



# Does democracy foster entrepreneurship?

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**Abstract** Entrepreneurship has been connected to several socio-economic issues. However, despite the growing conjectures, the links with democracy have yet to be substantiated. By using a country-level panel dataset over the 1972–2010 period, we find evidence that democracy is conducive to entrepreneurship. We shed light on the intensity and multidimensionality of democracy by showing that the promotion of free social interchange and the direct involvement of civil society in political processes are two dimensions of democracy driving such effect. We additionally observe that entrepreneurship is sensitive to both contemporaneous and historical values of democracy. By providing the first systematic empirical evidence that entrepreneurship and democracy are directly connected, this study suggests to consider their ongoing concomitant retreats as two related phenomena.

**Plain English Summary** Is there a link between democracy and entrepreneurship? This study provides the first systematic empirical evidence that the link actually exists. By using longitudinal data from 23 countries over the 1972–2010 period, we document that democracy is conducive to entrepreneurship. Not only transitions to democracy, but also changes in the intensity of democracy affect entrepreneurial activity. How can democracy foster entrepreneurship? We show that the promotion of freedom and social interchange, which facilitate the creation and the diffusion of knowledge, and the pursuit of civil society participation in political processes, which enhances institutional trust, are two channels driving the positive effect. We also find that entrepreneurship is sensitive to both contemporaneous and historical level of democratization. By providing the first evidence that entrepreneurship is directly connected to democracy, our findings make an important contribution to the entrepreneurship literature. Not only does entrepreneurship matter, but in particular, it is the result of vibrant democracy. If we want entrepreneurship to prosper, there is a need to preserve and nurture democracy.

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## 1 Introduction

Democracy has come back to the center of a heated debate. Though democratic institutions had been cemented as unshakable and unassailable for a long period, especially in Western developed economies, recent events challenge this belief. “Democracy in retreat”<sup>1</sup>; “Democracy under siege”<sup>2</sup>; “Authoritarian regimes gain ground”<sup>3</sup>; “We are deeply concerned with the decline in democracy over the past decade”<sup>4</sup>. These are just some of the worrisome growing warnings about the deteriorating health of democracy, which is not a single-country phenomenon but rather a global event (Diamond, 2015, 2020; Lührmann et al., 2019; Plattner, 2015). There is a growing recognition that the logic of democracy can be eroded in small steps, notably in the most established democratic societies (Adler et al., 2023).

Does this matter for entrepreneurship? Past research suggests it does. Over the last two decades, scholars have documented that contextual and institutional changes shape entrepreneurial activity (Aparicio et al., 2016; Autio et al., 2014; Baumol, 1990; Bennett et al., 2022; Chowdhury et al., 2019; Dorado & Ventresca, 2013; Estrin & Mickiewicz, 2011; Hwang & Powell, 2005; Sobel, 2008; Urbano et al., 2019; Welter, 2011). Specifically, recent studies point out that entrepreneurship is connected to several issues that can be related to democratic systems, including economic and individual freedom (Lehmann & Seitz, 2017; McMullen et al., 2008), property rights and rule of law (Mickiewicz et al., 2021), distribution of power (Liñán, F., and Fernandez-Serrano, 2014), social networks (Batjargal et al., 2013), social norms (Meek et al., 2010), and tolerance and trust (Audretsch et al., 2018). However, the direct link between entrepreneurship and democracy has received little consideration, and it needs to be substantiated. Researchers have investigated the effects of democracy on several socio-economic outcomes,

ranging from economic growth (Acemoglu et al., 2019; Colagrossi et al., 2020) to innovation (Wang 2021), health (Besley & Kudamatsu, 2006), human capital (Baum & Lake, 2003), access to credit (Osei-Tutu & Weill, 2022), and many others. Yet whether and how democracy per se affects entrepreneurship is still an open question.

The conversation around this relationship is gaining momentum in the public debate, as recent newspaper or magazine articles testify: “The world will see more business opening and startups when global democracy improves”,<sup>5</sup> “American business needs American democracy”,<sup>6</sup> “Democracy needs Business and Business needs Democracy”,<sup>7</sup> “Democracy is good for business”.<sup>8</sup> However, no attempts have been pursued so far to subject these conjectures to empirical scrutiny. Audretsch and Moog (2022) have fueled also the academic discussion by providing pioneering theoretical underpinnings to the entrepreneurship–democracy link. They report historical and contemporary contexts where similar trends in democracy and entrepreneurship have concomitantly been observed. Inspired by this important contribution, we aim to make a step further in the exploration of the relationship between democracy and entrepreneurship in two ways. First, we assess whether this so far only conceptually addressed connection is supported by quantitative evidence. Second, we start exploring potential mechanisms underlying the relationship between these two concepts.

We posit that discovering whether and how democracy and entrepreneurship, two pillars of most of developed societies, are inherently connected is of paramount importance. If this is the case, the aforementioned contraction confronting democracy might not come without cost for entrepreneurship. Threatening democracy would mean undermining entrepreneurship. Furthermore, being entrepreneurship a primary source for many socio-economic issues, the propagation of these negative consequences can

<sup>1</sup> “Democracy in retreat”, *Freedom in the World 2019—Freedom House Report*.

<sup>2</sup> “Democracy under Siege”, *Freedom in the World 2021—Freedom House Report*.

<sup>3</sup> “Democracy Index 2021: The China Challenge”, *Economist Intelligence Unit*.

<sup>4</sup> “Autocratization Changing Nature?”, *Varieties of Democracy Report 2022*.

<sup>5</sup> “The relationship between democracy and business”, *CEO Today Magazine*, August 05, 2021.

<sup>6</sup> Rebecca Hendersen, “Business Can’t Take Democracy for Granted”, *Harvard Business Review*, January 08, 2021.

<sup>7</sup> Michael Carney, “Democracy Needs Business & Business Needs Democracy”, *U.S. Chamber of Commerce Foundation*, January 12, 2021.

<sup>8</sup> Matthew Douglas, “Democracy is good for business”, *TechCrunch*, March 12, 2019.

be sizable and unpredictable. In this regard, our research also joins the compelling conversation on the decline in entrepreneurship in advanced economy. Along with the documented retreat of democracy, alarming signals similarly suggest a slowdown of entrepreneurship. Market concentration and market power have risen in several industries (De Loecker et al., 2020, Feldman et al., 2021), while business dynamism and the number of new firms fall in many of the most advanced economies (Decker et al., 2016; Naudé, 2022). This suggests that, as for democracy, taking entrepreneurship for granted would be a serious mistake. We argue that the same effort made to explain the cause of the impressive spread of entrepreneurship should now be devoted to understand its contraction. If the positive connection between democracy and entrepreneurship is proven, entrepreneurship scholars may have at least part of the answer.

Extant literature has mainly considered democracy as a general and dichotomous concept, by using primarily binary indicators to measure it. We find this approach limiting, as democracy is rather a nuanced and multifaceted phenomenon with different dimensions and intensities (Lindberg et al., 2014; Teorell, et al., 2019). Along with distinguishing between democratic and non-democratic countries, we believe it is important to assess also different levels of intensity of democracy among democratic societies, where democratization evolves gradually (Adler et al., 2023; Berggren & Bjørnskov, 2022). In doing that, we follow the emerging literature on institutional changes (Acemoglu et al., 2021; Berggren & Bjørnskov, 2022; Davidsson, 2020; Mickiewicz et al., 2021) encouraging scholars to complement the established static view on institutions with a more dynamic perspective. Contexts and institutions evolve over time, and even small changes may impact entrepreneurial activity (Mickiewicz et al., 2021). Democracy is not an exception, and democratic institutions may change both substantially and gradually. A contribution of our study is to shed light on the intensity and multidimensionality of democracy and to explore how they affect entrepreneurial activity. We are not only interested to know whether democracy matters for entrepreneurship, but also to consider more fine-grained aspects behind the democracy–entrepreneurship link by asking which dimensions of democracy are more likely to matter.

Accordingly, we address two main research questions: Does democracy foster entrepreneurship? And, which dimensions of democracy matter for entrepreneurship? To answer these questions, we assemble a multisource country-level panel dataset of 23 countries over the period 1972–2010. By performing cross-countries longitudinal analyses and a quasi-natural experiment with three transitions from autocracy to democracy, we provide evidence that democracy fosters entrepreneurship. Furthermore, we show that the promotion of free social interchange and civic involvement in political processes are two underlying dimensions of democracy driving this effect. We additionally qualify our analysis by showing that entrepreneurship is sensitive to both contemporaneous and historical levels of democracy. Our empirical findings are robust to alternative specifications, including test addressing possible endogeneity due to the mutual interplay between democracy and entrepreneurship. The relationship is likely to be two-sided, with democracy fostering entrepreneurship and entrepreneurship reinforcing democracy. As such, along with justifying our hypotheses with theoretical arguments, we also address the reverse causality issue empirically.

To our best knowledge, our research provides the first systematic empirical evidence that the conjectured link between entrepreneurship and democracy actually exists. In doing so, we advance an institutional theory of entrepreneurship by unraveling that democracy, arguably the most qualifying institutional pillar of most of advanced economies, is conducive to entrepreneurship. We further contribute by showing that gradual changes in the intensity of democracy affect entrepreneurial activity and by exploring two underlying channels of this relationship. To the extent to which they promote free social interactions and the active engagement of civil society, political institutions can help to facilitate entrepreneurial activity.

Along with following the invitation of Audretsch and Moog (2022), who encourage research to “measuring, identifying and analyzing the links between entrepreneurship and democracy” (p.386), our study also heeds recent calls by entrepreneurship scholars to start investigating changes in context (Batjargal et al., 2023; Davidsson, 2020) and to develop more time-sensitive entrepreneurship research (Lévesque & Stephan, 2020). By exploiting longitudinal techniques and democratic transitions, we show that both gradual and substantial changes (Mickiewicz et al., 2021) in

democracy affect entrepreneurial activity. Thus, we draw attention not only on transitions from autocracy to democracy, but also on variations in the intensity of democracy occurring in democratic societies.

Our study also has theoretical implications for expanding knowledge on the role of democracy in shaping socio-economic environments. We add entrepreneurship to those outcomes that can be directly connected to democracy. In particular, this study provides unequivocal first evidence not just that democracy matters, but that it matters for entrepreneurship. We suggest to entrepreneurship scholars a new element to explain the ongoing downturn in entrepreneurship in developed countries (Naudé, 2022). The documented retreat in democracy might be part of the answer.

The remainder of the paper is organized as follows. In Sect. 2, we frame the theoretical background and formulate the hypotheses. Section 3 illustrates the analytical methodology, while Sect. 4 reports empirical results. In Sect. 5, we discuss the main theoretical and practical implications of the study. Section 6 outlines limitations and suggests avenues for future research. Section 7 concludes.

## 2 Theory and hypotheses

Entrepreneurship has been connected to several economic and social factors of our time, and it is considered to be an important mechanism for economic development (Acs et al., 2008; Carree & Thurik, 2003). The transition from the managed to the entrepreneurial economy that materialized in many developed countries over the last decades of the past century (Audretsch & Thurik, 2000) motivated scholars and policymakers to understand the determinants of entrepreneurial activity and the driving factors of its surge. Topics that have been linked to entrepreneurship are countless, ranging from economic growth (Aghion, 2017; Wennekers & Thurik, 1999) to job creation (Birch, 1981; Decker et al., 2014), knowledge spillovers (Acs et al., 2013; Ghio et al., 2015), innovation (Block et al., 2013; Morris et al., 2010), and digitalization (Calvino et al., 2019). However, though conjectured, the direct linkage between entrepreneurship and democracy remains an uncharted territory. This is a non-negligible gap of knowledge in the entrepreneurship literature that needs to be addressed. Democracy and entrepreneurship are

indeed two pillars of Western developed economies and key qualifying determinants of many social and economic cultures around the world. As the *CEO Today Magazine* recently stated, “The relationship between business and democracy is an interesting one and may be something you wish to discuss further, read about or write about”.<sup>9</sup>

We build on the institutional theory of entrepreneurship (Aparicio et al., 2016; Autio et al., 2014; Baumol, 1990; Bennett et al., 2022; Chowdhury et al., 2019; Dorado & Ventresca, 2013; Estrin & Mickiewicz, 2011; North, 1990; Sobel, 2008; Urbano et al., 2019), and we draw on the established view that institutional and contextual conditions are key determinants of entrepreneurial activity (Welter, 2011; Schmutzler et al., 2019; Welter et al., 2019; Audretsch et al., 2022). Entrepreneurship requires a context to make free choices in both thought and action (Bradley & Klein, 2016). The need of a contextualized perspective on entrepreneurship has stimulated scholars to study how institutional- and context-specific factors affect entrepreneurial activity. A wide array of issues have been considered, including the level of economic and financial development (Black & Strahan, 2002; Wennekers et al., 2005), corruption (Anokhin & Schulze, 2009; Boudreaux et al., 2018; Dutta & Sobel, 2016), education and human capital (Davidsson & Honig, 2003; Korosteleva & Belitski, 2017), family context (Aldrich & Cliff, 2003; Bettinelli et al., 2014; Randerson et al., 2015), bankruptcy law (Armour & Cumming, 2008; Fan & White, 2003; Fu et al., 2020; Lee et al., 2011; Peng et al., 2010), and tax policies and business regulation (Belitski et al., 2016; Keuschnigg & Bo Nielsen, 2004; Van Stel et al., 2007). However, evidence that democracy per se is conducive to entrepreneurship has not yet been provided. Being democracy arguably the most qualifying and distinguishable institutional dimension in developed countries, understanding whether it directly fosters entrepreneurship is not of secondary importance.

