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Individual Determinants of Self-Employment Entry – What Do We Really Know?

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Abstract:

The analysis of the decision to enter into self-employment is a hot topic in economic literature. Among the elements that most directly influence this decision, individual factors are central. This study produces a comprehensive survey of the impact of these factors, covering both the theoretical arguments and the main conclusions emerging from the empirical studies. We analyze twelve critical determinant factors of the entry into self-employment grouped into seven categories: (i) basic individual characteristics (gender, age, and marital status and children); (ii) family background (parents and spouse); (iii) personality characteristics (risk attitude and other psychological traits); (iv) human capital (education and experience); (v) health condition; (vi) nationality and ethnicity; and (vii) access to financial resources.

While for some of the factors solid conclusions can be found, for others additional research is still needed in order to shed further light on their influence.

JEL Codes: J21, J22.

Key words: self-employment, survey, individual determinant factors.

1. Introduction

In recent decades, self-employment has been considered as a central issue concerning labor market choices. In fact, self-employment is not only an interesting solution for individuals who have few opportunities in the wage sector or earn less than others with similar observable characteristics but also an opportunity for the more dynamic individuals who seek a different career path. The evidence reveals that this option is followed by a significant number of workers. According to the most recent data available (OECD, 2013), self-employment rates are 16.6% for EU27 and 16.1% for OECD, for example. Data for individual countries nevertheless show considerable disparity (USA: 7.1%; Canada: 9.0%; France: 9.2%; Australia: 11.6%; Germany: 11.6%; Japan: 11.9%; UK: 13.9%; Chile: 26.6%; Korea: 28.3%; Mexico: 33.7%; Greece: 36.3%; Turkey: 38.3%).

The complex nature of self-employment poses considerable challenges for the design of economic policy measures, requiring a clear understanding of the mechanisms behind the entry into self-employment. Such knowledge is a critical pre-requisite to allow the correct definition of a coherent set of measures aiming to induce and support the transition to a self-employed condition while simultaneously assuring an efficient allocation of public resources.

Researchers must therefore clarify the conditions that motivate self-employment. By now, it is fair to say that they are making their part to accomplish the task. Recent years have seen the fast growth of a vast body of research on this issue. From an academic perspective, the interest in this topic is visible through the large number of studies produced on this theme and through their scientific impact and the quality of the journals where they are being published. A mere Google Scholar search indicates that some of the now classic contributions to this literature (such as Evans and Leighton (1989a), Evans and Jovanovic (1989), and Blanchflower and Oswald (1998), just to mention a few examples) are highly-cited studies, with around 2000 citations. Moreover, many other more recent theoretical and empirical studies are also influential works, obtaining hundreds of citations.

From a standard economic perspective, the transition to self-employment should occur when the utility derived from a self-employment situation exceeds the utility associated with the best employment option (Douglas and Shepherd, 2002). These utility levels are

a function of the monetary and non-monetary rewards obtained, i.e., the whole group of facets that characterize the quality of the job (Crespo et al., 2013). However, as the literature makes clear, this is conditional on a vast array of determinant factors.

In this study, we aim to produce an updated survey regarding the individual-level determinants of the entry into self-employment. This goal therefore implies three choices. First, we put an important emphasis on recent literature in order to clarify the ways that are currently followed that help to shed light on some puzzling debates and evidence. Second, by focusing exclusively on the individual determinants, we can analyze in a more comprehensive way the mechanisms that operate in each factor while also discussing the evidence available. Third, we concentrate our analysis on the transitions toward self-employment, not covering other important but distinct aspects such as success and exit.

The remainder of the paper is organized in nine sections. In the first seven, we analyze each group of determinants, namely: basic individual characteristics (section 2); family background (section 3); personality characteristics (section 4); human capital (section 5); health condition (section 6); nationality and ethnicity (section 7); and access to financial resources (section 8). Section 9 summarizes the contents of the previous sections while section 10 presents some final remarks.

2. Basic Individual Characteristics

2.1 Gender

From the vast group of empirical studies analyzing the link between gender and self-employment entry, it emerges as central result that women have a lower propensity to enter into self-employment than do men (e.g., Blanchflower, 2000; Wang and Wong, 2004; Parker and Robson, 2004; Moog and Backes-Gellner, 2009; Leoni and Falk, 2010; Tervo and Haapanen, 2010; Baumann and Brändle, 2012; Stefanović and Stošić, 2012; Verheul et al., 2012; Fritsch and Sorgner, 2013; Klyver et al., 2013; Koellinger et al., 2013). The study by Co et al. (2005) is an exception to this dominant result. Additionally, there is support for two other findings: (i) female self-employment rates have been increasing over time (Evans and Leighton, 1989b; Devine, 1994a; Caputo and Dolinsky, 1998; Fairlie, 2004a; Koellinger et al., 2013); and (ii) female self-

employment activities have different contours than those carried out by males (Georgellis and Wall, 2005).

From a theoretical perspective, several mechanisms are at work. First, a well established fact points out that women are more risk averse than men (Sexton and Bowman-Upton, 1990; Verheul and Thurik, 2001; Croson and Gneezy, 2009; Parker, 2009; Dohmen et al., 2011). Thus, women are less prone to move toward self-employment and, when this occurs, to adopt more careful strategies regarding the amount of capital invested and the occupations chosen (Stefanović and Stošić, 2012).

Second, women and men are predominantly engaged in different sectors, with an overrepresentation of females in the service and trade sector (Devine, 1994b; Bates, 1995; Hundley, 2001; Müller and Arum, 2004; Vejsiu, 2011). Since these sectors offer fewer possibilities of developing a career as self-employed, the propensity of women to follow this employment pathway is lower. One possible explanation for this occupational segregation by gender derives from significant differences in the fields of study they choose. Charles and Bradley (2002, p. 580) show that there is “female underrepresentation in engineering, math/computer science (and to a lesser degree, natural science); female overrepresentation in education, humanities, and health fields (...)”.

A third argument supporting differences along a gender line concerns different levels of job satisfaction in paid employment jobs. According to the *theory of class mobility*, individuals with lower levels of job satisfaction regarding the distinct components of their jobs in the wage sector but high enough levels of human, social, and financial capital are more likely to switch to self-employment, seeking to improve their current situation (Budig, 2006). Clark (1997) shows that although women have on average worse jobs than men, they report higher levels of job satisfaction, which can probably be explained by their lower expectations.

The *theories of discrimination* offer a fourth rationale of analysis pointing in this case to a positive gap favorable to women. Differences might arise due to employers’ behaviors that reduce women’s opportunities for wage employment, thereby pushing them into self-employment as an escape strategy (Rosti and Chelli, 2005; Williams, 2012).

As documented by Carter and Shaw (2006), women are less likely to seek external finance and depend more heavily on their own resources. Considering that financial resources are frequently a pre-requisite to self-employment, this is usually seen as a

barrier to entry. Explanations for this gender gap might be associated with either discrimination against women or with different borrowing behaviors (Sena et al., 2012). Another element of gender differentiation is related to social capital. Men's social networks are more diversified and include more powerful and work-centered contacts (Campbell, 1988; Koellinger et al., 2013). The disadvantage of women in this regard can be explained on the following grounds: (i) due to family responsibilities, women have less time to invest in networking, and their contacts are based essentially on family and friends; and (ii) since women have lower-status jobs, their work-related contacts are less powerful. Given the importance of social capital, this represents an additional factor explaining the lower propensity of women toward self-employment (Moog and Backes-Gellner, 2009).

Finally, it is important to note that motivations to entry into self-employment differ considerably between genders (Biehl et al., 2013). While men are mainly driven by higher potential returns, women aim essentially for flexibility in working hours and effort, thus allowing a better work-life balance (Carr, 1996; Edwards and Field-Hendrey, 2002; Wellington, 2006; Gurley-Calvez et al., 2009; Vejsiu, 2011).

2.2 Age

Considering age as an explanatory factor of self-employment entry, the theoretical literature has underscored several arguments supporting two main ideas: (i) a positive influence of age; and (ii) the existence of a threshold above which the impact of this variable is reversed. From the combination of these aspects emerges an inverse U-shaped relationship between age and self-employment.

We may highlight three reasons justifying why older individuals are more likely to be self-employed. First, older people have on average a larger amount of several key resources that facilitate the transition to self-employment. Namely, they have accumulated more general and specific human capital (Calvo and Wellisz, 1980), financial capital (Van Praag and Van Ophem, 1995; Cahill et al., 2013), and social capital, including a more diversified and dense network of contacts. On the other hand, age is positively correlated with a stronger desire for more flexible employment situations. This may arise due to the wish for a partial reform or a limiting health status that precludes the possibility to have a full-time job (Karoly and Zissimopoulos, 2004;

Cahill et al., 2013). A third line of reasoning focuses on self-employment as a job alternative for individuals who want to avoid mandatory retirement, postponing the age at which they leave the labor market (Giandrea et al., 2008; Kerr and Armstrong-Stassen, 2011; Solinge, 2012). This is consistent with the evidence by Cahill et al. (2006, 2013), according to which a relevant part of older individuals move to some form of “bridge employment” between their main career employment and the final labor force withdrawal.

In turn, some other important arguments identify a negative influence of age on self-employment entry above a given threshold. These include: higher risk aversion levels, lower physical and mental availability for long workweeks and stress situations that are usually associated with some self-employment activities, and less time to recover the initial investment made at the entry into self-employment (Hintermaier and Steinberger, 2005).

At the empirical level, studies aiming to test the non-linear impact of this variable include age and age squared in their econometric models. These exercises have consistently provided a solid confirmation of the predicted relationship (e.g., Fairlie, 1999; Dunn and Holtz-Eakin, 2000; Blanchflower, 2004; Falk and Leoni, 2009; Andersson and Hammarstedt, 2010a; Brown et al., 2011a; Caliendo et al., 2011; Baumann and Brändle, 2012; Fritsch and Sorgner, 2013).

Despite this general tendency, Evans and Leighton (1989a) find no significant influence of age on entry into self-employment. More recently, using data for Hungary in the mid-1990s, Co et al. (2005) reach a similar result, which the authors associate with the specific conditions of a transition economy. In turn, analyzing data from 13 European countries, Cowling (2000) finds mixed evidence. In eight cases, a positive impact of age is detected, but not in the remaining countries.

2.3 Marital status and children

The actual state of research provides strong support for the belief that marital status influences labor market outcomes (Verbakel and de Graaf, 2008, 2009). Regarding the case of self-employment, several arguments can be examined (Parker, 2009; Özcan, 2011). First, if an individual is married, the wealth of the potential self-employed increases. This fact not only directly increases the probability of transition to self-

employment (Budig, 2006), but also assures that if financial difficulties arise, that wealth will allow the activity to survive for a longer period. Second, the spouse may participate in the business, being a worker that more probably pursues the best interest of the business (Borjas, 1986). Third, spouses are a/the critical source of emotional support, which may become crucial given the strong demands faced by the self-employment worker (Bosma et al., 2004).

