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Entrepreneurship: The Driving Force for Economic Growth in the Twenty-First Century in the European Union

Rafael Acevedo [a, b, c, d], Maria Lorca-Susino [b, e, *]

[a] *Menard Family Center for Economic Inquiry, Creighton University, Omaha, NE, USA*
[b] *Econintech, Miami, FL, USA*
[c] *Department of Accounting, Economics, and Finance, University of Illinois, Springfield, IL, USA*
[d] *School of Business, Western New Mexico University, Silver City, NM, USA*
[e] *Department of Economics, University of Miami, Coral Gables, FL, USA*

ABSTRACT

Economic growth rests on entrepreneurship and capitalism. Entrepreneurship is important because entrepreneurs work unceasingly to create, use, and disseminate new products and productive techniques to raise living standards. Capitalism is characterized by private property rights, a free market, and the pursuit of profit, which are driving forces for innovation and productivity and in turn economic growth. Using six proxies for economic growth, our results show that capitalism, measured by the Economic Freedom of the World Index, and entrepreneurship, measured by the Global Entrepreneurship Monitor data set, fostered economic growth in member states of the European Union between 2000 and 2021.

KEYWORDS

Entrepreneurship; Capitalism; Economic Growth; European Union

* Corresponding author: Maria Lorca-Susino
E-mail address: mlorca@bus.miami.edu

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1. Introduction

The concept of economic growth has been contested in economics. The traditionally accepted definition is a change in real GDP per capita. This definition has faced challenges from scholars who argue that GDP alone cannot encapsulate the entirety of economic well-being (Kapoor and Debroy, 2019) or that aggregating an economy's output is problematic or even impossible (Mises, 1949). This article follows the Austrian school's definition, proposed by Rothbard (2004), who says that economic growth is "an increase of economic means available for the satisfaction of people's ends–in short, increased satisfactions of people's wants" (p. 969).

This definition diverges from neoclassical perspectives, which predominantly focus on augmenting the consumption and production of goods and services, and Keynesian views, which accentuate government expenditures as the primary force behind growth. The Austrian school's conception recognizes that merely increasing production or government spending does not guarantee genuine economic growth. True growth necessitates a dynamic and innovative economy that transcends numerical production metrics, spotlighting the pivotal role of entrepreneurship, market processes, and the accumulation of knowledge and capital (Holcombe, 1998).

The debate surrounding economic growth extends to the analysis of it. Understanding historical economic growth has proven challenging because of the multitude of endogenous and exogenous factors influencing it (Acevedo and Lorca, 2023). As a result, scholars in numerous schools of thought have researched this subject from both macroeconomic and microeconomic standpoints.

The Harrod-Domar model (developed in 1946) views growth as rooted in saving levels and capital, defined as durable produced goods employed as inputs for further production. The Solow-Swan growth model (Solow, 1956, 1957; Denison, 1962, 1967; Easterly and Levine, 2001), an early neoclassical model of exogenous growth, investigates the impact of changes in capital accumulation, population growth, and productivity increases driven by technological advancements on output levels over time. However, analyses that solely focus on long-term trends and the steady state of economic growth overlook numerous crucial variables that significantly affect economic growth.

Scholars have posited that cultural and institutional factors substantially influence economic growth (Acemoglu amd Robinson, 2013; Acemoglu, Johnson, and Robinson, 2005; Alesina and Giuliano, 2015; Guiso, Sapienza, and Zingales, 2006). Others assert that economic growth is primarily influenced by the cultural environment and education—human capital—and that some societies cultivate more hardworking and entrepreneurial individuals than others (Landes, 2008; Clark, 1987).

The concept of freedom is defended by some as the most potent catalyst for economic growth (Gwartney et al., 2019; Bergh and Bjørnskov, 2019; Williamson and Mathers, 2011; Pitlik, 2002). Government regulations and institutions also significantly affect economic growth (Lipietz, 1993), as do the ability of Western societies to establish deeply rooted and widely respected legal systems for contract enforcement (Hernando de Soto, 2000; Acemoglu et al, 2017; Porta et al., 2008).

