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Entrepreneurship and the intergenerational transmission of values

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Abstract There is mounting empirical evidence that there is intergenerational transmission of parental preferences for entrepreneurship. However, much of the work on this topic is not explicit about the role of *values* in this transmission process. Furthermore, nearly all studies neglect potential heterogeneity of values among entrepreneurial parents. This paper contributes to the literature by making use of a natural experiment that allows (1) identifying a group of entrepreneurial parents who have a distinct priority of challenging existing conditions ("mastery") and (2) detecting whether this value orientation is transmitted. Comparing German entrepreneurs two decades after Reunification reveals that the children of self-employed parents who encountered a great deal of resistance in the socialist German Democratic Republic due to their self-employment are much more likely to give mastery as the reason for running their own venture compared to entrepreneurs whose parents did not have to overcome this sort of challenge.

Keywords Entrepreneurship · Role model · Intergenerational transmission · Family economics · Cultural values · Historical natural experiment · Transition economics

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1 Introduction

One of the most fascinating findings of entrepreneurship research is that the decision to become an entrepreneur is positively linked to parental self-employment. Parental entrepreneurs appear to play a much stronger role than any other social contact in motivating a person to starting an own venture. Nanda and Sørenson (2010) estimate that having self-employed parents increases the probability of starting an own firm by 29 %, compared to only 4 % that can be associated with having coworkers with entrepreneurship experience. The significance of parental self-employment explains why so much research has been devoted to understanding the mechanisms of intergenerational correlation of entrepreneurship (for reviews, see, e.g., Aldrich and Kim 2007; Parker 2009; Laspita et al. 2012), albeit there are still many gaps in this research. Some of these gaps are related to the role of intergenerational transmission of entrepreneurial values (e.g., Halaby 2003; Aldrich and Kim 2007; Dohmen et al. 2012; Chlosta et al. 2012), the topic addressed in this paper. Briefly, in contrast to most previous studies, in this paper direct information on values is exploited. The study assesses information on the priority given to challenging existing conditions

among entrepreneurs (a value referred to as "mastery"). This value is surprisingly neglected in previous research even though challenging existing conditions is a key element of entrepreneurship (e.g., Schumpeter 1912). In another departure from previous approaches, this paper takes into account the heterogeneity of parents' entrepreneurial values, that is, differences in the emphasis they put on challenging existing conditions. This is done by exploiting a natural experiment that allows disentangling a group of self-employed parents with a distinct priority for mastery and by assessing empirically whether their children reveal a similar value orientation. The analysis shows that self-employed children of such parents are indeed much more likely than other entrepreneurs to stress mastery as an important reason for running their own firm.

This analysis of entrepreneurial value transmission is undertaken in the belief that understanding the intergenerational transfer of values can make an important contribution to the literature on the effects of parental self-employment on entrepreneurship. This belief finds support when reviewing the different mechanisms that are given credit for the link between parental self-employment and becoming an entrepreneur and the empirical evidence for each. Theoretically, there is consensus that there are six potential channels through which parents influence entrepreneurial choice among their offspring. The most obvious explanation is inheritance of the parental business. However, this channel was shown to be a comparatively weak one early on in the scholarly debate simply because statistics reveal that many children of entrepreneurs establish their own business, that is, they do not simply take over their parents' business (e.g., Dunn and Holtz-Eakin 2000).

Three other explanations involve the intergenerational transfer of tangible and intangible resources. Parents can (1) transfer financial resources, which relax liquidity constraints of their children. They can (2) provide the opportunity to acquire industry-specific knowledge and experience, for instance, by letting the kids work in the business. This and gaining easy access to parental business networks can be helpful in identifying industry-specific entrepreneurial opportunities. Finally, (3) watching, and learning from, how their parents conduct business can result in the acquisition of general human capital and entrepreneurial ability that allows identifying opportunities beyond the industry context of the family business. There is hardly any evidence that capital access plays a significant role in the intergenerational transfer of entrepreneurship. The results with respect to the two skill-related explanations [(2) and (3) above] are mixed and indicate that the intergenerational transmission of self-employment is not primarily related to human capital formation (e.g., Parker 2009).

There are two other intensively discussed explanations for the phenomenon: genetic inheritance and the transmission of a taste for entrepreneurship. The former posits that it is the presence of an "entrepreneurship gene" that explains intergenerational correlation in entrepreneurial choice (e.g., Nicolaou et al. 2008; Nicolaou and Shane 2010). The latter explanation is grounded in social learning theory (e.g., Bandura 1986). The main argument here is that children observe the behavior and experiences of their (self-employed) parents, viewing them, although perhaps not consciously, as role models. In the process, they internalize norms of behavior that, in turn, affect their actions, professional orientation, preference for entrepreneurship, willingness to take risks, and striving for independence. Parents can influence their children via certain parenting practices and by transmitting their value orientation (e.g., Halaby 2003; Aldrich and Kim 2007; Dohmen et al. 2012; Chlosta et al. 2012). These ideas also appear in the economic theory of value transmission developed by Bisin and Verdier (2000, 2001). In their approach, parents find utility in the well-being of their offspring, sometimes referred to as paternalistic altruism. Parents can exert socialization effort (e.g., spending time with their kids), with one purpose of doing so being the desire to instill in their children their own values, on the assumption that their value system is the best one for their children, which is called imperfect empathy (for details, see Bisin and Verdier 2000, 2001).[1]

In the psychological literature, values are characterized as basic views with respect to end states and modes of conduct that transcend specific situations and guide the selection and evaluation of behavior, events, and people (Schwartz 1994, 20). In economic terms, values can be understood as deeply held convictions about the world, beliefs that are crucial for preference formation

[1] For a recent theoretical account of the role of parenting in the formation of preferences, see Doepke and Zilibotti (2012). The role of *values* that underlie the parental decision to influence their children's preferences, however, is not explicitly assessed in these authors' approach.

(Tabellini 2008). The typical entrepreneurial quest for independence, for instance, reflects a value that gives priority to autonomy (e.g., Schwartz 1994, 1999).[2] Thus, based on the various theories, entrepreneurial parents should be able to influence the formation of a preference for entrepreneurship among their children by transmitting a value priority for autonomy.

The empirical evidence suggests that parental role modeling plays an important role in entrepreneurial choice (e.g., Sørenson 2007; Parker 2009) and dominates the influence of both genetics (Lindqvist et al. 2015) and parental transfer of resources and human capital (e.g., Parker 2009). However, apart from the mere finding that there is a preference or "taste for entrepreneurship" that is passed on from generation to generation, the role and nature of parental values and several aspects of value transmission in the intergenerational correlation of preference for entrepreneurship are still a "black box." First, there are no studies that relate parental self-employment to the individual value orientation of their children. Thus, it remains unclear whether the value orientation of the offspring does indeed resemble that of entrepreneurial parents.[3] Second, there is to date no assessment of heterogeneity of values among entrepreneurs and their entrepreneurial parents. However, parents who introduce an innovative product might have (and presumably require) an entirely different value orientation than parents who are self-employed out of necessity. A third shortcoming of the current literature is that its discussion of entrepreneurial taste and its transmission mainly deals with strive for independence, which reflects a priority for autonomy. Other fundamental human values that might play a role in opting for (or against) entrepreneurial choice are mostly ignored.

A clear understanding of entrepreneurial values and their intergenerational transmission is warranted for several reasons. First, values determine the "procedural" utility associated with being one's own boss and are, accordingly, a driver of entrepreneurial choice (e.g., van Gelderen and Jansen 2006; Benz and Frey 2008a, b; Croson and Minniti 2012; Hyytinen et al. 2013). Second, entrepreneurial value transmission is of great interest to policymakers since entrepreneurial families, those in which effective value transmission takes place, can be a spawning ground for entrepreneurship, carriers of entrepreneurial tradition, and drivers of long-term persistence of entrepreneurship in the policymaker's region of jurisdiction.

This paper makes several contributions to the literature on parental self-employment and entrepreneurial value transmission. First, it is the first study to relate direct information on values among entrepreneurs to parental self-employment. Second, it demonstrates that entrepreneurs do indeed differ in their value orientation depending on the context in which their parents were self-employed. This twofold contribution is based on a unique historical natural experiment and by assessing the relationship between entrepreneurship and mastery, a fundamental human value, which is defined in the psychological theory on value priorities as "putting emphasis on getting ahead through active self-assertion, and through changing and mastering the natural and social environment" (Schwartz and Bardi 1997, 396). I make the case that a value priority for mastery characterizes certain entrepreneurs and exploit this pattern via a natural experiment to detect intergenerational value transmission.

To date, the entrepreneurship literature is more or less silent on the role of mastery, which is surprising since mastering manifold external resistance is key to the Schumpeterian definition of entrepreneurship (Schumpeter 1912, 118–121). In the context of entrepreneurship, Schumpeter refers to creating something new but also to pursuing deviant economic practices in general and claims that economic agents in all social and economic spheres will feel enormous crosscurrents from their peers if they leave well-trodden paths.[4] Schumpeter (1912, 118) further argues that most people cannot withstand the social pressure to abstain from deviant behavior, but that those few who do exert tremendous effort in overcoming the multifaceted resistance with which they are confronted.

