

Parental Divorce in Early Life and Entrepreneurial Performance in Adulthood

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Abstract

We examine how parental divorce in early life affects performance in entrepreneurship in adulthood. Drawing on life course theory and empirical analyses of US self-employment and childhood data from the National Longitudinal Survey of Youth 1979, we show that entrepreneurs' experience of parental divorce in childhood benefits their entrepreneurial performance in adulthood through a gain in self-efficacy while simultaneously suppressing entrepreneurial performance through a shortfall in human capital. We also show that whether the performance advantages or disadvantages from parental divorce dominate depends on parental human capital. While parental divorce is associated with underperformance for entrepreneurs whose parents have high levels of human capital, it is positively related to entrepreneurial performance for those with low parental human capital. Our study contributes new theory and evidence on the intertemporal relationship between past family contexts and present entrepreneurial performance.

Keywords: Entrepreneurial performance; parental divorce; family context; life course theory; childhood adversity

1. Introduction

Entrepreneurs are not only influenced by their family at the time of new venture creation (e.g., Aldrich & Cliff, 2003; Edelman, Manolova, Shirokova, & Tsukanova, 2016; Mathias & Wang, 2023) but also by family contexts that date back to entrepreneurs' childhoods. For instance, entrepreneurial activity in adulthood is influenced by the early-life exposure to parental entrepreneurship (Aldrich & Kim, 2007; Laspita, Breugst, Heblich, & Patzelt, 2012; Sørensen, 2007) and the availability of parental resources during childhood (Vladasel, Lindquist, Sol, & Van Praag, 2021; Yu, Stephan, & Bao, 2023). Entrepreneurs' ability to succeed in entrepreneurship may thus ultimately depend on the childhood family context in which they grow up. Understanding how childhood family contexts affect later entrepreneurial performance is thereby important in light of calls for a stronger contextualization of entrepreneurial success (Shepherd, Wennberg, Suddaby, & Wiklund, 2019). In particular, to date, there is only limited temporal contextualization of entrepreneurial performance as prior research predominantly focuses on antecedents of entrepreneurial performance that relate to the resources entrepreneurs have at their disposal at the time of building and running their business, such as their access to human, financial, and social capital (Chen, Angus, Herrick, & Barney, 2023; Clough, Fang, Vissa, & Wu, 2019; Marvel, Wolfe, & Kuratko, 2020). Such a focus on the *present* neglects that today's entrepreneurial performance is often a function of entrepreneurs' *past*, and especially of their childhood family context in which the seeds for their development of important entrepreneurial resources such as human capital or self-efficacy are sown (Hvide & Oyer, 2018; Yu et al., 2023). A comprehensive and temporally informed understanding of what makes entrepreneurs perform well thus requires studying the roots of entrepreneurial performance in childhood family contexts.

A particularly intriguing source of variation in childhood family contexts is parental divorce. Parental divorce is an increasingly common¹ yet complex life event that involves family reconfigurations with heterogenous effects on involved children (Amato, 2000, 2010; Emery, 2012; Fischer, 2007), potentially carrying consequences for children's later performance in entrepreneurship. However, our understanding of the consequences of parental divorce in childhood for entrepreneurial performance in adulthood is limited. First, different streams of entrepreneurship research tend to hold either one-sided positive or negative views on the role of divorce in entrepreneurship. On the one hand, research on family influences on entrepreneurship to date holds predominantly negative views of divorce as a harmful event (Cubbon, Darga, Wisnesky, Dennett, & Guptill, 2021; Kleindienst, Abreha, Schweizer, Proelss, & Cserpes, 2022). On the other hand, literature on the influence of childhood adversity on entrepreneurship holds predominantly positive views of challenging childhood experiences as sources of resilience and strength² (cf. Miller & Le Breton-Miller, 2017; Yu, Zhu, Der Foo, & Wiklund, 2022). As a result, we lack a balanced and integrative understanding of the long-run consequences of parental divorce for entrepreneurial performance (cf. Yu et al., 2023).

Second, literature on family influences on entrepreneurship often points to the importance of family dynamics such as divorce for entrepreneurship (Aldrich, Brumana, Campopiano, & Minola, 2021; Vlasdel et al., 2021) yet lacks nuanced theorizing on the intertemporal processes and boundary conditions underlying the relation between parental divorce and later entrepreneurial performance. This is in part because prior research predominantly focuses on family dynamics in

¹In the United States, for instance, one half of married individuals divorce at least once by the time they retire (Kennedy and Ruggles 2014). According to the OECD Family Database, in 2017, an average of 55.6% of all divorces in OECD countries involved children. Furthermore, in the 2020 US National Survey of Children's Health, 22.7% of all participating children (under 18 years old at the time of the survey) had experienced parental divorce.

² This narrative is prevalent in the popular press, which often depicts childhood adversity as drivers of entrepreneurial success; see, for instance, the *Forbes* articles "Why 'dysfunctional' families create great entrepreneurs" (2016, September 19) and "Elon Musk and how divorce prepares kids to be entrepreneurs" (2012, May 24).

entrepreneurs' own nuclear family, such as their own divorce, marriage, and parenthood (Joona, 2018; Marshall & Flaig, 2014; Wu, Naldi, Wennberg, & Uman, 2023), thus offering limited insights on how entrepreneurs are affected by events that originate in other individuals' lives such as the divorce of their parents.

Third, literature on the influence of childhood adversity on entrepreneurship yields insights into the effect of challenging childhood experiences on entrepreneurial careers but lacks theorizing that is tailored to parental divorce and entrepreneurship. Specifically, prior research focuses on the effect of childhood adversity on entrepreneurial entry (e.g., Cheng, Guo, Hayward, Smyth, & Wang, 2021; Churchill, Munyanyi, Smyth, & Trinh, 2021; Sotirakopoulos, Mount, Guven, Ulker, & Graham, 2023; Yu et al., 2023), yet provides limited insights on whether individuals are also *successful* after entering entrepreneurship. The narrative of childhood adversity as a source of resilience and strength in entrepreneurship (Cheng et al., 2021; Churchill et al., 2021; Miller & Le Breton-Miller, 2017) may therefore blur the lines between entry and performance and risks overgeneralizing findings about entry to entrepreneurial success. Moreover, by aggregating different forms of early-life adversity—such as childhood abuse and poverty, but also parental divorce—into composite constructs (Yu et al., 2022; Zhao & Li, 2022), prior research neglects that parental divorce is a highly complex event with multifaceted effects on children (Amato, 2010; Kelly & Emery, 2003). Parental divorce may thus affect later entrepreneurial performance very differently than unequivocally negative childhood experiences such as violence or abuse (cf. Berman et al., 2022).

To overcome these shortcomings in prior literature, we develop and test theory on the intertemporal processes and boundary conditions underlying the relation between parental divorce in childhood and entrepreneurial performance in adulthood. We thereby focus on the effects of

parental divorce on individuals' later entrepreneurial income, which constitutes a frequently used indicator of entrepreneurial performance (Yu et al., 2022; Zhao, O'Connor, Wu, & Lumpkin, 2021) that is subjectively relevant to most entrepreneurs as they usually expect to earn personal financial rewards from their entrepreneurial activity (Wach, Stephan, & Gorgievski, 2016). Furthermore, entrepreneurial income not only captures entrepreneurs' returns they generate but also the risks they bear in the entrepreneurial process, hence representing a comprehensive performance construct that is also less distorted by tax reporting than other constructs such as firm profits (Hamilton, 2000; Yu et al., 2022). For our theorizing, we build on life course theory (Elder, 1998; Elder, Johnson, & Crosnoe, 2003), which offers theoretical insights on both the role of social context in shaping individuals' lives and the intertemporal processes linking early-life events to adulthood outcomes. According to life course literature, a holistic understanding of human life courses requires integrating both psychological and sociological perspectives on human lives (Elder & Shanahan, 2006), which is why we investigate how parental divorce affects later entrepreneurial performance through its joint and parallel effects on children's psychological and socioeconomic development. We specifically focus on individuals' development of (1) *self-efficacy*—i.e., their belief in their ability to effectively perform the behaviors needed to achieve desired outcomes (Bandura, 1977)—which is an important part of individuals' psychological development (Bandura, 1982, 2006); and of (2) *human capital*, i.e., knowledge and skills (Cunha & Heckman, 2007), which is an essential part of children's socioeconomic development (Becker, 1994; Becker & Tomes, 1986). Both self-efficacy and human capital have been discussed as important predictors of entrepreneurial success in prior research (Caliendo, Kritikos, Rodriguez, & Stier, 2023; Rauch & Frese, 2007; Unger, Rauch, Frese, & Rosenbusch, 2011).

We conjecture that parental divorce affects individuals' entrepreneurial performance positively by increasing their self-efficacy but also negatively by restricting their accumulation of human capital. Given that human capital is transmitted intergenerationally from parents to children (Becker & Tomes, 1986; Currie & Goodman, 2020; Li & Tong, 2023) we also argue that parental divorce is particularly costly for children whose parents have high human capital because it interrupts the intergenerational transmission of human capital advantages (cf. Bernardi & Radl, 2014; Biblarz & Raftery, 1993). Empirical analyses of US data from the National Longitudinal Survey of Youth 1979 (NLSY79) support our conjectures and suggest that parental human capital influences whether performance advantages or disadvantages from parental divorce dominate: The effect of parental divorce on entrepreneurial performance is negative for entrepreneurs with high parental human capital and positive for those with low parental human capital.

Our study offers several contributions. First, we contribute to recent integrative perspectives on entrepreneurs' childhood experiences (Yu et al., 2023) by showing that parental divorce can have simultaneously positive and negative consequences for later entrepreneurial performance through its parallel effects on both children's self-efficacy and human capital accumulation. Second, we contribute to research on the intersection between family and entrepreneurship (Aldrich & Cliff, 2003; Li & Tong, 2023; Mathias & Wang, 2023; Vladasel et al., 2021) by elucidating the intertemporal processes linking parental divorce in childhood and entrepreneurial performance in adulthood, shifting the attention to life events that originate outside of the entrepreneur's own nuclear family, and introducing parental human capital as an important boundary condition in the relation between parental divorce and performance. Third, our study informs research on childhood adversity and entrepreneurship (Cheng et al., 2021; Laspita et al., 2012; Yu et al., 2023; Yu et al., 2022; Zhao & Li, 2022) by moving beyond entrepreneurial entry

to explore the performance consequences of challenging childhood experiences and by developing nuanced theorizing that accounts for the event-idiosyncratic processes involved in parental divorce. Finally, our study contributes to the life course literature (Davis & Shaver, 2012; Elder et al., 2003; Erola, Jalonen, & Lehti, 2016; Jayawarna, Marlow, & Swail, 2021) by introducing novel theorizing on the relative dominance of psychological and socioeconomic consequences of a life event in shaping adulthood outcomes.

2. Theoretical background and hypothesis development

2.1 Family, childhood adversity and entrepreneurship

Entrepreneurs do not operate in a social vacuum but are often influenced by their family (Aldrich & Cliff, 2003; Jennings & McDougald, 2007; Kotha & George, 2012; Ruef, Aldrich, & Carter, 2003). For instance, family members provide valuable resources, such as financial and human capital, information, and support, upon which entrepreneurs can draw when building and growing their ventures (Edelman et al., 2016; Hatak & Zhou, 2021; Jack, 2005; Mathias & Wang, 2023; Venkatesh, Shaw, Sykes, Wamba, & Macharia, 2017). In addition, entrepreneurs and their venture creation process are influenced not only by the present family context but also by past family contexts, which may have long-term lagged effects on entrepreneurial behavior and related success (Aldrich & Yang, 2012, 2014; Schmitt-Rodermund, 2004). For instance, Vladasel et al. (2021) found that early-life family influences such as parental entrepreneurship and parental resources explain a considerable share of variation in adulthood entrepreneurial outcomes. Furthermore, occupational research identifies early-life parental influence as a main reason explaining why offspring from self-employed parents are more likely to develop entrepreneurial intentions (Laspita et al., 2012) and to enter entrepreneurship (Aldrich & Kim, 2007; Fairlie & Robb, 2007). This is because entrepreneurial parents transmit entrepreneurial skills to their

children (Dunn & Holtz-Eakin, 2000) and socialize their children toward entrepreneurship by serving as entrepreneurial role models (Lindquist, Sol, & Van Praag, 2015; Sørensen, 2007). In a similar vein, Li and Tong (2023) have shown that adolescents with entrepreneurial (as opposed to non-entrepreneurial) mothers exhibit higher cognitive and noncognitive skills, which is explained both by the parental investment of time into supervising children and the intergenerational transmission of values.

While prior research focuses on stable and intact childhood contexts, recent entrepreneurship research has started investigating the influence of adverse childhood experiences on entrepreneurship. For instance, research shows that individuals are more likely to become entrepreneurs if they experienced a famine (Cheng et al., 2021) or if they were exposed to war (Churchill et al., 2021) during childhood. In contrast, Zhao and Li (2022) report a negative relationship between early-life adversity and entrepreneurial entry. Yu et al. (2023) reconcile these contrasting findings by showing that childhood adversity and the propensity for entrepreneurship are linked both positively through increases in rule-breaking behavior, and negatively through decreases in self-efficacy and educational attainment. Only recently, literature has started to investigate the long-run effects of childhood adversity on entrepreneurial *performance*, showing that moderate levels of childhood adversity support entrepreneurial performance by fostering children's resilience (Yu et al., 2022).

There is only scant prior literature that has specifically examined parental divorce and its long-run consequences for entrepreneurial performance. In addition to the early exploratory evidence pointing to a negative relation between the absence of a parent in childhood and self-employment earnings (De Wit & Van Winden, 1989), most research has primarily investigated other entrepreneurial outcomes such as how growing up in a one-parent family relates to later

entrepreneurial entry (Hout & Rosen, 2000; Tervo, 2006) and the development of entrepreneurial job values (Halaby, 2003) and yielded inconclusive results. More recently, studies suggest that entrepreneurs from two-parent families are more likely to work in incorporated (as opposed to unincorporated) businesses than those from one-parent families (Levine & Rubinstein, 2017; Vladasel et al., 2021). Despite these early insights on linkages between early-life experiences and entrepreneurship, these studies offer only limited insights into the distinct mechanisms that link parental divorce to entrepreneurial performance in adulthood.

2.2 Life course theory and parental divorce

We build on life course theory (Elder, 1998; Elder et al., 2003) to develop new theorizing on the long-run effects of parental divorce in childhood on entrepreneurial performance in adulthood. Life course theory offers valuable theoretical insights on intertemporal mechanisms linking life events to future outcomes in life and is therefore frequently used in family sciences and divorce literature to explain long-term consequences of parental divorce for children (Amato, 2000; Amato & Booth, 1997). In particular, life course theory provides an integrative conceptualization of human life courses as an interweaving of different age-graded sequences of roles and states that are embedded in social relationships and temporal contexts (Elder, 1994). Such an integration of social and temporal theorizing is of particular importance in the case of parental divorce, given that this event involves shifts in children's social relationships over time, which carry intertemporal consequences for the future evolution of involved children's life course (Amato, 2010). Life course theory thus allows us to jointly theorize the social dimension of how children's family context changes over time around the event of a parental divorce, and the temporal dimension of how such changes in family context are intertemporally linked to entrepreneurial performance in adulthood.

First, with respect to the social dimension, life course theory recognizes the social embeddedness of human lives through the principle of “linked lives,” which suggests that individuals’ lives are strongly linked with the lives of significant others, such as family members (Elder, 1974, 1998). That is, as parents’ and children’s lives are tightly interlinked (Greenfield & Marks, 2006), a divorce affects not only the divorcing spouses but also the involved children (Elder & Shanahan, 2006). Moreover, as parental divorce alters the way how the lives of family members are interlinked, it reconfigures the family context in which the child is embedded. From a life course perspective, parental divorce can therefore be conceptualized as a *life transition* between two different states in children’s lives (Elder, 1998; Elder & Shanahan, 2006). This life transition is characterized by a shift in linked lives over time and a corresponding change in family context.

Second, with respect to the temporal dimension, life course theory provides a theoretical basis to understand the mechanisms and temporal dynamics through which a life transition such as parental divorce intertemporally affects future outcomes in life. In particular, life transitions can in turn change individuals’ developmental *trajectories*, i.e., the evolution and sequence of behaviors, experiences, skills and beliefs over time (Elder & Shanahan, 2006), such as their psychological or socioeconomic trajectories. Trajectories thus describe the temporal shape of human life courses over time and constitute the intertemporal bridge between a life transition in childhood and future outcomes in life.