A less unequivocal theoretical prediction emerges from the *specialization hypothesis of the neoclassical theory of family* (Becker, 1991). According to this perspective, spouses maximize the joint utility by specializing, as a function of their individual productivity, in either domestic work or market work. Since job experience is critical to improve performance, this theoretical framework implies that marriage impacts negatively on one of the spouse's labor market outcome (the one who specializes in domestic work) while the opposite occurs for the other (the one specialized in market work). All this generic discussion remains valid for the specific case of self-employment, implying that one of the spouses increases his/her probability to transit to self-employment after marriage.

The well-known fact that a disproportionately high share of domestic work and childcare is assumed by women allows us to expect a positive impact of marriage on the likelihood of self-employment for men while the opposite occurs for women. A nuance in this prediction emerges from the heterogeneity of self-employment situations. For example, women may choose self-employment as a strategy to work part-time in order to conciliate household responsibilities and market work.

An interesting contribution to this research field was recently advanced by Özcan (2011). Based on evidence suggesting profound social and demographic transformations in the last decades regarding, for instance, marital instability, increase of cohabitation, delay in the age at marriage, or the higher female participation in the labor force (Stevenson and Wolfers, 2007; Lundberg and Pollak, 2013; Teachman et al., 2013), the author criticized the traditional approach which captures marital status through a dummy variable with value 1 if the individual is married and 0 otherwise. According to him, to assume that singlehood, cohabitation, being divorced, or widowed are equal to non-married is problematic since several features may differ among some of these states (e.g., degree of specialization within the household, networks, or non-financial resources).

The (positive) influence of this determinant has been predominantly identified in the literature (although, comparing to other factors, the number of studies that center their analysis on the influence of marital status on self-employment is not so large). Examples of this evidence include, for instance, Taylor (1996), Lin et al. (2000), Taniguchi (2002), Karoly and Zissimopoulos (2004), Pisani and Pagán (2004), Brown et al. (2011a), Özcan (2011), and Poschke (2013). The study by Cowling (2000) is an important exception to this global picture, finding that for the majority of the 13 countries analyzed, being married does not have a positive impact on the probability of transition to self-employment.

In addition to marital status, the existence of children is usually also considered to provide a better picture about how family composition affects the likelihood of self-employment. Let us start by exploring the two rationales that suggest a negative impact of children on this likelihood. First, the time and resources that parents need to dedicate to the child-rearing process might be difficult to conciliate with a self-employment choice, which in many cases is found to be more demanding than wage-sector jobs (Fairchild, 2009). Second, more family responsibilities might increase the parents' degree of risk aversion.

Turning now to the reasons for a positive impact, as already discussed in the case of gender differences, self-employment is often associated with more independence and flexibility in managing working time, which can be perceived as an advantage in the presence of children. In addition, having children increases the parents' concerns with financial issues and introduces an additional motivation for seeking activities that bring higher expected returns such as self-employment (Dawson et al., 2013). Finally, teenage children might help in the family business (Georgellis and Wall, 2005).

Among empirical studies that assess this question, a positive correlation between children and the probability of being self-employed is predominant (Gill, 1988; Fairlie and Meyer, 1996; Blanchflower, 2000; Burke et al., 2002; Baumann and Brändle, 2012; Dawson et al., 2013). Contrary to these findings, the results of Sena et al. (2012) suggest a negative impact of children on the transitions to self-employment, while Georgellis and Wall (2005) and Demirgüç-Kunt et al. (2009), using data for Germany and Colombia, respectively, obtain a non-significant effect.

3. Family background

Beyond basic individual characteristics, the propensity to self-employment is also a function of family background (Hout and Rosen, 2000; Chlosta et al., 2012). The impact has been analyzed at different levels, with special focus on the influence of parents and, to a lesser extent, of spouse. It is important to clarify, however, that while in Section 2.3 the discussion was centered on marital status, in this section the question under analysis is the influence of having a self-employed spouse on the individual decision to follow the same option.

3.1 Parents

The influence of parents is a highly studied topic on self-employment research. Emerging from this literature, most studies (e.g., Sanders and Nee, 1996; Fairlie, 1999; Dunn and Holtz-Eakin, 2000; Drennan et al., 2005; Hundley, 2006; Kirkwood, 2007; Barnir and McLaughlin, 2011; Eren and Sula, 2012; Fritsch and Sorgner, 2013) suggest that having a parent with self-employment experience is one of the most important predictors, with a positive influence, of the decision to follow the same career pathway (Le, 1999). The impact of parents can occur through four main channels: (i) transference of general human capital, i.e., managerial skills, knowledge, values, and attitudes needed to perform well as self-employed (Hundley, 2006; Barnir and McLaughlin, 2011); (ii) transference of specific human capital, namely knowledge about parental occupations/businesses and contacts (Kim et al., 2006; White et al., 2007); (iii) financial conditions, i.e., access to wealth or income, which may, on the one hand, improve the resources available to the potential self-employed, minimizing capital market constraints and, on the other hand, act as a safety net in case of unexpected adverse business conditions (Sanders and Nee, 1996; Hundley, 2006); and (iv) exposure to parental role models (Bandura, 1986), increasing children's predisposition toward self-employment. As stated by Chlosta et al. (2012, p. 121), "growing up in an entrepreneurial family offers the opportunity to learn from the self-employed parent (...) getting a realistic job preview of self-employment".

Empirical literature does not provide, however, a consensual answer to the question of which of these mechanisms predominate. Using data for France, Colombier and Masclet (2008) analyze the reasons for intergenerational correlation in self-employment, and show that individuals tend to enter into self-employment occupations that are the same, or very similar, to those of their parents, which is consistent with the transmission of

specific knowledge and capabilities. Dunn and Holtz-Eakin (2000) highlight the importance of the human capital channels and, on a lower scale, the financial resources mechanism. Lastly, the importance of the role model effect is confirmed by several empirical works, including, for instance, Wang and Wong (2004), Carr and Sequeira (2007), and Chlosta et al. (2012). This last study provides an interesting additional insight by distinguishing between paternal and maternal self-employed role models. The evidence obtained reveals that parental, paternal, and maternal role models exhibit important and similar effects. In a recent contribution, Dohmen et al. (2012) add that risk and trust attitudes are positively correlated between parents and children, giving support to a process of intergenerational transmission.

The validity of this intergenerational link is also studied, using a different perspective, by Andersson and Hammarstedt (2010a). Based on data for male natives and immigrants in Sweden, the study considers the intergenerational transmission of self-employment between three generations, concluding that having a self-employed parent positively influences the propensity to self-employment for the third generation individuals. In turn, the self-employment experience of grand-parents has a positive effect in the case of immigrants but does not seem to be an important factor for natives.

3.2 Spouse

Another important result concerning the influence of family background is the existence of a positive correlation across spouses regarding the propensity to choose self-employment (Parker, 2008). Three main reasons can be advanced. First, the existence of a phenomenon of *positive assortative mating*, i.e., that individuals tend to match with others with similar characteristics, such as education, age, and labor market pathways (Andersson and Hammarstedt, 2010b). A second argument concerns the *financial or human capital theory* (Caputo and Dolinsky, 1998), according to which the benefits from sharing skills, knowledge, network of contacts, and financial resources already discussed in the case of parents can also occur between spouses. Third, as emphasized by the *family business theory*, when one spouse is in self-employment there is the possibility of the other joining the spouse's business (Lin et al., 2000).

With these theoretical considerations in mind, let us now shift our attention to the empirical analysis, in search of its main lessons. Bruce (1999) analyzes the impact of a husband self-employment experience on the probability of the wife becoming self-

employed and finds support for the three arguments presented above. Other studies focus separately on each theoretical argument. The first – the *positive assortative mating* – is confirmed by Brown et al. (2006), Andersson and Hammarstedt (2010b), and Dohmen et al. (2012), respectively for the UK, Sweden, and Germany. In turn, Parker (2008) concludes that the second mechanism discussed above is the most important in the case of the USA, and Lin et al. (2000), analyzing the Canadian case, obtain evidence consistent with the *family business theory*.

Despite these theoretical arguments and their empirical confirmation, we can also consider an argument pointing to an opposite prediction. The *risk diversification explanation* suggests that self-employed workers usually face high levels of financial uncertainty and, therefore, couples may wish to diversify risk through the combination of different types of employment (Parker, 2008).

As a final remark, it is important to stress that some studies shift the spotlight away from parents and spouse to friends, colleagues, and neighbors, suggesting that this influence may also matter (Djankov et al., 2006; Stuart and Ding, 2006; Lafuente et al., 2007), namely through the role model channel (for a discussion, see Bosma et al., 2012).

4. Personality characteristics

4.1 Risk attitude

In their seminal work, taking a theoretical point of view, Kihlstrom and Laffont (1979) abandon the homogeneity assumption regarding the attitude toward risk and conclude that the probability of entry into self-employment is greater for individuals with lower levels of risk aversion.

Using psychometric data for Finland, Ekelund et al. (2005) confirm that risk aversion has a negative effect on the choice to become self-employed. In a similar vein, using a sample of young males, Ahn (2010) concludes that risk tolerance has an important role in explaining the decisions to enter into self-employment. Several other studies address this topic, reaching similar conclusions. In fact, more than case-specific evidence, this result is a robust conclusion emerging from a wide array of empirical studies, including, for instance, Cramer et al. (2002) or, more recently, Colombier et al. (2008), Macko and

Tyszka (2009), Wang et al. (2010), Brown et al. (2011b), and Fritsch and Sorgner (2013).

An additional contribution is provided by Caliendo et al. (2009). Beyond confirming that, in general terms, individuals less averse to risk have a greater propensity to become self-employed, they verify that this holds true only in the case of wage earners. On the contrary, for individuals who were previously unemployed or inactive, this variable does not impact, thus indicating that “other variables (than the risk attitude) induce the nonworking population to make this occupational choice” (Caliendo et al., 2009, p. 163).

The key aspect to keep in mind is therefore that individual perceptions about risk have a direct effect on the evaluation of whether the higher average expected income compensates the higher level of risk associated with this type of employment situation, expressed in a greater variance of earnings (Rees and Shah, 1986; Åstebro and Chen, 2013). To sum up, the incentive that a person has to become self-employed increases with his/her tolerance to risk (Douglas and Shepherd, 2002).

4.2 Other psychological traits

In addition to risk attitude, several other psychological factors may also critically influence the entry into self-employment (Rauch and Frese, 2007). The most studied personality traits include (among others) over-confidence (Camerer and Lovallo, 1999; Bengtsson et al., 2005; Macko and Tyszka, 2009; Koellinger et al., 2007, 2013), need for achievement (McClelland, 1961; Rauch and Frese, 2007), need for autonomy (Brandstätter, 1997; Croson and Minniti, 2012), self-efficacy (Boyd and Vozikis, 1994; Chen et al., 1998; Casson, 2003; Zhao et al., 2005; Rauch and Frese, 2007; Solinge, 2012), internal locus of control (Rotter, 1966; Caird, 1991; Eren and Sula, 2012), assertiveness (Brandstätter, 1997; Caliendo and Kritikos, 2008), independence (Caird, 1991; Rauch and Frese, 2007), narcissism (Mathieu and St-Jean, 2013), and taste for variety (Åstebro and Thompson, 2011; Sorgner and Fritsch, 2013). Important enough, the abundant evidence on these topics reveals high concordance, pointing to the validation of their importance (Brandstätter, 2011).