We also ground in the acknowledged evidence that democracy shapes socio-economic outcomes. Scholars have shown the prominence of democracy for several issues, ranging from economic growth (Acemoglu et al., 2019; Barro, 1996; Papaioannou

<sup>9</sup> See note 5.

& Siourounis, 2008) to income inequality and redistribution (Acemoglu et al., 2008, 2015; Lee, 2005; Madsen et al., 2015; Rodrik, 1999; Scheve & Stasavage, 2017), tax revenues and government expenditures (Acemoglu & Robinson, 2000; Acemoglu et al., 2015; Aidt et al., 2006; Mulligan et al., 2004), education (Acemoglu et al., 2005; Aghion et al., 2019; Baum & Lake, 2003; Gallego, 2010; Harding & Stasavage, 2014; Lindert, 2004), health (Besley & Kudamatsu, 2006; Blaydes & Kayser, 2011; Cassan & Van Steenvoort, 2021; Gerring et al., 2012; Kudamatsu, 2012; Pieters et al., 2016), innovation (Gao et al., 2017; Wang 2021), access to credit (Osei-Tutu & Weill, 2022), economic reforms (Giuliano et al., 2013; Grosjean & Senik, 2011; Rode & Gwartney, 2012), and civil wars (Reynal-Querol, 2005). To date, entrepreneurship has not been considered among these outcomes.

Audretsch and Moog (2022) are the first who provide a *prima facie* case that entrepreneurship and democracy are connected. They do so by focusing on several historical and contemporary contexts where similar trends in entrepreneurship and democracy are observed. However, as the authors themselves point out, these are carefully selected historical examples that need to be subjected to systematic empirical scrutiny to identify formal channels of correlation and causality. Wolfe and Patel (2022) also explore the democracy–entrepreneurship nexus by considering the context of the Arab Spring in Tunisia. While their findings suggest that the transition to democracy enhanced certain individual attitudes that could promote future entrepreneurial endeavors, they do not find a significant change in actual entrepreneurial activity. This could be explained by the restricted case study and by the limited time period, which might not allow to observe the direct effect of democracy and entrepreneurship. Our research includes a larger number of countries and a longer period. As far as we know, our study is the first to investigate the link between democracy and entrepreneurship by using a large cross-country sample over a long time period. Moreover, we do not limit our analysis to radical changes (transitions to democracy), but we also consider gradual changes in the intensity of democracy. Scholars have recently stressed the need to study the impact of institutional dimensions on entrepreneurial activity using cross-national data (Urbano & Alvarez, 2014) and to consider both gradual (limited) and

radical (substantial) changes in the socio-institutional context (Mickiewicz et al., 2021).

## 2.1 Linking democracy to entrepreneurship

Several arguments motivate us to explore the direct link between democracy and entrepreneurship. First and foremost, democracy and entrepreneurship share the same underlying force of context. It is well accepted that individual and social freedom, together with decentralized decision-making systems, are pillars of democracy (Dahl, 1998) and also crucial conditions for developing successful entrepreneurial activities (Bradley & Klein, 2016; Florida, 2004; Lazear, 2005; Lehmann & Seitz, 2017; Vivona, 2023). Though direct evidence of the democracy–entrepreneurship link is still missing, prior contributions show that entrepreneurship, or some antecedents of entrepreneurship, can be affected by several factors qualifying democratic contexts. For instance, institutional environments with effective checks and balances and strong political rights can facilitate risk-taking decisions (Ashraf, 2017; Boubakri et al., 2013) and access to funding (Osei-Tutu & Weill, 2022; Qi et al., 2010), both essential components for running a business (Parker, 2018). Similarly, contexts where social interactions are not constrained can inspire new entrepreneurial ideas by promoting face-to-face contacts and social networks (Audretsch & Thurik, 2000; Batjargal et al., 2013). Other factors encouraging individuals to engage in entrepreneurial activity include social tolerance, which can boost creative entrepreneurship by promoting personal autonomy and diversity (Berggren & Elinder, 2012), equal distribution of power and low power distance (Liñán, F., and Fernandez-Serrano, 2014), and property rights and sound rule of law (Mickiewicz et al., 2021). Furthermore, democratic processes can be consistent with higher levels of academic (Berggren & Bjørnskov, 2022) and economic freedom (Lawson et al., 2020), which are both positive for ventures creation and growth (Aghion et al., 2008; Bennett, 2021; McMullen et al., 2008). Accordingly, there is a quite converging recognition that an entrepreneurial culture benefits from decentralized and autonomous socio-institutional systems (Audretsch & Moog, 2022; Bradley & Klein, 2016; Vivona, 2023). In line with this view, lower levels



of entrepreneurship have been observed in formerly centrally planned countries (Aidis et al., 2008). We believe that the aforementioned factors (a decentralized decision-making system, stronger checks and balances and political rights, unconstrained social interactions, distribution of power, property rights, rule of law, high levels of social tolerance and freedom) are more likely to be safeguarded in democratic contexts, and therefore that democracy has intrinsic attributes that can unleash entrepreneurial initiatives.

A second underlying argument linking democracy to entrepreneurship is that both of them have been positively associated with economic development. On the one hand, there is sound evidence of the positive effect of democracy on economic growth (Acemoglu et al., 2019; Colagrossi et al., 2020). On the other, likewise robust evidence shows that entrepreneurship as well plays a relevant role in promoting economic growth (Aghion, 2017; Audretsch et al., 2006; Van Stel et al., 2005; Wennekers & Thurik, 1999). It does so mainly by creating new jobs (Audretsch & Thurik, 2000; Decker et al., 2014) and, as the knowledge spillovers theory of entrepreneurship suggests, by fostering innovation and transforming unexploited new knowledge in economic commercialized knowledge (Acs et al., 2013; Audretsch & Belitski, 2020; Audretsch & Lehmann, 2005; Block et al., 2013; Ghio et al., 2015). The fact that both democracy and entrepreneurship are considered to be important determinants of economic development is a further suggestion of their common attributes.

In sum, due to the intrinsic characteristics of democracy and the common foundation with entrepreneurship, we expect to observe a direct relationship between these phenomena and particularly that democracy is conducive to more entrepreneurship. Therefore, concerning our first research question, we hypothesize the following:

Hypothesis 1 (H1): Democracy has a direct positive effect on entrepreneurship.

Next, we investigate potential mechanisms through which democracy can foster entrepreneurship. Democracy is a multifaceted phenomenon, characterized by different nuances and several complementary dimensions. As such, as our second research

question states, it is important to identify those dimensions through which democracy is likely to affect entrepreneurship.

The first dimension we examine refers to the promotion of freedom of thought, action, expression, and association, arguably the main cornerstone of democracy (Dahl, 1998). These are not only qualifying components of democracy, but also crucial prerequisites for the creation and diffusion of knowledge (Ober, 2008). By promoting free social relationships, democracy should help to connect knowledge that is dispersed among institutions and individuals, which is a crucial requirement for problem solving and business creation (Hayek, 1945; Utterback, 1971), and facilitate face-to-face contacts, which are potent conduits for transmitting knowledge (von Hippel, 1994) and for developing creative entrepreneurial ideas (Andersson & Larsson, 2016; Audretsch & Thurik, 2000; Giannetti & Simonov, 2009). The link between knowledge diffusion and entrepreneurship is also well documented by the knowledge spillovers theory of entrepreneurship (Acs et al., 2013; Audretsch & Belitski, 2020; Ghio et al., 2015; Gu et al., 2022), which identifies in the creation and commercialization of knowledge a key element fostering entrepreneurial activity. Unconstrained social networks help entrepreneurs to access resources (Batjargal et al., 2013), and they feature social structures where knowledge and creativity can spillover (Hauser et al., 2007). Moreover, institutional support for interactions and the diffusion of knowledge about new ventures can aid firms to build the cognitive and sociopolitical legitimation needed for an enduring activity (Aldrich & Fiol, 1994). Akcigit and Ates (2021) similarly refer to the connection between knowledge diffusion and entrepreneurial activity by showing that the slowdown in knowledge diffusion is a prominent cause of the ongoing decline in business dynamism in the USA.

Grounded in these arguments, we expect that, to the extent to which it promotes free social interchange, democracy can foster entrepreneurship through the creation and diffusion of knowledge. We call this the *knowledge channel*, and we hypothesize the following:

Hypothesis 2 (H2): Democracy fosters entrepreneurship by facilitating knowledge creation and dif-

fusion. It does so by promoting social and cultural interchange through freedom of thought, action, expression, and association (knowledge channel).

The second dimension of democracy we look at is the direct involvement of civil society in political and decision-making processes. The participatory principle is a prominent one in democratic societies (Smith, 2009). This includes the active civic engagement in electoral and non-electoral processes, the direct popular vote, and the interchange with local governments. Prior research suggests that the direct consultation of civil society is a way through which democratic institutions can build institutional trust (Freitag & Ackermann, 2016; Ljunge, 2014; Rainer & Siedler, 2009). Citizens feel more esteemed and respected if they are active parts of social and political decision-making processes.

Along with the stock of knowledge, institutional trust is a key factor affecting entrepreneurial activity (Audretsch et al., 2018; Welter & Smallbone, 2006). While the creation and diffusion of knowledge can inspire new entrepreneurial ideas, mistrust in institutions may discourage individuals to implement these projects and to assume the burden of risk of owning a business. Trust is a necessary condition for cooperative behavior (Brunetto & Farr-Wharton, 2007), and for that reason, entrepreneurs are more likely to become successful if they can build on networks of trust that help them create legitimacy in the market or society (Aldrich, 2000). Interpersonal and institutional trust influences risk-taking decisions (McLain & Hackman, 1999), facilitates knowledge transfer and social capital creation (Lockett et al., 2008), and encourages people to collaborate and share trustworthy knowledge (Audretsch et al., 2018). Therefore, it is an important ingredient for starting and growing a new business (Welter, 2012). Furthermore, entrepreneurs would be more prone to assume the burden of risk of owning a business if they have the chance to be directly involved in those political processes that can potentially affect the performance of their businesses (Boubakri et al., 2013).

The *World Economic Forum* has recently advocated this link by referring to political entrepreneurs, defined as “People who build something from nothing to address societal problems”: “To build the new

generation of political entrepreneurs we must further encourage wider participation in politics. [...] Global trust in political institution has decreased”.<sup>10</sup>

In light of these arguments, we expect that, to the extent to which it promotes a direct involvement of civil society in political and decision-making processes, democracy can foster entrepreneurship through the enhancement of institutional trust. We call this the *trust channel*, and we hypothesize the following:

Hypothesis 3 (H3): Democracy fosters entrepreneurship by enhancing institutional trust. It does so by promoting the direct involvement of civil society in political processes, electoral and non-electoral (trust channel).

After positing the direction and exploring two driving mechanisms of the effect of democracy on entrepreneurship, we further qualify their relationship by examining the temporal dimension of the effect. In this regard, we expect to observe both a short-run and a long-run impact of democracy on entrepreneurship. On the one hand, an increase in democratization can unleash the implementation of those entrepreneurial ideas that are already defined, but still not realized because of the lack of a propitious context. Entrepreneurs are markedly now-oriented people, who can make quick decisions in order to adjust to the environment (Bird, 1988), and they are sensitive to short-term institutional changes (Mickiewicz et al., 2021). On the other hand, prior studies suggest that democracy can take time to produce socio-economic outcomes (Gao et al., 2017; Geddes, 1999; Rodrik & Wacziarg, 2005). Part of the effect of democracy on entrepreneurship through the knowledge and the trust channels may not materialize immediately. Accordingly, we expect entrepreneurship to be sensitive to both contemporaneous and historical values of democracy. In line with these arguments, prior research linking democracy to other factors has investigated both the short- and the longer-term relationship by considering also past values of democracy (Bhattacharyya & Hodler,

<sup>10</sup> Alvin Carpio, “The rise of the political entrepreneurs and why we need them”, *World Economic Forum*, November 23, 2017.

2010; Gerring et al., 2012; Giuliano et al., 2013; Gründler et al., 2016; Scheve & Stasavage, 2017). Therefore, we posit the following hypothesis:

Hypothesis 4 (H4): Democracy fosters entrepreneurship in both the short- and long-run, with the current level of entrepreneurship being affected by both contemporaneous and historical values of democracy.

### 3 Methods

#### 3.1 Research design

To conduct our research, we adopt a quantitative research design. The reason is twofold. First, the primary aim of this study is to provide systematic quantitative evidence showing that democracy and entrepreneurship are connected. While it has been conjectured or addressed conceptually (Audretsch & Moog, 2022), the relationship between these two concepts still needs to be subjected to quantitative scrutiny. Second, the choice to pursue a quantitative approach is driven by the research questions being asked, as they implicitly address issues of change. To prove that democracy fosters entrepreneurship, we need to show that changes in democracy produce a positive effect on entrepreneurship. When questions involve change or causal association between variables, a quantitative approach including panel-data regressions or experimental designs is needed (Bono & McNamara, 2011). This allows us to control for cross-country heterogeneity and appropriately model how changes in democracy within countries influence entrepreneurship. To do so, we need country-level measures of entrepreneurship and democracy covering a long time period, which would be difficult to obtain by adopting a qualitative approach. In light of these reasons, we consider the quantitative approach to be more appropriate to our study.

#### 3.2 Measuring entrepreneurship

Entrepreneurship is a multifaceted phenomenon without a unique definition (Parker, 2018), which makes its measurement challenging (Acs et al., 2014). Hence, it is worth framing carefully the measure and the definition of entrepreneurship we consider.

