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EMPIRICAL ARTICLES

The resilient self-employability of women and senior people after sudden economic shocks

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Abstract

In recent times, various crises have negatively affected the financial stability, job security, and health of countless individuals. According to research, different factors that operate at both the individual and contextual levels can play a prominent role in influencing people's self-employment during periods of economic downturn. This study investigates the changes in the likelihood of self-employment by gender and age across various contexts following sudden shocks. By analyzing the intersection of occupational choice and business cycle theories, this research offers insights into how crises affect people's ability to work for themselves. Using a sample of over 250,000 individuals from sixteen countries and applying a multilevel binary logistic regression analysis, the results confirm that women and older individuals are less inclined to be self-employed in general. However, unexpected economic recessions may lead to a slight increase in their likelihood of self-employment. Furthermore, when women and seniors live in a higher GDP per capita context, this context positively moderates the relationship between gender, age, and the propensity for entrepreneurship. These findings offer valuable insights for policymakers seeking to promote resilient self-employment among vulnerable individuals for post-crisis recovery.

Keywords Self-employment · Occupation · Crisis · Shock · Economic cycle · Women entrepreneurs · Senior entrepreneurs

JEL J16 · L26 · E32

Introduction

In times of crisis, many people face significant challenges, such as losing their jobs, income, and overall well-being. Sudden layoffs or reduced work hours can be quite overwhelming for those experiencing them. The global financial crisis, the COVID-19 pandemic, and the War in Ukraine have all resulted in disproportionate worldwide

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impacts on the lives of many people. Several scholars argue that there is a recurring gender and age-based asymmetrical response to crises in the labor force (Vorobeva & Dana, 2021). Moreover, the effects of economic downturns are also devastating for most aspiring entrepreneurs (Bailey et al., 2020; Zahra, 2021). These disruptive shocks are expected to have long-lasting adverse economic effects, particularly on those who are most vulnerable and disadvantaged (Naudé, 2020). However, crises can sometimes present new opportunities for self-employment and personal change.

The unexpected shocks affect markets, institutions, and people, although not everyone experiences the same level of suffering or recovery (Doern et al., 2019). Indeed, the distribution of resources for entrepreneurship is unequal, particularly during periods of scarcity. This shortage results in the under-representation of certain groups, such as women and senior citizens, often called the "missing entrepreneurs" (OECD, 2021). Self-employment becomes the only viable way for many women and people over 50 to recover economically from crises during market contractions (Pines et al., 2010; Young et al., 2017). Despite its relevance, very few studies have investigated how sudden shocks affect the occupational decision to pursue self-employment (Davidsson & Gordon, 2016). While previous research has shown that the relationship between macroeconomic cycles and entrepreneurship is complex, there is little information on changes in the propensity of women and senior people to self-employ after a major disruptive event (Fairlie & Fossen, 2019; Parker, 2011). Understanding the significance of a sudden variation in these segments of society is crucial because the magnitude of such a deviation may determine the level of effort required for a more inclusive and fairer self-employment activity during a subsequent recovery period (Shepherd et al., 2020).

To address this glaring gap in the literature, we undertake an under-explored view of disruption in the external context and investigate how crises affect the *intention* and *realization* of self-employment of vulnerable people across different places. To truly understand why some people are more resilient than others, we must consider the unique circumstances of each crisis, as well as the personal characteristics of those considering self-employment. It is important to recognize that the likelihood of someone pursuing self-employment can vary greatly based on specific moments, locations, and demographic groups. Failing to account for these factors can lead to a limited understanding of the motivations and challenges faced by potential self-employees (Quintillán & Peña-Legazkue, 2020). Abrupt shake-outs influence differently distinct segments of (aspiring) entrepreneurs, and to the best of our knowledge, research to date has not investigated enough this “persona causa” behind these processes (Hessels et al., 2011). Thereby, this investigation undertakes a more nuanced approach to investigate resilient entrepreneurial behavior by considering the effect of recent shocks (i.e., the global financial crisis, hereafter GFC, and the coronavirus crisis, COVID-19 hereafter) on people who live in dissimilar socioeconomic environments and face different sorts of vulnerability (i.e., *gender-related* and *age-related* vulnerability).

The purpose of this study is to examine how the gender-related and age-related likelihood of self-employment varies after economic crises. To achieve this, we look at the probability of self-occupation by gender and age in response to two recent shocks, drawing upon the economic cycle and occupational choice literature. In so doing, we

expect to contribute to the extant research on self-occupation during economic recessions in several ways. First, we take a *dynamic* view, analyzing the variation of the gender and age propensity of self-employment for specific periods preceding and succeeding two different crises. This approach complements previous studies focusing mainly on *static* cross-section research to examine the influence of factors linked to the institutional (spatial) context (Estrin & Mickiewicz, 2009; Klyver et al., 2013; Welter, 2011). Moreover, our study compares two critical points of the entrepreneurship process (i.e., the *intention* and *realization* of self-employment), distinguishing it from previous studies. Secondly, this investigation challenges the notion that economic shocks are homogeneous (Congregado et al., 2012; Koellinger & Thurik, 2012), recognizing that every shock is not identical in terms of duration, scope, and degree of intensity. Since different shocks elicit different responses from people, we compare the effects of an endogenous shock and an exogenous shock to observe the extent to which the likelihood of having an intention and the realization of self-employment varies by focusing on women and seniors. Thirdly, this study extends previous work on opportunity and necessity-driven entrepreneurship by examining how dissimilar contexts moderate the vulnerability for self-employment of women and senior people in the aftermath of crises (Hechavarria & Reynolds, 2009). The results suggest that the national wealth level moderates the effect of disruptive shocks since not all places provide the same advantageous conditions to recover and (re)engage in self-employment for the most fragile segments of the population.

The following section presents a theoretical framework that analyzes the impact of economic shocks on gender and age disparities in self-employment in various contexts. This is followed by a description of the data and methodology used in the empirical tests. The main results and discussion of findings are then summarized, and the study ends with the main conclusions, limitations, and implications.

Theory background

The relationship between crises and self-employment

It is widely accepted that the choice (or need) for self-employment is influenced by the personal features of individuals and by the context surrounding them (De Clercq & Dakhli, 2009). A comparative study by examining different global shocks and the interface between the micro-level (i.e., personal characteristics) and the macro-level of self-occupation (i.e., different cycles and contexts) can enhance our understanding of how *some* people respond and self-employ resiliently at times and places of adversity (Klyver et al., 2013; Langowitz & Minniti, 2007). The entrepreneurial process usually starts with an idea, whether intentional or accidental. This idea can either be acted upon and turned into a new business or simply discarded. Several personal or contextual challenges may arise during this challenging process, preventing the idea from becoming a feasible business. For this reason, we differentiate the *intention* from the *realization* of self-employment.

The theory of planned behavior suggests that multiple individual and contextual factors influence the intention of individuals to become entrepreneurs and that intention is a reasonable precursor to action (Cardella et al., 2024). In this study, *intention* refers to a voluntary and purposeful desire to engage in self-employment, driven by personal motives. On the other hand, *realization* means the complete engagement in self-employment. Simply intending to start a business does not guarantee that people will engage in self-employment. Entrepreneurs often encounter obstacles that hinder their entry into the market, while at the same time, unexpected opportunities or needs may trigger individuals to become self-employed. This mismatch creates a disconnect between their *intention* and the *realization* of self-employment. These scenarios highlight the significance of studying the *intentions* and *realization* of self-employment separately. We contend that sudden shocks can have varying effects both on self-employment *intentions* and *realization*, particularly among the most vulnerable individuals.