Life course literature thereby points to specific mechanisms which allow us to theorize why and how life transitions in childhood, such as parental divorce, alter individuals’ developmental trajectories and thus ultimately also their long-term outcomes in adulthood. Since we have established earlier that parental divorce involves a change in linked lives and thus a change in family context, it is useful to first understand why and how a change in family context can set in

motion a change in children's developmental trajectories. In this regard, Elder (1974) suggests in his seminal work "Children of the Great Depression" that changes in social contexts (e.g., after an event) can create *situational imperatives*, referring "to behavioral demands or requirements of a new situation" (Elder & Shanahan, 2006, p. 690), that ultimately force children to adapt their behaviors after the event. In turn, the mechanism of *cumulation* explains how such changes induced by situational imperatives in early life ultimately affect temporally distant outcomes in adulthood, suggesting that "small differences cumulate over time and, by young adulthood, result in significant differences in achievements and prospects" (Elder & Shanahan, 2006, p. 681).

Life course theory thereby distinguishes two subtypes of cumulative mechanisms. First, the mechanism of *duration* refers to the length of the period between changes in states of life and suggests that the ongoing and prolonged exposure to a new context after a life transition, such as parental divorce, can promote the formation of new behaviors, skills, and habits (Becker, 1964; Elder et al., 2003; Elder & Shanahan, 2006). Applied to parental divorce, this suggests that long-run effects on children can be explained by children's transition into a new state of life after parental divorce during which they are exposed to a new family environment over the remaining duration of their childhood. Second, the mechanism of *chains of events* refers to series of cascading and interrelated changes in lives triggered by a life event that cumulatively alter children's development (Amato & Booth, 1997; Elder, 1994, 1998). A frequently discussed example in life course literature is teenage parenthood, which can trigger chains of events such as early marriage, premature termination of education, and premature entry into the workforce (Elder, 1998; Elder & Shanahan, 2006). Life transitions such as parental divorce may thus affect children's long-term outcomes not only via duration, but also by setting off a cascade of mutually reinforcing changes in life that detract children from their original pathway. The cumulation mechanisms of duration

and chains of events jointly drive the process of accumulating changes in life, ultimately resulting in what life course literature refers to as the *cumulation of (dis)advantages* (Elder, 1998).

Figure 1 illustrates the theoretical framework outlined so far, thereby showing how different life course concepts and mechanisms work together in the case of parental divorce to shape long-term developmental outcomes. It illustrates how parental divorce as a life transition changes the children's family context, which in turn exposes children to new situational imperatives that over time can result in the cumulation of advantages or disadvantages through cumulative processes such as duration and chains of events.

(Insert Figure 1 around here)

To date, the majority of empirical research points to parental divorce as a trigger of a cumulation of *disadvantages* for children, as parental divorce has been shown to have negative long-term effects on children's outcomes in adulthood, such as lower socioeconomic and educational attainment (Biblarz & Gottainer, 2000; Gruber, 2004; McLanahan, Tach, & Schneider, 2013), or problems in forging and upholding interpersonal relationships (Gruber, 2004; Kim, 2011). However, research also points to positive long-term effects of parental divorce on children such as greater self-reliance and maturity (Hetherington & Stanley-Hagan, 1999; Kelly & Emery, 2003; Riggio, 2004), suggesting that parental divorce can trigger both positive and negative cumulative processes.³ Despite the important theoretical advancements made by life course literature, we still know little about how different life course mechanisms work together in the case of parental divorce to shape long-term entrepreneurial outcomes. Moreover, as prior divorce

³ There is heterogeneity in how children are affected by parental divorce (Amato, 2010). Divorce may, for instance, bring relief to children in the case of highly conflicted marriages (Booth and Amato, 2001). However, given that divorce in the Western world occurs at relatively low thresholds of marital dissatisfaction (De Graaf and Kalmijn, 2006), children are predominantly exposed to parental divorce that ends relatively low-conflict marriages (cf. Amato and Booth, 1997), rendering parental divorce a challenging rather than relieving event for most children.

literature points to both potential positive and negative consequences of parental divorce (Kelly & Emery, 2003), we lack integrative and nuanced theory and evidence that explains under which boundary condition positive or negative consequences will dominate.

2.3 Parental divorce in childhood and entrepreneurial performance in adulthood

We build on the framework introduced in Figure 1 to develop detailed theorizing on the long-run effects of parental divorce in childhood on entrepreneurial performance in adulthood. Specifically, we argue that parental divorce triggers a cumulation of (dis-)advantages in: (1) children's psychological trajectory, specifically their development of self-efficacy, and (2) socioeconomic trajectory, specifically their development of human capital. In particular, we posit that parental divorce cumulatively alters these trajectories by changing the family context in which children grow up and thus by exposing them to novel situational imperatives (cf. Elder & Shanahan, 2006). As we will argue, the cumulative alterations to children's self-efficacy and human capital trajectories incurred by parental divorce in turn influence individuals' performance as entrepreneurs. We then continue to theorize under which conditions cumulative advantages versus disadvantages likely dominate, i.e., under which conditions the overall impact of parental divorce on later entrepreneurial performance is positive or negative.

We start with theorizing the implications of parental divorce for children's psychological trajectory, specifically their development of self-efficacy. At first sight, the consequences of parental divorce for children's self-efficacy may seem ambiguous. On the one hand, parental divorce is often a highly stressful experience for children with negative effects on their short-term well-being (Amato, 2000; Miller & Rahe, 1997), pointing to the possibility that their self-efficacy may be weakened as they may feel helpless and overwhelmed by this difficult family situation. On the other hand, the divorce literature also suggests that the majority of children manage to adjust

well to their parents' divorce in the long-term (Amato, 2001; Kelly & Emery, 2003) and often gain in independence and maturity from the divorce (Arditti, 1999; Hetherington & Stanley-Hagan, 1999; Riggio, 2004).

We argue that such contrasting arguments can be reconciled by taking a dynamic perspective of children's self-efficacy as varying over time as they learn to approach problems and make commitments and efforts to reach their goals in their lives (Gielnik, Bledow, & Stark, 2020). Such a dynamic perspective is inherent to our theoretical framework (Figure 1), which suggests that the long-term development of self-efficacy is a function of the cumulative experiences over children's lifetime and thus evolving over time. Specifically, the ongoing exposure to the new situation followed by the divorce likely shapes long-term developmental outcomes more strongly than the acute distress experienced at the time of the divorce (Amato, 2000), suggesting that children's long-term self-efficacy is likely more profoundly explained by their post-divorce experiences in adapting to the new situation than by the short-term distress experienced during the divorce. In this regard, we propose that the post-divorce family context is characterized by novel opportunities for children to become more independent and self-reliant in the long-term, thereby building on the assumption that children on average exhibit relatively strong adaptive functioning (Masten & Obradović, 2006) and thus are able to adapt well over time to the divorce (Amato, 2001; Hetherington & Stanley-Hagan, 1999; Kelly & Emery, 2003).

Particularly, we suggest that parental divorce incurs a cumulation of advantages in the long-term in the form of enhanced self-efficacy by fostering the development of children's confidence in their ability to master challenging situations on their own. First, from a duration perspective, children are exposed to a new family context after the parental divorce for the remainder of their childhood that is often characterized by a reduced frequency of contact with the noncustodial

parent and a decrease in the time and energy a working custodial parent can devote to the focal child (Riggio, 2004). Furthermore, the custodial parent—usually the mother—often can no longer afford the same standard of living after divorce (Becker, 1991). These changes in their family contexts create situational imperatives for children to take on increased household responsibilities and to solve problems on their own without the help of their parents, thus requiring them to become more independent, mature and self-reliant (Arditti, 1999; Hetherington, 1989; Riggio, 2004; Weiss, 1979). Such experiences of mastery are critical drivers underlying the development of beliefs of having control over outcomes in life as they promote individuals' confidence in their ability to successfully complete challenging tasks and thus enhance their self-efficacy (Bandura, 1977, 1982, 2012; Bandura & Wood, 1989). Second, positive chains of events likely further reinforce development of self-efficacy, as the initial gains in self-efficacy from the assumption of responsibilities and independent problem-solving enable children to also successfully master other challenging events during their childhood, which further reinforces their self-efficacy (Bandura, 1993; Gecas, 1989). Hence, ongoing experiences with independent problem solving and the assumption of responsibilities after parental divorce likely contribute to children's development of greater self-efficacy (see Figure 2).

An important qualification is required here as it is certainly also conceivable that some children carry long-term losses rather than gains in self-efficacy from parental divorce. For instance, children who live in a dysfunctional family environment after the divorce that provides limited room for positive mastery experiences may possibly even enter negative spirals of decreasing self-efficacy (Higgins & McCabe, 2003; Yu et al., 2023), suggesting that the relation between parental divorce and self-efficacy may be inherently heterogenous. Yet, given that most children possess relatively strong basic adaptive capabilities (Masten & Obradović, 2006) and that

only a minority of children face a dysfunctional family environment after the divorce (Wallerstein, Lewis, & Packer Rosenthal, 2013), we expect that the average child experiences long-term gains rather than losses in self-efficacy from parental divorce.⁴ Therefore, we expect children from divorced families to develop higher self-efficacy on average than children from two-parent families.

(Insert Figure 2 around here)

We continue to argue that the self-efficacy gained from parental divorce in turn positively contributes to entrepreneurial performance. Entrepreneurship requires solving complex and ambiguous problems under considerable uncertainty (McMullen & Shepherd, 2006; Townsend, Hunt, McMullen, & Sarasvathy, 2018; Zellweger & Zenger, 2023) and regularly involves stressful situations (Rauch, Fink, & Hatak, 2018). Self-efficacy is an important resource for effectively coping with such stressful situations (Bandura, 1977, 1997), particularly in the context of entrepreneurship (Chen, Greene, & Crick, 1998; Newman, Obschonka, Schwarz, Cohen, & Nielsen, 2019). Furthermore, having confidence in one's ability to successfully complete challenging tasks improves entrepreneurs' resilience, supports their persistence, and augments their chance to attain their goals by raising their ambitions and commitment (cf. Ahmed, Ucbasaran, Cacciotti, & Williams, 2022; Baum & Locke, 2004; Shepherd, Parida, & Wincent, 2022). We thus propose that parental divorce has a positive effect on entrepreneurial performance through self-efficacy:

Hypothesis (H1): Self-efficacy mediates the positive relationship between parental divorce in childhood and entrepreneurial performance in adulthood.

⁴ Parental divorce thus differs from other adverse life events such as childhood violence and abuse (cf. Berman et al., 2022; Kessler et al., 2010), where opportunities for coping, adaptation, and learning tend to be very limited and hence traumatizing so that negative effects on children's psychological development likely dominate.

In contrast, we argue that parental divorce incurs a cumulation of *disadvantages* in children's socioeconomic trajectory by disrupting their accumulation of personal human capital (Coleman, 1988; Cunha & Heckman, 2007). From a duration perspective, parental divorce likely has adverse effects on children's human capital accumulation through the exposure to a more resource-constrained family context after the divorce. Specifically, the situational imperative of living apart from the noncustodial parent often results in a diminished frequency and quality of parent-child interactions after parental divorce (Amato, 1993), decreasing children's access to the parental resources and support required for accumulating human capital during childhood (cf. Cunha & Heckman, 2007; Sun & Li, 2011). Over time, there are fewer opportunities for parents to transfer knowledge and skills to children (Gould, Simhon, & Weinberg, 2020; Hvide & Oyer, 2018) or to monitor and assist with children's schooling activities, such as homework or exam preparation (Kelly & Emery, 2003)—activities which are important for children's human capital accumulation (Bergman, 2021; Li & Tong, 2023). Moreover, due to the potential decrease in the custodial parent's standard of living, children may suffer from limited access to educational resources, such as private lessons or educational materials (Kelly & Emery, 2003), and may be distracted from their education due to the situational imperative to support their families by completing household chores or by working for wages (Amato, 2000; Astone & McLanahan, 1991). Such developments likely reinforce themselves through chains of events. For instance, parental divorce may force the custodial family to move to a less privileged neighborhood with lower quality schools, in turn raising the probability for children to join friendship circles with low educational ambitions and/or to leave school early (Amato & Keith, 1991; Amato & Sobolewski, 2001; McLanahan & Sandefur, 1994). These cumulative changes likely impair children's accumulation of human capital, adding up to a cumulative shortfall in human capital (Bernardi & Radl, 2014) (see Figure 3).

(Insert Figure 3 around here)

We expect that the shortfall in human capital incurred by parental divorce has negative implications for entrepreneurial performance because it undermines individuals' ability to successfully deal with demanding cognitive tasks when pursuing entrepreneurship (cf. Shepherd, Williams, & Patzelt, 2015; Unger et al., 2011). In particular, reduced human capital may undermine entrepreneurs' cognitive skills, such as analytical and problem-solving skills (Levine & Rubinstein, 2017). Consequently, entrepreneurs may be limited in their ability to come up with convincing, causally structured business ideas that attain high product-market fit (Bremner & Eisenhardt, 2022; Felin & Zenger, 2009), to design experiments that test the assumptions underlying the business idea (Zellweger & Zenger, 2023), and to weigh the benefits and costs of pivoting versus abandoning an idea (Ott & Eisenhardt, 2020)—skills that are cognitively demanding but are positively related to success in entrepreneurship (Camuffo, Cordova, Gambardella, & Spina, 2020). Furthermore, low human capital may undermine an entrepreneur's capacity to learn throughout the entrepreneurial process (Dencker, Gruber, & Shah, 2009) and to successfully develop and market innovative products and services that exploit identified opportunities (Hmieleski, Carr, & Baron, 2015; Marvel et al., 2020). In line with the notion that entrepreneurial success requires an advanced set of cognitive skills (Van der Sluis, Van Praag, & Vijverberg, 2008), we thus propose a negative indirect effect of parental divorce on entrepreneurial performance in adulthood through human capital:

Hypothesis 2 (H2): Human capital mediates the negative relationship between parental divorce in childhood and entrepreneurial performance in adulthood.

The size of the human capital shortfall incurred by parental divorce likely varies across families, given that children's ex ante potential for human capital accumulation depends strongly on their parents' human capital (Black, Devereux, & Salvanes, 2005). Children with high parental

human capital, e.g., those with highly educated parents, tend to achieve higher educational attainment compared to children with low parental human capital due to the privileged resource endowments by their parents (Entwisle, Alexander, & Olson, 2005; Gould et al., 2020). These initial human capital advantages tend to be reinforced and accumulate over time (Elder & Shanahan, 2006). For instance, parents with high human capital are often in a privileged economic situation and can thus invest more monetary resources into children's schooling and recreational activities, e.g., by being able to afford private lessons, thus supporting children's human capital accumulation (Becker & Tomes, 1986; Bradley & Corwyn, 2002). In addition, parents with high human capital tend to invest comparatively more time into parenting activities (Hoff & Laursen, 2019), which in turn supports children's development of their own human capital, as parents supervise children's homework, talk with their children about school and friends, and make considerate choices about children's educational and social environments (Aldrich & Kim, 2007; Bergman, 2021; Li & Tong, 2023). Furthermore, parents with high human capital tend to pay comparatively more attention to their children's health, which positively affects their cognitive development and thus their accumulation of human capital (Currie & Goodman, 2020; Li & Tong, 2023). For these reasons, children with high parental human capital have higher chances a priori to attain higher human capital for themselves.

However, parental divorce disrupts this process of socioeconomic inheritance of parental human capital—that is, the intergenerational transmission of human capital. As argued earlier, parental divorce often reduces the monetary resources and time custodial parents are able to invest into children's education and cognitive development, thus restricting the intergenerational transmission of human capital (cf. Li & Tong, 2023). Given that children with high parental human capital enjoy comparatively stronger advantages from the intergenerational transmission of human

capital (Gould et al., 2020; Hoff & Laursen, 2019), the opportunity costs of parental divorce in terms of foregone human capital are higher, when the divorced parents have higher human capital (Bernardi & Radl, 2014; Biblarz & Raftery, 1993; Fischer, 2007). Specifically, parental divorce bears a higher downside risk in human capital accumulation for children with high parental human capital as they are thrown off promising career pathways and thus have more to lose from the disruption of socioeconomic inheritance in comparison to children with low human capital (Bernardi & Radl, 2014; Fischer, 2007). Children with high parental human capital are therefore likely to experience a greater cumulative shortfall in human capital following parental divorce than children with low parental human capital. Thus, we propose that the indirect negative relation between parental divorce and entrepreneurial performance through human capital strengthens with parental human capital:

Hypothesis 3 (H3): The negative relationship between parental divorce in childhood and entrepreneurial performance in adulthood mediated by human capital strengthens with parental human capital.