Religion plays a role as well, with Protestantism, for instance, encouraging hard work, self-discipline, and rationalism (Weber, 1930; Becker, et al 2009). Geography, particularly proximity to the equator or landlocked status, has also been invoked to explain economic-growth disparities (Sachs, 2005; Krugman and Venables, 1995; Diamond, 1997; Sachs, 2001; Greif, 1993; Nunn, 2007; Nunn and Treáer, 2013; Frankel and Romer, 1999). However, some studies refute these links (Sturm and De Haan, 2001; Sturm, Leertouwer, and De Haan, 2002;), partly attributing the disparities to model dependence, where estimations are based on data extrapolations.

As Hayek (1944) explains, it is within decentralized economies, in which individuals are free to respond to market signals and act on their entrepreneurial spirit, that innovation flourishes and the production of goods and services aligns with people's wants. Unlike centrally planned economies—in which decisions are concentrated

among a few people who lack comprehensive knowledge of individual preferences and circumstances, decentralized market systems allow the dispersed knowledge and creative potential of millions to shape the economy. This dispersed knowledge empowers individuals to identify market gaps, anticipate shifting demand, and devise innovative solutions to satisfy that demand.

By nurturing entrepreneurship, decentralized economies foster competition, drive efficiency, and stimulate economic growth. The freedom for individuals to pursue their goals and respond to market signals provides the incentives necessary to continuously seek and seize opportunities, resulting in a dynamic and resilient economy. Through this process, a decentralized economy efficiently allocates resources, fosters innovation, and satisfies the diverse wants of individuals, harnessing the wisdom of the crowd, and paving the way for an economy that genuinely serves the people's interests.

These perspectives shed light on the strong relationship scholars have identified between capitalism and economic growth (Shleifer et al, 2008). Mises (1949) explains that capitalism encompasses not extensive production per se, but extensive production of goods and services desired by the population. But capitalism is more intricate than Mises's definition might suggest. However, for the purposes of this paper, it elucidates the relationship between capitalism and growth as perceived by the Austrian school.

Capitalism substantially boosts the production of goods and services that people want, leading to consumer satisfaction and economic growth. This is achieved through relentless innovation. As Mises (1949) argues, innovation thrives where freedom and entrepreneurship flourish, thus pointing to the important of ideas and mental processes for production.

Entrepreneurship has been defined diversely. Kirzner (1973) defines entrepreneurship as alertness to previously unnoticed profit opportunities in the market. Mises (1949) characterizes it as a "specific anticipative understanding of the conditions of the uncertain future" (585). Rothbard (2004) defines it as the "necessity of guessing the course of the relevant conditions and their possible change during the forthcoming action" (4). Regardless of the definition, entrepreneurship entails taking risks accompanied by the expectation of both monetary reward and social approbation (Smith, 1976).

Entrepreneurship involves anticipating trends in consumer preferences, creating jobs to produce necessary goods and services, innovating in order produce mass quantities at affordable prices, increasing economic activity, and enhancing social well-being. These factors collectively foster economic growth. Capitalism nurtures entrepreneurship by providing an institutional framework with supportive regulations and wealth-distribution mechanisms, among other components. Entrepreneurship, in turn, contributes to growth by generating jobs, establishing new businesses, fostering innovation, expanding economic activity, increasing productivity, and creating wealth. This virtuous cycle continues until something disrupts it.

The objective of this paper is to analyze entrepreneurship as a fundamental driver of economic growth within the European Union, highlighting the virtuous cycle of entrepreneurship and capitalism in promoting the creation of new enterprises and, consequently, fostering economic advancement.

This paper is divided into two main parts. An extensive literature review contributes to the study of capitalism and entrepreneurship as the catalyst and engine of economic growth, respectively, highlighting that entrepreneurship is the forgotten factor of production and driver of economic growth in the European Union (EU). Second, this paper provides an innovative econometric analysis with EU data and finds a strong positive relationship between capitalism, entrepreneurship, and economic growth.

2. Capitalism as the Catalyst and Entrepreneurship the Engine of Economic Growth

Capitalism provides the institutional framework that enables innovation, productivity, and investment and allows entrepreneurship to prosper, and both capitalism and entrepreneurship drive economic growth.

