

Entrepreneurship and the American Dream: How far Does the Upward Mobility Ladder Reach?*

—PRELIMINARY, PLEASE DO NOT CIRCULATE —

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Abstract

Using data from the PSID, we analyze how entrepreneurship relates to inter-generational economic mobility. Children who become entrepreneurs are much more likely to be White, male, and from wealthy families. They accumulate significantly more wealth over their careers, unconditionally and conditional on initial wealth, demographics, educational attainment, and IQ. On average, the long-term self-employed who own incorporated businesses experience a ten percentile jump in wealth standing relative to their parents, and even as compared to their non-entrepreneur siblings. Access however, is primarily available to those whose parents are themselves in the top wealth quintile. Together, these results indicate that entrepreneurship propagates wealth inequality across generations, and that, in turn, improving access to entrepreneurship holds the promise of greater economic mobility in the US.

Keywords: Entrepreneurship, Inter-generational Mobility, Wealth, Business Ownership, Social Mobility, Self-employment. JEL Classification: J62, L26, E21, D31

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“In my remarks, I will review trends in income and wealth inequality over the past several decades, then identify and discuss four sources of economic opportunity in America—think of them as “building blocks” for the gains in income and wealth that most Americans hope are within reach of those who strive for them. The first two are widely recognized as important sources of opportunity: resources available for children and affordable higher education. The second two may come as more of a surprise: business ownership and inheritances. Like most sources of wealth, family ownership of businesses and inheritances are concentrated among households at the top of the distribution. But both of these are less concentrated and more broadly distributed than other forms of wealth, and there is some basis for thinking that they may also play a role in providing economic opportunities to a considerable number of families below the top.”

-Janet Yellen, October 17, 2014 (Conference on Economic Opportunity and Inequality, Federal Reserve Bank of Boston)

1 Introduction

Entrepreneurship is viewed as a key generator of innovation and economic growth, and as such a wide range of policies from tax policy and financial regulation, to labor laws are designed intentionally to encourage such activity. Understanding what entrepreneurs respond to however can be particularly tricky since it is unclear whether policy should target the firm or the household. Entrepreneurship, and business ownership more specifically, is a reflection of individuals making the choice to form legal entities so as to create firms (Spulber, 2014). How to craft optimal policy then requires understanding entrepreneurship at both the household and firm levels. In recent years, a number of papers in both the macroeconomics and productivity literatures have come to focus on the role of new firms/startups in the broader economy (Haltiwanger et al., 2013; Foster et al., 2016). Yet, empirical evidence for the role of entrepreneurship in the welfare of individual households and in facilitating economic mobility across households is scarce (Quadrini, 2000a; Holtz-Eakin et al., 2000; Bradford, 2003; Fairlie, 2004; Sarada, 2022). Simply plotting the distribution of entrepreneurship against wealth shows a striking and positive relationship between the two, with less than five percent of the poorest households participating in entrepreneurship while over seventy percent of the wealthiest households are involved in such endeavors.¹

That entrepreneurs hold a substantial and disproportionate fraction of wealth in the economy is a well documented fact (Quadrini, 2000a; Gentry and Hubbard, 2004; Cagetti and De Nardi, 2006). Competition for this large pot of wealth should be high. The entrepreneur as described by Schumpeter, ever in search of profitable opportunities, finds ways

¹See figure 5.

to commercialize new and novel technologies to replace old and outdated ones. And in doing so, becomes wealthy. The question we ask is to what degree this Schumpeterian creative destruction, where new technologies replace the old, is mirrored in entrepreneurs themselves? Specifically, we ask how much churn there is in the (family) lineages of those holding entrepreneurial wealth, and to what degree entrepreneurship has served as a vessel for economic mobility? If we were to assume that (1) the distribution of entrepreneurial talent across different segments of the population is identical and (2) that entrepreneurial talent leads to entrepreneurial success and wealth, then we should expect entrepreneurs to be representative of the population and also observe churn (as reflected in intergenerational mobility) in the lineages at the top. These patterns however, are expected in the absence of market frictions. Frictions, including credit constraints and informational asymmetries, can result in dynastic stickiness in entrepreneurship where the children of wealthy entrepreneurs in the past become the wealthy entrepreneurs of today.

In this paper we provide a detailed description of the coevolution of entrepreneurship and household wealth in the United States across five decades, between 1968 and 2019. We link parents and children (both at mid-life) in the Panel Study of Income Dynamics and present a set of stylized facts on the relationships between entrepreneurship, household wealth accumulation and intergenerational mobility. Our use of the term entrepreneurship refers to long term self-employment, and both incorporated and unincorporated business ownership.² First, we document the demographic patterns of entrepreneurs. Over our fifty-one year time series, white men are overrepresented in all categories of entrepreneurship, including basic self-employment and especially so in incorporated business ownership.³ Women and black people, are always underrepresented in all entrepreneurial categories, especially incorporated business ownership. While female and black representation has experienced some shifts over the five decades, any increases appear to have plateaued by the 1990s. From the 1960s to the 1990s, entrepreneurs were younger than the population mean. However, this pattern reversed in the mid 1990s to diverge where by 2019, entrepreneurs were on average 2 years older than the population mean. In looking at the role of entrepreneurship in economic mobility, we find that long-term entrepreneurship is the key vehicle for children born into the poorest fifth of households to move to the top fifth of the wealth distribution. Children

²We do not place emphasis on short-term self-employment as the data show this to be a transitory state where outcomes of households in this category are virtually indistinguishable from ones who never make such attempts.

³Similar racial patterns amongst self-employed have been shown by Fairlie and Robb (2010). See Fairlie and Meyer (2000) for a broader discussion of demographics and entrepreneurship.

engaged in long-term entrepreneurship experience between 9 and 13 percentile wealth gains relative to their counterparts and siblings regardless as to their race, or where on the wealth distribution they were born. However, children born to poor households, both black and white but disproportionately the former, rarely become entrepreneurs and so are rarely able to move to the top. Rather, children born to the wealthiest parents are the most likely to be white, themselves be entrepreneurs and remain in the wealthiest rungs by doing so. As such, there is little churn in the lineages of wealthy entrepreneurs and on the whole, entrepreneurship does not contribute substantially to overall economic mobility.

Below, we expand upon our empirical methods and our findings that relate intergenerational mobility via entrepreneurship to race, educational attainment, ability (as measured by IQ) and industry. The data paints a rich and nuanced narrative, but before we go into the details, we discuss the implications of our main findings here. Our main findings point to the presence of informational and financial frictions in entrepreneurship. Our finding that having very wealthy parents (in the top 10, and especially top 1 percentiles) is the biggest predictor of entrepreneurship points to financial constraints as a first order concern. In fact, we find that parent occupation, child’s own education and child’s IQ are all eclipsed by parental wealth in predicting entrepreneurship. The only other factor to meaningfully predict entrepreneurship independently of wealth, is having an entrepreneur parent, but even this matters only for college educated children. This suggests that informational benefits and business networks that are useful to entrepreneurial success are also conferred from parent to child. Our findings also suggest that entrepreneurial gains are statistically similar across subgroups. Conditional on accessing entrepreneurship, black households can expect similar wealth gains as white households, and there is no clear evidence for a race penalty. However, access to entrepreneurship whether one is white or black, is abysmal so long as one is born poor. The narrative the data paints points to the need for (1) financial innovations, either private or public, that are targeted towards alleviating the financing gap in entrepreneurship (Hall and Lerner, 2010) (2) shifts in curricula towards entrepreneurship education (Huber et al., 2014) (3) the creation of entrepreneurial networking communities (Leyden et al., 2014) and (4) shifts towards tax policies that incentivize innovative startups (Gordon and Sarada, 2018) and dis-incentivize inter-generational wealth transfer through business ownership. Underlying these implications is our belief that higher and more representative participation in entrepreneurship will benefit society. First, by bringing to the forefront commercial solutions to problems faced by an array of population subgroups. Second, by ensuring that everyone has the opportunity to experience the gains that entrepreneurship offers.

To arrive at our findings, we begin by analyzing simple transition probabilities. These show that absolute mobility (i.e. moving from the bottom to the top rung) is highest through entrepreneurship. Conditional on one’s parents being in the lowest wealth quintile, the probability of moving up into the highest quintile oneself is 4 to 6 percent for children who do not engage in entrepreneurship. For those who do, this probability is several times higher (14 to 21%, depending on the definition). Formalizing this analysis via rank-rank regressions (see Chetty et al. (2014a)), we find that households that spend more than twenty percent of their working lives in entrepreneurship experience substantial gains in their wealth standing relative to observationally-similar counterparts. Controlling for both own and parental demographic and employment characteristics, as well as fine grained parental wealth standing, we find that long term self-employed households are 4 centiles wealthier than their wage-employed counterparts. Households involved in incorporated business ownership results in even bigger gains, being 9 centiles wealthier. In effect, households that report both owning an incorporated business and being employed there are 13 centiles wealthier than their non-entrepreneurial counterparts. This finding persists in sign and magnitude when we compare across entrepreneurial and non-entrepreneurial siblings. This sibling comparison is important since it nets out family-specific factors like social capital, norms and networks that arguably correlate with entrepreneurial outcomes. On the whole, survival in entrepreneurship of all forms and regardless of race or parent wealth standing, corresponds to marked wealth gains.

While these regressions and point estimates allude to the potency of entrepreneurship in wealth accumulation for those households that endure, it captures little information on access to this avenue, and how it relates to variation in economic outcomes across households more broadly. To get at a sense for what access to entrepreneurship by parental wealth looks like, we conduct the following empirical exercise. Rather than simply taking as given the transition probabilities described above, we instead look at it retrospectively and ask what the odds are that an entrepreneurial household observed in a given (wealthiest/ poorest) quintile came from a given (wealthiest/ poorest) quintile. In addition, we also look at the density of data in each of our transition probability nodes. This is in effect the density of business owners in the joint wealth distribution. The logic underlying both these exercises is as follows. If only a small number of poor children have access to entrepreneurship but then end up moving up the wealth ladder as a result, simple transition probabilities and point estimates in regressions will reflect the outcomes of just those who manage to avail of entrepreneurship. The retrospective and density exercises described here get around this limitation. This analysis reveals that very few children from the poorest fifth of households

manage to shift to the top rung of the ladder at all, let alone while accessing business ownership. Children from the wealthiest fifth of households however have remarkable odds of being business owners and remaining wealthy while doing so. Specifically, households who end up in the top quintile are highly unlikely to have come from the bottom 20 percent whether or not they own a business (1-in-13 vs. 1-in-14). Whereas the odds that a wealthy household came from the top quintile are significantly higher for business owners than non-business owners (1-in-2 vs. 1-in-3). Figure 7 clearly and concisely illustrates this observation. The findings suggest that while individual entrepreneurial households stand to do very well, access is disparate.

Given that there appears to be access barriers, but yet households who manage to sustain as entrepreneurs see significant wealth gains, what then is the role entrepreneurship plays in explaining overall variation in wealth? And how might entrepreneurship stack up against other vehicles for wealth accumulation such as education and employment? To answer these questions, we run an r-squared decomposition. We look at the fraction of variation in wealth standing that is explained by various factors - ones that children have no control over and ones that reflect some element of choice. Factors that children have no control over include where they are born, when they are born, what their gender and race is and who they are born to - i.e. one can think of this as the birth circumstance, which is in effect completely random. Factors that reflect some element of choice include a child's education and employment, which involves the decision to be an entrepreneur, where they live and their own family structure. Our predictive model including all factors, both in and out of one's control, is able to explain about 40% of variation in wealth outcomes.⁴ 23% of this 40% of variation is explained solely by birth circumstance, while an additional 10% is explained by the state where one lives, the industry they work in and their marital status.⁵ The three factors we single out for comparison are educational attainment, employment status and entrepreneurial status. Interestingly, all three factors explain very similar amounts of variation in the data; 2.6% by education, 3% by employment status and 2.4% by entrepreneurial status. These three factors appear to enter independently for the most part and are not simply correlated. This tells us that the degree to which entrepreneurship explains variation in wealth outcomes on the whole is very similar to that of education and employment - two factors that have received vastly greater amounts of attention in economics. One thing that is clear is that

⁴While 40% explanatory power is meaningful, note that 60% of variation remains unexplained. Factors like prestige of college, college major, work ethic and social networks that are unrelated to parent networks etc., also influence wealth outcomes but are not captured in our model.

⁵The vast majority of this additional 10% comes from marital status.

birth and life circumstance matter most. How much any one factor “should” matter is less clear, and even less so what the “correct” level of explanatory power any one factor should have. However, given that these factors directly influence earnings and are arguably susceptible to policy intervention, it stands to reason that research be geared towards these topics, and to that end the role of entrepreneurship in household outcomes is demonstrably of consequence and ought to receive greater attention.

In order to understand what access barriers are and how policy might influence entrepreneurship we need to have some sense for who is most likely to avail of this occupational avenue, and via what mechanisms. We shed light on both of these issues, focusing especially on the roles of parental employment, parental wealth, race, education and ability as measured by IQ. We find that the only factor to systematically predict participation in the various forms of entrepreneurship (long term self-employment, business ownership and incorporated business ownership) is parental entrepreneurship and the data shows that parental entrepreneurship is itself increasing in (parent) wealth. Furthermore, even accounting for parent entrepreneurship, we find that having parents from the top decile and especially the top 1 percent has a sizable influence on incorporated business ownership. In effect, our results tell us that parent wealth plays an outsized role in influencing the child’s propensity to persist in entrepreneurship, especially incorporated business ownership. Education on the other hand does not present any clear correspondence to entrepreneurial participation. The only time we even observe significance is in incorporated business ownership, where having a college degree (but not a graduate degree) is predictive. However, even this benefit only accrues to college graduates with entrepreneur parents. Our final alternate human capital measure, IQ⁶, is (weakly) predictive of adult entrepreneurship. However, this relationship entirely flows through education which itself ceases to matter when parent wealth and employment are accounted for. Taken together, these findings suggest that social capital and financial capital matter more in predicting entrepreneurship than standard measures of human capital - namely IQ and education.⁷

Given our findings thus far, one might infer that entrepreneurship, while impactful for households that make the attempt and survive, might not enter significantly in facilitating

⁶We realise that IQ itself may not capture all the skills necessary for successful entrepreneurship (Sternberg, 2004). The literature has identified a variety of cognitive and non-cognitive qualities that influence entrepreneurial outcomes. See Kerr et al. (2018) for a summary of these traits. Nonetheless we outline the relationship between the two as there is a sound empirical basis for doing so (Van Praag and Cramer, 2001; Hartog et al., 2010; Hafer and Jones, 2015).

⁷An alternate interpretation, is that entrepreneurial ability involves different skills that are not necessarily captured by standard human capital measures, nor highly correlated with parent wealth and employment.

economic mobility economy-wide due to differential access, especially amongst those coming from less wealth. Empirics show this is in fact true for overall mobility. We run a simple test and compare the estimated rank-based inter-generational elasticity (IGE) both with and without entrepreneurs. The IGEs in both circumstances are statistically indistinguishable, at around 0.37 to 0.39. Looking at subsamples of entrepreneurs to test for internal mobility, we find that mobility in the aggregate is no higher for all subsets of entrepreneurs, except for unincorporated business owners where this increased churn is primarily driven by downward shifts of children from wealthy households.

While this paper is oriented towards describing empirical patterns, rather than identifying causal mechanisms, the findings clearly point to the need for more extensive work on the channels that link entrepreneurship, wealth and mobility. The findings suggest that entrepreneurship can be an effective vehicle for wealth accumulation, regardless of race and even for individuals coming from humble beginnings. Access however is clearly unequal. Individuals from poorer households who are also more likely to be minorities appear to face barriers to growth in entrepreneurship. This finding of unequal access is not unique to entrepreneurship. High status occupations (Hsieh et al., 2017) and inventors Bell et al. (2019) suffer from similar access issues. One explanation for this is simply that wealth matters for occupation specific human capital accumulation (Hsieh et al., 2017). Another explanation is that in entrepreneurship, financial frictions themselves play a role, independent of human capital accumulation. Access to cash for firm growth and/ or to weather periods of losses might make the difference between succeeding and failing for entrepreneurs, regardless of their skill. One obvious way to manage these risks is to have a buffer of wealth from one’s parents. While the literature (Hurst and Lusardi, 2004; Kerr and Nanda, 2009, 2011; Fairlie and Krashinsky, 2012) is inconclusive on the role of financing constraints, our findings suggest looking not just at the extensive margin of entrepreneurship, but also at the intensive survival, growth and incorporation margins. A third explanation is that the institutional details on firm creation and growth are difficult and costly to access. For instance, in order to succeed, an entrepreneur must understand local regulations, the personal finance protections available (Fan and White, 2003) and the tax laws that affect their expected returns (Cooper et al., 2016; Cullen and Gordon, 2007; Gordon, 1998) to name a few factors. In addition, understanding how and when to incorporate and how to access cost effective financial capital are also not obvious issues. None of these factors have to do with the quality of the entrepreneurial idea. They are all institutional details for which there is no “text-book”. To that end, having entrepreneur parent advisors, or the financing to get legal and

accounting advice a priori could result in the differential access we observe. Fourth, amongst the wealthy, entrepreneur parents could simply be passing on successful businesses to their children. If that is the most effective way to acquire a business, then we should expect to see the access patterns observed in the data. Finally, one could argue that risk preferences vary by parental wealth. While we cannot rule this out, it is important to note that we do not find as stark a parent wealth correspondence in the extensive (ever having tried) margin of self-employment as we do in the intensive (survival and incorporation) margins. While it is beyond the scope of this paper to parse these mechanisms out, the patterns we present should provide a sound basis for future work on each of these channels.