Overall, the prior hypotheses suggest that there are two parallel conduits through which parental divorce affects entrepreneurial performance: a positive path through self-efficacy and a negative path through human capital that strengthens with parental human capital.⁵ Whether the

⁵ We do not theorize that parental human capital moderates the path through self-efficacy because we have no clear expectations as to whether the gain in self-efficacy from parental divorce varies with parental human capital. On the one hand, children with low parental human capital may have less to gain from parental divorce than children with high parental human capital because they already learn to be resourceful and to get their goals accomplished with limited parental resources before the parental divorce (cf. Aries & Seider, 2007). The divorce may thus make a smaller difference for them compared to children with high parental human capital in regard to their self-efficacy. On the other hand, a similar argument can be made to children with high parental human capital, as they may enjoy an advantaged pathway in terms of self-efficacy because they are better protected from destitute life situations and feelings of powerlessness or distress—factors that tend to hamper individuals' self-efficacy (cf. Mirowsky & Ross, 1986; 2017). Thus, children with high parental human capital may already have relatively high self-efficacy before the divorce and thus gain relatively less from the divorce than children with low parental human capital. Taken together, it is thus not clear whether children will benefit more or less strongly from a parental divorce in terms of self-efficacy depending on parental human capital. However, for the purpose of completeness, we also tested whether parental human capital moderates the path through self-efficacy in our empirical analyses and indeed found no evidence for a moderation by parental human capital.

overall relation between parental divorce and entrepreneurial performance is positive or negative thus depends on parents' human capital, which determines whether the negative path through human capital outweighs the positive path through self-efficacy. Given that individuals with low parental human capital have comparatively less to lose in terms of human capital, we suggest that the performance benefits from gains in self-efficacy dominate the minor performance disadvantages from a relatively weak human capital shortfall for entrepreneurs with low parental human capital. In contrast, individuals with high parental human capital experience a relatively strong shortfall in human capital that likely outweighs the positive self-efficacy effect of parental divorce. We thus advance that the total effect of parental divorce on entrepreneurial performance is negatively moderated by parental human capital:

Hypothesis 4 (H4): Parental human capital negatively moderates the total effect of parental divorce in childhood on entrepreneurial performance in adulthood, such that there is a positive relationship at low levels of parental human capital and a negative relationship at high levels of parental human capital.

3. Method

3.1 Data and sample

We tested our hypotheses using US data from the 1979 cohort of the NLSY79, which surveyed youths annually between 1979 and 1994 and then biannually until 2018. A total of 12,686 youths between age 14 and age 24 participated in the first round of the survey in 1979, 6,878 of whom stayed in the study until 2018. The survey comprises data on individuals' education, family backgrounds, and employment histories as well as a retrospective survey on their childhood. In cases where respondents stopped living with a parent during childhood (between age 0 and age 18), they were asked for the reason, which included "divorce/separation" as a response category, allowing us to identify whether respondents experienced a parental divorce in childhood. In line with prior research using NLSY79 data (Fairlie, 2005; Hegde & Tumlinson, 2021), we

operationalized entrepreneurial activity using data on self-employment (SE), thus defining entrepreneurs as individuals who take risks and assume responsibility for their own business (Hébert & Link, 1989). With such an inclusive definition, we acknowledge that entrepreneurship can take a variety of forms, including not only high-growth ventures but also self-employment (Aldrich & Ruef, 2018; Åstebro, 2012; Bakker & McMullen, 2023; Parker, 2009; Shepherd et al., 2022; Welter, Baker, Audretsch, & Gartner, 2017).⁶ To compare the same lifespans across individuals, we considered individuals' employment history starting at age 20 until they reached age 50.⁷ We excluded individuals who had gaps larger than two years between two survey rounds to ensure that the employment histories of the sampled individuals were complete. The sample dropout rates did not differ between individuals from divorced families and those from two-parent families. In line with prior studies (Fairlie, 2005), we excluded individuals who were part of the military oversample.

Given that families' demographic profiles may affect their likelihood of divorce (cf. Amato, 2010), we matched individuals who experienced parental divorce with individuals with similar demographic characteristics who did not experience parental divorce in childhood. For the control group we considered only individuals who grew up in a two-parent family and thus did not consider individuals who stopped living with their parents for irregular reasons such as running away from home. We performed entropy balancing (Hainmueller, 2012; Hainmueller & Xu, 2013) to create

⁶ While we suspect that our theoretical arguments apply to all forms of entrepreneurship, we also performed post hoc analyses on different types of SE to investigate heterogeneity across different forms of entrepreneurship (see Online Appendix Table G.2).

⁷ The NLSY covers different lifespans of the individuals depending on how old they were when the survey started. We selected age 50 as the upper limit because most of the individuals who were still in the study in 2018 had reached age 50 by that time. Furthermore, we selected age 20 as the lower limit because a considerable share of all involved individuals (26.5%) joined the survey at or after age 20, such that we lack data on the employment history prior to age 20 for a large number of individuals. Using a lower age limit (e.g., 18 instead of 20) would thus result in a substantial drop in sample size. However, we ran robustness tests using age 18 instead of age 20 as the lower limit (thus using a reduced sample), and the results remained robust.

the matched sample. Entropy balancing enables the specification of statistical moments that are matched across matching covariates, and produces weights that create an exact balance between treatment and control groups along the matching covariates (Black, Lalkiya, & Lerner, 2020; Hainmueller, 2012; Zhao & Percival, 2017). We employed the following matching covariates that may predict selection into divorce (cf. Amato, 2010): respondents' parental human capital was measured by *parental education* (Fischer, 2007), using the average over each parent's reported grade of educational attainment and taking values between 0 and 20, with 0 representing "no education," 1 to 12 representing the elementary/middle/high school grades, 13 to 19 representing the college years, and 20 representing the completion of an eighth year of college or more.⁸ We also accounted for race by including two binary variables for *African American* and *Hispanic* ethnicity (cf. Hetherington & Stanley-Hagan, 1999), respectively; for gender (cf. Mammen, 2008), the corresponding variable *female* thereby taking the value of 1 for female and 0 for male individuals; for *family unemployment* (cf. Amato, 2010), taking the value of 1 if one or both parents were unemployed at the respondent's age 14 and 0 if no parent was unemployed at that time; and for *family self-employment* (cf. Sanchez-Ruiz, Maldonado-Bautista, & Rutherford, 2018), taking the value of 1 if the respondent reported having family members who own or have owned a business and 0 otherwise. The resulting sample comprises 362 individuals from divorced families and 1,373 from two-parent families.⁹ (Figure A.1 in Online Appendix provides a detailed

⁸ In divorced families, data on education was often missing for one parent. As a result, the average over parents' education was systematically lower in divorced families (given that mothers in our data tended to have lower educational attainment than fathers.) To avoid entropy balancing counteracting this imbalance by oversampling highly educated single mothers among divorced families, we included *missing parental education* as another matching covariate, equaling 1 if one of the two parents' highest grade was missing and 0 if data on both parents' highest grade was available. Doing so ensured that mothers' education was balanced across the divorced and two-parent families.

⁹ We balanced on the first moment (mean) and, for parental education, additionally on the second moment (variance) because divorced families exhibited lower variance in parental education than two-parent families prior to balancing. Balancing the variance of parental education thus ensured that the effect of parental divorce is not confounded by distributional differences in parental education. Our results remained robust when balancing only on the first moment for *parental education*.

documentation of all steps performed to obtain the final dataset and sample used in the main analyses.) Table 1 shows the summary statistics of the matching covariates before and after weighting.

(Insert Table 1 around here)

3.2 Measures

Dependent variable. We operationalized entrepreneurial performance as SE income (cf. Fairlie, 2005; Hartog, Van Praag, & Van Der Sluis, 2010) using the reported hourly incomes from SE¹⁰ in each survey round deflated to 2018 US dollars. If multiple SE jobs were reported, we used the income from the SE job at which the respondent spent most work hours per week. We measured *SE income* as the average over these hourly SE incomes reported within the observation period (cf. Corak, 2001).¹¹ Hourly SE income more precisely measures performance in SE than aggregate measures such as annual earnings because it is not distorted by the total number of hours worked in SE (cf. Hamilton, 2000). Additionally, even though individuals may forego income earned in the initial years of SE to ensure survival and fund later growth, successful entrepreneurship should manifest as rising SE income over time, thus translating into a higher average hourly SE income relative to unsuccessful entrepreneurs.

Independent variable. *Parental divorce* takes the value of 1 if respondents stopped living with a parent due to parental divorce or separation during childhood (age 0 to 18) and the value of 0 otherwise.

¹⁰ This income was reported as part of their wage/salary indication. Most self-employed individuals in the NLSY report their earnings from self-employment as wage/salary in the NLSY data rather than as capital income from business (cf. Fairlie, 2005). However, we also performed robustness tests and found the results to be consistent across different operationalizations of entrepreneurial performance (see Post Hoc Analyses).

¹¹ Income data in the NLSY can contain faulty entries (Åstebro, 2012). Prior to calculating the dependent variable, we therefore recoded outliers in individuals' longitudinal data of SE income as missing values if those outliers were clearly the results of typos, erroneous entries, or irregular one-off SE activities. Furthermore, to avoid that our results are driven by extremely high/low incomes, we winsorized *SE income* at the 1% and 99% cutoffs. The results remained robust when using non-winsorized values and when using the *maximum* instead of the *average* hourly SE income.

Mediator variables. In line with prior literature working with NLSY data (Kuhnen & Melzer, 2018; Yu et al., 2023), we measured *self-efficacy* using the Pearlin Mastery Score (Pearlin & Schooler, 1978) reported in the 1992 survey.¹² Personal mastery reflects the personal belief of having control over one's life (Pearlin & Schooler, 1978), thus capturing the conceptual core of self-efficacy as notion that individuals with high self-efficacy are confident in their ability to produce the desired outcomes in their life through their own actions (Bandura, 1982; Erol & Orth, 2011). The Pearlin Mastery Score is the sum across seven items on a four-point Likert scale. The values range from 7 to 28, with higher values representing greater mastery. We used two proxies for human capital: (1) *education* (Ko & McKelvie, 2018; Marvel, Davis, & Sproul, 2016; Marvel et al., 2020), measured as the highest completed grade, with values ranging from 0 (no grade) to 20 (eighth year of college or more), and (2) *aptitude* (Levine & Rubinstein, 2017; Li & Tong, 2023), measured as the Armed Services Vocational Aptitude Battery scores reported in the 1980 survey (Hegde & Tumlinson, 2021), capturing skills in arithmetic reasoning, numerical operations, word knowledge, and paragraph understanding.

Moderator variable. We used *parental education* to operationalize parental human capital. Our measurement of parental education is described in the "Data and Sample" section. Parental education was included as a control variable in all models whenever it was not tested as a moderator.

Control variables. We included all matching covariates as control variables (*female, African American, Hispanic, family unemployment, family self-employment*), given that entrepreneurial performance is likely to be influenced by respondents' sociodemographic backgrounds. We additionally controlled for *age at SE entry* given that respondents who entered SE later had more

¹² Our results remained robust when establishing temporal separation between the measurement of self-efficacy and SE income by excluding individuals who entered SE before the measurement of self-efficacy in 1992.

time to gather work experience, which may positively affect SE income (Unger et al., 2011). We included industry fixed effects for the ten major NAICS industry groups. To improve the interpretability of our results, we standardized all nonbinary control, moderator, and mediator variables. Table B.1 in Online Appendix presents an overview of all variables.

3.3 Analytical strategies

We ensured coherence between our theorizing and the empirical design by applying a cross-sectional design with the individual as the unit of analysis (cf. Corak, 2001; Hout & Rosen, 2000), given that our independent and control variables are time invariant and that our hypotheses explain variation between individuals' life courses rather than within individuals' lives.¹³ We tested the mediation hypotheses (H1, H2, and H3) through weighted mediation analyses¹⁴ using the Stata command *sem* with bootstrapping (1,000 bootstrapping samples) using replicate weights (Kolenikov, 2010). Given that self-efficacy can promote the development of human capital and vice versa (Bandura, 1993; Newman et al., 2019), we included our human capital measures as control variables in the mediation models that estimate the self-efficacy path, and controlled for self-efficacy in the mediation models that estimate the human capital paths. Omitting these controls might result in biased estimates as the indirect effect through self-efficacy would also pick up potential negative indirect effects through the correlated human capital paths, and the indirect effect through human capital would pick up potential positive indirect effects via self-efficacy. With this conservative estimation strategy, we thus ensured to only measure the part of the indirect effect via self-efficacy that is not related to human capital (and vice versa), thus ensuring a fit

¹³ Our analyses of the total effects (H4) remained robust when we ran random-effects models on the longitudinal data with added controls for age and survey wave.

¹⁴ We used the weights from the entropy balancing procedure in all our analyses. We did not deploy NLSY population sampling weights in our analyses following the recommendation of the NLSY not to use such weights in regressions because this approach would lead to incorrect estimates. For further details see <https://www.nlsinfo.org/content/cohorts/nlsy79/using-and-understanding-the-data/sample-weights-clustering-adjustments>

between our theorizing and our empirical estimation strategy. After the mediation analyses, we performed a weighted least squares regression (WLS) to test the moderating effect of parental human capital on the relationship between parental divorce and entrepreneurial performance (H4). Further details on our empirical strategies are provided in Figure A.1 in Online Appendix.

4. Results

4.1 Main analyses

Tables 2 and 3 report the summary statistics and pairwise correlations, both weighted by the entropy balancing weights. Table 4 reports the mediation results with 95% bias-corrected bootstrapping confidence intervals (CI). In support of H1, the effect of parental divorce on SE income is positively mediated by *self-efficacy* (Model 1: $\beta = 0.397$, $CI = [0.170, 0.817]$). Specifically, individuals from divorced families exhibit on average a 0.229 standard deviation higher self-efficacy (an equivalent of 0.736 units on the Pearlin Mastery score) than individuals from two-parent families. A one standard deviation increase in self-efficacy is associated with an increase in hourly SE income by USD 1.73. Taken together, individuals from divorced families earn on average USD 0.40 more SE income per hour via higher self-efficacy than those from two-parent families.

(Insert Table 2, 3, and 4 around here)

In line with H2, parental divorce exhibits a negative indirect effect on SE income through *education* (Model 2: $\beta = -0.391$, $CI = [-0.773, -0.135]$) and through *aptitude* (Model 3: $\beta = -0.277$, $CI = [-0.662, -0.040]$). Specifically, education is 0.157 standard deviations lower (an equivalent of 0.406 units on the scale of education) for individuals from divorced families than for those from two-parent families. A one standard deviation decrease in education is associated with a decrease in USD 2.49 hourly SE income. Taken together, individuals from divorced families earn on

average USD 0.39 less SE income per hour due to their reduced education compared to individuals from two-parent families. Similarly, parental divorce is associated with a 0.103 standard deviation (SD) reduction in aptitude (an equivalent of 2.934 units on the aptitude scale.) Given that one standard deviation increase in aptitude is associated with an increase in hourly SE income by USD 2.69, individuals from divorced families earn on average USD 0.28 per hour less due to their shortfall in aptitude compared to individuals from two-parent families.

In support of H3, the negative indirect effect of parental divorce on SE income through aptitude strengthens with *parental education* (Model 6: $\beta = -0.276$, $CI = [-0.702, -0.042]$). More precisely, parental education strengthens the negative effect of parental divorce on aptitude ($\beta = -0.102$, $CI = [-0.203, -0.018]$). A similar result exists for education, as the indirect negative effect of parental divorce on SE income through education strengthens with parental education (Model 5: $\beta = -0.146$, $CI = [-0.512, 0.093]$), although this moderation falls short of being statistically significant. The moderation in the path from parental divorce to education implies that the reduction in hourly SE income through the reduction in education amounts to USD 0.54 for individuals with high parental education (at 1 SD above mean,) and to USD 0.24 for individuals with low parental education (at 1 SD below mean.) Analogously, the moderation in the path from parental divorce to aptitude implies that the parental divorce is associated with a reduction in hourly SE income by USD 0.55 through the reduction in aptitude for individuals with high parental education (at 1 SD above mean), while having no effect (reduction of USD 0.00) for individuals with low parental education (at 1 SD below mean.) In line with our expectations (see footnote 5), the indirect effect of parental divorce on SE income through self-efficacy does not vary with parental education (Model 4: $\beta = 0.052$, $CI = [-0.116, 0.251]$).

(Insert Table 5, Figures 4 and 5 around here)

Table 5 reports the aggregate relationships between parental divorce, parental education, and SE income estimated through weighted least squares regressions. While the results suggest a tendency for a negative overall effect of parental divorce on SE income, this effect does not differ from zero (Model 7: $\beta = -1.465$, $p = 0.145$). In support of our theorizing, parental education exhibits a strong positive effect on SE income (Model 7: $\beta = 2.650$, $p = 0.000$). In support of H4, Model 8 shows that parental education negatively moderates the effect of parental divorce on SE income ($\beta = -3.003$, $p = 0.002$): the relationship between parental divorce and SE income is positive for individuals with low parental education and negative for those with high parental education. Specifically, individuals from divorced families earn 4.47 USD less per hour in SE income than those from two-parent families when parental education is high at one SD above the mean ($p = 0.004$), and 7.47 USD less than those from two-parent families when parental education is very high at two SD above the mean ($p = 0.002$). In contrast, the effect of parental divorce on SE income is positive when parental education is low (albeit non-significant) at one SD below the mean ($\beta = 1.538$, $p = 0.221$), and when it is very low at two SD below the mean ($\beta = 4.541$, $p = 0.025$). The marginal effects of parental education are illustrated in Figure 4. Figure 5 shows the predicted hourly SE income, revealing that SE income is highest for individuals from two-parent families with high parental human capital, lower for individuals from divorced families (those with high and low parental human capital being on par with each other), and lowest for those from two-parent families with low parental human capital.