While some studies on the linkage between economic cycles and entrepreneurship claim that recession times are pro-cyclical, and therefore, detrimental to entrepreneurship (Bartz & Winkler, 2016; González Pernía et al., 2018), other authors hold that new firms are more likely to survive and to remain in business during crisis times due to the upraised opportunity cost for abandoning their activity (Simón-Moya et al., 2016). Indeed, not all economic recessions are identical and produce the same effects on self-employment (Yu et al., 2024). For instance, the global financial and coronavirus crises are two recent shocks with very different features. A key difference between both crises is that the GFC results from an *endogenous* shock while the coronavirus crisis emerges as an *exogenous* shock. The economic and institutional system caused the GFC. Financial markets froze and liquidity dried up, resulting in a deep economic recession and a long recovery process. In contrast, the COVID-19 pandemic appeared from a virus outside the economic and institutional system. The sudden onset of a global health crisis caused a rapid decline in worldwide markets and institutions, resulting in lockdowns and mandatory business shutdowns. The recovery process has been uneven, with a *"V-shape"* recuperation advancing more quickly once the health problem has been brought under control. Therefore, it is important to analyze how different types of shocks impact the self-employability of vulnerable groups.

The propensity of self-employment of women after economic shocks

Although men and women entrepreneurs are both critical for generating wealth, men still outnumber women in self-employment in most countries, and this gender gap has persisted for decades (Alkhaled & Berglund, 2018; Reynolds, 1997). Historical evidence suggests that the size of the gender gap has varied over time, and one reason for this variation could be that institutions' efforts to reduce gender disparities weaken or disappear during unexpected crises. This recurring phenomenon

in history partially explains why women's entrepreneurial activity rates rarely surpass those of men.

According to the theory of business cycles, when the economy is doing well, it creates favorable conditions for entrepreneurs to start new businesses. However, when the economy struggles, the appeal of starting a business decreases, especially for women facing limited financing access during tough times. Social norms and stereotypes can also discourage women from pursuing self-employment, especially when economic instability and risk are high (Lanchimba et al., 2024). All these procyclical factors combined make it even more challenging for women to consider the desire for self-employment during periods of adversity.

H1a: The probability of self-employment *intention* of women compared to that of men decreases in response to adverse economic shocks.

The connection between economic cycles and entrepreneurship is complex and influenced by various factors at both macro and micro levels. Indeed, this relationship can be unclear, particularly when considering the motivations behind self-employment. Vulnerable individuals with necessity-driven motivations may be impacted differently than those with opportunity-driven motivations (Fairlie & Fossen, 2019), especially after unexpected shocks. A more nuanced study is necessary to better understand how the *realization* of self-employment behaves during times of crisis.

Studies have shown that unexpected crises like the GFC or the COVID-19 pandemic have made women more susceptible to challenges in the job market compared to men (Gezici & Ozay, 2020; Verick, 2009). This is because women are overrepresented in industries hit hardest by economic downturns, such as retail, hospitality, and services (Belitski et al., 2022; Manolova et al., 2020). Women who have lost their jobs, as well as other women, may choose to pursue self-employment as a means of achieving greater autonomy and flexibility in their careers. The theory of occupational choice examines the factors that affect the career path of individuals (i.e., such as their income potential, skills, preferences, and own needs). In this vein, women may adjust their career aspirations or occupational preferences based on the prevailing labor market and their personal conditions (Minniti & Nardone, 2007).

Despite the obstacles women face in the job market, such as gender discrimination, unfair pay, and limited career advancement opportunities (known as the glass ceiling), a shift towards self-employment can provide them with an alternative path to achieve their professional aspirations, financial independence, and personal goals. Especially during times of crisis, self-employment can offer women better work-life balance, job schedule flexibility, and manageable responsibilities, making it a viable option (or need) for those with caregiving obligations or other commitments (Litsardopoulos et al., 2023; Murgia & Pulignano, 2021). While it may seem counterintuitive, crises can sometimes present new opportunities for women to become self-employed and maintain their resilience in the face of challenging circumstances in the job market. This is especially true for women who have been excluded from the labor market and rely (unintendedly) on self-employment as their primary source of income. Thus, we hypothesize that while a gender gap in self-employment still exists overall (with women having lower chances of being self-employed compared

to men, regardless of economic cycles), unforeseen shocks can trigger an increase in women's self-employment relative to men´s and reduce this gap.

H1b: The probability of women's *realization* of self-employment compared to men increases after economic shocks (i.e., although the coefficient remains negative, reflecting a gender gap).

The propensity of self-employment of senior people after economic shocks

This research also investigates how unexpected crises affect senior citizens' self-employment decisions. The population's age structure is rapidly changing, which has significant implications for labor force participation, health service provision, and other societal issues. Discrimination based on age, unequal treatment of senior employees in the labor market, and the self-employability of older workers have become important topics recently for scholars and policymakers (Stypińska & Nikander, 2018).

Senior individuals may be less inclined to take on the financial risks associated with starting their own business, particularly if they have high costs such as mortgages, healthcare expenses, and dependents to support. The theory of occupational choice suggests that older individuals have a shorter time frame to achieve their career and financial goals than younger individuals. Due to this time pressure, seniors´ desire to self-employ could be perceived as more daunting (Kautonen et al., 2014). In fact, transitioning to self-employment may require acquiring new skills or adapting existing ones, which makes the *intention* to launch a new business more arduous and risky for senior people during an economic downturn. Hence, it is reasonable for seniors to prioritize stability and security in their career choices during difficult times.

H2a: The probability of self-employment *intention* of senior people compared to their younger counterparts decreases in response to adverse economic shocks.

Evidence shows that crises tend to reduce employment opportunities for workers over 50, and senior women are particularly affected (Goda et al., 2021). The economic cycle significantly impacts occupational decisions, as vulnerable population groups may turn to self-employment during economic uncertainty. Therefore, self-employment can also be a feasible alternative for older adults during economic downturns. There is a widespread belief in society that people over 50 years old become less valuable for social and economic reasons, regardless of their skills and health status (Choi et al., 2018). Employers often have a biased view of age and prefer younger candidates, leaving older ones disadvantaged during the hiring process (Backman et al., 2021). Even if they are employed, senior employees often receive lower pay than their younger colleagues, and they may also be overlooked for promotions, training opportunities, and other important changes within the company. Economic push factors such as layoffs, downsizing, or age-related discrimination in the labor market may induce seniors towards self-employment to earn a living (Halvorsen, 2021).

These burdens tend to be more pronounced during economic downturns, and can negatively affect the self-esteem and financial security of older workers. As advocated by occupational choice theory, senior individuals may self-employ to maintain control over their professional careers and generate their own income after being unexpectedly displaced from the labor market.

