



ifh Working Paper No. 38/2022

Rediscovering the craft entrepreneur: a personality approach

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Abstract:

Personality is a key driver of self-employment decisions. For this reason, the personality traits of entrepreneurs or business owners have been repeatedly studied in previous research. This paper extends this literature by focusing on the craft entrepreneur – as a classic form of strategic entrepreneurship. Based on a large, representative German household panel data set, we show that the entrepreneurial type mediates the effect of broad (Big Five) and narrow personality traits (locus of control, risk tolerance) on the likelihood of being self-employed. Our results support the conventional distinction between craft entrepreneurs from other types of entrepreneurship. The paper concludes with implications for policy and research.

JEL: D91; L26; M13; M21

Keywords: Entrepreneurship; Craft entrepreneur; Self-employment; Big Five; Personality

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1. Introduction

The personality of entrepreneurs or business owners has been repeatedly addressed in the research literature. Based on the five-factor model of personality (Big Five hereafter), several studies have examined the impact of broad personality traits on self-employment decisions (see Digman, 1990; John et al., 1991; 2008; McCrae & Costa, 2008). For example, it has been found that individuals with higher levels of openness to new experience or extraversion are more likely to start a business (e.g. Zhao & Seibert, 2006; Shane et al., 2010; Brandstätter, 2011). Recent research has moved from a trait-centered to a person-centered approach, and shows the importance of particular trait combinations that frequently exist within individuals. For example, the likelihood of self-employment action rises if a person possesses high levels of all five traits – extraversion, conscientiousness, agreeableness, and emotional stability (Caliendo et al., 2022; Runst & Thomä, 2022b). Besides the Big Five, there are also more narrowly defined personality traits, which are often associated with self-employment, such as locus of control (or self-efficacy beliefs) or individual risk-taking propensities (Caliendo et al., 2014; Leutner et al., 2014). We seek to expand this literature by examining whether the personality-effects differ between different *types* of owners, an aspect that has not been explored before.

Going back to the classic contributions by Smith (1967) and Smith & Miner (1983), "craftsmen entrepreneurs"¹ are often presented as one particular *type* of an owner, who is believed not to be primarily motivated by profit and business growth. Instead, individuals of this type have a strong desire to work with their own hands, applying their skills and experience-based knowhow in the creation of a product or service, which is often a source of pride, occupational identity and personal satisfaction (Binder & Blankenberg, 2022). The education of craftspeople is mostly technical, and they seek to exert full personal control over all aspects of their small company. The crafts-owner has been contrasted with opportunistic business owners (Smith & Miner, 1983), which can be sub-divided in professional managers and promoters (Hornaday, 1990). Individuals in this group are more strongly motivated by personal gain, and they strategically pursue business growth and personal wealth. Non-crafts owners are hardly involved in the actual product or service creation but direct operations from a higher organizational level, thereby necessarily resorting to the delegation of authority. In contrast to crafts-owners, they have strong non-technical management expertise (including marketing, sales, general administration, merchandising, etc.), which enables them to carry out longer-term strategic planning and build organizational structures.

These two types of business owner are associated with distinct entrepreneurial behaviors and strategies. The high degree of personal involvement, and the limited scope for strategic planning beyond matters of price, quality and company reputation leads some authors to conclude that craftspeople are unlikely to become entrepreneurial in the Schumpeterian sense (e.g. Hornaday, 1990; Bridge & O'Neill, 2018). In contrast, non-crafts owners have been attributed with qualities that make them more likely to become major disruptors of macroeconomic equilibria as "inventor-entrepreneurs" (Hornaday, 1990; Miner et al., 1992). The pessimistic assessment of the crafts-owner's entrepreneurial capabilities seems to be grounded in the notion of entrepreneurship as "creative destruction" (Schumpeter, 1934) and "risk taking" (Knight, 1921). From the perspective of entrepreneurship as arbitrage and agency within an evolutionary market process (Kirzner, 1997; Hayek, 1945), however, the entrepreneurial qualities of the crafts-owner appear in a more favorable light.

In this paper we take up the distinction between craft and non-craft entrepreneurship/ownership and further develop it. We argue that, depending on their personality traits, individuals who wish to become self-employed feel an affinity toward one type or the other. It has been suggested that craftspeople display a strong sense of occupational identity, which is expressed, among other things, by the fact that they see their work as an expression of their personality (Binder & Blankenberg, 2022). We expect that individuals with certain personality traits, which go hand in hand with such an identity, will be attracted to this type of entrepreneurship. Similarly, Runst & Thomä (2022a) show that some firms operate according to a crafts-typical innovation mode (Doing-Using-Interacting), that relies on informal processes of interactive learning, experience-based know-how, and incremental improvements rather than on formal research and development (R&D), and that the company's self-selection into this innovation mode is driven by the owner's personality traits.

Against this background, the present paper examines the influence of broad and narrow personality traits on self-employment decisions in the German crafts sector. Our contribution to the literature is twofold: First, the conventional "craftsmen vs. opportunistic entrepreneurs" typology of Smith (1967) and Smith & Miner (1983) is being theoretically enriched, e.g. by connecting it to the crafts-related literature from the fields of learning and innovation. This way, we seek to develop a sound explanatory basis to understand the relationship between personality and craft entrepreneurship, and thereby to contribute to the further development of the latter concept. Second, we empirically investigate the relationship between broad and narrow personality traits and the probability of becoming self-employed in the crafts

¹ In the following, we use the more inclusive terms craftspeople, crafts-owner, or craft entrepreneur synonymously with the word "craftsmen" that has been used in the older literature such as Hornaday (1990) or Smith & Miner (1983).

vis-à-vis the non-crafts sector, on the basis of a representative panel data set of German households and individuals (GSOEP). In this way, crafts-specific patterns in the interplay between personality and different types of entrepreneurship can be identified. In doing so, we follow up on, and expand upon the conceptual paper by Hoyte (2019), who discusses the theoretical relationship between Big Five traits and craft entrepreneurship in culture and creative industries.

The remainder of the paper is organized as follows. Section 2 serves to derive the conceptual background and our research hypotheses. Section 3 presents the data set and describes our methodical procedure, before the results are detailed in Section 4. Finally, in Section 5 we summarize and discuss our findings and conclude with implications for policy and research.

2. Theoretical Background

2.1. Conceptualizing craft entrepreneurs

The previous literature distinguishes between different types of entrepreneurs who are associated with different priorities and motivations. For example, necessity entrepreneurs often see starting their own business as an alternative to unemployment or an unsatisfactory form of employment (Block, 2015), female entrepreneurship is often driven by the greater flexibility that self-employment offers (Minniti & Naudé, 2010), while family entrepreneurs take advantage of the cohesive bonds of its members (Heck et al., 2008; Djankov et al., 2006). In addition to such empirically oriented approaches, there are also conceptual entrepreneurship-typologies based on a number of characteristics. One such typology, which goes back to Smith (1967) and Smith & Miner (1983), distinguishes between the "opportunists" and the "craftsmen" (see Table 1).