4.2 Post hoc analyses

We performed post hoc analyses to investigate whether our theorizing is supported by the data (see Online Appendix for detailed model specifications and results of the following analyses.)

Endogeneity. We examined the alternative explanation that our effects are driven by selection of families with certain sociodemographic profiles into divorce (Piketty, 2003) rather than by the divorce itself. First, we investigated the alternative explanation that resource constrained families may select into parental divorce (i.e., that they are already resource constrained prior to the divorce.) We thus examined data on family literacy (as family resources in terms of consumption of newspapers, magazines, and library cards) when the respondent was 14 years old and found, in support of our theorizing, that family literacy is lower when it was measured after the parental divorce compared to before the parental divorce (see Online Appendix Table C.1.) Second, we compared school grades from children who had already experienced parental divorce with those from children who were about to experience parental divorce. In support of our theorizing, we found that children in the post-divorce group had lower average high school grades than children in the pre-divorce group (see Online Appendix Table C.1.) Third, we found that our results on the effects of parental divorce on the mediators and SE income remain robust after controlling for preexisting childhood family dysfunctionalities proxied by having an alcoholic parent (see Online Appendix Table C.2.) Overall, the above results do not seem reconcilable with the alternative explanation that our effects are driven by selection of resource-constrained or dysfunctional families into divorce.

We additionally examined whether our results may be driven by the selection of a certain group of individuals (e.g., those with high self-efficacy) into self-employment. We found that the theorized relationships between parental divorce and the three mediators also hold in the full sample containing the overall population of survey participants (not only self-employed) (see Online Appendix Table D.1), suggesting that our results on the relation between parental divorce and the mediators are not a mere result of selection into SE. We also performed more extensive

comparisons between self-employed and paid employees to evaluate whether the strength of our effect sizes may be affected by selection processes (see supplementary analyses in Online Appendix Tables D.2 and D.3 for results and implications.)

Theoretical mechanisms. Next, we performed a range of tests to investigate whether the data supports the theoretical mechanisms underlying our hypotheses.

First, we tested our arguments on the temporal mechanism of *cumulation*, which we argued temporally links parental divorce in childhood to later entrepreneurial performance. According to the mechanism of *cumulation*, the effects of parental divorce on our mediators should be stronger, when the divorce happens in early childhood because the child has a longer exposure to the post-divorce situational imperatives (*duration*) and there is more time for cascades of further (dis)advantages to unfold (*chains of events*). Identifying these mechanisms empirically is however challenging because temporal measures such as age at divorce simultaneously also capture the *life stage* mechanism (Elder & Shanahan, 2006), according to which the impact of a life event on human lives varies depending on the life stage during which the event occurs. Based on this life stage mechanism, parental divorce has arguably more pronounced effects on our mediators if it occurs later in childhood. Specifically, at a very young age children may yet lack the basic adaptive capabilities and competences that are required to successfully develop independence and responsibility in the absence of parents (Chase-Lansdale, Cherlin, & Kiernan, 1995; Elder, 1974; Gecas, 1989), and may not yet be able to develop comprehensive and enduring self-efficacy beliefs (Schunk & Meece, 2006). Parental divorce likely has also a more intense negative effect on human capital accumulation if it occurs later in childhood when the child is in cognitively challenging phases of schooling that require a lot of effort (Amato, 1999; Chase-Lansdale et al., 1995; Li & Tong, 2023). In line with the notion that there is an overlay of cumulation and life stage

mechanisms, we found no evidence that the effect of parental divorce on our mediators and SE income varies by age at parental divorce (see Online Appendix Table E.1). However, once we increased the sample size by also including non-SE individuals, we found that education is lower when the parental divorce occurred in the early childhood for individuals with high parental education (see Online Appendix Table E.1) pointing to a dominance of cumulation over life stage mechanisms in the human capital path.

Second, we examined if parental divorce is associated with a *stronger cumulation* of disadvantages (in the form of home responsibilities, financial constraints, and neglect of school) for individuals with high parental education compared to those from with low parental education. In line with our theorizing, we found that with increasing parental education, parental divorce has (1) a more pronounced positive effect on children's time spent on household chores; (2) stronger positive effect on the likelihood that the child leaves school due to home responsibilities or financial reasons, and (3) a more pronounced negative effect on individuals' school achievement in high school (see Online Appendix Table E.2).

Third, we exploited data on the custodial parent's employment status after the divorce to investigate our argument on situational imperatives. If our theorizing holds, we should find that the positive effect of parental divorce on self-efficacy is more pronounced when the custodial parent is *employed* after the divorce, because an employed custodial parent is relatively more frequently absent from home, creating situational imperatives for the child to develop independence and maturity. At the same time, we should also find that the negative effect of parental divorce on human capital is more pronounced when the custodial parent is *unemployed*, because in this case the custodial family is particularly likely to face situational imperatives in the form of economic constraints inhibiting the child's human capital accumulation. In line with our

predictions, the positive effect of parental divorce on self-efficacy is more pronounced if the custodial parent was employed after the divorce (Model 1 in Table E.3), whereas the negative impact of parental divorce on human capital (education, aptitude) is more pronounced if the custodial parent was unemployed after the divorce (Models 2 and 3 in Table E.3).

Alternative measurements. We tested a range of alternative measurements of our variables. First, we used the average of annual reported earnings in years in which the individual had an SE job as the dependent variable (Fairlie, 2005). Our results remained robust (see Online Appendix Table F.1) suggesting that our results hold when income other than salary (e.g., dividends) is included. Second, we ran Cox proportional hazards models to investigate the effect of parental divorce on the hazard of failure. In line with our main results, we found that parental education strengthens the positive relationship between parental divorce and the hazard of failure (see Online Appendix Table F.2). Finally, we used pre-divorce family literacy as an alternative measure of parental human capital, reflecting the presence of intellectual resources in the family prior to the divorce. In line with our theorizing, the negative relationship between parental divorce and SE income strengthens with increasing pre-divorce family literacy (see Online Appendix Table F.3).

Overall, the above post hoc analyses support the robustness of our results and the validity of our theoretical arguments. Further post hoc analyses are available in Online Appendix, including analyses on different types of self-employment (e.g., incorporated versus unincorporated, Online Appendix G) and further alternative explanations for our results (Online Appendix H).

5. Discussion

We examined the intertemporal relationship between parental divorce in childhood and entrepreneurial performance in adulthood. As the summary of our results in Table 6 shows, parental divorce supports entrepreneurial performance through gains in self-efficacy but also

constrains entrepreneurial performance through a shortfall in human capital. Whether the performance advantages or disadvantages from parental divorce dominate depends on parental human capital: entrepreneurs with low parental human capital gain, but those with high parental human capital lose from parental divorce with respect to their entrepreneurial performance.

(Insert Table 6 around here)

5.1 Contributions to integrative perspectives on childhood experiences and entrepreneurship

Our study joins recent efforts to develop integrative and balanced perspectives on the influence of childhood experiences on later entrepreneurial outcomes (Vladasel et al., 2021; Yu et al., 2023; Yu et al., 2022). In particular, we outline how parental divorce triggers changes in family context that can simultaneously lead to a gain in self-efficacy and a shortfall in human capital for children, which in turn affects their entrepreneurial performance in adulthood. Existing streams of entrepreneurship literature tend to have a polarized view of divorce, i.e., either holding an exclusively positive or negative view of divorce. Our study suggests that such one-sided perspectives likely result in an overly simplistic understanding of parental divorce within each of these streams of research. Specifically, childhood adversity literature tends to argue that early-life adversity can be a source of resilience and strength (Churchill et al., 2021; Miller & Le Breton-Miller, 2017) but neglects the negative effects parental divorce can have through the cumulation of disadvantages in children's development of human capital. On the other hand, prior literature on the influence of family on entrepreneurship tends to focus on the negative effects of divorce on entrepreneurs (Cubbon et al., 2021; Kleindienst et al., 2022; Saridakis, Mohammed, García-Iglesias, & Muñoz Torres, 2018) but neglects that parental divorce can have positive effects through the cumulation of advantages in children's development of self-efficacy. Our study proposes a balanced perspective by demonstrating that parental divorce can simultaneously trigger

both positive and negative changes in children's life. Therefore, we point to the value of holistic approaches such as life course theory (Elder, 1998; Elder et al., 2003) that integrate psychological and sociological perspectives to capture the varied and complex consequences a challenging life event such as parental divorce can have for children's entrepreneurial careers.

5.2 Contributions to literature on the intersection between family and entrepreneurship

Our study offers several contributions to research on the intersection between family and entrepreneurship (Aldrich et al., 2021; Mathias & Wang, 2023; Wu et al., 2023). First, our study extends prior research on the influence of early-life family contexts on entrepreneurship (Aldrich & Kim, 2007; Schmitt-Rodermund, 2004; Vladasel et al., 2021) by developing integrative and nuanced theorizing on the intertemporal processes linking past family contexts and present entrepreneurial activity. In particular, our theorizing suggests that the influence of the family on entrepreneurship can operate across distant time periods through the joint operation of life course mechanisms such as situational imperatives, duration, and chains of events (Elder & Shanahan, 2006). Our study thus refines the theoretical understanding of the temporal processes set in motion by a change in family context, thus unpacking the black box of intertemporal links between childhood parental divorce and later entrepreneurial performance.

Second, we extend research on the influence of family dynamics on entrepreneurship (Joona, 2018; Marshall & Flaig, 2014; Wu et al., 2023; Yang, Kacperczyk, & Naldi, 2023), which has to date focused on events originating in entrepreneurs' own nuclear family context, such as their own marriage, parenthood, or divorce. We shift the attention to life events that originate in other relatives' lives outside of the entrepreneur's own nuclear family and which occurred long before the individual entered entrepreneurship. In line with the notion that entrepreneurial performance is shaped by entrepreneurs' social networks (Kim & Aldrich, 2005; Ruef et al., 2003), our study

shows that entrepreneurs and their businesses can be indirectly affected by events that originate in other individuals' lives, suggesting that changes in linked lives over time are an important source of variation in entrepreneurial performance. In particular, our study introduces the notion that alterations in linked lives can operate across very long temporal distances to affect future entrepreneurial outcomes. In addition to entrepreneurs' own events, past life events of others (e.g., parents, siblings, or friends of entrepreneurs) may thus bear critical intertemporal effects on entrepreneurial activity. The notion that entrepreneurial performance may be sensitive to changes in entrepreneurs' social networks that occurred in the distant past opens up interesting areas of inquiry on the dynamics of individuals' linked lives over time and their intertemporal effects on future entrepreneurial outcomes. Our study thus suggests that extant event-based perspectives in entrepreneurship literature (Churchill, Smyth, & Trinh, 2023; Rauch & Hulsink, 2023) may benefit from extending the theoretical scope to events happening in the lives of entrepreneurs' extended family and friends, especially if such events occurred a long time ago, even before an entrepreneur starts the business.

Finally, we extend prior literature on the role of family background in entrepreneurship (Halaby, 2003; Li & Tong, 2023; Vladasel et al., 2021) by introducing parental human capital as an important boundary condition of the relation between parental divorce and entrepreneurship. Our study suggests that children with high parental human capital enjoy privileges that enable them to accumulate high levels of human capital themselves and thus succeed later in entrepreneurship, and that these privileges can be partly lost when parents divorce. Specifically, our findings suggest that entrepreneurs with high parental human capital suffer performance disadvantages from parental divorce due to a relatively strong shortfall in human capital that seems to outweigh performance gains from self-efficacy. In contrast, for entrepreneurs with low parental

human capital, the benefits from parental divorce in the form of greater self-efficacy seem to outweigh the disadvantages from the relatively minor shortfall in human capital produced by parental divorce. For parental divorce, the frequently held view that early-life challenges are a source of entrepreneurial success (cf. Miller & Le Breton-Miller, 2017; Yu et al., 2022) seems to hold only when children have little to lose from parental divorce.

These insights also inform recent research on the intergenerational transmission of human capital in entrepreneurship (Hvide & Oyer, 2018; Li & Tong, 2023). While prior research recognizes that the passing on of human capital is an important channel through which entrepreneurial parents' influence their children's development (Fairlie & Robb, 2007; Li & Tong, 2023; Obschonka, Silbereisen, & Schmitt-Rodermund, 2011), our study suggests that the intergenerational transmission of human capital is also important for entrepreneurs who do *not* have entrepreneurial parents and that this important channel can be blocked by parental divorce. Our finding that children with high parental human capital tend to “fall from high” with respect to their human capital when experiencing a parental divorce thereby aligns with prior studies that point to pronounced negative long-run socioeconomic consequences of parental divorce for children from socioeconomically privileged families (Bernardi & Radl, 2014; Biblarz & Raftery, 1993; McLanahan & Sandefur, 1994). At the same time, our results diverge from other studies that have found signs of a more pronounced negative effect of divorce for children from low educated and/or low socioeconomic status families (Fischer, 2007; Mandemakers & Kalmijn, 2014). These mixed findings may be explained by different examined outcomes (e.g., well-being) and differences in country contexts,¹⁵ highlighting the need to consider contextual factors when investigating the long-run effects of childhood family contexts on entrepreneurial activity.

¹⁵ For instance, gender egalitarianism and social protections systems vary by countries (see for instance the UN Gender Inequality Index and ILO World Social Protection Report 2020–22). A greater gender egalitarianism implies a more

5.3 Contributions to literature on childhood adversity and entrepreneurship

Our study informs prior research on the influence of childhood adversity and on adulthood entrepreneurial outcomes (Cheng et al., 2021; Yu et al., 2023; Zhao & Li, 2022). First, we develop theorizing and evidence that is tailored to entrepreneurial performance, thus responding to calls for a stronger contextualization of entrepreneurial performance that places greater focus on entrepreneurs' personal context rather than their macro environments (Shepherd et al., 2019). While prior research suggests that challenging childhood experiences increase the likelihood that individuals become entrepreneurs (Cheng et al., 2021; Churchill et al., 2021), our findings suggest that the implications of challenging childhood experiences for individuals' *success* in entrepreneurship may be more complex and ambiguous, especially in the case of parental divorce. Our findings thereby point to the possibility that parental divorce may drive individuals into entrepreneurship (see supplementary analyses in Online Appendix Table D.1), yet at the same time undermine their success in entrepreneurship, at least for individuals with high parental human capital. We thus encourage future research to reconsider using narratives of childhood adversities as sources of strength, as such narratives may potentially induce empirically unfounded conclusions about the consequences of childhood adversities for *performance* in entrepreneurship. In line with the notion that factors explaining entrepreneurial entry do not necessarily explain success (Navis & Ozbek, 2016), our study thus points to the importance of developing tailored theorizing and evidence on the effect of childhood adversity on entrepreneurial performance.

egalitarian division of household labor in couples. Women in those egalitarian countries may thus less likely shift into economic hardship (especially if mothers are well-educated) after the divorce. Additionally, the availability of strong governmental social protection systems likely prevents the custodial parent and the child from experiencing economic hardship. Thus, parental education may buffer the negative effects of parental divorce on children's development in gender egalitarian contexts with strong social protection systems such as in the Netherlands (where the studies by Fischer [2007] and Mandemakers and Kalmijn [2014] are situated), while parental education may have strengthening effects in the US context, where divorced mothers are at a higher risk of drifting into economic hardship due to the relatively lower gender egalitarianism and the limited governmental social protection after the divorce.

Second, our study raises attention to the fact that parental divorce is different from other typically studied early-life adversities such as abuse or violence (e.g., Yu et al., 2022; Zhao & Li, 2022), where opportunities for positive mastery experiences may be more limited than in the case of parental divorce. For instance, Yu et al. (2023) find a negative relation between childhood adversity and self-efficacy that contrasts with our finding of a positive relation between parental divorce and self-efficacy. This contrast can be explained by their focus on a different class of childhood adversities such as emotional deprivation and violence which likely operate through different mechanisms than parental divorce (cf. Berman et al., 2022; Kessler et al., 2010). Against the recent practice of aggregating distinct types of early-life adversity into a single composite construct of adversity, our study thus points to the importance of considering event-specific idiosyncrasies when studying challenging events in early life. Research examining adverse childhood experiences in entrepreneurship (Yu et al., 2022; Zhao & Li, 2022) may thus benefit from disaggregated, more fine-grained theorizing on the diverse life course dynamics triggered by different types of early-life experiences. It is thereby important to note that parental divorce itself is a highly heterogeneous phenomenon (Amato, 2010), which may in some cases be traumatizing for children with potentially negative rather than positive effects on their self-efficacy (cf. Yu et al., 2022). For instance, our post-hoc analyses indicate that children seem not to carry any self-efficacy gains from divorce when their custodial parent is unemployed after the divorce, suggesting that there is some heterogeneity inherent in the relation between parental divorce and the development of children's self-efficacy. Nevertheless, our finding of an average positive relation between parental divorce and self-efficacy aligns with prior observations that most children adjust well to their parents' divorce (Amato, 2001; Kelly & Emery, 2003) and that

children often gain in self-reliance from the divorce (Arditti, 1999; Hetherington & Stanley-Hagan, 1999; Riggio, 2004).