2.1. Capitalism: The Catalyst of Economic Growth

Reisman (1998) defines capitalism as a social system built upon private ownership of the means of production, guided by individual pursuit of material self-interest within a framework of freedom, and underpinned by the cultural influence of reason. Within this system, private ownership of resources and means of production functions in efficiently with the laws of supply and demand, driving profitability. Central to capitalism is the entrepreneurial endeavor, which involves identifying and pursuing opportunities to exploit limited resources in order to create and expand profitable businesses. Crucially, entrepreneurship is a byproduct of capitalism, and both foster innovation, augment productivity, and catalyze market evolution through competition. In turn, quality of life, living standards, and purchasing power advance, thereby promoting economic growth. Capitalism is the linchpin of enduring economic expansion, as Hayek (1998) and Fukuyama (2006) fervently argue.

Hayek, in The Road to Serfdom (1944) and The Constitution of Liberty (1998), extols capitalism's virtues. He portrays capitalism as a decentralized decision-making system with private property rights, individual liberties, economic efficiency, and the freedom to pursue self-interest, the catalyst for prosperity. He underscores that both society and the economy are complex and evolutionary and that the dispersal of knowledge and information across economic agents prevents comprehensive governmental control.

Fukuyama (2006) also endorses capitalism, especially against the backdrop of the Berlin Wall's fall, which symbolized the decline of communism and the ascendancy of capitalism as the archetype for effective economic governance. He posits that the Cold War's end signifies the triumph of a pro-freedom democratic political framework with capitalist economic foundations and that this framework is the most potent driver of economic progress. This framework elevates economic freedom, reinforces property rights, and nurtures market competition, which together constitute the most efficient mechanism for enhancing living standards and generating wealth.

Growth is profoundly intertwined with capitalism's pillars: preservation of private property rights, dynamic markets, and pursuit of individual profit. These pillars, which foster productivity and innovation, propel economic growth. Malthus (1798) anticipated that global population growth would perpetually push the population toward subsistence levels because of inadequate food production. He, as well as other scholars of the time, failed to grasp the pivotal role of innovation in advancing human and physical capital and technology. History attests to the power of innovation to catalyze productivity growth through pioneering companies (Schumpeter 2008).

To fully appreciate how capitalism fuels entrepreneurship, facilitates innovation, and fosters growth, we must examine its three pillars. First, capitalism hinges on the sanctity of private property rights, encompassing ownership of firms and productive assets (Bowles, 2007). Today, the structure of ownership in a modern firm often invokes debate, particularly in the context of principal-agent theory. Nonetheless, private ownership enables business formation, innovation, and an improved standard of living. Through private property, capitalism empowers individuals to run the economy with minimal government interference (Smith, 1776). Smith underscores the role of private ownership in fostering specialization, resulting in enhanced comparative advantage, efficiency, economies of scale, and productivity. Comparative advantage, in turn, spurs international trade, expanding access to goods and services and, subsequently, fueling growth.

Second, markets require open, dynamic markets—with minimal governments in which supply and demand determine prices and resource allocation. Markets empower individuals and businesses to make decisions guided by consumer preferences and production capacity (Bowles, 2007). Smith (1776) champions the market as the pinnacle of human exchange, fostering specialization and division of labor—the foundations of modern society. This perspective aligns with that of Friedman (1962), who lauds capitalism and free markets for enhancing voluntary, informed exchanges and decries the adverse impacts of government intervention.

Third, profit motivates individuals and businesses to engage in economic activities. The profit motive arises from self-interest and results in private profit, which is rooted in rational human action (Mises, 1949). Smith (1776)

expounds on profit's role in driving entrepreneurial endeavors, which channel investments toward efficient allocations and expand the capital stock. This viewpoint resonates with Friedman's, which emphasizes profit's function as a market signal guiding resource allocation and investment decisions. Schumpeter (2008) underscores the virtuous cycle of the profit motive and entrepreneurial innovation. Rand (1992) and Rand and Branden (1964) portray private profit as a testament to individual prowess and productivity, defending the centrality of human action. Drucker (1985) underscores profit's pivotal role in sustaining and expanding enterprises, and he affirms the intrinsic link between rational action and prosperity within capitalism.