The rest of the paper is organized as follows. Section 2 presents a brief overview of the relevant literature. Section 3 discusses the possible channels that might play a role in how entrepreneurial households build wealth. Sections 4 through 7 introduce the PSID data and how the phenomena of interest are manifested in this context. In sections 8 through 10.1 we investigate the data more closely, establishing detailed links between entrepreneurial activity and wealth mobility, and finally examining the implications for overall degree of churning in US society. Section 11 concludes.

2 Literature

This paper relates to a sizable literature that studies income and wealth mobility in the United States (see Solon (1999) and Black and Devereux (2010) for an overview of the literature). Work in this literature focuses on the role of factors like education, child’s income and employment, savings behaviors and geographic exposures in facilitating intergenerational mobility (see Charles and Hurst, 2003; Mazumder, 2005; Chetty et al., 2014b; Clark, 2014). However, there hasn’t been much focus on the role of *entrepreneurship* in social mobility (see Quadrini, 2000a; Holtz-Eakin et al., 2000; Bradford, 2003; Fairlie, 2004).⁸ Papers that have looked at entrepreneurship as a mode of wealth building have either resorted to cross sectional analyses, mainly employing transition matrices. Or have focused on income mobility, whereas the income of entrepreneurs faces severe mis-measurement (Pissarides and Weber, 1989; Hurst et al., 2014; Sarada, 2022). What sets our work apart is that we exploit both cross sectional and longitudinal data, focus on the inter-generational angle, and study shifts in

⁸While not necessarily expressed as entrepreneurship, business ownership does enter as a factor in any paper that studies savings behaviors since this is a key household asset. We focus exclusively on the role of this asset.

wealth rather than income. In doing so, we get around measurement issues and inference problems that arise from transitory changes in welfare. Unlike most other papers in the literature we break down entrepreneurship into long term self-employment, incorporated and unincorporated business ownership, and show that these categories while overlapping, also have distinctive features that correspond to household outcomes. In addition, we go beyond documenting wealth accumulation and mobility patterns in general but also hone in on three specific channels that manifest in these patterns. Namely, we isolate the roles of parent wealth, parent occupation and child education and ability. To the best of our knowledge, this is the first paper to document a long time series of entrepreneur demographics and comprehensively address the co-evolution of entrepreneurship, wealth accumulation and inter-generational wealth mobility.

Recent work by Bell et al. (2019) and Aghion et al. (2019) on the inventors are in many ways closely related papers. While their focus is on patenting inventors and ours on entrepreneurs, it is common belief that the two occupations go hand in hand in influencing economic growth and development. While patents pick up certain types of inventions, arguably the more technical and quantifiable ones, many process, product and even market innovations are generated by entrepreneurial ventures. To that end, we are interested in entrepreneurs for many of the same reasons these authors are interested in inventors. At the onset, one might assume that access to entrepreneurship has fewer barriers - it is often viewed as the American Dream (the so-called Horatio Alger symbolization). Since becoming an inventor, at least in the modern day, might require the acquisition of technical skills, and the signals necessary to get jobs at established and known innovative organizations (i.e. Google, Apple, Intel, Pfizer, MIT etc.), it is arguable that entry barriers are more probable. Bell et al. (2019) do in fact find resounding evidence for such barriers, where inventors are more likely to come from wealthy households and to be children of inventors themselves. It is perhaps somewhat surprising that our conclusions for entrepreneurs are not qualitatively dissimilar, suggesting similar access barriers.

The paper also relates to a large literature on occupational choice. If entrepreneurial firms are ultimately the ones to generate employment and innovations (Haltiwanger et al., 2013; Wong et al., 2005; Baumol, 2002) we then care greatly about whether the best and the brightest individuals are selecting into it, and if not, what barriers they might face. The standard Roy model (Roy, 1951) shows that in a frictionless world, individuals should sort into occupations based off comparative advantage. Following the logic presented in the Roy model, Hsieh et al. (2017) propose a rational sorting model, but one with frictions to show

that in the presence of human capital access barriers, misallocations can occur where individuals from disadvantaged populations are less likely to sort into their optimal occupation. One implication of this work is that those individuals from disadvantaged populations who do go on to engage in high status jobs, are the more talented ones. These access barriers to entrepreneurship-specific human capital, as proposed in the Hsieh et al. (2017) model could explain our empirical findings that relate children from wealthy households to entrepreneurship. Bell et al. (2019) depart from rational sorting model and add payoff uncertainties to predict, consistent with their data, that inventors from disadvantaged groups do not appear more talented. The argument underlying this prediction is that disadvantaged groups are less exposed to (i.e. have less accurate information on) the returns on invention and as such tend to “underestimate” the returns from invention (Hoxby and Turner, 2015). The resulting predictions of their inventor specific model are mostly consistent with our empirical findings. Entrepreneurs, like inventors, are more likely to have higher human capital, have been exposed to entrepreneurship, and less likely to be from disadvantaged groups. Our data however suggests that unlike inventors, entrepreneurs from disadvantaged groups are not of lower initial ability. Our findings on entrepreneurship square with those in the innovation literature. As with Celik (2022)’s “missing Einsteins” our evidence suggests looking for ways to create the “missing Jobs [Steve Jobs]” - brilliant children who rise from rags to riches through entrepreneurship.

Finally, this paper also relates to the returns to entrepreneurship literature (Hamilton, 2000; Hyytinen et al., 2013; Sarada, 2022). Our finding, that entrepreneurial households, regardless of starting point, go on to experience substantial wealth gains is consistent with the findings in Sarada (2022), that there likely are positive returns to successful entrepreneurship. While identification remains a challenge, our findings suggest thinking about wealth and income jointly in assessing the financial gains from entrepreneurship.⁹

3 Why might entrepreneurship play a differential role in wealth building?

Why should we expect to see churn in the entrepreneurial lineage at the top of the wealth distribution? Let us assume that there are no market frictions and that (1) entrepreneurial talent is a random draw and equally distributed across the population and that (2) this talent

⁹In fact findings in Charles and Hurst (2003), that wealth and portfolio composition relate only through income, except for business ownership (and real estate) are consistent with this argument.

lends itself to entrepreneurial success. Then, entrepreneurs should be representative of the population and with each new technology wave, new entrepreneurs seeking to profit from commercial use should displace the old. The churn in entrepreneurs should reflect the churn in technologies, as suggested by Schumpeter’s creative destruction narrative. Arguments for genetic transfer of entrepreneurship would negate this, where stickiness in the lineage of entrepreneurial families would simple reflect that talent is passed on across generations. While we cannot reject this possibility, the evidence for it is not compelling either and so we sidestep this argument since it does not lend itself to meaningful policy interventions.

How might entrepreneurship afford differential access to economic mobility as compared to wage work? We classify plausible explanations into two categories. Explanations in the first category relate to behavioral changes that enable and are induced by business activity in the face of credit constraints, and those in the second category are the direct consequences of higher returns that stem from successful business ownership (relative to wage work). Note that in this latter category, many elements of public policy that favor business formation affect both the return and the risk profiles entrepreneurs face. In the discussion below we will focus on some of these policy provisions available to entrepreneurs but not wage workers. These include favorable tax treatment of financial gains (and losses) to businesses, and bankruptcy provisions available to incorporated firm owners.

The main behavioral argument that leads to the creation of wealth by entrepreneurs is that of an increased propensity to save. As argued in Quadrini (2000b) and Buera (2009), the sheer act of starting a business could result in an increased propensity to save in the face of constrained credit markets, higher costs of external financing, and uninsurable idiosyncratic risk. Individuals who want to start a business, especially the less wealthy who cannot easily access formal credit or pre-existing personal wealth, may increase their savings rate so as to fund their enterprise. In addition, if the risks faced in entrepreneurship are un-insurable and credit is limited, such households may engage in precautionary savings so as to secure a larger buffer of wealth to draw upon during negative shocks. This differential saving propensity enables increased wealth accumulation and consequently, mobility.

The second factor that results in increased wealth accumulation amongst entrepreneurs is that they are the residual claimants. The entrepreneur has more agency in directing their investment into their business based off private information on the outcomes. Unlike wage workers who receive a wage and then invest their savings in markets (where they lack an informational advantage and are passive in their investments), business owners can channel both financial and human capital into the most promising investments. Since they get to

internalize the full returns from their venture,¹⁰ they are more likely to double down on effort, thereby ensuring better outcomes and higher earnings.

For poorer households and minority populations, entrepreneurship may be the only credible way to achieve mobility. For these populations, access to high paying wage jobs may be a rarity given the systematic barriers and/or discrimination that exist from the get go. High paying jobs, at least at the entry stages, rely on signals from brand name schools, internship experience and hard to access higher degree fields (economics, finance, law etc.). In contrast, starting a business in many industries (restaurant, laundromat, services - hairdressing, automotive, food services etc.) is less dependent on these expensive signals. While labor wages in these industries are typically low and therefore don't afford much opportunity for mobility, business returns may be relatively high, especially if the entrepreneur is skilled and manages to distinguish herself to become a local monopoly.

In addition, taxes are typically favorable to the self-employed and business owners. Both have discretion in where and whether to report income, and are incentivized to use equity which is subject to lower capital gains tax rates.¹¹ Finally, local governments and the Small Business Administration provide subsidized loans to businesses. This cheaper avenue of financial capital cannot be accessed by the wage worker looking to invest in public stocks. Preferential tax treatment and subsidies therefore alter returns to entrepreneurs in ways that may allow them to build wealth more easily. These policies also factor in on the risk mitigation end, by increasing risk sharing with the government (see arguments in Domar and Musgrave, 1944).

While many factors point to increased wealth building for entrepreneurs, and particularly so for the poor who have less access to high paying wage work, the issue of downside risk and financial frictions that may inhibit entry need to be factored in.

As regards downside risk, how it might affect mobility is less obvious, and is likely to vary by where on the wealth distribution we were to start looking. First, at a very basic level, losses are limited by the assets one possesses.¹² For those at the lowest end of the wealth

¹⁰This is of course subject to the contract terms negotiated with investors, but it is arguable that in the vast majority of cases, the entrepreneur internalizes the returns from her efforts to a higher degree than that offered in wage work – where profits are more broadly shared and where it is harder to attribute efforts entirely to any single individual.

¹¹There is variation in these policies over time. See Clarke and Kopczuk (2016) for a discussion of how these tax policies have varied over time.

¹²That said, it should be noted that defaulting on credit card debt, a source of financing commonly used to start/sustain a business, can result in wages being garnished in the event of default. In addition, poorer households may access informal credit channels which can have large negative effects in the event of default. Both of these more expensive avenues are ones that are more likely to be availed of by the less wealthy –

distribution nominal losses are limited, but can be very costly to household well-being, given their low ability to absorb risk;¹³ in addition, these households may lack the capital to enter entrepreneurship in any capacity. Therefore, we shouldn't see much downward movement, but we will also see less entry amongst this group. As people get wealthier, the odds of entry should increase, but so long as personal assets are not protected (sole proprietorships and unincorporated firms), the downside risk of falling in wealth standing should be higher than that faced by wage workers. As people get wealthier and have the information and financial capacity to incorporate, the downside risk should fall, since bankruptcy laws now protect personal assets. In the presence of tax policy and bankruptcy laws that facilitate risk sharing with the government, only those who are not at the bottom to begin with, and who are at the same time in a non-protected form of business ownership, will experience downside. The poorest and the wealthier folks with incorporated businesses are – for different reasons – less exposed on average to entrepreneurial risk.

Between tax policy and bankruptcy laws, the downside risk of owning an incorporated businesses is shared with the government, in ways that are not available to wage workers. Unincorporated businesses and sole proprietors face the biggest downside risk - but given the lack of government oversight and flexibility in reporting, they are also the most likely to avail of the tax benefits to income under/misreporting, which feeds into the upside.

Financial frictions would imply that pre-existing wealth is the primary barrier to access to entrepreneurship. This should vary across geographies with differential credit availability. However, both equity and debt are more expensive, due to lemons and principal-agent problems (Gordon and Sarada, 2018), than using ones' own capital for a given risk profile. This means that all else equal, the wealthy would be more likely to start businesses and given the lower cost of capital, their businesses would likely fare better.

Overall, one should expect that for the poor, those who self-select into entrepreneurship should fare better than wage workers in enabling socioeconomic mobility. Part of this is due to the lower bound on downward mobility, and part to the fact that the entry threshold is higher and so more capable individuals will select into entrepreneurship. However, the net effect is less obvious since those from poor families may not have a backup source of funding to draw on to stay afloat when a downturn hits. The likelihood of becoming a business owner should increase in wealth - and the desire to shield pre-existing wealth

though not *the* poorest.

¹³This cost to well being arises if there is no way to smooth consumption through either liquidating holdings or getting credit. So while we may not observe an actual drop in wealth when the poorest households suffer a bad shock, bad things could be happening – like forgoing school, medical care, decent food, etc.

also increases the likelihood of incorporating amongst those with assets to shield. Tax policy and flexibility in private business valuation both act as shields to wealth, presenting business owning households an even bigger upside. Downside is limited by bankruptcy laws and risk sharing with the government and investors. So at the household level, we should expect entrepreneurship to result in a sizable upside, with limited downside, except for sole-proprietors and unincorporated businesses.

4 Empirical Objectives

Given the multi-faceted interaction between entrepreneurial endeavors and family transmission of wealth, we argue that the basic version of the question – “does entrepreneurship facilitate social mobility?” – is incomplete. Yes, we want to know whether households who own businesses are better able to climb the social ladder. But an affirmative answer still conveys only limited information. After all, being drafted into professional sports leagues or starring in big-budget movies meets this criterion as well. The reason we don’t talk about the NFL or Hollywood as engines for social mobility is that they are necessarily ultra-selective and thus inconsequential in macro-scale mobility patterns. Might entrepreneurship play a similar role? The second question therefore is: “how much explanatory power does entrepreneurship have in social mobility outcomes?” Finally, we ask: to the extent that there are systematic patterns to be found, “which households are more likely to benefit from this avenue?”

Addressing all three questions involves a multi-pronged empirical approach. A key element throughout is that we exploit *inter-generational* changes in *wealth* standing. We first look at transition matrices, namely the probability that an individual shifts up or down the wealth distribution relative to where their parents were. In addition, to get a sense for how likely one is to actually avail of these transitions, we also look at the density of data at the various nodes. This naturally leads to asking what the odds are that a wealthy entrepreneur came from a poorer (equivalent/ richer) household? We address this by looking at a conditional transition matrix wherein we compute the probabilities of having coming from a particular wealth quintile conditional on being observed at certain point of the wealth distribution. Second, we look at not just the averages as captured in the transition probabilities, but also at the distribution of the changes in wealth decile between parents and children. Third, we employ regressions to look more formally at the effect of entrepreneurship on wealth accumulation. In these regressions, we attempt to say something more pointed by

exploiting the difference in wealth accumulation across siblings that make different occupational choices. Finally, in keeping with the literature, we look at how entrepreneurship affects inter-generational wealth elasticities. All components of our analysis are run across different cuts of the data depending on what specifically we seek to learn.

We now discuss the rationale that underlies our focus on wealth, rather than income or consumption, and on inter-generational rather than inter-temporal assessments. At the core of our paper is the desire to understand welfare and what facilitates access to increased well-being.

Welfare, or at least, financial welfare can be measured using income, consumption, savings or wealth. Observed over the correct time frame and absent measurement issues, all three measures should result in the same conclusion as to the role of entrepreneurship in wealth creation. Changes in welfare can be assessed by looking at changes in any of these measures over time - either within a persons' lifetime (inter-temporally), or across generations (inter-generationally).