Although there is no consensus on the specific dimensions that typify the most relevant factors, a fundamental and broader approach at this level is the Five-Factor model. This

model, developed by Costa and McCrae (1992), provides a useful framework to explore the relationship between personality traits and the propensity for self-employment, considering the following dimensions: (i) extraversion; (ii) openness to experience; (iii) agreeableness; (iv) conscientiousness; and (v) emotional stability. Zhao and Seibert (2006) provide a survey on this issue while Barrick and Mount (2005) and Dudley et al. (2006) present a critical perspective of this approach.

In line with the evidence obtained by Schmitt-Rodermund (2004) and Obschonka et al. (2010), Fritsch and Rusakova (2010) verify that individuals with a stronger entrepreneurial personality exhibit high scores with respect to (i), (ii), and (iv), and lower values in the other dimensions. Florida (2004) suggests that individuals with personality traits more coherent with self-employment tend to opt for a profession or sector in which it is more abundant or usual. Apart from the qualitative importance of the factors identified in this model, their quantitative importance is also noteworthy. Using data for Germany, Caliendo et al. (2011) find that these factors have an explanatory power comparable only with education. Although this last result is specific to the case under analysis, requiring therefore special care in its generalization, the vast amount of study on this question allows us to safely accept the importance of the psychological factors to an adequate understanding of the transitions into self-employment, making it a phenomenon that needs an effective multidisciplinary approach.

5. Human capital

5.1 Education

The influence of education on self-employment is far from conclusive. In the theoretical sphere, several opposing arguments can be called into the discussion. Individuals with higher educational levels: (i) have better job opportunities in the wage sector (Van der Sluis et al., 2008; Brown et al., 2011a); (ii) are, on average, more able to identify self-employment opportunities; and (iii) might have greater managerial ability, a critical precondition to succeed in self-employment occupations (Lucas, 1978; Calvo and Wellisz, 1980).

The empirical results replicate the theoretical ambiguity (Brown et al., 2011a). While several studies suggest a positive impact of education (e.g., Bates, 1995; Rees and Shah,

1986; Borjas and Bronars, 1989; Kim et al., 2006; Vinogradov and Kolvereid, 2007; Zissimopoulos et al., 2009; Dawson et al., 2013), evidence supporting the opposite conclusion can also be found (Kidd, 1993). Additionally, in a survey of the empirical literature on this specific subject, Van der Sluis et al. (2008) conclude that the influence of education on the transition to self-employment is insignificant. The same result is obtained by Lin et al. (2000) and Pisani and Pagán (2004). In turn, Blanchflower (2004) detects a positive impact of education in the case of USA but the opposite occurs in Europe.

How can we rationalize these contradictory perspectives and results? A promising avenue emerges from some recent empirical research - consolidated by the theoretical framework provided by Poschke (2013) - according to which there is a U-shaped relationship between education and self-employment entry (Blanchflower, 2000; Ohyama, 2008; Mandelman and Montes-Rojas, 2009; Åstebro et al., 2011; Poschke, 2013). Two main reasons offer a justification for this (Joonas and Wadensjö, 2013). First, the individuals have distinct motivations to move to self-employment. While those at the bottom of the ability distribution (measured through education) more probably transit to self-employment due to necessity reasons as, for example, the risk of job loss (Von Greiff, 2009), more educated individuals are more inclined to take advantage of an opportunity emerging in the market (Bosma and Harding, 2007). Second, the impact of education can be obscured when the differences across industries (Bates, 1995) or fields of study (Falk and Leoni, 2009) are not taken into account.

5.2 Experience

As emphasized by Jovanovic (1982), individuals learn from previous experiences, making experience a critical component of human capital. Research is almost consensual in finding a positive impact of this factor on the entry into self-employment (Evans and Leighton, 1989a; Pisani and Pagán, 2004; Georgellis et al., 2005b; Poschke, 2012; Eliasson and Westlund, 2013).

Over their career, individuals might accumulate three different types of experience, which create better conditions to foster the ability to run one's own business: (i) managerial experience, i.e., a set of skills that is critical to make decisions regarding day-to-day operations and to define the long-term strategy of the firm (Shane, 2003); (ii) industry-specific experience, i.e., with time spent working in a specific sector,

individuals are better able to identify business opportunities, possess a richer network of contacts in terms of suppliers and clients, know how to find and select better workers, have better chances to obtain external funding, and strengthen their reputation among relevant stakeholders (Kim et al., 2006); and (iii) previous self-employment experience, which promotes higher confidence levels, leading the individual to believe that he/she has the capacity to identify and succeed when good opportunities arise (Shane, 2003).

Nevertheless, there is also an argument pointing in the opposite direction. Individuals with more experience are likelier to have jobs with longer tenure, which allow them to accumulate more job-specific and firm-specific human capital. These assets afford monetary and non-monetary returns that are lost if the person accepts a job elsewhere or switches to self-employment (Georgellis et al., 2005a).

In an influential study, Lazear (2005) develops a model of choice between paid employment and self-employment, showing that the probability of transition to self-employment positively depends on the diversity of experience (*jack-of-all-trades hypothesis*). The main argument supporting this idea is that a background in a vast number of different roles enhances the skills and the capacity to perform well as self-employed while the same is not necessary in the case of paid employment, in which it is specialization that is required and rewarded (Wagner, 2006). There is, by now, a dynamic field of research aiming to validate this theory, which is done, for instance, by Wagner (2006), Djankov et al. (2006) Åstebro and Thompson (2011), and Stuetzer et al. (2013).¹

As a last remark, it is important to stress another angle of analysis that jointly considers the two types of human capital presented in this section (education and experience). This perspective focuses on the gap between current and expected job (predominantly concerning earning levels). Individuals tend to evaluate the current job against their expectations, which usually depend on the human capital resources accumulated over time and on the conditions offered to others with similar characteristics. Joonas and Wadensjö (2013) report evidence suggesting that both positive and negative differentials increase self-employment propensity. Additionally, other studies focus on educational mismatch, i.e., the discrepancy between the skills obtained in formal education and those actually used in the current job. In a recent study, Bell (2013) finds that mismatched individuals not only receive lower salaries but also exhibit lower levels of job satisfaction, since they probably feel that their skills and capacities are not being

¹ For a methodological discussion see Silva (2007).

used to their full potential. The author concludes therefore that this situation induces the transition to self-employment.

6. Health condition

The evidence regarding the impact of health condition on the transition to self-employment is not conclusive. While some studies find a positive association between poor health (illness and disability) and the self-employment option (Borjas, 1986; Karoly and Zissimopoulos, 2004; Zissimopoulos and Karoly, 2007; Pagán, 2009; Jones and Latreille, 2011), there is also evidence pointing in the opposite direction (Rees and Shah, 1986; Parker and Rougier, 2007). In turn, in a seminal study, Fuchs (1982) finds that health condition does not influence the probability of transition to self-employment. This evidence is not surprising since there are contradictory theoretical arguments on this issue. The preference for self-employment can be related as noted, for example, by Pagán (2009) with the additional flexibility associated with this labor market condition, allowing a better adjustment between illness/disability condition and work concerning duties, hours, and location (Jones and Latreille, 2011). The low opportunity cost derived from the few existing employment opportunities for some of these individuals, due to employer discrimination, makes self-employment an attractive solution. Additionally, Garcia and Quintana-Domeque (2006) detect the existence of favorable (albeit weak) evidence for the fact that obese workers tend to be more segregated and are, as a consequence, pushed toward self-employment.

However, individuals in situations of illness or disability may see their ability to move to an independent activity diminished since the development of this type of activity usually implies higher levels of stress and working hours (Rees and Shah, 1986; Gorgievski et al., 2010). The decision regarding transition to self-employment of individuals with poor health may also be conditioned by the fact that the benefits offered by the social security systems are usually more limited for the self-employed than for employees.

7. Nationality and Ethnicity

The above-average propensity of immigrants to opt by a self-employment career path is a widely accepted and studied fact. In this regard, considerable research has contributed to a better understanding of two questions: (i) why natives and immigrants have different propensities to self-employment (Borjas, 1986; Fairlie and Meyer, 1996; Bates, 1997; Clark and Drinkwater, 2000, 2010; Constant and Zimmermann, 2006; Blume et al., 2009; Andersson and Hammarstedt, 2011; Fritsch et al., 2012); and (ii) why self-employment rates differ among different groups of immigrants (Borjas and Bronars, 1989; Fairlie and Meyer, 2000; Levie, 2007; Vinogradov and Kolvereid, 2007; Clark and Drinkwater, 2010; Andersson et al., 2013; Oyelere and Belton, 2012; Lofstrom and Bates, 2013). Economists and sociologists have dedicated much effort to developing several research streams, which taken together offer a better comprehension of this complex and multifaceted relationship (for a general discussion, see Parker, 2009).

A pioneer contribution is the *middleman minority theory* (Bonacich, 1973). The middleman minorities are, at least in the initial phases, sojourners who do not have the intention of staying permanently in the host country (Zhou, 2004; Nestorowicz, 2012). This implies that they are focused on the future, being predisposed to assume sacrifices in terms of well-being and labor market position in the present in exchange for greater returns. To that end, sojourners tend to choose occupations (e.g., trade or some independent professions) that not only allow more rapid wealth accumulation, but also permit shorter periods of residence (Fairlie and Meyer, 1996).

Second, a critical approach to understand immigrant self-employment is the designated *discrimination hypothesis*. This set of ideas can be divided into three main streams: employer discrimination, credit market discrimination, and consumer discrimination. The first form of discrimination favors the transition of immigrants to self-employment while the opposite occurs in the other two cases. Employer discrimination involves fewer opportunities for immigrants in the labor market and the existence of barriers in the access to medium-high paid jobs (Moore, 1983; Clark and Drinkwater, 2000). Central in this context is the concept of blocked mobility (Metcalf et al., 1996; Mata and Pendakur, 1999; Rajjman and Tienda, 2000), which refers to the case where upward mobility is strongly limited, encouraging self-employment as an alternative strategy for immigrants.

In turn, credit market discrimination (i.e., lower loan approval rates and being able to borrow only small amounts of money at higher interest rates) is addressed in studies

such as Cavalluzzo et al. (2002), Blanchflower et al. (2003), Cavalluzzo and Wolken (2005), and Blanchard et al. (2008), with evidence suggesting discrimination along ethnic lines. Coate and Tennyson (1992) claim, however, that this discrimination results from initial labor market discrimination.

The idea of consumer discrimination, developed by Borjas and Bronars (1989), describes how majority groups discriminate against minority group members, creating a disincentive to their transition to self-employment. In the context of their theoretical model, majority consumers buy only from minority sellers if their prices are sufficiently lower than those established by majority sellers. Consequently, the return to productivity is inferior in the case of minority business owners. Therefore, the selection into self-employment is different across racial or ethnic groups.