To assess entrepreneurship, we select the *COMPENDIA (COMParative ENtrepreneurship Data for International Analysis)* business ownership rate, constructed by the EIM Business and Policy Research (a *Panteia* company). It covers a set of OECD countries over the period 1972–2012, and it is defined as the total number of business owners as a fraction of total labor force. The COMPENDIA definition of business owners includes the total number of incorporated and unincorporated self-employed outside the agriculture, hunting, forestry, and fishing industry, who carry out self-employment as their primary employment activity. The total number of business owners is scaled by the size of labor force.

Self-employment or business ownership is one of the most widely implemented measures of entrepreneurship, both at the individual and at the national level (Evans & Leighton, 1989; Gartner & Shane, 1995; Parker, 2018), and the COMPENDIA business ownership rate is a well-accepted indicator in the entrepreneurship literature.<sup>11</sup> Of course, there exist alternative measures of entrepreneurship that are pervasive in the empirical literature, like new venture creation or the share of small- and medium-sized enterprises in the economy. The application of several measures confirms that there is not a common definition of entrepreneurship. All these indicators reflect different aspects of the same phenomenon, which make them complementary rather than substitutes.

Among the spectrum of possible measures, we select the COMPENDIA business ownership rate mostly for four reasons. First, by considering owners of both unincorporated and incorporated businesses, this indicator relies on the broadest definition of entrepreneurship, which includes all individuals who do not have an employer and own their own business. It is not limited to nascent entrepreneurs or small business owners, but it embraces the whole self-employment population. Such inclusivity is the main merit of this measure. Another important rationale for using self-employment or business ownership is that entrepreneurship is a risk-taking activity (Parker,

<sup>11</sup> See Carree et al., (2002, 2007), Nyström (2008), Parker et al. (2012), Block et al. (2013), Stenholm et al. (2013), Fritsch and Storey (2014), Terjesen et al. (2016), Erken et al. (2018), and Queralto (2020) for examples of studies which use or refer to this COMPENDIA indicator as a measure of entrepreneurship.



2018). Being self-employed or a business owner surely implies the burden of risk.

The second reason is that we aim to consider entrepreneurship that is opportunity-driven rather than necessity-driven. Distinguishing between these two types of entrepreneurship is crucial, as country context influences entrepreneurship differently if this is motivated by opportunity or by necessity (McMullen, 2008; Amorós et al., 2019). While opportunity entrepreneurship plays a major role in developed countries (Fairlie & Fossen, 2020; Poschke, 2013), in developing countries, individuals engage mostly in entrepreneurship out of economic necessity (Naudé, 2010; Sautet, 2013). Thus, having both types of countries in the same sample might be misleading. As we are more interested to capture the effect of democracy on opportunity entrepreneurship, we focus on developed countries. To our best knowledge, the COMPENDIA business ownership rate is the longest and the most backward series on entrepreneurship for developed countries. Moreover, it only considers non-rural self-employed, which is further helpful to isolate opportunity entrepreneurship. Rural self-employment is indeed hardly comparable to self-employment in other industries (Parker, 2018). Prior studies also suggest that, in developed and urbanized areas, self-employment and business ownership are more likely to include a good representative number of innovative entrepreneurs (Faggio & Silva, 2014; Florida et al., 2017; Glaeser, 2009).

Third, the COMPENDIA business ownership rate is harmonized across countries and over time. Self-employment statistics reported by the OECD are hardly comparable across countries, because each country supplies information according to its own self-employment definition (Van Stel, 2005, 2008). Particularly, the extent to which owners of incorporated businesses are included in the self-employment counts differs across countries. Sometimes, they are defined for tax purposes as employees of their own company rather than self-employed. However, as they resemble in all other respects the self-employed status, in cross-country comparisons, it is important for consistency to count these individuals as self-employed (Parker, 2018; Van Stel, 2005, 2008). To deal with this issue, COMPENDIA harmonizes the business ownership rate by including in the self-employment definition owners of both incorporated and unincorporated businesses. To guarantee

comparability, a correction is made for those countries that do not include incorporated entrepreneurs in the definition of self-employment. The number of incorporated entrepreneurs is estimated from alternative sources, such as Eurostat, *The European Observatory for SMEs*, and other country-specific sources for non-European countries.<sup>12</sup> Such harmonization is necessary, given the plethora of measures of country-level entrepreneurship that often do not really speak to one another (Acs et al., 2014).

Finally, this indicator is based on administrative data collected from qualified sources including the OECD Labor Force Statistics, the ILO database, the European Observatory for SMEs, and other country-specific sources. Data from national registries are usually more reliable than self-employment information collected by surveys, as self-assessed answers might raise measurement and comparability issues.

In sum, we consider the most inclusive definition of entrepreneurship, which includes owners of both unincorporated and incorporated businesses. This specification depicts entrepreneurs as risk-taking individuals who decide to own their own business, regardless of the type of activity. By including the largest population of entrepreneurs, our measure aims to assess the total stock of entrepreneurship rather than disentangle different categories. Moreover, by focusing on non-rural self-employment in developed countries, we are more likely to identify opportunity rather than necessity entrepreneurship.

### 3.3 Measuring democracy

Democracy is our primary explanatory variable of interest. Like entrepreneurship, it is a very broad and nuanced concept that requires a careful identification. Embracing several dimensions and components, democracy is hardly definable as a general and unique concept (Lindberg et al., 2014; Teorell et al., 2019). Accordingly, we are not only interested to know whether democracy fosters entrepreneurship (H1), but also to explore which dimensions of democracy are conducive to entrepreneurship. Specifically, we consider two dimensions underlying the knowledge channel (H2) and the trust channel (H3). The first

<sup>12</sup> We refer to Van Stel (2005; 2008) for a detailed explanation of the harmonizing procedure of COMPENDIA.

dimension emphasizes the promotion of freedom of thought, speech, action, and all those elements fostering social interchange. The second dimension stresses the civil society's active participation in political processes.

To account for this multidimensional feature of democracy, we rely on the *Varieties of Democracy (V-Dem)* database, one of the largest social science data collection projects on democracy. Co-founded in 2014 by the University of Gothenburg and the Kellogg Institute for international Studies at the University of Notre Dame, this project includes more than 450 socio-economic annual indicators for almost all countries in the world. It reports both historical (1789–1900) and contemporary (1900 to present) series. Data collection and aggregation are based on country-specific sources and on ratings provided by more than 3700 worldwide experts. The multidimensional approach and the differentiation among several components of democracy represent the main novelties of this database (Coppedge et al., 2019; Lindberg et al., 2014). Instead of imposing a general definition that would necessarily omit features of democracy, V-Dem assesses multiple components of democracy to account for a broader range of attributes associated with this concept. This gives us the opportunity to disentangle the dimensions of democracy we propose as conduit for entrepreneurship. Hence, we find such an approach particularly suitable to our research. The growing consideration devoted by recent research to the V-Dem database confirms its quality and reliability.<sup>13</sup>

Specifically, to measure the dimension of democracy connected to the knowledge channel, we select the V-Dem *Electoral democracy index*. This indicator refers to the electoral principle of democracy as captured by Dahl's (1971, 1989) five main components: freedom of association, freedom of expression and alternative sources of information, suffrage, clean elections, and elected executive. The V-Dem *Electoral democracy index* is a weighted average of the indices measuring these five components. It emphasizes the role of democracy in promoting free social interchange.

Thus, we find this index the most appropriate to assess the dimension of democracy claimed in H2.

To measure the principle of democracy associated with the trust channel, we refer to a second V-Dem indicator called the *Participatory democracy index*. It refers to the participatory principle of democracy, which embodies the values of direct rule and active participation by citizens in all political processes. While participation in elections counts towards this principle, it also emphasizes non-electoral forms of political participation, such as engagement in civil society organizations and other forms of both electoral and non-electoral mechanisms of direct democracy. Specifically, it monitors the civil society's involvement in decision-making processes, the direct popular vote, and the presence of local governments directly elected. As it emphasizes the participatory principle underlying the trust channel, we select this indicator to test H3.<sup>14</sup>

Along with disentangling different dimensions of democracy, the V-Dem database has a second relevant advantage. By providing continuous measures, not only it distinguishes between democratic and non-democratic countries, but it also allows to assess the intensity of democracy, which might vary among democratic societies. Accounting for that would not be possible by approaching democracy solely as a binary concept.

Pairwise correlation shows a strong positive correlation (of 0.88) between the *Electoral* and the *Participatory democracy indices*. This is not unexpected, being democracy a multifaceted phenomenon made of complementary dimensions. However, the fact that they are not perfectly collinear suggests that the information they provide is not exactly the same.

By using the *Electoral* and the *Participatory democracy index*, we are not only able to measure democracy, but also to disentangle the two dimensions of democracy we propose as drivers of the positive effect on entrepreneurship.

### 3.4 Additional controls

We consider additional controls to account for country-specific dimensions that might determine the country level of entrepreneurship. By doing so, we

<sup>13</sup> We refer to McMann (2018), Teorell et al. (2019), Brunkert et al. (2019), Zuazu (2019), Wang (2021), Bennett et al. (2022), Osei-Tutu and Weill (2022), and Berggren and Bjørnskov (2022) for examples of studies that use or refer to the V-Dem database.

<sup>14</sup> We refer to Table 9 in Appendix for detailed definitions of the *Electoral democracy index* and the *Participatory democracy index* and to <https://www.v-dem.net/project.html> for more details about the construction of the indices.

**Table 1** Descriptive statistics

Variable	Obs	Mean	Std. Dev	Min	Max
Business ownership rate	897	.104	.036	.043	.210
Electoral democracy	897	.855	.091	.074	.916
Participatory democracy	897	.619	.088	.020	.794
GDP (log)	897	12.498	1.614	8.046	16.272
GDP per capita (log)	897	10.004	.318	9.018	11.096
Trade	897	69.467	43.726	11.340	343.561
Population (log)	897	16.315	1.624	12.250	19.549
Female population	897	50.872	.638	49.445	52.949
Urbanization	897	75.863	10.621	39.591	97.651
Primary enrolment rate	897	96.202	4.886	72.301	99.997
Secondary enrolment rate	897	84.350	14.004	23.777	99.997
Electoral democracy (1962–2010)	1127	.828	.143	.071	.916
Participatory democracy (1962–2010)	1127	.596	.121	.015	.794

This table presents descriptive statistics of the variables used in the empirical analysis. Unless it is specified differently, the time period refers to 1972–2010

avoid to use democracy as a catch-all variable for other social and economic factors without accounting for country-level differences. As rates of entrepreneurship vary with the level of development (Estrin et al., 2013), we consider the (log) GDP and (log) GDP per capita to control for the country level of wealth and economic development (Bjørnskov & Foss, 2008; Urbano et al., 2014). These variables come from *COMPENDIA*. Open markets and knowledge spillovers can also affect business ownership and self-employment (Acs et al., 2013; Mickiewicz et al., 2021). Thus, we control for these two elements by including the sum of exports and imports of goods and services as a percentage of GDP and the level of urbanization (defined as the percentage of the total population living in urban areas). We also control for the population structure by considering the (log) total population and the share of female as a percentage of the total population (Urbano et al., 2016). Self-employment may be sensitive to the population's gender distribution (Verheul et al., 2006). In OECD countries, the probability of being self-employed is higher among men than women (Blanchflower, 2000). These indicators are collected from the *World Bank Development Indicators*. Labor force is also considered, as the business ownership rate is scaled by the total labor force. The number of entrepreneurs depends on the proportion of population that is economically active (Urbano et al., 2016). Human capital is another important aspect of entrepreneurship and evidence shows that the decision to become self-employed is influenced by education (Robinson

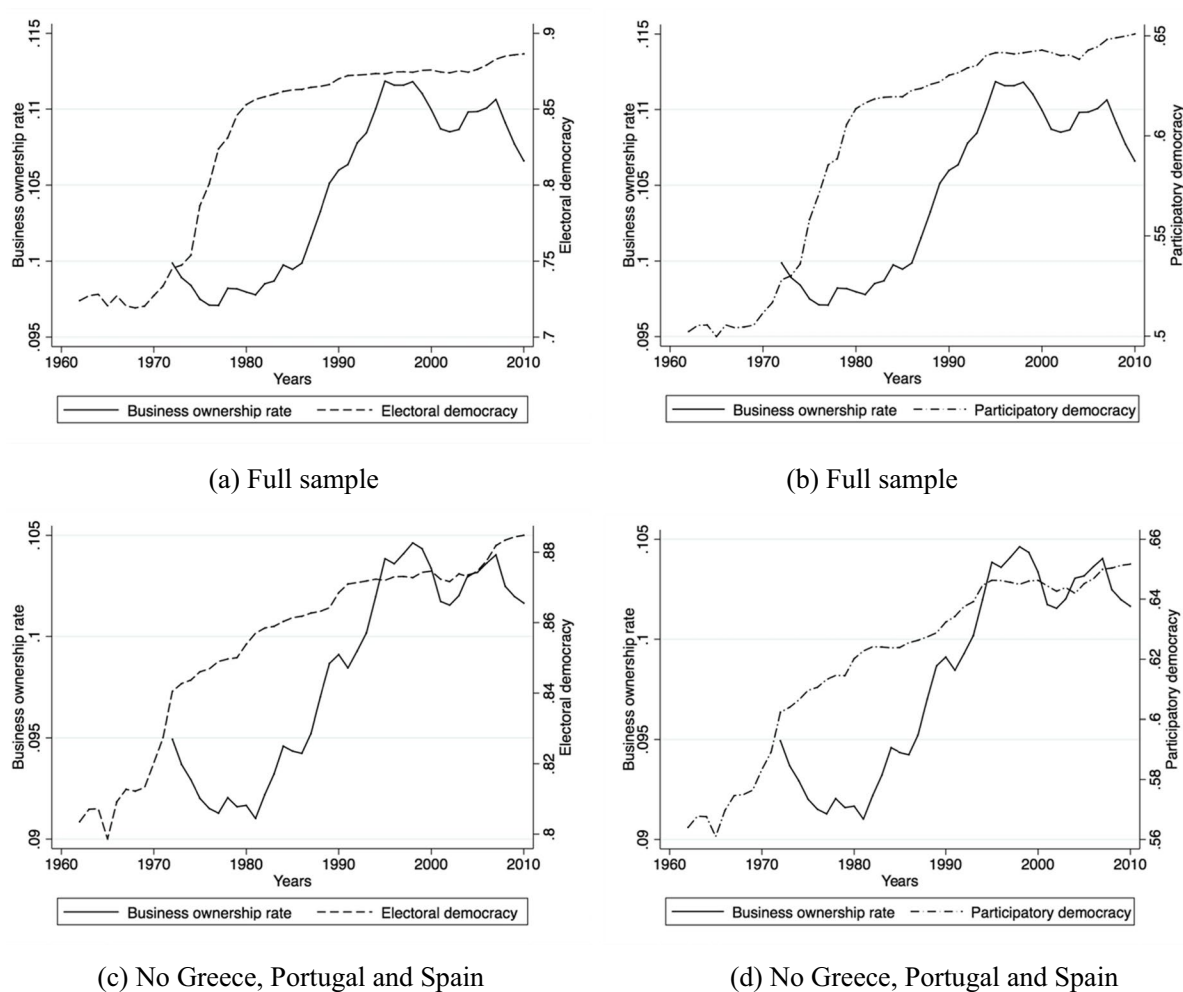
& Sexton, 1994). We thus control for education and human capital with the primary and secondary school enrolment ratio from the Barro-Lee dataset (Acemoglu et al., 2019).<sup>15</sup>