5.4 Contributions to life course literature

Our study contributes theoretical extensions and refinements to life course literature in family sciences (Elder & Shanahan, 2006; Erola et al., 2016) and in entrepreneurship research (Davis & Shaver, 2012; Jayawarna et al., 2021). We show how generic mechanisms such as situational imperatives and cumulation can be used to develop specific theorizing tailored to a complex life event such as parental divorce, thus responding to calls for more concrete and testable theorizing on human life courses (Bernardi, Huinink, & Settersten Jr, 2019). Specifically, our study provides a refined understanding of how different life course mechanisms play together in shaping long-run consequences of challenging life events for children. We also add substance and nuance to life course theory by theorizing the relative dominance of psychological and socioeconomic developmental consequences of a life event. Our study points to the importance of studying boundary conditions that determine whether positive or negative developmental consequences of childhood life events dominate in shaping outcomes in adulthood.

5.5 Contributions to practice

We offer several contributions to practice. First, our findings suggest that entrepreneurs and their parents can mitigate potential adverse effects of parental divorce on later entrepreneurial performance through investments into the entrepreneur's human capital. Also, by encouraging children's self-reliance after the parental divorce, parents can actively support children in building self-efficacy. In turn, this suggests that for divorced parents, a fine line may exist between being authoritative and supportive with respect to children's educational and cognitive development, and becoming overprotective and over-supportive to the detriment of children's self-efficacy. Our

findings thus imply that divorced parents can improve the long-term entrepreneurial outcomes of their children by supporting their human capital development while at the same time not overprotecting children to the extent that they undermine the development of their independence and self-reliance. For instance, our post-hoc analyses show that children carry greater self-efficacy benefits and lower human capital losses from parental divorce when the custodial parent is employed after the divorce (see Online Appendix Table E.3), suggesting that ensuring an economically stable family environment is an important lever for parents to help children develop their human capital and that being absent from home because of employment seems not to harm the child but rather opens up opportunities for children to become independent.

Second, based on our findings, policymakers may consider that support programs for divorced families may be particularly effective if they prevent disruptions to children's human capital accumulation, such as by helping the custodial parent uphold the family's economic standard and providing access to educational resources for children from divorced families. At the same time, our findings suggest that not only children from divorced households require support with their human capital accumulation. Our findings suggest that children from privileged families with high parental human capital can lose these privileges after parental divorce, and this loss ultimately puts them in a similar constrained situation as less privileged children with low parental human capital who never experience parental divorce. Entrepreneurial performance therefore seems to ultimately be a matter of privileged endowments of human capital, with some children losing such privileges over time due to parental divorce while others not having such privileges from the beginning (i.e., having parents with low human capital). Our findings of a strong relation between parental human capital and entrepreneurial performance thus point to the importance of parental human capital as a strong enabler of a successful entrepreneurial career and suggests that entrepreneurship is not a

sphere of equal opportunity: children with low parental human capital are on average less likely to succeed in entrepreneurship later in life because of their disadvantaged socioeconomic background. Entrepreneurship programs may therefore have a greater impact if they are tailored toward aspiring entrepreneurs from disadvantaged socioeconomic backgrounds, irrespective of whether these disadvantages are caused by low parental human capital or by parental divorce.

5.6 Limitations and future research avenues

Our study is subject to some limitations. First, although our post hoc analyses provide preliminary support for the theorized causal direction of effects, our data and analyses limit the identification of causality. In line with prior divorce literature (Amato, 2000; Kim, 2011), we suspect that both selection and causal processes coexist in the relationship between childhood parental divorce and later entrepreneurial performance and thus encourage future scholars to investigate the relative magnitude of selection and causal effects in this relationship. Second, as data limitations prevented us from disentangling the temporal mechanism of cumulation from life stage mechanisms, we encourage future research to examine temporal processes in more detail, for instance by collecting richer longitudinal data on the trajectories of self-efficacy and human capital over time. Third, our empirical results represent average effects and thus need to be interpreted with care, as there is heterogeneity in how children are affected by parental divorce. Given that some divorces may be highly conflict laden and traumatizing for children, not all children may successfully adapt and develop self-efficacy from divorce. We thus encourage future research to examine more in-depth the boundary conditions of the relation between parental divorce and self-efficacy. Fourth, we encourage future research to examine how the long-run effects of parental divorce on entrepreneurial performance vary across different cultural and sociohistorical contexts, given that individuals in our sample experienced parental divorce in a

sociohistorical context wherein traditional family roles were more prevalent than they are today (cf. Elder, 1994). Fifth, because the NLSY oversamples individuals from socioeconomically disadvantaged backgrounds, our estimated effect sizes may not represent population averages. Sixth, as we define entrepreneurship as self-employment, our sample predominantly comprises small business owners, rendering it unclear to what extent our results also hold for more formalized, growth-oriented firms such as incorporated businesses (Levine & Rubinstein, 2017; Yang et al., 2023). Although our post-hoc analyses in Appendix G do not reveal any clear difference between incorporated and unincorporated businesses, the small sample size for incorporated businesses prevents us from generalizing our results to larger, more growth-oriented entrepreneurial business. We thus encourage future research to investigate whether the effects of parental divorce on entrepreneurial performance vary by different types of entrepreneurship. Finally, we encourage future scholars to replicate our findings with different measures of entrepreneurial performance, given that SE income may be subject to underreporting for tax purposes, and with different measures of parental human capital, such as aptitude, which we were only able to measure for respondents but not for their parents.

6. Conclusion

Our study presents a novel perspective on how entrepreneurial performance is shaped by past family contexts. Such contexts are not static and stable across individuals' lives: they can change, and related changes can reach far into the future by altering entrepreneurs' life courses. The long-term effects of parental divorce on entrepreneurial performance thereby reflect an example of how today's economic activity is influenced by changes in family contexts that occurred in the distant past. Our insights open up fruitful avenues for future research at the intersection of individuals' family contexts, life courses, developmental processes, and economic activities.

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Table 1.
Pre- versus Post-Balancing Statistics

		Before balancing					After balancing†				
		Mean	SD	Min	Med	Max	Mean	SD	Min	Med	Max
Matching covariates:											
Parental education	Divorce	11.449	2.839	0	12	20	11.449	2.839	0	12	20
	No divorce	11.178	3.377	0	12	20	11.449	2.839	0	12	20
Missing parental education	Divorce	0.157	0.365	0	0	1	0.157	0.365	0	0	1
	No divorce	0.052	0.223	0	0	1	0.157	0.364	0	0	1
Female	Divorce	0.519	0.500	0	1	1	0.519	0.500	0	1	1
	No divorce	0.497	0.500	0	0	1	0.519	0.500	0	1	1
African American	Divorce	0.260	0.439	0	0	1	0.260	0.439	0	0	1
	No divorce	0.232	0.422	0	0	1	0.260	0.439	0	0	1
Hispanic	Divorce	0.171	0.377	0	0	1	0.171	0.377	0	0	1
	No divorce	0.152	0.359	0	0	1	0.171	0.377	0	0	1
Family unemployment	Divorce	0.345	0.476	0	0	1	0.345	0.476	0	0	1
	No divorce	0.514	0.500	0	1	1	0.345	0.476	0	0	1
Family self-employment	Divorce	0.174	0.380	0	0	1	0.174	0.380	0	0	1
	No divorce	0.124	0.329	0	0	1	0.174	0.379	0	0	1

† Weighted by balancing weights obtained from entropy balancing

Table 2.
Summary Statistics

Variables	Mean	SD	Min	Med	Max
SE income	17.910	17.599	0.674	12.807	106.413
Parental divorce	0.500	0.500	0	0.500	1
Self-efficacy	22.549	3.213	11	22	28
Education	13.551	2.584	0	12	20
Aptitude	42.738	28.482	1	40	99
Parental education	11.449	2.837	0	12	20
Female	0.519	0.500	0	1	1
African American	0.260	0.439	0	0	1
Hispanic	0.171	0.377	0	0	1
Family unemployment	0.345	0.476	0	0	1
Family self-employment	0.174	0.379	0	0	1
Age at SE entry	30.656	7.757	14	29	50

Notes. Weighted by matching weights. Non-standardized values are reported. The age at SE entry can take values below age 20 because some of those who reported an SE job at age 20 indicated having started working at this job already in the year before (44 individuals) or even earlier (4 individuals). The mean of parental divorce equals 0.50 due to the weighting, reflecting that the two groups (divorced and non-divorced) are balanced.

Table 3.
Correlations

	1	2	3	4	5	6	7	8	9	10	11
1 SE income											
2 Parental divorce	-0.038										
3 Self-efficacy	0.185***	0.101**									
4 Education	0.218***	-0.053	0.256***								
5 Aptitude	0.251***	-0.032	0.255***	0.575***							
6 Parental education	0.181***	0.000	0.195***	0.417***	0.462***						
7 Female	-0.185***	0.000	-0.046	0.020	-0.025	-0.042					
8 African American	-0.115***	0.000	-0.031	-0.065*	-0.363***	-0.131***	-0.061				
9 Hispanic	0.045	0.000	-0.028	-0.066*	-0.086**	-0.238***	0.046	-0.269***			
10 Family unemployment	-0.048	0.000	-0.058	-0.091**	-0.073*	-0.087**	-0.008	-0.041	-0.006		
11 Family self-employment	0.114***	0.000	0.036	0.073*	0.135***	0.139***	-0.027	-0.119***	0.022	0.008	
12 Age at SE entry	0.003	0.023	0.023	0.070*	-0.012	-0.068*	0.036	0.105***	0.022	-0.006	-0.053

Notes. Weighted by balancing weights. Standardized values were used for nonbinary variables. The correlations between parental divorce and the matching covariates are equal to 0 due to entropy balancing. The variance inflation factors (based on Model 7 in Table 5) are below 2 for all independent and control variables, and below 4 for all industry fixed effects, suggesting that multicollinearity is not a concern. Significance levels are based on two-sided t-tests. + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$.

Table 4.
Mediation Analyses

Mediation (DV = SE income)	SELF-EFFICACY			HUMAN CAPITAL					
	(1) Mediator: Self-efficacy			(2) Mediator: Education			(3) Mediator: Aptitude		
	Coef.	SE	95% BCBCI	Coef.	SE	95% BCBCI	Coef.	SE	95% BCBCI
Direct effects									
Divorce → SE income	-1.472	0.974	[-3.251,0.647]	-1.540	0.978	[-3.292, 0.596]	-1.653	0.974	[-3.462, 0.404]
Divorce → Mediator	0.229	0.056	[0.129,0.341]	-0.157	0.052	[-0.258, -0.058]	-0.103	0.050	[-0.205,-0.006]
Mediator → SE income	1.730	0.494	[0.860,2.812]	2.494	0.609	[1.227, 3.659]	2.692	0.638	[1.507, 3.971]
Indirect effect									
Divorce → Mediator → SE income (H1 and H2)	0.397	0.158	[0.170,0.817]	-0.391	0.164	[-0.773, -0.135]	-0.277	0.154	[-0.662,-0.040]
Total effect									
Divorce → SE income	-1.075	1.010	[-3.031,0.970]	-1.931	0.972	[-3.679, 0.158]	-1.931	0.972	[-3.679, 0.158]
Controls included		Yes			Yes			Yes	
N		1,735			1,735			1,735	
Moderated mediation (DV = SE income)	(4) Mediator: Self-efficacy			(5) Mediator: Education			(6) Mediator: Aptitude		
	Coef.	SE	95% BCBCI	Coef.	SE	95% BCBCI	Coef.	SE	95% BCBCI
Direct effects									
Divorce → SE income	-1.472	0.974	[-3.251,0.647]	-1.540	0.978	[-3.292, 0.596]	-1.653	0.974	[-3.462, 0.404]
Divorce → Mediator	0.230	0.056	[0.129,0.336]	-0.157	0.052	[-0.259, -0.059]	-0.103	0.050	[-0.205,-0.006]
Divorce * parental education → Mediator	0.030	0.052	[-0.066,0.139]	-0.059	0.054	[-0.174, 0.036]	-0.102	0.046	[-0.203,-0.018]
Mediator → SE income	1.730	0.494	[0.860,2.812]	2.494	0.609	[1.227, 3.659]	2.692	0.638	[1.507, 3.971]
Indirect effect									
Divorce → Mediator → SE income	0.397	0.158	[0.170,0.818]	-0.391	0.164	[-0.772, -0.138]	-0.277	0.153	[-0.656,-0.037]
Divorce * parental education → Mediator → SE income (H3)	0.052	0.094	[-0.116,0.251]	-0.146	0.151	[-0.512, 0.093]	-0.276	0.156	[-0.702,-0.042]
Total effect									
Divorce → SE income	-1.075	1.010	[-3.015,1.000]	-1.931	0.972	[-3.677, 0.150]	-1.931	0.972	[-3.677, 0.146]
Controls included		Yes			Yes			Yes	
N		1,735			1,735			1,735	

Notes. DV = dependent variable. BCBCI = bias-corrected bootstrapped confidence interval. Divorce = Parental divorce. Bootstrapped standard errors are reported and were obtained through 1,000 replications using replicate weights. Effects are displayed in bold if the BCBCI excludes 0. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. Analyses were performed using standardized values for nonbinary variables. Models 4–6 are estimated separately from Models 1–3. The model specifications in Models 4–6 correspond to those in Models 1–3 after including the moderator of parental education.

Table 5.
Aggregate Results (Weighted Least Squares Regressions)

Dependent variable = SE income	(7)			(8)		
	Coef.	SE	p	Coef.	SE	p
Parental divorce	-1.465	1.005	0.145	-1.466	1.000	0.143
Parental divorce * Parental education (H4)				-3.003**	0.981	0.002
Controls						
Parental education	2.650***	0.505	0.000	4.180***	0.579	0.000
Female	-4.923***	1.291	0.000	-4.970***	1.288	0.000
African American	-3.376**	1.164	0.004	-2.908*	1.168	0.013
Hispanic	2.539	1.753	0.148	2.812	1.756	0.110
Family unemployment	-1.355	0.939	0.149	-1.455	0.934	0.119
Family self-employment	2.678+	1.463	0.067	2.842+	1.465	0.053
Age at SE entry	0.133	0.570	0.815	0.109	0.571	0.849
Constant	20.117***	2.012	0.000	20.045***	2.036	0.000
Industry fixed effects		Yes			Yes	
N		1,735			1,735	
F-Statistic		12.59			14.76	
Prob > F		0.000			0.000	
R ² (adj)		0.114			0.121	
Root MSE		16.56			16.50	

Notes. All regressions are weighted by balancing weights. Nonbinary variables were standardized. Significance levels are based on two-sided t-tests. + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 6.
Empirical Evidence on Hypotheses

#	Hypothesis	Support	Empirical Finding
H1	Self-efficacy mediates the positive relationship between parental divorce in childhood and entrepreneurial performance in adulthood	✓	Self-efficacy mediates the positive relationship between parental divorce and self-employment income in adulthood. Parental divorce is associated with a higher self-efficacy, which is in turn associated with a higher self-employment income.
H2	Human capital mediates the negative relationship between parental divorce in childhood and entrepreneurial performance in adulthood.	✓	Education and aptitude mediate the negative relationship between parental divorce and self-employment income in adulthood. Parental divorce is associated with lower education and aptitude, and education and aptitude are positively associated with self-employment income.
H3	The negative relationship between parental divorce in childhood and entrepreneurial performance in adulthood mediated by human capital strengthens with parental human capital.	(✓)	The negative relationship between parental divorce in childhood and self-employment income in adulthood mediated by aptitude and education strengthens with parental human capital. (However, the moderation falls short of statistical significance for education.)
H4	Parental education negatively moderates the total effect of parental divorce in childhood on entrepreneurial performance in adulthood, such that there is a positive relationship at low levels of parental human capital and a negative relationship at high levels of parental human capital.	✓	Parental education negatively moderates the total effect of parental divorce on self-employment income such that the effect of parental divorce on self-employment income is positive for low levels of parental education and negative for high levels of parental education.