For craft entrepreneurs, the opportunity for self-directed work and personal autonomy constitutes a primary motivation for venturing into self-employment (Bridge & O'Neill, 2018; Runst & Thomä, 2021; Binder & Blankenburg, 2022). They are less motivated by financial gains and the opportunity to build a large business organization. Compared to the "opportunistic entrepreneur", however, this type of entrepreneur can be more succinctly characterized by personal goals such as a desire for independence, personal autonomy, and self-realization through the active participation in the productive and creative processes (Smith & Miner, 1983, Woo et al., 1991, Kuhn & Galloway, 2015; Amin & Roberts, 2008; Solomon & Mathias, 2020). The craft entrepreneur values the act of practicing a trade or occupation, and thus the mastery of knowledge and skills, i.e. the achievement of craftsmanship (Nooteboom, 1994; Sennett, 2008; Hoyte, 2019; Thomä & Zimmermann, 2020; Binder & Blankenburg, 2022). Administrative and management tasks, on the other hand, tend to be perceived as a necessary evil of entrepreneurial activity (Smith & Miner, 1983, Woo et al., 1991; Das & Teng, 1998). Accordingly, craft entrepreneurs often strive for personal competency and creative problem solving in the creation of individualized, non-mass-produced products and services. They do not have a well-developed marketing strategy, but to the extent it exists at all, it emphasizes the company's reputation of delivering high quality.

Since craft entrepreneurs often find their personal self-fulfillment in the acquisition of tacit know-how in a specific technical field, innovations conducted by craft-based companies are usually of a customized nature and often take the form of step-by-step optimization, further development or adaptation of already existing products, services and processes (i.e. incremental innovations; Das & Teng, 1998; Miner et al., 1992; Amin & Roberts, 2008; Thomä & Zimmermann, 2020; Runst & Thomä, 2022a). Building and developing person-embodied experience and interpersonal interaction therefore plays a central role in learning and innovation in craft entrepreneurship, which is why knowledge transfer processes (e.g. between apprentices and master craftsmen, or with customers) require spatial proximity in the form of face-to-face communication, or on-site development of innovative problem solutions (Amin & Roberts, 2008).

Table 1: The craft entrepreneur

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- Motivated by the desire for personal autonomy / self-fulfillment and less by a desire for organizational or financial success
 - Preference for stability, not for growth
 - Preference for mastering knowledge and skills in a specific technical field (craftsmanship) over administrative / managerial tasks
 - Innovations tend to be customized and incremental in nature
 - Marketing strategies often emphasize company reputation and quality of products and services
 - Knowledge transfer requires co-location (i.e. face-to-face communication or on-site demonstration)
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Source: Own compilation starting from Smith (1967) and Smith & Miner (1983).

Craft entrepreneurs tend to stick to tried and tested routines (Miner et al., 1992; Das & Teng, 1998; Hoyte, 2019). In doing so, they perfect traditional ways of working and doing. When they do make changes, they do so less proactively and are less likely to create new markets and to introduce novel products, processes and services. Instead, entrepreneurs of this type behave relatively more reactively: they tend to adapt more slowly to changing conditions and do so only to the extent it is necessary to safeguard their existing business model, thus limiting entrepreneurial risk (Miner et al., 1992; Bridge & O'Neill, 2018). "Craftsmen entrepreneurs" therefore often run long-lasting businesses that tend to remain small, preferring stability rather than growth (Solomon & Mathias, 2020).

On the other hand, for example, the "opportunistic entrepreneur" tends to emphasize the innovative capacity of his or her company (Smith & Miner, 1983; Solomon & Mathias, 2020), and he/she is relatively more driven by financial gain and organizational success. An individual of this type is less likely to directly engage in the creation of a product or service, but to direct the company's operation from a higher organizational level. They delegate tasks, which leads to a stronger functional specialization within the company. Opportunistic entrepreneurs are more likely to run the management-side of a business, such as optimizing the internal organization, or developing long-term business and marketing strategies. Consequently, their educational profile is characterized by non-technical expertise in interpersonal and management skills.

2.2. Broad and narrow personality traits

The Big Five is a widely used model of personality traits (Digman, 1990; John et al., 1991; John et al., 2008; McCrae & Costa, 2008). It assumes that the main facets of a human personality can be condensed to five basic dimensions that remain stable across the lifespan: Extraversion, Conscientiousness, Emotional Stability, Openness to Experience and Agreeableness. *Extraversion* indicates a preference for social interactions. It is also increasingly associated with a higher reward sensitivity (see Lucas et al., 2000; Cohen et al., 2005). Agreeable individuals try to avoid interpersonal conflict, forgive others more easily, and are more thoughtful in their interactions with others. They prefer cooperation over competition. In addition, *agreeableness* goes hand in hand with expressing oneself carefully so as not to upset others and showing a higher degree of empathy. People with higher scores of *conscientiousness*, on the other hand, act in a controlled and structured way. They plan ahead and tend towards perfectionism. At the same time, they show a higher degree of accuracy, diligence, precision and determination. The trait *emotional stability* indicates how well a person is able to deal with setbacks and stress factors. High emotional stability is associated with less severe mood swings, less anxiety, sadness, insecurity or other negative feelings. *Openness* indicates how willing a person is to make new experiences. Open-minded persons enjoy change and are more likely to be creative, imaginative and experimental. They also have a strong imagination.

The impact of the Big Five on the probability of self-employment and related entrepreneurial decisions has been studied extensively. Extraversion and openness in particular, and, to a lesser extent, emotional stability and conscientiousness have a positive influence on entrepreneurial decisions (e.g. Zhao et al., 2010; Brandstätter, 2011; Caliendo et al., 2014; Runst & Thomä, 2022b). Agreeableness shows no effects apart from one paper that finds a positive impact of exits from self-employment (see Caliendo et al., 2014). Zhao et al. (2010), argue that agreeableness should be negatively related to both entrepreneurial performance and start-up intention, but their empirical results cannot support either hypothesis.

While the Big Five constitute broad personality traits, narrow personality traits are also discussed in the literature. The four most important narrow traits associated with entrepreneurship are achievement motivation, need for autonomy, risk tolerance and locus of control (Bridge & O'Neill, 2018). Based on the data available to us (see Section 3), we can examine the influence of the latter two of these traits on self-employment. A person's self-efficacy belief, or *locus of control* (LOC, Rotter, 1966), reflects the conviction that a person has control over one's own life. In contrast, a person scoring low on LOC, believes that his or her life is shaped by external factors over which he or she has no control. Furthermore, the degree of individual *risk tolerance* (Chell et al., 1991) is a narrow personality dimension that is plausibly related to entrepreneurial decisions, since the outcomes of self-employment are often uncertain. Moreover, humans have different risk preferences: Some people prefer smaller, more secure income streams, while others would rather choose larger but more uncertain ones. The effects of locus of control and risk tolerance have also been repeatedly investigated, supporting the hypothesis of a positive impact on the probability of self-employment (see Caliendo et al., 2014).