### 3.5 Final sample

The final baseline sample includes country-level data for 23 OECD countries over the period 1972–2010, giving a balanced panel dataset with 897 total observations.<sup>16</sup> This is the largest sample we can consider in terms of number of countries and years according to data availability. When we investigate the lagged effect of democracy claimed by H4, we also include values of the *Electoral* and the *Participatory index* prior to 1972. This will allow to preserve the largest number of observations of the baseline balanced sample. One could argue that, by considering OECD countries only, our sample may lack a proper counterfactual group of developing and non-democratic countries. Nevertheless, by assessing democracy with continuous rather than dichotomous measures we can exploit changes in the intensity of

<sup>15</sup> We refer to Table 9 in Appendix for detailed variable definitions.

<sup>16</sup> Countries included in the final dataset are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the UK, and The USA. To have a balanced panel, we consider the sample up to 2010.



**Fig. 1** Democracy and entrepreneurship. Notes: Panel **a** reports the trends of the business ownership rate and the electoral democracy index over the 1962–2010 period including all sample countries. Panel **b** reports the trends of the business ownership rate and the participatory democracy index over the 1962–2010 period including all sample countries. Panel **c** reports the trends of the business ownership rate and the electoral democracy index over the 1962–2010 period excluding Greece, Portugal, and Spain. Panel **d** reports the trends of the business ownership rate and the participatory democracy index over the 1962–2010 period excluding Greece, Portugal, and Spain

democracy, which affect also those countries with an already established democratic regime. Moreover, our sample offers a counterfactual by including three democratic transitions. Over the considered time period, Greece, Portugal, and Spain experienced the change from the authoritarian regimes of the Colonels, Salazar, and Franco towards democracy.

Table 1 presents summary statistics for the balanced sample variables. On average, business owners count for the 10% of labor force, ranging from a minimum of 4 to a maximum of 21%. The standard deviation is

0.036. The *Electoral democracy index* and the *Participatory democracy index* take values between 0 and 1. The former has a mean value of 0.85, and it goes from a minimum of 0.074 to a maximum of 0.916 with a standard deviation of 0.091. The latter has a mean value of 0.62, and it ranges from a minimum of 0.02 to a maximum of 0.794 with a standard deviation of 0.088. We also report summary statistics of these two indicators including values from 1962, the most backward value we consider. The high average values of urbanization and education suggest that, within the

sample, entrepreneurship should be more opportunity-driven than necessity-driven. Urban entrepreneurship is usually more opportunity-driven than rural entrepreneurship (Parker, 2018), and opportunity entrepreneurs are more educated on average than necessity entrepreneurs (Poschke, 2013). Moreover, according to the evidence on the positive relationship between business owners and innovation in urban areas (Faggio & Silva, 2014; Florida et al., 2017; Glaeser, 2009), the high level of urbanization suggests that business ownership rate is also likely to identify innovative entrepreneurs.

In Fig. 1, we plot the sample yearly average values of the *Business ownership rate* and of the *Electoral* (panel a) and *Participatory* (panel b) *democracy index*. The graphs document an increase in the ownership rate starting from the late 70 s up to the mid-90 s. After a short stabilization, the rate starts decreasing, particularly after the financial crisis in 2007. Concerning democracy, for which we plot values from 1962, we register a marked increase in the indices from the early 70 s to the 90 s. This represents the “third wave” of democratization of the twentieth century (Huntington, 1991).

Even excluding Greece, Portugal, and Spain (panels c and d), previous trends are confirmed. This suggests that the rise in our democracy indicators is not entirely driven by the three transitions.

As Fig. 1 shows, both dimensions of democracy and the business ownership rate registered a net growth over the sample period. Such evidence motivates us to investigate whether a positive connection between these trends exists. Moreover, the rise in democracy seems to anticipate the increase in the business ownership rate. This might suggest that, if a relationship exists, this should move from democracy to entrepreneurship rather than the other way around. Figure 1 seems also to support what we claim in H4, that also historical values of democracy may matter for entrepreneurship.<sup>17</sup>

#### 4 Hypotheses testing and results

In this section, we perform several empirical specifications to test the validity of our hypotheses. We initially investigate H1–H3 by exploring the short-term

relationship between entrepreneurship and democracy. To this aim, we follow two complementary approaches. We both develop a set of cross-countries longitudinal analyses and a quasi-natural experiment exploiting the three democratic transitions in Greece, Portugal, and Spain. By doing so, we can examine how entrepreneurship is sensitive to both changes in the intensity of democracy and to the introduction of democratic regimes. Subsequently, we perform additional specifications to test the longer-term relationship stated in H4.

##### 4.1 First approach: cross-countries longitudinal analyses

We initially test H1–H3 by developing a set of cross-countries longitudinal analyses. This approach exploits within-country variation in the intensity of democracy to explain variation in entrepreneurship. It accounts for the fact that, even in democratic countries, the intensity of democracy may change.

We first develop the following model:

$$Entrepreneurship_{c,t} = \beta Democracy_{c,t} + \sum_{j=1}^n \gamma_j (Controls_{c,t}) + a_c + \delta_t + \varepsilon_{c,t} \quad (1)$$

$Entrepreneurship_{c,t}$  is measured by the *Business ownership rate* in country  $c$  at time  $t$ , while  $Democracy_{c,t}$  by either the *Electoral democracy index* or the *Participatory democracy index* in country  $c$  at time  $t$ . The  $Controls_{c,t}$  vector includes the country controls listed in the previous section. The  $\alpha_c$ 's denote a full set of country fixed effects, which will absorb the impact of any time-invariant country characteristics, and the  $\delta_t$ 's denote a full set of year-fixed effects. A positive and statistically significant value of  $\beta$  when the *Electoral democracy index* is considered, would suggest that democracy has a positive effect on entrepreneurship (H1) and that the promotion of freedom and social interchange is a driver dimension of such effect (H2). Similarly, a positive and statistically significant value of  $\beta$  when the *Participatory democracy index* is considered would further confirm H1 and prove the fact that the participatory principle of democracy is an additional driver dimension of the effect of democracy on entrepreneurship (H3).

Columns (1–4) of Table 2 report estimates of Model (1) estimated with the empirical specifications presented below. Panels A and B refer to the *Electoral democracy index* and the *Participatory democracy index*, respectively.

<sup>17</sup> We also report single-country sample statistics in Figs. 4, 5, 6, 7, 8, and 9 in Appendix.



**Table 2** Democracy and entrepreneurship

	(1)	(2)	(3)	(4)	(5)
	Within	GLS	PCSE	DK	FD
DV: Entrepreneurship; $\Delta$ Entrepreneurship					
Panel A: Electoral					
Democracy	0.024** (0.012)	0.011*** (0.003)	0.011** (0.005)	0.024*** (0.004)	
$\Delta$ Democracy					0.005*** (0.002)
Obs	897	897	897	897	874
(Within) $R^2$	(0.25)	-	0.96	(0.25)	0.09
Panel B: Participatory					
Democracy	0.037* (0.018)	0.014*** (0.003)	0.015** (0.006)	0.037*** (0.006)	
$\Delta$ Democracy					0.007** (0.003)
Obs	897	897	897	897	874
(Within) $R^2$	(0.25)	-	0.96	(0.25)	0.09
Controls	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	No
Time FE	Yes	Yes	Yes	Yes	Yes

This table presents estimates of the effect of democracy on entrepreneurship. Panel A considers *Electoral democracy index*, while Panel B *Participatory democracy index*. Cols. 1–4 report results from Model (1) by using the within estimator with clustered standard errors (col. 1), the GLS estimator (col. 2), Prais-Winsten regression with panel corrected standard errors (col.3), and the fixed effect model with Driscoll-Kraay standard errors (col.4). Col. 5 presents estimates of the first-difference Model (2). Country controls include GDP (log) and GDP per capita (log), trade openness, urbanization, total (log) and female population, and primary and secondary enrolment rate. Standard errors are reported in parentheses

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

#### 4.1.1 Fixed effect (within) estimator (Col.1)

First, we perform a fixed-effect (within) estimator, where standard errors  $\varepsilon_{c,t}$  are clustered at country level to control for heteroscedasticity and autocorrelation.<sup>18</sup> Estimates of the within estimator are reported in column (1) of Table 2.

#### 4.1.2 GLS and panel corrected standard errors (Cols. 2 and 3)

Given the structure of our panel dataset, where  $T$  is large and greater than  $N$ , applying cluster robust inference to account for serial correlation might rise some inference validity issues (Wooldridge, 2015). Thus, to verify the inference validity of the fixed

effect estimator, we additionally estimate Model (1) by using alternative methods to control for serial correlation in the error term. In columns (2) and (3), we report estimates obtained by using the GLS estimator and Prais-Winsten panel corrected standard errors, respectively. These two alternative approaches allow to control for panel-specific first-order autocorrelation within panels and cross-sectional correlation and heteroscedasticity across panels.

#### 4.1.3 Fixed effect (within) estimator with Driscoll-Kraay standard errors (Col.4)

To control for higher-order autocorrelation of the error-term, in column (4), we also estimate Model (1) by using the fixed-effect estimator with Driscoll-Kraay standard errors, including up to three-lags.

In all of these specifications, the coefficient of either dimensions of democracy is positive and

<sup>18</sup> The Mundlak test suggests that the fixed-effects model is preferable to the random-effects model.

statistically significant. This suggests that democracy has a positive effect on entrepreneurship (H1) and that the two dimensions of interest drive this effect (H2 and H3). Comparing the size of the effect, the participatory dimension of democracy (*Participatory democracy index*) seems to have a slightly larger impact than the electoral dimension (*Electoral democracy index*).

#### 4.1.4 Dealing with (non-)stationarity: first-difference model

Along with serial correlation in the error term, another important issue we should care of is (non-)stationarity. In presence of unit root processes, we might observe the problem of spurious regressions. In this regard, the Levin-Lin-Chu unit-root test on our dependent variable of interest (*business ownership rate*) does not reject the null hypothesis that panels contain unit-roots, meaning that we cannot assume our series to be stationary. To address this issue, we use a first-differencing approach to turn an integrated (non-stationary) process into a weakly dependent (stationary) process. With first-differencing, the central limit theorem is valid even in cases where  $T$  is larger than  $N$  (Wooldridge, 2015).<sup>19</sup> Thus, we develop the following first-difference model:

$$\Delta \text{Entrepreneurship}_{c,t} = \beta \Delta \text{Democracy}_{c,t} + \sum_{j=1}^n \gamma_j \Delta (\text{Controls}_{c,t}) + \delta_t + \Delta \varepsilon_{c,t} \quad (2)$$

where  $\Delta$  indicates the  $t - (t-1)$  difference for each variable. Since the first differencing eliminates time-invariant unobserved country effects, we do not include country fixed effect in Model (2). We include year dummies to account for secular changes that are not being modeled (Wooldridge, 2015).<sup>20</sup> Standard errors are estimated with clustering at country level.

Estimates of Model (2) are reported in column (5) of Table 2. The positive and statistically significant coefficient of  $\Delta \text{Democracy}_{c,t}$  suggests that the yearly

change in the democracy index has a positive impact on the yearly change in entrepreneurship. Thus, Model (2) further confirms the positive effect of democracy on entrepreneurship and the relevant role of the knowledge and trust channels. Again, the effect of participatory democracy looks slightly higher than electoral democracy.

## 4.2 Robustness checks

We perform additional tests to further check the validity of H1–H3 assessed in Models (1) and (2). As the first-difference approach allows to deal with both serial-correlation and non-stationarity, we choose Model (2) as a reference to conduct our robustness evaluations.