Fig. 1. Theoretical Framework

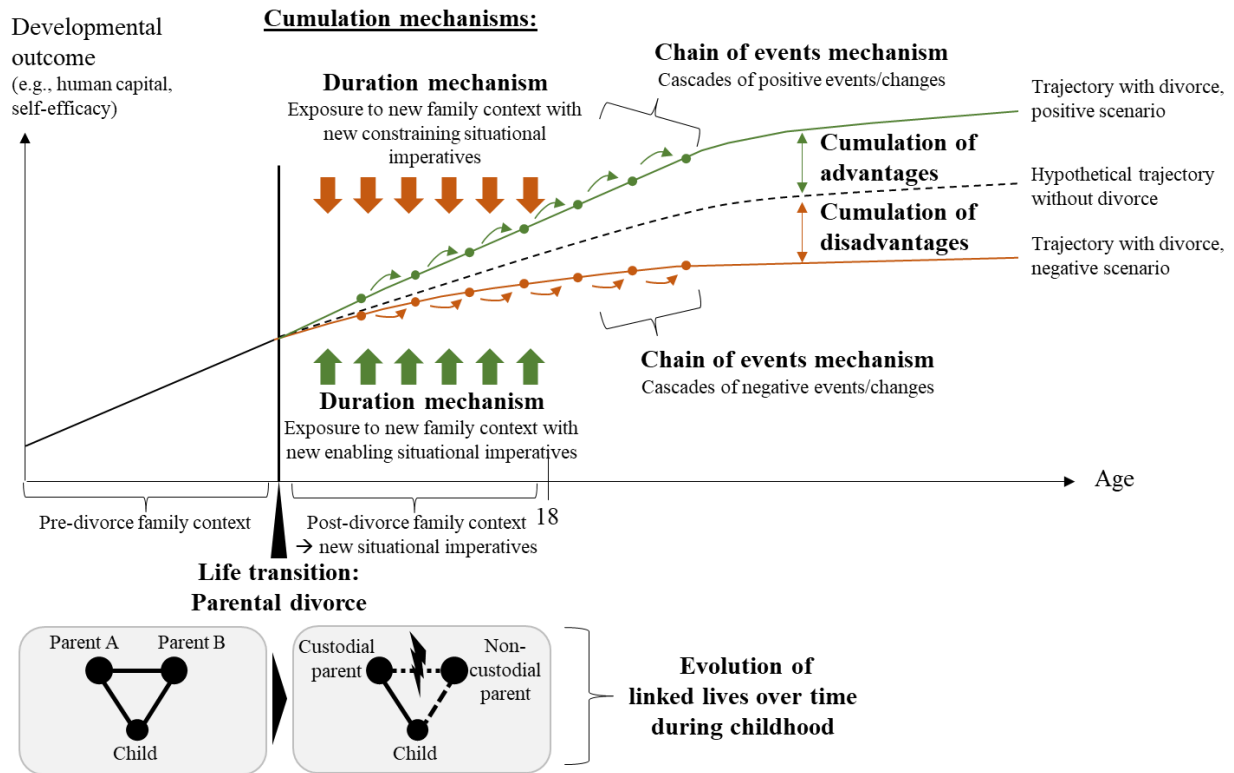


Fig. 2. Cumulative Processes in the Self-Efficacy Trajectory

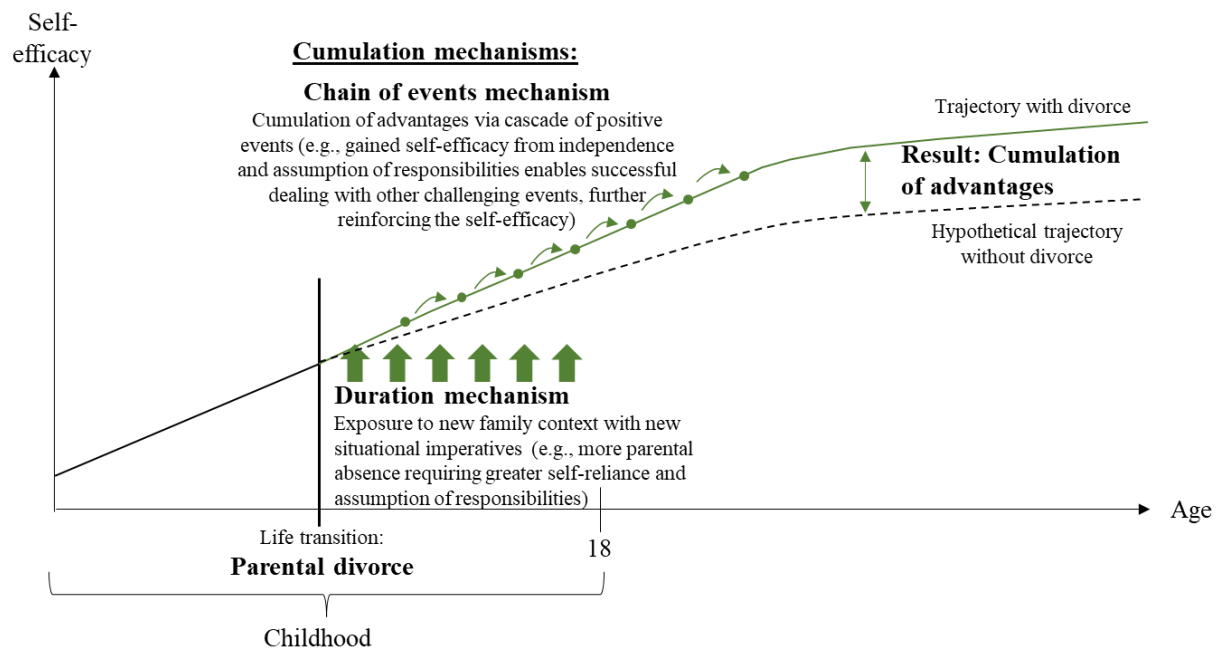


Fig. 3. Cumulative Processes in the Human Capital Trajectory

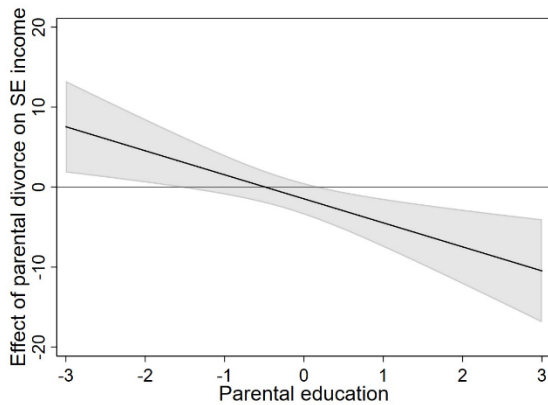
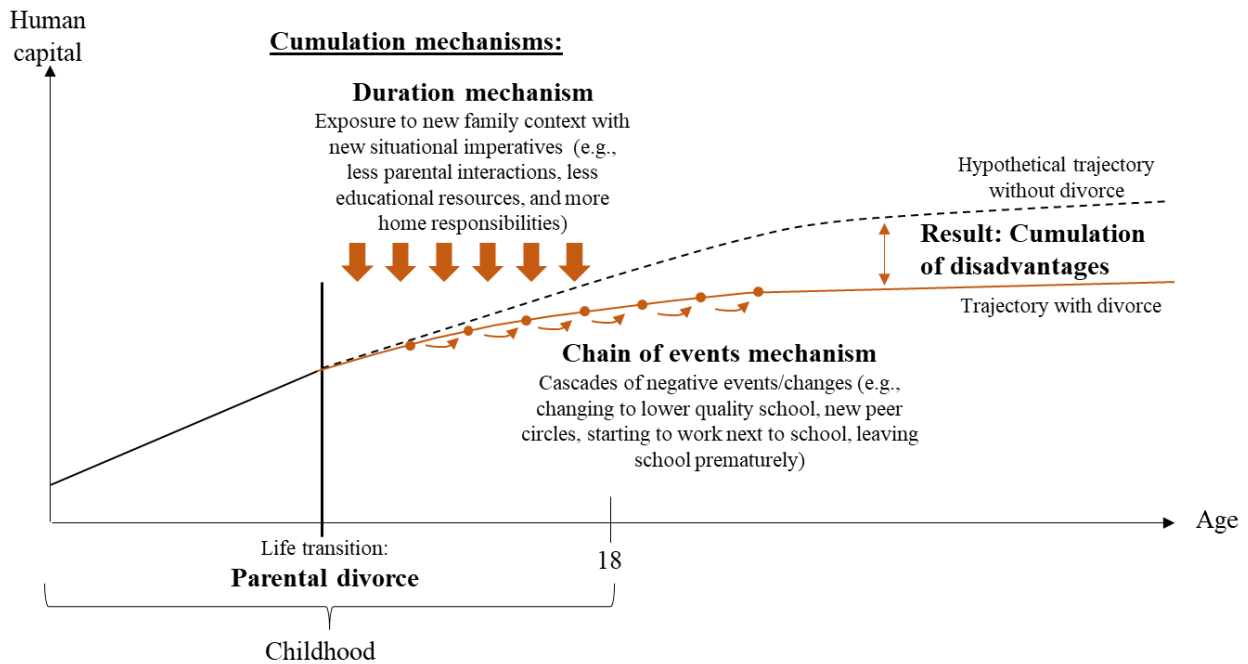


Fig. 4. Marginal Effect of Parental Divorce on SE Income (95% Confidence Interval)

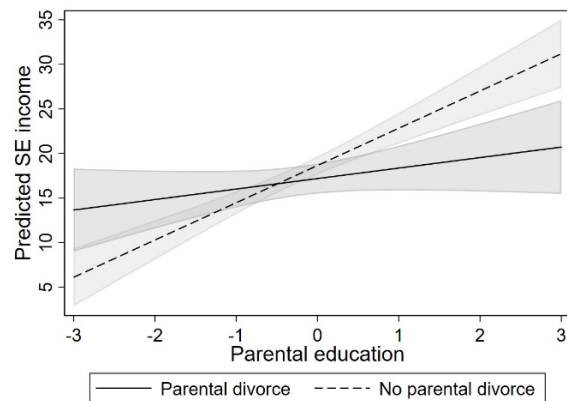


Fig. 5. Predicted Hourly SE Income (95% Confidence Interval)

Parental Divorce in Early Life and Entrepreneurial Performance in Adulthood

Online Appendix

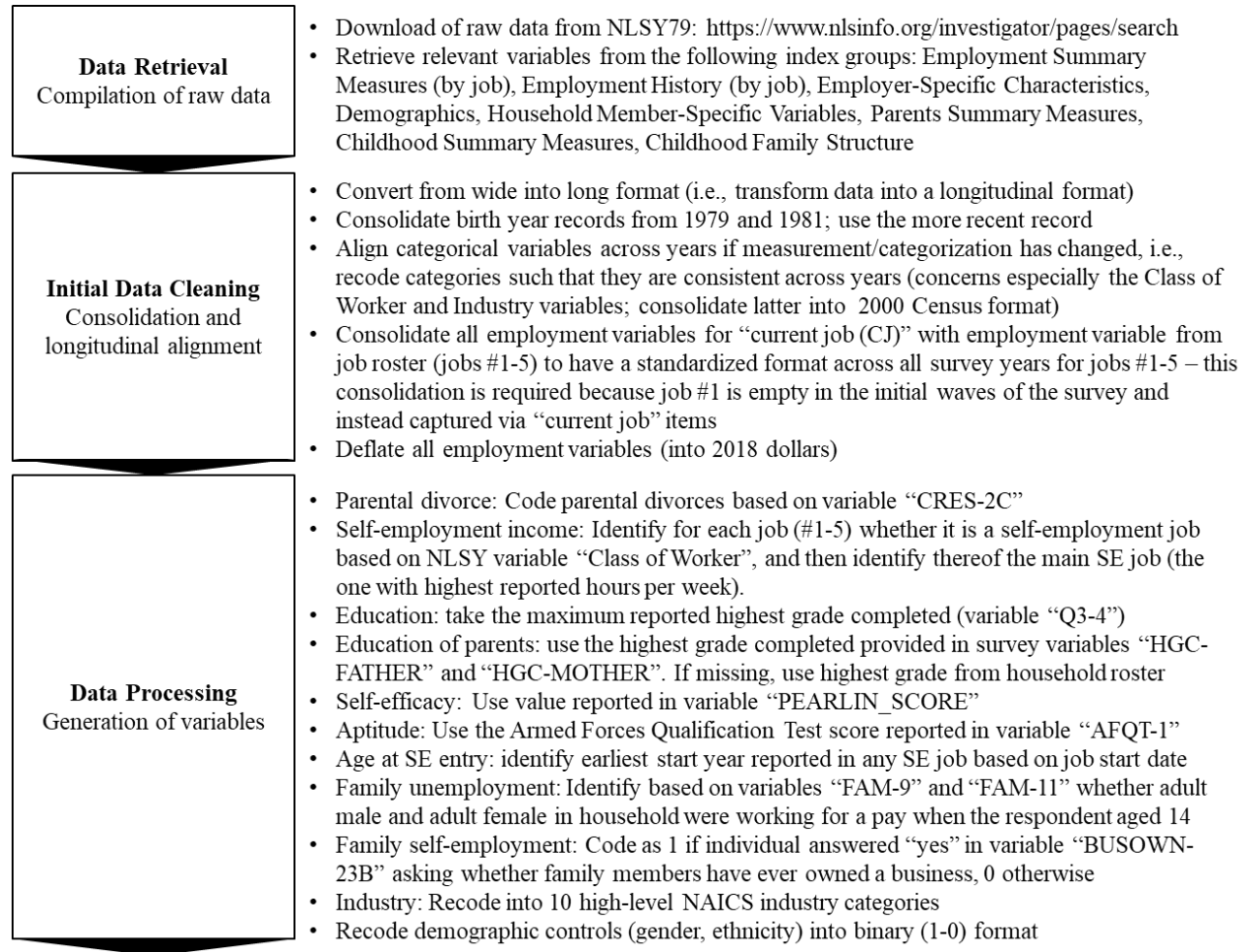
This online appendix contains supplementary information and analyses of the manuscript “Parental Divorce in Early Life and Entrepreneurial Performance in Adulthood.” In particular, this online appendix contains details on data processing steps, variable operationalizations, and post hoc analyses.

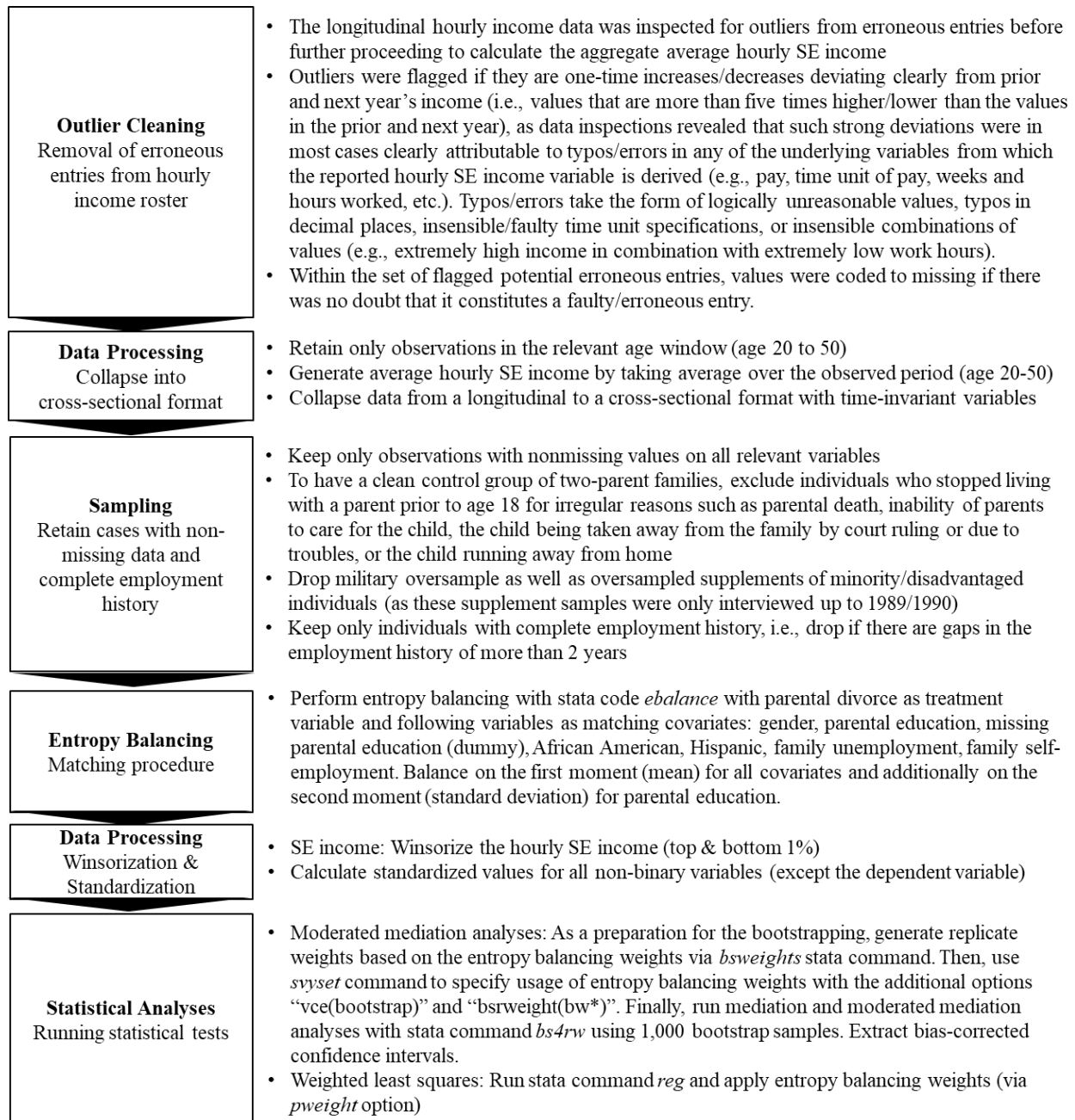
A. Data Processing Steps

The following flowchart (Figure A.1) outlines the steps performed to arrive from the raw data from the National Longitudinal Survey of Youth (1979) to the final dataset used for the analyses.