Our focus on wealth rather than income or consumption derives primarily from the data limitations we face. First, none of the datasets we have available to us, even long panels such as the PSID, would allow us to observe individuals over their entire lifespans. As such, a focus on income or consumption, both flow measures, are subject to transitory changes that may not be reflective of overall well being. Furthermore, if we focus solely on immediate returns we may miss or mis-attribute delayed returns from entrepreneurial activity. Second, income is particularly biased in ways that relate systematically to occupational choice.¹⁴ For these reasons, we focus on the only stock measure available to us, wealth.¹⁵ One concern with wealth, especially in the study of entrepreneurship, is that business value inevitably matters whereas businesses are notoriously hard to value. Removing business value from the wealth measure is also problematic since for many business owning households, wealth is concentrated in the business. We are reassured that the wealth measure from the PSID (including business ownership) is in fact reflective of welfare given the findings in Sarada (2022). The paper finds that wealth patterns, both business and non-business, mirror that of household consumption for entrepreneurial households. So reported business value in

¹⁴See Sarada (2022), Hurst et al. (2014) and Pissarides and Weber (1989)

¹⁵Look at footnote 3 in Charles and Hurst - "Standard life cycle models of wealth accumulation suggest that wealth depends on (1) the level of lifetime income, (2) the trajectory of lifetime income, and (3) the propensity to save out of given lifetime income levels and trajectories (see Modigliani and Brumberg (1954); Friedman (1957)). Extensions to the basic model argue that the expected future variance of income matters as well – Deaton (1989), Carroll and Weil (1994).

the PSID is not just some arbitrary number, but rather, is systematically related to both non-business wealth and consumption, especially as compared to reported income.

This emphasis on wealth leads us to then concentrate on inter-generational, rather than inter-temporal changes in welfare. Since wealth is a stock measure, it makes most sense to compare wealth standing at points wherein they are stable and reflect a substantial portion of the gains one can hope to amass over their lifetime. Given this, we look to comparing the wealth standing of children between the ages of 40 and 55 – when wealth is arguably stabilized – to the wealth ranking of their parents at the same stage in their lives. While defensible for a variety of reasons, it is important to bear in mind that inter-generational analyses risk conflating the role played by personal traits and non-financial resources with that of employment and investment choices, since we are not able to make use of individual fixed effects. Instead, we rely on controlling for parent and child observables, and comparisons across siblings who make different employment choices. In addition, it is important to note that while the assessment of inter-generational wealth standing is one way to assess welfare changes, it is not necessarily the only or even best way to measure wealth building. One could as easily argue that wealth changes within a lifetime are as important to utility. This nuance should be kept in mind in thinking through the implications of our findings.

5 Data, Entrepreneurial Definitions and Summary Statistics

Our analysis employs the Panel Study of Income Dynamics (PSID) dataset – a longitudinal survey which has been tracking households and their offspring since 1968, recording family composition and status, work circumstances (including hours, pay, whether self-employed, industry, etc), education, health care, housing, consumption patterns, etc. Starting in 1984, the survey also collects detailed financial information.

Because all individuals born to households in the survey are tracked when they establish households of their own, we are able to connect employment, income, and wealth realizations across generations, comparing offspring to their parents and grandparents, as well as siblings and cousins.

The survey started with two samples: one that is representative of the US population at the time (SRC sample, consisting of 2930 original families), and one that oversampled low socio-economic status families (drawn from the US Census Bureau’s SEO sample, consisting

of 1872 initial households, primarily African American families). Since entrepreneurial participation and outcomes vary strongly with race, we run separate estimations using the core SRC sample and the SRC+ SEO samples.¹⁶

What this data lacks in number of observations, it makes up for that in detailed household information, thus in some ways presenting benefits even over the comprehensive IRS data. The data is summarized in tables 1 and 2.

Entrepreneurial definition

Two main variables are available in the data, by which we can classify entrepreneurs: whether the individual is self-employed, and whether they own (part of) a private business.¹⁷ The two criteria have imperfect overlap and it is not obvious *a priori* whether one is strictly preferable to the other. Thus, we will investigate both.

Two further dimensions are found to be helpful: the incorporation status of the private business, and duration in either self-employment or business ownership.

6 Entrepreneur Demographics

We exploit our 51-year time series to gain insight into the demographics of entrepreneurs. Figures 2, 3 and 4 document these patterns. The graphs show the representation of each population category relative to the mean of that category in the data. For example, if black people make up 10 percent of the population and 5 percent of business owners, then they are underrepresented and the representation ratio is 0.5 (i.e. 5/10). Ratios under 1 indicate under-representation and ratios over 1 represent over-representation. The graphs show that, across all 5 decades and regardless of entrepreneurial definition, white men are always overrepresented. Black people and women are especially underrepresented in incorporated business ownership, even though there is some (slight) evidence for convergence in women. In looking at the age of entrepreneurs, across all categories, entrepreneur relative age began to creep up after the mid 1990s and by 2019, incorporated business owners are 2 years older than the average population (i.e. 42 years versus 40).

¹⁶We do not employ the smaller samples added later (latino and immigrant waves).

¹⁷While self-employment is determined at the individual level, business ownership is asked at the household level. To maintain consistency, we will typically aggregate self-employment to the household level as well (hence the notation “HH”) after some variables.

7 Cross sectional link between wealth and entrepreneurship

Micro-level US data reveals a strong cross-sectional correlation between wealth and entrepreneurship, as illustrated by figure 1. Rates of both self-employment and business ownership rise steeply with net worth: fewer than 1-in-10 households with below-median wealth have a self-employed member or report owning a business at any given point in time. For households in the 9th wealth decile, there is a 1-in-4 chance that they are involved in entrepreneurship. And by the time we get to the top 1%, over 55% of households have at least one self-employed member, and nearly 70% report owning a business.

This initially observed pattern is driven by multiple factors, some of which may simply be compositional – for instance, both wealth and entrepreneurial propensity increase with age, and age is not explicitly considered in the cross-sectional wealth ranking. It could also be that the link between self-employment or business ownership and wealth is transitory and does not result in lifetime changes in social ranking.

To investigate further, table 3 summarizes entrepreneurial activity over one’s youth (18-40), along with demographic characteristics, by realized wealth ranking as measured during middle age (40-55).¹⁸ Among households that end up in the bottom wealth decile, there is a 31% chance that at least one spouse was self-employed at some point. However, the average share of years during which someone was self-employed was only 8%. For households in the top one percent, the odds that someone tried self-employment are almost twice as high (59% vs 31%). What’s more, in any given year these households have a 33% chance of having a self-employed household member – 4 times as high as households in the bottom decile. In other words, the association of self-employment with wealth goes along both the extensive and intensive margins: wealthier individuals are more likely to have ever been self-employed, and conditional on attempting, are likely to have persisted in self-employment longer. This pattern is repeated for business ownership (especially ownership of incorporated businesses), and differentials by wealth are particularly striking at the very top of the distribution: among households that ended up in the top 1 percent, nearly all (91%) owned a business in their youth, compared to 64% for those just below them in the top decile; 82% of top percenters owned an incorporated business, almost twice the rate of the 90th-to-99th percentiles, and

¹⁸These are the 2,779 households from the representative sample for which we have both own wealth and parental wealth. Some of these observations are lost when we include more controls - in particular for parental work history.

almost 3 times the rate of the 9th decile. We will need to control for other relevant factors to be sure, but these numbers strongly suggest that either a) it takes substantial wealth to buy/start a corporation, or b) once initiated, such a business creates a great deal of wealth, or c) both of the above.

Interestingly, the rate of college completion follows a similar pattern as extended (or incorporated) business ownership: for households who are below median wealth during middle age, the college completion rate is around 15%. By contrast, 4 out of every 5 individuals in the top 1 percent finished college.

The last column of table 3 provides another clue by reporting median parent decile.¹⁹ The average person that ends up in the top 1% comes from the 9th wealth decile, while the average person ending up in the bottom 20% comes from the 3rd decile.

Demographic variables are not shown here but follow similarly dramatic patterns, especially with regard to race: 18% of bottom decile households are African-American, but only 1 % of the top decile ones are.

8 Does Entrepreneurship Help Build Wealth?

8.1 Suggestive evidence: intergenerational transition probabilities

We’ve found that people at the top of the wealth distribution are more likely to have owned and operated their own business, and done so for longer. But on average, they also come from wealthier households. So the question remains of whether entrepreneurship itself facilitates upward mobility.

We begin by examining mobility in the sample overall. Table 5 shows the proportion (in percentage points) of individuals from parental households in each of the 5 wealth quintiles (listed in rows) who end up in each of the 5 quintiles (listed in columns). For instance, we find that an individual with parents in the bottom quintile has a 6.7% chance of ending up in the top quintile.²⁰

Next, we ask whether mobility differs by self-employment or business ownership. Table

¹⁹In couples, this is the parental wealth of just *one* family member – whoever was born into the PSID sample. We do not restrict gender, and in informal tests we found that wealth is transmitted similarly through sons and daughters. Assortative mating likely plays a part as well, ensuring that in-laws have similar socio-economic status.

²⁰Our findings are consistent in magnitude with other recent US ones in the literature, for instance by Chetty et al. (2014b). However – since we look at wealth rather than income – we estimate more stickiness at the top and bottom of the distribution than they do).

6 splits the sample into individuals who were never self-employed (left), who did so only briefly (middle), and those who were self employed for at least one fifth of their young working years (right), and report transition probabilities within each subsample. Since a brief stint may indicate necessity entrepreneurship or a failed venture, we expect outcomes to be relatively poor for the individuals in the middle category. Indeed, longer self-employment tenure is associated with much higher odds of moving up and lower odds of sliding down the wealth distribution. Outcomes from brief self-employment are broadly on par with those of individuals who were never self-employed. In other words, while persistence in entrepreneurship is rewarded, limited incursions are not always penalized – at least, not for those starting in the 3rd quintile or higher.²¹

Table 7 divides the sample by business ownership and type of business. It becomes obvious that owning an incorporated business predicts outcomes which are superior not just to unincorporated business ownership or to no business ownership at all, but also to prolonged self-employment (compare the right-most panel in tables 6 and 7). Owning a stake in a private corporation puts the odds that someone from the bottom quintile will move up at 84% (1-16%), compared to 56% for non-business owners. Unincorporated business ownership, on the other hand, appears to exhibit a less clear-cut pattern, with some outcomes being worse and some better than for non-business owners.²²

Note that, just as with prolonged self-employment, incorporated business ownership is associated with movements to the *top* of the wealth distribution, rather than just movements *up*: in a striking pattern, households from below the 20th percentile of wealth have a 21% chance of ending up above the 80th percentile – comparable to the odds of a household which started in the top quintile but owned only an unincorporated business. Families from the bottom quintile who did *not* own a business at any point have only a 4% chance of making it into the top quintile. What’s more, this huge boost provided by incorporated business ownership seems to come with no apparent risk, since the odds of ending up in the bottom quintile are also reduced. See figure 9 for an illustration of this remarkable pattern.

²¹Here we must also remember the limitations of assessing mobility on the basis of quintile shifts, since by definition we cannot observe if a bottom quintile household becomes worse off.

²²Note that unincorporated business owners from the bottom 60% have a better chance of reaching the top quintile than non-business. However, unincorporated business owners from the top 40% have a *worse* shot at ending up in the top quintile than non business owners, implying a churning effect among entrepreneurs who never incorporate their businesses.

8.2 How do the entrepreneurial definitions relate?

In table 4 we show the overlap between the main dimensions by which we define entrepreneurial activity: self-employment and business ownership. Of the 2,779 individuals for whom we have both own and parental wealth, in 1198 (43%) of the cases either they or their spouse²³ has attempted self-employment by the time they are 40 years old. But in almost half of those cases, self-employment lasted for fewer than one fifth of the instances they were observed. Looking at the Total for the rows, we see that almost half (44%) of households owned a stake in a private business at some point, but only 17% ever owned a part of an *incorporated* business.²⁴

We also note that – while they are highly correlated – self-employment and business ownership are not equivalent. Even among households which include a self-employed adult more than 20% of the time, 13% never declare owning a business. This number is much higher (39%) among those with only brief self-employment stints. Conversely, 22% (103/463) of households who declare owning an incorporated business and 30% (232/764) of those with unincorporated businesses never declare having a self-employed member.

The last two lines show that those who spend more time in self-employment are more likely to own a business, but this effect comes primarily from incorporated businesses: the odds of owning only unincorporated businesses is very similar (43% vs 46%) for households with less time (<20% yrs) in self-employment than for those with more. However, the odds of owning an incorporated business more than double (18% vs 41%) with persistence in self-employment.

In the remainder of the analysis, we will control for time spent in both self-employment and for time spent in business ownership, without explicitly controlling for the overlap. This is partly because in PSID questions about employment and business ownership don’t always refer to the same time period, so identifying the years when both conditions are met is prone to errors. Additionally, informal tests did not reveal notable interaction effects.

To more precisely investigate the difference in outcomes across employment/business ownership modes, we turn to multivariate regression analysis.

²³Throughout most of the discussion we will employ household- rather than individual-level self-employment. This is to mirror the business ownership and wealth data, which are available at the household level.

²⁴Some firms become incorporated over time, and some households own both an incorporated and an unincorporated business at the same time – those households are under the “incorporated” heading.

8.3 Regression analysis

As we’ve already discussed, the transition probabilities reported in tables 6 and 7 strongly suggest that entrepreneurial activity is closely related to the probability of moving up (or down) the social ladder. However, one can imagine any number of demographic and work-related correlates that might spuriously create this pattern: perhaps, for instance, highly educated households have good upward mobility prospects, and they are also in a better position than their peers to start and run businesses. Industry, occupation, location, parental education and other characteristics could all play similar roles, thus they will all be included in our analysis. In sub-samples we will even be able to control for family environment and for ability.

In our initial regressions, reported in table 8, the dependent variable is outcome wealth centile.²⁵ The main explanatory variables are indicators for self-employment and business ownership, but, since entrepreneurial activity has been shown to correlate with a host of other demographic dimensions, we control for a wide range of variables in order to limit any potential bias: all columns include fixed effects for own and parental education level, own industry, state of residence during middle age and during childhood, 2nd or 3rd generation immigrant status, race,²⁶ birth year, gender, and (average) age when wealth was measured.²⁷ Columns 1 through 4 also control flexibly for parental wealth (with centile fixed effects). In the last two columns we restrict the sample to siblings and replace all parental characteristics with parent fixed effects.

All specifications also control for the share of years when either spouse in the household was unemployed, and the share of years when either was out of the labor force. We do this in order to prevent the introduction of a mechanical positive bias, at the risk of attenuating our coefficients. Note that the inclusion of industry fixed effects is also likely to attenuate our coefficients of interest, since rates of entrepreneurship vary widely across industries.

Initially (col 1) we include only self-employment to indicate entrepreneurship, and find that a household wherein at least one adult was even briefly self-employed before turning 40 years old is predicted to end up 1.84 percentiles higher in the wealth distribution, as

²⁵Although in these regressions we are not explicitly testing *relative* mobility, we choose rank rather than logged wealth so as not to lose negative and zero values, and because it has recently been shown to be more robust. The general takeaways of the analysis are unchanged regardless of the measure.

²⁶Due to data limitations, we utilize just 3 categories: white, African American, and an “other” category.

²⁷Because of the way we construct wealth ranking – by comparing individuals within narrow age groups – the age and age squared variables are not significant in these regressions. We include them to ensure consistency with later log wealth elasticity estimates, and also as a way to check that the rank is computed as intended (meaning that we expect the coefficients on these variables to be insignificant).

measured between 40 and 55 years old. Once we account for business ownership, however, self-employment ceases to matter from a statistical standpoint. Instead, we find that business ownership predicts a 4.22 percentile higher placement in the wealth distribution (col 2). Column 3 adds an indicator for firm incorporation, revealing that almost the entire predictive effect of business ownership stems from incorporated businesses, as opposed to sole proprietorships, partnerships, or another unincorporated forms.

So far our target variables have been the simple binary indicators for self-employment and business ownership. In part, this is because the duration of an entrepreneurial endeavor is of course contingent on its success, so it is helpful to measure the expected results from even *attempting* to be an entrepreneur. But we should expect returns to increase with the level of engagement in entrepreneurship if it is indeed this channel that allows for wealth building. Thus, we include controls for being self-employed or owning a business for a non-trivial number of years (at least 20% of the instances in which we observe the household).

Adding these controls allows us to rule out the possibility that the relative success of entrepreneurs is driven primarily by personality differences - i.e. that they are more ambitious, risk tolerant, hard-working, etc. If this were so, then even those whose ventures fail and who return to wage employment sooner would perform better than their less ambitious peers. This still leaves some room for the possibility that ability might make the difference, if those with higher skill are more likely to not just enter, but also remain in entrepreneurship. Later we will be able to test and reject this hypothesis explicitly, but – more fundamentally – this scenario begs the question of *why* would more skilled individuals systematically sort into entrepreneurship if it didn't yield higher returns. In fact, column 4 suggests that being only briefly self-employed is associated with worse outcomes. This could be a sign that short-lived self-employment actually codes necessity entrepreneurship, or it could simply reflect the (bad) luck of the draw.