Resilient senior self-employed individuals become relevant not only because they can manage themselves economically during times of crisis but also because they can serve as inspiring role models for others (Soto-Simeone & Kautonen, 2021). Human capital theory holds people can leverage their skills, experience, and resilience to navigate economic uncertainty. While some human capital assets may become obsolete in the labor market, other assets amassed by seniors can be helpful for self-employment. As individuals age, they accumulate valuable knowledge, networks, and sometimes savings throughout their careers (Mair & Marti, 2009). Additionally, older adults who have experienced previous economic downturns may be more adaptable and resilient when faced with new economic shocks. Self-employment can be an appealing option for seniors transitioning into retirement or seeking a better work-health balance after a crisis (Halvorsen, 2021).

Although the literature recognizes an age gap, in general, when it comes to self-employment (Kautonen et al., 2017) (i.e., with senior individuals being less likely than younger ones to pursue entrepreneurship), a sudden shock might encourage the realization of self-employment of senior people, particularly of those who are driven by necessity after being displaced from the labor market.

H2b: The probability of the *realization* of self-employment of senior people compared to their younger counterparts increases after economic shocks (i.e., although the coefficient remains negative, reflecting an age gap).

The after-shock self-employability of women and seniors across countries with different levels of prosperity

The context matters in shaping entrepreneurial behavior, as spatial and social contexts create essential conditions at the macro and meso levels for occupational decisions (Avnimelech & Zelekha, 2023; Brush et al., 2009; Estrin & Mickiewicz, 2011). Recent research suggests that women face more challenges when initiating and expanding their businesses in areas where resources are scarce (Aparicio et al., 2022). In contrast, the conditions for entrepreneurship may be favorable for women in more prosperous locations (Elam et al., 2021; Zhao & Yang, 2021). In other words, the level of economic prosperity in an area could influence women's decision to pursue self-employment after facing unexpected shocks. However, how the context (i.e., the family, temporal, spatial, or sectoral contexts) moderates the relationship between economic crisis and the choice of self-employment by vulnerable segments raises an interesting research issue widely ignored in the entrepreneurship literature (Brutton et al., 2021).

This study emphasizes the moderating role of GDP per capita, a widely used indicator of a place's prosperity, in the relationship between different crises and self-employment variation (Wennekers et al., 2005). Several factors can influence the relationship between GDP per capita and the level of self-employment among

women following economic shocks. In countries with higher GDP per capita, the population tends to have higher education and skill development levels. Women in these countries may possess the necessary knowledge, skills, and entrepreneurial capabilities to pursue self-employment opportunities, even in the face of economic shocks. Countries with higher GDP per capita also have greater technological advancements and digital infrastructure, creating new opportunities for women to start and operate businesses, particularly in online markets (Irmatova, & Akbarova, 2023). These sectors may be more resilient to economic shocks in wealthier economies, which typically recover faster from crises. Moreover, some countries with higher GDP per capita may have more progressive attitudes towards women's economic empowerment (Naveed et al., 2023). In such countries, women may have greater access to support programs, funding opportunities, business networks, and mentorship programs, which can facilitate their entry into self-employment following economic shocks. Therefore, living in areas with higher GDP per capita positively influences women´s self-employment intention and realization during crises.

H3a: Living in countries with higher GDP per capita moderates positively the relationship between being a woman and the probability of having the *intention* to self-employ after a sudden shock.
H3b: Living in countries with higher GDP per capita moderates positively the relationship between being a woman and the probability of the *realization* of self-employment after a sudden shock.

The opportunities for self-employment for senior people also vary across different countries. Those who live in wealthier countries often have pension plans to fund their retirement, so they do not have to depend entirely on their families or the government. Advanced economies with higher GDP per capita usually have more diverse and dynamic markets, providing economic opportunities for individuals of all ages. Seniors in countries with higher GDP per capita may have greater well-being, financial independence, and stability, which enables them to pursue self-employment. Higher savings, retirement funds, and access to financial resources may provide seniors with the necessary capital to start and sustain businesses (Kautonen et al., 2017). Moreover, countries with higher GDP per capita often have more robust social safety nets and welfare systems in place, providing seniors with a safety net in case their self-employment ventures do not succeed. This safety net can mitigate some of the risks associated with entrepreneurship and provide seniors with the confidence to pursue self-employment opportunities.

High-income countries (i.e., such as Switzerland, the United Kingdom, and the Netherlands) offer flexible labor markets for seniors, accommodating alternative work arrangements, including partial self-employment (OECD/European Commission, 2021). For instance, these countries may have a greater demand for specialized expertise in sectors such as consulting, coaching, or mentoring, which can create opportunities for self-employment among seniors. In contrast, less prosperous countries have been slower in addressing aging as a public policy concern and older people may find it difficult to choose self-employment as an occupation (Lloyd-Sherlock, 2000). Moreover, elderly individuals living in resource-constrained settings face severe

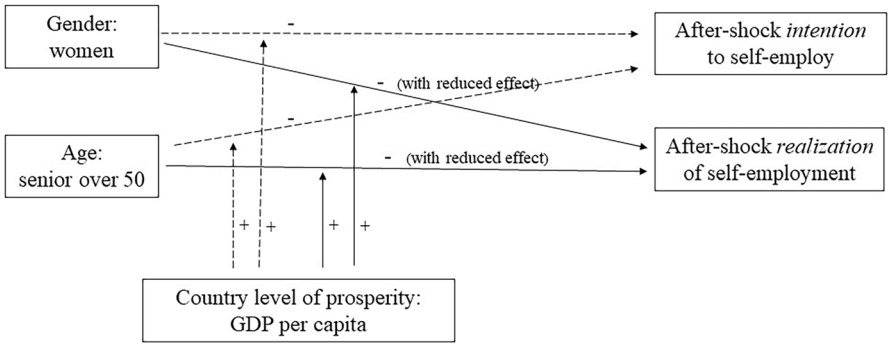

Fig. 1 The moderating role of the context on the self-employability of women and senior people

challenges in self-employment due to limited financial support and low literacy rates (Henriquez-Camacho et al., 2014). Hence, we hypothesize that seniors' *intention* and *realization* of self-employment during an economic downturn are positively affected by residing in areas with a higher GDP per capita.

H4a: Living in countries with higher GDP per capita moderates positively the relationship between being a senior and the probability of having the *intention* to self-employ after a sudden shock.
H4b: Living in countries with higher GDP per capita moderates positively the relationship between being a senior and the probability of the *realization* of self-employment after a sudden shock.

As pointed out by Welter (2011, p.165), "the rules of entrepreneurship do change dramatically from one *time* and *place* to another." We sumnarize that despite the permanent gender and age disparities, women and senior individuals who are resilient and wish to start their own businesses following unanticipated crises are more likely to succeed in locations that are more favorable for entrepreneurship. Our conceptual framework is illustrated in Fig. 1.

Methodology

Sample

The Global Entrepreneurship Monitor (GEM) provides valuable data for examining occupational preferences worldwide. The annual data collection offers insights into the current state of self-employment in various contexts. While there may be some limitations (i.e., inadequate data infrastructure in some countries resulting in incomplete or inaccurate information, and small sample sizes in certain countries), the GEM data has multiple benefits for investigating our topic. The GEM consortium gathers data from numerous countries, enabling comparisons of self-employment rates across borders

(Ouazzani et al., 2021). Additionally, the consortium has been collecting information over several years, allowing for tracking trends in self-employability (Simmons et al., 2019). In particular, data for the pre-shock and post-shock periods for the endogenous crisis (GFC) and the exogenous crisis (COVID-19) have been used to test our hypotheses.