Despite capitalism's merits, it has its critics. Keynes, Marx, and Engels, for instance, contend that it, rather than representing a triumph for the individual, signifies a triumph over the individual (Bowles, 2007). Keynes (1936) argues that capitalism necessitates extensive regulation in both distribution and production. Other critics posit that capitalism's benefits and the fruits of labor are unequally distributed. Radical critics such as Marx and Engels (2015) seek to replace the entire system rather than repair it like the Keynesians, as they view capitalism as rooted in class antagonism, inequality, inhumanity, and inevitable crises that will culminate in a conflict between the bourgeoisie and the proletariat.

However, historical evidence firmly establishes that countries embracing capitalism have risen to the ranks of developed countries and helped their citizens enjoy a higher quality of life according to multiple metrics. Furthermore, many authors have demonstrated a positive correlation between capitalism and economic growth (Acevedo and Lorca, 2023, Buchanan, 1962; North, 1990).

2.2. Entrepreneurship: The Second Engine of Economic Growth

Entrepreneurship, a central component of growth, has undergone a journey in economic thought. Mises (1949) once declared that entrepreneurship serves as the "driving force of the whole market system" (249), and Carl Menger initiated the discussion of entrepreneurship as early as 1871. However, Bylund (2018) explains that it took until the 1970s, with Kirzner's (1973) pioneering work, for the Austrian school to develop a comprehensive theory of entrepreneurship.

While the common understanding of entrepreneurship includes anyone who initiates a business venture, a more precise definition is necessary. Entrepreneurship encompasses entities, whether new or established, that introduce new products or services or new methods to produce existing goods and services more efficiently. Drucker (1985) emphasizes that "not every new small business is entrepreneurial or represents entrepreneurship" (21). This refined definition resonates with the viewpoint of nineteenth-century economist Jean-Baptiste Say (1803), who regarded entrepreneurs as market disruptors, as individuals who "upset and disorganize" established markets. Schumpeter (2008) reinforces this perspective, coining the term "creative destruction" to describe the entrepreneurial process. Drucker (1942) succinctly captures Schumpeter's insights, emphasizing that "the dynamic disequilibrium brought on by the innovating entrepreneur, rather than equilibrium and optimization, is the 'norm' of a healthy economy and the central reality for economic theory and economic practice" (27).

Entrepreneurship is intrinsically linked to innovation. Drucker (1985) states, "Entrepreneurs innovate. Innovation is the specific instrument of entrepreneurship" (30). While our primary focus is on innovative entrepreneurs, it is essential to acknowledge the value of replicative entrepreneurs—individuals who replicate existing goods or services. Replicative entrepreneurship plays a vital role in economies, offering opportunities for individuals with limited capital, education, or experience to earn a livelihood (Cantillon, 2015). However, when it comes to growth, innovative entrepreneurship takes precedence. Innovative entrepreneurs transform markets by recognizing undervalued factors and allocating them to new production processes in which their value appreciates. According to Rothbard (2004), entrepreneurs facilitate growth through two primary mechanisms: boosting demand for productive factors and increasing the output of new or existing goods and services.

Various scholars have underscored the indispensable role of entrepreneurship in driving growth. Bednarzik (2000b) defines entrepreneurship as the process of creating, organizing, and operating a new business that establishes a new market. His research indicates a positive relationship between entrepreneurial activity and economic growth. Entrepreneurship propels economic advancement by stimulating innovation, enhancing productivity, generating employment, and bolstering competitiveness. Baumol (2002) expounds upon entrepreneurship as a primary driver of modern economic growth, emphasizing that "entrepreneurs work unceasingly for the creation, utilization, and dissemination of new products and productive techniques" (2). Entrepreneurs identify unmet consumer needs and drive the development of new products, services, and business models. Entrepreneurs' creative thinking, risk-taking disposition, and drive to innovate enable them to seek business opportunities and introduce new solutions. Technological innovation, particularly since the 1990s, has played a pivotal role in spurring growth by enhancing resource use and efficiency. Entrepreneurs continue to prioritize innovation because of its positive impact on productivity, efficiency, and the creation of new markets and economic prospects.

Economic growth, therefore, hinges on innovation and entrepreneurs committed to creating new products or services and innovative methods that reduce production costs. By fostering innovative entrepreneurs, society leans toward smart growth, relying on technological advancement (Solow, 1956) rather than simply adding more inputs, such as increased human and physical capital, which results in diminishing returns.