2.3. Hypotheses

Entrepreneurs challenge old routines and processes, they create new markets that did not exist before, or they serve an existing demand in a better way than before. They are also more likely to be alert to profit opportunities (Knight, 1921; Schumpeter, 1934; Hayek, 1945; Kirzner, 1997). On the one hand, people who are open to new experiences

should be more likely to recognize entrepreneurial opportunities than others, and this holds true for craft-based companies as well other types of businesses. Hoyte (2019), for example, describes the openness of artisan entrepreneurs from cultural and creative industries and the willingness to pass on ancient cultural traditions through the start of cultural forms of business ventures. Furthermore, she argues that artisan entrepreneurs are passionate and creative about producing and selling handmade products that are connected to their cultural heritage, because they are open to new things and incremental innovation. On the other hand, the degree of openness should be less important for craft entrepreneurs as they are less focused on growth, profit-making and radical innovation (Section 2.1). If one's primary goal is to practice a trade and to make incremental innovations in response to situational customer needs or circumstance, openness is less relevant, say when compared to highly innovative ventures that need to permanently look out for new trends and developments. In the case of the crafts sector, we therefore expect openness to be less strongly associated with entrepreneurship than in the non-crafts sector (H1).

Entrepreneurship is always socially embedded (Sarasvathy, 2001; 2008; Storr, 2008). Entrepreneurs need to communicate and socialize with employees, customers, suppliers, financial institutions and other external partners. Generally speaking, extroverts should therefore be more attracted to entrepreneurship than introverts. This effect should be particularly pronounced among craft entrepreneurs, where the existence of close personal customer relationships, the often very personal relationships between crafts-owners and their employees, and the need for personal proximity in the transfer of tacit knowledge place special demands on the willingness to socially engage with others (see Table 1). Innovation in craft companies is also highly dependent on interactive learning (Thomä & Zimmermann, 2020; Runst & Thomä, 2022a). Overall, we argue that extraversion is a key driver of entrepreneurship in general but its effect size should be higher in the crafts sector (H2).

The relationship between the trait conscientiousness and entrepreneurship is somewhat ambivalent. On the one hand, highly conscientious people who value routines may not be attracted to the uncertainties of running a business. On the other hand, the efficiency orientation, determination and precision of conscientious people may promote entrepreneurial performance in the long run (Zhao et al., 2010; Brandstätter, 2011). Overall, the empirical literature does not provide evidence for a strong link between conscientiousness and entrepreneurship. However, a positive effect of conscientiousness can be expected in the case of the crafts. The desire for self-realization through the practice of a trade, craft or occupation, which is strongly anchored in the type of the craft entrepreneur, and the associated high level of acquired professional-technical knowledge and skills (see Section 2.1) suggests that a higher level of conscientiousness should positively affect self-employment in the crafts sector (H3). This hypothesis is in line with the proposition by Hoyte (2019) on the role of conscientiousness for artisan entrepreneurship in the cultural and creative industries. She states that craft-based work requires a high degree of conscientiousness, not only to learn a craft, but also to practise it continuously throughout one's life and to pass it on through generations, so that a common occupational identity is formed.

Emotional stability, in particular the ability to make well-considered decisions under time pressure and to deal with complex stress factors is likely to be an advantage for self-employed individuals (Zhao & Seibert, 2006; Zhao et al., 2010). Nevertheless, it can also be objected that less emotionally stable individuals might prefer owning a (most likely small) company to paid employment, as they are less likely to cope well as employees within a stressful work environment, with its challenging team interactions. Thus, individuals scoring low on emotional stability might engage "necessity entrepreneurship" because it offers them a chance to leave employment with its stressful team-level interactions. In summary, the effect of emotional stability on self-employment is ambivalent, and there are no specificities to be expected in the case of craft entrepreneurship. The possible role of agreeableness also seems ambiguous. On the one hand, entrepreneurs need a certain amount of willpower in difficult conversations and the ability to tolerate such conflicts. On the other hand, a very low level of owner agreeableness may resemble stubbornness and has the potential to disrupt social interaction to such an extent that employees may deliberately withhold their opinions and ideas. If owners insist on their own opinion without considering and including the thoughts of others, it can severely disrupt the company culture and hinder the co-creation valuable new ideas (Runst & Thomä, 2022a). The possible influence of agreeableness on entrepreneurship is thus, as in the case of emotional stability, ambivalent, which is supported by the mixed empirical results on the subject in the literature (for an overview, see Brandstätter, 2011). Moreover, no crafts-specific hypothesis can be derived in this case.²

In addition to the Big Five, the narrow personality traits locus of control and risk tolerance also play an important role in entrepreneurial decisions (Caliendo et al., 2014; Leutner et al., 2014). In principle, a clear positive correlation between these and entrepreneurial action is to be expected (Bridge & O'Neill, 2018). A lack of belief in the effectiveness of one's own actions is likely to have a detrimental effect on entrepreneurial activity for obvious reasons. A higher

² At this point it should be mentioned that Hoyte (2019) assumes positive effects of emotional stability and agreeableness in the case of artisan entrepreneurship, as corresponding entrepreneurs would need a high level of both personality factors to maintain social relations within regional communities and thus secure their occupational identity.

self-efficacy expectation is therefore an advantage for taking up and succeeding in entrepreneurial activity. Simultaneously, LOC is likely to be expressed above all in the desire for self-determined and autonomous work through self-employment – a motivation that guides action above all for the craft entrepreneur (see Section 2.1). A higher level of LOC should therefore have a positive influence on entrepreneurial activity, especially in the crafts sector, where the desire for self-directed work represents a major motivational factor (H4).

Finally, entrepreneurs must be willing to accept personal risks. However, it can be assumed that the relative importance of risk tolerance differs between craft and non-craft entrepreneurs. The ability to bear risk is particularly important for entrepreneurs that have a strong focus on high risk-high reward projects. It is less relevant in the case of craft entrepreneurship where tried and tested ways are being followed (Section 2.1). While this does not mean that the willingness to take risks is unimportant among craft entrepreneurs (Das & Teng, 1998) – it is important for all forms of entrepreneurship – we typically observe higher rates of new business survival in the German crafts than in the non-crafts sector (Müller, 2017; Runst & Thomä, 2021). Overall, we therefore expect the degree of risk tolerance to have a lower influence on entrepreneurship in the crafts sector than in others parts of the economy (H5).

