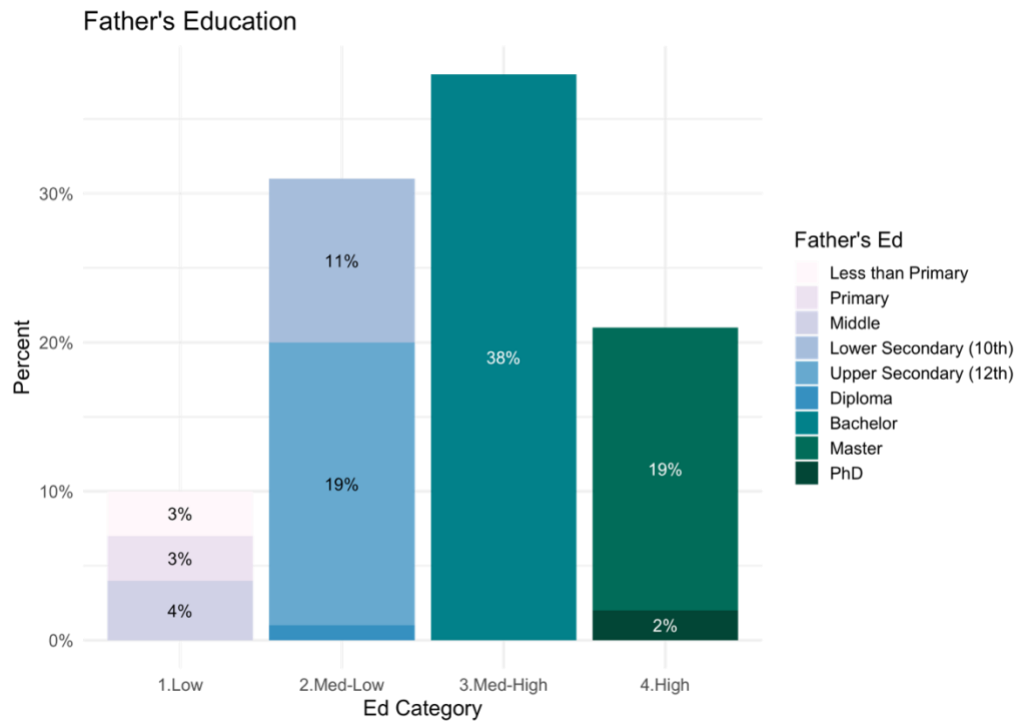


Figure A. 2 Father's Education

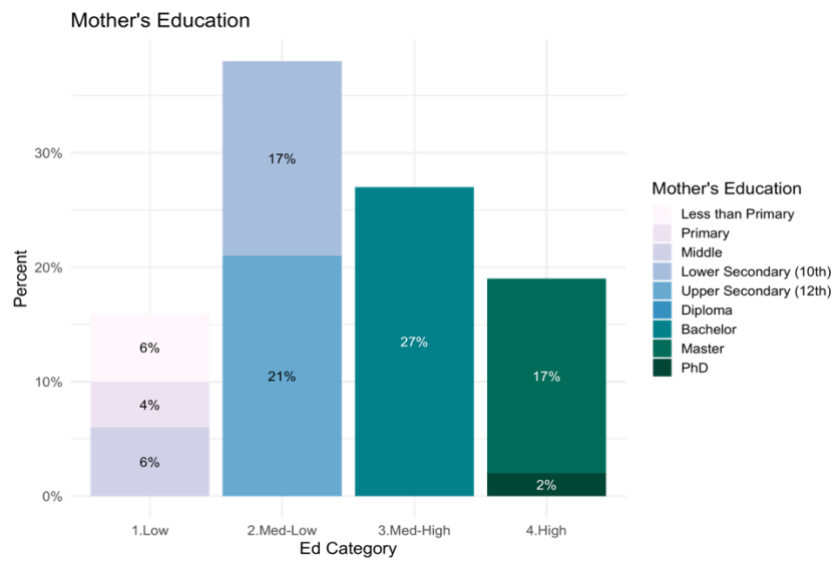


Figure A. 3: Mother's Education

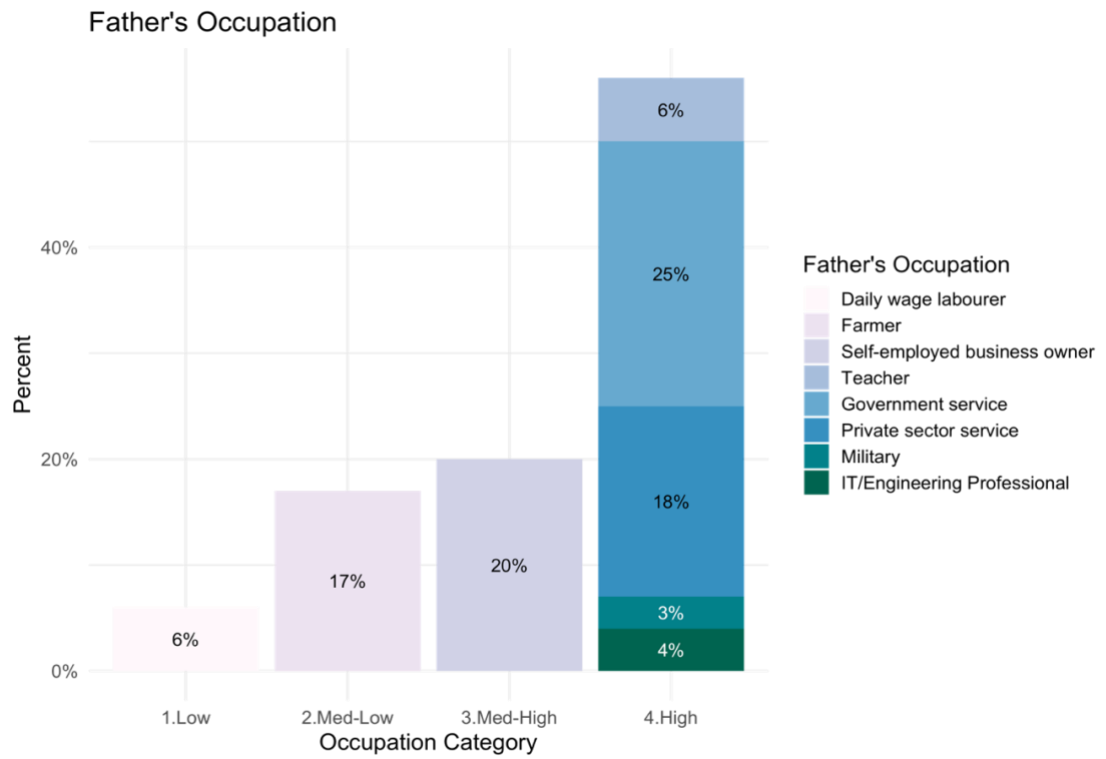


Figure A. 4: Father's Occupation

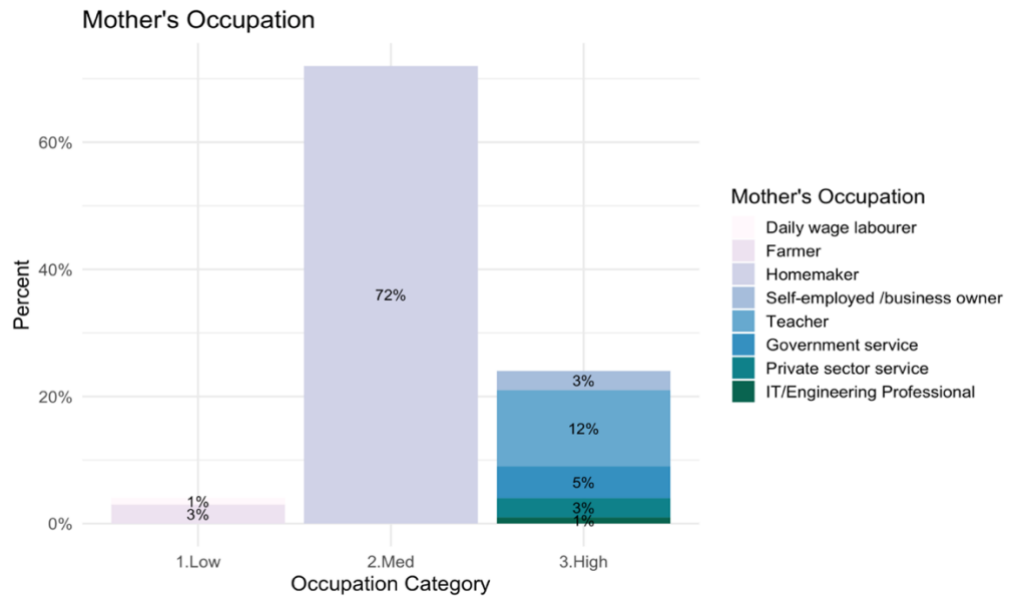


Figure A. 5: Mother's Occupation

Assets follow a slightly different logic. I asked respondents to mark which out of 16 assets they had in the home during their teen years. Simple adding up the number of assets a respondent recorded might capture that some assets are upgrades from other asstes -e.g. a household with a motor bike rather than bicycle is likely better off. Instead, I assign assets to different tiers – if a respondent grew up with any of the assets in the top tier, I code them as such, then check for middle tier assets, and finally for bottom tier.