This study emphasizes the need to examine two different early stages of the process of entrepreneurship: the *intention* and the *realization* of self-employment. Therefore, it is crucial to have representative and diverse samples that account for different crises, national contexts, and individuals with distinct profiles. The representativeness of the data depends not only on the quantity of the sample size but also on the quality and appropriateness of the sampling method used. GEM employs reasonable sample sizes in each country to increase the accuracy of the data collected (i.e., the GEM consortium selects a minimum of 2000 adults aged 18 to 64 years old each year from every participating country). The selection process follows a stratified sampling technique to ensure that the survey respondents are representative of the population. In this study, over 250,000 individuals from sixteen countries[1] were interviewed to provide empirical evidence on the *gender and age* disparity in self-employment for the GFC (2008–2010) and the COVID-19 pandemic (2019–2021).

Dependent and independent variables

Two dependent variables are used to describe the two stages of the process of self-employment. On the one hand, we measure the *intention* of people for self-employment (i.e., *ex-ante* stage of self-occupation); on the other hand, we account for the factual *realization* of self-employment (i.e., *ex-post* stage of self-occupation). The variable *intention* describes the intent to self-employ in the next 3 years at the moment of the interview. If the answer is "yes", the variable *intention* takes the value of one (1), and zero (0) otherwise. The variable *realization* describes whether a respondent owns a new business and has recently earned a wage from self-employment for up to three months after paying business expenditures. If the answer is "yes", the variable *realization* takes the value of one (1), and zero (0) otherwise. The effects on the dependent variables for the period right *before* and *after* each shock are compared (i.e., results for the *Pre-shock* and *Post-shock* models). The literature has used these dependent variables to analyze the subject of nascent entrepreneurs (Wennekers et al., 2005).

The *explanatory variables* are classified into two levels. Level-1 variables reflect the personal characteristics of individuals, while Level-2 variables account for the variation by country. Among the Level-1 variables, two main variables are highlighted to test for gender and age disparity: *Female* and *Age*. *Female* is a dichotomous variable taking a value of one (1) if the respondent is a woman and zero (0) otherwise. *Age* is also a dichotomous variable taking a value of one (1) if the respondent is over 50 years old and zero (0) otherwise. These variables have been previously used in studies

[1] The countries included in this study are Norway, Netherlands, Latvia, United Kingdom, Germany, Spain, Italy, Croatia, Slovenia, Greece, Egypt, Iran, Israel, Brazil, Chile, and Colombia.

related to the literature on women and senior entrepreneurship l (Estrin & Mickiewicz, 2011; Kautonen et al., 2014; Simmons et al., 2019).

Two more Level-1 control variables have been added to measure human capital - *College* and *Experience*- and the perception of fear of business failure. *College* is a binary variable that takes the value of one (1) if the respondent has a college degree and zero (0) if not. The variable *Experience* determines whether individuals have prior entrepreneurial or self-employment experience, regardless of the outcome, since learning occurs from both positive and negative entrepreneurial experiences (DeTienne et al., 2015; Guerrero & Peña-Legazkue, 2019). If the respondent has shut down a business within the last twelve months, the variable *Experience* takes the value one (1) and zero (0) otherwise. Previous studies have included similar variables to examine the relationship between individual attributes and entrepreneurship (Dimov, 2010; Ouazzani et al., 2021).

The Level-2 variable is based on country data and represents GDP per capita data for sixteen countries provided by the World Bank. This variable has been used in other studies to represent the context for entrepreneurship and its level of prosperity (Bosma et al., 2018; Wennekers et al., 2005). The variable *GDP* has been converted to US dollars and adjusted for inflation across the pre-shock and post-shock periods to equate the purchasing power of people in both periods. This moderating variable representing the wealth level of each context interacts with our main explanatory variables to test the variation after different crises of the likelihood of self-employment of women and seniors, as exhibited in Fig. 1. Table 1 summarizes all the variables used in this study, including the additional variables used for robustness tests.

Method

A multilevel binary logistic regression analysis is applied to test our hypotheses. Multilevel regression is a powerful tool for understanding complex data structures and relationships. The hierarchical linear method is commonly used when data has a nested structure and there is a natural grouping of observations. In our sample, we have level-1 individual data and level-2 country data. We use a two-level model to account for the differences in contexts and to measure the effect of both within-country and between-countries variations. Our tests are conducted in two stages. Firstly, we examine an unconditional null model to identify the effect of country variation and compute the intra-class correlation index. Secondly, we test a full model with the main and moderating variables. This approach has been previously used in studies by Guerrero and Walsh (2023) and Chen et al. (2022).

Results

Table 2 displays the descriptive statistics and correlation matrix of the entire sample. Of all respondents, 16% intend to become self-employed within three years and 5% have already become self-employed in the past three months. Approximately 53%

Table 1 Description of variables

Dependent Variables		
Intention	Intention to self-employ in the next 3 years	1 = yes, 0 = No
Realization	At least 3 months with initial earnings from self-employment	1 = yes, 0 = No
Independent Variables		
Level-1, Individual		
Female	Individual is a woman	1 = yes, 0 = No
Age	Individual is over 50 years old	1 = yes, 0 = No
College	Individual has a college degree	1 = yes, 0 = No
Experience	Individual is owner of a firm which has shut down in the last 12 months	1 = yes, 0 = No
Level-2, Country		
GDP	GDP per capita for a given country	US dollars adjusted for inflation
Additional Level-1 variables for robustness tests		
Opportunity	Individual perceives good opportunities to self-employ in the next 6 months	1 = yes, 0 = No
Fear of failure	Fear of failure does not prevent the choice of self-employment	5-Likert scale

Table 2 Descriptive statistics and correlation matrix

	Mean	S.D.	Intention	Female	Age	College	Experience	Opportunity	Fear Failure
Intention	0.16	0.03							
Female	0.53	0.50	-0.062**						
Age	0.30	0.04	-0.134**	0.028**					
College	0.42	0.04	0.029**	-0.006**	-0.095**				
Experience	0.03	0.01	0.133**	-0.016**	-0.009**	0.00			
Opportunity	0.01	1.00	0.202**	-0.052**	-0.51**	0.016**	0.034**		
Fear failure	-0.02	1.00	-0.084**	0.054**	-0.010**	-0.016**	-0.019**	-0.120**	
GDPpc	28,071	16,119	-0.293**	0.001	0.089**	0.054**	-0.075**	-0.061**	0.005*

N = 272,560 observations

Significant at *$p<0.10$; **$p<0.05$

of the whole sample are women, and nearly 30% are above 50 years old. Roughly 42% of the participants hold a college degree, and about 3% have previous self-occupation experience. The mean GDP per capita across all countries is approximately 28,000 US dollars. We computed the variance inflation factor (VIF) scores for all the variables, and none of the VIF scores crossed the threshold of 5.0, indicating no risk for multicollinearity among the explanatory variables.