[2] In psychological theory on value priorities, autonomy is defined as an "emphasis on promoting and protecting the independent ideas and rights of the individual to pursue his or her own intellectual directions and the individual's independent pursuit of affectively positive experience" (Schwartz and Bardi 1997, 396).

[3] There is some work suggesting value transmission. Dohmen et al. (2012) and Zumbühl et al. (2013), for example, provide evidence of the intergenerational correlation of risk and trust preferences. Value transmission might play an important role in the similarity of these specific preferences. Halaby (2003) finds that parental self-employment positively influences children to choose jobs with "entrepreneurial properties."

[4] Schumpeter, for example, mentions the social disapproval a peasant would encounter in his community when changing his subsistence strategy.

Relying on this Schumpeterian argument, I argue that in environments where institutional approval of entrepreneurship is low and resistance to entrepreneurial activity is high, only those who emphasize on mastery, in the sense of challenging existing conditions, will be involved in an entrepreneurial venture. Simply stated, if overcoming environmental resistance makes an entrepreneur, then especially high resistance needs a die-hard entrepreneur. Hence, institutions not only affect the level of entrepreneurship (Baumol 1990), but also determine *who* selects into it and which value orientation "is required" to be an entrepreneur.

Institutional approval of entrepreneurship is understood here as humanly devised constraints that shape the extent and perception of entrepreneurship. These constraints can be found in codified formal rules, as well as in informal arrangements that are defined by rules of conduct, norms of behavior, and conventions (North 1990). The formal institutional framework is crucial for the allocation of entrepreneurial talent into productive entrepreneurship (e.g., Baumol 1990; Sobel 2008). Informal rules play their part via shaping the "societal legitimacy" of entrepreneurship; that is, the degree to which entrepreneurial behavior is socially accepted (for details on the concept of legitimacy, see Etzioni 1987; Kibler et al. 2014).

There is well-documented historical evidence on variation in institutional approval of entrepreneurship that supports this line of argumentation. Early on, Schumpeter implicitly discussed differences in approval of entrepreneurial behavior across social groups.[5] Weber (1958) and McClelland (1961) are more explicit and argue that certain attitudes of members of a society, namely the Protestant work ethic and the need for achievement, drive cross-national differences in entrepreneurial activity. Varying degrees of approval for entrepreneurship are also documented by economic history research. Landes (1949), for instance, describes the social pressure that inhibited entrepreneurship in the economic history of France. Furthermore, entrepreneurial activities *in general* can generate social disapproval under particular social and economic conditions. Baumol (1990), for instance, illustrates that in ancient Rome—even though it was rewarding with respect to personal wealth—entrepreneurial effort in the economic sphere was of low prestige. Gerschenkron (1953, 6–9) writes that entrepreneurs in tsarist Russia in the nineteenth century were at variance with the dominating feudal values.

Historical variation in the institutional approval of entrepreneurship is also the basis of the natural experiment exploited in this paper. The experiment is comprised of two periods and two regions. In the first period, there is relatively low institutional approval in Region *A* and relatively high approval in Region *B*. In the second period, institutional approval of entrepreneurship increases massively in Region *A* due to its adoption of the institutional framework of Region *B*. This was the situation in Germany before and after Reunification. In the first period, that is, before Reunification, East Germans had experienced four decades of socialism in the GDR (Region *A*), which was an extremely anti-entrepreneurial institutional environment (Earle and Sakova 2000) compared to the Federal Republic of Germany (Region *B*), which was an established market economy around the time of Reunification. With Reunification, East Germany immediately adopted the entire institutional framework of West Germany, engendering a massive increase in entrepreneurial opportunities as well as in institutional approval of entrepreneurship.

Against this background, it is argued in this paper that under low approval (as in the GDR), only people with a particular emphasis on mastery, which was required to cope with the manifold external resistance to entrepreneurship, are likely to select into self-employment. If approval is relatively high, as in the second period in East and West Germany and in West Germany, in both the first and the second period, people without a particular emphasis on mastery are also likely to opt for an entrepreneurial career. Thus, only entrepreneurs in the first period in Region *A* (low-approval GDR) should exhibit a particular emphasis on mastery. If transmission of a value priority for mastery took place, then those self-employed in the second period who are the children of parents who were self-employed in the low-approval GDR in the first period should reveal a distinct priority for mastery even though mastery was much less "required" for running a venture after the massive increase of institutional approval of entrepreneurship associated with German Reunification. And, indeed, the results indicate that children who had self-employed parents in the GDR put much more emphasis on mastery today compared to East German entrepreneurs who did

[5] For an exegesis of the original paragraphs, see Westlund and Bolton (2003).

not have entrepreneurial parental role models during their adolescence in socialism, and also compared to West German entrepreneurs with and without parental role models in entrepreneurship before Reunification. Thus, the results suggest that a transmission of a value priority for mastery took place despite radical anti-capitalistic indoctrination.

The remainder of the paper is organized as follows. In Sect. 2, preliminary remarks on institutional approval and entrepreneurial choice are made, which are helpful for understanding the empirical identification strategy of the historical national experiment. The experiment is introduced in the second part of Sect. 2. Section 3 explains the data structure and the applied methodology. Results are presented in Sect. 4 and Sect. 5 conclude with a final discussion of the findings and their implications.

2 Entrepreneurial choice and institutional approval

2.1 Basic remarks

The literature on parental self-employment contains a standard economic model on entrepreneurial choice developed by Dunn and Holtz-Eakin (2000) (henceforth, "DH2000"). In this model, the expected utility of choosing entrepreneurship depends on income and a set of individual characteristics (e.g., human capital, age, gender). The decision to start a firm is guided by evaluating the (expected) utility of starting an entrepreneurial venture compared to the income that can be earned as a dependent employee.[6] A crucial element in the DH2000 model is entrepreneurial ability, which measures individual productivity with respect to entrepreneurial tasks. DH2000 presume (but do not explicitly model) that this ability is a function of parental self-employment, that is, due to the transmission of entrepreneurial ability. Entrepreneurial ability determines expected income as an entrepreneur and, therefore, the decision to start an entrepreneurial venture. In addition to expected income utility, DH2000 presume the relevance of taste for entrepreneurship, captured by a vector of individual characteristics. The authors are not specific about a "taste for entrepreneurship," but there is evidence that such non-monetary benefits include the job and life satisfaction gained from being independent (valuing autonomy) that can even compensate for fewer pecuniary rewards (e.g., van Gelderen and Jansen 2006; Benz and Frey 2008a, b; Croson and Minniti 2012; Hyytinen et al. 2013).

In the DH2000 model, entrepreneurial choice is indifferent to institutional approval of entrepreneurship. However, the model can easily be extended by including a factor that captures the effect of formal and informal institutional approval of entrepreneurship on gross earnings and the non-pecuniary rewards of being self-employed, with high approval increasing the expected utility of entrepreneurship and low approval reducing it, thus making waged work more attractive.[7] Examples of entrepreneurship-deterring institutions include high taxes on entrepreneurial income (relative to waged work) and prohibitive market entry regulation that increases the cost of making use of one's entrepreneurial ability.[8] Furthermore, heavy restrictions on entry reduce the opportunities to translate entrepreneurial ability into entrepreneurship. In this situation, individuals with high entrepreneurial ability have to either choose waged work or opt for unproductive and destructive pursuits such as rent-seeking or black market activity in an effort to employ their entrepreneurial talent (Baumol 1990).[9]

There is also good reason to assume that a taste for entrepreneurship is a function of institutional approval, with taste increasing in approval. As mentioned previously, non-monetary benefits include the life and job satisfaction an individual gains from "being one's own boss" (e.g., Benz and Frey 2008a, b), but low social prestige and manifold formal and

[6] Necessity start-ups, i.e., those started due to unemployment, can be regarded as an extension of the income decision problem where an individual evaluates the payoff of remaining unemployed against the increased effort needed to enhance the probability of finding waged work.

[7] For a more formal representation, see an earlier working paper version of this paper (Wyrwich 2013a).

[8] Entrepreneurial ability might be a function of approval if the institutional context affects the number of opportunities for acquiring such ability and the incentive to invest in entrepreneurial abilities.

[9] Informal institutions, also, might have an effect on pecuniary income. For example, Westlund and Bolton (2003) develop a theoretical model showing that informal social approval of entrepreneurship can directly feed back into willingness to finance entrepreneurial projects and raises liquidity constraints.

informal crosscurrents in entrepreneurship-inhibiting environments presumably reduce satisfaction. Procedural utility from striving for independence comes at higher costs in a disapproving environment. Coping with resistance can be viewed as a negative component of non-pecuniary income, similar to the general loss of leisure associated with entrepreneurial choice (e.g., Westlund and Bolton 2003), which could make waged work more attractive. Furthermore, individuals with entrepreneurial values like autonomy are incentivized to search for alternative outlets of meeting this goal, which they might find in unproductive and destructive entrepreneurship.[10]

Altogether, low formal and informal institutional approval should reduce the number of people that select into entrepreneurship. Indeed, fewer people took on the challenge of entrepreneurship in the inhibiting environments of ancient Rome, late nineteenth century Russia, or in socialist economies. And yet, against all odd, some people did overcome this institutional resistance and became entrepreneurs. Why did they, and why did they succeed?