### 4.2.1 Controlling for endogeneity

The first issue we should account for is endogeneity arising from possible reverse causality, as the relationship between entrepreneurship and institutions is likely to be bidirectional (Elert & Henrekson, 2017). If the effect runs in both directions, with democracy affecting entrepreneurship and vice-versa, the simultaneous relationship will be biased. According to H2, democracy stimulates entrepreneurship by favoring social interchange and the diffusion of knowledge. It could be argued that entrepreneurship as well can create knowledge and favor social connections, which might in turn influence the level of democracy. Similarly, H3 states that a wider civil-society participation in political process can foster entrepreneurial activity. However, entrepreneurs may decide to be involved in political processes to preserve the interest of their business, increasing the level of political participation and the connection with institutions.

In this regard, Fig. 1 suggests that the direction of the relationship is more likely to be from democracy to entrepreneurship rather than the inverse. Nevertheless, we want to address this potential source of endogeneity in a more formal and robust way. To do that, we perform a two-step GMM estimation by instrumenting the first-difference of democracy with lagged first-differences, considering up to three-years lags. In order to preserve the largest number of observations, we add values of democracy prior to 1972. Column (1) of Table 3 reports estimates of the two-step GMM specification. Statistics are heteroscedasticity- and autocorrelation-consistent (HAC). Coefficients of either dimensions of democracy remain positive and statistically significant and

<sup>19</sup> The Levin-Lin-Chu unit-root test on the first-differenced dependent variable rejects the hypothesis of unit-roots existence, suggesting the process is integrated or order I (1). Figure 10 in Appendix plots first-difference yearly averages for business ownership rate and democracy (electoral and participatory).

<sup>20</sup> Results hold also by excluding year dummies.

**Table 3** Democracy and entrepreneurship—robustness

	(1)	(2)	(3)	(4)	(5)
	2-Step GMM	Years <2007	No Greece, Portugal and Spain	(2)+(3)	Years <1981
DV: $\Delta$ Entrepreneurship					
Panel A: Electoral					
$\Delta$ Democracy	0.013** (0.007)	0.006*** (0.002)	0.032 (0.023)	0.040* (0.023)	0.004** (0.002)
Obs	874	782	760	680	207
R <sup>2</sup>	0.09	0.08	0.10	0.10	0.11
Additional 2-Step GMM statistics (col. 1):					
Under-identification test: $p$ -value = 0.052					
Hansen $J$ statistics: $p$ -value = 0.54					
Panel B: Participatory					
$\Delta$ Democracy	0.033*** (0.013)	0.009*** (0.003)	0.037* (0.021)	0.051** (0.019)	0.007*** (0.002)
Obs	874	782	760	680	207
R <sup>2</sup>	0.07	0.09	0.11	0.11	0.12
Additional 2-Step GMM statistics (col. 1):					
Under-identification test: $p$ -value = 0.039					
Hansen $J$ statistics: $p$ -value = 0.30					
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

This table presents estimates of the set of robustness tests on the first-difference Model (2). Panel A considers *Electoral democracy index*, while Panel B *Participatory democracy index*. Col. 1 reports estimates of the 2-Step GMM; col. 2 excludes years after the Financial Crisis; col. 3 excludes Greece, Portugal, and Spain; col. 4 excludes Greece, Portugal, and Spain and years after the financial crisis; and col. 5 considers years prior to the EU entries. Country controls include GDP (log) and GDP per capita (log), trade openness, urbanization, total (log) and female population, and primary and secondary enrolment rate. Standard errors are reported in parentheses

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

the size of the effects looks larger compared to those reported in column (5) of Table 2. According to the Kleibergen-Paap test, we can reject the null hypothesis that the model is under-identified and thus consider our instruments to be relevant. Moreover, failure to reject the Hansen  $J$ -statistics means that the instruments can be considered exogenous.

This is not the only empirical specification we use to control for possible endogeneity due to reverse causality. Some of the additional models that are illustrated in the following of the paper are helpful to further address this issue.

#### 4.2.2 Additional robustness

Columns (2–5) of Table 3 report estimates of supplementary robustness tests. We additionally consider the fact that the 23 OECD countries of our

sample have been highly impacted by the financial crisis started in 2007. In this regard, the number of business owners might have markedly been reduced by the global economic downturn. In line with this argument, Fig. 1 shows a sharp decline in the business ownership rate during the financial crisis. Thus, to eliminate any potential confounding effects arising from this event, in column (2) we estimate Model (2) by excluding years from 2007 onwards.

Furthermore, to check to what extent our results are driven by the democratic transitions in Greece, Portugal and Spain, we estimate Model (2) by excluding these three countries. We do this by considering both the full sample period (column 3) and the period before the financial crisis (column 4).

Another phenomenon that occurred over the sample period is the entry in the European Union (EU) of six countries of the sample. Greece joined the EU in 1981,

Portugal and Spain in 1986, and Austria, Finland, and Sweden in 1995. The access to the EU and to the European Single Market might have introduced relevant consequences for entrepreneurship. Thus, to account for this issue, we estimate Model (2) by restricting the analysis at the period prior to 1981, the Greece entry year in the EU. Estimates are reported in column (5).

Panel A shows that the coefficient associated with democracy remains positive and statistically significant in all specifications but column (3), where Greece, Portugal, and Spain are excluded. However, when we consider the period prior to the Financial Crisis, the coefficient is significant even after excluding these three countries. In a similar way, in panel B we observe that the positive and statistically significant coefficient of democracy is preserved in all specifications.

Overall, findings reported in Tables 2 and 3 provide evidence of the validity of H1, H2, and H3.

We find that democracy foster entrepreneurship (H1) and that the promotion of social connections and the pursuit of civil-society involvement in political processes are two driving dimensions of this positive relationship (H2 and H3).

#### 4.3 Second approach: exploiting democratic transitions

We also examine H1–H3 by developing a second and complementary empirical approach. Among the countries included in the sample, three of them experienced a transition from autocracy to democracy. We refer to the fall of the regimes of the Colonels in Greece, Salazar in Portugal, and Franco in Spain. After the end of these regimes, new constitutions were introduced in 1975, 1976, and 1978 respectively.

Figure 2 reports values of the *Electoral* and *Participatory democracy index* for Greece, Portugal, and Spain over the sample period. In each country, we observe a marked and sharp increase in the indices immediately after the transitions. In Greece, compared to Portugal and Spain, the autocratic regime was in power for a more limited period. However, even prior, Greece did not have a sound democratic environment, which was instead established after the fall of the regime.

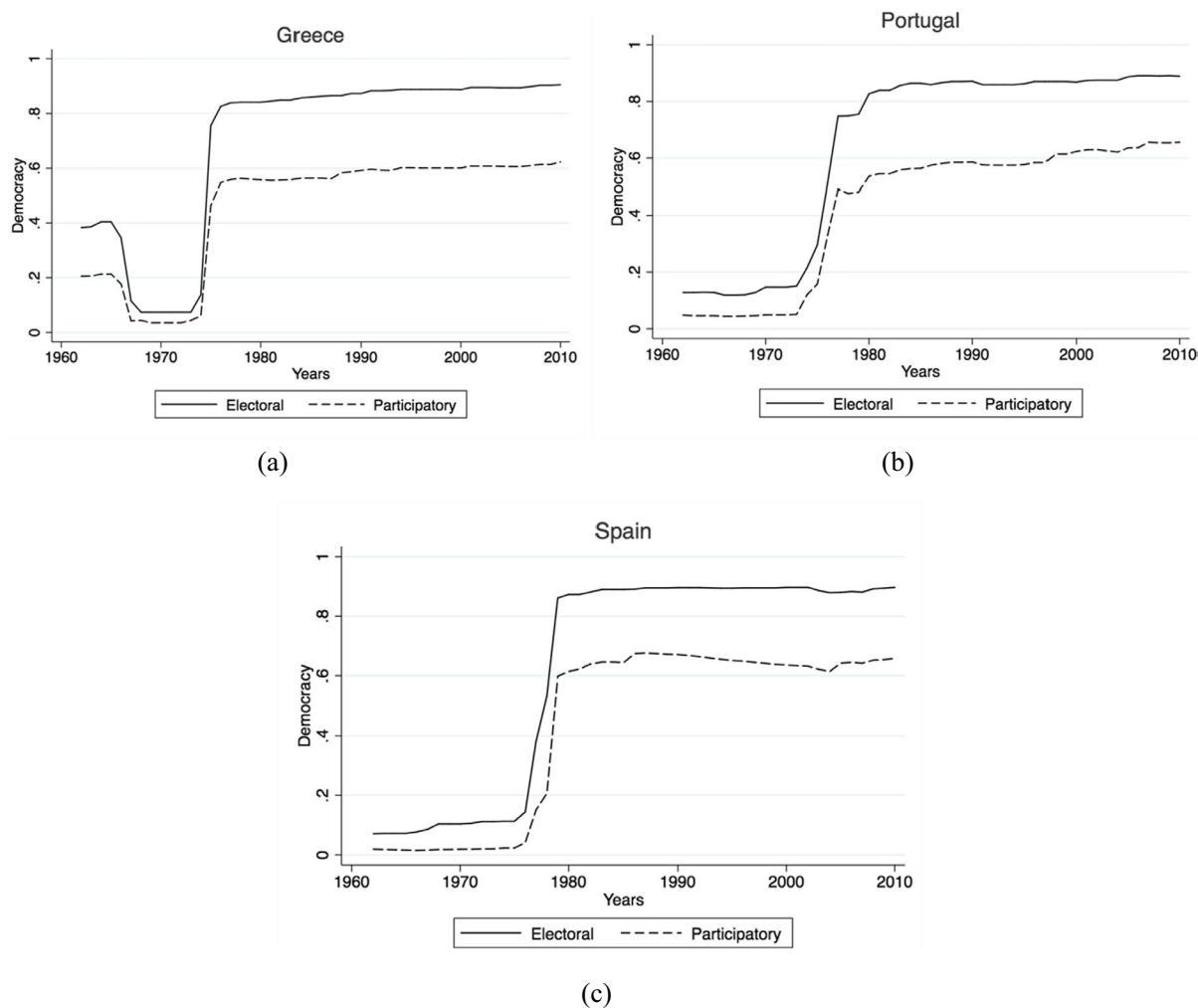
On the whole, for each of the three countries, we observe a sharp increase in both dimensions of democracy.

We exploit these historical events to perform a difference-in-differences model by considering Greece, Portugal, and Spain as treated countries. By exploring pre- and post-democratization, we perform a counterfactual analysis to test whether these transitions to democracy had a positive impact on entrepreneurship. Furthermore, this quasi-natural experiment using an exogenous institutional shock is an additional way to rule out endogeneity that may be caused by the mutual interplay of democracy and entrepreneurship. While with the cross-countries longitudinal analyses, we use changes in the intensity of democracy, with this approach we exploit changes in political regimes and democratic transitions.

To conduct this analysis, we restrict the sample to the years 1972–1981. This allows to consider the period around the transitions and to limit possible confounding effects arising from other events, such as the entry of Greece, Portugal, and Spain into the European Union. We define a control group by including countries whose level of democracy remained stable over the reference period and up to ten years prior to the beginning of the sample. Moreover, to compare Greece, Portugal, and Spain with countries with as similar as possible contextual and cultural characteristics, except for the level of democracy, we include in the control group only European countries.<sup>21</sup>

Figure 3 compares the yearly *Business ownership rate* in Greece, Portugal, and Spain with the yearly average rate in the control group. In the graph related to Portugal, prior to 1974, the year of the fall of the autocratic regime, the rates followed a parallel slightly downward trend. Just after 1974, we notice a divergence between the two groups. From 1976, the year of the approval of the new constitution, the rate of Portugal follows a continuous upward trend, while that of the control group continues with the previous path. Similarly, in the graph related to Spain, starting from the death of Franco in 1975, we observe a divergence in trends. Before 1975, the rate was declining for both groups. After 1975, the rate of Spain inverts the trend, while that of the control group does not. Finally, looking at the graph related to Greece, we do not observe parallel trends before the transition, with the rate of Greece following an upward path even prior. To

<sup>21</sup> The final control group includes Austria, Belgium, Denmark, Finland, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, and the UK.



**Fig. 2** Democratic transitions. Notes: This figure reports the trends of the electoral democracy index and the participatory democracy index in Greece (a), Portugal (b), and Spain (c) over the 1962–2010 period

account for this issue and for the fact that the three transitions materialized in different years, we first consider a treated group including the three countries together and then we look at each country separately.