Figure A.1

Documentation of Data Handling and Empirical Strategy





B. Overview of Variable Operationalizations

Table B.1 contains an overview of all variables used in the main analyses and their operationalization.

Table B.1

Overview of Variables and Operationalizations

Variables	Construct	Type	Operationalization
Dependent variable:			
Self-employment income (“SE income”)	Entrepreneurial Performance	Interval	Average reported (deflated) hourly self-employment income within observed period (age 20-50)
Independent variable:			
Parental divorce	Parental divorce	Binary	Dummy variable taking the value of 1 if respondents stopped living with a parent due to parental divorce or separation during childhood (age 0 to 18) and the value of 0 otherwise
Mediating variables:			
Self-efficacy	Self-efficacy	Ordinal	Pearlin Mastery Score reported in the 1992 survey wave; sum across seven items on a four-point Likert scale. The values range from 7 to 28, with higher values representing greater personal mastery. Respondents indicated the extent to which they agree/disagree to the items “I can do just about anything I really set my mind to”, “What happens to me in the future depends mostly on me”, as well as the reverse coded items “I sometimes feel that I’m being pushed around in life”, “I have little control over things that happen to me”, “I often feel helpless in dealing with problems of life”, and “Little I can do to change important things in my life”.
Education	Human capital	Ordinal	Highest completed grade. Values range from 0 to 20, with 0 representing “no education,” 1 to 12 representing the elementary/middle/high school grades, 13 to 19 representing the college years, and 20 representing the completion of an eighth year of college or more.
Aptitude	Human capital	Ordinal	Armed Services Vocational Aptitude Battery scores reported in the 1980 survey with test scores ranging from 0 (lower end) to 100 (upper end). The higher the score, the stronger the skills in arithmetic reasoning, numerical operations, word knowledge, and paragraph understanding
Moderating variable:			
Parental education	Parental human capital	Ordinal	Average over each parent’s reported grade of educational attainment. Values range from 0 to 20, with 0 representing “no education,” 1 to 12 representing the elementary/middle/high school grades, 13 to 19 representing the college years, and 20 representing the completion of an eighth year of college or more.
Control Variables:			
Female		Binary	Reported gender of respondent, taking the value 1 for female and 0 for male individuals
African American		Binary	Reported ethnicity of respondent, taking the value 1 for African American ethnicity and 0 for other ethnicities
Hispanic		Binary	Reported ethnicity of respondent, taking the value 1 for Hispanic ethnicity and 0 for other ethnicities
Family unemployment		Binary	Parents’ employment status, taking the value of 1 if one or both parents were unemployed at the respondent’s age 14 and 0 if no parent was unemployed at that time
Family self-employment		Binary	Dummy variable taking the value of 1 if the respondent reported having family members who own or have owned a business and 0 otherwise
Age at SE entry		Interval	Age at which respondent entered self-employment for the first time
Industry controls		Binary	Binary variables for ten major NAICS industry groups (Natural Resources and Mining [reference category]; Construction; Manufacturing; Trade, Transportation and Utilities; Information; Financial Activities; Professional and Business Services; Education and Health Services; Leisure and Hospitality; Other)

C. Endogeneity—Selection into Divorce

The following tables report the results of post hoc analyses examining the alternative explanation that the effects of parental divorce on the mediators and SE income may potentially be driven by selection of certain families into divorce rather than by the divorce itself. Table C.1 presents our results on the alternative explanation that our findings may be driven by selection of resource-constrained families into divorce. Table C.2 shows analyses examining the alternative explanation that our results on the human capital disadvantages are driven by pre-existing childhood family dysfunctionalities that predict selection into parental divorce rather than by the divorce itself.

Table C.1
Family Literacy and School Achievement Before and After Parental Divorce

Model #	Independent variable	Dependent variable	Sample information	Model type/fit	N	Coefficient estimates for effect of independent on dependent variable
1	Post divorce (1 if dependent variable was measured after divorce, 0 if before divorce)	Family literacy	Experienced parental divorce	WLS $R^2 = 0.276$	362	-0.11 (0.05) [0.026]
2		Average high school grade	Experienced divorce and attended high school	WLS $R^2 = 0.118$	262	-0.32 (0.14) [0.023]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Demographic variables were included as controls (parental education, female, African American, Hispanic, family unemployment). Regressions were weighted by balancing weights, with matching being performed on the variable *post-divorce*. Analyses were performed using standardized values for nonbinary variables. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

- Model 1: *Family literacy* captures whether any family member read newspapers, magazines or had a library card when the individual was 14 years old and was operationalized by a mean index ranging from 0 if none of the described media were consumed, up to 1 if all three of the media were consumed. Using the subsample of individuals who experienced parental divorce, we tested the relationship between the independent variable *post divorce*, taking the value 1 if family literacy was measured after the divorce and 0 if it was measured before the divorce, and the dependent variable *family literacy*. The test thus compares the post-divorce family literacy with pre-divorce family literacy.
- Model 2: *Average high school grade* was measured as the average over reported grades in years the respondent attended high school. Using the subsample of individuals who experienced parental divorce and who attended high school, we tested the relation between *post divorce*, which takes the value 1 for those who experienced divorce before entering high school (i.e., whose school grades were measured after the divorce) and 0 for those who experienced divorce during high school (i.e., whose school grades were measured shortly before the parental divorce), and the dependent variable *average high school grade*. For the post-divorce group, we considered only children who experienced parental divorce at or before age 12, i.e., at least two years before entering high school to capture only those who had several years of exposure to the new family situation after divorce. The test thus compares high school grades of children who had already experienced parental divorce with those of children who were about to experience parental divorce.

Table C.2
Preexisting Family Dysfunctionalities

Description of variation from main analyses	N	WLS analyses Displayed coefficients: (1) Parental divorce (2) Parental divorce * Parental education R ² = 0.124	Mediation analyses Displayed coefficient for: Parental divorce → Mediator → SE income			Moderated mediation analyses Displayed coefficient for: Parental divorce * Parental education → Mediator → SE income	
			Mediator: Self-efficacy	Mediator: Education	Mediator: Aptitude	Mediator: Education	Mediator: Aptitude
Add alcoholic parent (dummy) as control variable	1,718	(1) -0.58 (1.07) [0.591] (2) -3.11 (0.99) [0.002] R ² = 0.124	0.41 (0.17) [0.15; 0.83]	-0.41 (0.17) [-0.83, -0.15]	-0.28 (0.17) [-0.67, -0.01]	-0.07 (0.15) [-0.38, 0.19]	-0.28 (0.16) [-0.70, -0.03]

Notes. WLS = Weighted least squares regression; R² = R squared (adjusted). For the WLS analyses, standard errors are reported in parentheses, and *p* values are reported in brackets (significance levels are based on two-sided t-tests). For mediation analyses, bootstrapped standard errors are reported in parentheses and were obtained through 1,000 replications using replicate weights; bias-corrected bootstrapped confidence intervals are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights.

Details on measurements and model specifications:

We used the same model specifications as in our main analyses and added a control variable for childhood family dysfunctionalities, proxied by a binary variable *alcoholic parent* indicating whether the individual reported having lived with an alcoholic parent. For individuals who experienced parental divorce, we only considered the alcohol problems of the noncustodial parent, because for noncustodial parents we knew based on the data that the alcohol problems must have existed before the divorce when the family still lived together. We did not consider the alcohol problems of the custodial parent, because for them we did not know whether the alcohol problems existed before or after the divorce. This approach ensured that we captured only parents' pre-divorce alcohol problems (and not parents' alcohol problems post-divorce, which itself may be a consequence of divorce).

D. Endogeneity—Selection into Self-Employment

The following tables report our post hoc analyses investigating how parental divorce affects selection into SE and to what extent our results may be driven by such selection. We used a sample comprising all individuals (self-employed and paid employees) for these analyses. Model 1 in Table D.1 shows that parental divorce is positively associated with SE entry (Model 1). Models 2–6 in Table D.1 show that the theorized relationships between parental divorce and the mediators are also supported in this full sample containing all survey participants, suggesting that the main results obtained with the sample of SE are not a mere result of selection into SE but instead also exist in the entire population of survey participants. Tables D.2 and D.3 contain supplementary analyses on how the effects of parental divorce on the mediators and the dependent variable vary between SE and non-SE.

Table D.1

Selection into Self-Employment and Paths from Parental Divorce to Mediators in Full Survey Population

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	Parental divorce	SE entry	All individuals with complete employment histories (SE and non-SE)	Weighted logit Pseudo R ² = 0.080	4,775	0.20 (0.08) [0.018]
2	Parental divorce	Self-efficacy		WLS R ² = 0.106	4,775	0.42 (0.12) [0.000]
3	Parental divorce	Education		WLS R ² = 0.208	4,775	-0.27 (0.08) [0.001]
4	Parental divorce * parental education	Education		WLS R ² = 0.210	4,775	-0.25 (0.09) [0.005]
5	Parental divorce	Aptitude		WLS R ² = 0.391	4,775	-3.01 (0.94) [0.000]
6	Parental divorce * parental education	Aptitude		WLS R ² = 0.391	4,775	-1.42 (0.78) [0.067]

Notes. Each line represents a separate model. WLS = Weighted least squares regression; R² = R squared (adjusted). The coefficient for Model 1 is reported as odds ratio. Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment. Because the analyses were performed on the full sample (both SE and non-SE), control variables that are specific to SE are excluded (age at SE entry, industry controls.) Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided *t*-tests.

Details on measurements and model specifications:

SE entry takes the value of 1 for those who entered SE once and the value of 0 for those who never entered SE.

In Table D.2 we interact *parental divorce* and *parental divorce * parental education* with *SE entry* to investigate whether the respective effect sizes are different between SE and non-SE. For the human capital mediators, we found no evidence that the human capital shortfall differs between SE and non-SE (Models 2–5 in Table D.2), suggesting that our main results on the effect of parental divorce on human capital are unlikely to be biased due to differential selection into SE based on human capital. For self-efficacy, we found that the positive effect of parental divorce on self-efficacy is stronger among those who entered SE, suggesting that a part of the positive effect identified in the SE sample may be attributable to increased selection into SE by those who gain self-efficacy from divorce (Model 1 in Table D.2). This suggests that the true effect of parental divorce on self-efficacy—although being still strongly positive—is likely slightly weaker than our estimates in the main analysis.

Table D.2
Differences between SE and non-SE

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	Parental divorce * SE entry	Self-efficacy	All individuals with complete employment histories (SE and non-SE)	WLS $R^2 = 0.107$	4,775	0.48 (0.24) [0.043]
2	Parental divorce * SE entry	Education		WLS $R^2 = 0.208$	4,775	-0.15 (0.18) [0.410]
3	Parental divorce * parental education * SE entry	Education		WLS $R^2 = 0.211$	4,775	0.15 (0.19) [0.427]
4	Parental divorce * SE entry	Aptitude		WLS $R^2 = 0.391$	4,775	-0.14 (1.76) [0.935]
5	Parental divorce * parental education * SE entry	Aptitude		WLS $R^2 = 0.392$	4,775	-2.24 (1.66) [0.176]

Notes. Each line represents a separate model. WLS = Weighted least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment. Because the analyses were performed on the full sample (both SE and non-SE), control variables that are specific to SE are excluded (age at SE entry, industry controls). Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

SE entry takes the value of 1 for those who entered SE once and the value of 0 for those who never entered SE.

Table D.3 reports results on supplementary analyses investigating whether the effects of parental divorce and the mediators on performance hold also in the full sample that includes non-SE. Performance was hereby operationalized as average hourly income (from SE for self-employed; from salaries for paid employees.) The positive interaction between parental divorce and parental education also exists in this full universe of individuals (Model 1 in Table D.3), suggesting that the parental education interaction is not just a result of differential selection into SE based on parental education. We next regressed the three-way interaction between parental divorce, parental education, and SE entry onto the average hourly income to investigate whether the strength of the parental education interaction varies between SE and non-SE. We found that the parental education interaction is stronger among SE (Model 2 in Table D.3), suggesting that a part of the discovered interaction effect between parental divorce and parental education may be attributable to differential selection into SE by parental education.

Table D.3
Performance Effects of Parental Divorce in Full Survey Population

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	Parental divorce * parental education	Average hourly income	All individuals with complete employment histories (SE and non-SE) and non-missing income data	WLS R ² = 0.140	4,722	-1.48 (0.44) [0.001]
2	Parental divorce * parental education * SE entry	Average hourly income		WLS R ² = 0.143	4,722	-2.68 (1.07) [0.012]

Notes. Each line represents a separate model. WLS = Weighted least squares regression; R² = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, industry controls. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

SE entry takes the value of 1 for those who entered SE once and the value of 0 for those who never entered SE. *Average hourly income* measures the average reported income from SE for self-employed and the average reported income from salaries for paid employees who were never self-employed.

E. Life Course Mechanisms

The following tables report our results on post hoc analyses investigating the theorized life course mechanisms underlying our hypotheses. Table E.1 summarizes tests on our arguments on temporal mechanisms linking parental divorce and later entrepreneurial performance. Table E.2 summarizes tests on the argument that individuals with high parental education experience a more pronounced cumulation of disadvantages following parental divorce. Table E.3 reports our results from a supplementary analysis of our argument that parental divorce affects our mediators and entrepreneurial performance through situational imperatives that foster children's self-efficacy and restrict their human capital accumulation.

Models 1–8 in Table E.1 show no clear relation between age at divorce and parental divorce. More refined analyses in Models 9–11 that include also non-SE individuals (to increase sample size) show that individuals from divorced families with high parental human capital exhibit lower education when the parental divorce occurred in early childhood. A similar pattern exists for aptitude: for individuals with high parental education, aptitude tends to be lower, when there is a longer distance between the parental divorce and the measurement of aptitude (although falling short of statistical significance.) Overall, these results show some support for the cumulation mechanism operating in the human capital pathway, as the negative effect of parental divorce on human capital among individuals with high parental human capital seems to strengthen when more time has passed since the parental divorce.

Table E.1
Timing of Parental Divorce and Temporal Distance to Mediators

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	(1) Divorce at age 0-5 (2) Divorce at age 6-11 (3) Divorce at age 12-18	SE income		WLS $R^2 = 0.114$	1,735	(1) -0.97 (1.58) [0.541] (2) -1.30 (1.54) [0.401] (3) -2.20 (1.65) [0.183]
2	(1) Divorce at age 0-5 (2) Divorce at age 6-11 (3) Divorce at age 12-18	Self-efficacy	Exclusion of individuals from divorced families with missing age at divorce	WLS $R^2 = 0.109$	1,735	(1) 0.69 (0.30) [0.021] (2) 0.52 (0.27) [0.057] (3) 1.04 (0.31) [0.001]
3	(1) Divorce at age 0-5 (2) Divorce at age 6-11 (3) Divorce at age 12-18	Education		WLS $R^2 = 0.266$	1,735	(1) -0.15 (0.08) [0.071] (2) -0.14 (0.09) [0.107] (3) -0.19 (0.09) [0.032]
4	(1) Divorce at age 0-5 (2) Divorce at age 6-11 (3) Divorce at age 12-18	Aptitude		WLS $R^2 = 0.375$	1,735	(1) -0.10 (0.08) [0.203] (2) -0.14 (0.08) [0.057] (3) -0.06 (0.08) [0.484]
5	(1) Age at parental divorce (2) Age at parental divorce * parental education	SE income		OLS $R^2 = 0.085$	362	(1) -0.24 (0.78) [0.758] (2) 0.01 (0.04) [0.825]
6	Age at parental divorce	Self-efficacy	Subsample of individuals from divorced families	OLS $R^2 = 0.093$	362	0.03 (0.04) [0.379]
7	(1) Age at parental divorce (2) Age at parental divorce * parental education	Education		OLS $R^2 = 0.202$	362	(1) 0.00 (0.03) [0.964] (2) 0.03 (0.03) [0.364]
8	(1) Age at parental divorce (2) Age at parental divorce * parental education	Aptitude		OLS $R^2 = 0.289$	362	(1) 0.29 (0.26) [0.263] (2) 0.05 (0.24) [0.822]
9	Temporal distance	Self-efficacy	Full population of survey	OLS $R^2 = 0.113$	912	-0.08 (0.10) [0.466]
10	(1) Age at parental divorce (2) Age at parental divorce * parental education	Education	participants (SE and non-SE); excluded if age at divorce is missing	OLS $R^2 = 0.167$	912	(1) 0.02 (0.07) [0.785] (2) 0.16 (0.07) [0.033]
11	(1) Temporal distance (2) Temporal distance * parental education	Aptitude		OLS $R^2 = 0.345$	912	(1) -0.02 (0.74) [0.974] (2) -0.94 (0.75) [0.207]

Notes. WLS = Weighted least squares regression; OLS = Ordinary least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment; Models 1–8 additionally control for age at SE entry and industry. Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests. Slope difference tests for Models 1–4 revealed no significant differences between these age coefficients.