One reason for challenging conditions may be a value orientation that favors mastery, which is defined as "putting emphasis on getting ahead through active self-assertion, and through changing and mastering the natural and social environment" (Schwartz and Bardi 1997, 396). Based on this, it could be expected that in low-approval environments, a value orientation in favor of mastery is crucial for self-employment, whereas in high-approval environments, having mastery as a priority should be less important for starting an entrepreneurial career. The "residual" of entrepreneurs in low-approval environments should be characterized by a strong emphasis on mastery, reflecting their willingness to cope with external resistance to entrepreneurial behavior. This idea is important for understanding the historical natural experiment on the intergenerational transmission of values described in the following section.

[10] Moreover, approval of entrepreneurship may have a direct effect on the adoption of individual values, as indicated by evidence on the long-run effect of informal institutions on preferences (e.g., Alesina and Fuchs-Schuendeln 2007), which may, in turn, be reinforced by parental socialization. Thus, disapproval of entrepreneurship on the societal level might crowd out entrepreneurial values on the individual level.

2.2 Approval of entrepreneurship and value transmission: an experiment

2.2.1 Basic setting

There are two regions, A and B, and two time periods, t and $t + 1$. In both regions and periods, people can select into entrepreneurship with the incentives to do so depending on the degree of institutional approval. In the first period, it is the parent generation that makes the occupational choice, whereas it is these parents' offspring who make the decision in the second period. In t, Region A is characterized by a high degree of formal and informal approval of entrepreneurship (H); it is an entrepreneurship-facilitating environment. Region B is an entrepreneurship-inhibiting environment marked by low approval of entrepreneurship (L).[11]

In line with the framework provided in the previous sections, there should be fewer parents in B who are self-employed than in A in period t. At the turn between t and $t + 1$, an exogenous increase of formal approval occurs in Region B, making it much more rewarding to be self-employed in that region than was formerly the case. Both areas are entrepreneurship facilitating in the second period. Thus, entrepreneurship among the Region B offspring should be more widespread than among their parents. According to the outlined framework, parents who opt for an entrepreneurial career in the inhibiting environment B_t should have a strong value priority for mastery, which is needed to cope with disapproval of entrepreneurship in B_t. However, no such value orientation is needed in the facilitating environment of A or in $t + 1$. If value transmission takes place, children of people who were entrepreneurs in the inhibiting environment should reveal a relatively high priority for mastery.

2.2.2 Historical background

The historical natural experiment exploited here is the process of German Reunification that occurred in the late twentieth century. Until 1989, the country was split between the Federal Republic of Germany (FRG) in the West and the German Democratic Republic (GDR) in the East. The FRG was an established

[11] The terms entrepreneurship facilitating/inhibiting were coined by Westlund and Bolton (2003).

market economy; the GDR was a socialist centrally planned economy. Over the course of Reunification, the ready-made formal institutional framework of the FRG was transferred to the ex-GDR.

Approval of entrepreneurship in the socialist GDR was extremely low compared to in the FRG and post-unification Germany. Indeed, it is difficult to imagine a system with more explicit and implicit barriers to entrepreneurial activity than socialism. In this respect, Earle and Sakova (2000) mention extremely low opportunities to expand a business, high taxes, wage and price controls, and centralized allocation of key inputs, which, along with legal and bureaucratic obstacles, all reduce the incentive for and pecuniary rewards of entrepreneurship. Mass collectivization of private property and the promotion of large-scale socialist conglomerates were building blocks of socialist economic policy and prompted the emergence of anti-entrepreneurial values with its consequent erosion of entrepreneurial spirit (e.g., Ageev and Kuzin 1990; Sztompka 1993; Koch and Thomas 1997).

There have been differences across socialist countries with respect to tolerance of entrepreneurship and enforcement of anti-entrepreneurship policy, for example, Hungary and Poland, but the GDR was one of the more rigid systems at the time the Iron Curtain began to fall (e.g., Earle and Sakova 2000). There was little scope for the private sector in the GDR. The number of active business owners in 1989 was about 185,000 (about 1.8 % of the workforce). Self-employment was tolerated mainly in handicraft and manufacturing trades; industries aimed at the private consumer market. People in craft businesses, for example, were expected to join the state-promoted socialist handicraft cooperatives (for details on self-employment in the GDR, see Pickel 1992). Nevertheless, some people did withstand this disapproving environment and continued with their "deviant" economic practice of being self-employed.

That some few in the GDR withstood the social pressure and remained or even became self-employed is astonishing because living under socialism negatively affected the priority that individuals put on autonomy and mastery (for a detailed discussion and empirical evidence, see Schwartz and Bardi 1997). Consequently, being self-employed indicates that one has not adapted to socialism but has instead internalized values different from those of the average "socialist citizen." Indeed, seeking autonomy from the socialist system was one likely reason to be self-employed. In addition, being self-employed created an opportunity to fulfill one's priority for mastery and therefore might have been a further source of non-pecuniary procedural utility.[12]

Pecuniary benefits certainly played a part, too. Thus, people active in industries where self-employment was allowed (e.g., handicraft, manufacturing trades) could have become business owners in expectation of high economic returns due to the restricted availability of consumer goods in the shortage-plagued state economy. However, for both achieving independence and earning entrepreneurial income, a strong willingness to face and overcome the significant implicit and explicit barriers with respect to self-employment was required.[13] This supports the idea of a prevalence of a value orientation among the self-employed that is complementary to autonomy; one that motivates people to withstand and master the enormous social pressure experienced when striving for independence and entrepreneurial income. Consequently, only people that put emphasis on mastery should have selected into self-employment. In contrast, in the FRG, presumably a particular priority of mastery was less likely required due to the much lower restrictions in that region on entrepreneurial behavior.

2.2.3 *Value transmission*

After having discussed the value orientation of the self-employed in low-approval environments, I now turn to its implications for intergenerational value transmission. Like in most of the previous literature on parental self-employment, I implicitly assume that the socialization and value transmission efforts of self-employed parents are not systematically different than

[12] *Remaining* self-employed under socialism requires mastery as well (e.g., organizing resources in the face of material shortages). Enactive mastery experience, in turn, may feed back into self-efficacy, which, in turn, is crucial for entrepreneurial activity since being confident in one's own capabilities is a prerequisite for various entrepreneurial tasks in risky and uncertain situations (e.g., Rauch and Frese 2007). Thus, mastery experience might work as self-affirmation of the value of mastery. It might also reinforce the emphasis one puts on mastery.

[13] Recall the example from Baumol (1990) of ancient Rome, where, he says, entrepreneurship was rewarding in terms of returns but accompanied by low social prestige.

those of non-entrepreneurial parents.[14] This reasonable assumption implies that the probability that transmission of parental values takes place does not depend on whether parents are self-employed. As outlined above, there should be differences between the two types of parents only in the kind of value priorities the parents hold and transmit. In essence, if entrepreneurs under socialism indeed emphasized mastery and if an intergenerational transmission of values takes place, their children should also attach a high priority to mastery compared to other people.

Note that value adaptation after transition to a unified state is not a critical issue for the empirical identification strategy. For parents, only the values held in or before 1989 matter as this was the time when the respondents were kids and parents had the opportunity to transfer their values. The respondents' values might have changed between 1989 and 2010. However, there is no obvious argument why, and no evidence showing that, the change of values in this period (relative to West Germans and in absolute terms) is systematically different for respondents with self-employed parents in the GDR compared to those without self-employed parents under socialism. Value adaption in general is not a critical issue either, since there is abundant evidence showing that there are still significant differences in mentality between East and West Germans even 20 years after the fall of the Berlin Wall (e.g., Alesina and Fuchs-Schuendeln 2007; Brosig-Koch et al. 2011).

In the actual empirical setting I compare the value orientation of East Germans in reunified Germany who had self-employed parents (P) in the low-approval environment (L) of the GDR (group: PL) to (1) those of East Germans with no parental role models before 1989 (group: NL), (2) those of West Germans with parental role models in the high-approval environment of West Germany (group: PH), and (3) those of West Germans without parental role models but who are themselves self-employed (group: NH). People in PL are the focal group of interest. Table 1 illustrates this setting.

People in the focal PL group should put much more emphasis on mastery than those in the NH group because parents of the former group have been self-employed in a low-approval environment, which indicates a parental value priority for mastery that they could transmit to their offspring. Another corollary of the framework is that West Germans who had self-employed parents during their adolescence should not exhibit a distinct value priority for mastery. Their parents have been entrepreneurs in a high-approval environment where—in accordance with the outlined framework—priority on mastery is not that crucial for being an entrepreneur, and thus parents with low and modest priorities for mastery could also have selected into entrepreneurship. Altogether, it is to be expected that children of parents who were entrepreneurs in the GDR are distinct with respect to their value orientation.