- Top Tier: the individual reports ANY one of: car, motorbike/scooter, computer, washing machine, fridge, or air-conditioner. 56% of sample

- Mid-Tier: If the individuals has no top tier assets, but has ANY mid-tier asset – Agricultural Land, commercial or other property, family owns own home, DVD player, piped indoor water, or a TV. 34% of sample
- Bottom Tier: No top tier or mid-tier assets, but could report ANY OR NONE of the following: a cellphone, bicycle, pressure cooker, or radio: 10% of sample

I base these distinctions in part based off asset data from the Indian Human Development Survey, Wave II. For example, a substantially larger portion of my sample had access to a car or personal computer in comparison to IHDS households, so I consider these top-tier assets, while bicycles and cellphones appear as relatively common assets across both samples.

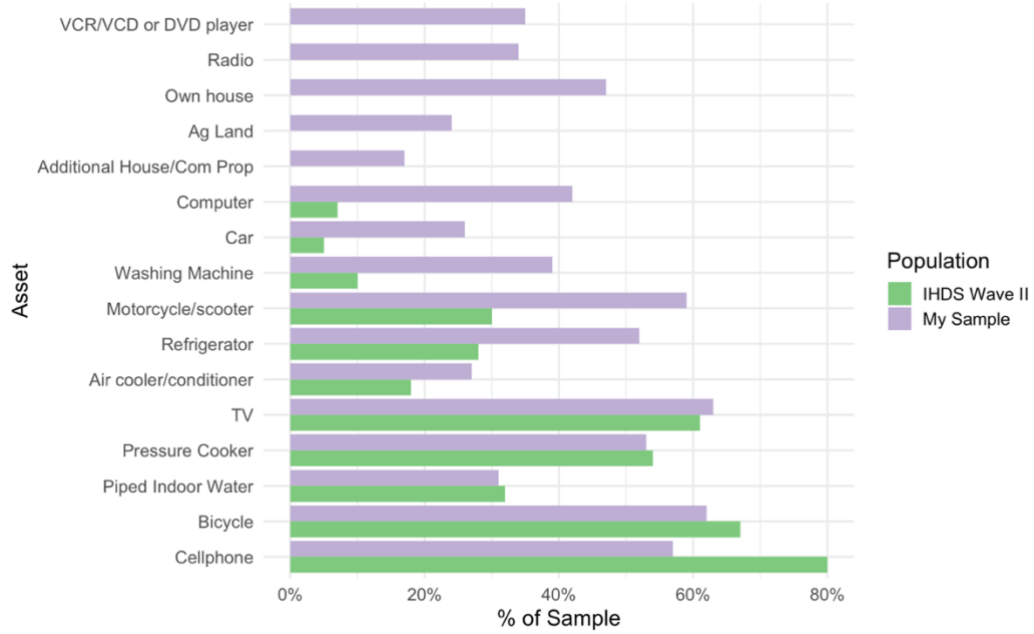


Figure A. 6: Asset Ownership Comparison Between Engineering Sample and General Age Cohort

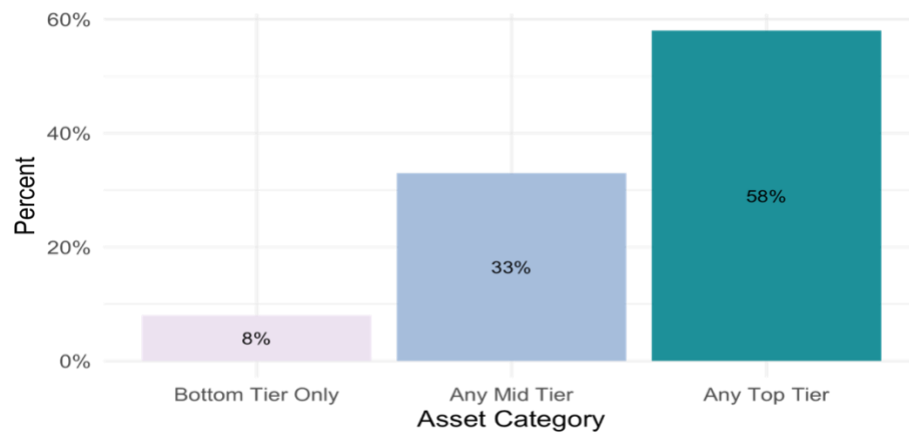


Figure A. 7: Asset Distribution

Latent Class Model: Class Selection

I compare models with 2-6 classes to determine which number of classes provides an effective balance between fit to the observed responses and parsimony. The degrees of freedom are quite high for each model estimated. While the fit criteria continue to decline for each successive class, suggesting more classes better reflect the observed data, moving beyond five classes sees smaller reductions. I select five classes in part because of these diminishing reductions, and also because the six-class model does have worse class homogeneity and separation, as well as smaller class sizes. The five class appears to offer the best balance of fit, parsimony and interpretability.