Third, considerable attention has been dedicated to the *enclave hypothesis* (Wilson and Portes, 1980; Borjas, 1986; Evans, 1989; Boyd, 1991; Zhou, 1992). The growth of the immigrant population in certain geographical areas and the tendency to cluster into ethnic enclaves leads to the emergence of (large enough) markets characterized by preferences and needs that can be exploited with advantage by co-ethnics (Aldrich et al., 1985; Light and Rosenstein, 1995). In fact, immigrants not only have a better knowledge of the demand side but can also benefit from the possibility of recruiting co-ethnic immigrants paying below-market wages (Yuengert, 1995; Rodriguez, 2004; Blackburn and Ram, 2006; Ram et al., 2007). In addition, it is commonly argued that immigrants in these segregated areas have access to bonding social capital, i.e., a high-density network of the same ethnicity and socioeconomic status (Portes and Sensenbrenner, 1993). This aspect is important for self-employment immigrants because it promotes cooperation and reduces free riding problems (Sanders and Nee, 1987; Waldinger et al., 2006). Furthermore, as suggested by Boyd (1991), inner-city enclaves promote self-employment since the competition from natives is usually less intense, allowing lower initial and operating costs.

Fourth, immigrants often come from countries with a large self-employment tradition. This *home-country self-employment hypothesis* suggests that this previous experience constitutes a form of sector-specific human capital, facilitating the transition to a self-employment situation in the host country (Yuengert, 1995; Hammarstedt and Shukur, 2009).

Fifth, as suggested by Zhou (2004), immigrant self-employment is closely linked to group-specific cultural values, behavior patterns, social structures, resources, and

coping strategies. This is in line with the *cultural theory* proposed by Light (1972), according to which the sociocultural background is a key explanation for differences between groups regarding their propensity to self-employment.

Sixth, some authors have argued that immigrants are more likely to reveal values and attitudes that favor the transition to self-employment, such as a higher preference to risk, thrift, and willingness to work longer periods of time with lower salaries (McGrath et al., 1992; Portes and Sensenbrenner, 1993; Sowell, 1995).

Seventh, we must consider the *human capital theory*. However, this view does not provide a clear-cut prediction. A dominant perspective argues that home-country human capital is a push factor into self-employment (Friedberg, 2000; Bratsberg and Ragan, 2002; Zeng and Xie, 2004; Kanas et al., 2009). That occurs because this human capital: (i) reduces the opportunities in salaried employment; and (ii) creates better conditions for success in self-employment. Taking into account that many immigrants come from developing countries, it is reasonable to expect that they have important disadvantages *vis-à-vis* natives (lower quality education, less qualified work experience, and language proficiency difficulties). Additionally, the transferability of knowledge and experience of these individuals to the host-country is often not easy to accomplish. Finally, the uncertainty about the real value of this type of human capital creates obstacles to its full recognition, adding to other reasons that motivate employer discrimination, as discussed above. All these features contribute to restrict the opportunities in the wage-sector. Complementary, home-country human capital may be critical for self-employment (Sanders and Nee, 1996). For example, ethnic language skills facilitate access to ethnic resources and the interaction with co-ethnic employees, suppliers, and customers (Evans, 1989; Min and Bozorgmehr, 2000; Waldinger et al., 2006).

An opposite perspective can nevertheless be found in the literature. According to it the problems cited above are more critical to self-employed individuals because many immigrants are concentrated in low-skill jobs where these issues play a less vital role (Evans, 1989; Le, 2000). Further, several crucial aspects to succeed in self-employment are market-specific, making their transference across countries more difficult and therefore devaluing the home-country human capital for immigrant self-employment. If this line of reasoning is valid, the expectable outcome is that immigrants with more home-country specific human capital are less likely to be self-employed than salary employed (Kanas et al., 2009).

Using a different perspective, some studies devote their analysis to the influence of intergenerational factors, concluding that the likelihood of immigrants and ethnic minorities to be self-employed shows a decreasing tendency over successive generations (Perlmann and Waldinger, 1997; Fairlie, 2004b; Fairchild, 2010).

8. Access to Financial Resources

Economic literature has emphasized the existence of a positive relationship between household wealth and entry into self-employment (Evans and Jovanovic, 1989; Evans and Leighton, 1989a; Meyer, 1990). The importance of this relationship derives from two reasons, both related to the fact that some activities require a considerable initial investment: (i) own capital can be used to start a self-employment activity; and (ii) more wealth means more collateral which increases the likelihood of external funding. For a short discussion of this issue, see, for instance, Elston and Audretsch (2011). Kerr and Nanda (2011) provide a more comprehensive discussion.

Despite much empirical support for this argument (e.g., Johansson, 2000; Holtz-Eakin and Rosen, 2005; Demirgüç-Kunt et al., 2009; Zissimopoulos et al., 2009), an influential field of research alerts to a potential endogeneity problem in the standard analysis of this question. As stated by Disney and Gathergood (2009), the mere fact that self-employed households have greater financial assets before entering self-employment does not necessarily imply the existence of financial constraints, as admitted in the literature. For example, we may argue that lower risk aversion and higher financial sophistication make an individual richer and more willing to enter self-employment (Nykqvist, 2008).

Given the importance of this problem, a new strand of research has started to analyze the impact of financial windfalls on the probability of an individual becoming self-employed. This boasted a large number of empirical studies, with many nuances and specificities, far beyond the focus of this survey. Since the pioneer contribution by Holtz-Eakin et al. (1994), the logic behind the use of these financial windfalls resides in the fact that they can be seen as an exogenous shock in the household/individual wealth, thereby overcoming the endogeneity problem. If households that receive a financial windfall have a greater probability of moving into self-employment, then access to finance can be interpreted as a factor deterring entry into self-employment. Many alternative indicators are used to proxy these windfall gains, including lottery winnings

or other types of gambling prizes, gifts, inheritances, bonus from employment, personal accident claims, redundancy payments, life-insurance policies, pension cash-outs, or changes in housing wealth (Lindh and Ohlsson, 1996; Blanchflower and Oswald, 1998; Burke et al., 2000, 2002; Taylor, 2001; Henley, 2005; Disney and Gathergood, 2009; Fairlie and Krashinsky, 2012). Georgellis et al. (2005a) provide an overview of the empirical evidence regarding this issue.

Putting all the above evidence together, the message seems to be in favor of the effective existence of liquidity constraints.² However, Hurst and Lusardi (2004), in an important milestone in this research path, have put forward some arguments questioning the validity of this assessment. They verify a very weak relationship between household wealth and the subsequent movement toward a self-employed condition. Moreover, this relationship is only valid for the highest 5th percentile of the wealth distribution.

More recently some authors have questioned the results obtained by Hurst and Lusardi (2004), highlighting some methodological weaknesses of the study and returning to the idea of the existence of liquidity constraints. For instance, Fairlie and Krashinsky (2012) advocate separate evaluations for situations in which self-employment emerges as an opportunity and those in which it occurs by necessity. In a similar fashion, Zissimopoulos et al. (2009) argue that, as different age groups have different propensities to self-employment (in consequence of a vast group of argument lines; see Section 2.2), separate analysis is also needed in this case.

Finally, in an interesting study on this topic, Disney and Gathergood (2009) provide two additional inputs for the global evaluation of the relevance of this determinant factor on the probability of transition to self-employment. First, they consider a more disaggregated measure of unexplained house price movements, obtaining, in opposition to Hurst and Lusardi (2004), evidence suggesting the influence of that proxy of wealth on self-employment entry. Second, no evidence is found for the impact of other forms of windfall gains.

9. Taking stock

We have sought above to provide a systematic review of the impact of several individual factors on the probability of transition to self-employment. For each of the factors considered, we centered our evaluation on both the mechanisms through which

² Petrova (2012) focuses on part-time self-employed, concluding that they are not affected by financial constraints.

they influence this transition and on the evidence that predominantly emerges from the empirical studies conducted so far. Many arguments and counter-arguments were pointed out. Several distinct channels were mentioned. Frequently, contradictory or mixed evidence was presented. In the final stage of this survey one fundamental question emerges – what central messages can we retain? Table 1 produces a simple and short summary of the fundamental mechanisms that can be considered and the dominant evidence.

Table 1: Individual determinants of entry into self-employment – A summary

Variable	Theoretical links	Expected impact <i>The propensity to enter self-employment...</i>	Evidence
Gender	Men are: – Less risk averse – More engaged in sectors with higher self-employment rates – Less satisfied with their jobs – More prone to seek external finance – Less discriminated against in the credit market – More likely to have better networks of contacts – Driven by higher potential returns	Is higher for men than for women	✓
	Women have: – Higher likelihood of suffering employer discrimination – More desire for flexibility	Is higher for women than for men	
Age	Older individuals have: – More human, financial, and social capital – Additional desire for flexibility – Desire to avoid mandatory reforms	Increases with age	✓
	Older individuals have: – Higher risk aversion – Lower physical and mental availability – Less time to recover the initial investment	Decreases after a given threshold	✓
Marital status	Married individuals have: – Additional wealth – The possibility to work together – Stronger emotional support	Is higher for married individuals	✓
Children	Childless individuals have: – More time due to fewer family responsibilities – Lower risk aversion	Is higher for individuals without children	
	Individuals with children have: – More desire for flexibility – Increased drive for financial earnings – More help from teenage children in the business	Is higher for individuals with children	✓

Table 1: Individual determinants of entry into self-employment – A summary (cont.)

Variable	Theoretical links	Expected impact <i>The propensity to enter self-employment...</i>	Evidence
Family background - Parents	Parents with self-employment history may: – Provide access to key resources (human and financial capital) – Influence children through their role model	Is higher for individuals with at least one of the parents with self-employment experience	✓
Family background - Spouse	Individuals with a self-employed spouse have: – A higher probability of sharing the spouse’s preference for self-employment – Access to more resources – The possibility to join the spouse’s activity	Is higher for individuals with a self-employed spouse	✓
	Individuals with a self-employed spouse may want to use a risk diversification strategy	Is higher for individuals with a non-self-employed spouse	
Personality characteristics - Risk aversion	Less risk averse individuals are more tolerant to the variance in expected earnings	Decreases with risk aversion	✓
Personality characteristics - Psychological traits	Individuals with psychological traits such as over-confidence, need for achievement and autonomy, self-efficacy, and internal locus of control have more capacity to take risks and be successful in self-employment	Increases with these psychological traits	✓
Human capital - Education	Education develops: – The capacity to identify self-employment opportunities – Managerial ability	Is higher for more educated individuals	?
	Lower levels of education limit the opportunities in the wage sector	Is higher for less educated individuals	?
Human capital - Experience	Experience allows individuals to accumulate: – Managerial experience – Industry-specific experience – Self-employment experience	Increases with experience	✓
	Individuals with less experience have a lower opportunity cost in switching from paid employment to self-employment	Decreases with experience	
	A diversified background creates better conditions for success in self-employment	Increases with the diversity of experience	✓
Health condition	Individuals with poor health (illness/disability): – Want more flexibility – Are more likely to suffer employer discrimination	Is higher for individuals with poor health	?
	Self-employment implies higher levels of stress and working hours	Is lower for individuals with poor health	?

Table 1: Individual determinants of entry into self-employment – A summary (cont.)