3 Empirical strategy

3.1 Data

The data were collected from October 2010 to February 2011 with a founder survey conducted via computer-assisted telephone interviewing software (CATI). The survey includes personal information about founders and information about firm characteristics. The sample was based on address data of new establishments, which were drawn from the Establishment History Panel (BHP) at the Institute for Employment Research of the German Federal Employment Agency. The BHP comprises all German establishments that employ at least one person obliged to pay social insurance contributions. The first occurrence of an establishment in the BHP is a well-accepted and reasonable indicator that this establishment is a start-up (for more details on the BHP and the identification of start-ups, see Fritsch and Brixy 2004). The original sample encompassed 6000 addresses of establishments that showed up in the BHP for the first time between 2003 and 2008 and that were still active in the market at the end of June 2010.[15] The draw was

[14] Keep in mind that in the GDR, only people in professions and industries where self-employment was tolerated, like the manufacturing trades, had the opportunity to gain procedural utility from being a business owner and acting on their priority for mastery. Consequently, respondents in the control group NL in Table 5 might also have parents with such a value orientation, but who worked in fields where self-employment was not a legal option. This might reduce the effect associated with group PL.

[15] The actual start-up could have been before 2003 if the founder started his or her venture earlier but hired employees for the first time in 2003 or later. It was asked in the survey the founding year, defined as year of first sales, as well and did not consider firms when the founder indicated that he or she started the venture prior to 1990. The results of the empirical analysis

Table 1 Empirical setting

	Approval in t		Mastery in $(t + 1)$
	High (Region A)	Low (Region B)	
Parental role model in t			
P (yes)	PH	PL	PL > PH
N (no)	NH	NL	PL > NH; PL > NL

restricted to establishments that have their main activity in manufacturing and knowledge-intensive business services (KIBS) (for industry classification, see Table 6 in Appendix). On the spatial level, the survey was conducted in three East and three West German regions and covered 1000 addresses of new establishments per region.[16]

The size of the sampling regions was based on German planning regions, which are functional economic regions comprised of smaller NUTS3 regions (German *Kreise*). The regions include a mix of rural and urban areas (for details, see Table 6 in Appendix). Some of the initial sample regions had to be enlarged because the total number of establishments was less than 1000. Therefore, in some cases, adjacent planning regions were merged.[17] Note that *all* manufacturing establishments were contacted if they newly occurred between 2003 and 2008 and were active in 2010 in the sample regions. For KIBS, about 75–80 % of the respective establishments were contacted. It was checked whether the address information indicated that the establishment was a newly opened subsidiary of a larger firm. Such units were not contacted, which reduced the sample to 5139 establishments.

At the beginning of the interview, it was checked whether the remaining establishments were original start-ups because it was an important survey criterion to include only establishments where mainly new capacities had been created through the start-up process. This criterion rules out that the respondents are continuing a family business or have drawn heavily on parental assets and resources to build their venture. Thus, the founders in the survey established entirely new firms.

The interview was conducted with the founder of the venture. Thus, he or she still had to be active in the firm for the firm to be included in the sample. Additional checks reduced the sample from 5139 firms to 3572. Finally, 1105 founders agreed to participate in the survey. Thus, the response rate is about 31 %, which is more than twice as large as in the most recent GEM adult population survey (GEM 2013), a standard dataset for the analysis of entrepreneurship. However, due to missing values among the covariates (see Sect. 3.4), 4 % of the sample could not be considered in the analysis. Nevertheless, the "true" response rate is presumably even higher, given that not every one of the 2467 non-responding establishments was a real start-up (which could not be checked due to the firm's refusal to participate in the survey). Thus, the data likely represent a plausible picture of new firm formation in the sample regions. Moreover, it is possible to calculate the regional share of start-ups in manufacturing and KIBS in the sample within the total number of regional start-ups in manufacturing and KIBS that have been recorded in the BHP between 2003 and 2008. The resulting proxy for sample coverage of start-ups for region-industry pairs reaches values of up to 86 %. Nevertheless, there could be some sample selection bias.[18]

With respect to the surveyed industries, it could be argued that there is a selection problem because only establishments with employees (i.e., no solo entrepreneurs) are considered. However, for manufacturing

Footnote 15 continued
are very similar when restricting the analysis to ventures where first sales and first hires took place between 2003 and 2008.

[16] The level of self-employment has been approximately the same in both parts of the country since the mid-2000s (Fritsch et al. 2014). Therefore, it is unlikely that transition-specific catching-up processes in East Germany played an influential role in selection into entrepreneurship.

[17] The only exception is the urban sample region *Oberes Elbtal*, where establishments with their first hire in 2002 were included instead of merging adjacent planning regions because the resulting size of the region would have been much larger than for the other urban areas.

[18] Including this proxy in the models in order to control for different coverage of firms across industries and regions in the regression models does not change the main results. Moreover, the "true" coverage ratio might be even higher given that not every firm recorded as a start-up in the BHP would have been eligible for the analysis because the founders did not establish an entirely new firm (e.g., inherited businesses, owner change, spin-offs, and branch offices).

and KIBS, it is reasonable to assume that the minimum efficient size for successfully operating in the market (Audretsch 1995) is equal to or higher than one employee. Solo entrepreneurship supposedly plays a minor role in these sectors. Additionally, hiring employees indicates that these founders exploited a viable business idea or entrepreneurial opportunity. Thus, the entrepreneurs in the sample engage in that kind of start-up activity that is positively related to economic growth and development, as argued in theory (e.g., Schumpeter 1912) and therefore are of relevance for deriving policy implications.

3.2 Identifying groups of entrepreneurs

For the empirical identification, it is important to sort the respondents along the lines shown in Table 1. This requires, first, that respondents had to have been socialized either in East and West Germany. Therefore, people with non-German nationality and those respondents who had not been living in East and West Germany in 1989 are excluded. Furthermore, I included only individuals who had been born in 1945 or later. Thus, all East Germans in the sample had been socialized during the time of Soviet occupation or after foundation of the GDR. Accordingly, West Germans in the sample had been socialized in the Federal Republic of Germany (FRG). Information on parental self-employment was exploited to assign the remaining respondents to one of the four groups. The survey asked whether parents were self-employed when the respondent was 15 years old, for the founder's birth date, and where he or she was living in 1989 just before the dissolution of the GDR. If a respondent was born prior to 1975, he or she was at least 15 years old in 1989. If this respondent was, in addition, East German and had self-employed parents, this by definition means the parents had been so employed in the socialist GDR. Thus, these respondents are classified into PL, the focal group of interest that had parents self-employed in a hostile institutional environment. East Germans born prior to 1975 who had no self-employed parents at the age of 15 are assigned to the group NL. Similarly, West Germans with parental entrepreneurs and born before 1975 comprise group PH and those without self-employed parents during adolescence make up group NH. I did not include respondents born in 1975 or later because none of these respondents could be classified into PL because the hostile institutional environment no longer existed after introduction of the entrepreneurship-facilitating institutional framework of the FRG in East Germany.

Asking about parental self-employment during adolescence (ages 13–17) is a standard question in research on parental self-employment and the intergenerational transmission of entrepreneurship (Aldrich and Kim 2007). It is also used in general household surveys such as the German Socioeconomic Panel (GSOEP). Adolescence is a crucial period with respect to developing identity and vocational interests, and there is evidence that adolescents perceive their families as crucial in shaping their career choices (e.g., Halaby 2003; Whiston and Keller 2004; Aldrich and Kim 2007). One of the advantages of the question I use is that one can reasonably assume that children are living still in the parental household when they are 15 years old. Thus, adolescents are very likely exposed to parental values and their influence on the vocational exploration process. The likelihood that children live in their parents' household decreases with age. Aldrich and Kim (2007) argue that this is accompanied by a higher chance that significant events over the life course disrupt the linked lives of kids and parents. This, in turn, makes it likely that events outside the family context play a role in the entrepreneurial choices of children of entrepreneurs.

There is also evidence that having had self-employed parents at older ages is positively related to entrepreneurial choice (e.g., Sørenson 2007; Laspita et al. 2012), but failing to consider this phenomenon is not critical to this study. Assume that an East German entrepreneur was 15 years old in 1989 and had no self-employed parents. The parents then started a venture in the early 1990s. Since the institutional approval of entrepreneurship increased significantly after Reunification relative to the socialist GDR, mastery was less important for being self-employed. Rather, there was a "window of opportunity" to start a firm in the early 1990s due to the backlog demand in the shortage-plagued GDR economy (e.g., Fritsch 2004). Under these favorable conditions for entrepreneurship, it is certain that parents with a less distinct value priority for mastery selected into self-employment.[19]

One shortcoming of the question about parental self-employment at a specific age is that it might

[19] The former socialist nomenclatura, for instance, was quite active with regard to entrepreneurship during the course of transition (e.g., Ronas-Tas 1994).

underestimate the number of GDR entrepreneurs. Assume that an East German respondent was 20 years old in 1989 and had self-employed parents around this time. If she indicated not having self-employed parents when she was 15 years old (in 1984), this means that the parents started a venture in the hostile environment of the GDR. This would have been a rare event since self-employment in the GDR usually involved the continuation of a family tradition rather than original start-ups (for details, see Pickel 1992). Nevertheless, it could be that some respondents with entrepreneurial parents in the GDR are incorrectly classified into the NL group, which might downward bias the difference in mastery between PL and NL respondents. The bias works against but not in favor of the hypothesis.