Nonetheless, even though we control for the level of parental wealth, education, the broad sector, whether they owned a business or were self-employed, etc., all these variables are fairly crude – not distinguishing for instance between college degrees from Ivy Leagues vs low-ranked universities. We believe the combination of all these measures of parental resources does add up to a full picture, even if each variable on its own is imperfect. But there is a way to make *sure* we account for all relevant parental characteristics – and that is by accounting for the parent. One of the advantages of the PSID dataset is that it allows us to track families from generation to generation. We restricted the sample to individuals born between 1950 and 1975, which means they were either minors in their parents' household

when the data collection began in 1968, or were born within the following 5 years. A majority of these individuals have siblings who are also in the data, thus allowing us to control for each individual parental household. This is precisely what we do in the last two columns of table 8. To be specific, we introduce individual fixed effects for each subject’s main working parent (usually the father if present), thus effectively comparing paternal siblings against each other.²⁸ This quasi-experimental evidence – while less precisely estimated – also strengthens our findings: column 5 reports that, in families where such variation exists, the sibling who owns a business at some point is predicted to end up 4.86 percentiles wealthier than the sibling who did not. This coefficient is remarkably close to the analogous 4.22 percentile predicted by column 3, although as expected standard errors are larger. In the last column, we again introduce the indicators for prolonged self-employment and incorporated business ownership, thus mirroring the specification from column 4. And once again, the fixed effects estimates are very similar to the OLS ones: the sibling who owned a business at least at 20% of the time and whose business was incorporated could be expected to end up 10 percentiles (6.22+3.93) higher than the sibling who did not – again, similar to the earlier estimate of 14 percent (9.27+4.5)²⁹ even after controlling for education, industry, time in the labor market, etc.

To study whether black and white people experience gains differentially through entrepreneurship, we now leverage the SEO sample as well. This gives us much more power to estimate the role of race since the SRC sample has a limited (but population representative) number of black households, while the SEO sample is made up of 90 percent black households. Table 15 presents the baseline results from the combined SEO and SRC samples. The findings are qualitatively and quantitatively similar. Table 16 includes interactions for the different entrepreneurship categories with race. These interaction terms are for the most part not significant and standard errors are large. There is some weak evidence that black owned incorporated businesses are not as lucrative of industries (see the negative coefficient on the interaction term in columns 3 and 4). However, the estimations in columns 5 and 6 that include parent fixed effects shows that the net gains to black entrepreneurs are statistically indistinguishable from that for white entrepreneurs. This suggests that there is

²⁸The sample in this case is restricted only to individuals with one or more siblings in the data. Alternatively, we can introduce fixed effects at the level of the original household—which allows us to use a slightly larger sample—but results are essentially identical.

²⁹There is no indicator in the data for whether the firm was inherited, but based on other studies, the share of families who run an inherited business is quite small (around 2 percent). We also run the analysis from table 8 but using rank based on wealth without the net value of private businesses, and find slightly smaller coefficients but unchanged qualitative results.

no detectable penalty to mobility for black business owners.

Overall, estimates presented in table 8 strengthen the case made by figure 5 and tables 6 and 7: first, entrepreneurs do indeed amass more wealth. Second, this is unlikely to be driven by some other correlate – including parental household. And third, the degree of wealth building is linked to persistence in self-employment and/or incorporation.

8.4 On the limited usefulness of transition probabilities under access constraints

In the previous sections we showed that – even controlling for observable demographics or indeed the parental household itself – entrepreneurs build significantly more wealth. The transition matrices showed that this applies even to entrepreneurs born to families in the bottom quintile. While these patterns are striking, they only tell half the story, since they take occupation as a given. The transition probabilities reported in table 7, for instance, are only encouraging to the extent that we think households from all different backgrounds have a real shot at owning an incorporated business. In figure 7 we seek to present the bigger picture, by indicating the number of households in each transitional category through the area of the circle. The sample is split so that the left panel includes both non-business owners and households who owned an *unincorporated* business only (therefore combining the first 2 panels of table 7), while the right panel includes only households who owned an incorporated business at some point. Comparing the size of the circles, we notice that, although the offspring of bottom quintile parents tend to have very good outcomes if they own an incorporated business (i.e. are in the right-side panel), only a small minority of them ever do so. We capture some of this differential selection issue by reporting the transition matrix *backwards* in the bottom panel: here we list retrospective probabilities, showing for example that a top quintile household that owns an incorporated business has a 51% probability that their parents were in the top quintile as well, whereas among wealthy households who don’t own an incorporated business, only 35% come from the top quintile – in other words, wealthy business owners are more likely to have inherited their status (directly or indirectly) than wealthy non-business owners.

Figure 8 is another attempt to visualize the interplay between wealth transmission and entrepreneurship: it shows the share of households who are business owners, at each point in the transition matrix. Informally, we can verify that in order to move *up*, it helps to own a business, in particular an incorporated one. Of those who climb into the top quintile –

starting from any point along the distribution – less than half do so by wage work alone. Among households who are top quintile stayers (meaning that both their parents and they themselves place in the top 20%), more than half own an incorporated business; by contrast, only 4 percent of *bottom* quintile stayers do.

Figure 6 and table 12 report cuts of the data by parental wealth, to mirror the earlier summary statistics by own wealth. As we can see, the pattern of positive correlation between entrepreneurship and wealth is again present, in particular when it comes to prolonged self-employment and ownership of a corporation, and it is stark. While it is true that business owners tend to end up much higher in the wealth distribution, they overwhelmingly *start* higher.

This is potentially concerning: if access is heavily conditioned on wealth, entrepreneurship may indeed stifle – rather than facilitate – overall mobility. Wealth correlates such as education however, makes it necessary to proceed with caution. We expand our analysis in the following directions: we will investigate whether access is enabled indeed by parental wealth – as opposed to other, more meritocratic – factors. We will ask who are the groups most helped through this channel: who gains access and who does well, conditional on access. Finally, we will ask whether these groups experience higher relative mobility, and whether this has an effect on the aggregate churning in the economy.

First, however, we want to test whether entrepreneurship *matters* from an explanatory standpoint for wealth outcomes.

8.5 Does entrepreneurship help explain sample variation in wealth outcomes?

If already-wealthy individuals are the ones most likely to become entrepreneurs, and subsequently most likely to build further wealth, to what extent does entrepreneurship itself even matter? That is, how much of the variation in realized wealth is explained by entrepreneurial controls (as opposed to, say, parental wealth or education level)?

Table 9 reprises the outcome wealth rank analysis, this time holding the sample fixed and attempting different OLS specifications, with the goal of making direct R^2 comparisons. The first specification. It turns out almost one third (29.8%) of the total variation in wealth is explained by observable factors that are outside the individual control’s (see column 3), with most of the explanatory power coming from the (combined) parental indicators for wealth, immigration status and race (column 2 vs 1). Once these are taken into account,

information on parental education, employment (including self-employment), industry, etc. explains only an additional 2.5 percentage points (column 3 vs 2). Adding in marital status, state in which one settled and modal industry improves explanatory power, bringing the R square to 0.42 (column 4). In the next 3 columns we introduce individually controls for education (col 5), time spent unemployed or outside of the labor force (col 6), and indicators for self-employment and business ownership (col 7). Interestingly, these 3 components each contribute a similar amount to the model’s explanatory power: education explains an additional 2.7%, employment an additional 2.6%, and entrepreneurship 2.6%.³⁰ Finally, we include all these controls in the last column: this is simply the specification from column 4 of table 8.

Naturally, many of these indicators are correlated with each other and we cannot draw quantitatively-specific conclusions from this analysis. However, a handful of interesting patterns bear mentioning: first, basic demographic descriptives along with parental wealth rank are sufficient to explain 29% of variation in own outcome wealth.³¹ Second, adding several other parent characteristics which we generally deem important (education level, average marital status, industry, etc) explains only a small additional fraction of variation (.025). We don’t take this to mean that factors such as parental education are necessarily unimportant, but rather that they are so tightly linked with wealth standing that we do not see them make a difference in practice. Third, some very basic personal choices (marriage, state, and industry) explain much of the remaining variation.³²

Fourth, other choices people make (more or less freely) have a relatively small impact: education, years worked, and self-employment/business ownership have comparable explanatory power, with each between 2.5 and 2.6 percentage points of the remaining variation in accrued wealth.³³ This makes for an interesting dilemma: is entrepreneurship simply not relevant to households’ outcomes? We certainly think education and sustained employment

³⁰We introduce them separately at first because they are correlated. Note however that they are also correlated with industry – the fact that industry fixed effects were introduced in column 4 means we are likely to underestimate the explanatory power of education, unemployment and (especially) self-employment and business ownership.

³¹As a matter of fact, parent wealth *alone* - without even cohort fixed effects - accounts for 23% of variation (regression not reported).

³²Average marital status is by far the most explanatory.

³³Alternatively, we can test for the explanatory power of these controls without first controlling for marriage, state and industry (i.e. by adding to the specification from column 3). In this case, the corresponding R squares for the addition of education, unemployment, and entrepreneurship are 0.361, 0.351, and 0.360 respectively. So once again they have similar and limited explanatory power - this time between 3.5 and 4.5 percentage points.

matter, even though they underwhelm in this test. As it turns out, the similarity is not accidental: just as a 4-year degree opens new doors for the child of a working class family, business ownership has the potential to do the same. In both cases, however, the rate of access is in practice limited, which suggests the existence of substantial structural barriers.

9 Who benefits from entrepreneurship?

9.1 What explains differential access?

We have seen that participation in entrepreneurship is heavily correlated with high parental wealth. But this fact alone does not mean that it is *driven* by parental wealth. There are three broad alternative scenarios we will try to distinguish between:

1. Starting a business necessitates large up-front investments, therefore – given credit market frictions – access to liquidity through one’s parents confers a large advantage.
2. Wealthy parents are more likely to be business owners themselves, and we know offspring are disproportionately likely to follow in their parents’ occupation. Occupation stickiness has been shown to be particularly high in entrepreneurship, because of inherited norms, specific knowledge, networks, etc.
3. Wealthy parents have higher general human capital, as embodied by both innate ability and formal education, and high human capital households are more likely to overcome the hurdles to entrepreneurship.

Distinguishing between these three channels is important because they have vastly different policy implications: if channel 1 dominates, that would in general suggest that credit access is a disproportionate hurdle to entrepreneurship and we may consider expanding loan guarantee programs such as those offered by the Small Business Administration.³⁴

If channel 2 dominates, that would suggest that we need to expand our entrepreneurial-education programs, along with initiatives that help would-be entrepreneurs navigate the practical aspects of setting up a business, including obtaining permits, connecting to suppliers and distributors, etc.

³⁴Here, it will also be important to know at what point in the wealth distribution the advantage kicks in – to establish if corrective public policy is even feasible. For instance, the pattern of incorporated business ownership we observe suggests that credit constraints might be significant through the 8th decile!

If channel 3 dominates, we would want to distinguish between formal education and innate characteristics. Universal access to high quality formal education is already recognized as an important policy goal, and this study would add to the evidence supporting it. If, on the other hand, differential access to entrepreneurship is driven by variation in (general or specific) ability or in personality traits, this would indicate that the system is meritocratic and there would be little or no need for policy intervention. It’s hard to see how this last channel might account for the large differentials we observe, but at this point we cannot yet rule it out.

Before exploring these channels in earnest, we test the underlying premise supporting channels 2 and 3: are wealthy *parents* more likely to have been entrepreneurs and to have had higher human capital? Table 14 shows summary statistics by parental wealth. Here we see that wealthier parents were indeed much more likely to be business owners: twice as many parents in the 9th decile owned a business at some point, compared to parents from the bottom two deciles, and the share increases further for the top of the distribution.³⁵ Parental education is also positively linked to wealth: for instance, fathers in the top 10% were about 5 times more likely to have finished college than those from the bottom decile.³⁶ This means channels 1, 2 and 3 are all plausible mechanisms to explain why individuals with high initial resources are much more likely to enter business ownership. Thus, we proceed with trying to tease out their relative importance.

The next questions to ask are: first, are human capital and parental experience predictive of business ownership (i.e. do channels 2 and 3 play a role)? If so, does this hold for all parental wealth levels? Second, is parental wealth still predictive of business ownership after we’ve accounted for parental experience and human capital (i.e. does channel 1 play a role, once we’ve controlled for channels 2 and 3)?

Table 12 shows that the children of business owners are generally more likely to be self-employed or to own a business: 38% of the children of non-entrepreneurs ever own a business, whereas 50% of the children of entrepreneurs do. However, we can already see that the difference comes at least in part from the composition effect, since the children of business owners tend to start out wealthier.

On the other hand, the extent to which education predicts entrepreneurial ambitions

³⁵This seems obvious given that the same pattern exists in their children’s generation, but the comparison seems worth making given concerns about decreased opportunity and increased inequality.

³⁶We do not have suitable measures of parental ability aside from education. Before the child development supplement which began in 1997, IQ tests were only administered on small subsamples.

is less clear: in table 13 we see that self-employment entry is negatively correlated with education, while persistent activity in self-employment varies positively (though not monotonically) with education. The rate of (possibly brief) business ownership is relatively stable across education levels, but the likelihood of ever owning an incorporated business, or of owning a business for a substantial portion of time increases dramatically with the attainment of a high school degree, with attending college, and with getting a college degree. Postgraduate work is not significantly correlated with business ownership, and is associated with *less* self-employment.

One might argue that the crude education level indicators found in surveys like PSID do not adequately capture the quality of education, by not distinguishing -for instance- between a low-ranked university and an elite one. But that distinction may be even more relevant for wage work, and would thus have ambiguous implications for involvement in entrepreneurship.

Ideally, we would like a measure of ability which does not also serve as a labor market signal. Fortunately, PSID has been collecting aptitude test scores of the sample children as part of the Child Development Supplement, since 1997. This does not reach far enough back for us to observe the IQ of our target individuals, but we do observe the scores of many of their children. In particular, we use the applied problem score from the Woodcock Johnson test, and assign it to that family unit as a proxy for the IQ of the parent(s).

This variable is available for only around 40% of the sample, so it is excluded from our primary results. In separate analysis, some of which is reported here in the Appendix, we find that this score (which we will refer to as IQ) appears to be a meaningful measure of ability - it is highly correlated across time for the same child, positively correlated within families, and it is highly predictive of educational attainment. When introducing it in our analysis, we find that cognitive ability is linked to higher wealth placement, even after conditioning on education, work activities, parent characteristics (incl. wealth), and so on. However, IQ is *not* at all predictive of engagement in entrepreneurial activity - across a wide variety of specifications we have tried. As to the question of whether higher ability allows for disproportionate rewards in entrepreneurship over paid employment, there is a hint that this may be the case, particularly for incorporated business ownership. While we lack the statistical precision to draw definitive conclusions (see table 17), this interpretation would be in line with findings from Levine and Rubinstein (2017).

While these graphs and statistics have been suggestive, they are limited in the number of dimensions they can account for at any one time. We use regression analysis in order to identify the factors most predictive of entrepreneurial participation; how *do* parental

households ease the path to entrepreneurship for their offspring?

We test formally: first, whether parental wealth and parental experience in entrepreneurship matter, and to what extent does the former proxy for the latter; second, how does education enter, and is parental experience more relevant for certain education levels. Table 11 reports regressions of indicators for entrepreneurial activity (business ownership, prolonged business ownership, incorporated business ownership, self-employment and prolonged self-employment) on relevant parental experience (in business ownership and self-employment, respectively) interacted with an indicator for (the child) having a college degree, as well as parental wealth and the usual demographic controls. We find that for all categories of entrepreneurship considered, parental experience is a plus.³⁷

This is consistent with our graphical representations – as are the coefficients on the top decile and top centile in columns 2, 3, 5. In a sample where the dependent variable has mean 0.177, having parents in the top decile has a coefficient of .17 even after controlling for parental experience. Having parents in the top 1% has an effect almost double the sample mean (33%). Equally remarkable is that there are no measurable effects of parental wealth below the 10th decile.

Table 11 also shows the interplay with higher education. It appears that children who do not go to college and whose parents are entrepreneurs end up in the less lucrative type of business ownership - self-employment and unincorporated business ownership. Children of entrepreneurs who do go to college end up themselves being more likely to own an incorporated business, and parent wealth appears to complement child education. So the wealthiest parents who are entrepreneurs and whose children go to college are also the most likely to pass down that lucrative forms of entrepreneurship.

The fact that parental wealth does not seem instrumental in owning *a* business (when including those unincorporated) leads us to believe that – consistent with the findings in Buera (2009) – credit constraints introduce inefficiencies primarily along the *intensive* rather than the *extensive* margin: individuals are able to work for themselves or start a small-scale business but, – lacking abundant financial resources – they will typically not be able to invest enough to turn the business into a significant vehicle for wealth creation. There will always be, of course, exceptions to this general pattern, and in order to judge the ultimate value of the entrepreneurial mechanism we need to dig into the details.