Variable	Theoretical links	Expected impact <i>The propensity to enter self-employment...</i>	Evidence
Nationality and Ethnicity	<p>Compared to natives, immigrants:</p> <ul style="list-style-type: none"> – Are more likely to be sojourners seeking rapid wealth accumulation – Have higher likelihood of suffering employer discrimination – Living in enclaves affords the opportunity to explore ethnic businesses – Often come from countries with self-employment tradition – Are influenced by sociocultural background – Possess values and attitudes favorable to self-employment – Have lower wage employment opportunities due to their home-country human capital 	Is higher for immigrants than for natives	✓
	Compared to natives, immigrants are more likely to suffer credit marker and consumer discrimination	Is higher for natives than for immigrants	
Financial resources	<p>More wealth means more:</p> <ul style="list-style-type: none"> – Own capital for self-employment – Collateral and access to external finance 	Is higher for individuals with lower financial constraints	✓

Note: ✓ - the expected impact is predominantly confirmed; ? – The empirical evidence is insufficient, non-conclusive, or mixed.

10. Final Remarks

The literature review produced in this study makes it clear that the research effort developed not only by economists but also by other social scientists gives us a quite reasonable stock of information regarding the mechanisms that induce entry into self-employment. Given its economic and social importance, this is valuable knowledge as it constitutes a solid background for the definition of more focused, correct, and efficient policy measures.

Concerning the state-of-the-art surveyed in this paper, several tendencies are simultaneously observed. We see on the one hand, at least in the last decade, the replacement of general analyses common in early stages of knowledge by a more focused interest on the impact of each specific factor. This has allowed a more detailed understanding of the relevant channels in each case as well as of their positive or negative interaction. On the other hand, given that a certain degree of consensus has been obtained for some crucial individual-level determinants of self-employment, one of the most promising research avenues today involves the study of the way two or more factors interact.

Is this the same as saying that research on self-employment is reaching a steady-state equilibrium in which additional research on the influence of several factors does not deserve high priority? The answer to this question is definitely no for two main reasons. On the one hand, only this effort will allow the clarification of some of the puzzles and less clear results that remain on this subject, such as those related to the impact of education and health condition. On the other hand, and perhaps even more important, we should bear in mind that as time goes by, societies and economies change. Therefore, scientific research needs to stay abreast, encompassing the new trends and providing the answers they ask for.

Regarding these changes, much can be said. Let us highlight some critical aspects related to recent socio-demographic and economic transformations with potential impacts on self-employment.

At the socio-demographic level, ageing is one of the most remarkable facts of the last decades namely in the most developed countries. As mentioned by OECD (2013, p. 22), “due to higher life expectancy and low fertility rates, the elderly population (those aged

65 years and over), accounts for almost 15% of OECD population in 2010, up from just over 12% 15 years earlier. The proportion of elderly population is remarkably lower in the emerging economies (India, South Africa, Brazil and China) and Mexico, Turkey and Chile”. This tendency creates new challenges regarding, for instance, a delayed withdrawal from the labor market or the need to provide assistance not only for children but also for elderly parents. The advantage of flexibility seems therefore increasingly important, reinforcing the appeal of self-employment activities.

Another crucial transformation has to do with the role of women in society and in the household (albeit with strong differences depending on cultural aspects), including increased access to education, higher female participation rates, lower discrimination in the labor market, and greater control over fertility. Taken together, these features may contribute to challenge what is commonly accepted as being the predominant link between gender and self-employment propensity. In recent years, researchers have already started to follow this route. Nevertheless, a much more systematic analysis is still needed.

The world’s current economic dynamic also poses new questions to research. Three aspects deserve special consideration. First, the dominant literature on self-employment refers to the context of the more advanced countries (Europe, North America, and Australia) while both the emerging countries and the less developed ones are the focus of a far lower number of studies (see for instance, Pisani and Pagán, 2004; Djankov et al., 2005, 2006; Mohapatra et al., 2007; Lu and Tao, 2010; Bozzoli et al., 2013; Linghui and Hare, 2013). However, as a new economic geography arises, for example with the emergence of new centrality poles in highly populated countries such as China, India, Russia, and Brazil, among others, this bias toward the western world is increasingly unacceptable. Moreover, the cultural diversity associated with this vast group of countries highlights the interest of a rigorous analysis of self-employment nuances among countries with different development levels and distinct social, cultural, and political contexts. The analysis already produced in this regard is clearly insufficient to allow solid conclusions.

Second, economic globalization increasingly eliminates the barriers to international labor mobility, not only of less qualified individuals but also of highly specialized workers (e.g., Bhagwati and Hanson, 2009; Kogan, 2011; Beaverstock, 2011), which

brings questions which are different from those commonly addressed by the theoretical perspective on immigrant self-employment.

Third, the international economic crisis has led to a significant increase of unemployment rates in several countries. For example, in the European Union, the unemployment rate grew 1.6 p.p. between 2002 and 2012 (from 8.9% to 10.5%). This moderate increase for the whole European area nevertheless hides significant differences across countries and strong increases for some of the southern countries, such as Greece (10.3% to 24.3%), Spain (11.4% to 25%), and Portugal (5.7% to 15.9%). Similarly, in the USA the analogous growth was from 5.8% to 8.1%. In this context, self-employment can work as a possible solution to be pursued by policymakers through a set of adequate incentives.

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References

- Ahn, T. (2010) Attitudes toward risk and self-employment of young workers. *Labour Economics* 17: 434-442.
- Aldrich, H., Cater, J., Jones, T., McEvoy, D. and Velleman, P. (1985) Ethnic residential concentration and the protected market hypothesis. *Social Forces* 63: 996-1009.
- Andersson, L. and Hammarstedt, M. (2010a) Intergenerational transmissions in immigrant self-employment: evidence from three generations. *Small Business Economics* 34: 261-276.
- Andersson, L. and Hammarstedt, M. (2010b) Self-employment matching: an analysis of dual-earner couples in Sweden. *Economics Bulletin* 30: 2197-2209.
- Andersson, L. and Hammarstedt, M. (2011) Transmission of self-employment across immigrant generations: the importance of ethnic background and gender. *Review of Economics of the Household* 9: 555-577.
- Andersson, L., Hammarstedt, M., Hussain, S. and Shukur, G. (2013) Ethnic origin, local labour markets and self-employment in Sweden: a multilevel approach. *The Annals of Regional Science* 50: 885-910.

- Åstebro, T. and Chen, J. (2013) The entrepreneurial earnings puzzle: mismeasurement or real? *Journal of Business Venturing*, forthcoming.
- Åstebro, T. and Thompson, P. (2011) Entrepreneurs, Jacks of all trades or Hobos. *Research Policy* 40: 637-649.
- Åstebro, T., Chen, J. and Thompson, P. (2011) Stars and misfits: self-employment and labor market frictions. *Management Science* 57: 1999-2017.
- Bandura, A. (1986) *Social Foundations of Thought and Action*. Engelwood Cliffs: Prentice-Hall.
- Barnir, A. and McLaughlin, E. (2011) Parental self-employment, start-up activities and funding: exploring intergenerational effects. *Journal of Developmental Entrepreneurship* 16: 371-392.
- Barrick, M. and Mount, M. (2005) Yes, personality matters: moving on to more important matters. *Human Performance* 18: 359-372.
- Bates, T. (1995) Self-employment entry across industry groups. *Journal of Business Venturing* 10: 143-156.
- Bates, T. (1997) Financing small business creation: the case of Chinese and Korean immigrant entrepreneurs. *Journal of Business Venturing* 12: 109-124.
- Baumann, F. and Brändle, T. (2012) Self-employment, educational attainment and employment protection legislation. *Labour Economics* 19: 846-859.
- Beaverstock, J. (2011) Highly skilled international labour migration and world cities: expatriates, executives and entrepreneurs. In B. Derudder, M. Hoyler, P. Taylor and F. Witlox (eds.) *International Handbook of Globalisation and World Cities* (pp. 240-250). Cheltenham, UK: Edward Elgar Publishing Limited.
- Becker, G. (1991) *A Treatise on the Family*. Cambridge, MA: Harvard University Press.
- Bell, B. (2013) Educational mismatch and entry into entrepreneurship. Paper presented at the 35th DRUID Celebration Conference, Barcelona, June 17-19.
- Bengtsson, C., Persson, M. and Willenhag, P. (2005) Gender and overconfidence. *Economics Letters* 86: 199-203.
- Bhagwati, J. and Hanson, G. (2009) *Skilled Immigration Today: Prospects, Problems, and Policies*. New York: Oxford University Press.
- Biehl, A., Gurley-Calvez, T. and Hill, B. (2013) Self-employment of older Americans: do recessions matter?. *Small Business Economics*, forthcoming.
- Blackburn, R. and Ram, M. (2006) Fix or fixation? The contributions and limitations of entrepreneurship and small firms to combating social exclusion. *Entrepreneurship and Regional Development* 18: 73-89.
- Blanchard, L., Zhao, B. and Yinger, J. (2008) Do lenders discriminate against minority and woman entrepreneurs? *Journal of Urban Economics* 63: 467-497.

- Blanchflower, D. (2000) Self-employment in OECD countries. *Labour Economics* 7: 471-505.
- Blanchflower, D. (2004) Self-employment: more may not be better. *Swedish Economic Policy Review* 11: 15-74.
- Blanchflower, D. and Oswald, A. (1998) What makes an entrepreneur? *Journal of Labor Economics* 16: 26-60.
- Blanchflower, D., Levine, P. and Zimmerman, D. (2003) Discrimination in the small-business credit market. *Review of Economics and Statistics* 85: 930-943.
- Blume, K., Ejrnæs, M., Nielsen, H. and Würtz, A. (2009) Labor market transitions of immigrants with emphasis on marginalization and self-employment. *Journal of Population Economics* 22: 881-908.
- Bonacich, E. (1973) A theory of middleman minorities. *American Sociological Review* 38: 583-594.
- Borjas, G. (1986) The self-employment experience of immigrants. *Journal of Human Resources* 21: 487-506.
- Borjas, G. and Bronars, S. (1989) Consumer discrimination and self-employment. *Journal of Political Economy* 97: 581-605.
- Bosma, N. and Harding, R. (2007) *Global Entrepreneurship. GEM 2006 Summary Results*. Babson, MA and London: Babson College & London Business School.
- Bosma, N., Hessels, J., Schutjens, V., Praag, M. and Verheul, I. (2012) Entrepreneurship and role models. *Journal of Economic Psychology* 33: 410-424.
- Bosma, N., Van Praag, M., Thurik, R. and De Wit, G. (2004) The value of human and social capital investments for the business performance of startups. *Small Business Economics* 23: 227-236.
- Boyd, N. and Vozikis, G. (1994) The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice* 18: 63-63.
- Boyd, R. (1991) A contextual analysis of black self-employment in large metropolitan areas, 1970–1980. *Social Forces* 70: 409-429.
- Bozzoli, C., Brücker, T. and Wald, N. (2013) Self-employment and conflict in Colombia. *Journal of Conflict Resolution* 57: 117-142.
- Brandstätter, H. (1997) Becoming an entrepreneur - a question of personality structure? *Journal of Economic Psychology* 18:157-177.
- Brandstätter, H. (2011) Personality aspects of entrepreneurship: a look at five meta-analyses. *Personality and Individual Differences* 51: 222-230.
- Bratsberg, B. and Ragan, J. (2002) The impact of host country schooling on earnings. A study of male immigrants in the United States. *Journal of Human Resources* 37: 64-105.
- Brown, S., Farrel, L. and Sessions, J. (2006) Self-employment matching: an analysis of dual earner couples and working households. *Small Business Economics* 26: 155-172.