3.3 Measuring mastery

Since values are based on general beliefs about the world (e.g., Schwartz 1994, 1999; Tabellini 2008), questions intended to measure individual value orientation should not be too context specific. Respondents were asked to indicate the importance of different reasons for running their business. One of the items was whether they are self-employed in order "to make a change in our world, to create something new" (1: "not important" to 7: "very important"). This is employed as the variable of interest and can be thought of as "challenging the existing conditions," which comes close to the definition of mastery. Respondents could allude to challenging context-specific conditions but also to creating something new as a wish to create new goods or services. By definition, creating new goods and services requires an existing market structure, which poses a challenge in the form of competing with established incumbents that supply conventional products. There are certainly many more areas in which entrepreneurs have to cope with and master resistance. On the one hand, these situations might be not captured with specific answer categories. On the other hand, respondents' different interpretations of the question could complicate the evaluation of results.

Heterogeneity in interpreting the answer is not a critical issue with respect to the empirical identification as long as East Germans who had self-employed parents in the GDR did not interpret the question systematically differently than the rest of the sample population, and there is no obvious reason why they would. Nevertheless, I return to this issue in the analytical section to dispel any concern. It is important to note that entrepreneurs could choose more than one reason. They did not have to decide for or against mastery, but could choose among other reasons, such as autonomy, financial motives, opportunity perception, and necessity.

3.4 Method

Ordered logit regressions are used to analyze whether entrepreneurs who had self-employed parents under socialism rate mastery as significantly more important than other entrepreneurs. For purposes of comparison, different groups of dummy variables based on origin and parental self-employment are constructed (Wooldridge 2013, 230–238). In addition, several control variables are taken into account: age, gender, prior self-employment experience, and business success (for definitions of variables, see Table 7 in Appendix).[20] Age is an important control variable because it captures temporal distance to parental value transmission in adolescence. Prior self-employment is considered since entrepreneurial experience may have altered the initial reason for becoming self-employed. Therefore, I account for a dummy variable that indicates whether the respondent was self-employed before starting the actual firm. A control for business success is required to account for "self-justification bias" (Carter et al. 2003). A successful entrepreneur may reveal a different reason for running the firm than the reason given initially due to the venture's development. Therefore, it needs to be assessed whether the entrepreneur's income increased after starting the firm.

One potential concern is that the rating of mastery could reflect overconfidence related to differences in parental success in entrepreneurship. As argued in the literature, parents' superior performance enhances the opportunities for their offspring to acquire entrepreneurial and business human capital, draw on parental assets, and gain access to parental business networks. The children of successful entrepreneurs might also have the option to fall back on tangible and

[20] After dropping cases with missing values, 974 observations remained in the final sample. Summary statistics and a correlation matrix on the employed variables can be obtained upon request. Based on advice from one of the reviewers, these items are not included in the paper because means, SDs, and correlations are of limited informative value for qualitative variables.

intangible family-specific resources whenever business-related problems arise. Such resources are less available for kids of less successful entrepreneurial parents and not at all available to entrepreneurs whose parents were not entrepreneurs. An above-average transfer of parental resources may feed back into overconfidence that is mirrored by the revealed rating of mastery.

This could be a problem if self-employed parents in the GDR were extraordinary successful *after* Reunification, allowing them to transfer significant assets to their offspring's newly founded ventures. This situation cannot be directly controlled for, but there are several reasons for thinking that this is not critical. First, the survey does not include founders who inherited their businesses. Second, financial transfer from parents should play a moderate role because capital accumulation under socialism was strongly prohibited (Fritsch 2004). Fuchs-Schuendeln (2008) estimates that an average East German worker close to retirement age disposed of only about 28 % of wealth holdings relative to an average West German worker of the same age in the first years after transition. Third, the transition shock put the GDR economy at risk due to its low competiveness, elements of which included a severe economic dislocation, destruction of business networks, and a depreciation of work experience (e.g., Fritsch 2004; Wyrwich 2013b). Fourth, a high share of the private firm stock in the GDR experienced financial distress or exited the market after transition due to problems related to coping with the new requirements of doing business in a market economy (Thomas 1996). Altogether, it is safe to assume that the firms of GDR entrepreneurs did not show superior performance after the economic transition of East Germany. It is accordingly less likely that parental self-employment feeds back into overconfidence and an upward bias in the rating of mastery by children of GDR entrepreneurs in reunified Germany. Overconfidence is presumably not higher than that found for entrepreneurs, in general (Koellinger et al. 2007), and is quite possibly lower.

4 Results

4.1 Descriptives

About 20 % of the respondents have self-employed parents (Table 2). For East Germans born prior to 1975, the share of respondents with parental role models in self-employment is only about 10.2 %, whereas West Germans in the same age range have a 25.4 % share. The lower share among East Germans reflects the high entry barriers that their parents faced in the GDR. I also distinguish between different time periods between 1945 and 1974 so as to assess different degrees of anti-entrepreneurship policies in the GDR.

Table 2 Share of respondents with self-employed parents

	Number of obs	East	West
All	974	20.02	
	East: 495/west: 479	14.14	26.10
Born < 1975	420/452	10.24	25.44
Born 1957–1974	320/353	8.44	22.66
Born < 1957	100/99	16.00	35.35
Born ≥ 1975	75/27	36.00	37.04

Collectivization had already started in the late 1940s, but a small private sector was allowed to coexist in the first decades of socialist rule. However, this changed in the early 1970s. There was a final radical wave of expropriation of private firms in 1972. After that, entrepreneurial activity was permitted in only a few occupations, mainly in the manufacturing trades and consumer-oriented craft services (for details, see Pickel 1992). Thus, the period from 1972 to 1989 can be regarded as the Dark Age of Entrepreneurship in the former GDR, an extremely hostile environment. Therefore, attention is also paid to those persons born between 1957 and 1974 who were 15 years old during this Dark Age.

The data show that the differences in the shares of respondents with parental role models in self-employment is similar for both regions when restricting the comparison to individuals who were born between 1957 and 1974 (8.4 % in East Germany; 22.7 % in West Germany). For those born prior to 1957, the share of West German entrepreneurs with self-employed parents is about 35.4 %, compared to 16 % in the East. There is nearly no East–West difference for those entrepreneurs born after 1974 who had been 15 years old in the post-unification period. Here, the share of respondents with self-employed parents in East Germany is 37 and 36 % in the western part of the country.[21]

[21] The astonishingly high share of respondents with self-employed parents among the youngest group suggests that there is an interaction between age and parental self-employment when it comes to the effect on entrepreneurial choice (for a related discussion, see Aldrich and Kim 2007). Investigation of this pattern is beyond the scope of this paper.

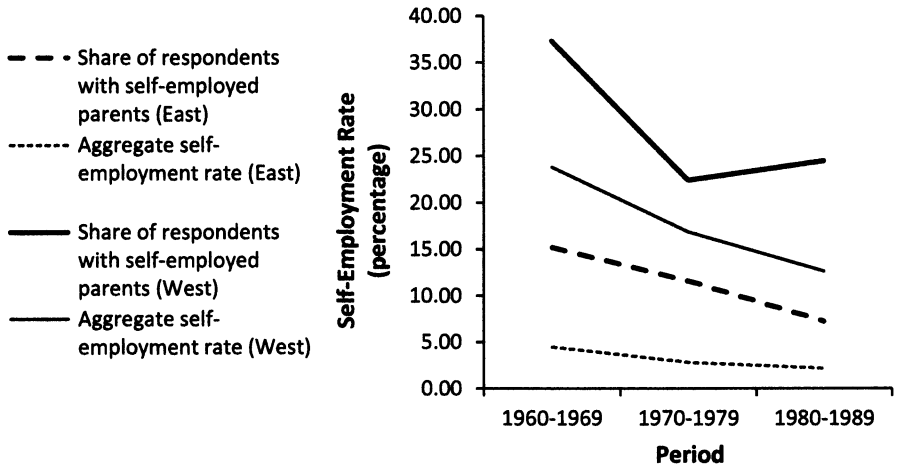

Fig. 1 Self-employment in Germany over time (aggregate rates have been calculated with information from Federal and GDR Statistical Offices)

In Fig. 1, the share of entrepreneurs in the sample with self-employed parents is plotted against the overall self-employment rates in East and West Germany in different time periods. The figure reveals that the sample shares are much higher. This suggests that having parental role models affects the decision to become self-employed regardless of the economic system.