Table 3 shows the results of the multilevel binary logistic regression tests for the *intention* of self-employment. Table 4, on the other hand, displays the results for the subsequent stage of the *realization* of self-employment. In both cases, we first analyze the null models to check how the grouping by countries is related to the dependent variables, *intention* and *realization* of self-employment. Standarized coefficients have been used for comparability. In general, the intraclass correlation (ICC) coefficients of the null models are acceptable, falling within the range of 5%

Table 3 The intention of Self-employment (ex-ante stage of occupation)

GLOBAL FINANCIAL CRISIS

Pre-shock period (N=62,320) **Post-shock period (N=67,096)**

Null Model (Level 2, country-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Intercept	0,185	0,043	0,001	0,165	0,033	0,000
	Estimate of covariance parameters			*Estimate of covariance parameters*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Residual	0,086	0,000	0,000	0,113	0,001	0,000
Intercept	0,029	0,011	0,006	0,017	0,006	0,006
ICC	0,254			0,130		

Full Model (Level 1 individual-level and Level 2 country-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Intercept	0,392	0,061	0,000	0,447	0,086	0,000
Female	-0,095	0,015	0,000	-0,101	0,017	0,000
Age	-0,149	0,025	0,000	-0,146	0,018	0,000
College	0,013	0,003	0,000	0,021	0,003	0,000
Experience	0,154	0,009	0,000	0,217	0,008	0,000
GDP	-0,005	0,000	0,006	-0,001	0,000	0,023
Female*GDP	0,001	0,000	0,018	0,001	0,000	0,045
Age*GDP	0,001	0,000	0,025	0,002	0,000	0,004
	Estimate of covariance parameters			*Estimate of covariance parameters*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Residual	0,084	0,000	0,000	0,109	0,001	0,000
Intercept	0,023	0,009	0,009	0,045	0,017	0,010
Female	0,001	0,000	0,021	0,001	0,001	0,029
Age	0,004	0,001	0,014	0,002	0,001	0,039

COVID PANDEMIC CRISIS

Pre-shock period (N=48,814) **Post-shock period (N=52,742)**

Null Model (Level 2, country-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Intercept	0,219	0,044	0,000	0,215	0,044	0,000
	Estimate of covariance parameters			*Estimate of covariance parameters*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Residual	0,120	0,001	0,000	0,116	0,001	0,000
Intercept	0,031	0,011	0,006	0,030	0,011	0,006
ICC	0,204			0,207		

Full Model (Level 1 individual-level and Level 2 country-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Intercept	0,434	0,056	0,000	0,419	0,059	0,000
Female	-0,060	0,012	0,000	-0,072	0,017	0,001
Age	-0,145	0,027	0,000	-0,127	0,021	0,000
College	0,022	0,003	0,000	0,022	0,003	0,000
Experience	0,158	0,009	0,000	0,203	0,009	0,000
GDP	-0,006	0,000	0,001	-0,001	0,000	0,004
Female*GDP	0,005	0,000	0,118	0,004	0,000	0,407
Age*GDP	0,002	0,000	0,059	0,001	0,000	0,042
	Estimate of covariance parameters			*Estimate of covariance parameters*		
	Standarized coefficient	Std. Error	p-value	Standarized coefficient	Std. Error	p-value
Residual	0,116	0,001	0,000	0,113	0,001	0,000
Intercept	0,017	0,006	0,009	0,019	0,007	0,009
Female	0,001	0,000	0,072	0,001	0,001	0,025
Age	0,004	0,002	0,016	0,002	0,001	0,026

Table 4 The realization of Self-employment (ex-post stage of occupation)

	GLOBAL FINANCIAL CRISIS						COVID PANDEMIC CRISIS					
	Pre-shock period (N=70,657)			Post-shock period (N=77,122)			Pre-shock period (N = 60,766)			Post-shock period (N= 64,015)		
Null Model (Level 2, country-level)												
	Estimate of fixed effects			*Estimate of fixed effects*			*Estimate of fixed effects*			*Estimate of fixed effects*		
	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value
Intercept	0,047	0,007	0,000	0,040	0,006	0,000	0,076	0,015	0,000	0,069	0,013	0,000
	Estimate of covariance parameters			*Estimate of covariance parameters*			*Estimate of covariance parameters*			*Estimate of covariance parameters*		
	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value
Residual	0,037	0,000	0,000	0,037	0,000	0,000	0,064	0,000	0,000	0,055	0,000	0,000
Intercept	0,001	0,000	0,007	0,001	0,000	0,007	0,004	0,001	0,006	0,003	0,001	0,006
ICC	0,023			0,014			0,053			0,049		
Full Model (Level 1 individual-level and Level 2 country-level)												
	Estimate of fixed effects			*Estimate of fixed effects*			*Estimate of fixed effects*			*Estimate of fixed effects*		
	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value
Intercept	0,084	0,014	0,000	0,061	0,012	0,000	0,115	0,027	0,001	0,106	0,023	0,000
Female	-0,042	0,008	0,000	-0,019	0,006	0,005	-0,029	0,009	0,005	-0,020	0,008	0,033
Age	-0,024	0,008	0,007	-0,017	0,006	0,010	-0,045	0,010	0,000	-0,049	0,010	0,000
College	0,009	0,002	0,000	0,017	0,002	0,000	0,019	0,002	0,000	0,015	0,002	0,000
Experience	0,074	0,005	0,000	0,083	0,004	0,000	0,065	0,005	0,000	0,086	0,005	0,000
GDP	-0,007	0,000	0,063	-0,004	0,000	0,206	-0,001	0,000	0,198	-0,001	0,000	0,107
Female*GDP	0,004	0,000	0,071	-0,006	0,000	0,707	0,002	0,000	0,553	0,002	0,000	0,568
Age*GDP	0,002	0,000	0,383	0,001	0,000	0,404	0,005	0,000	0,106	0,007	0,000	0,034
	Estimate of covariance parameters			*Estimate of covariance parameters*			*Estimate of covariance parameters*			*Estimate of covariance parameters*		
	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value	Standarized Coefficient	Std. Error	p-value
Residual	0,036	0,000	0,000	0,037	0,000	0,000	0,063	0,000	0,000	0,055	0,000	0,000
Intercept	0,001	0,000	0,011	0,001	0,000	0,013	0,004	0,001	0,009	0,003	0,001	0,009
Female	0,003	0,000	0,026	0,000	0,000	0,083	0,002	0,000	0,054	0,003	0,000	0,049
Age	0,002	0,000	0,056	0,000	0,000	0,101	0,003	0,000	0,054	0,003	0,000	0,036

to 25%. As a next step, the fixed and random effects are estimated by incorporating both the level-1 and level-2 explanatory variables into the full models.

Results on the likelihood of women to self-employ after sudden shocks

The negative and significant coefficients for the variable *Female* consistently show that women are less likely than men to self-employ, which aligns with existing literature. In Table 4, our analysis further reveals that the probability of women's *realization* of self-employment compared to men increases slightly after both the GFC shock and the COVID-19 pandemic (though the coefficient is still negative as predicted). In particular, the increase is from β = -0.042 to β = -0.019 after the GFC shock and from β = -0.029 to β = -0.020 after the COVID-19 pandemic. In contrast, the results in Table 3 show that the probability of women *intending* to become entrepreneurs decreases slightly after both economic shocks. Specifically, the decrease is from β = -0.095 to β = -0.101 after the GFC shock, and from β = -0.060 to β = -0.072 after the COVID-19 pandemic. Overall, these results support H1a and H1b and consistently show a gender disparity in the *intention* and *realization* of self-employment in the pre-shock and post-shock periods for each crisis (i.e., GFC and COVID-19). Interestingly, the gender gap in entrepreneurial *intention* widens for women after each shock (i.e., H1a), but their resilience leads to a less severe impact on self-employment *realization* (i.e., H1b).