- Brown, S., Farrell, L. and Harris, M. (2011a) Modeling the incidence of self-employment: individual and employment type heterogeneity. *Contemporary Economic Policy* 29: 605-619.
- Brown, S., Dietrich, M., Ortiz-Nuñez, A. and Taylor, K. (2011b) Self-employment and attitudes towards risk: timing and unobserved heterogeneity. *Journal of Economic Psychology* 32: 425-433.
- Bruce, D. (1999) Do husbands matter? Married women entering self-employment. *Small Business Economics* 13: 317-329.
- Budig, M. (2006) Intersections on the road to self-employment: gender, family and occupational class. *Social Forces* 84: 2223-2239.
- Burke, A., Fitzroy, F. and Nolan, M. (2000) When less is more: distinguishing between entrepreneurial choice and performance. *Oxford Bulletin of Economics and Statistics* 62: 565-587.
- Burke, A., Fitzroy, F. and Nolan, M. (2002) Self-employment wealth and job creation: the roles of gender, non-pecuniary motivation and entrepreneurial ability. *Small Business Economics* 19: 255-270.
- Cahill, K., Giandrea, M. and Quinn, J. (2006) Retirement patterns from career employment. *The Gerontologist* 46: 514-523.
- Cahill, K., Giandrea, M. and Quinn, J. (2013) New evidence on self-employment transitions among older Americans with career jobs. U.S. Bureau of Labor Statistics Working Paper 463, U.S. Department of Labor, Washington, DC.
- Caird, S. (1991) The enterprising tendency of occupational groups. *International Small Business Journal* 9: 75-81.
- Caliendo, M. and Kritikos, A. (2008) Is entrepreneurial success predictable? An ex-ante analysis of the character-based approach. *Kyklos* 61: 189-214.
- Caliendo, M., Fossen, F. and Kritikos, A. (2009) Risk attitudes of nascent entrepreneurs – new evidence from an experimentally validated survey. *Small Business Economics* 32: 153-167.
- Caliendo, M., Fossen, F. and Kritikos, A. (2011) Personality characteristics and the decision to become and stay self-employed. IZA Discussion Paper 5566, Institute for the Study of Labor, Bonn.
- Calvo, G. and Wellisz, S. (1980) Technology, entrepreneurs and firm size. *Quarterly Journal of Economics* 95: 663-677.
- Camerer, C. and Lovo, D. (1999) Overconfidence and excess entry: an experimental approach. *American Economic Review* 89: 306-318.
- Campbell, K. (1988) Gender differences in job-related networks. *Work and Occupations* 15: 179-200.

- Caputo, R. and Dolinsky, A. (1998) Women's choice to pursue self-employment: the role of financial and human capital of household members. *Journal of Small Business Management* 36: 8-17.
- Carr, D. (1996) Two paths to self-employment? Women's and men's self-employment in the United States, 1980. *Work and Occupations* 23: 26-53.
- Carr, J. and Sequeira, J. (2007) Prior-family business exposure as intergenerational influence and entrepreneurial intent: a theory of planned behavior approach. *Journal of Business Research* 60: 1090-1098.
- Carter, S. and Shaw, E. (2006) Women's business ownership: recent research and policy development. DTI Small Business Service Research Report, London.
- Casson, M. (2003) *The Entrepreneur: An Economic Theory* (2nd ed.). Cheltenham: Edward Elgar Publishing Limited.
- Cavalluzzo, K. and Wolken, J. (2005) Small business loan turndowns, personal wealth, and discrimination. *The Journal of Business* 78: 2153-2178.
- Cavalluzzo, K., Cavalluzzo, L. and Wolken, J. (2002) Competition, small business financing, and discrimination: evidence from a New Survey. *The Journal of Business* 75: 641-679.
- Charles, M. and Bradley, K. (2002) Equal but separate? A cross-national study of sex segregation in higher education. *American Sociological Review* 67: 573-599.
- Chen, C., Greene, P. and Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing* 13: 295-316.
- Chlosta, S., Patzelt, H., Klein, S. and Dormann, C. (2012) Parental role models and the decision to become self-employed: the moderating effect of personality. *Small Business Economics* 38: 121-138.
- Clark, A. (1997) Job satisfaction and gender: why are women so happy at work? *Labour Economics* 4: 341-372.
- Clark, K. and Drinkwater, S. (2000) Pushed out or pulled in? Self-employment among ethnic minorities in England and Wales. *Labour Economics* 7: 603-628.
- Clark, K. and Drinkwater, S. (2010) Patterns of ethnic self-employment in time and space: evidence from British Census microdata. *Small Business Economics* 34: 323-338.
- Co, C., Gang, I. and Yun, M. (2005) Self-employment and wage earning: Hungary during transition. *Review of Development Economics* 9: 150-165.
- Coate, S. and Tennyson, S. (1992) Market discrimination, imperfect information and self-employment. *Oxford Economic Papers* 44: 272-288.
- Colombier, N. and Masclet, D. (2008) Intergenerational correlation in self-employment: some further evidence from French ECHP data. *Small Business Economics* 30: 423-437.

- Colombier, N., Boemont, L., Loheac, Y. and Masclet, D. (2008) Risk aversion: an experiment with self-employed workers and salaried workers. *Applied Economics Letters* 15: 791-795.
- Constant, A. and Zimmermann, K. (2006) The making of entrepreneurs in Germany: are immigrants and natives alike? *Small Business Economics* 26: 279-300.
- Costa, P. and McCrae, R. (1992) *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI) Professional Manual*. Odessa, FL: PAR.
- Cowling, M. (2000) Are entrepreneurs different across countries? *Applied Economics Letters* 7: 785-789.
- Cramer, J., Hartog, J., Jonker, N. and Van Praag, C. (2002) Low risk aversion encourages the choice for entrepreneurship: an empirical test of a truism. *Journal of Economic Behavior & Organization* 48: 29-36.
- Crespo, N., Simoes, N. and Pinto, J. (2013) Determinant factors of job quality in Europe. BRU-IUL Working Papers Series 13/1, Business Research Unit, Lisbon.
- Crosan, D. and Minniti, M. (2012) Slipping the surly bonds: the value of autonomy in self-employment. *Journal of Economic Psychology* 33: 355-365.
- Crosan, R. and Gneezy, U. (2009) Gender differences in preferences. *Journal of Economic Literature* 47: 448-474.
- Dawson, C., Henley, A. and Latreille, P. (2013) Individual motives for choosing self-employment in the UK: does region matter? *Regional Studies*, forthcoming.
- Demirgüç-Kunt, A., Klapper, L. and Panos, G. (2009) Entrepreneurship in post-conflict transition: the role of informality and access to finance. Policy Research Working Paper Series 4935, World Bank, Washington, DC.
- Devine, T. (1994a) Changes in wage-and-salary returns to skill and the recent rise in female self-employment. *American Economic Review* 84: 108-113.
- Devine, T. (1994b) Characteristics of self-employed women in the United States. *Monthly Labor Review* 117: 20-34.
- Disney, R. and Gathergood, J. (2009) Housing wealth, liquidity constraints and self-employment. *Labour Economics* 16: 79-88.
- Djankov, S., Miguel, E., Qian, Y., Roland, G. and Zhuravskaya, E. (2005) Who are Russia's entrepreneurs? *Journal of the European Economic Association* 3: 587-597.
- Djankov, S., Qian, Y., Roland, G. and Zhuravskaya, E. (2006) Who are China's entrepreneurs? *American Economic Review* 96: 348-352.
- Dohmen, T., Falk, A., Huffman, D. and Sunde, U. (2012) The intergenerational transmission of risk and trust attitudes. *The Review of Economic Studies* 79: 645-677.
- Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J. and Wagner, G. (2011) Individual risk attitudes: measurement, determinants, and behavioral consequences. *Journal of the European Economic Association* 9: 522-550.

- Douglas, E. and Shepherd, D. (2002) Self-employment as a career choice: attitudes, entrepreneurial intentions, and utility maximization. *Entrepreneurship Theory and Practice* 26: 81-90.
- Drennan, J., Kennedy, J. and Renfrow, P. (2005) Impact of childhood experiences on the development of entrepreneurial intentions. *International Journal of Entrepreneurship and Innovation* 6: 231-238.
- Dudley, N., Orvis, K., Lebiecki, J. and Cortina, J. (2006) A meta-analytic investigation of conscientiousness in the prediction of job performance: examining the intercorrelations and the incremental validity of narrow traits. *Journal of Applied Psychology* 91: 40-57.
- Dunn, T. and Holtz-Eakin, D. (2000) Financial capital, human capital, and the transition to self-employment: evidence from intergenerational links. *Journal of Labor Economics* 18: 282-305.
- Edwards, L. and Field-Hendrey, E. (2002) Home-based work and women's labor force decisions. *Journal of Labor Economics* 20: 170-200.
- Ekelund, J., Johannson, E., Järvelin, M. and Lichtermann, D. (2005) Self-employment and risk aversion - evidence from psychological test data. *Labour Economics* 12: 649-659.
- Eliasson, K. and Westlund, H. (2013) Attributes influencing self-employment propensity in urban and rural Sweden. *The Annals of Regional Science* 50: 479-514.
- Elston, J. and Audretsch, D. (2011) Financing the entrepreneurial decision: an empirical approach using experimental data on risk attitudes. *Small Business Economics* 36: 209-222.
- Eren, O. and Sula, O. (2012) The effect of ability on young men's self-employment decision: evidence from the NELS. *Industrial Relations* 51: 916-935.
- Evans, D. and Jovanovic, B. (1989) An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy* 97: 808-827.
- Evans, D. and Leighton, L. (1989a) Some empirical aspects of entrepreneurship. *American Economic Review* 79: 519-535.
- Evans, D. and Leighton, L. (1989b) The determinants of changes in US self-employment, 1968–1987. *Small Business Economics* 1: 111-119.
- Evans, M. (1989) Immigrant entrepreneurship: effects of ethnic market size and isolated labor market pool. *American Sociological Review* 54: 950-962.
- Fairchild, G. (2009) Residential segregation influences on the likelihood of ethnic self-employment. *Entrepreneurship Theory and Practice* 33: 373-395.
- Fairchild, G. (2010) Intergenerational ethnic enclave influences on the likelihood of being self-employed. *Journal of Business Venturing* 25: 290-304.