Baumol (2002) identifies four key factors for fostering innovative entrepreneurs:

- Ease of business formation: Developed nations often emphasize ease of starting and operating businesses as vital for entrepreneurial success. Streamlining bureaucratic processes, reducing red tape, and simplifying regulatory requirements create an environment conducive to entrepreneurial activities.
- Rewarding socially useful entrepreneurship: Rewarding entrepreneurial activities that benefit society is essential. Identifying and supporting industries that deserve subsidies can stimulate innovation.
- Accountability for harmful entrepreneurial behavior: Entrepreneurs must be held accountable for actions that harm society. Regulations and penalties for unethical or harmful practices ensure that entrepreneurship aligns with societal interests.
- Competitive markets: Competitive markets are essential to avoid stagnation. They encourage entrepreneurs to continually seek opportunities, innovate, and remain efficient.

Today entrepreneurship and innovation are intimately intertwined. Rothbard (2004) aptly characterizes innovation as "the disturbance of peaceful, unchanging business routine by bold innovators who institute new methods and develop new products" (547). This perspective underscores that while innovation represents a crucial facet of entrepreneurial activity, it is not the sole domain of entrepreneurs. Some entrepreneurs do not directly innovate, yet innovation can manifest within the broader entrepreneurial process which allows them to adapt to market discrepancies and unlocks the potential for novel methods and products.

Several authors have contributed to understanding the relationship between growth and entrepreneurial activity, emphasizing the latter's role in fostering economic development, prosperity, and human well-being. Phelps (2013) highlights the positive impact of entrepreneurship on growth and prosperity. Schumpeter et al (2021) underscore the relationship between creative destruction, entrepreneurship, and economic growth, with entrepreneurship driving innovation. Kirzner (1973) emphasizes that successful entrepreneurial ventures contribute to growth, in turn creating more opportunities for entrepreneurship. Hisrich (2019) focuses on what is needed for entrepreneurs to identify profit opportunities. Shane (2008) sheds light on the challenges faced by entrepreneurs. Audretsch (2007) emphasizes the importance of innovation in connecting entrepreneurial activity and regional economic development.

Moreover, entrepreneurship's role in regional and national economic growth has been studied extensively. Acs

et al. (2006) examine how entrepreneurship influences regional and national economic growth. Stam (2010), Baumol et al (2007), and Acemoglu and Robinson (2013) explore the significance of institutions and culture in entrepreneurial activity, highlighting their impact on economic growth at the regional level.

2.3. Entrepreneurship in the European Union: The Forgotten Input to Economic Growth

The EU has often been criticized for an entrepreneurship deficit compared to the United States. This concern has resonated both in public discourse and within academic circles (Audretsch 2002; Grilo and Thurik 2005; Cincera and Veugelers 2013). By recognizing this concern, the EU has demonstrated a commitment to fostering entrepreneurship. The European Commission (2020) in its "acknowledges the importance of unlocking "Europe's entrepreneurial potential to remove existing obstacles and to revolutionize the culture of entrepreneurship in Europe. The European Commission aims to ease the creation of new businesses and to create a more supportive environment for existing entrepreneurs to thrive and grow" (1).

To understand the entrepreneurial landscape, the commission classifies enterprises into four main categories based on staff headcount, annual turnover, and balance sheet values:

- Medium-sized firms: employing fewer than 250 individuals, with annual turnover and balance sheet values of less than EUR 50 million and EUR 43 million, respectively
- Large firms: comprising more than 250 employees, with annual turnover and balance sheet values exceeding EUR 50 million and EUR 43 million, respectively
- Small enterprises: employing fewer than 50 individuals, with annual turnover and balance sheet values not exceeding EUR 10 million
- Micro-sized firms: employing fewer than 10 individuals, with turnover and balance sheet values of EUR 2 million or less.

Small and medium-sized enterprises account for a staggering 99 percent of all businesses in the EU (European Commission, 2012). Eurostat defines an enterprise as a legal entity producing goods or services and constituting an autonomous economic entity, including sole proprietorships (Bednarzik, 2000a).