3. Data and methods

The empirical analysis is based on data from the German Socio-Economic Panel (GSOEP) for the years 2005 to 2019, a large-scale and representative annual household survey of more than 10,000 individuals in Germany.³ The SOEP has been used several times in entrepreneurship research on the Big Five (e.g. Caliendo et al., 2014; Runst & Thomä, 2022b). Since 2005, a fifteen-item Big Five Inventory (BFI) has been included at regular intervals (i.e. in the five survey years 2005, 2009, 2013, 2017 and 2019). Small item scales such as the BFI-15 have been shown to be reliable and valid compared to longer versions such as the BFI-44 (Rammstedt & John, 2007). Information on the narrow personality trait locus of control is available for the survey years 2005, 2010 and 2015, while risk tolerance was surveyed in all years. For the missing years, it is assumed that a person's traits have not changed and that these can be replaced by the last values available for the respective person. This assumption is plausible because personality traits are heritable and remain stable over longer periods of time, especially in adulthood (Cobb-Clark & Schurer, 2012; Rantanen et al., 2007; Wortman et al., 2012).

The Big Five are generated via a factor analysis, with which the 15 items are condensed into factor scores standardized to a mean of zero and a standard deviation of one for each of the five personality traits. As an example, the factor loadings for the year 2005 are shown in the appendix (Table A 1), which correspond to expected patterns (e.g. Hahn et al., 2012; Lang et al., 2011).⁴ The variable locus of control is measured in the same way based on ten GSOEP questions on an individual's perceived self-efficacy, with all respondents' answers loading onto one factor. The variable risk tolerance is derived from a single GSOEP question – a self-assessment of one's own willingness to take risks (on a 7-point Likert scales).

The dataset also contains information on a number of other socio-demographic characteristics of the survey respondents (e.g. age, nationality, educational qualification) for which we control in the regression analysis. In line with Caliendo et al. (2014) and Runst & Thomä (2022b), the dependent variable self-employment is used as an indicator of entrepreneurship. While fully recognizing that the concept of entrepreneurship and self-employment may not be the same, self-employment represents one important aspect of entrepreneurship and has been widely used in empirical research as an indicator of entrepreneurship. Table A2 in the appendix provides a descriptive overview of the variables used in the analysis.

Following Caliendo et al. (2014) and Runst & Thomä (2022b), the empirical analysis refers to individuals aged between 19 and 59 years of age. In addition, disability pensioners, students, farmers, family workers, civil servants and military personnel are removed from the sample in order to focus on people for whom self-employment is a realistic option. Furthermore, we do not include observations from the 2016 and 2017 GSOEP "Refugee samples" in our analysis in order to ensure sample consistency over time and because there are clear personality differences between the specific group of refugees and the general German population (Runst & Thomä, 2022b).

The sorting of self-employed persons in crafts and non-crafts occupations is done according to the scheme developed by Runst, Thomä et al. (2019) and Haverkamp et al. (2019), based on the official German classification of occupations (KldB 92 and KldB 2010). Due to the long time horizon of the GSOEP, we have opted for the KldB92 classification. The delineation of craftspeople among the self-employed is based on a person's current occupational status. A complete list of KldB92 occupations and their crafts or non-crafts assignment can be found in Runst et al. (2019). In order to be able to conduct a robustness test, this list is then limited in the fourth column of Table A3 to craft

³ Socio-Economic Panel (SOEP), data for years 1984–2019, SOEP-Core v36, EU Edition, 2021, 10.5684/soep.core.v36eu.

⁴ The factor loadings for the other years are not shown, but follow the same pattern. The corresponding results are available from the authors on request.

occupations that are particularly traditional and tend to belong to cultural and creative industries, i.e. what could be described as the core of typical craft entrepreneurship (Hoyte, 2019).

In the following, we examine the influence of the broad BF personality traits as well as narrow personality traits LOC and risk tolerance on the probability of being self-employed in OLS and logit regressions, separately for crafts and non-crafts. We also sub-divide the sample of self-employed in two groups and run separate regressions to control for firm size effects. In category 1, we include all survey participants. In category 2, we focus only self-employed persons with fewer than 10 employees, including self-employed without employees. We control for a number of variables used in previous studies that have been found to influence the likelihood of being self-employed (e.g. a person's age, education and training qualifications, full-time or part-time employment, gender, nationality, etc.). To check the robustness of our results, we test whether the difference between coefficients in the crafts and non-crafts sample is statistically significant. Furthermore, in an additional analysis step, we restrict the crafts sample to occupations from particularly traditional trades whose companies are often found in creative or cultural industries (artisans) to see if our results remain robust.

4. Empirical results

4.1 Main results

We regress the dependent variable self-employment against all personality traits and controls. Table 2 displays the results. Columns 1 and 2 juxtapose the craft and non-craft cases for all firm sizes, as described above. To control for potential firm-size effects, results in columns 3 and 4 are based on a restricted sample from which all self-employed individuals with 10 or more employees have been dropped.

In line with our hypothesis, the coefficient for the variable extraversion is significantly different from zero across all four specifications. An increase in the extraversion score by one standard deviation raises the probability of self-employment by 1.3 to 2.3 percent. Given that the baseline probability of being self-employed is 8 percent (non-crafts) and 11 percent (crafts), the magnitude of this effect is quite considerable. The coefficient is higher in the crafts (columns 2 and 4) than the non-crafts sample (columns 1 and 3), and the difference is statistically different from zero. In fact, the relative effect size in the crafts is twice as large as in the non-crafts sample. Hypothesis H2 is thus confirmed.

Based on the theoretical considerations and the previous literature, we were unable to formulate a general hypothesis in Section 2.3 concerning the conscientiousness trait. However, it was argued that at least in the crafts sample there should be a positive effect of conscientiousness on self-employment (H3). Both statements are supported by the regression results. While the coefficient of the conscientiousness score is neither consistently negative nor positive across all four specifications, it is positive in the case of the crafts sector, and negative in the case of non-crafts, the difference between the two being statistically significant at the five percent level. We expect this finding to be related to the fact that the development of craft skills and competences with the associated accuracy, precision and diligence in relation to professional activities (craftsmanship) is one of the typical guarantees of success for an entrepreneurial activity in the crafts sector, and that the desire to directly engage in the creation of a product or service is part of the crafts-person's identity. In this respect, our results speak for the validity of Hypothesis H3.

Similarly, the effect of the trait emotional stability is theoretically ambiguous. According to our results, its coefficient is negative in all four specifications and statistically significant in columns 1 through 3. However, its magnitude is quite small in the non-crafts occupations. An increase in the emotional stability score by one standard deviation decreases the likelihood of self-employment by less than half a percentage point. The magnitude is slightly larger in the craft case (column 2) but this effect turns out not to be robust as the coefficient becomes non-significant once we restrict the sample to self-employed with less than 10 employees (column 4). Overall, there is some evidence for a small negative effect of emotional stability on self-employment, which supports the idea that emotionally less stable individuals are more prone to experiencing negative emotions when working within a team of employees, and are pushed into self-employment because of this. As the effect size is small, or even zero in the case of the crafts sector for small firms, this tentative conclusion should be treated with caution, however.