In the next step, I look at whether the time period and institutional system makes a difference in how children of self-employed parents rate mastery as a reason for running a business. Table 3 sets out the results on the mean comparison between children of self-employed parents and their peers without self-employed parents (ordinary *t* test). The tests show that East German respondents who had self-employed parents and spent their adolescence in the GDR rated mastery statistically significant higher than their peers without parental role models. The difference is greatest in size when restricting the analysis to those respondents who lived in the GDR when they were 15 years old (1972–1989), the Dark Age of Entrepreneurship. There are no significant differences with regard to mastery between respondents with self-employed parents and those without such role models in the post-unification period. Interestingly, there are no statistically significant differences at all between West Germans with self-employed parents and those without in the different time periods analyzed. In fact, in most cases, the latter group rated mastery even slightly higher. East Germans who had self-employed parents in the GDR rated mastery significantly higher than their peers from West Germany who had parental role models prior to 1989, a difference that is most pronounced for respondents born between 1957 and 1974. No differences can be detected for the post-unification period (Table 4). Comparing the percentage shares of respondents of the different groups along the different answer categories (from 1 to 7) is in line with the findings of the ordinary *t* tests (Table 8 in Appendix).

Altogether, the mean comparisons suggest that respondents who had self-employed parents under socialism are distinct in their motivation for running a business. This particular motivation does not seem to be related to having had parental role models in general, but to having them in a hostile environment. However, these first findings should not be over-interpreted. The sizes of the compared groups are relatively small, and the differences for the mastery variable are statistically significant at the 5 % level, with relatively large confidence intervals for the means.[22] Therefore, not too much emphasis should be put on the mean comparison tests. Nevertheless, it is noteworthy that there is an absolute difference in mean values for mastery of more than 1 unit between children who had self-employed parents in the late GDR and children whose parents were self-employed in the FRG around the same time (Table 4). Whether these differences show up not only in naïve mean comparisons tests but also when applying more sophisticated empirical methods, is assessed in the next section.

[22] Moreover, kernel density estimations and tests for skewness and kurtosis suggest that the mastery and, especially, the autonomy variables are not normally distributed.

Table 3 Mean comparison tests on the rating of mastery as reason for running a business

	Sig	Parent self	Non-parent self	*Diff*
East				
All	*	4.60	4.16	−0.44
		(4.18/5.02)	(3.99/4.33)	(−0.89/0.01)
Born < 1975	**	4.77	4.15	−0.61
		(4.22/5.31)	(3.98/4.33)	(−1.17/−0.06)
Born 1957–1974	**	4.96	4.18	−0.78
		(4.35/5.58)	(3.98/4.39)	(−1.48/−0.07)
Born < 1957	n.s.	4.44	4.05	−0.39
		(3.32/5.55)	(3.69/4.41)	(−1.33/0.55)
Born ≥ 1975	n.s.	4.33	4.21	−0.12
		(3.65/5.02)	(3.68/4.73)	(−0.98/0.73)
West				
All	n.s.	3.99	4.16	0.17
		(3.65/4.34)	(3.98/4.35)	(−0.20/0.54)
Born < 1975	n.s.	3.98	4.15	0.17
		(3.62/4.35)	(3.97/4.35)	(−0.21/0.54)
Born 1957–1974	n.s.	3.90	4.17	0.27
		(3.46/4.34)	(3.96/4.38)	(−0.18/0.72)
Born < 1957	n.s.	4.17	4.08	−0.09
		(3.48/4.86)	(3.64/4.51)	(−0.86/0.68)
Born ≥ 1975	n.s.	4.10	4.29	0.19
		(2.43/5.46)	(3.32/5.27)	(−1.36/1.76)

95 % confidence intervals in parentheses

** Significant at the 5 % level; * significant at the 10 % level

4.2 Regression analysis

The discovered emphasis on mastery by children of GDR entrepreneurs might be explained by individual and environmental characteristics and not primarily by parental self-employment. Therefore, I regress prioritizing mastery on having had self-employed parents by means of an ordered logit regression analysis since the dependent variable mastery is measured on a 7-point Likert-type scale (1: "not important" to 7: "very important"). This analysis allows inferring whether parental self-employment has a systematic influence on the rating of mastery. Table 5 presents the baseline models. The first model includes socio-demographic characteristics (age, gender) along with dummy controls for industries, regions, and years of first appearance in the data source (2003–2008).[23] In this specification, I compare the focal PL group which takes on a value of 1 if the respondent had self-employed parents and lived in the GDR in 1989, with the other groups. To this end, I include a dummy variable for respondents without parental role models who lived in the GDR in 1989 (NL) as well as a group marker for individuals in PH and NH for respondents with and without self-employed parents living in West Germany in 1989. In this setting, PL is the reference group. The analysis is restricted to respondents born prior to 1975. These respondents were at least 15 years old in 1989 just before the GDR collapsed.

The coefficient estimates for the NL, PH, and NH dummies are significant and negative. Thus, children of parents who were self-employed in the low-approval environment of the GDR rate mastery significantly more highly than do other entrepreneurs. The results are particularly compelling for the West German cohort, for which the significance level is very high (1 % level) and the standard errors for the coefficient are accordingly low. This holds when introducing additional control variables to mitigate omitted variable bias and to check the robustness of

[23] As stated earlier, the year of first appearance in the Social Insurance Statistics does not necessarily coincide with the year of first sales. Similar results are obtained when restricting the sample to observations where both dates occurred in or later than the year 2003.

Table 4 Mean comparison tests on the rating of mastery among East and West German entrepreneurs with self-employed parents

95 % confidence intervals in parentheses

*** Significant at the 1 % level; ** significant at the 5 % level; * significant at the 10 % level

	Sig	East	West	Diff
All	**	4.60	3.99	−0.61
		(4.18/5.02)	(3.65/4.34)	(−1.16/−0.05)
Born < 1975	**	4.77	3.98	−0.79
		(4.22/5.31)	(3.62/4.35)	(−1.47/−0.11)
Born 1957–1974	***	4.96	3.90	−1.06
		(4.35/5.58)	(3.46/4.34)	(−1.89/−0.24)
Born < 1957	n.s.	4.44	4.17	0.27
		(3.32/5.55)	(3.48/4.86)	(−1.50/0.96)
Born ≥ 1975	n.s.	4.33	4.10	0.23
		(3.65/5.02)	(2.43/5.46)	(−1.57/1.10)

Table 5 Rating of mastery among East and West German entrepreneurs

	I	II	III	IV	V	VI
	Main		Robustness (Dark Age)		Robustness (east)	
	Born (1945–1974)		Born (1945–1974)		Born (≥1945)	
PH: parent self (yes = 1) and East German (yes = 0)	−0.992***	−0.952***	−1.157***	−1.096***	−0.484	−0.433
	(0.339)	(0.331)	(0.390)	(0.368)	(0.426)	(0.425)
NL: parent self (yes = 0) and East German (yes = 1)	−0.567**	−0.612**	−0.629**	−0.663**	−0.349	−0.357
	(0.258)	(0.257)	(0.261)	(0.262)	(0.244)	(0.233)
NH: parent self (yes = 0) and East German (yes = 0)	−0.920***	−0.910***	−0.932**	−0.933**	−0.374	−0.345
	(0.298)	(0.290)	(0.377)	(0.366)	(0.399)	(0.395)
Age (ln)	−0.510	−0.723**	−0.555	−0.843*	−0.471*	−0.657***
	(0.314)	(0.327)	(0.464)	(0.502)	(0.243)	(0.251)
Male (yes = 1)	−0.157	−0.179	−0.212	−0.227	−0.0832	−0.105
	(0.175)	(0.183)	(0.161)	(0.163)	(0.170)	(0.174)
Prior self (yes = 1)		0.409***		0.452**		0.398***
		(0.153)		(0.176)		(0.142)
Start-up size (ln)		0.144*		0.0404		0.140*
		(0.0827)		(0.0929)		(0.0787)
Income growth (yes = 1)		−0.0117		−0.103		−0.0692
		(0.118)		(0.160)		(0.121)
Observations	872	872	673	673	974	974
Pseudo R^2	0.0204	0.0237	0.0242	0.0271	0.0189	0.0220

Clustered robust standard errors in parentheses (on level of districts). $N = 872$. Ordered logit regression applied. Cuts are not reported for the sake of brevity. Controls include region and year fixed effects (year of first hire and planning region in which an East or West German entrepreneur is active). All models include NACE 1-digit industry dummy controls

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

the findings. The additional controls are prior self-employment experience, initial firm size, and income growth since launching the venture.[24] It can be concluded from Models I and II that it is not parental self-employment per se, but having had self-employed

[24] In quantitative terms, the marginal effect of having had self-employed parents in a low-approval environment (PL) on the probability of rating mastery as high as possible compared to PH, for example, is about 9.1 %.

parents in a low-approval environment that matters for the rating of mastery. The findings are in line with the hypothesis.[25]

With regard to the control variables, Models I and II of Table 5, it is noteworthy that prior self-employment experience is positively related to mastery. This result on the value orientation of habitual entrepreneurs adds an interesting aspect to the discussion on the nature and peculiarities of serial entrepreneurship (e.g., Ucbasaran et al. 2010). As expected, start-up size is positively related to mastery in the baseline models; however, the coefficient is only weakly significant. The negative coefficient for age indicates that older people are less likely to start a business out of a motivation to challenge conditions and create something new, albeit the coefficient is not in all models statistically significant.