- Fairlie, R. (1999) The absence of the African-American owned business: an analysis of the dynamics of self-employment. *Journal of Labor Economics* 17: 80-108.
- Fairlie, R. (2004a) Recent trends in ethnic and racial business ownership. *Small Business Economics* 23: 203-218.
- Fairlie, R. (2004b) Self-employed business ownership rates in the United States: 1979–2003. SBA Office of Advocacy SBAHQ-04-M-0248, Washington, DC.
- Fairlie, R. and Krashinsky, H. (2012) Liquidity constraints, household wealth, and entrepreneurship revisited. *Review of Income and Wealth* 58: 279-306.
- Fairlie, R. and Meyer, B. (1996) Ethnic and racial self-employment differences and possible explanations. *Journal of Human Resources* 31: 757-793.
- Fairlie, R. and Meyer, B. (2000) Trends in self-employment among white and black men during the twentieth century. *Journal of Human Resources* 35: 643-669.
- Falk, M. and Leoni, T. (2009) Characteristics of self-employment among university graduates. *Applied Economics Letters* 16: 1065-1071.
- Florida, R. (2004) *The Rise of the Creative Class*. New York: Basic Books.
- Friedberg, R. (2000) You can't take it with you? Immigrant assimilation and the portability of human capital. *Journal of Labor Economics* 18: 221-251.
- Fritsch, M. and Rusakova, A. (2010) Personality traits, self-employment, and professions. SOEPpapers on Multidisciplinary Panel Data Research 343, German Socio-Economic Panel Study, German Institute for Economic Research, Berlin.
- Fritsch, M. and Sorgner, A. (2013) Entrepreneurship and creative professions: a micro-level analysis, SOEPpapers on Multidisciplinary Panel Data Research 538, German Socio-Economic Panel Study, German Institute for Economic Research, Berlin.
- Fritsch, M., Kritikos, A. and Rusakova, A. (2012) Who starts a business and who is self-employed in Germany. Jena Economic Research Papers 2012-001, Max-Planck-Institute of Economics, Jena.
- Fuchs, V. (1982) Self-employment and labor force participation of older males. *Journal of Human Resources* 17: 339-357.
- Garcia, J. and Quintana-Domeque, C. (2007) Obesity, employment and wages in Europe. *Advances in Health Economics and Health Services Research* 17: 187-217.
- Georgellis, Y. and Wall, H. (2005) Gender differences in self-employment. *International Review of Applied Economics* 19: 321-342.
- Georgellis, Y., Sessions, J. and Tsitsianis, N. (2005a) Self-employment longitudinal dynamics: a review of the literature, *Economic Issues* 10: 51-84.
- Georgellis, Y., Sessions, J. and Tsitsianis, N. (2005b) Windfalls, wealth, and the transition to self-employment. *Small Business Economics* 25: 407-428.

- Giandrea, M., Cahill, K. and Quinn, J. (2008) Self-employment as a step in the retirement process. Center on Aging & Work/Workplace Flexibility Issue Brief 15, Boston College, Boston.
- Gill, A. (1988) Choice of employment status and the wages of employees and the self-employed some further evidence. *Journal of Applied Econometrics* 3: 229-234.
- Gorgievski, M., Bakker, A. and Schaufeli, W. (2010) Work engagement and workaholism: comparing the self-employed and salaried employees. *The Journal of Positive Psychology* 5: 83-96.
- Gurley-Calvez, T., Biehl, A. and Harper, K. (2009) Time-use patterns and women entrepreneurs. *American Economic Review* 99: 139-144.
- Hammarstedt, M. and Shukur, G. (2009) Testing the home-country self-employment hypothesis on immigrants in Sweden. *Applied Economics Letters* 16: 745-748.
- Henley, A. (2005) Job creation by the self-employed: the roles of entrepreneurial and financial capital. *Small Business Economics* 25: 175-196.
- Hintermaier, T. and Steinberger, T. (2005) Occupational choice and the private equity premium puzzle. *Journal of Economic Dynamics and Control* 29: 1765-1783.
- Holtz-Eakin, D. and Rosen, H. (2005) Cash constraints and business start-ups: deutschmarks versus dollars. *Contributions to Economic Analysis and Policy* 4: 1-26.
- Holtz-Eakin, D., Joulfaian, D. and Rosen, H. (1994) Entrepreneurial decisions and liquidity constraints. *Rand Journal of Economics* 25: 334-347.
- Hout, M. and Rosen, H. (2000) Self-employment, family background, and race. *Journal of Human Resources* 35: 670-691.
- Hundley, G. (2001) Why women earn less than men in self-employment. *Journal of Labor Research* 22: 817-829.
- Hundley, G. (2006) Family background and the propensity for self-employment. *Industrial Relations* 45: 377-392.
- Hurst, E. and Lusardi, A. (2004) Liquidity constraints, household wealth, and entrepreneurship. *Journal of Political Economy* 112: 319-347.
- Johansson, E. (2000) Self-employment and liquidity constraints: evidence from Finland. *Scandinavian Journal of Economics* 102: 123-134
- Jones, M. and Latreille, P. (2011) Disability and self-employment: evidence for the UK. *Applied Economics* 43: 4161-4178.
- Joona, P. and Wadensjö, E. (2013) The best and the brightest or the least successful? Self-employment entry among male wage-earners in Sweden. *Small Business Economics* 40: 155-172.
- Jovanovic, B. (1982) Selection and the evolution of industry. *Econometrica* 50: 649-670.

- Kanas, A., Van Tubergen, F. and Van der Lippe, T. (2009) Immigrant self-employment: testing hypotheses about the role of origin-and host-country human capital and bonding and bridging social capital. *Work and Occupations* 36: 181-208.
- Karoly, L. and Zissimopoulos, J. (2004) Self-employment among older US workers. *Monthly Labor Review* 127: 24-47.
- Kerr, G. and Armstrong-Stassen, M. (2011) The bridge to retirement: older workers' engagement in post-career entrepreneurship and wage-and-salary employment. *Journal of Entrepreneurship* 20: 55-76
- Kerr, W. and Nanda, R. (2011) Financing constraints and entrepreneurship. In D. Audretsch, O. Falck and S. Heblich (eds.) *Handbook on Research on Innovation and Entrepreneurship* (pp. 88-103). Cheltenham: Edward Elgar Publishing.
- Kidd, M. (1993) Immigrant wage differentials and the role of self-employment in Australia. *Australian Economics Papers* 32: 92-115.
- Kihlstrom, R. and Laffont, J. (1979) A general equilibrium theory of firm formation based on risk aversion. *Journal of Political Economy* 87: 719-748.
- Kim, P., Aldrich, H. and Keister, L. (2006) Access (not) denied: the impact of financial, human, and cultural capital on entrepreneurial entry in the United States. *Small Business Economics* 27: 5-22.
- Kirkwood, J. (2007) Igniting the entrepreneurial spirit: is the role parents play gendered? *International Journal of Entrepreneurial Behaviour and Research* 13: 39-59.
- Klyver, K., Nielsen, S. and Evald, M. (2013) Women's self-employment: an act of institutional (dis) integration? A multilevel, cross-country study. *Journal of Business Venturing* 28: 474-488.
- Koellinger, P., Minniti, M. and Schade, C. (2007) "I think I can, I think I can": overconfidence and entrepreneurial behavior. *Journal of Economic Psychology* 28: 502-527.
- Koellinger, P., Minniti, M. and Schade, C. (2013) Gender differences in entrepreneurial propensity. *Oxford Bulletin of Economics and Statistics* 75: 213-234.
- Kogan, I. (2011) New immigrants - old disadvantage patterns? Labour market integration of recent immigrants into Germany. *International Migration* 49: 91-117.
- Lafuente, E., Vaillant, Y. and Rialp, J. (2007) Regional differences in the influence of role models: comparing the entrepreneurial process of rural Catalonia. *Regional Studies* 41: 779-796.
- Lazear, E. (2005) Entrepreneurship. *Journal of Labor Economics* 23: 649-680.
- Le, A. (1999) Empirical studies of self-employment. *Journal of Economic Surveys* 13: 381-416.
- Le, A. (2000) The determinants of immigrants self-employment in Australia. *International Migration Review* 34: 183-214.

- Leoni, T. and Falk, M. (2010) Gender and field of study as determinants of self-employment. *Small Business Economics* 34: 167-185.
- Levie, J. (2007) Immigration, in-migration, ethnicity and entrepreneurship in the United Kingdom. *Small Business Economics* 28: 143-169.
- Light, I. (1972) *Ethnic Enterprise in North America: Business and Welfare Among Chinese, Japanese, and Blacks*. Los Angeles: University of California Press.
- Light, I. and Rosenstein, C. (1995) *Race, Ethnicity, and Entrepreneurship in Urban America*. New York: Aldine de Gruyter.
- Lin, Z., Picot, G. and Compton, J. (2000) The entry and exit dynamics of self-employment in Canada. *Small Business Economics* 15: 105-125.
- Lindh, T. and Ohlsson, H. (1996) Self-employment and windfall gains: evidence from the Swedish lottery. *Economic Journal* 106: 1515-1526.
- Linghui, H. and Hare, D. (2013) The link between credit markets and self-employment choice among households in rural China. *Journal of Asian Economics* 26: 52-64.
- Lofstrom, M. and Bates, T. (2013) African Americans' pursuit of self-employment. *Small Business Economics* 40: 73-86.
- Lu, J. and Tao, Z. (2010) Determinants of entrepreneurial activities in China. *Journal of Business Venturing* 25: 261-273.
- Lucas, R. (1978) On the size distribution of business firms. *Bell Journal of Economics* 9: 508-523.
- Lundberg, S. and Pollak, R. (2013) Cohabitation and the uneven retreat from marriage in the US, 1950-2010. In L. Boustan, C. Frydman, and R. Margo (eds.) *Human Capital and History: The American Record* (forthcoming). Chicago: University of Chicago Press.
- Macko, A. and Tyszka, T. (2009) Entrepreneurship and risk taking. *Applied Psychology* 58: 469-487.
- Mandelman, F. and Montes-Rojas, G. (2009) Is self-employment and micro-entrepreneurship a desired outcome? *World Development* 37: 1914-1925.
- Mata, F. and Pendakur, R. (1999) Immigration, labor force integration and the pursuit of self-employment. *International Migration Review* 33: 378-402.
- Mathieu, C. and St-Jean, É. (2013) Entrepreneurial personality: the role of narcissism. *Personality and Individual Differences* 55: 527-531.
- McClelland, D. (1961) *The Achieving Society*. Princeton: Van Nostrand.
- McGrath, R., MacMillan, I., Yang, I., Ai-Yuan, E. and Tsai, W. (1992) Does culture endure, or is it malleable? Issues for entrepreneurial economic development. *Journal of Business Venturing* 7: 441-458.
- Metcalf, H., Modood, T. and Virdee, S. (1996) *Asian Self-Employment: The Interaction of Culture and Economics in England*. London: Policy Studies Institute.