In contrast, there is considerable evidence in favor of a positive impact of the openness trait. Its coefficient is positive and statistically significant in all specifications. An increase in one standard deviation in the openness score increases the likelihood of self-employment by 1.7 to 2.4 percentage points, which must be deemed a considerable effect size. There is no difference between the crafts and the non-craft cases, leading us to conclude that openness represents a core entrepreneurial personality trait whose importance does not seem to vary by entrepreneurial type. As a result, Hypothesis H1 is not confirmed. One may therefore argue that openness constitutes a universalistic personality trait of entrepreneurs. It thereby stands in contrast to extraversion, which is also positively related to being self-employed but matters more in the case of the crafts sector, or conscientiousness, which in itself is not a strong predictor of self-employment but also seems to be relatively more important for craft entrepreneurship. As expected, we do not find reliable evidence for an effect of the agreeableness trait.

Table 2. OLS-Regression results (dependent variable: self-employment)

| | (1) | (2) | Test for the difference of coeffi- cients | (3) | (4) | Test for the difference of coeffi- cients |
|-----------------------------|------------------------|------------------------|--|------------------------|------------------------|--|
| | Full Sample | | | Less than 10 employees | | |
| | Non-Crafts | Crafts | | Non-Crafts | Crafts | |
| Extraversion | 0,0129*** (0,0012) | 0,0234*** (0,0034) | *** | 0,0080*** (0,0017) | 0,0207*** (0,0051) | ** |
| Conscientiousness | -0,0042*** (0,0013) | 0,0045 (0,0039) | ** | -0,0032* (0,0019) | 0,0098* (0,0058) | *** |
| Emotional stability | -0,0045*** (0,0013) | -0,0115*** (0,0037) | * | -0,0041** (0,0019) | -0,0041 (0,0056) | |
| Openness | 0,0217*** (0,0014) | 0,0170*** (0,0040) | | 0,0234*** (0,0020) | 0,0245*** (0,0060) | |
| Agreeableness | 0,0020 (0,0013) | -0,0085** (0,0038) | ** | 0,0015 (0,0020) | 0,0023 (0,0058) | |
| Risk tolerance | 0,0112** (0,0004) | 0,0077*** (0,0012) | ** | 0,0085*** (0,0006) | 0,0061*** (0,0018) | |
| Locus of control | 0,0162*** (0,0011) | 0,0236*** (0,0032) | ** | 0,0120*** (0,0017) | 0,0277*** (0,0048) | *** |
| Age | 0,0110*** (0,0008) | 0,0267*** (0,0025) | | 0,0067*** (0,0013) | 0,0231*** (0,0039) | |
| Age squared | -0,0001*** (0,0000) | -0,0003*** (0,0000) | | -0,0000*** (0,0000) | -0,0002*** (0,0000) | |
| University | 0,0355*** (0,0025) | 0,0612*** (0,0130) | | 0,0274*** (0,0036) | 0,0336* (0,0177) | |
| Vocational training | -0,0166*** (0,0023) | 0,0108 (0,0078) | | -0,0167*** (0,0034) | 0,0281*** (0,0108) | |
| Full-time work | 0,0332*** (0,0032) | 0,0665*** (0,0093) | | 0,0011 (0,0048) | 0,0370** (0,0146) | |
| Part-time work | -0,0184*** (0,0032) | -0,0159* (0,0095) | | -0,0295*** (0,0047) | -0,0296** (0,0142) | |
| Female | -0,0124*** (0,0021) | -0,0138* (0,0082) | | -0,0050 (0,0032) | -0,0257** (0,0121) | |
| Unemployed (Lag) | -0,0351*** (0,0031) | 0,0000 (0,0096) | | -0,0435*** (0,0048) | 0,0076 (0,0157) | |
| Foreigner | -0,0000 (0,0034) | -0,0025 (0,0089) | | 0,0041 (0,0047) | 0,0113 (0,0125) | |
| Experience work | -0,0007*** (0,0001) | -0,0001 (0,0005) | | -0,0004* (0,0002) | -0,0001 (0,0007) | |
| Experience unempl. | 0,0005 (0,0004) | -0,0037*** (0,0010) | | 0,0000 (0,0005) | -0,0039*** (0,0014) | |
| Highschool | 0,0431*** (0,0024) | 0,1946*** (0,0135) | | 0,0401*** (0,0035) | 0,1820*** (0,0202) | |
| Disability | -0,0004*** (0,0001) | -0,0010*** (0,0002) | | -0,0004*** (0,0001) | -0,0010*** (0,0003) | |
| Father self-employed | 0,0416*** (0,0031) | 0,0646*** (0,0094) | | 0,0277*** (0,0044) | 0,0244* (0,0139) | |
| Capital Income | 0,1083*** (0,0044) | 0,3389*** (0,0262) | | 0,0598*** (0,0061) | 1,0137*** (0,0805) | |
| Constant | -0,2565*** (0,0178) | -0,6827*** (0,0560) | | -0,1510*** (0,0279) | -0,5515*** (0,0855) | |
| <i>N</i> | 98183 | 13376 | | 40308 | 6260 | |
| <i>Region dummies</i> | Yes | Yes | | Yes | Yes | |
| <i>Year dummies</i> | Yes | Yes | | Yes | Yes | |
| <i>Baseline probability</i> | 0.08 | 0.11 | | 0.05 | 0.07 | |

Notes: Robust standard errors, clustered on the individual level, are given in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We now turn to the narrow personality traits risk tolerance and LOC, both of which should, according to the theoretical discussion above, be positively related to self-employment. The evidence supports these statements as their respective coefficients are statistically significant and positive across all specifications. In terms of magnitude, risk tolerance seems to be less important – with an effect size ranging from 0.6 to 1.1 percentage points – and LOC seems to be more important – with an effect size ranging from 1.2 to 2.7 percentage points. Risk tolerance similarly affects self-employment in the craft- and non-craft case. However, LOC displays a larger effect size in the case of the crafts. The latter finding supports Hypothesis H4. Hypothesis H 5, on the other hand, is only partially confirmed, since –

contrary to expectations – the willingness to bear an increased risk is not significantly lower in the crafts sector than in the non-crafts sector. This finding could be explained by the fact that although the risk of a craft-based venture is comparatively low in the long run, craft entrepreneurs still need to be able to take risks initially, as the "sinking-the-boat risk" is relatively high immediately after starting a craft company (Das & Teng, 1998).

The coefficients of all control variables are in line with expectations and previous studies (see e.g. Caliendo et al., 2014; Runst & Thomä, 2022b). The maximum of the inverted U-shape relationship⁵ for the age variable is located at age 50, meaning that an increase in age positively affects self-employment (at a decreasing rate) up to that point, after which the relationship turns negative. Both, a university degree and vocational training increase the likelihood of self-employment. Full-time work affects the probability of self-employment positively, and part-time work does so negatively. Women are less likely to own a business, and there is no effect in the case of foreigners. There is also a strong positive impact of the father's self-employment status, which becomes smaller once we restrict the sample to small businesses. A Highschool degree (*Abitur* – upper secondary education) is positively related, and disability is negatively related to owning a business, both of which are larger in magnitude in the case of the crafts. We find that there is a negative impact of unemployment on self-employment in the case of non-crafts, and no effect in the case of the crafts, suggesting necessity entrepreneurship could play a larger role in the crafts. Finally, the coefficient of capital income is always positive but stronger in the case of the crafts sector.