The models in Columns III and IV of Table 5 check for the robustness of the previous findings. Here, the fact that the crowding out of entrepreneurship in the GDR took place incrementally is exploited. To this end, the sample is restricted to those respondents who were adolescents (15 years old) during the Dark Age of Entrepreneurship in the GDR (between 1972 and 1989). This exercise yields, as expected, higher negative coefficients and significance levels for the NL, PH, and NH dummy variables. The structure of the data allows for an additional test. The focal group of interest PL is expanded to include East German respondents who had self-employed parents *after* the collapse of communism in 1989. Recall that the institutional pressure against entrepreneurship decreased tremendously after 1989. According to the framework, mastery was now less of a "required" value orientation for engaging in entrepreneurship and it became more likely that even parents who put low emphasis on mastery would become entrepreneurs. Accordingly, the coefficient size and significance should become smaller when expanding the group as described. Running the analysis indeed results in insignificant group dummy variables (see Table 5, Columns V and VI). Thus, having had self-employed parents during adolescence and being East German is not decisive for the rating of mastery; it is the institutional approval of entrepreneurship in the environment where parenting took place that matters.

4.3 Extensions

The theory developed in this paper predicts that children of GDR entrepreneurs value mastery more than do other entrepreneurs. It does not predict that they put more emphasis on autonomy. They should also not be distinct with respect to other career-related reasons. If they are distinct in ways other than their mastery ratings, this would suggest that they (and, presumably, their parents) are, for whatever reason, general "outliers" with respect to career-related reasons, thus casting doubt on the theoretical underpinning of the empirical identification strategy. To rule this out, I run the baseline models of Table 5 (Columns I and II) but regress the rating of autonomy, earning income, and exploiting opportunities (instead of mastery) on parental self-employment and the covariates.[26] Indeed, there is no evidence that children of GDR entrepreneurs are distinct with respect to other reasons for running their firms (see Table 9 in Appendix). This implies, also, that any potential income prospects that drove the parental decision to become self-employed in the GDR do not translate into a higher rating of income prospects among their kids compared to other entrepreneurs.

[25] Similar results are obtained when employing a dummy variable that takes on the value of 1 if the respondent had self-employed parents and interacting parental self-employment with the East German origin dummy. The coefficient of the interaction variable is highly significant, whereas for the constitutive term (indicating now the influence of parental self-employment on mastery among West Germans) remains insignificant. The results of this approach reveal that, in general, East Germans value mastery less than do West Germans. This is presumably due to their socialist legacy, which would be line with the abundant evidence on long-term East–West differences in mentality (e.g., Alesina and Fuchs-Schuendeln 2007; Brosig-Koch et al. 2011).

[26] With respect to autonomy, for example, respondents could indicate whether they are self-employed in order "to be independent" (1: "not important" to 7: "very important"; in German: "Ich bin selbständig, weil ich unabhängig sein will"). The mean values for autonomy are much higher than for mastery. Furthermore, additional ordinary *t* tests reveal that there are indeed no group differences. Thus, autonomy seems to be an overarching motive for running a business that does not depend on parental self-employment and institutional approval. The necessity/unemployment motive is not assessed here because very few people indicated having been unemployed before the start-up. Accordingly, only a few people were asked whether their actual unemployment was a main motivation for starting their venture.

Another caveat is that children of GDR entrepreneurs might understand questions on career-related reasons systematically differently than the rest of the sample population. The structure of the data allows ruling out that one common interpretation of the statement drives the results. As mentioned earlier, it is likely that a large share of respondents interpret the statement to mean "creating new goods and services." This interpretation is presumably more likely among respondents active in industries where R&D plays a crucial role. If children of GDR entrepreneurs are coincidentally more often active in such industries, then the previously found relationship between parental self-employment and the proxy for mastery could be spurious. To dispel this concern, I exploit information on whether R&D plays a role in the venture. Respondents were asked whether this is the case (dummy variable: Yes = 1; No = 0). Introducing this additional control confirms that the rating of mastery is correlated with the relevance of R&D. It does not, however, affect the positive relationship between having had self-employed parents in the GDR and mastery ratings (see Table 10 in Appendix).

Last, but not least, the results of the models hardly differ when employing standard OLS regressions and logit models where the dependent variable takes the value of 1 if the respondents rated mastery at least 5 on a scale from 1 to 7 as an important reason for being self-employed and 0 otherwise. Since the range of mastery ratings is determined by the survey design, I also assessed whether left and right censoring is an issue. To this end, I ran Tobit regressions, which yielded slightly different estimates but did not change the results qualitatively (see Table 11 in Appendix). Altogether, the findings are robust across different specifications.

5 Concluding remarks

This paper distinguishes itself from previous studies on the intergenerational transmission of entrepreneurship by, first, relating direct information on entrepreneurial value orientation to parental self-employment and, second, by accounting for heterogeneity in values among entrepreneurs and entrepreneurial parents. This is done by exploiting a unique historical natural experiment. It is found that children of parents who were self-employed in an environment with low institutional approval of entrepreneurship seem to have internalized values that are especially crucial to "survive" as an entrepreneur in such hostile environments. More precisely, the results demonstrate that children of parents who were self-employed in the anti-entrepreneurial environment of the GDR put much more emphasis on challenging existing conditions than do children of non-entrepreneurs. This value priority for mastery distinguishes this group also from entrepreneurs who had entrepreneurial parents in the (comparatively) entrepreneurship-facilitating environment of West Germany. The results suggest intergenerational transmission of a value priority for mastery. There is no general relationship between parental self-employment and valuing mastery; rather, it is the context in which parenting took place that matters. Altogether, the study demonstrates the relevance of institutional approval to entrepreneurship. This is a novel insight calling for assessing heterogeneity in and direct information about the values of entrepreneurs and entrepreneurial parents.

One shortcoming of the study is that the survey on which it is based contained no information on the values of those children of self-employed parents who are not themselves self-employed. However, there is no good reason why parents would not have transmitted their values to those of their children who did choose entrepreneurship. Not opting for an entrepreneurial career does not mean that no transmission of entrepreneurial values took place (Aldrich and Kim 2007). Nonetheless, if one takes seriously the previous findings on the significant effect of parental self-employment on entrepreneurial choice, then the share of children that is investigated here is a substantial one.[27] Be that as it may, the take-away point here is that the historical experiment exploited in this study allows isolating a group of entrepreneurs with a distinct value orientation that is reflected in the value priorities of their kids.

Another limitation is that there is no information on unsuccessful entrepreneurs who quit the market shortly after entry. An analysis of the business motivation of these unsuccessful entrepreneurial children of self-employed parents compared to other

[27] For evidence on the effect of parental self-employment on entrepreneurial choice in East Germany, see Fritsch and Rusakova (2012) and Wyrwich (2013b).

unsuccessful entrepreneurs might reveal interesting insights even though these entrepreneurs are less likely to have been involved in start-up activity that is positively related to economic growth and development. Further, there might be channels through which socialism could destroy intergenerational links of entrepreneurship. Recent results by Fritsch and Rusakova (2012) show that parental self-employment in a socialist environment has no effect on the decision to become self-employed among East Germans that have a tertiary degree, which indicates exposure to a particularly strong ideological indoctrination.[28] Finally, even though the overall response rate of the survey was comparatively high (~30 %), it needs to be acknowledged that non-responding entrepreneurs might be different with respect to some of their individual characteristics compared to the observed sample population. If this is indeed the case, it could have created a slight selection bias that needs to be acknowledged and encourages further research on the value orientation of entrepreneurs in different institutional contexts.

I am confident that the findings of this study can be generalized to other contexts. Socialism is not the only situation where the self-employed have to overcome significant external resistance: One can think of entrepreneurship in highly competitive industries, markets with dominating incumbent firms, and radical innovations that break with previous paths of development and put the established market structure at risk. Thus, there are different situations that might allow for credibly isolating a group of entrepreneurs that is distinct with respect to mastery. Furthermore, the analysis suggested that the reasons children of GDR entrepreneurs gave for becoming an entrepreneur were not much different from the reasons given by their peers in West Germany (aside from the mastery ratings). This indicates that their motivation for being in business is not "GDR specific" in general.

This paper's exploitation of differences in institutional context places it firmly within the tradition of work that assesses context specificity in intergenerational correlation of entrepreneurship. This work includes, for example, Fairlie (1999), who detected that the intergenerational link in self-employment appears to be much stronger for African–Americans than for white Americans. The role of ethnic context is also stressed in work by Hout and Rosen (2000). Chlosta et al. (2012), for instance, show that personality plays a moderating role for the relationship between parental self-employment and entrepreneurial choice. The authors also distinguish between paternal and maternal entrepreneurial role models. The influence of spatial context is illustrated by Niittykangas and Tervo (2005), who find differences with regard to the intergenerational transmission of self-employment across Finnish regions. Laspita et al. (2012) show that the intergenerational transmission of entrepreneurial intentions varies across cultures. These papers, and this study, should motivate further investigations that account for context specificity. The present paper also calls for placing values more prominently on the agenda of entrepreneurship research. Doing so will require more explicit reference to psychological theory on human values (e.g., Rokeach 1973; Schwartz 1994; Inglehart and Baker 2000) in the theoretical discussion.