Analyzing Eurostat data, we find that in 2018, which is the last year reported, small and medium-sized enterprises dominated the EU's business landscape, contributing about two-thirds of total employment. Greece had the highest percentage of its population employed in small enterprises (70 percent), while Sweden had the lowest (only 38 percent). France boasted the largest percentage of large companies (Eurostat, 2020).

In response to the challenges stemming from the Great Recession in 2008, the EU embarked on efforts to enhance entrepreneurial activity. In 2013, the EU introduced the Entrepreneurship 2020 Action Plan (European Commission, 2020), designed to nurture the entrepreneurial spirit. This plan aimed to simplify barriers facing entrepreneurs by focusing on three core areas:

- Education enhancement: Recognizing that twenty-first-century labor markets demanded a new educational approach, and emphasizing human capital accumulation and professional skills, the EU sought to provide education that aligns with the goals of economic and social development, innovation, and knowledge production (Akcil and Suhanberdyyeva, 2022).
- Cultural enhancement: The EU emphasized the need for a strong entrepreneurial culture. Praise for entrepreneurial activity as a pillar of the economy was deemed essential for fostering such a culture (Etzkowitz, et al., 2000, Clark, 2001).
- Reduction of bureaucratic hurdles: Acknowledging the bureaucratic burden imposed on entrepreneurs by complex regulations, the EU introduced the Small Business Act in 2008. The act aimed to streamline legal obstacles faced by entrepreneurs, creating a more favorable environment for business growth.

To further strengthen entrepreneurial activity, the EU recognized the necessity of cross-border collaboration.

The single market, with its four freedoms—the movement of goods, services, capital, and labor—eliminated trade barriers and created a market of over 450 million people, inherently encouraging entrepreneurship.

Moreover, in recent years, the EU has been working to establish a harmonized digital single market to regulate e-commerce while safeguarding data protection. Updating common EU regulations and standards in areas such as consumer protection and intellectual property rights has been a priority to support the growth of digital services and business models.

Finally, the EU has made significant strides in enhancing its entrepreneurial ecosystem by emphasizing education and culture and reducing bureaucratic obstacles. The EU's commitment to creating a harmonized single market, particularly in the digital realm, holds promise for future entrepreneurial endeavors. However, challenges persist, and continued efforts are essential to fully unleash Europe's entrepreneurial potential and bolster economic growth.

3. Empirical Findings: EU Evidence

Our literature review established a positive relationship between capitalism, entrepreneurship, and growth that we want to validate by running econometric models. However, it is very difficult to reconcile the Rothbardian definition of economic growth with the use of econometric models. Mainstream economists can argue that our proxies are not the widely accepted and traditional measure of economic growth, while Rothbardian economists can criticize our use of econometric estimations. Nonetheless, we offer results estimated using traditional econometric methods and proxies of economic growth that approximate the definition we adopt.

3.1. Capitalism and Economic Growth

To analyze the relationship between capitalism and growth, we built a panel data set for member states of the EU from 2000 to 2021. Our proxy for capitalism is the Economic Freedom of the World Index, published by the Fraser Institute, and we define economic growth using the following six measures from the World Development Indicators:

- Life expectancy at birth: male and female life expectancy at birth (total years)
- Neonatal mortality rate: percentage of total deaths per thousand live births.
- Internet accessibility: individuals using the internet (percentage of population)
- Access to electricity: individuals with access to electricity (percentage of population)
- Total international trade: total imports plus exports of goods and services as a percentage of GDP
- Poverty: percentage of population living on no more than $3.65 a day

Figure 1 plots the average by year of the EU member states and shows a correlation between economic freedom and each of the six proxies for growth. In the years when the member states had higher average economic freedom, neonatal mortality was lower while life expectancy, internet usage, access to electricity, and international trade also improved.

In Figure 2, we use our six measures to analyze the effect of capitalism on economic growth but this time using averages by country. The results are qualitatively similar to the results obtained when using the average by year in Figure 1. Figure 2 shows that all six proxies of growth improved as average economic freedom improved.