4.2. Robustness

It could be argued that OLS cannot correctly estimate binary dependent outcomes, for example because OLS predictions are not bounded by zero and one. In practice, this rarely if ever seems to be a problem, and OLS can be safely applied (Angrist & Pischke, 2009). Nevertheless, to check the robustness of our results, we re-estimate all specifications using logit regressions. The marginal effects in Table A 3 (appendix) are similar to the OLS coefficients, and support the conclusions drawn above.

More importantly, one may object that the occupations that make up the crafts sample could be defined differently, and that some of these alternative definitions may lead to different results. Indeed, what is meant by invoking the term "crafts" is not always clearly defined in the literature. The crafts sample used in the main specifications of this paper encompasses all trades that are listed in the German trade and crafts code, and which are therefore legally defined to belong to the German crafts sector (see Runst et al., 2019). Of course, one could argue that this constitutes a particular, modern, and legalistic view. However, this list of trades is largely identical to what has been considered the crafts sector over one hundred years ago, such as most construction trades, bakers and butchers, hairdressers, brewers or opticians (see Runst & Wyrwich, 2022). We therefore argue that our crafts sample corresponds to a suitable and relevant crafts definition.

Nevertheless, we repeat the regression analysis, focusing on traditional trades whose companies are often found in creative or cultural industries, which we label artisan trades. The complete list of trades can be seen in Table A4. By using the artisan definition, we follow the Anglo-American usage of the term crafts. It centers on the decorative arts which are applied for utilitarian purposes, such as pottery, textiles, woodworking etc. but also includes other traditional and skill-based trades such as carpentry or building construction (see Müller et al., 2011). The regression results are displayed in Table A5. Overall, the analysis generally supports the previous findings. Extraversion affects self-employment positively. The effects size is, however, much larger for artisans than it is for the crafts in general, and non-crafts individuals. The same is true for the trait conscientiousness, which seems to have a bigger impact in the artisan sample than in the general crafts, and the non-crafts. The openness coefficient is however, no longer positive and significant in the artisan sample, which suggest that changing the crafts-definition does – at least in this instance – matter to some degree. Openness does not affect the self-employment decision in the case of the most traditional crafts trades (i.e. artisans), a result that seems to be intuitively plausible as tradition is in many ways the antithesis to being open to new developments. Finally, locus of control positively affects both non-crafts and artisan self-employment, and its magnitude is larger in the latter.

5. Conclusion

There is ample evidence in previous studies that an individual's personality influences its willingness and ability to engage in entrepreneurial activity. The antecedent literature has not yet explored the possibility that personality traits can affect entrepreneurial decision differently, depending on entrepreneurial types. The case of *craft entrepreneurship* seems to be particularly promising in this context because craftspeople have been shown to develop a strong occupational identity that differs from other entrepreneurial types. In this paper, we therefore further develop the theory of

⁵ The x-value of the quadratic function is calculated as $x = -(b/2a)$.

craft entrepreneurship, as presented by Smith (1967) and Smith & Miner (1983), by arguing that it can be plausibly linked to certain personality traits.

Our findings shed new light on the “craftsmen entrepreneur” type. According to our results, the personality traits extraversion, openness, risk tolerance and locus of control (LOC) have a positive effect on the probability of self-employment both in the crafts and the non-crafts. However, the effects of extraversion and LOC are significantly greater in the crafts sector. This result can be explained by the typical characteristics of craft entrepreneurship, according to which the crafts-person’s motivation for self-employment is more strongly determined by the desire for personal autonomy and self-realization than by the pursuit of profit and business growth. At the same time, craft-based ventures are particularly dependent on interactive learning and external knowledge sourcing to ensure their ability to adapt and innovate, which is why higher extraversion is an important driver for entrepreneurship in the crafts sector. For the personality trait conscientiousness, a significant positive effect on self-employment is only found in the crafts sector. This result is most likely related to the fact that the development of craftsmanship and the associated accuracy, precision and diligence of technical work is one of the typical guarantors of success for craft entrepreneurship.

In a more general sense, our results suggest that there are *universalistic* effects of personality traits that equally affect different types of entrepreneurship. For example, the traits extraversion and LOC can be described in this way, as they have been found to affect self-employment similarly in the crafts sector and non-crafts occupations. Some evidence exists that openness and risk tolerance also exert a universalistic effect on self-employment, although its effect was not statistically significant in case of the crafts when the more narrowly defined artisan sample was used for robustness testing. Traits that exert universalistic effects on the likelihood of self-employment can be thought of as a core entrepreneurial trait. Apart from that, there are also *particularistic* effects of personality traits that exclusively affect entrepreneurship in certain domains but not in others. The trait conscientiousness falls in this category. Its coefficient has been found to be positive and statistically significant only in the case of the crafts sector. Finally, the two traits extraversion and locus of control seem to exert both universalistic and particularistic effects in the sense that they always positively affect self-employment but their effect size is more pronounced in the case of the crafts sector.

All in all, our results support entrepreneurial typologies that distinguish the craft entrepreneur from other types of entrepreneurship. We were able to empirically identify craft entrepreneurs as a sub-group of all entrepreneurs quite accurately – based on an occupational classification that has been widely used in empirical research. However, one potential limitation of our study pertains to the category of non-craft entrepreneurship, which serves as a comparison group in the analysis. This category contains various types of non-craft entrepreneurs. Future research should further sub-divide and identify different types of (non-crafts) entrepreneurs, and investigate how they are influenced by personality factors.

From a policy perspective, our results imply that personality should be considered in the context of start-up counselling. In particular, potential entrepreneurs may be more attracted to some forms of entrepreneurship than others, depending on their personality type. While there are certain traits, such as extraversion, that positively affects all forms of entrepreneurship, others, such as conscientiousness are only related to craft entrepreneurship. Our results can therefore improve career advice, for example by targeting young, conscientious people who feel a strong desire for self-realization, personal autonomy and experience-based competence (for example, by raising awareness about the possibilities that craft entrepreneurship has to offer).