Understanding the link between parental self-employment and value transmission is highly relevant for policymakers. If even anti-capitalist indoctrination cannot deter people with above-average entrepreneurial intentions from opting for self-employment and, in turn, transmitting their values to their offspring, then particular families could be regarded as an important source of perpetuation of the entrepreneurial culture beyond particular institutional environments and disruptive historical change. Carefully designed social policies that ensure effective family socialization could support this process.[29] However, in order to understand the relationship between entrepreneurial values and their intergenerational transmission, much more research is warranted.

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Appendix

See Tables 6, 7, 8, 9, 10 and 11.

[28] These people nonetheless might value mastery, but just did not start a firm.

[29] One measure could be reducing the administrative burden of entrepreneurs, thus giving them more time to raise and socialize their children.

Table 6 Sectoral and regional origins of surveyed firms

Industry classification	
Manufacturing (2-digit NACE2008 industry codes 10–33); knowledge-intensive business services (3-digit industry NACE2008 codes: 581, 582, 591 without 5914, 592, 601, 602, 611–613, 620, 631, 691, 692, 701, 702, 711, 712, 721, 722, 731, 732)	
Sample regions	
Name	*Density*
East Germany	
SR1: Oberes Elbtal/Osterzgebirge (ROR: 1401)	Urban
SR2: Mittelthüringen + Ostthüringen (ROR: 1601 + 1603)	Urban/rural
SR3: Westmecklenburg + Mittleres Mecklenburg/Rostock + Mecklenburgische Seenplatte + Vorpommern (ROR: 1301 + 1302 + 1303 + 1304)	Rural
West Germany	
SR4: Hannover (ROR: 307)	Urban
SR5: Aachen (ROR: 501)	Urban
SR6: Schleswig-Holstein Nord + Schleswig-Holstein Mitte + Schleswig-Holstein Ost + Schleswig-Holstein Süd-West (ROR: 101 + 102 + 103 + 105)	Rural

Table 7 Definition of variables

Variable	Operational definition
Mastery	Survey item: There are different reasons for being self-employed. I am self-employed because ... "I want to make a change in our world, I want to create something new" (1: "not important"/7: "very important") German original: Es gibt verschiedene Gründe dafür, selbständig zu sein. Ich bin selbständig, weil... "Ich in unserer Welt etwas bewegen, etwas Neues schaffen will"
Autonomy	"I want to be independent" (German original: "Ich unabhängig sein will")
Parent self (yes = 1)	Indicating whether mother or father have been self-employed when respondent was 15 years old
Age (log)	Age of respondents before starting firm (log)
Male (yes = 1)	Indicating whether respondent is male
East German Origin (yes = 1)	Indicating whether respondent lived in the German Democratic Republic in 1989
Prior self (yes = 1)	Indicating whether respondent has been self-employed before starting the actual firm
Start-up size (log)	Number of employees in the year of the first hire (log)
Income growth (yes = 1)	Indicating whether entrepreneur's income increased after starting the firm

Own calculations. Summary statistics on mean values, standard deviations, and the respective correlation matrix can be obtained upon request

Table 8 Group shares across rated mastery categories

Parental self-employment		No parental self-employment	
East (PL)	West (PH)	East (PL)	West (PH)
0.05	0.16	0.09	0.08
0.12	0.11	0.11	0.13
0.07	0.15	0.16	0.12
0.12	0.14	0.17	0.22
0.28	0.18	0.24	0.20
0.19	0.14	0.13	0.15
0.19	0.12	0.11	0.09

Table 9 Rating of other career-related reasons

	I	II	III	IV	V	VI
	Autonomy		Income		Opportunity perception	
PH: parent self (yes = 1) and East German (yes = 0)	0.136	0.174	−0.153	−0.197	−0.0871	−0.125
	(0.337)	(0.342)	(0.534)	(0.531)	(0.349)	(0.362)
NL: parent self (yes = 0) and East German (yes = 1)	−0.0105	−0.0433	0.0513	0.0825	0.184	0.132
	(0.275)	(0.258)	(0.397)	(0.404)	(0.242)	(0.234)
NH: parent self (yes = 0) and East German (yes = 0)	−0.0319	−0.0168	−0.0850	−0.0667	0.160	0.137
	(0.330)	(0.332)	(0.523)	(0.526)	(0.257)	(0.254)
Age (ln)	−0.863***	−0.914***	0.384	0.655**	0.817**	0.902***
	(0.319)	(0.344)	(0.318)	(0.333)	(0.319)	(0.308)
Male (yes = 1)	−0.274	−0.346	−0.0624	−0.107	0.0741	−0.00725
	(0.217)	(0.219)	(0.182)	(0.183)	(0.176)	(0.168)
Prior self (yes = 1)		0.433***		−0.0769		0.353***
		(0.160)		(0.140)		(0.106)
Start-up size (ln)		−0.00456		−0.201**		−0.0394
		(0.0923)		(0.0897)		(0.0800)
Income growth (yes = 1)		0.306**		0.429***		0.430**
		(0.149)		(0.127)		(0.169)
Observations	871	871	870	870	871	871
Pseudo R^2	0.0222	0.0273	0.0177	0.0226	0.0144	0.0193

Clustered robust standard errors in parentheses (on level of districts). Ordered logit regression applied. Cuts are not reported for the sake of brevity. Controls include region and year fixed effects (year of first hire and planning region in which an East or West German entrepreneur is active). All models include NACE 1-digit industry dummy controls

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 10 Rating of mastery and R&D

	I	II	III
	Born (1945–1974)	Born (1957–1974)	Born (≥1945)
PH: parent self (yes = 1) and East German (yes = 0)	−0.995***	−1.135***	−0.592
	(0.346)	(0.395)	(0.413)
NL: parent self (yes = 0) and East German (yes = 1)	−0.578**	−0.617**	−0.356
	(0.275)	(0.304)	(0.232)
NH: parent self (yes = 0) and East German (yes = 0)	−0.908***	−0.939**	−0.434
	(0.298)	(0.384)	(0.382)
Age (ln)	−0.763**	−0.938*	−0.666***
	(0.333)	(0.499)	(0.252)
Male (yes = 1)	−0.247	−0.304*	−0.177
	(0.189)	(0.164)	(0.179)
Prior self (yes = 1)	0.378**	0.431**	0.351**
	(0.161)	(0.186)	(0.146)
Start-up size (ln)	0.140*	0.0307	0.138*
	(0.0837)	(0.0895)	(0.0806)
Income growth (yes = 1)	−0.00930	−0.0994	−0.0522
	(0.117)	(0.160)	(0.122)

Table 10 continued

	I Born (1945–1974)	II Born (1957–1974)	III Born (≥1945)
R&D	0.499***	0.587***	0.542***
	(0.120)	(0.116)	(0.113)
Observations	872	673	974
Pseudo R^2	0.0280	0.0330	0.0272

Clustered robust standard errors in parentheses (on level of districts). $N = 872$. Ordered logit regression applied. Cuts are not reported for the sake of brevity. Controls include region and year fixed effects (year of first hire and planning region in which an East or West German entrepreneur is active). All models include NACE 1-digit industry dummy controls

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 11 Rating of mastery: alternative regression techniques

	I OLS	II Logit	III Tobit
PH: parent self (yes = 1) and East German (yes = 0)	−0.881***	−1.057**	−1.106***
	(0.290)	(0.423)	(0.363)
NL: parent self (yes = 0) and East German (yes = 1)	−0.563**	−0.741**	−0.703**
	(0.248)	(0.335)	(0.311)
NH: parent self (yes = 0) and East German (yes = 0)	−0.833***	−1.161***	−1.032***
	(0.260)	(0.385)	(0.319)
Age (ln)	−0.672*	−0.570	−0.796*
	(0.339)	(0.357)	(0.419)
Male (yes = 1)	−0.170	−0.240	−0.207
	(0.182)	(0.208)	(0.220)
Prior self (yes = 1)	0.380**	0.349**	0.469**
	(0.150)	(0.164)	(0.183)
Start-up size (ln)	0.148*	0.108	0.186*
	(0.0791)	(0.0977)	(0.0963)
Income growth (yes = 1)	−0.0121	0.0317	−0.0512
	(0.112)	(0.137)	(0.138)
Observations	872	872	872
R^2	0.0814		
Pseudo R^2		0.0452	0.0216

Clustered robust standard errors in parentheses (on level of districts). Ordered logit regression applied. Cuts are not reported for the sake of brevity. Controls include region and year fixed effects (year of first hire and planning region in which an East or West German entrepreneur is active). All models include NACE 1-digit industry dummy controls. In the logit model, the dependent value is 1 if the respondent rated mastery as at least 5 out of 7 as an important reason for being self-employed and 0 otherwise

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

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