Table 18 uses the combined SRC and SEO samples to understand how race interacts with

³⁷We investigated whether parental experience interacts with wealth in a meaningful way, but could not measure a significant effect.

entrepreneurial determinants. We find that the degree to which parental entrepreneurship encourages one's own entrepreneurial activities is similar or higher for African Americans as compared to whites, and it is *much* higher for the (admittedly broad) "other races" category. However, the standalone coefficients on race are often negative, sizeable, and significant, implying that racial minorities whose parents are *not* entrepreneurs are at a distinct disadvantage compared to Whites.

Before moving on, a quick review of the results from this section: we found that family background – both entrepreneurial experience and financial resources – play a significant part in predicting who will become an entrepreneur. Parental wealth within the top decile and top 1 percent, in particular, is highly predictive of incorporated business ownership.

Human capital matters as well – to a smaller degree – but is manifested mainly through the level of formal education, which is itself linked to parental business ownership. Innate ability, while predictive of higher levels of education, has no other measurable link to participation in entrepreneurship.

10 What is the effect on relative mobility?

Continuing with our analysis, we arrive at a deceptively simple question: does the vehicle of business ownership mean there is *more* relative wealth mobility, or *less*? First, we will ask whether the sub-sample of entrepreneurs has more or less internal churn than the rest of the sample. For this, we run intergenerational elasticity and rank-rank analyses and find relative mobility to be exactly the same within each employment mode, although as we saw before the sample of business owners has an absolute advantage.

We argue, however, that this approach has the serious limitation of not accounting for the selective access into entrepreneurship.

To deal with this issue, we compare the simulated results from two counterfactual scenarios: one in which we imagine that none of the households in the sample are business owners,³⁸ and one in which business ownership is predicted from our 1st stage estimates, with parental wealth being restricted to be the same across the entire sample. We discuss our results at the end of this section and in the Conclusion.

In this section we pose two questions: first, what categories of individuals are actually able to access self-employment and business ownership—both on the extensive and intensive

³⁸Here we must emphasize that we are asking a very limited question: we abstract away from any general equilibrium effects or even from more direct potential effects of business owners on non-business owners.

margins? And second, conditional on access, what categories are most likely to leverage entrepreneurial activity into wealth growth and social mobility?

10.1 Is there more social mobility among entrepreneurs?

The first question that presents itself is whether mobility *within* the sample of entrepreneurs is greater than within that of wage workers.

Table 10 obtains estimates for the intergenerational rank-elasticity of wealth, introducing interactions indicators for whether the individual was an entrepreneur, by the criteria listed in column headers: business ownership (col 2), ownership of an incorporated business (col 3), or an unincorporated business³⁹ (col 4), and finally self-employment (col 5). For each category, we introduce a simple control as well as an interaction with logged parental wealth – if negative, this interaction would suggest that individuals from lower in the wealth distribution are helped more by entrepreneurship. The interactions of parental wealth with the business owner and the *incorporated* business indicator (cols 2 and 3) are not distinguishable from zero, thus suggesting that the business-owning sub-sample is indeed more mobile. Looking in the next columns, there does appear to be increased mobility from unincorporated businesses alone. effect is larger and significant for unincorporated business ownership. Note however that the intercept is zero in column 4, so that the mobility is in the negative direction for households starting in the top half the wealth distribution.

10.2 What are the combined implications for aggregate mobility?

One way to assess the combined effect of entrepreneurship of relative mobility is to simulate its absence. It is important to note here that we are not accounting for the positive externalities business owners create – through providing jobs, innovation spillovers, etc. Thus the simple simulation we perform *should NOT* be interpreted as presenting counterfactual aggregate outcomes. We are simply asking about implications for *relative* mobility, in a restricted, non-general equilibrium sense.

In this exercise, we ran the main wealth outcome specification, then recorded the residuals and predicted outcome wealth rank after setting all business ownership and self-employment variables to zero (the ones referring to the current generation, not the parents). We add the

³⁹Here and in similar instances elsewhere, the unincorporated business criterion excludes entrepreneurs who at some point owned an incorporated business.

residuals to the predicted values, then re-compute centiles of the result and interpret this as the outcome rank absent any entrepreneurial activity.

The new rank-rank intergenerational elasticity of wealth we find is 0.372 ± 0.026 , which indicates indeed more mobility when compared to the 0.387 ± 0.026 elasticity we found for the actual outcome.⁴⁰ However, it is worth noting that in this counterfactual, while there is less stickiness at the top, there is on the other hand also more stickiness at the bottom.

11 Conclusion

In this paper we seek to understand the role entrepreneurship has played in household wealth accumulation and inter-generational wealth mobility in the US. The data shows that entrepreneurs, especially incorporated business owners, have accumulated considerably more wealth than wage workers. Regardless of where on the wealth distribution one came from, success at entrepreneurship corresponds to sizable advantages in wealth accumulation. However, access to entrepreneurship is far from uniform. Children from wealthy households whose parents themselves are entrepreneurs are far more likely to avail of this occupation - eclipsing the roles of education and even ability as measured by IQ. As such, entrepreneurship has not played a large role in facilitating social mobility in the US. The data however, suggests that entrepreneurship shares similar weight to both education and occupational status in explaining total variation in outcomes.

The findings suggest the presence of informational and financial frictions in access to entrepreneurship. This is not dissimilar to other high status occupations such as banking and invention that also suffer from similar access barriers. Entrepreneurs however do make up the vast majority of America’s wealthiest (top 1 percent) households. As such, it is especially important that we understand why there is so little churn in who can access this avenue for wealth building. To what extent does financial capital versus social capital matter for long-term entrepreneurship?

Given the gains experienced by those who engage in sustained entrepreneurship, regardless of where they come from or what race they are, improving access holds the promise of greater economic mobility and growth in the US. That a significant fraction of the population currently lacks the resources to engage in sustained entrepreneurship presents policy-makers with an opportunity to implement welfare-improving policies. Likewise, commercial and

⁴⁰If we don’t include any (exogenous) controls, the elasticity still drops – this time from 0.425 ± 0.021 to 0.411 ± 0.021 .

education innovations (i.e. fin-tech innovations, social networks, k-12 and University entrepreneurship initiatives etc.) also hold the potential to erase access inequities.

Ultimately, increasing participation in entrepreneurship will have the dual benefit of reducing inequality and increasing economic growth. Giving the best and the brightest, regardless of birth circumstance, the opportunity to pursue and succeed in entrepreneurship will serve to increase the quality of firms, inventions and ultimately, our standard of living.

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12 Figures

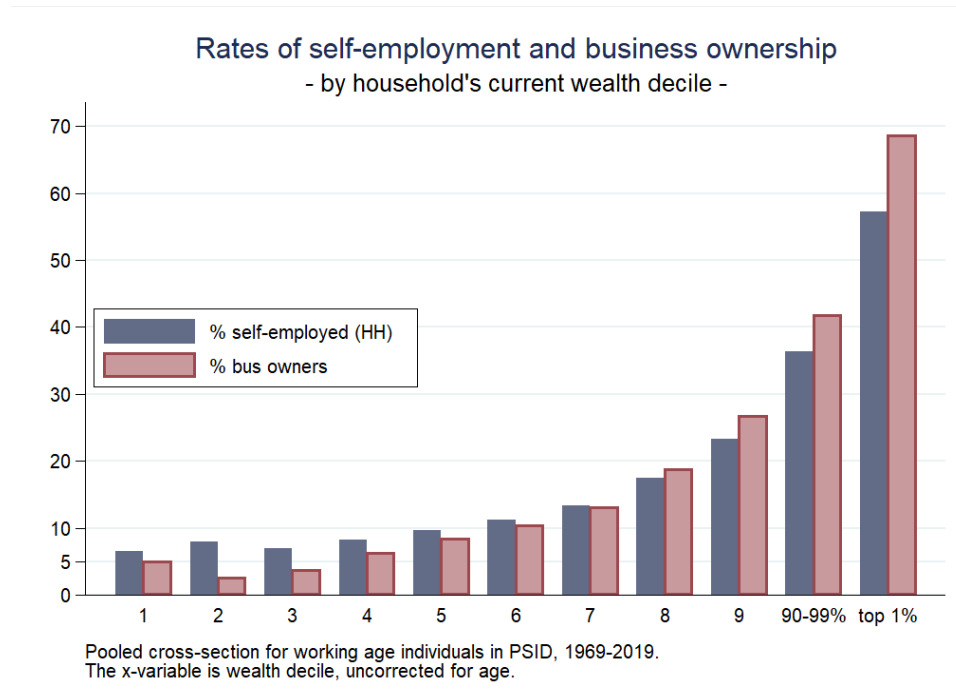


Figure 1: Cross-sectional snapshot of entrepreneurial activity (measured at the household level), by current wealth. (All tables and figures make use of only the representative (SRC) PSID sample, unless noted otherwise.)

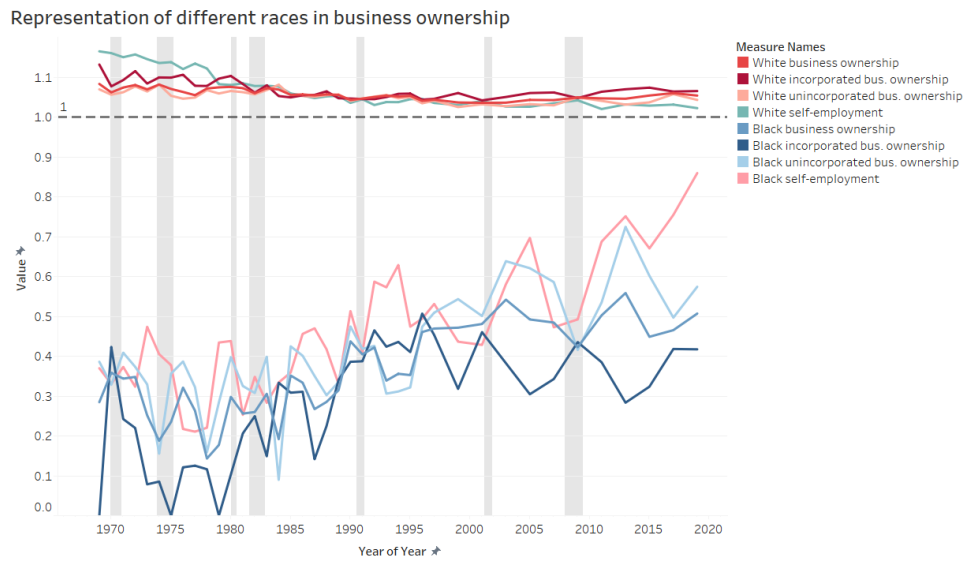


Figure 2: Race representation in business ownership.

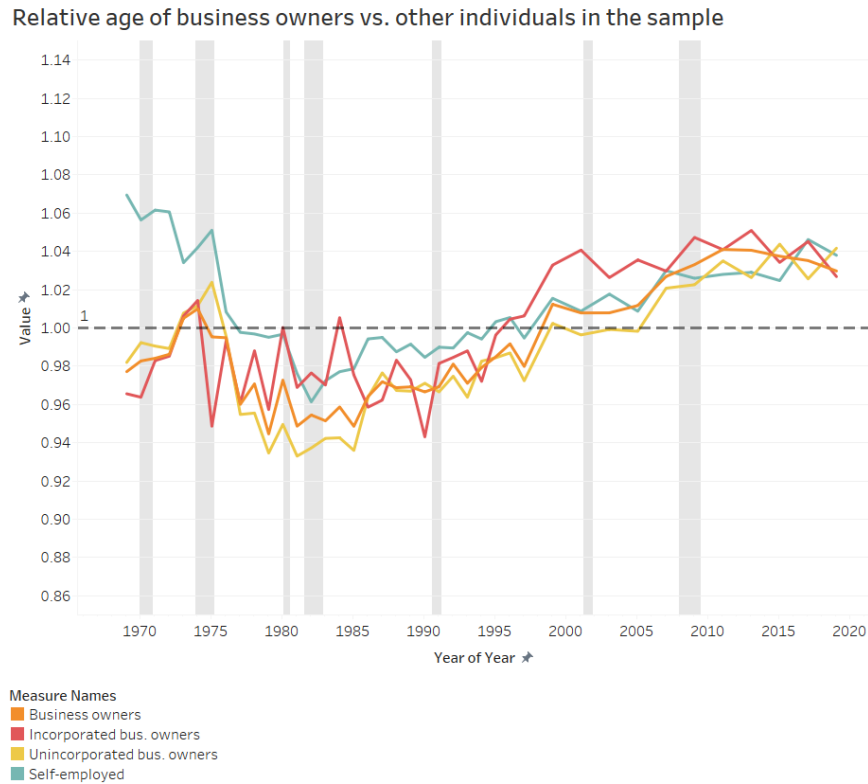


Figure 3: Age representation in business ownership.

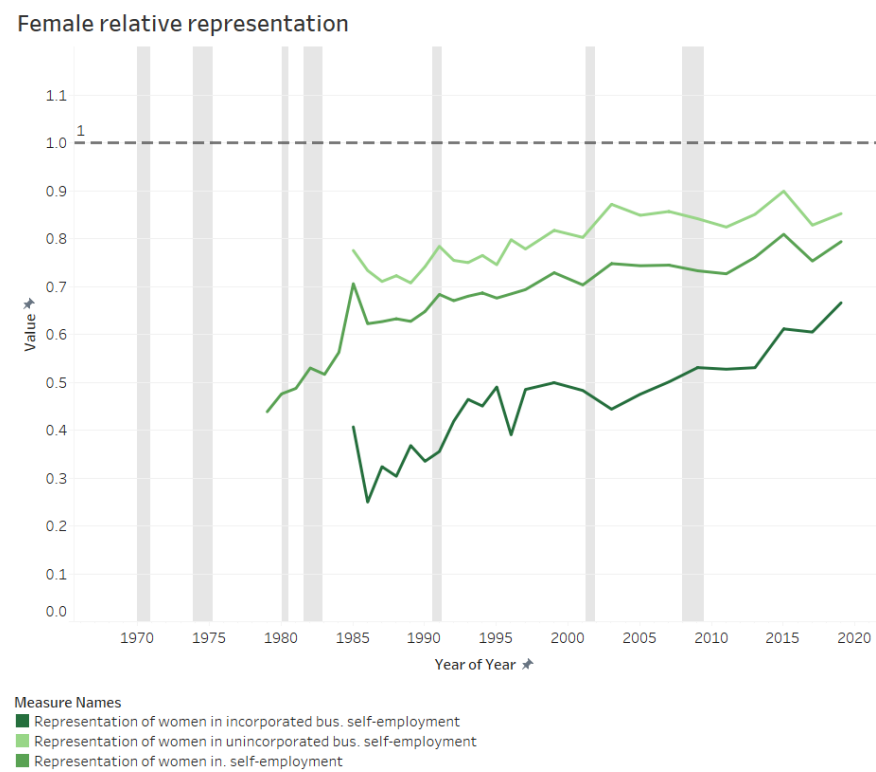


Figure 4: Female representation in business ownership.