- Meyer, B. (1990) Why are there so few black entrepreneurs? NBER Working Paper 3537, The National Bureau of Economic Research, Cambridge, MA.
- Min, P. and Bozorgmehr, M. (2000) Immigrant entrepreneurship and business patterns: a comparison of Koreans and Iranians in Los Angeles. *International Migration Review* 34: 707-738.
- Mohapatra, S., Rozelle, S. and Goodhue, R. (2007) The rise of self-employment in rural China: development or distress? *World Development* 35: 163-181.
- Moog, P. and Backes-Gellner, U. (2009) Social capital and the willingness to become self-employed. *International Studies of Management and Organization* 39: 33-64.
- Moore, R. (1983) Employer discrimination: evidence from self-employed workers. *The Review of Economics and Statistics* 65: 496-501.
- Müller, W. and Arum, R. (2004) Self-employed dynamics in advanced economies. In R. Arum and W. Müller (eds.) *Reemergence of Self-Employment: A Comparative Study of Self-Employment Dynamics and Social Inequality* (pp. 1-35). New Jersey: Princeton University Press.
- Nestorowicz, J. (2012) Immigrant self-employment: definitions, concepts and methods. *Central and Eastern European Migration Review* 1: 37-55.
- Nykvist, J. (2008) Entrepreneurship and liquidity constraints: evidence from Sweden. *Scandinavian Journal of Economics* 110: 23-43.
- Obschonka, M., Silbereisen, R. and Schmitt-Rodermund, E. (2010) Entrepreneurial intention as developmental outcome. *Journal of Vocational Behavior* 77: 63-72.
- OECD (2013) *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD Publishing.
- Ohyama, A. (2008) Entrepreneurship and advanced technical knowledge. Research paper, Institute for Genomic Biology (Business, Economics & Law), University of Illinois at Urbana-Champaign, Champaign.
- Oyelere, R. and Belton, W. (2012) Coming to America: does having a developed home country matter for self-employment in the United States? *The American Economic Review* 102: 538-542.
- Özcan, B. (2011) Only the lonely? The influence of the spouse on the transition to self-employment. *Small Business Economics* 37: 465-492.
- Pagán, R. (2009) Self-employment among people with disabilities: evidence for Europe. *Disability and Society* 24: 217-229.
- Parker, S. (2008) Entrepreneurship among married couples in the United States: a simultaneous probit approach. *Labour Economics* 15: 459-481.
- Parker, S. (2009) *The Economics of Entrepreneurship*. Cambridge, MA: Cambridge University Press.

- Parker, S. and Robson, M. (2004) Explaining international variations in self-employment: evidence from a panel of OECD countries. *Southern Economic Journal* 71: 287-301.
- Parker, S. and Rougier, J. (2007) The retirement behaviour of the self-employed in Britain. *Applied Economics* 39: 697-713.
- Perlmann, J. and Waldinger, R. (1997) Second generation decline? Children of immigrants, past and present - a reconsideration. *International Migration Review* 31: 893-922.
- Petrova, K. (2012) Part-time entrepreneurship and financial constraints evidence from the Panel Study of Entrepreneurial Dynamics. *Small Business Economics* 39: 473-493.
- Pisani, M. and Pagán, J. (2004) Self-employment in the era of the new economic model in Latin America: a case study from Nicaragua. *Entrepreneurship & Regional Development* 16: 335-350.
- Portes, A. and Sensenbrenner, J. (1993) Embeddedness and immigration: notes on the social determinants of economic action. *American Journal of Sociology* 98: 1320-1350.
- Poschke, M. (2013) Who becomes an entrepreneur? Labor market prospects and occupational choice. *Journal of Economic Dynamics & Control* 37: 693-710.
- Raijman, R. and Tienda, M. (2000) Immigrants' pathways to business ownership: a comparative ethnic perspective. *International Migration Review* 34: 682-706.
- Ram, M., Edwards, P. and Jones, T. (2007) Staying underground: informal work, small firms, and employment regulation in the United Kingdom. *Work and Occupations* 34: 318-344.
- Rauch, A. and Frese, M. (2007) Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology* 16: 353-385.
- Rees, H. and Shah, A. (1986) An empirical analysis of self-employment in the UK. *Journal of Applied Econometrics* 1: 95-108.
- Rodriguez, N. (2004) "Workers wanted" employer recruitment of immigrant labor. *Work and Occupations* 31: 453-473.
- Rosti, L. and Chelli, F. (2005) Gender discrimination, entrepreneurial talent and self-employment. *Small Business Economics* 24: 131-142.
- Rotter, J. (1966) Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs* 80: 1-28.
- Sanders, J. and Nee, V. (1987) Limits of ethnic solidarity in the enclave economy. *American Sociological Review* 52: 745-773.
- Sanders, J. and Nee, V. (1996) Immigrant self-employment: the family as social capital and the value of human capital. *American Sociological Review* 61: 231-249.

- Schmitt-Rodermund, E. (2004) Pathways to successful entrepreneurship: personality, parenting, entrepreneurial competence, and interests. *Journal of Vocational Behavior* 65: 498-518.
- Sena, V., Scott, J. and Roper, S. (2012) Gender, borrowing patterns and self-employment: some evidence for England. *Small Business Economics* 38: 467-480.
- Sexton, D. and Bowman-Upton, N. (1990) Female and male entrepreneurs: psychological characteristics and their role in gender-related discrimination. *Journal of Business Venturing* 5: 29-36
- Shane, S. (2003) *A General Theory of Entrepreneurship: The Individual-Opportunity Nexus*. Cheltenham: Edward Elgar.
- Silva, O. (2007) The Jack-of-all-trades entrepreneur: innate talent or acquired skill? *Economics Letters* 97: 118-123.
- Solinge, H. (2012) Explaining transitions into self-employment after (early) retirement. Netspar Discussion Paper 09/2012-036, Network for Studies on Pensions, Aging and Retirement, Tilburg.
- Sorgner, A. and Fritsch, M. (2013) Occupational choice and self-employment: are they related? Jena Economic Research Papers 2013-001, Max-Planck-Institute of Economics, Jena.
- Sowell, T. (1995) *Race and Culture: A World View*. New York: Basic Books.
- Stefanović, S. and Stošić, D. (2012) Specifics and challenges of female entrepreneurship. *Economic Themes* 50: 327-343.
- Stevenson, B. and Wolfers, J. (2007) Marriage and divorce: changes and their driving forces. *Journal of Economic Perspectives* 21: 27-52.
- Stuart, T. and Ding, W. (2006) When do scientists become entrepreneurs? The social structural antecedents of commercial activity in the Academic Life Sciences. *American Journal of Sociology* 112: 97-144.
- Stuetzer, M., Obschonka, M. and Schmitt-Rodermund, E. (2013) Balanced skills among nascent entrepreneurs. *Small Business Economics* 41: 93-114.
- Taniguchi, H. (2002) Determinants of women's entry into self-employment. *Social Science Quarterly* 83: 875-893.
- Taylor, M. (1996) Earnings, independence or unemployment: why become self-employed? *Oxford Bulletin of Economics and Statistics* 58: 253-266.
- Taylor, M. (2001) Self-employment and windfall gains in Britain: evidence from panel data. *Economica* 68: 539-565.
- Teachman, J., Tedrow, L. and Kim, G. (2013) The demography of families. In G. Peterson and K. Bush (eds.) *Handbook of Marriage and the Family* (pp. 39-63). New York: Springer.

- Tervo, H. and Haapanen, M. (2010) The nature of self-employment: how does gender matter? *International Journal of Entrepreneurship and Small Business* 9: 349-371.
- Van der Sluis, J., van Praag, M. and Vijverberg, W. (2008) Education and entrepreneurship selection and performance: a review of the empirical literature. *Journal of Economic Surveys* 22: 795-841.
- Van Praag, C. and Van Ophem, H. (1995) Determinants of willingness and opportunity to start as an entrepreneur. *Kyklos* 48: 513-540.
- Vejsiu, A. (2011) Incentives to self-employment decision in Sweden. *International Review of Applied Economics* 25: 379-403.
- Verbakel, E. and de Graaf, P. (2008) Resources of the partner: support or restriction in the occupational career? Developments in the Netherlands between 1940 and 2003. *European Sociological Review* 24: 81-95.
- Verbakel, E. and de Graaf, P. (2009) Partner effects on labour market participation and job level: opposing mechanisms. *Work, Employment & Society* 23: 635-654.
- Verheul, I. and Thurik, R. (2001) Start-up capital: "does gender matter?". *Small Business Economics* 16: 329-346.
- Verheul, I., Thurik, R., Grilo, I. and van der Zwan, P. (2012) Explaining preferences and actual involvement in self-employment: gender and the entrepreneurial personality. *Journal of Economic Psychology* 33: 325-341.
- Vinogradov, E. and Kolvereid, L. (2007) Cultural background, human capital and self-employment rates among immigrants in Norway. *Entrepreneurship and Regional Development* 19: 359-376.
- Von Greiff, J. (2009) Displacement and self-employment entry. *Labour Economics* 16: 556-565.
- Wagner, J. (2006) Are nascent entrepreneurs 'Jacks-of-all-trades'? A test of Lazear's theory of entrepreneurship with German data. *Applied Economics* 38: 2415-2419.
- Waldinger, R., Aldrich, H. and Ward, R. (2006) *Ethnic Entrepreneurs: Immigrant Business in Industrial Societies*. Thousand Oaks: Sage.
- Wang, C. and Wong, P. (2004) Entrepreneurial interest of university students in Singapore. *Technovation* 24: 163-172.
- Wang, L., Prieto, L. and Hinrichs, K. (2010) Direct and indirect effects of individual and environmental factors on motivation for self-employment. *Journal of Developmental Entrepreneurship* 15: 481-502.
- Wellington, A. (2006) Self-employment: the new solution for balancing family and career. *Labour Economics* 13: 357-386.
- White, R., Thornhill, S. and Hampson, E. (2007) A biosocial model of entrepreneurship: the combined effect of nurture and nature. *Journal of Organizational Behavior* 28: 451-466.

- Williams, D. (2012) Gender discrimination and self-employment dynamics in Europe. *The Journal of Socio-Economics* 41: 153-158.
- Wilson, K. and Portes, A. (1980) Immigrant enclaves: an analysis of the labor market experience of Cubans in Miami. *American Journal of Sociology* 86: 295-319.
- Yuengert, A. (1995) Testing hypotheses of immigrant self-employment. *Journal of Human Resources* 30: 194-204.
- Zeng, Z. and Xie, Y. (2004) Asian-Americans' earnings disadvantage reexamined: the role of place of education. *American Journal of Sociology* 109: 1075-1108.
- Zhao, H. and Seibert, S. (2006) The big five personality dimensions and entrepreneurial status: a meta-analytical review. *Journal of Applied Psychology* 91: 259-271.
- Zhao, H., Seibert, S. and Hills, G. (2005) The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology* 90: 1265.
- Zhou, M. (1992) *Chinatown: The Socioeconomic Potential of an Urban Enclave*. Philadelphia: Temple University Press.
- Zhou, M. (2004) Revisiting ethnic entrepreneurship: convergences, controversies, and conceptual advancements. *The International Migration Review* 38: 1040-1074.
- Zissimopoulos, J. and Karoly, L. (2007) Transitions to self-employment at older ages: the role of wealth, health, health insurance, and other factors. *Labour Economics* 14: 269-295.
- Zissimopoulos, J., Karoly, L. and Gu, Q. (2009) Liquidity constraints, household wealth, and self-employment: the case of older workers. RAND Working Papers WR-725, RAND Corporation Publications Department, California.