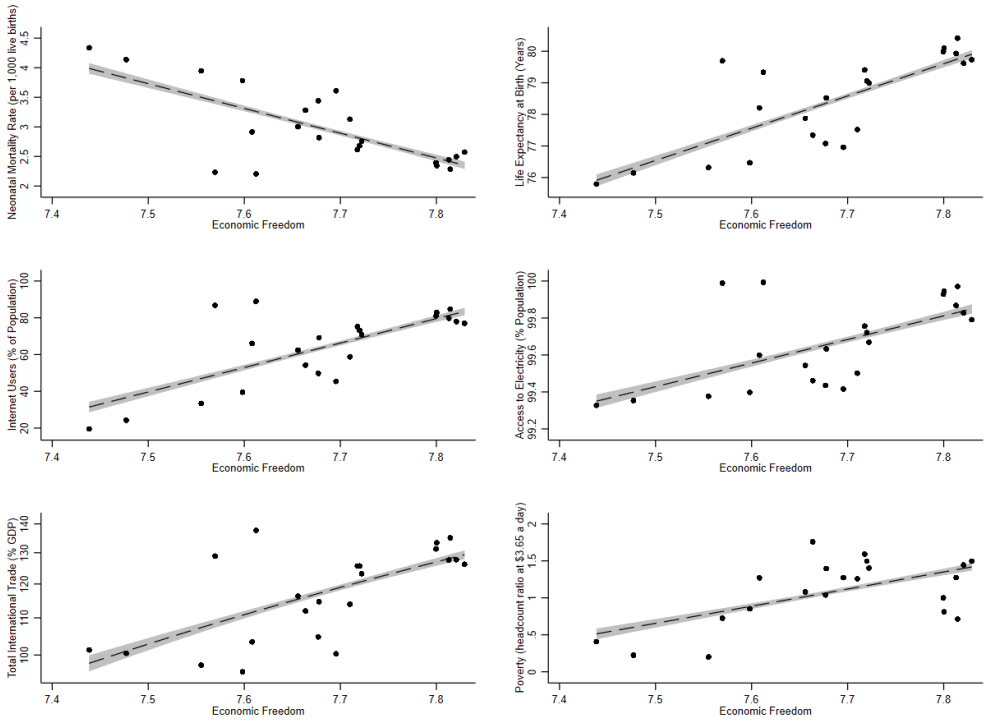

Figure 1. Capitalism as a catalyst of economic growth in the EU (average by year).