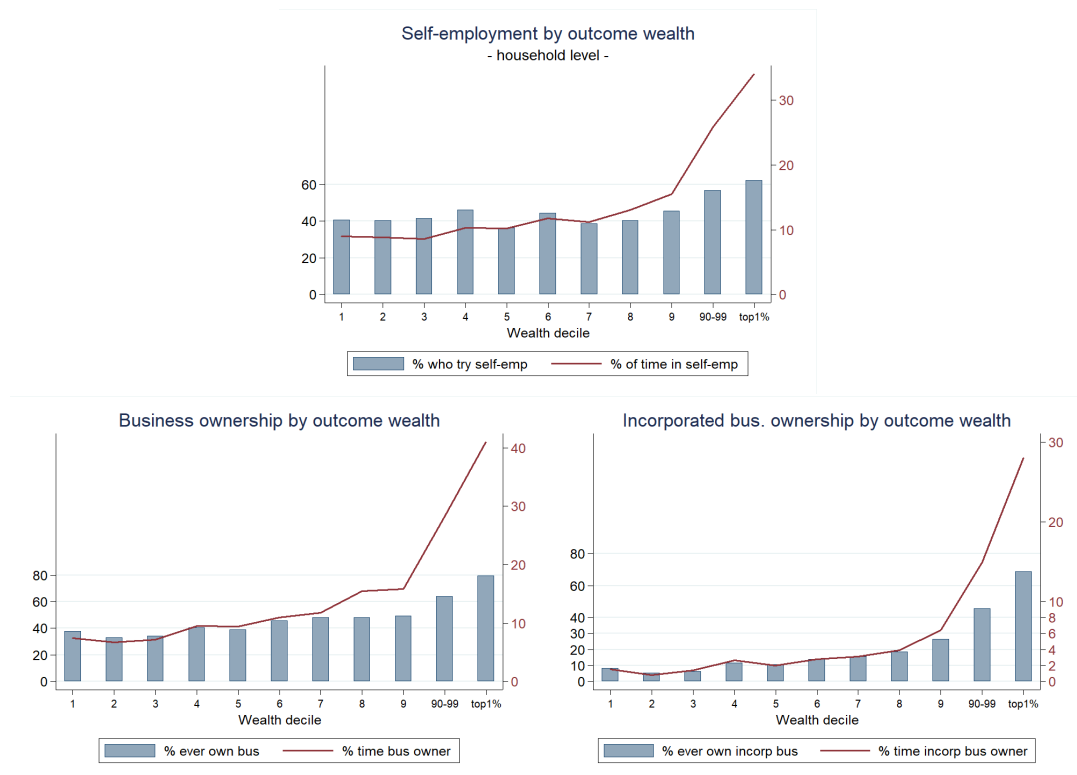


Figure 5: Youth self-employment and business ownership by outcome wealth



Figure 6: Entrepreneurial activity by *parental* wealth (as measured during mother's middle-age)

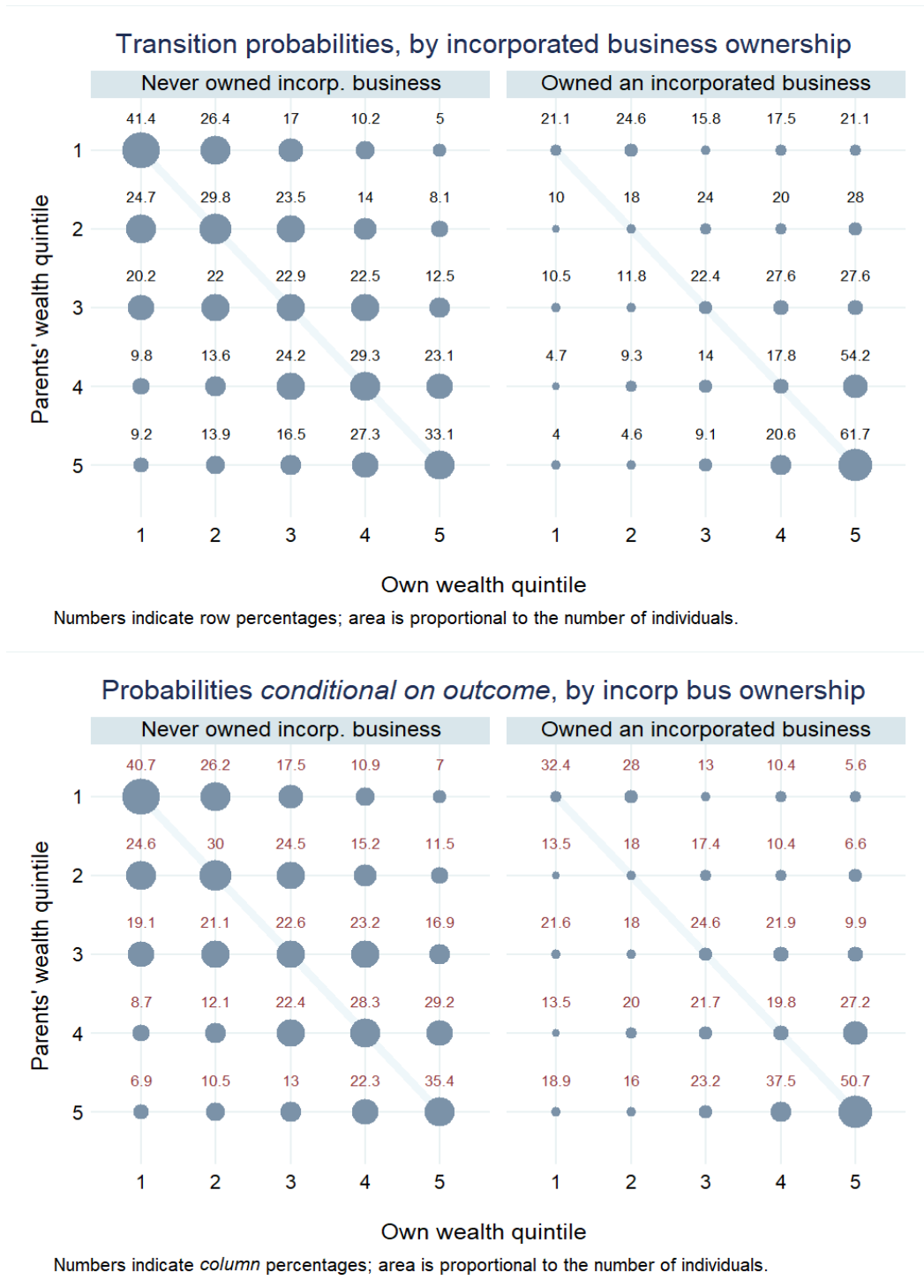


Figure 7: Prospective and retrospective transition probabilities

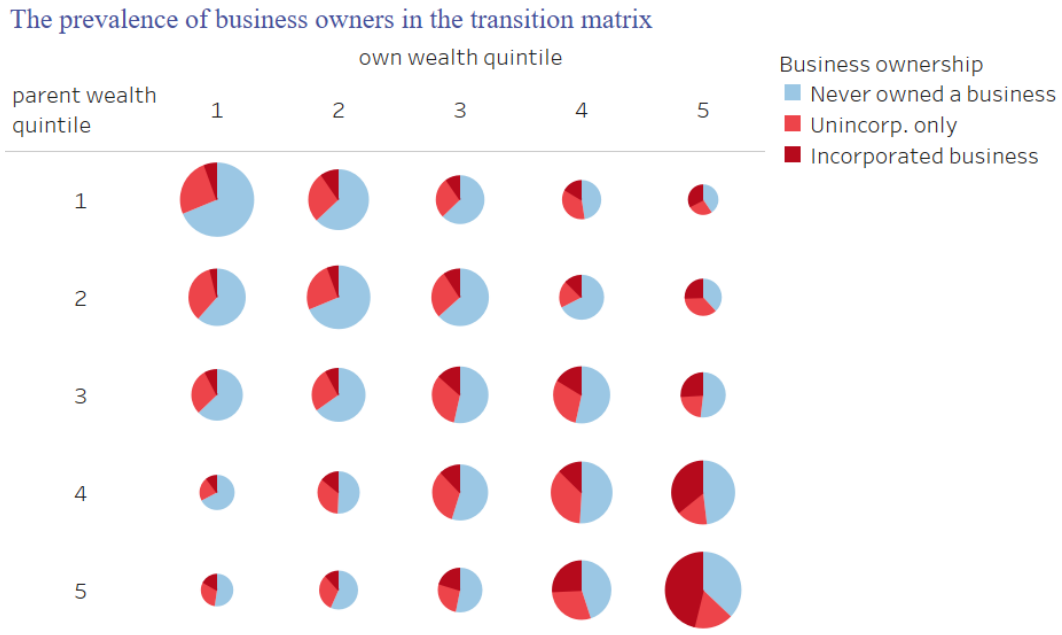


Figure 8: Density of business owners in the joint wealth distribution

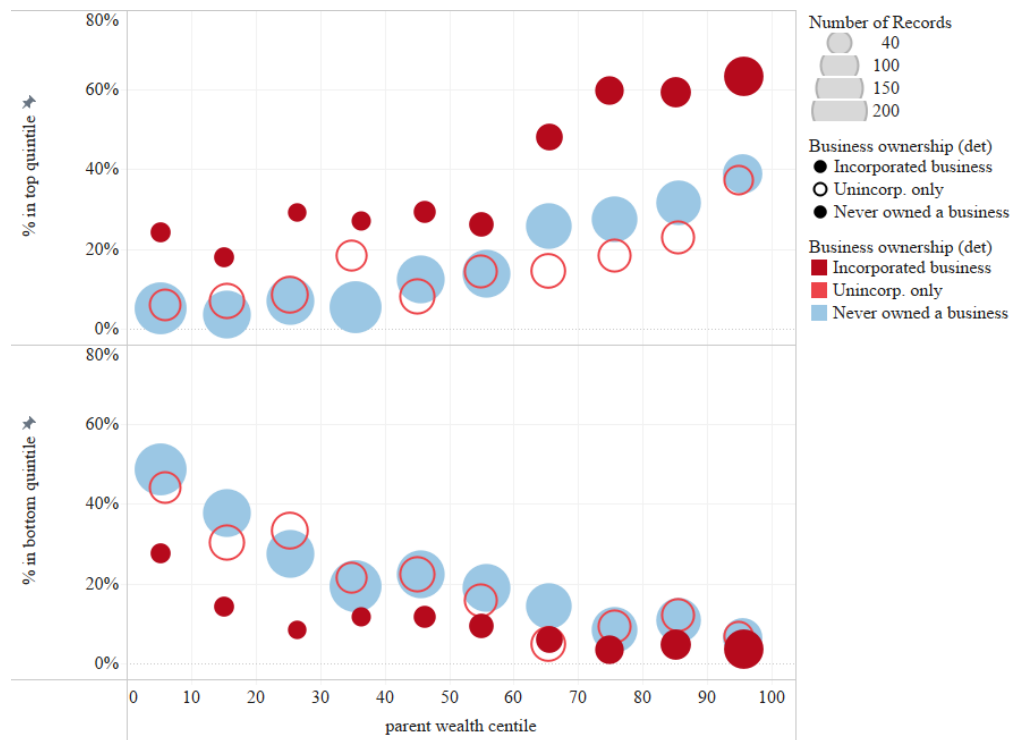


Figure 9: Placement in top/bottom wealth quintiles, by bus. ownership and parent wealth decile

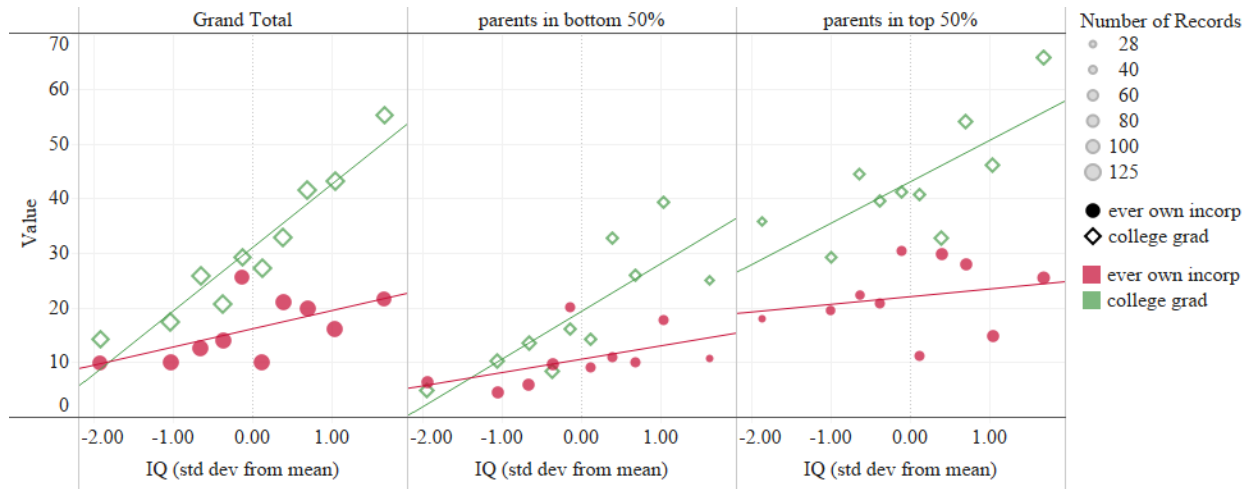


Figure 10: Education and business ownership: parental wealth is an advantage in both; however – unlike with college graduation – ability confers little additional advantage in becoming an incorporated business owner

Education and business ownership by parental entrepreneurial experience

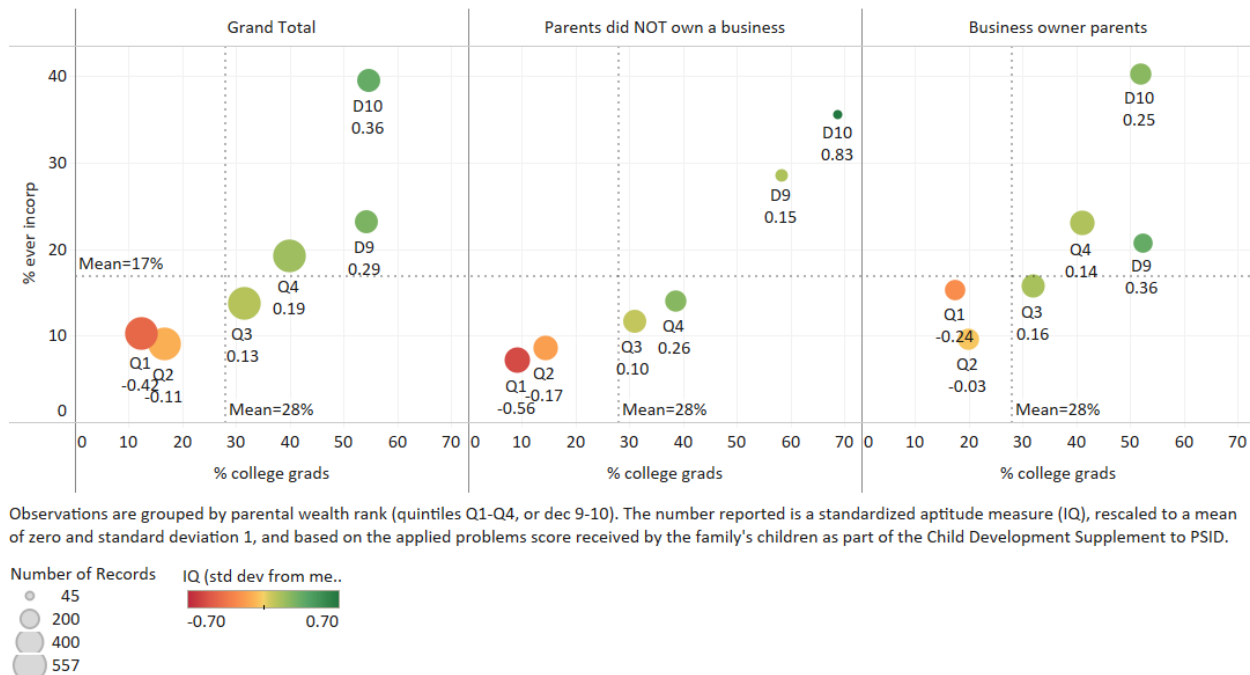


Figure 11: Comparing education achievement and business ownership, grouped by parental wealth rank (bottom 4 quintiles and top 2 deciles)

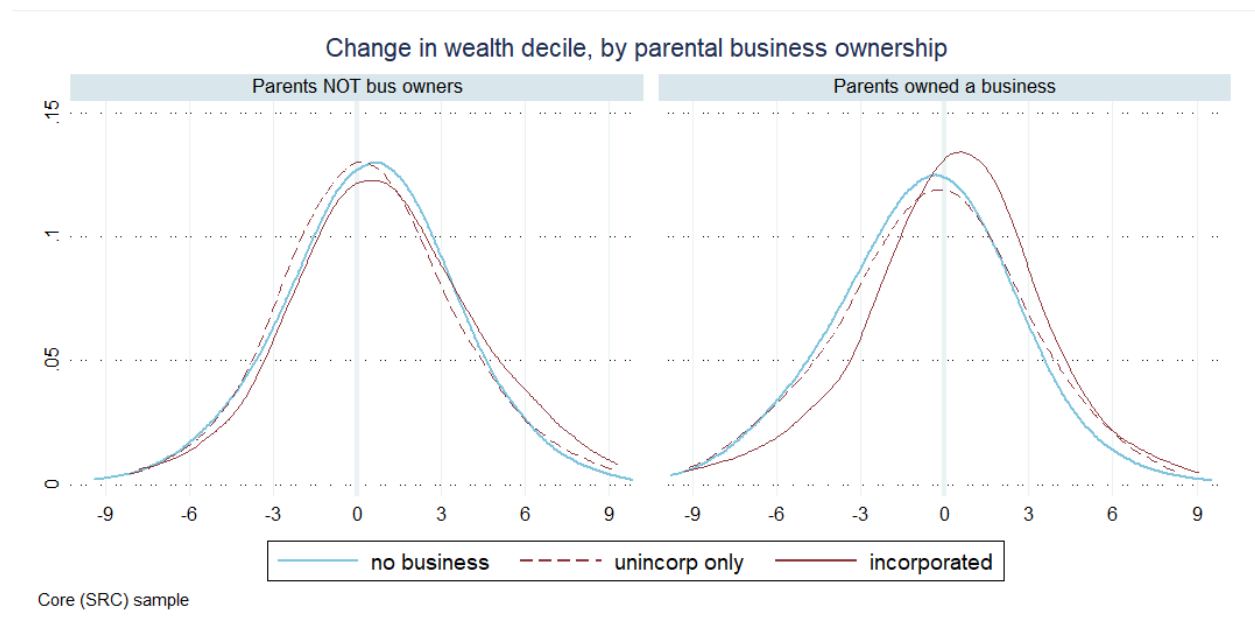


Figure 12: Wealth mobility by parental business ownership.