Results on the likelihood of senior people to self-employ after sudden shocks

The results also reveal that older people are generally less likely to become self-employed than their younger counterparts. As expected, the negative coefficients of the variable *age* in all the models suggest an age disparity exists when pursuing and materializing self-employment. However, two outcomes are noteworthy. On the one hand, the likelihood of older people *intending* to become self-employed compared to younger people increases a little from β = -0.149 to β = -0.146 during the GFC crisis, and a bit more from β = -0.145 to β = -0.127 during the COVID-19 pandemic. Therefore, these findings do not support H2a, which holds that older people's intention to become self-employed would be worsened after sudden shocks. On the other hand, the probability of the *realization* of self-employment increases for older people from β = -0.024 to β = -0.017 during the GFC shock, but it decreases from β = -0.045 to β = -0.049 during the COVID-19 pandemic, possibly due to the weaker health condition of many seniors during the pandemic. Hence, H2b is partially supported. In brief, senior individuals exhibit distinct entrepreneurial behavior compared to women. While the age gap in entrepreneurial *intention* narrows for seniors after each shock, they become less resilient when *realizing* self-employment during the pandemic crisis.

Results on the moderating effect of the prosperity level of the context

The development and wealth conditions of a particular context can either encourage or restrict individuals from seeking self-employment opportunities (Brutton et al., 2021). The results of the null models and the coefficients for the moderating variables of the full models demonstrate that context plays a significant role. The tests reveal that the interaction terms have significant coefficients, all with positive values ranging from β = 0.001 to β = 0.007. These values suggest that in contexts with higher GDP per capita, the self-employment probability of women and senior individuals further increases after different crises. As the coefficients are consistently positive and statistically significant for both the *intention* and the *realization* of self-employment in the GFC and COVID-19 crises, we find support for our hypotheses (i.e., H3a, H3b, H4a, and H4b).

In sum, the results suggest that women and seniors are less likely than men and younger people to pursue and materialize self-employment. However, women and seniors tend to respond more resiliently after crises (i.e., with a slight increase in their probability of self-employment), and in particular, those living in prosperous countries with higher GDP per capita are more inclined towards self-employment. On the contrary, women and senior people from poorer regions become less entrepreneurial and more vulnerable. Therefore, the impact of crises varies depending not only on the characteristics of individuals and the type of crisis, but also on the context in which people live. This additional burden of self-occupation is what we call *augmented vulnerability*.

Results for the robustness tests

Robustness tests were conducted to check the existence of gender and age disparity by changing certain conditions at both level-1 and level-2 in our models. Specifically, we expanded the full models with three perceptual variables at level-1 that complement the human capital profile and perceptions of the individuals. The dichotomic variable *opportunity* represents respondents' perception of good business opportunities in the coming six months, while the variable *fear failure* describes whether or not the fear of business failure would prevent the respondent from pursuing self-employment. Fear of failure is measured by a 5-likert scale centered around the value of zero. Additionally, we nested the countries into several regions at level-2, including northern-Europe, southern-Europe, Middle East-North Africa, and Latin America. The results consistently support our hypotheses and previous outcomes, as shown in Table 5. In general, both the gender and age disparity persist for both the *intention* and *realization* of self-employment after sudden shocks, and this effect is even more pronounced in regions with lower averages of GDP per capita (i.e., *augmented vulnerability*).

Discussion

Scholars widely agree that studying the self-employment of individuals during recessions is essential, given that inclusive entrepreneurship can promote a fair and rapid economic recovery (Liñán & Jaén, 2020; Shepherd et al., 2020). Some people become self-employed by necessity, while others see it as an opportunity to

Table 5 The Robustness test for self-employment

GLOBAL FINANCIAL CRISIS

Pre-shock period | **Post-shock period**

Null Model (Level 2, region-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Intercept	0,051	0,012	0,025	0,043	0,014	0,053
	Estimate of covariance parameters			*Estimate of covariance parameters*		
	Standarized coefficients	**Std. Error**	**p-value**	**Estimate**	**Std. Error**	**p-value**
Residual	0,037	0,000	0,000	0,037	0,000	0,000
Intercept	0,001	0,000	0,224	0,001	0,001	0,222
ICC	0,015			0,020		

Full Model (Level 1 individual-level and Level 2 region-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Intercept	0,093	0,013	0,003	0,055	0,012	0,013
Female	-0,037	0,012	0,032	-0,020	0,006	0,011
Age	-0,030	0,009	0,020	-0,017	0,007	0,065
College	0,011	0,002	0,000	0,016	0,002	0,000
Experience	0,065	0,006	0,000	0,079	0,005	0,000
Opportunity	0,023	0,001	0,000	0,019	0,001	0,000
Fear failure	-0,014	0,001	0,000	-0,009	0,001	0,000
GDP	-0,005	0,000	0,001	-0,004	0,000	0,001
Female*GDP	0,002	0,000	0,177	0,001	0,000	0,480
Age*GDP	0,003	0,000	0,146	0,003	0,000	0,090
	Estimate of covariance parameters			*Estimate of covariance parameters*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Residual	0,048	0,000	0,000	0,040	0,000	0,000
Intercept	0,001	0,001	0,242	0,004	0,000	0,228
Female	0,004	0,000	0,273	0,006	0,000	0,296
Age	0,001	0,000	0,358	0,002	0,000	0,366

COVID PANDEMIC CRISIS

Pre-shock period | **Post-shock period**

Null Model (Level 2, region-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Intercept	0,093	0,041	0,108	0,077	0,034	0,110
	Estimate of covariance parameters			*Estimate of covariance*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Residual	0,065	0,000	0,000	0,055	0,000	0,000
Intercept	0,007	0,006	0,221	0,005	0,004	0,221
ICC	0,094			0,077		

Full Model (Level 1 individual-level and Level 2 region-level)

	Estimate of fixed effects			*Estimate of fixed effects*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Intercept	0,104	0,042	0,087	0,097	0,031	0,050
Female	-0,035	0,009	0,011	-0,021	0,006	0,015
Age	-0,041	0,009	0,003	-0,046	0,011	0,008
College	0,027	0,002	0,000	0,016	0,002	0,000
Experience	0,071	0,006	0,000	0,085	0,005	0,000
Opportunity	0,009	0,001	0,000	0,014	0,001	0,000
Fear failure	-0,008	0,001	0,000	-0,017	0,001	0,000
GDP	-0,004	0,000	0,008	-0,007	0,000	0,000
Female*GDP	0,004	0,000	0,026	0,003	0,000	0,095
Age*GDP	0,005	0,000	0,018	0,006	0,000	0,001
	Estimate of covariance parameters			*Estimate of covariance*		
	Standarized coefficients	**Std. Error**	**p-value**	**Standarized coefficients**	**Std. Error**	**p-value**
Residual	0,066	0,000	0,000	0,056	0,000	0,000
Intercept	0,007	0,006	0,222	0,004	0,003	0,222
Female	0,002	0,000	0,268	0,006	0,000	0,352
Age	0,001	0,000	0,298	0,003	0,000	0,265

start a profitable venture during crises (van Stel et al., 2023). Only recently have researchers started exploring how the most vulnerable people cope with disruptive events and natural disasters and how such crises affect women and older individuals' pursuit of self-employment (Bullough et al., 2014; Li et al., 2019; Marshall et al., 2015). However, little is known about the reasons why some individuals succeed while others do not and whether marginalized groups have equal access to resources and opportunities for self-employment in successive periods of adversity (Bird & Brush, 2002; Minniti & Nardone, 2007). In response to the claim in the scholarly literature that further research is needed on this relevant issue, this study investigates the factors contributing to gender and age differences in self-employment during various crises (Davidsson & Gordon, 2016; Marlow & Swail, 2014).