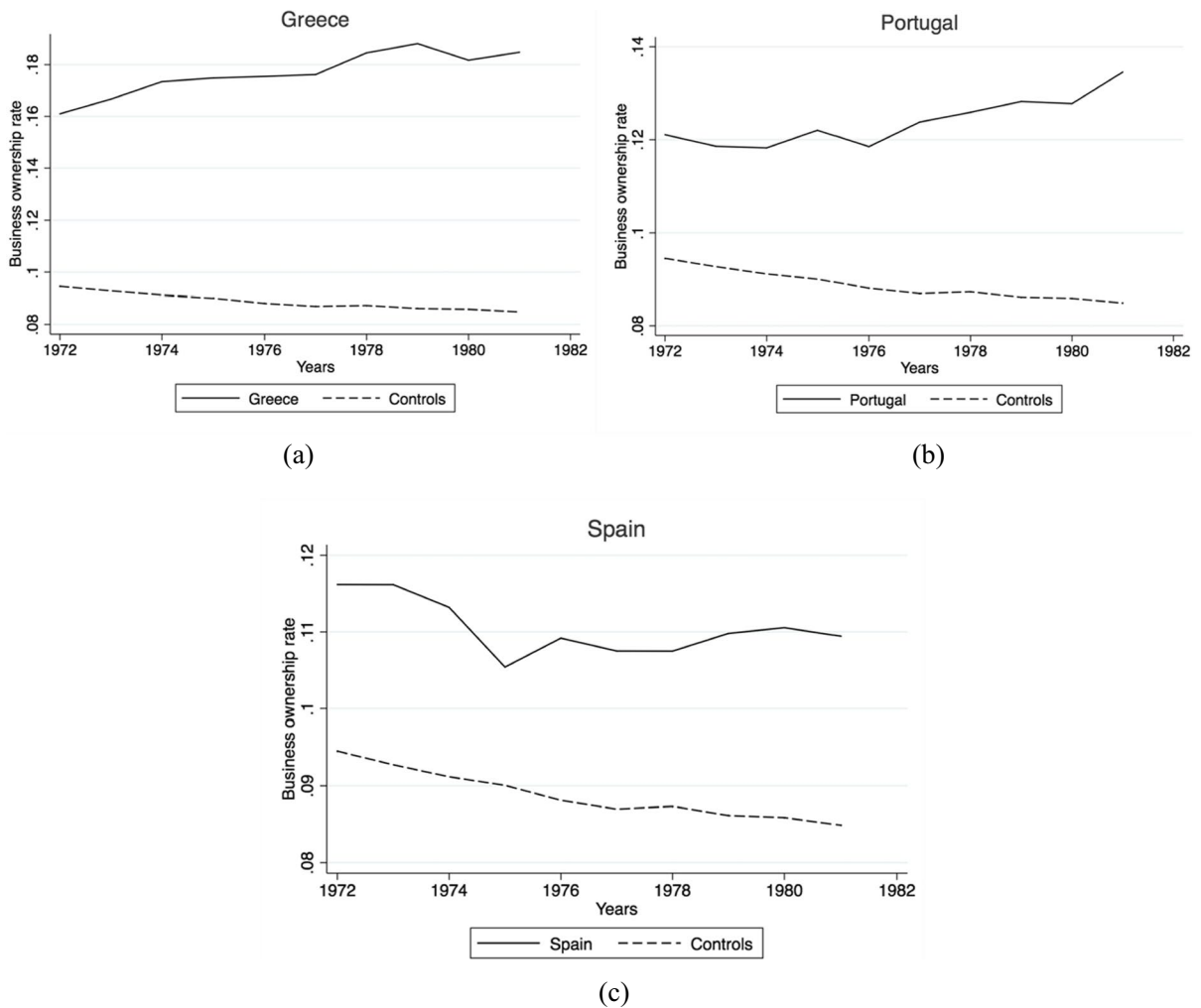
Once the treated and the control groups are defined, we develop the following difference-in-differences model:

$$\text{Entrepreneurship}_{c,t} = \beta_1 \text{Post} + \beta_2 \text{Treated} + \beta_3 \text{Treated} * \text{Post} + a_c + \delta_t + \varepsilon_{c,t} \quad (3)$$

Variable *Post* is a dummy equal to zero in the period prior to the democratic transition and to one afterwards. As the threshold year for this variable, we choose 1976 when *Treated* includes the three countries together. This

allows to consider a date between the three transitions. When *Treated* refers to a single country, we choose the year of approval of the new Constitution, that is 1975 for Greece, 1976 for Portugal, and 1978 for Spain. This way, we set our threshold at the end of the transition period and at the official start of the new democratic regime. Moreover, to account for country and time-invariant components, we include both country and year-fixed effects. Standard errors are clustered at country level. The coefficient of interest here is  $\beta_3$ . A positive and statistically significant coefficient of the interaction term would testify that the transition to democracy was beneficial for entrepreneurship.





**Fig. 3** Democracy and entrepreneurship—treated and control groups. Notes: This figure compares the trends of the business ownership rate of Greece (a), Portugal (b), and Spain (c) with the average business ownership rate of the control group, over the 1972–1981 period

Table 4 reports estimates of Model (3) by using different treated groups. Column (1) considers the three countries together, while columns (2–4) separately. As Table 4 shows, the coefficient of the interaction term is positive and statistically significant in all specifications. This suggests that the unquestionable increase in the level of democracy after the regime changes had a positive effect on the level of entrepreneurship. Thus, estimates in Table 4 further confirm the validity of H1. Moreover, as Fig. 2 documents a sharp increase in either dimensions of democracy, we can as well consider these findings to be an additional proof of H2 and H3.

With two complementary empirical approaches, we test our hypotheses by considering both changes in the intensity of democracy that might occur in democratic countries and changes from non-democratic to democratic regimes. We show that both introducing and strengthening democracy matter for entrepreneurship.

#### 4.4 The lagged effect of democracy

Once H1, H2, and H3 are verified, we move to test H4. We hypothesize that entrepreneurship is also positively affected by historical values of democracy. An increase in the level of democratization may produce effects

**Table 4** Democratic transitions

	(1)	(2)	(3)	(4)
	All	Greece	Portugal	Spain
DV: Entrepreneurship				
Post	-0.003 (0.002)	-0.005** (0.002)	-0.005* (0.002)	-0.002 (0.002)
Post*treated	0.011** (0.004)	0.018*** (0.001)	0.012*** (0.001)	0.004* (0.002)
Country FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Obs	150	130	130	130
Within R <sup>2</sup>	0.34	0.42	0.39	0.42

This table reports estimates of Model (3), by using as treated group Greece, Portugal, and Spain together (col. 1), and Greece (col. 2), Portugal (col. 3), and Spain (col. 4) separately. Standard errors are reported in parentheses

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

that are not visible in the very near future and that can take time to emerge. As the specifications performed so far focused on the short-term relationship, we need to complement our analysis with the longer-term one.

To detect the lagged effect of democracy on entrepreneurship we perform the two following models. First, instead of differencing democracy in  $t$  and in  $t-1$ , we do differences between average past values of democracy over different time horizons, starting from  $t-1$  up to  $t-10$ . We run different regressions by differencing the 2- up to 10-year averages of the values of democracy. This specification is defined by Model (4):

$$\Delta Entrepreneurship_{c,t} = \beta \Delta \left( \overline{Dem}_{c;t-1,t-i} \right) + \sum_{j=1}^n \gamma_j \Delta (Controls_{c,t}) + \delta_t + \Delta \varepsilon_{c,t} \quad (4)$$

where  $\overline{Dem}_{c;t-1,t-i}$  is the average value of democracy observed in country  $c$  over the period  $t-1$ ,  $t-i$ , with  $i=(2; 10)$ . By doing so, we consider the differences between average values observed over longer periods rather than the difference between current and 1-year prior values.

Second, instead of the first difference, we use longer-term differences in the levels of democracy. We do the difference between values in  $t-1$  and those observed in periods from  $t-2$  to  $t-10$ . This gives changes in the level of democracy up to a 10-year horizon. This specification is defined by Model (5):

$$\Delta Entrepreneurship_{c,t} = \beta (Dem_{c,t-1} - Dem_{c,t-i}) + \sum_{j=1}^n \gamma_j \Delta (Controls_{c,t}) + \delta_t + \Delta \varepsilon_{c,t} \quad (5)$$

where  $i=(2; 10)$ . By doing so, we investigate how the current change in entrepreneurship is affected by longer-period changes in democracy. To estimate both Models (4) and (5), we include in the sample values of democracy prior to 1972. This way, we can preserve the maximum number of available observations. Moreover, including lagged values represent an additional way to limit the simultaneity bias (Reed, 2015).

Table 5 reports estimates of Model (4). Columns from (1) to (10) consider average values of democracy from two up to ten years. Estimates in panel A, which refers to the *Electoral democracy index*, show positive and statistically significant coefficients up to the 5-year average. Coefficients associated with longer-term averages remain positive but they are no longer statistically significant. Similarly, in panel B, which considers the *Participatory democracy index*, coefficients are positive and statistically significant up to the 6-year average. These findings suggest that entrepreneurship is positively affected by past values of democracy as well and that historical values of democracy up to 5–6 years prior matter to determine the current level of entrepreneurship.

Similar evidence emerges from Table 6, which reports estimates of Model (5). Columns from (1) to (10) consider changes in democracy between 2 and 5 years prior. Estimates show that entrepreneurship is positively affected by changes in democracy up to 6 years prior ( $Dem_{t-1} - Dem_{t-6}$ ) when the *Electoral democracy index* is considered and 7 years ( $Dem_{t-1} - Dem_{t-7}$ ) when the *Participatory democracy index* is considered.

Overall, Models (4) and (5) both provide evidence for what we state in H4. Along with contemporaneous values, entrepreneurship is also sensitive to historical values of democracy.

#### 4.5 Do democracy and entrepreneurship need development?

With our four hypotheses being tested with both panel data techniques and a quasi-natural experiment, we perform a complementary analysis by investigating whether a high level of economic development is a precondition for democracy to foster

**Table 5** Lagged effect of democracy—past average values

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
DV: $\Delta$ Entrepreneurship									
Panel A: Electoral									
$\Delta$ Democracy	0.005*	0.010**	0.013**	0.010**	0.007	0.004	0.000	-0.001	0.001
	(0.003)	(0.004)	(0.006)	(0.004)	(0.005)	(0.006)	(0.008)	(0.010)	(0.010)
Obs	874	874	874	874	874	874	874	874	874
R <sup>2</sup>	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Panel B: Participatory									
$\Delta$ Democracy	0.007**	0.014*	0.018*	0.016**	0.012*	0.009	0.005	0.003	0.007
	(0.003)	(0.007)	(0.009)	(0.007)	(0.006)	(0.007)	(0.010)	(0.012)	(0.010)
Obs	874	874	874	874	874	874	874	874	874
R <sup>2</sup>	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table presents estimates of Model (4). Panel A considers *Electoral democracy index*, while Panel B *Participatory democracy index*. Each column considers a different time horizon for the computation of the average values of democracy, ranging from 2 (col. 1) to 10 years (col. 9). Country controls include GDP (log) and GDP per capita (log), trade openness, urbanization, total (log) and female population, and primary and secondary enrolment rate. Standard errors are reported in parentheses

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

**Table 6** Lagged effect of democracy—longer-term changes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
DV: $\Delta$ Entrepreneurship									
Panel A: Electoral									
$\Delta$ Democracy	0.004	0.003*	0.003**	0.003**	0.002**	0.001	0.001	0.000	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	874	874	874	874	874	874	874	874	874
R <sup>2</sup>	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Panel B: Participatory									
$\Delta$ Democracy	0.006*	0.004**	0.005*	0.004**	0.003**	0.002*	0.001	0.001	0.000
	(0.003)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	874	874	874	874	874	874	874	874	874
R <sup>2</sup>	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table presents estimates of Model (5). Panel A considers *Electoral democracy index*, while Panel B *Participatory democracy index*. Each column considers a different time horizon for the computation of the change in values of democracy, ranging from 2 (col. 1) to 10 years (col. 9). Country controls include GDP (log) and GDP per capita (log), trade openness, urbanization, total (log) and female population, and primary and secondary enrolment rate. Standard errors are reported in parentheses

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

entrepreneurship. As Rodrik and Wacziarg (2005) and Acemoglu et al. (2019) point out, some critics of the view that democracy is good for economic

performance suggest that democracy might be economically costly in absence of a sufficiently high level of economic development.

Following a similar approach as Acemoglu et al. (2019), we investigate this conjecture by evaluating the effect of democracy on entrepreneurship for the sample countries by distinguishing two country-groups, according to the level of economic development (as proxied by GDP per capita). Although our sample does not include extremely poor countries, this exercise is an interesting first step to investigate whether democracy needs a necessarily high level of economic development to affect positively entrepreneurship. Specifically, we estimate the following model:

$$\Delta Entrepreneurship_{c,t} = \beta_1 \Delta Democracy_{c,t} + \beta_2 \Delta Interaction_{c,t} + \sum_{j=1}^n \gamma_j \Delta(Controls_{c,t}) + \delta_t + \Delta \epsilon_{c,t} \quad (6)$$

Coefficient  $\beta_1$  indicates the effect of democracy on entrepreneurship for all countries (thus including the less developed countries in the lowest 25th percentile of GDP per capita), while variable *Interaction* isolates the additive effect for more developed countries (above the 25th percentile). If a high level of economic development is a precondition for democracy to foster entrepreneurship, we should expect a non-positive coefficient  $\beta_1$  and a positive and statistically significant coefficient  $\beta_2$ .

Estimates of Model (6) are reported in Table 7, where columns (1) and (2) consider the baseline GDP prevailing respectively at the beginning (1972) and at the end (2010) of the sample to determine the percentiles. As the table suggests, the effect for less developed countries is still positive and statistically significant, while there is no significant additive effect for more developed countries. This suggests that democracy is beneficial for entrepreneurship also in less rich countries and that the impact does not depend on the level of economic development.

As validation, we also estimate Model (6) by considering the bottom 10th percentile of economic development, instead of the 25th. Results in Table 8 are similar to those reported in Table 7.

These findings hint that a high level of economic development is not necessarily a pre-requirement for democracy to stimulate entrepreneurship. Although we cannot draw general conclusion, these results provide first insights suggesting that entrepreneurship can benefit from more democracy also in less developed countries. As such, expanding the analysis to a larger set of developing or emerging countries might be an

**Table 7** Democracy and development—25th percentile

	(1)	(2)	(3)	(4)
DV: $\Delta$ Entrepreneurship				
Panel A: Electoral				
$\Delta$ Democracy	0.006*** (0.002)		0.009* (0.005)	
$\Delta$ Interaction	0.006 (0.009)		0.016 (0.017)	
Panel B: Participatory				
$\Delta$ Democracy		0.011** (0.004)		0.012* (0.007)
$\Delta$ Interaction		0.028 (0.020)		0.022 (0.033)
Observations	874	874	874	874
$R^2$	0.09	0.09	0.09	0.09
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

This table reports estimates of Model (6) by distinguishing countries according to the bottom 25th percentile of economic development (proxied by the GDP per capita). Cols. 1 and 2 determine the percentile by considering the baseline GDP per capita that prevails in 1972; cols. 3 and 4 by considering the baseline GDP per capita that prevails in 2010. Country controls include GDP (log) and GDP per capita (log), trade openness, urbanization, total (log) and female population, and primary and secondary enrolment rate. Standard errors are reported in parentheses

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

interesting extension for future research. This would allow to delve deeper into the role of economic development in shaping the relationship between democracy and entrepreneurship.