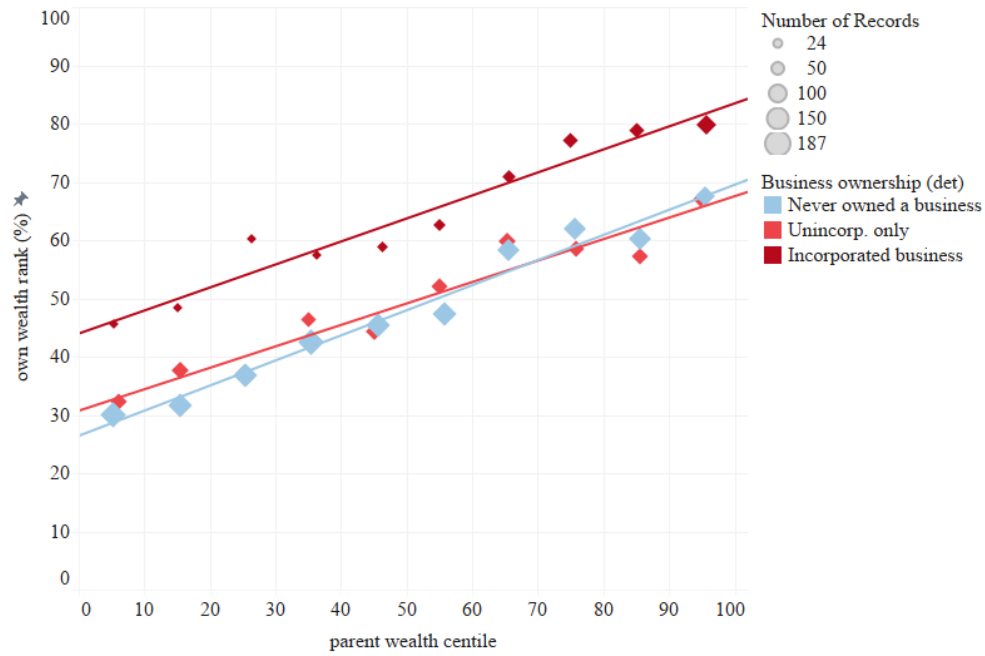


Figure 13: Relative mobility, by business ownership

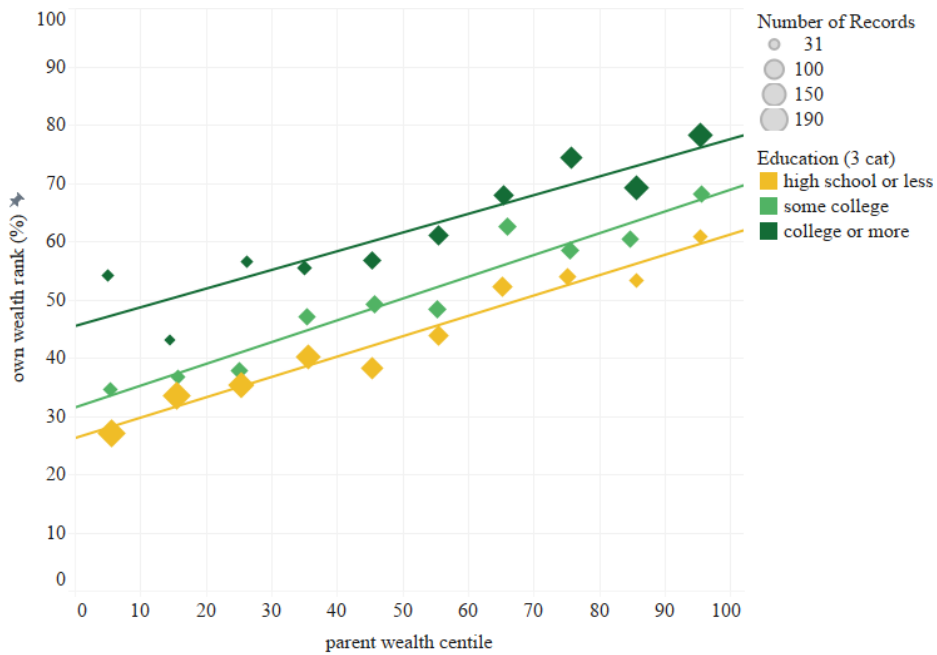


Figure 14: Relative mobility, by educational achievement

13 Tables

PSID sample	race	N	Parent wealth decile	Mean wealth decile	ever self-emp (%)	owned business (%)	ever own incorp (%)	Prop Yrs Self-Emp (HH)	Prop Yrs Own Bus	Prop Yrs Incorp	Prop Yrs Unemp (HH)	Prop Yrs OLF (HH)	% HS grads	% college grads
Representative (SRC)	White	2,497	5.8	5.7	45	46	17	13%	13%	4.3%	7.4%	21%	89	33
	Black	236	2.8	3.5	27	28	9	7%	6%	2.1%	16.2%	14%	84	12
	Other races	46	4.5	5.3	48	46	15	16%	13%	4.6%	8.2%	21%	80	39
	Total	2,779	5.5	5.5	43	44	17	13%	12%	4.1%	8.1%	20%	89	31
Disadvantaged (SEO)	White	141	4.3	5.0	55	55	21	13%	11%	3.8%	9.4%	29%	77	11
	Black	1,435	2.6	3.3	27	23	6	6%	5%	1.2%	18.4%	18%	75	11
	Other races	24	3.0	4.2	25	21	0	6%	3%	0.0%	13.4%	23%	63	8
	Total	1,600	2.7	3.5	30	26	7	6%	5%	1.4%	17.5%	19%	75	11
Grand Total		4,379	4.5	4.8	38	37	13	10%	10%	3.1%	11.6%	20%	84	24

Table 1: Data summary

	PSID sample / birth decade								
	Grand Total	Representative (SRC)				Disadvantaged (SEO)			
		Total	1950's	1960's	1970's	Total	1950's	1960's	1970's
N	4,379	2,779	833	859	1,087	1,600	645	460	495
age	44	44	46	45	41	43	44	45	41
% Black	38.2	8.5	7.6	8.3	9.4	89.7	77.4	98.0	98.0
Parent wealth decile	4.5	5.5	5.6	5.7	5.3	2.7	2.7	2.5	3.1
Own Wealth	4.5	5.5	5.6	5.6	5.5	3.5	3.4	3.3	3.7
ever self-emp (%)	38	43	46	46	38	30	29	26	35
owned business (%)	37	44	48	47	38	26	28	24	25
ever own incorp (%)	13	17	18	18	15	7	9	5	7
Prop Yrs Self-Emp (Indiv)	7%	8%	7%	9%	7%	5%	4%	3%	7%
Prop Yrs Self-Emp (HH)	10%	13%	14%	13%	11%	6%	6%	5%	9%
Prop Yrs Own Bus	10%	12%	13%	14%	11%	5%	5%	4%	6%
Prop Yrs Incorp	3.1%	4.1%	3.6%	4.6%	4.2%	1.4%	1.6%	0.7%	1.7%
Prop Yrs Unemp (HH)	11.6%	8.1%	8.3%	6.9%	9.0%	17.5%	16.9%	17.2%	18.6%
Prop Yrs OLF (HH)	20%	20%	24%	19%	18%	19%	22%	20%	14%
% HS grads	84	89	90	88	89	75	73	76	76
% college grads	24	31	27	28	36	11	8	7	19
moved states (%)	25	29	31	27	30	18	18	14	21
father college grad (%)	17	23	20	23	26	4	3	3	8

Table 2: Data summary

outcome wealth rank	N	ever self-emp	self-emp 20% yrs	owned business	own bus 20% yrs	ever own incorp	% yrs own incorp	college grad	Median Parent Wealth decile
1	268	41	16	38	13	8	1.6	20	3.0
2	276	40	14	33	11	5	0.8	12	3.0
3	278	41	15	34	13	6	1.4	10	4.0
4	274	46	18	40	18	11	2.6	18	5.0
5	271	36	18	39	17	11	2.0	24	5.0
6	284	44	20	46	19	14	2.8	26	6.0
7	280	39	21	48	22	16	3.1	34	6.0
8	281	40	22	48	27	19	3.9	42	7.0
9	281	46	27	49	30	27	6.4	56	7.0
90-99th	257	57	44	64	50	46	14.7	64	8.0
top 1%	29	62	52	79	66	69	28.0	76	8.0
Total	2,779	43	22	44	22	17	4.1	31	5.6

Table 3: Entrepreneurial pursuits by realized wealth ranking

		Grand Total		Never owned a business		Unincorp. only		Incorporated business	
		N	% in row	N	% in row	N	% in row	N	% in row
Grand Total		2,779	100%	1,552	56%	764	27%	463	17%
never self-emp	Total	1,581	100%	1,246	79%	232	15%	103	7%
	never SE (HH)	1,581	100%	1,246	79%	232	15%	103	7%
self-employed	Total	1,198	100%	306	26%	532	44%	360	30%
	yrs SE < 20%	593	100%	230	39%	254	43%	109	18%
	yrs SE ≥ 20%	605	100%	76	13%	278	46%	251	41%

Table 4: Business ownership vs. self-employment – category overlap

parent wealth quintile (rows)	own wealth outcome					Total
	Q1 (botto..	Q2	Q3	Q4	Q5 (top quintil..	
Q1	39.2	26.4	16.8	11.0	6.7	100
Q2	23.5	28.9	23.3	14.4	9.9	100
Q3	18.9	20.5	22.8	23.2	14.6	100
Q4	8.8	12.7	22.3	27.1	29.1	100
Q5	7.6	10.8	14.3	25.3	42.0	100
Total	20	20	20	20	20	100

Table 5: Intergenerational transition probabilities for all individuals, in percentage points

parent wealth quintile (rows)	never self-employed					yrs SE < 20%					yrs SE >= 20%				
	Q1 (bott..	Q2	Q3	Q4	Q5 (top..	Q1 (bott..	Q2	Q3	Q4	Q5 (top..	Q1 (bott..	Q2	Q3	Q4	Q5 (top..
Q1	40	25	19	10	6	45	30	13	9	3	29	24	16	17	14
Q2	21	28	25	18	8	31	35	23	7	4	21	25	19	11	23
Q3	19	21	21	25	14	17	27	29	19	8	19	14	24	22	22
Q4	9	11	23	29	27	12	18	23	25	23	5	13	19	24	39
Q5	9	11	17	27	36	7	17	11	26	40	5	6	13	23	53
Total	20	20	21	22	17	23	25	20	17	15	14	15	18	20	34

Table 6: Intergenerational transition probabilities by self-employment attempt and duration (%)

parent wealth quintile (rows)	Never owned a business					Unincorp. only					Incorporated business				
	Q1 (bott..	Q2	Q3	Q4	Q5 (top..	Q1 (bott..	Q2	Q3	Q4	Q5 (top..	Q1 (bott..	Q2	Q3	Q4	Q5 (top..
Q1	43	27	17	8	4	36	26	17	14	6	21	25	16	18	21
Q2	23	32	24	16	6	28	26	23	10	13	10	18	24	20	28
Q3	21	23	21	22	13	19	19	26	24	11	11	12	22	28	28
Q4	11	12	23	26	27	7	16	26	35	16	5	9	14	18	54
Q5	9	14	17	26	35	10	14	16	31	29	4	4	9	21	62
Total	23	22	21	19	16	20	20	22	23	15	8	11	15	21	46

Table 7: Intergenerational transition probabilities by business ownership (%)

dep. var = wealth percentile	OLS				Parent FE	
	(1)	(2)	(3)	(4)	(5)	(6)
Ever self-employed (HH)	1.84* (1.00)	-0.31 (1.12)	-0.78 (1.11)	-2.67** (1.15)	-1.28 (1.74)	-2.97 (1.92)
yrs self-emp $\geq$ 20%				4.50*** (1.39)		3.93* (2.21)
Ever owned a business		4.22*** (1.14)	0.92 (1.22)	0.49 (1.22)	4.86** (1.93)	2.44 (1.99)
Owned incorporated bus.			9.87*** (1.54)	9.27*** (1.55)		6.22** (2.54)
% time unemp,olf,married	Yes	Yes	Yes	Yes	Yes	Yes
Educ+industry+state FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year+gender FE	Yes	Yes	Yes	Yes	Yes	Yes
ParentEduc+state+immig+race	Yes	Yes	Yes	Yes	-	-
Parents' wealth cent FE	Yes	Yes	Yes	Yes	-	-
Parent self-empl+bus+industry	Yes	Yes	Yes	Yes	-	-
Mother's marital status	Yes	Yes	Yes	Yes	-	-
Parent FE	-	-	-	-	Yes	Yes
Num observations	2691	2691	2691	2691	2216	2216
Num clusters	1026	1026	1026	1026	697	697
R^2	0.468	0.471	0.481	0.483	0.712	0.715
Adj R^2	0.403	0.407	0.418	0.420	0.492	0.498

Notes: Each observation represents an individual in the PSID sample, with wealth taken as the median percentile over the individual's appearances in PSID while between 40 and 55 years old. Only individuals born between 1950 and 1980 and whom we can observe during at least 5 years between 18 and 40 are included. Parents' wealth is computed as the wealth rank of the mother's household during middle age (40-55), supplemented with the data from the mother's late-middle age (56-65) when needed. The last 2 columns introduce fixed effects at the level of the parent (specifically, the main working parent). In all columns the dependent variable is outcome wealth percentile.

* "Parent's" employment (including self-employment), business ownership, industry, and fixed effects (cols 3 and 4) refers to the main earner in the family unit (usually the father, unless a father is not present or the mother works more years). Education is usually available for both parents and therefore reported for both. Standard errors are robust and clustered at the level of the original (1968) household, and significance indicated is at 10%(*), 5%(**), and 1%(***).

Table 8: Explaining wealth outcomes, by entrepreneurial attempt

	benchmk	exog		+ own choices				
dep var = wealth centile	(1)	(2)	(3)	(4)	+educ (5)	+empl. (6)	+SE/bus (7)	+all (8)
Self-empl/ own bus							Yes	Yes
unemp/ out labor force						Yes		Yes
Education					Yes			Yes
State+industry+marital	-	-	-	Yes	Yes	Yes	Yes	Yes
Parent educ+bus+indus+...	-	-	Yes	Yes	Yes	Yes	Yes	Yes
Parent wealth+immig+race	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age+gender+birthplace	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num observations	2691	2691	2691	2691	2691	2691	2691	2691
Num clusters	1026	1026	1026	1026	1026	1026	1026	1026
R^2	0.0770	0.274	0.298	0.422	0.449 (+.027)	0.448 (+.026)	0.448 (+.026)	0.485
Adj R^2	0.0484	0.221	0.237	0.354	0.382	0.383	0.382	0.421

Notes: The sample is restricted to be the same across specification for easier comparison. Standard errors are robust and clustered at the level of the original (1968) household, and significance indicated is at 10%(*), 5%(**), and 1%(***)

Table 9: OLS analysis of outcome wealth centile – breakdown of explanatory power

<i>entrep</i> =	bus owner		incorp	uninc only	self-emp
dep var=pctile wealth	(1)	(2)	(3)	(4)	(5)
pctile parent wealth−50	0.40*** (0.02)	0.37*** (0.03)	0.37*** (0.02)	0.42*** (0.02)	0.36*** (0.03)
(pctile parent wealth−50) ²	0.00 (0.00)				
<i>entrep</i>		6.03*** (1.10)	14.68*** (1.58)	-2.60** (1.17)	1.31 (1.07)
(pctile par wealth−50)* <i>entrep</i>		0.04 (0.04)	-0.01 (0.05)	-0.07* (0.04)	0.09** (0.04)
Demographic vars	Yes	Yes	Yes	Yes	Yes
Num observations	2779	2779	2779	2779	2779
Num clusters	1043	1043	1043	1043	1043
R^2	0.247	0.257	0.279	0.249	0.249
Adj R^2	0.223	0.233	0.256	0.224	0.224

Notes: We subtracted 50 from all instances of parental wealth percentile. *entrep* stands in for the different entrepreneurial categories: whether anyone in the individual’s household was ever a business owner (col 2), an incorporated business owner (col 3), or whether they only owned unincorporated business(es) (col 4), or whether either the individual or their spouse was ever self-employed (col 5). Interactions of the category indicators (*entrep*) and the square of log wealth were attempted but dropped due to a lack of statistical significance.