Unlike in other studies, we explore the extent to which crises differently impact individuals during two early stages of the process of self-employment, namely *intention* and *realization*. This research contributes new evidence to the existing literature on the asymmetric effects of disabling shocks on different genders and age groups in various phases of the process of entrepreneurship (Guerrero & Peña-Legazkue, 2019; Simmons et al., 2019). More precisely, we investigate both the *intention* and *realization* early stages of self-employment, providing a more comprehensive understanding compared to studies that investigate only one stage of the entrepreneurship process. Our findings reveal that the effects of any crisis (i.e., either endogenous or exogenous shocks) point consistently in the same direction (i.e., against women and senior people) in both phases (i.e., *intention* and *realization* of self-employment).

Our novel approach - blending personal, temporal, and spatial dimensions - helps us better identify individuals who exhibit resilience towards entrepreneurship during distinct periods and contexts of adversity. Indeed, our results confirm differences in gender and age disparity across contexts, as suggested by previous studies that take a *static* cross-sectional perspective (Brush et al., 2019; Shinnar et al., 2012). However, in our analysis, we go beyond a static view and take a *dynamic approach* by considering the potential changes in the likelihood of self-employment over time, particularly in response to various unexpected events. By incorporating a *temporal* perspective, we observe that the rate of self-employment can also vary due to resilient responses by vulnerable segments such as women and senior entrepreneurs to sudden shocks. Through a comprehensive investigation of how self-employment varies among people from diverse backgrounds, we reveal the untapped potential of women and seniors for entrepreneurship.

Our findings complement previous findings of the theory of occupational choice (Kautonen et al., 2014) in that from a temporal perspective, the *intention* is distinguished from the *realization* of self-employment. Unlike in previous studies on occupational choice, differences in both stages of the process of entrepreneurship are identified. Findings in the literature suggest that crises affect people's self-employability, and most of the time, this impact is to the detriment of most vulnerable people (Lim, 2000; Rubery & Rafferty, 2013; Xie & Lv, 2016). Our findings suggest that although the gender gap in self-employment *intentions* may worsen after economic shocks, it tends to narrow when *realizing* self-employment. Additionally, senior entrepreneurs tend to have a higher *intention* to self-employ during crises. However, their likelihood of doing so decreased only during the recent COVID-19 pandemic (i.e., probably due to more severe health

problems experienced by older people). Our findings emphasize the strong entrepreneurial spirit of women and seniors in the face of unforeseen external challenges. The insights gained from their intention and resilient realization of self-employment can provide valuable guidance to policymakers in designing effective support programs for vulnerable segments during times of hardship.

Business cycle theory analyzes the causes and effects of economic expansions and contractions. Complementing previous findings (Parker et al., 2012), we argue that crises' effects on people's self-employability are not uniform. Crises differ in origin, nature, duration, and intensity; therefore, the impact of each crisis on self-employment varies across distinct segments of the population. Our research on the effects of the two most recent global crises, namely the GFC and the COVID-19 pandemic, shows that there is still a continuous disparity in self-employment rates based on gender and age, regardless of the type of crisis (whether it is an endogenous or exogenous shock). We extend the work by Brush et al. (2019) and Elam et al. (2021), and claim that the *intention* and *realization* of self-employment vary for each group depending on the specific characteristics of the crisis.

It is well known that the context is important for understanding *when*, *how, where,* and *why* entrepreneurship happens and *who* becomes involved (Giménez & Calabró, 2018; Welter, 2011). The level of wealth in different locations largely explains the variation in desirability and feasibility of self-employment, as context shapes entrepreneurial intentions and attitudes (Zhu et al., 2021). Recent studies on inequality and

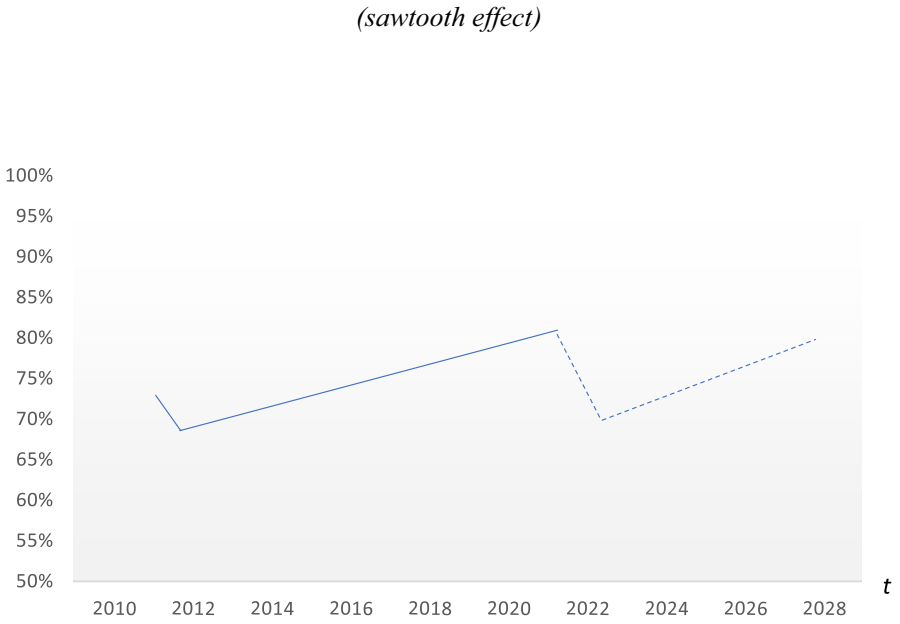

Fig. 2 The global gender-gap ratio of self-employment intention (Women/Men, %)

entrepreneurial thresholds suggest that a country's uneven wealth distribution affects the availability of resources and opportunities, which can influence the success of aspiring entrepreneurs (Constantinidis et al., 2019; Sarkar et al., 2018). Our findings show that the after-shock resilient behavior of women and seniors is enhanced in more prosperous places. It is well known that differences in markets, institutions, and wealth levels in countries have significant implications for economic inequality (Brutton et al., 2021) and also for gender and age disparity in self-employment. We contribute to the literature on economic development and entrepreneurship by arguing that the recovery from any crisis is typically unequal, with economically disadvantaged groups and emerging economies needing much more time and support to recover from each shock (i.e., what we call *augmented vulnerability*). The most recent historical evidence indicates that self-employment gender and age gaps tend to converge towards parity through cycles, with sudden drops occurring at shocks and gradual improvements taking place over longer periods. A new disruptive event has the potential to undo the institutional efforts made to promote gender and age parity. That is, abrupt shocks can cause a "sawtooth effect", leading to a severe reduction or complete elimination of the positive impacts of policies on parity implemented over many years, especially in less favored regions (See Fig. 2).