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Appendix

Table A 1. Factor loadings after factor analysis (SOEP wave 2005)

| | Extraversion | Conscientiousness | Neuroticism (emotional stability) | Openness | Agreeableness |
|------------------|--------------|-------------------|--------------------------------------|-------------|---------------|
| Thorough | 0.13 | 0.66 | -0.02 | 0.05 | 0.11 |
| Communicative | 0.66 | 0.21 | -0.04 | 0.14 | 0.09 |
| Too rough | 0.05 | -0.09 | 0.15 | 0.15 | -0.48 |
| Inventive | 0.37 | 0.20 | -0.08 | 0.50 | -0.08 |
| Worried | -0.02 | 0.11 | 0.50 | 0.05 | 0.09 |
| Forgiving | 0.16 | 0.15 | -0.01 | 0.10 | 0.39 |
| Lazy | -0.06 | -0.45 | 0.06 | 0.16 | -0.18 |
| Social | 0.67 | 0.10 | -0.06 | 0.21 | 0.11 |
| Artistic | 0.21 | 0.07 | 0.03 | 0.41 | 0.15 |
| Nervous | -0.06 | -0.07 | 0.63 | 0.04 | -0.04 |
| Efficient | 0.17 | 0.60 | -0.06 | 0.18 | 0.14 |
| Reserved | -0.48 | 0.08 | 0.15 | 0.05 | 0.22 |
| Friendly | 0.15 | 0.28 | -0.01 | 0.12 | 0.58 |
| Imaginative | 0.32 | 0.04 | 0.01 | 0.52 | 0.09 |
| Stress resilient | 0.15 | 0.15 | -0.51 | 0.21 | 0.15 |

Source: GSOEP, own calculation

Note: Inverting the neuroticism value scale yields the variable emotional stability.

Table A 2. Variable overview and descriptive statistics (means)

| Variable | Description | All self-employed | | Self-employed persons with no or max. 9 employees | |
|-----------------------|---|-------------------|---------------|---|---------------|
| | | <i>Non-crafts</i> | <i>Crafts</i> | <i>Non-crafts</i> | <i>Crafts</i> |
| Self-employed | Dummy for being self-employed | 0.08 | 0.11 | 0.05 | 0.07 |
| Extraversion | Metric factor scores | 0.02 | -0.04 | 0.01 | -0.04 |
| Conscientiousness | | 0.05 | 0.13 | 0.03 | 0.13 |
| Emotional stability | | 0.02 | 0.03 | 0.01 | 0.04 |
| Openness | | 0.00 | -0.06 | -0.02 | -0.07 |
| Agreeableness | | -0.048 | -0.134 | -0.061 | -0.133 |
| Risk tolerance | On a Likert scale (0-10) | 4.799 | 5.067 | 4.843 | 5.208 |
| Locus of control | Metric factor scores | 0.030 | -0.084 | 0.036 | -0.079 |
| Age | In years | 44.044 | 43.825 | 44.647 | 44.681 |
| University | Dummy for having a university degree | 0.266 | 0.044 | 0.279 | 0.053 |
| Vocational training | Dummy for individuals who finished an apprenticeship | 0.739 | 0.839 | 0.701 | 0.811 |
| Full-time work | Dummy for full-time work | 0.581 | 0.685 | 0.566 | 0.682 |
| Part-time work | Dummy for part-time work | 0.211 | 0.142 | 0.242 | 0.156 |
| Female | Dummy for females | 0.572 | 0.336 | 0.588 | 0.351 |
| Unemployed | Dummy for individuals not in paid work | 0.154 | 0.087 | 0.141 | 0.081 |
| Foreigner | Dummy for non-German nationality | 0.075 | 0.108 | 0.087 | 0.120 |
| Experience work | Full-time work experience prior to the year of observation | 14.816 | 17.103 | 14.378 | 17.223 |
| Experience unemployed | Years of unemployment experience prior to the year of observation | 1.188 | 1.401 | 1.321 | 1.491 |
| High school | Dummy for individuals who received a diploma from a secondary school qualifying for university entrance | 0.255 | 0.040 | 0.265 | 0.040 |
| Disability | Degree of disability in percent | 3.108 | 3.097 | 3.187 | 3.523 |
| Father self-employed | Dummy for having a father who was self-employed when the respondent was 15 years old | 0.092 | 0.096 | 0.099 | 0.097 |
| North | Dummy for individuals living in the North of Germany | 0.164 | 0.149 | 0.174 | 0.149 |
| East | Dummy for individuals living in the East Germany | 0.230 | 0.264 | 0.221 | 0.256 |
| West | Dummy for individuals living in the West Germany | 0.331 | 0.328 | 0.328 | 0.330 |
| South | Dummy for individuals living in the South Germany | 0.274 | 0.260 | 0.277 | 0.265 |
| Capital income | Household income from asset flows, Euros per year | 0.024 | 0.012 | 0.021 | 0.010 |
| N | | 98183 | 13376 | 46879 | 7279 |

Table A 3. Marginal effects after logit regression (dep. var. self-employed)

| | (1) | (2) | (3) | (4) |
|-------------------------|------------------------|------------------------|------------------------|------------------------|
| | Full Sample | | Less than 10 employees | |
| | Non-Crafts | Crafts | Non-Crafts | Crafts |
| Extraversion | 0,0133*** (0,0012) | 0,0215*** (0,0035) | 0,0082*** (0,0017) | 0,0197*** (0,0051) |
| Conscientiousness | -0,0040*** (0,0014) | 0,0093** (0,0041) | -0,0026 (0,0018) | 0,0132** (0,0057) |
| Emotional stability | -0,0048*** (0,0013) | -0,0117*** (0,0038) | -0,0044** (0,0018) | -0,0041 (0,0057) |
| Openness | 0,0228*** (0,0014) | 0,0194*** (0,0039) | 0,0239*** (0,0020) | 0,0264*** (0,0058) |
| Agreeableness | 0,0017 (0,0013) | -0,0079** (0,0036) | 0,0014 (0,0019) | 0,0017 (0,0051) |
| Risk tolerance | 0,0108*** (0,0005) | 0,0070*** (0,0013) | 0,0089*** (0,0006) | 0,0058*** (0,0017) |
| Locus of control | 0,0169*** (0,0013) | 0,0239*** (0,0033) | 0,0130*** (0,0018) | 0,0284*** (0,0045) |
| Age | 0,0140*** (0,0010) | 0,0346*** (0,0032) | 0,0106*** (0,0014) | 0,0315*** (0,0045) |
| Age squared | -0,0001*** (0,0000) | -0,0003*** (0,0000) | -0,0001*** (0,0000) | -0,0003*** (0,0000) |
| University | 0,0268*** (0,0024) | 0,0354*** (0,0103) | 0,0231*** (0,0033) | 0,0269** (0,0136) |
| Vocational training | -0,0092*** (0,0022) | 0,0161* (0,0086) | -0,0119*** (0,0031) | 0,0343*** (0,0112) |
| Full-time work | 0,0353*** (0,0042) | 0,0979*** (0,0134) | 0,0003 (0,0051) | 0,0486*** (0,0180) |
| Part-time work | -0,0229*** (0,0045) | -0,0086 (0,0151) | -0,0345*** (0,0055) | -0,0298 (0,0189) |
| Female | -0,0126*** (0,0021) | -0,0209** (0,0094) | -0,0061** (0,0030) | -0,0366*** (0,0131) |
| Unemployed (Lag) | -0,0724*** (0,0056) | -0,0079 (0,0136) | -0,0679*** (0,0070) | 0,0159 (0,0192) |
| Foreigner | 0,0001 (0,0037) | -0,0092 (0,0105) | 0,0049 (0,0046) | 0,0076 (0,0129) |
| Experience work | -0,0010*** (0,0001) | -0,0011* (0,0006) | -0,0006*** (0,0002) | -0,0005 (0,0007) |
| Experience unemployment | 0,0002 (0,0004) | -0,0057*** (0,0015) | -0,0002 (0,0005) | -0,0064*** (0,0017) |
| Highschool | 0,0335*** (0,0023) | 0,1050*** (0,0093) | 0,0316*** (0,0030) | 0,1101*** (0,0132) |
| Disability | -0,0007*** (0,0001) | -0,0018*** (0,0003) | -0,0006*** (0,0001) | -0,0023*** (0,0005) |
| Father self-employed | 0,0344*** (0,0028) | 0,0527*** (0,0086) | 0,0267*** (0,0039) | 0,0304** (0,0124) |
| Capital Income | 0,0594*** (0,0118) | 0,5044*** (0,0615) | 0,0245*** (0,0062) | 0,5061*** (0,0757) |
| <i>N</i> | 98183 | 13376 | 40308 | 6260 |
| <i>Region dummies</i> | Yes | Yes | Yes | Yes |
| <i>Year dummies</i> | Yes | Yes | Yes | Yes |