Table A. 1: Latent Class Model Fit Statistics

Classes	DF	G2	AIC	BIC
2	221	2645.98	2687.98	2840.61

Classes	DF	G2	AIC	BIC
3	210	1379.78	1443.78	1676.37
4	199	948.59	1034.59	1347.12
5	188	664.53	772.53	1161.90
6	177	540.00	670.00	1142.43

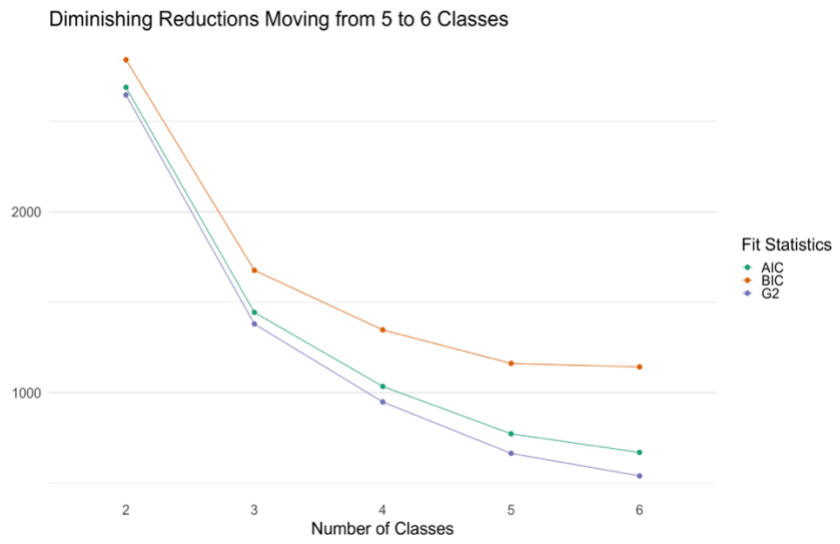


Figure A. 8: Fit Statistic Comparison

Appendix B

Status Hierarchy Descriptions

Education

Table B. 1: Education Transition Matrix

Most Educated Parent	Child Education					Parent Total (Unweighted)
	Less than Primary	Primary	Junior Secondary	Senior Secondary	Any Tertiary	
Less than Primary	2%	58%	25%	12%	3%	194
Primary	1%	30%	33%	30%	6%	2824
Junior Secondary	0%	10%	25%	46%	19%	845
Senior Secondary	0%	2%	11%	53%	33%	817
Any Tertiary	NA	1%	2%	25%	72%	429