Conclusion

This research confirms the existence of a continuous disparity by gender and age in the pursuit and achievement of self-employment during crises, and the difficulty for resilient entrepreneurship is more pronounced for women and seniors who live in less prosperous environments. Although these vulnerable segments are more exposed to crises, they appear more resilient since, according to our results, their likelihood of turning to self-employment increases slightly after sudden shocks. Hence, the findings suggest that to achieve a faster recovery and more inclusive entrepreneurial activity, it is essential to enhance the conditions of the context for entrepreneurship for the most vulnerable yet resilient segments of society.

Implementing universal policies in response to various disruptive crises, to promote equality and accelerate economic recovery may not be effective (Estrin & Mickiewicz, 2009). Our research suggests that the impacts of each shock on the likelihood of women and senior citizens becoming self-employed differ, and these effects vary across different regions. Numerous studies consider shocks to be uniform events, but our research recognizes the diverse nature of crises and their varying effects (Parker et al., 2012). Investigating how and why different types of crises lead to distinct self-occupation outcomes is an intriguing research area we reserve for future studies. Additionally, the recuperation process after a crisis is not identical, as susceptible individuals and settings require more time and support to recover. Moreover, since the personal profiles of women and older people are very diverse, policymaking is even more complex. Therefore, we emphasize the relevance of considering the unique circumstances of *each crisis*, *place,* and *individual* when formulating policies to promote equality and accelerate economic recovery.

Limitations and avenues for future research

The investigation is not exempt from limitations. First, it is important to note that during times of crisis, the impact is not evenly distributed among all countries and does not occur simultaneously. For this study, we have used a 2-year time frame between the pre-shock and post-shock points for the GFC and COVID-19 crises. However, this time frame may not be accurate for all countries. Adjusting the time frame for each country and each crisis would provide more precise results.

Secondly, despite focusing on two early stages (i.e., self-employment *intention* and *realization*), our study did not consider subsequent stages of the venturing process (e.g., firm survival, growth, internationalization). It would be interesting to investigate gender and age gaps in the later stages of new ventures following disruptive shocks, as in the study by van Stel et al. (2023). This type of analysis would require panel or longitudinal data, which is not easy to obtain, especially in more disadvantaged regions. Undoubtedly, the new findings on this issue would improve our understanding of the fragility of women and senior self-employment derived from crises across the whole spectrum of the venturing process.

Thirdly we only focused on the crisis without delving into the specifics of each one. Our study fell short in measuring the extent and main features of each crisis. By understanding the characteristics of each type of crisis, we would gain new insights into how individual features of shocks (i.e., such as changes in the unemployment rate, financial market plunges, and inflation rates) impact the inequality of self-occupation.

Lastly, it is worth noting that this study only investigated sixteen contexts by looking at the prosperity level of each country. Despite having similar GDP per capita, there may be significant institutional differences between countries in terms of gender and age barriers. These differences may arise due to variations in norms, religious and social customs, and ethical standards. Furthermore, there may be regional (sub-national) differences within a country that contribute to such variations (González et al., 2010). To gain a more in-depth understanding of the levels of vulnerability of individuals for self-employment during crises, it would be crucial to analyze the evolution of the gender and age gaps in a more extensive range of contexts, including information for both formal and informal institutions, at macro and mezzo-environments (Crecente et al., 2022; Simmons et al., 2019).

Theoretical implications

In order to gain a better understanding of the factors that drive or prevent women and senior individuals from pursuing self-employment, analyzing *individual* and *cross-sectional* factors alone may not be sufficient. Firstly, it is necessary to consider the *cyclical effects* of different shocks on vulnerable segments of society and their access to resources during times of adversity. Secondly, not all crises are the same, and different crises may result in varying levels of resilience and dissimilar entrepreneurial responses from people. Thirdly, the probability of self-employment

of women and seniors is not uniform across locations as they tend to be more vulnerable in less wealthy contexts.

Hence, *individual, locational,* and *temporal* lenses are needed to further investigate the complex self-employability of people under adversity. Such a broader conceptualization, by bridging together all these perspectives, may prove appropriate for future theorizing and empirical testing on the unfulfilled potential of women and senior entrepreneurs.

Policy implications

The findings of this research offer guidance and several implications for policymakers and other stakeholders of entrepreneurial ecosystems. The first implication for policymaking has to do with the complexity of crises. To avoid a higher level of inequality and to reduce a structural gender and age poverty gap, entrepreneurial empowerment of the most needed ones should be promoted to pursue equal economic opportunities and to enhance social inclusion across industry sectors and different institutional contexts (Konon et al., 2018; Korosteleva & Stępień-Baig, 2020). Bearing our results in mind, policy decision-makers should tailor their policies considering a mix of several factors such as the nature of each shock, the personal attributes of the most needed people for entrepreneurship, and the singular characteristics of each place and its institutional context (Backman et al., 2021; Bird & Brush, 2002; Verheul et el., 2006). The policies to promote self-employment of the most vulnerable people after crises would not achieve the expected outcomes (i.e., productive entrepreneurship), unless such support programs recognize the specific complexity of self-employment of different people for different shocks and in different environments. Without a more nuanced understanding of the factors that lead to an *augmented vulnerability*, any policy misfit would weaken entrepreneurial activity and slow economic recovery from crises.

A second implication has to do with the support programs designed by policymakers. Since crises do not affect everyone and every sector in the same manner, policies must strive to ameliorate the damaging effects by supporting the most affected vulnerable groups across different industries and ensuring the provision of equal access to (scarce) resources (i.e., specialized training, mentoring, seed finance, etc.). Equitably tailored policies would help minimize the harmful effects of *gender-gap* and *age-gap* for self-employment both in the short run and in the long run. Some policies may focus on the short-run by delivering financial resources to the most needed ones (i.e., temporary tax reliefs, elimination of administrative red tape, direct cash grants, etc.). In contrast, other policies could be oriented in the long-run to upgrade the skills and capabilities needed to better explore and exploit new business opportunities in unusual contexts (i.e., through specific education and training programs tailored for women and senior people).

Finally, we further recognize the heterogeneous nature of women and seniors, and thus, contend that they should not be treated as two single homogeneous groups (Stirzaker & Sitko, 2019; Poggesi et al., 2016). This may be key to understanding why

universal entrepreneurship policy programs seeking gender egalitarianism accomplish contradictory results (Cheraghi et al., 2019; Shahriar, 2018). Thereby, policies to support more inclusive self-employability must be revised and implemented rigorously, especially in periods of higher economic and social instability (i.e., periods of worldwide crises). Indeed, the gender and age gaps for self-employment do not only appear in crises. Instead, these gaps persist invisibly with little attention until the shocks increase the size of such a disparity, making it more difficult to ignore. The crises make the iceberg peak over the water. Our study attempts to explain this phenomenon by providing a perspective distinguishing between crisis and normalcy periods. From a positive angle, it should be noted that the COVID opened new windows of opportunities for self-employment to some segments (i.e., new telematic jobs from home), suggesting that a *new normal* of self-employability may be underway. But the "others" engaged in "everyday entrepreneurship" should not be ignored, people who are also protagonists of their own lives, families, communities, and contexts (Welter et al., 2017).

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Declarations

Conflict of interest The authors have no further competing interests to declare that are relevant to the content of this article.

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