Notes: Robust standard errors, clustered on the individual level, are given in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A 4. List of artisan trades

| | | | |
|--------------|--------------------------|----------------------|-------------------|
| Baker | Plasterer | Turner | Photographer |
| Shipwright | Carpenter | Toymaker | Porcelain painter |
| Roofer | Cabinetmaker | Weaver | Saddler |
| Butcher | Musical instrument maker | Potter | Metal caster |
| Hairdresser | Brewer | Clockmaker | Bellmaker |
| Confectioner | Bookbinder | Engraver | Miller |
| Painter | Lacquerer | Silversmith | Upholsterer |
| Bricklayer | Stonemason | Goldsmith | Sailmaker |
| Rope maker | Printer | Mosaic Layer | Embroiderer |
| Stone setter | Tailor | Tiler | Basketmaker |
| Winemaker | Furrier | Grinder and polisher | Stone carver |
| Wood-carver | Maltster | Joiner | |

Notes: For a list of occupations for the entire craft sample, see Runst et al. (2019) and Runst & Wyrwich (2022).

Table A 5. OLS regression results (dep. var. self-employed, artisan craftspeople only)

| | (1) Full Sample | (2) | Test for the differ- ence of coeffi- cients | (3) Less than 10 employees | (4) | Test for the differ- ence of coeffi- cients |
|-------------------------|------------------------|-----------------------|---|-------------------------------|------------------------|---|
| | Non-Crafts | Crafts | | Non-Crafts | Crafts | |
| Extraversion | 0,0129*** (0,0012) | 0,0509*** (0,0112) | *** | 0,0080*** (0,0017) | 0,0506** (0,0212) | ** |
| Conscientiousness | -0,0042*** (0,0013) | 0,0183 (0,0124) | * | -0,0032* (0,0019) | 0,0425* (0,0231) | ** |
| Emotional stability | -0,0045*** (0,0013) | -0,0280** (0,0118) | * | -0,0041** (0,0019) | -0,0265 (0,0233) | |
| Openness | 0,0217*** (0,0014) | -0,0032 (0,0134) | * | 0,0234*** (0,0020) | 0,0171 (0,0256) | |
| Agreeableness | 0,0020 (0,0013) | -0,0303** (0,0128) | ** | 0,0015 (0,0020) | -0,0009 (0,0247) | |
| Risk tolerance | 0,0112*** (0,0004) | 0,0044 (0,0041) | | 0,0085*** (0,0006) | 0,0057 (0,0078) | |
| Locus of control | 0,0162*** (0,0011) | 0,0391*** (0,0107) | ** | 0,0120*** (0,0017) | 0,0522** (0,0211) | ** |
| Age | 0,0110*** (0,0008) | 0,0465*** (0,0077) | | 0,0067*** (0,0013) | 0,0402** (0,0159) | |
| Age squared | -0,0001*** (0,0000) | - (0,0001) | | -0,0000*** (0,0000) | -0,0003 (0,0002) | |
| University | 0,0355*** (0,0025) | 0,1730*** (0,0485) | | 0,0274*** (0,0036) | 0,1319 (0,0868) | |
| Vocational training | -0,0166*** (0,0023) | 0,0321 (0,0328) | | -0,0167*** (0,0034) | 0,0721 (0,0560) | |
| Full-time work | 0,0332*** (0,0032) | 0,1312*** (0,0455) | | 0,0011 (0,0048) | 0,1262 (0,0883) | |
| Part-time work | -0,0184*** (0,0032) | -0,0232 (0,0480) | | -0,0295*** (0,0047) | -0,0309 (0,0950) | |
| Female | -0,0124*** (0,0021) | 0,0328 (0,0252) | | -0,0050 (0,0032) | -0,0356 (0,0470) | |
| Unemployed (Lag) | -0,0351*** (0,0031) | 0,0161 (0,0342) | | -0,0435*** (0,0048) | -0,0280 (0,0834) | |
| Foreigner | -0,0000 (0,0034) | 0,0122 (0,0339) | | 0,0041 (0,0047) | 0,0888 (0,0560) | |
| Experience work | -0,0007*** (0,0001) | -0,0046** (0,0020) | | -0,0004* (0,0002) | -0,0119*** (0,0041) | |
| Experience unemployment | 0,0005 (0,0004) | -0,0076 (0,0048) | | 0,0000 (0,0005) | -0,0170** (0,0078) | |
| Highschool | 0,0431*** (0,0024) | 0,3232*** (0,0454) | | 0,0401*** (0,0035) | 0,3134*** (0,0762) | |
| Disability | -0,0004*** (0,0001) | -0,0001 (0,0008) | | -0,0004*** (0,0001) | 0,0008 (0,0016) | |
| Father self-employed | 0,0416*** (0,0031) | 0,0999*** (0,0270) | | 0,0277*** (0,0044) | 0,0825 (0,0506) | |
| Capital Income | 0,1083*** (0,0044) | 0,9094*** (0,1284) | | 0,0598*** (0,0061) | 1,6796*** (0,3696) | |
| Constant | -0,2565*** (0,0178) | - (0,1733) | | -0,1510*** (0,0279) | -1,1044*** (0,3550) | |
| <i>N</i> | 98183 | 13376 | | 40308 | 6260 | |
| <i>Region dummies</i> | Yes | Yes | | Yes | Yes | |
| <i>Year dummies</i> | Yes | Yes | | Yes | Yes | |

Notes: Robust standard errors, clustered on the individual level, are given in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$