Details on measurements and model specifications:

- Models 1–4: Separate dummy variables were included for: (1) individuals who experienced parental divorce in early childhood (at age 0–5); (2) those who experienced parental divorce during mid-childhood (at age 6–11); and (3) those who experienced parental divorce during late childhood, early adolescence (at age 12–18). Two-parent families served as the reference category.
- Models 5–8: Tests were run in the subsample on individuals from divorced families. We included *age at parental divorce* as a continuous (instead of categorical) variable to test the effect of age at divorce on SE income and the mediators. For the models on the effect of age at divorce on education, aptitude, and SE income, we additionally interacted *age at divorce* with *parental education*, given that we theorized a moderation in the human capital path.
- Models 9–11: Tests were performed on both SE and non-SE individuals from divorced families to increase the sample size. Self-efficacy and aptitude were measured by *temporal distance* to capture more precisely how much time has passed since the parental divorce. Temporal distance measures the time in years between parental divorce and the measurement of the mediator. For education, we were not able to calculate the temporal distance because education itself is already measured in years of education. The distance between age at parental divorce and age at completion of the education is thus too strongly correlated with education itself. We therefore used the age at parental divorce as the independent variable in Model 10.

Table E.2 presents findings from post hoc analyses in which we investigated our argument that individuals with high parental education experience a more pronounced cumulation of disadvantages following parental divorce. We thus tested whether parental education moderates the effect of parental divorce on the following outcomes: (1) Time spent on household chores (given that a decreased standard of living may require children to share household chores and thus spend less time on educational activities); (2) the likelihood to leave school due to home responsibilities or financial reasons; and (3) children's achievement in high school in terms of class ranking.

Table E.2
Pronounced Cumulation of Disadvantages under Conditions of High Parental Education

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	(1) Parental divorce (2) Parental divorce * parental education	Time spent on household chores	Exclusion of cases where dependent variable was measured before divorce	WLS $R^2 = 0.067$	1,574	(1) 0.13 (0.14) [0.350] (2) 0.43 (0.13) [0.001]
2	(1) Parental divorce (2) Parental divorce * parental education	Left school for home responsibilities or financial reasons	Exclusion of cases where dependent variable was measured before divorce	Weighted logistic regression LPL = -255.88	1,724	(1) -0.11 (0.21) [0.608] (2) 0.43 (0.22) [0.048]
3	(1) Parental divorce (2) Parental divorce * parental education	Rank in class in high school	Attended high school; exclusion of cases where dependent variable was measured before divorce	WLS $R^2 = 0.099$	928	(1) 0.00 (0.02) [0.870] (2) 0.07 (0.02) [0.005]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted); LPL = Log pseudolikelihood. Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

- Model 1: *Time spent on household chores* measures how many hours the respondent spent on household chores during the day before the survey interview in 1981.
- Model 2: *Left school for home responsibilities or financial reasons* was measured as a binary variable taking the value of 1 if the respondent indicated having left school at least once for more than a month due to home responsibilities or financial reasons (during grades 7-12), and the value of 0 otherwise.
- Model 3: *Rank in class in high school* measures respondents' rank in their class in the last year of high school based on their grades (normalized by class size): a higher rank value reflects a poorer relative achievement in the class.
- Models 1–3: To ensure that the dependent variable was measured after the parental divorce, cases were excluded if the divorce happened after the measurement of the respective dependent variable.

Table E.3 presents supplementary analyses examining our argument that parental divorce affects our mediators and entrepreneurial performance through situational imperatives that foster children's self-efficacy and restrict their human capital accumulation. These supplementary tests exploit data on the custodial parent's employment status to capture the associated variation in situational imperatives that children face after the parental divorce.

Table E.3
Differences by Custodial Parent's Employment Status after the Divorce

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	(1) Parental divorce & unemployed parent (2) Parental divorce & employed parent	Self-efficacy		WLS $R^2 = 0.126$	1,652	(1) 0.19 (0.34) [0.581] (2) 0.93 (0.25) [0.000] (slope difference test: $p = 0.086$)
2	(1) Parental divorce & unemployed parent (2) Parental divorce & employed parent	Education	Exclude if parental divorce occurred at or after age 14	WLS $R^2 = 0.272$	1,652	(1) -0.61 (0.25) [0.014] (2) -0.22 (0.19) [0.251] (slope difference test: $p = 0.230$)
3	(1) Parental divorce & unemployed parent (2) Parental divorce & employed parent	Aptitude		WLS $R^2 = 0.376$	1,652	(1) -8.55 (2.54) [0.001] (2) 0.23 (1.98) [0.906] (slope difference test: $p = 0.007$)

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and p values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

We used two separate dummy variables to distinguish the following types of divorces: (1) divorces with a subsequently unemployed custodial parent, and (2) divorces with a subsequently employed custodial parent. Two-parent families were the reference category. Given that parents' employment status is only known for the year when the respondent was 14 years old, we excluded cases where the parental divorce occurred at or after age 14 to ensure that we only capture custodial parents' post-divorce employment status.

F. Alternative Measurements

Tables F.1, F.2, and F.3 summarize robustness tests where we used alternative measurements for our dependent and moderator variables.

Table F.1

Alternative Dependent Variable—Annual Earnings

Description of variation from main analyses	N	WLS analyses Displayed coefficients: (1) Parental divorce (2) Parental divorce * parental education $R^2 = 0.199$	Mediation analyses Displayed coefficient for: Parental divorce → Mediator → SE income			Moderated mediation analyses Displayed coefficient for: Parental divorce * Parental education → Mediator → SE income	
			Mediator: Self-efficacy	Mediator: Education	Mediator: Aptitude	Mediator: Education	Mediator: Aptitude
Dependent variable: Average annual earnings	1,653	(1) -3.60 (2.52) [0.152] (2) -4.85 (2.51) [0.054] $R^2 = 0.199$	1.23 (0.42) [0.54, 2.24]	-1.60 (0.58) [-2.94, -0.64]	-0.85 (0.48) [-1.90, -0.01]	-0.75 (0.60) [-2.04, 0.33]	-0.83 (0.45) [-1.78, -0.04]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). For WLS analyses, standard errors are reported in parentheses, and *p* values are reported in brackets (significance levels are based on two-sided t-tests.) For mediation analyses, bootstrapped standard errors are reported in parentheses and were obtained through 1,000 replications using replicate weights; bias-corrected bootstrapped confidence intervals are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights.

Details on measurements and model specifications:

Average annual earnings measures the average of annual reported earnings in years in which the individual had an SE job. It is the sum of reported total annual income from salary and annual income from business.

Table F.2

Alternative Dependent Variable—Hazard of Failure

Independent variable	Dependent variable	Sample information	Model type	N	Estimates for effect of independent on dependent variable
(1) Parental divorce (2) Parental divorce * Parental education	Hazard of failure	Full sample	Cox regression LPL = - 1323.69	1,735	(1) 1.22 (0.13) [0.064] (2) 1.32 (0.16) [0.017]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted); LPL = Log pseudolikelihood. Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized.

Details on measurements and model specifications:

We ran weighted Cox proportional hazards models to test the effect of parental divorce on the hazard of failure (exit from SE) using the duration of the longest consecutive span of SE activity (in years) to measure survival time. Because we lacked data on the reason why individuals exited their SE job, we proxied failure by exits from SE jobs where the last reported SE income was either missing or below the US minimum wage (i.e., below 7.25 USD/hour.) We thus assumed that individuals who earned comparatively high incomes before exiting SE did not terminate their SE activity due to bankruptcy/failure but rather due to a voluntary exit.

Table F.3
Alternative Moderator—Pre-Divorce Family Literacy

Independent variable	Dependent variable	Sample information	Model type	N	Estimates for effect of independent on dependent variable
(1) Parental divorce (2) Parental divorce * pre-divorce family literacy	SE income	Exclusion of cases where family literacy was measured after the divorce	WLS $R^2 = 0.154$	1,414	(1) -2.45 (2.41) [0.310] (2) -4.01 (2.01) [0.047]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

Family literacy captures whether any family member read newspapers, magazines or had a library card when the individual was 14 years old and was operationalized by an index ranging from 0 if none of the described media were consumed, up to 1 if all three of the media were consumed. To capture only pre-divorce family literacy (as post-divorce family literacy is likely affected by divorce), cases were excluded where family literacy was measured after the divorce.

G. Type of Self-Employment

Table G.1 reports supplementary analyses in which we distinguished between unincorporated SE and incorporated SE (Levine & Rubinstein, 2017; Vlasdel et al., 2021). Examining the interaction between incorporation and parental divorce, we found no evidence that the effect of parental divorce on SE income varies by incorporation status. We also found no evidence that the moderating effect of parental education on the relationship between parental divorce and SE income differs by incorporation status. We further performed our main analyses separately on the subsamples of incorporated and unincorporated SE (see Table G.2.) While some estimates are no longer significantly different from zero due to the reduced subsample sizes, the direction of the estimated effects is consistent with our main results, both for incorporated and unincorporated SE. As Table G.2 shows, our also results remained robust when we performed our main analyses on subsamples that reflect narrower definitions of entrepreneurship: (a) a subsample that only includes self-employed individuals whose SE job was at least once their main job in terms of hours worked per week; (b) a subsample that includes only those whose SE job was at least once the main income source; (c) a subsample that includes only self-employed individuals who at least once had employees (other than themselves) in their SE job; and (d) a subsample that excludes individuals who were in SE only for a rather short time (less than three years.)

Table G.1
Differences by Incorporation Status

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	(1) Parental divorce (2) Parental divorce * incorporated	SE income	Exclusion if missing incorporation data	WLS $R^2 = 0.156$	1,683	(1) -1.61 (1.02) [0.116] (2) 1.42 (3.26) [0.662]
2	(1) Parental divorce (2) Parental divorce * parental education (3) Parental divorce * parental education * incorporated	SE income	Exclusion if missing incorporation data	WLS $R^2 = 0.163$	1,683	(1) -1.78 (1.03) [0.084] (2) -3.06 (0.98) [0.002] (3) -0.67 (3.14) [0.831]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, industry controls. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized.

Details on measurements and model specifications: *Incorporated* takes the value of 1 if the respondent was at least once self-employed in an incorporated business, and the value of 0 otherwise.

Table G.2
Subsample Tests for Different Types of Self-Employment

Test Set #	Description of variation from main analyses	N	WLS analyses Displayed coefficients: (1) Parental divorce (2) Parental divorce * parental education R^2	Mediation analyses Displayed coefficient: Parental divorce → Mediator → SE income			Moderated mediation analyses Displayed coefficient: Parental divorce * Parental education → Mediator → SE income	
				Mediator: Self-efficacy	Mediator: Education	Mediator: Aptitude	Mediator: Education	Mediator: Aptitude
1	Subsample of unincorporated SE	1,310	(1) -1.77 (0.97) [0.068] (2) -2.89 (0.99) [0.003] $R^2 = 0.130$	0.18 (0.14) [-0.03, 0.56]	-0.21 (0.15) [-0.52, 0.06]	-0.42 (0.19) [-0.89, -0.11]	-0.03 (0.17) [-0.43, 0.29]	-0.34 (0.20) [-0.87, -0.06]
2	Subsample of incorporated SE	373	(1) -0.80 (3.55) [0.821] (2) -3.34 (2.86) [0.243] $R^2 = 0.050$	1.11 (0.88) [-0.01, 3.59]	-0.44 (0.77) [-2.24, 0.90]	0.00 (0.27) [-0.44, 0.69]	-0.15 (0.38) [-1.70, 0.22]	-0.04 (0.27) [-0.91, 0.32]
3	Subsample: SE job was at least once main job in terms of hours worked per week	1,388	(1) -0.42 (1.18) [0.720] (2) -2.42 (1.16) [0.037] $R^2 = 0.143$	0.53 (0.21) [0.22, 1.01]	-0.50 (0.21) [-1.03, -0.18]	-0.33 (0.19) [-0.77, -0.05]	-0.07 (0.18) [-0.51, 0.21]	-0.39 (0.20) [-0.95, -0.11]
4	Subsample: SE job was at least once the main income source	1,408	(1) -0.40 (1.19) [0.739] (2) -2.47 (1.13) [0.029] $R^2 = 0.150$	0.52 (0.22) [0.22, 1.08]	-0.47 (0.21) [-0.98, -0.14]	-0.28 (0.18) [-0.74, 0.03]	-0.16 (0.18) [-0.63, 0.15]	-0.40 (0.19) [-0.89, -0.09]
5	Subsample: Had at least once employees in the SE job	866	(1) 0.80 (1.80) [0.658] (2) -2.54 (1.74) [0.146] $R^2 = 0.058$	0.81 (0.41) [0.22, 1.79]	-0.74 (0.35) [-1.63, -0.20]	-0.20 (0.29) [-0.86, 0.32]	-0.15 (0.24) [-0.75, 0.22]	-0.62 (0.33) [-1.43, -0.10]
6	Subsample: Worked at least three years consecutively in an SE job	1,042	(1) -0.11 (1.39) [0.938] (2) -3.19 (1.30) [0.014] $R^2 = 0.129$	0.70 (0.30) [0.26, 1.53]	-0.68 (0.27) [-1.31, -0.24]	-0.34 (0.22) [-0.86, 0.03]	-0.19 (0.25) [-0.76, 0.23]	-0.58 (0.28) [-1.31, -0.16]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). For WLS analyses, standard errors are reported in parentheses and *p* values are reported in brackets. For mediation analyses, bootstrapped standard errors are reported in parentheses and were obtained through 1,000 replications using replicate weights; bias-corrected bootstrapped confidence intervals are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. Self-efficacy models include human capital variables (education, aptitude) as control, and vice versa. All regressions were weighted by balancing weights. Significance levels are based on two-sided t-tests.

H. Substitutes for Self-Employment Income

We investigated whether the negative income effect of parental divorce is potentially substituted by higher job satisfaction in SE, reflecting the alternative explanation that individuals from divorced families may willingly forego high SE income for the sake of nonpecuniary benefits such as greater personal satisfaction in SE. We thus tested the relationship between parental divorce (including its interaction with parental education) and job satisfaction in SE and found that parental divorce has a weak negative effect on job satisfaction in SE which does not vary by parental education (Model 1 in Table H.1.) As such, we do not find any evidence for a substitution between income and job satisfaction for entrepreneurs experiencing parental divorce in their childhood.

Furthermore, we investigated the possibility that individuals from divorced parents with high education may compensate their shortfall in SE income by receiving financial support from their parents, reflecting the alternative explanation that parents with high human capital are often financially well-off and that their children may not feel the need to earn more SE income because they have a financial safety net by their parents. If this were the case, then parental divorce should only materialize in a reduction in SE income but not in a reduction in the amount of wealth they accumulate over their lifetime. We therefore tested the relationship between parental divorce and the amount of net family wealth accumulated by the end of the observed age window (Model 2 in Table H.1.) We found that parental divorce is negatively related to wealth accumulation and that this negative effect holds irrespective of parental education, suggesting that the shortfall in SE income among individuals from divorced families with high parental education is at most partially but not fully substituted by parents' financial support.

Table H.1
Satisfaction and Family Wealth as Substitutes for SE income

Model #	Independent variable	Dependent variable	Sample information	Model type	N	Coefficient estimates for effect of independent on dependent variable
1	(1) Parental divorce	Job satisfaction (scale from 1 to 4)	Exclusion if missing data on job satisfaction	WLS $R^2 = 0.018$	1,742	(1) -0.05 (0.03) [0.087]
	(2) Parental divorce * parental education					(2) -0.01 (0.03) [0.744]
2	(1) Parental divorce	Family wealth at the end of the observed age span (in USD 1,000)	Exclusion if missing data on family wealth	WLS $R^2 = 0.080$	1,596	(1) -93.04 (42.63) [0.029]
	(2) Parental divorce * parental education					(2) -6.75 (47.33) [0.887]

Notes. WLS = Weighted least squares regression; R^2 = R squared (adjusted). Standard errors are reported in parentheses and *p* values are reported in brackets. Control variables: parental education, female, African American, Hispanic, family unemployment, family self-employment, age at SE entry, and industry controls. All regressions were weighted by balancing weights. Analyses were performed using standardized values for nonbinary control variables. Dependent variables were not standardized. Significance levels are based on two-sided t-tests.

Details on measurements and model specifications:

- Model 1: We measured *job satisfaction in SE* as the average self-reported SE job satisfaction (ranging from 1 = dislike very much to 4 = like very much) within the observation period (age 20 to age 50)
- Model 2: *Net family wealth* was measured as the average reported net family wealth in USD 1,000 (total family assets less total family debt) within the last five years of the observation window (i.e., age 46 to age 50), capturing how much wealth the individual has accumulated by the end of the observation period.