## 5 Discussion

Our findings help to deepen knowledge on the under-researched links between democracy and entrepreneurship. By providing the first systematic empirical evidence showing that these two concepts are inherently connected, our study has important theoretical and practical implications for the entrepreneurship literature.

### 5.1 Implications for theory

Grounded in the view that institutional and contextual conditions matter for entrepreneurship (Autio et al.,

**Table 8** Democracy and development—10th percentile

	(1)	(2)	(3)	(4)
DV: $\Delta$ Entrepreneurship				
Panel A: Electoral				
$\Delta$ Democracy	0.005** (0.002)		0.006*** (0.002)	
$\Delta$ Interaction	0.006 (0.009)		0.016 (0.017)	
Panel B: Participatory				
$\Delta$ Democracy		0.007** (0.003)		0.008*** (0.003)
$\Delta$ Interaction		0.028 (0.020)		0.022 (0.033)
Observations	874	874	874	874
$R^2$	0.09	0.09	0.09	0.09
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

This table reports estimates of Model (6) by distinguishing countries according to the bottom 10th percentile of economic development (proxied by the GDP per capita). Cols. 1 and 2 determine the percentile by considering the baseline GDP per capita that prevails in 1972; cols. 3 and 4 by considering the baseline GDP per capita that prevails in 2010. Country controls include GDP (log) and GDP per capita (log), trade openness, urbanization, total (log) and female population, and primary and secondary enrolment rate. Standard errors are reported in parentheses

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

2014; Bennett et al., 2022; Bradley & Klein, 2016; Schmutzler et al., 2019; Urbano et al., 2019; Welter, 2011; Welter et al., 2019), we expand the growing literature linking entrepreneurship to institutions by substantiating a relationship that prior to this study was only conjectured. Our primary contribution is to demonstrate that democracy, arguably the most qualifying attribute of Western developed countries, does foster entrepreneurship. In doing that, we add a new and non-negligible component to the array of contextual dimensions that have been found to be beneficial for entrepreneurship (Boudreaux et al., 2018; Fu et al., 2020; Korosteleva & Belitski, 2017). Prior to this study, no quantitative evidence of the direct link between entrepreneurship and democracy existed in the entrepreneurship literature. We fill this important gap by providing systematic evidence suggesting that entrepreneurship is directly affected by democracy. Though this link is not exclusive, as vivid entrepreneurial activities can also occur in non-democratic

countries like the former Soviet Union or China (Sautet, 2013), this study suggests that a democratic environment can per se facilitate entrepreneurship and promote its growth. In this regard, our two complementary empirical approaches show that, along with substantial changes in democracy (e.g., democratic transitions), entrepreneurship is sensitive to gradual changes in the intensity of democracy as well. This implies that the relationship between entrepreneurship and democracy matters for countries that democratize and for democratic societies alike. Not only introducing democracy, but also enhancing existing democracies leads to more entrepreneurship. We further qualify this relationship as we show that democracy unleashes entrepreneurial activity in both the short- and long-run. According to our estimates, entrepreneurship is sensitive to both contemporaneous and historical values of democracy for up to 5–6 years. On the one hand, the long-run effect confirms that democracy takes time to produce socio-economic outcomes (Gao et al., 2017; Geddes, 1999; Rodrik & Wacziarg, 2005). On the other, the short-run effect shows that changes in the institutional context, and particularly in the intensity of democracy, can also produce rapid consequences in entrepreneurship. It might reveal the existence of entrepreneurial ideas that could be implemented quickly within a propitious institutional context. This corroborates emerging evidence that even small and short-term changes in context affect entrepreneurial activity (Davidsson, 2020; Mickiewicz et al., 2021).

Our research also helps to have a more nuanced and holistic understanding of the entrepreneurship–democracy nexus by exploring two underlying channels. Not only do we document that democracy fosters entrepreneurship, as we ask in our first research question, but we also explore two mechanisms through which this can happen. Concerning our second research question, the knowledge channel and the trust channel show that the promotion of freedom and social interchange, on the one hand, and the involvement of civil society in political process, on the other, are two dimensions of democracy that matter for entrepreneurship. This suggests that a multidimensional perspective is needed to examine more fine-grained aspects behind the democracy–entrepreneurship connection.

Our complementary analysis offers additional theoretical insights to understand whether economic development shapes our relationship of interest. The fact that democracy is conducive to more



entrepreneurship also in less rich countries of our sample, hints that the link between democracy and entrepreneurship is not affected by the stage of economic development. This is in line with Rodrik and Wacziarg (2005) and Acemoglu et al., (2019), who contradict the view that democracy produces poor economic outcomes when certain preconditions in terms of economic development are not satisfied. However, a wider set of developing or emerging countries should be considered to infer generalizability to this insight.

Finally, our research advances knowledge on how democracy can shape socio-economic contexts. Along with economic growth, human capital, health, innovation and other issues examined by past research (Acemoglu et al., 2019; Baum & Lake, 2003; Kudamatsu, 2012; Wang et al., 2021), we document that democracy as well has a direct influence on entrepreneurship. Not only does democracy matter, our results show that it matters for entrepreneurship. Thus, our findings shed new light on the understanding of the decline in entrepreneurship in advanced economies. Several factors have been suggested to explain this phenomenon, such as the declining population growth, the growing market concentration, the zombie-firm congestion, or more burdensome regulations (Naudé, 2022). By showing that entrepreneurship is directly connected to democracy, we suggest a new element that entrepreneurship scholars may consider. The documented contraction of democracy (Adler et al., 2023; Diamond, 2015, 2020; Lührmann et al., 2019; Plattner, 2015) might be part of the explanation. Entrepreneurs and governments who want to preserve entrepreneurship should not neglect the ongoing retreat of democracy.

Overall, our empirical findings give a new perspective to the compelling conversation on the connection between entrepreneurship and democracy. While prior to this study we could only consider it as conjecture, now we can look at it as substantiated evidence.

## 5.2 Implications for practice

This study also offers concrete ways in which political institutions can promote entrepreneurship. By guaranteeing and preserving freedom, social interchange, and the civil society participation in political processes, they can help to facilitate entrepreneurial

activity. Furthermore, our research suggests that the ongoing debate on democracy should perhaps be deepened. Firstly, the concept of “democracy” needs to be enriched with that of “intensity of democracy.” Secondly, when scholars or policy-makers wonder about the linkage between democracy and a socio-economic outcome, such as entrepreneurship, along with posing the issue as, “Does democracy matter?” Another relevant question is, “Which dimensions of democracy matter?” The nuanced attributes and components of democracy might play different role depending on the relationship of interest.

We introduce a new argument whereby democratic institutions should be safeguarded. If we want entrepreneurship to prosper, there is a need to preserve and nurture democracy.

## 6 Limitations and future research

This study has limitations that offer intriguing avenues for future research. First, our sample is limited to 23 OECD countries. This is due to the choice of considering countries where entrepreneurship is more opportunity- rather than necessity-driven. We encourage scholars to investigate the relationship between entrepreneurship and democracy in different contexts. For instance, considering developing and emerging countries should provide additional interesting insights on how the level of development could shape this relationship. In our final complementary analysis, we show that democracy affects positively entrepreneurship also in less rich countries. However, we cannot draw general conclusion for poorest countries, where necessity entrepreneurship plays a relevant role.

Second, our study shows that, along with the intensity of democracy, transitions to democracy also matter for entrepreneurship. Greece, Portugal, and Spain had a greater increase in entrepreneurship over the years after democratizations than those countries that did not experience a similar event. As our quasi-natural experiment design is restricted to three transitions, exploring other transitions could be helpful to delve deeper into the role that regime changes have in determining the level of entrepreneurship. In this regard, having a sample of developing or emerging countries might also allow to exploit a larger number of transitions over the very recent years.

Third, along with the two we investigate, other dimensions of democracy may be found to matter for entrepreneurship. Future studies should examine other components and test additional underlying mechanisms through which democracy can foster entrepreneurship.

Fourth, we are also conscious that the definition of entrepreneurship we use is not the unique one. To assess the largest population of entrepreneurs, we select an inclusive measure of entrepreneurship considering the total number of owners of incorporated and unincorporated businesses. While it is helpful to capture opportunity rather than necessity entrepreneurship, our measure does not distinguish between more subtle types of entrepreneurship, such as productive and unproductive (Baumol, 1990), local and systemic (Sautet, 2013), social (Dacin et al., 2011), hybrid (Schulz et al., 2016), institutional (Dorado, 2005) or informal (Siqueira et al., 2016) entrepreneurship. Investigating how democracy is linked to each of these types would be an intriguing extension of our findings. This will help to understand if there is a specific connection with democracy depending on which type of entrepreneurship we look at.

Fifth, our sample ends in 2010 due to data constraints. While large, our time period does not detect recent events that may challenge democratic and entrepreneurial beliefs. The ascent of populisms (Bennett et al., 2022) and authoritarianisms (Adler et al., 2023), the growing markets concentration (Naudé, 2022), the resurgence of monopoly (Feldman et al., 2021), the dominant role of digital technologies and platforms (Kenney & Zysman, 2016) reveal a growing concentration of political and economic power alike, which contrasts with the underpinnings of democracy and entrepreneurship. Hence, examining whether and how such events affect the entrepreneurship–democracy relationship and the two channels we explored is an intriguing question. For instance, the knowledge channel might be shaped by the booming virtual communication and interactions. Likewise, recent emergencies such as climate change and pandemics might have deteriorated the institutional trust underlying the trust channels. While we document a positive relationship between democracy and entrepreneurship over the reference time period (1972–2010), further research may complement our findings by analyzing

the determinants of the contraction of democracy over the last decade and by exploring whether this phenomenon is an antecedent of the ongoing slowdown in entrepreneurial activity (Naudé, 2022). Crises affect entrepreneurship (Batjargal et al., 2023). The one of democracy may not be an exception.

All these venues leave room for fascinating future research agendas in the entrepreneurship literature. Our study provides new insights about what we hope could be a long and promising research direction.

## 7 Conclusion

This study investigates the direct link between democracy and entrepreneurship. With the help of cross-countries longitudinal analyses and a quasi-natural experiment with three transitions to democracy, not only do we show that democracy fosters entrepreneurship, but we also suggest that considering different intensities and dimensions of democracy matters to understand the mechanisms underlying this relationship. We test two possible driving channels: the *knowledge channel*, focusing on the promotion of freedom and social interchange, and the *trust channel*, which rather refers to the participatory dimension of democracy. We also find evidence that the beneficial effect of democracy on entrepreneurship is observable in both the short and the long run, whereby entrepreneurship is sensitive to contemporaneous and historical values of democracy.

From this study, we conclude that it is not possible to think of entrepreneurship and democracy as two unrelated phenomena. The more democracy is preserved, the more entrepreneurship will flourish. Stated differently, undermining democracy is undermining entrepreneurship and all those economic and social factors for which entrepreneurship is a primary source. Entrepreneurship needs democracy. This is what we learn from this study. We hope that the compelling empirical evidence we provide could open new horizons for other important and fruitful research in the entrepreneurship field. Not only does entrepreneurship matter, as entrepreneurship scholars have shown in previous studies, but in particular, it is the result of a vibrant democracy.