Note: All % are adjusted by weight, Figures in rows add up to 100%

Occupation

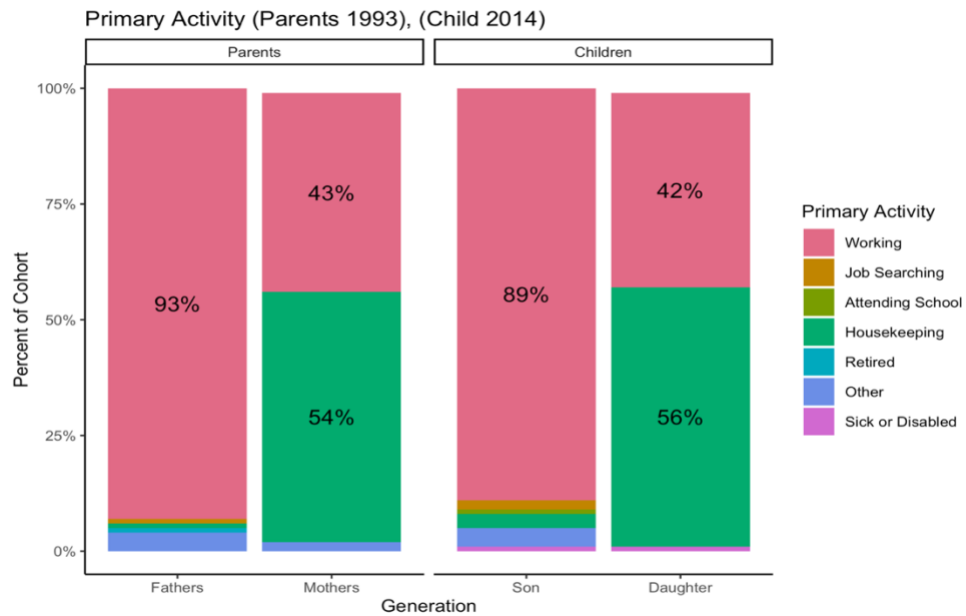


Figure B. 1: Primary Activity by Generation

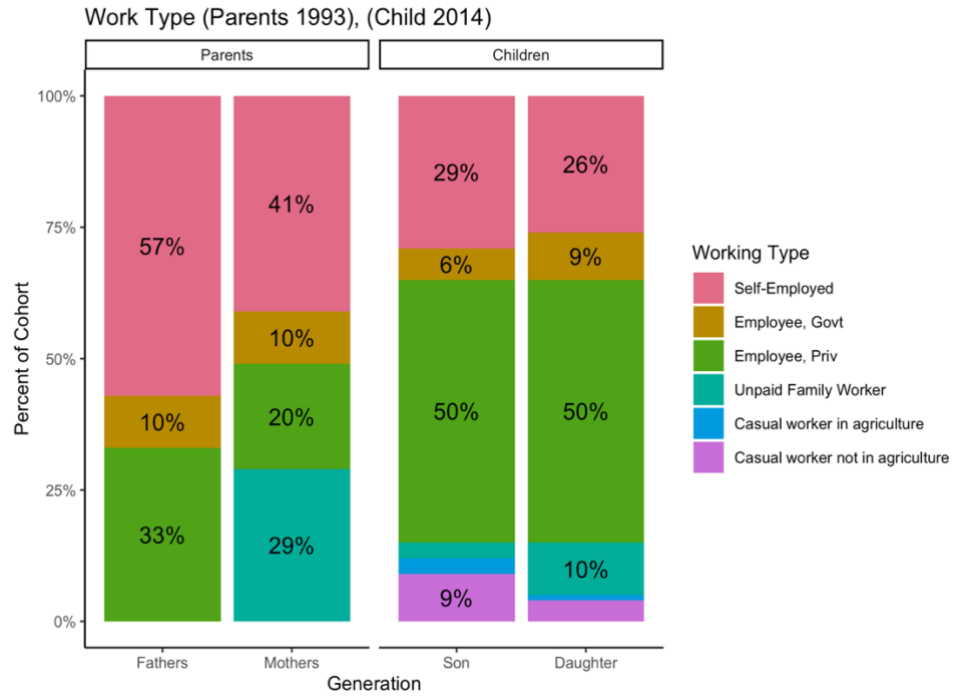


Figure B. 2: Work Type by Generation and Gender

Table B. 2: Occupation Transition Matrix

Highest Parent	Child Occupation					Total
	Manual Laborer	Lower Vocational	Higher Vocational	Clerical	Professional	
1.Manual Laborer	38%	19%	29%	8%	6%	878
2.Lower Vocational	26%	26%	28%	15%	5%	575
3.Higher Vocational	18%	19%	41%	15%	7%	2187
4.Clerical	10%	16%	40%	22%	12%	871
5.Professional	9%	12%	26%	22%	31%	597

Note: All % are adjusted by weight, Figures in rows add up to 100%

Table B. 3: Consumption Transition Matrix

Origin HH Consumption	Child Destination HH Consumption		
	Bottom	Middle	Top
Bottom	61%	22%	18%
Middle	46%	27%	27%
Top	37%	28%	35%
Children's Generation Bin Size	51%	24%	24%

Note: All % are adjusted by weight, Figures in rows add up to 100%

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Biography

Sarah Nolan earned a Bachelor of Arts in Public Policy at Duke University in 2013. Prior to matriculating at Duke for her doctoral studies, Sarah worked at Habitat for Humanity Greater San Francisco as a Program Analyst. She earned a Doctor of Philosophy in Public Policy from Duke University in 2022.

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During graduate school, she received several fellowships to support her time, including the Joel L. Fleishman Civil Society Ph.D. Fellowship, Center for the Study of Philanthropy and Civic Society Fellowship, James B. Duke International Research Fellowship from the Graduate School, and Bass Instructor of Record Fellowship. She also received three Summer Research Fellowships from the Graduate School.

Sarah will join the University of San Diego Extension as the Collective Impact Analyst in summer 2022.