Table 10: Rank-based intergenerational elasticity of wealth, overall and for sub-samples

dep var = participation in:	<i>entrep</i> =business ownership			<i>entrep</i> =self-emp.	
	bus own (1)	bus $\geq 20\%$ (2)	incorp. (3)	self-emp (4)	SE $\geq 20\%$ (5)
parent <i>entrep</i> $\times$ no degree	0.082*** (0.026)	0.031 (0.022)	0.021 (0.018)	0.110*** (0.030)	0.052** (0.025)
parent <i>entrep</i> $\times$ college+	0.053 (0.038)	0.056* (0.034)	0.068** (0.031)	0.046 (0.038)	0.012 (0.032)
parent wealth					
deciles 2-8	Yes	Yes	Yes	Yes	Yes
decile 9	0.007 (0.049)	0.064 (0.047)	0.046 (0.037)	0.039 (0.053)	0.016 (0.044)
90-99% pctlile	0.061 (0.054)	0.116** (0.050)	0.168*** (0.042)	0.096* (0.056)	0.068 (0.045)
Top 1%	0.041 (0.085)	0.247*** (0.074)	0.336*** (0.076)	0.137 (0.085)	0.191** (0.096)
educ = HS dropout	-0.064** (0.033)	-0.050** (0.023)	-0.002 (0.022)	0.006 (0.034)	-0.019 (0.026)
educ = some college	-0.007 (0.026)	0.058*** (0.022)	0.023 (0.019)	-0.013 (0.026)	0.029 (0.022)
educ = college grad	0.037 (0.039)	0.034 (0.034)	0.028 (0.027)	-0.003 (0.033)	0.018 (0.029)
educ = grad school	0.032 (0.047)	0.029 (0.038)	0.014 (0.033)	-0.032 (0.041)	0.043 (0.035)
share yrs: unempl (HH)	-0.038 (0.081)	-0.110* (0.064)	-0.273*** (0.051)	0.186** (0.091)	-0.096 (0.068)
share yrs: out lab force (HH)	-0.010 (0.040)	-0.029 (0.033)	-0.022 (0.028)	0.237*** (0.042)	0.041 (0.033)
share yrs (40-55): married	0.075*** (0.026)	0.062*** (0.020)	0.058*** (0.018)	0.075*** (0.025)	0.085*** (0.021)
% time unemp,olf,married	Yes	Yes	Yes	Yes	Yes
Own+parents' education	Yes	Yes	Yes	Yes	Yes
Own+parent's industry	Yes	Yes	Yes	Yes	Yes
Childhood state	Yes	Yes	Yes	Yes	Yes
Birth year+gender+marital	Yes	Yes	Yes	Yes	Yes
Immig background+race	Yes	Yes	Yes	Yes	Yes
Num observations	2692	2692	2692	2691	2691
Num clusters	1026	1026	1026	1026	1026
R^2	0.135	0.139	0.152	0.140	0.123
Adj R^2	0.0851	0.0895	0.103	0.0903	0.0723

Notes: The dependent variables are indicators for whether the household owned a business (cols 1 and 2), owned an incorporated business (col 3), had a self-employed member (cols 4 and 5), and had a self-employed member at least 20% of the time. Indicators are multiplied at 100. ^a The first independent variable is an indicator for whether the primary working parent owned a business (cols 1-3) or was self-employed (cols 5-6). Similarly, “same industry” compares the mode industry of the main earning parent with the mode industry over the individual. Standard errors are robust and clustered at the level of the original (1968) household. Significance indicated is at 10%(*), 5%(**), and 1%(***).

Table 11: Determinants of business ownership and self-employment - how parental experience interacts with education (for the interaction with race, see 18)

14 Appendix

parent business	parent wealth ranking	N	ever self-emp	owned business	ever own incorp	father college grad	college grad	spouse college grad	IQ in top 20%	moved states
Parents did NOT own a business	Q1	337	35	30	7	4	9	17	8	23
	Q2	314	38	35	9	8	14	25	15	25
	Q3	272	35	39	11	15	31	30	24	23
	Q4	235	43	43	14	29	38	44	32	30
	81-90%	84	44	48	29	35	58	53	24	35
	91-100%	44	61	61	36	66	70	55	52	48
	Total	1,286	38	38	12	16	26	31	21	26
Business owner parents	Q1	216	47	51	15	13	17	26	11	41
	Q2	240	43	40	9	14	20	22	18	31
	Q3	280	43	46	16	25	32	34	19	33
	Q4	318	50	51	23	32	42	51	22	29
	81-90%	192	46	51	21	40	52	58	31	30
	91-100%	229	53	61	41	54	52	54	26	30
	Total	1,475	47	50	21	30	36	41	20	32

Table 12: Summary statistics by parental wealth and parental business ownership

Educ level	N	ever self-emp	self-emp 20% yrs	owned business	own bus 20% yrs	ever own incorp	% yrs own incorp
HS dropout	313	47	18	36	11	8	1.5
HS grad	877	44	19	43	18	12	2.4
some college	728	44	25	45	27	17	4.4
college	533	43	23	48	27	25	6.5
post-grad	328	37	25	46	27	23	6.6
Grand Total	2,779	43	22	44	22	17	4.1

Table 13: Entrepreneurship as a function of education

parent wealth rank	N	% parents self-empl	% parents owned a business	% parents with incorp. bus	father college grad	% mothers college grads
1	278	32%	33%	10%	11	5%
2	278	22%	31%	4%	5	2%
3	278	26%	41%	13%	9	3%
4	278	25%	40%	19%	13	7%
5	280	25%	48%	15%	21	17%
6	277	25%	42%	16%	19	11%
7	279	31%	49%	20%	33	13%
8	278	35%	58%	28%	29	14%
9	277	43%	66%	33%	39	29%
90-99%	249	64%	80%	54%	57	32%
Top 1%	27	93%	93%	93%	52	44%
Grand Total	2,779	33%	49%	22%	23	13%

Table 14: *Parent* characteristics and entrepreneurship by parental wealth ranking

dep. var = wealth percentile	OLS				Parent FE	
	(1)	(2)	(3)	(4)	(5)	(6)
Ever self-employed (HH)	2.13*** (0.79)	-0.18 (0.89)	-0.66 (0.89)	-2.20** (0.92)	-0.50 (1.35)	-1.67 (1.47)
yrs self-emp $\geq$ 20%				4.01*** (1.17)		2.77 (1.85)
Ever owned a business		4.53*** (0.94)	1.38 (0.99)	1.00 (1.00)	4.08*** (1.53)	1.62 (1.58)
Owned incorporated bus.			10.19*** (1.32)	9.69*** (1.34)		7.30*** (2.26)
educ = 1, HS dropout	-4.41*** (1.06)	-4.20*** (1.04)	-4.29*** (1.03)	-4.30*** (1.03)	-5.55*** (1.72)	-5.58*** (1.72)
educ = 2, some college	2.29** (0.94)	2.18** (0.94)	2.11** (0.94)	2.07** (0.94)	0.50 (1.57)	0.41 (1.56)
educ = 3, college grad	10.15*** (1.39)	9.97*** (1.38)	9.64*** (1.37)	9.63*** (1.37)	6.35*** (2.26)	5.97*** (2.24)
educ = 4, grad school	8.61*** (1.73)	8.31*** (1.73)	8.02*** (1.72)	7.85*** (1.71)	6.64** (3.05)	6.09** (3.02)
% time unemp,olf,married	Yes	Yes	Yes	Yes	Yes	Yes
Educ+industry+state FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year+gender FE	Yes	Yes	Yes	Yes	Yes	Yes
ParentEduc+state+immig+race	Yes	Yes	Yes	Yes	-	-
Parents' wealth cent FE	Yes	Yes	Yes	Yes	-	-
Parent self-empl+bus+industry	Yes	Yes	Yes	Yes	-	-
Mother's marital status	Yes	Yes	Yes	Yes	-	-
Parent FE	-	-	-	-	Yes	Yes
Num observations	4090	4090	4090	4090	3475	3475
Num clusters	1552	1552	1552	1552	1064	1064
R^2	0.480	0.483	0.493	0.495	0.725	0.729
Adj R^2	0.440	0.444	0.454	0.455	0.538	0.543

Notes: This is the equivalent of table 8, but over both the representative and the disadvantaged samples.

Table 15: Explaining wealth outcomes, by entrepreneurial attempt - including disadvantaged (SEO) sample

dep. var = wealth percentile	OLS				Parent FE	
	(1)	(2)	(3)	(4)	(5)	(6)
Ever self-employed (HH)	1.88* (1.01)	-0.19 (0.89)	-0.62 (0.89)	-2.14** (0.92)	-0.49 (1.35)	-1.71 (1.47)
self-emp * Black	0.76 (1.53)					
yrs self-emp $\geq$ 20%				3.98*** (1.17)		2.80 (1.85)
Ever owned a business		5.19*** (1.09)	1.45 (0.99)	1.07 (1.00)	4.37** (1.85)	1.58 (1.59)
owned business * Black		-2.19 (1.68)			-0.96 (2.69)	
Owned incorporated bus.			11.18*** (1.47)	10.66*** (1.48)		6.79*** (2.48)
owned incorp. * Black			-5.01* (2.72)	-4.89* (2.72)		2.72 (5.03)
Race = Black	-5.32*** (1.32)	-4.27*** (1.31)	-4.89*** (1.20)	-4.92*** (1.21)	6.26 (4.36)	6.51 (4.33)
educ = 1, HS dropout	-4.41*** (1.06)	-4.21*** (1.04)	-4.34*** (1.03)	-4.34*** (1.03)	-5.52*** (1.72)	-5.56*** (1.72)
educ = 2, some college	2.29** (0.94)	2.24** (0.94)	2.13** (0.94)	2.09** (0.94)	0.55 (1.57)	0.40 (1.56)
educ = 3, college grad	10.15*** (1.39)	9.99*** (1.38)	9.65*** (1.37)	9.64*** (1.37)	6.41*** (2.26)	5.93*** (2.24)
educ = 4, grad school	8.60*** (1.73)	8.38*** (1.73)	8.15*** (1.71)	7.98*** (1.71)	6.74** (3.06)	6.04** (3.04)
% time unemp,olf,married	Yes	Yes	Yes	Yes	Yes	Yes
Educ+industry+state FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year+gender FE	Yes	Yes	Yes	Yes	Yes	Yes
ParentEduc+state+immig+race	Yes	Yes	Yes	Yes	-	-
Parents' wealth cent FE	Yes	Yes	Yes	Yes	-	-
Parent self-empl+bus+industry	Yes	Yes	Yes	Yes	-	-
Mother's marital status	Yes	Yes	Yes	Yes	-	-
Parent FE	-	-	-	-	Yes	Yes
Num observations	4090	4090	4090	4090	3475	3475
Num clusters	1552	1552	1552	1552	1064	1064
R^2	0.480	0.484	0.494	0.495	0.725	0.729
Adj R^2	0.440	0.444	0.454	0.456	0.538	0.543

Notes: This is the equivalent of table 8, but over both the representative and the disadvantaged samples, and containing interactions of African-American race and entrepreneurial indicators.

Table 16: Explaining wealth outcomes, by entrepreneurial attempt - including disadvantaged (SEO) sample, and race indicators

dep. var = wealth percentile	OLS				Parent FE	
	(1)	(2)	(3)	FE sample (4)	(5)	(6)
IQ > p50		6.28*** (1.67)	5.36*** (1.76)	7.78** (3.08)	8.51** (3.59)	8.33** (3.80)
Ever self-employed (HH)	-2.67** (1.15)	-2.09 (2.02)	-2.07 (2.03)	-7.10** (3.09)	-5.76 (3.80)	-5.78 (3.82)
yrs self-emp $\geq$ 20%	4.50*** (1.39)	6.29*** (2.28)	6.39*** (2.28)	8.07** (3.59)	8.08* (4.30)	8.07* (4.31)
Ever owned a business	0.49 (1.22)	-0.32 (1.96)	-0.45 (1.96)	2.48 (3.00)	2.33 (3.71)	2.33 (3.71)
Owned incorporated bus.	9.27*** (1.55)	7.99*** (2.55)	4.80 (3.55)	8.45** (3.91)	7.59 (5.19)	6.93 (7.26)
incorp * (IQ > p50)			5.86 (4.39)			1.30 (8.30)
unemp, out of lab. force, married	Yes	Yes	Yes	Yes	Yes	Yes
education indicators	Yes	Yes	Yes	Yes	Yes	Yes
Industry, state FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year+age+gender FE	Yes	Yes	Yes	Yes	Yes	Yes
Parents' education	Yes	Yes	Yes	Yes	-	-
Parents' state+immig+race	Yes	Yes	Yes	Yes	-	-
Parents' wealth cent FE	Yes	Yes	Yes	Yes	-	-
Parent empl+bus+industry	Yes	Yes	Yes	Yes	-	-
Mother's marital status	Yes	Yes	Yes	Yes	-	-
Parent FE	-	-	-	-	Yes	Yes
Num observations	2691	1096	1096	542	580	580
Num clusters	1026	640	640	214	225	225
R^2	0.483	0.569	0.570	0.767	0.847	0.847
Adj R^2	0.420	0.418	0.419	0.548	0.611	0.609

Notes: OLS regressions introducing interactions between own and parental experience in business ownership. Standard errors are robust and clustered at the level of the original (1968) household, and significance indicated is at 10%(*), 5%(**), and 1%(***).

Table 17: Explaining wealth outcomes: IQ is highly predictive, even within families; but, there is no statistically significant evidence that it matters more in prolonged business ownership.

dep var = participation in:	<i>entrep</i> =business ownership			<i>entrep</i> =self-emp.	
	bus own (1)	bus $\geq$ 20% (2)	incorp. (3)	self-emp (4)	SE $\geq$ 20% (5)
parent <i>entrep</i> $\times$ no degree	0.069*** (0.025)	0.031 (0.020)	0.015 (0.017)	0.097*** (0.028)	0.033 (0.023)
parent <i>entrep</i> $\times$ college+	0.016 (0.034)	0.034 (0.030)	0.042 (0.028)	0.033 (0.035)	0.001 (0.030)
race = African-American	-0.086*** (0.026)	-0.019 (0.020)	0.019 (0.018)	-0.081*** (0.025)	-0.035* (0.018)
$\times$ parent <i>entrep</i>	0.101** (0.043)	0.021 (0.032)	0.012 (0.029)	-0.001 (0.042)	0.062* (0.033)
race = Other	-0.209*** (0.058)	-0.133*** (0.049)	-0.100*** (0.031)	-0.187*** (0.066)	-0.050 (0.057)
$\times$ parent <i>entrep</i>	0.338*** (0.111)	0.289*** (0.108)	0.155* (0.082)	0.322*** (0.119)	0.235* (0.125)
Parent wealth					
deciles 2-8	Yes	Yes	Yes	Yes	Yes
decile 9	0.040 (0.038)	0.068* (0.036)	0.055* (0.029)	0.016 (0.042)	0.018 (0.033)
90-99%pct	0.107** (0.045)	0.129*** (0.041)	0.183*** (0.036)	0.076* (0.046)	0.090** (0.036)
Top 1%	0.112 (0.076)	0.249*** (0.065)	0.325*** (0.069)	0.155* (0.079)	0.212** (0.091)
% time unemp,olf,married	Yes	Yes	Yes	Yes	Yes
Own+parents' education	Yes	Yes	Yes	Yes	Yes
Own+parent's industry	Yes	Yes	Yes	Yes	Yes
Childhood state	Yes	Yes	Yes	Yes	Yes
Birth year+gender+marital	Yes	Yes	Yes	Yes	Yes
Immig background+race	Yes	Yes	Yes	Yes	Yes
Num observations	4091	4091	4091	4090	4090
Num clusters	1552	1552	1552	1552	1552
R^2	0.146	0.143	0.132	0.136	0.131
Adj R^2	0.113	0.110	0.0996	0.103	0.0979

Notes: The dependent variables are indicators for whether the household owned a business (cols 1 and 2), owned an incorporated business (col 3), had a self-employed member (cols 4 and 5), and had a self-employed member at least 20% of the time. Indicators are multiplied at 100.

^a The first independent variable is an indicator for whether the primary working parent owned a business (cols 1-3) or was self-employed (cols 5-6). Similarly, “same industry” compares the mode industry of the main earning parent with the mode industry over the individual. Standard errors are robust and clustered at the level of the original (1968) household. Significance indicated is at 10%(*), 5%(**), and 1%(***).

Table 18: Determinants of business ownership and self-employment - over the combined samples (SRC+SEO), and introducing interactions with race indicator