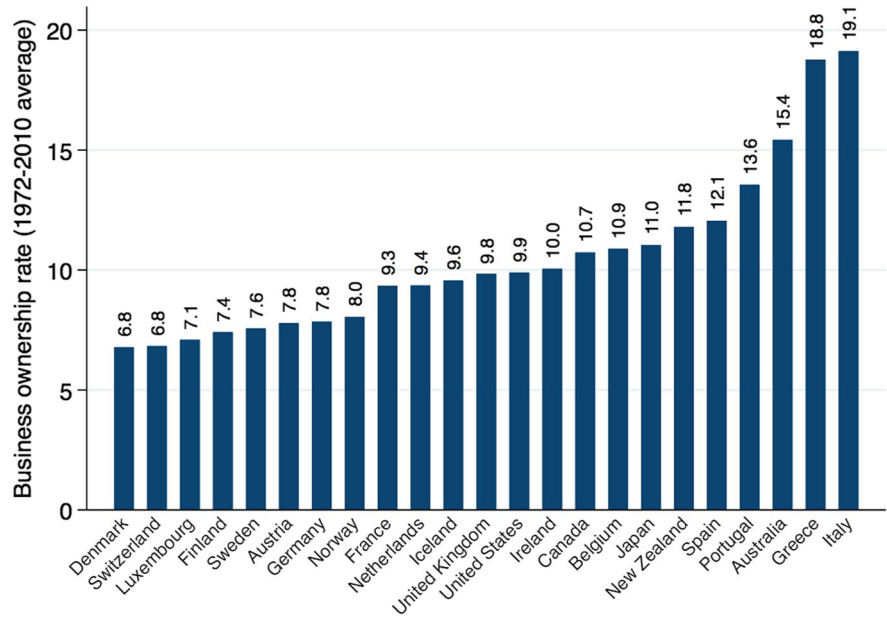
## Appendix

**Table 9** Variables definition

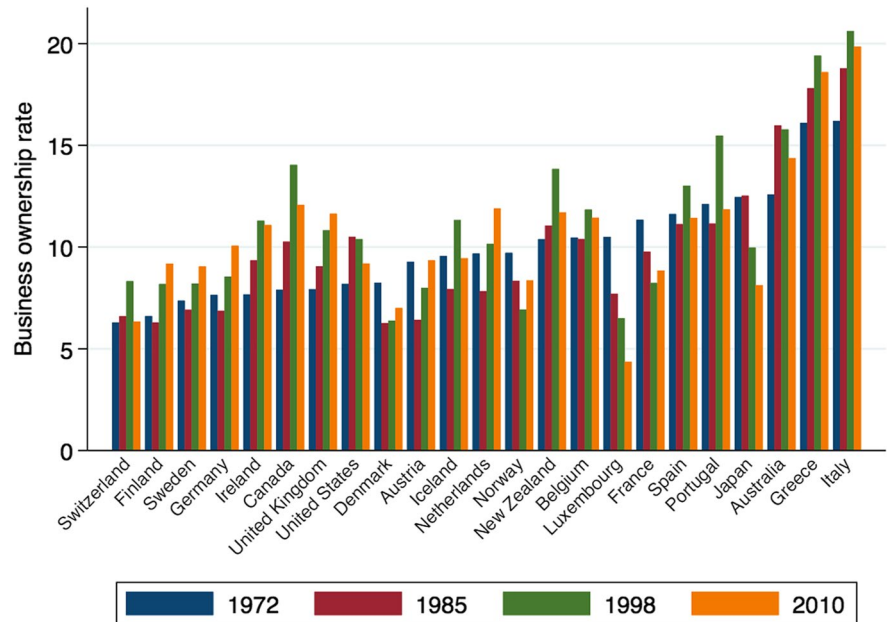
Variable	Definition	Source
Business ownership rate	Total number of incorporated and unincorporated self-employed (outside agriculture, hunting, forestry, and fishing industry, who carry out self-employment as their primary employment activity) as a fraction of total labor force	Compendia
Electoral democracy index	The electoral principle of democracy seeks to embody the core value of making rulers responsive to citizens, achieved through electoral competition for the electorate's approval under circumstances when suffrage is extensive; political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country. In between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance	V-Dem
Participatory democracy index	The participatory principle of democracy emphasizes active participation by citizens in all political processes, electoral and non-electoral. It is motivated by uneasiness about a bedrock practice of electoral democracy: delegating authority to representatives. Thus, direct rule by citizens is preferred, wherever practicable. This model of democracy thus takes suffrage for granted, emphasizing engagement in civil society organizations, direct democracy, and subnational elected bodies	V-Dem
GDP	US\$, constant prices, constant PPPs, reference years 2000	Compendia
GDP per capita	In PPP per US\$ at 2000 prices	Compendia
Trade	Sum of exports and imports of goods and services measured as a share of GDP	World Bank
Population	Total country population	World Bank
Female population	Percentage of the population that is female	World Bank
Urbanization	Percentage of population living in urban areas	World Bank
Primary enrolment rate	Percentage of primary school-aged population enrolled in primary school	Barro-Lee
Secondary enrolment rate	Percentage of secondary school-aged population enrolled in secondary school	Barro-Lee

This table presents definitions and sources of the variables used in the analysis

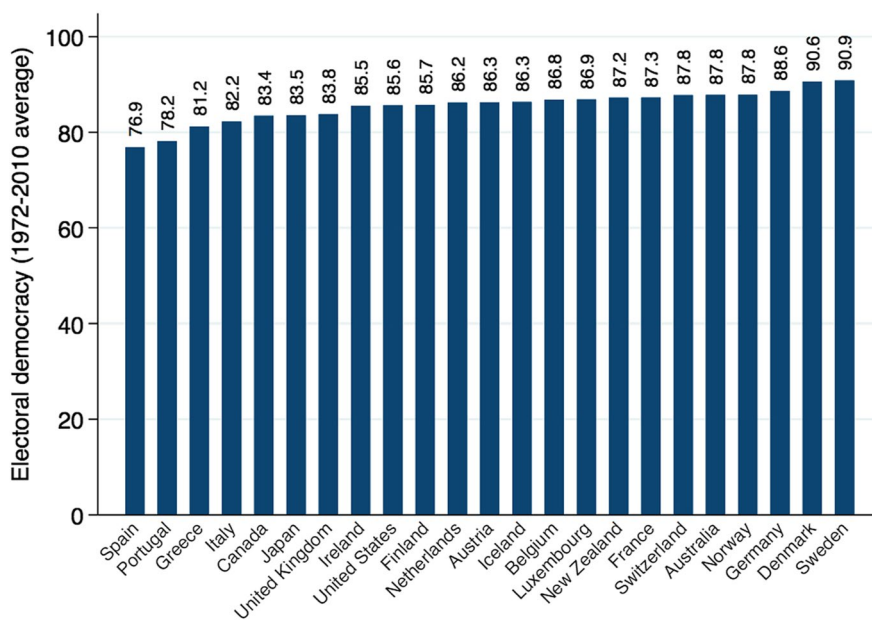
**Fig. 4** Business ownership rate by country. Notes: This figure reports the average Business ownership rate by country over the 1972–2010 period



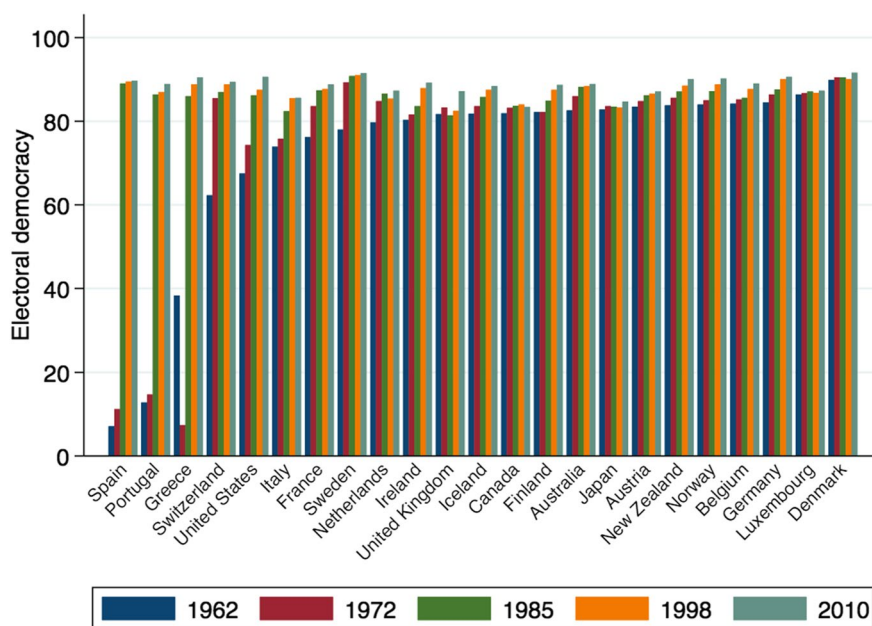
**Fig. 5** Change in the Business ownership rate by country. Notes: This figure reports the value of the country business ownership rate observed in 1972, 1985, 1998, and 2010



**Fig. 6** Electoral democracy index by country. Notes: This figure reports the average electoral democracy index by country over the 1972–2010 period

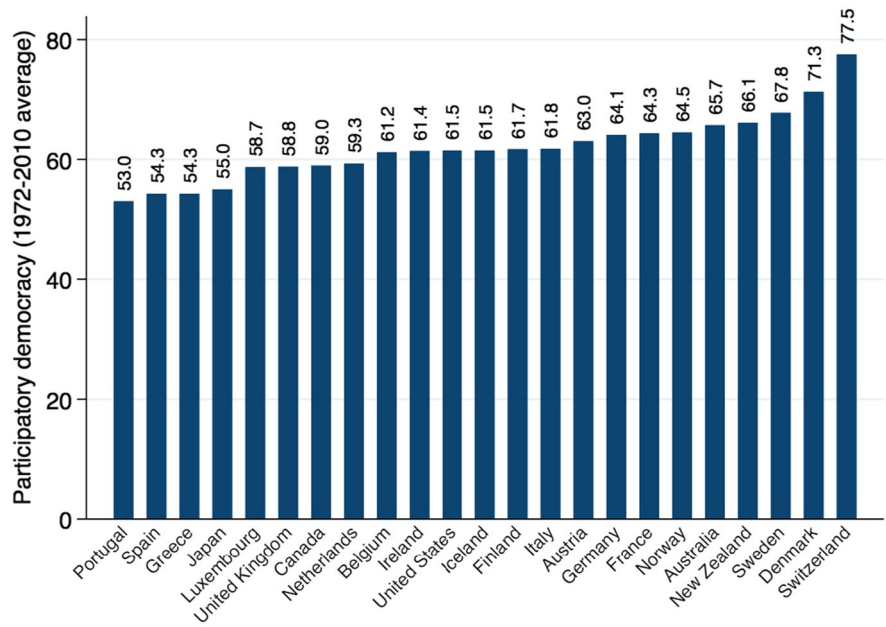


**Fig. 7** Change in the Electoral democracy index by country. Notes: This figure reports the value of the country electoral democracy index observed in 1962, 1972, 1985, 1998, and 2010

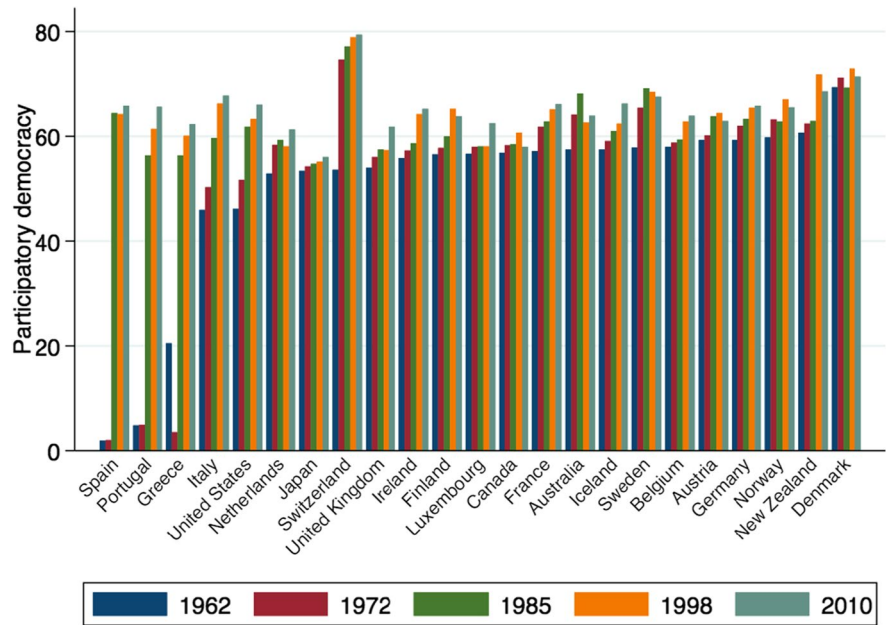


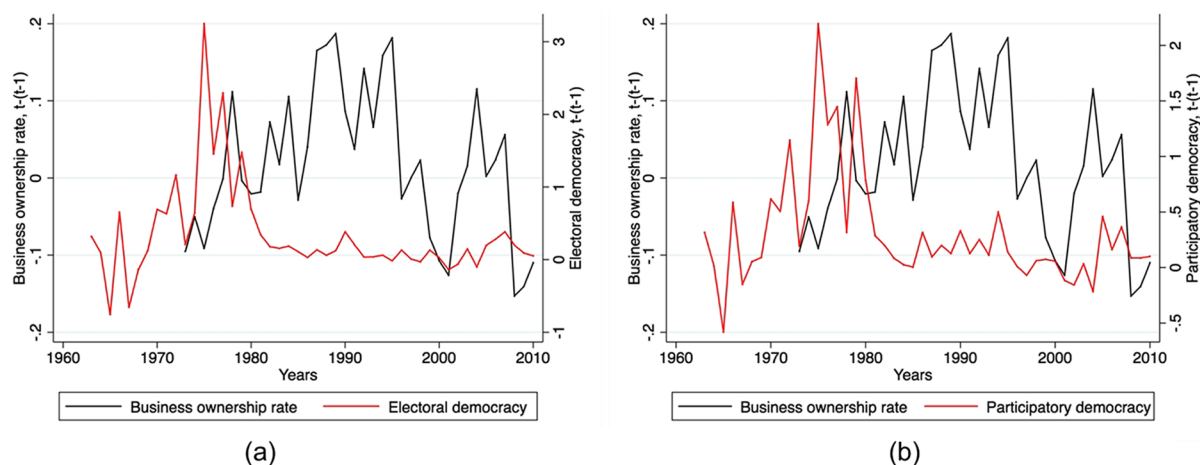


**Fig. 8** Participatory democracy index by country. Notes: This figure reports the average participatory democracy index by country over the 1972–2010 period



**Fig. 9** Change in the participatory democracy index by country. Notes: This figure reports the value of the country participatory democracy index observed in 1962, 1972, 1985, 1998, and 2010





**Fig. 10** First-differences. Notes: This figure plots first-difference yearly averages of the business ownership rate with the electoral democracy index (a) and with the participatory democracy index (b), over the 1962–2010 period

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**Data availability** The datasets generated during the current study are not publicly available due to confidentiality agreement.

#### Declarations

**Competing interests** The authors declare no competing interests.

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