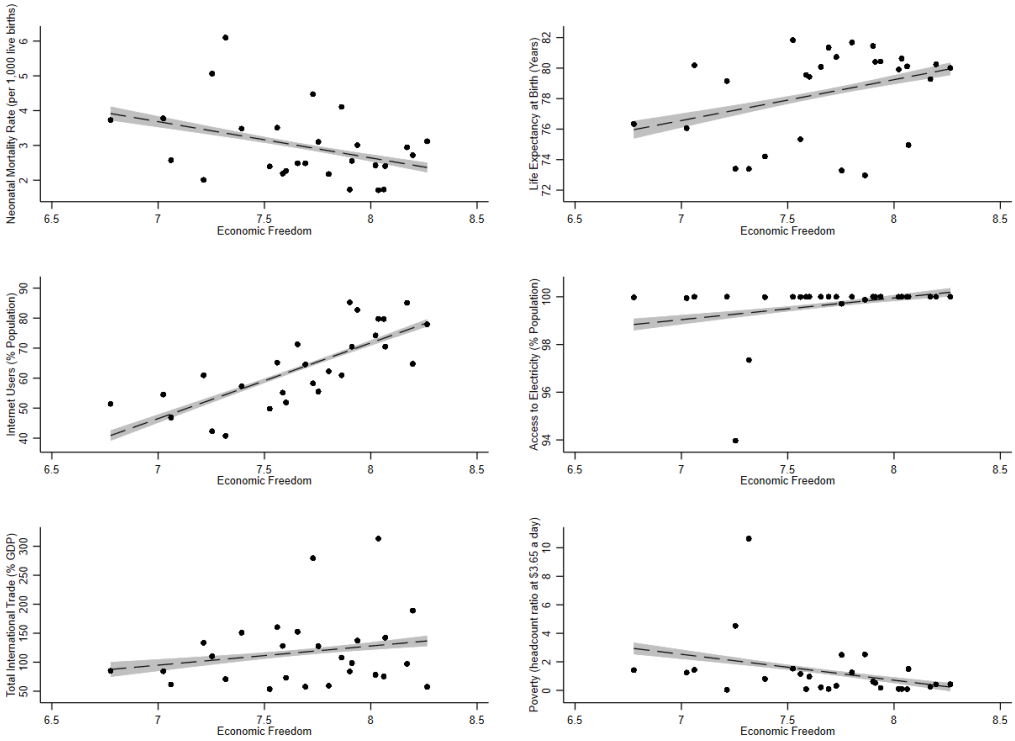

Figure 2. Capitalism as a catalyst of economic growth in the EU (average by country).

Table 1 demonstrates that capitalism positively correlates with growth in the EU. Our results show that economic freedom is a statistically significant driver of growth, for all variables except life expectancy at birth and

total international trade, in a sample of countries with many political and economic similarities. We arrived at this conclusion after estimating the effect of economic freedom on those variables using three methods: (1) a canonical panel-data fixed-effects model using robust standard errors clustered by country, (2) a canonical dynamic panel-data fixed-effects model using robust standard errors clustered by country, and (3) a dynamic panel-data instrumental-variables model with two-step generalized method of moments (2SGMM). All these models include control variables for the financial crisis, the COVID-19 pandemic, and oil prices.

Table 1. Capitalism as a catalyst of economic growth: panel-data fixed-effects and instrumental-variables regressions.

	Neonatal Mortality			Life Expectancy at Birth			Internet Users (% Population)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EFW	-1.361***			-0.019			4.267**		
	(0.428)			(0.173)			(2.012)		
EFW(-1)		-1.285***	-1.804***		-0.026	0.095		5.364**	9.419***
		(0.424)	(0.313)		(0.180)	(0.344)		(2.079)	(2.923)
FC	-1.511***	0.393***	-0.537	2.788***	-1.585***	1.769	49.862***	-13.514***	11.848
	(0.169)	(0.083)	(1.023)	(0.219)	(0.123)	(1.161)	(1.700)	(0.998)	(9.116)
Oil_P	-0.014***	-0.016***	-0.020	0.037***	0.045***	0.082**	0.556***	0.686***	0.559**
	(0.002)	(0.002)	(0.030)	(0.002)	(0.003)	(0.034)	(0.019)	(0.025)	(0.266)
Obs	594	567	312	594	567	312	594	567	312
R^2	0.886	0.889	0.944	0.978	0.979	0.987	0.949	0.944	0.957
	Access to electricity			Total International Trade			Poverty		
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
EFW	1.562*			10.577			-2.792***		
	(0.786)			(6.818)			(0.829)		
EFW(-1)		1.524*	0.811***		9.433	3.178		-2.412**	-12.418*
		(0.762)	(0.223)		(7.583)	(6.545)		(0.912)	(6.459)
FC	0.458	-0.197	0.254	19.578***	-9.537***	-17.986	-1.415**	-0.475*	-0.203
	(0.274)	(0.118)	(1.567)	(4.451)	(2.608)	(24.837)	(0.583)	(0.232)	(3.505)
Oil_P	-0.000	-0.000	0.010	0.218***	0.313***	0.099	-0.001	-0.002	0.033
	(0.001)	(0.002)	(0.046)	(0.040)	(0.052)	(0.721)	(0.002)	(0.003)	(0.103)
Obs	594	567	312	594	567	312	483	470	250
R^2	0.777	0.777	0.953	0.966	0.967	0.954	0.837	0.835	0.704

*Notes: * p<0.10, ** p<0.05, *** p<.01. EFW is the Economic Freedom of the World overall index. EFW(-1) is EFW lagged one year. FC is a dummy variable to control for the financial crisis and COVID that equals 1 for 2007, 2008, 2009, 2020, and 2021 and 0 otherwise. Oil_P, or oil price, is the annual average price of West Texas Intermediate. Models (1), (2), (4), (5), (7), (8), (10), (11), (13), (14), (16), and (17) are estimated by using robust standard errors clustered by country in parentheses. Models (3), (6), (9), and (18) are estimated by using instrumental variables and a two-step generalized method of moments. The instrument for EFW is the historical ethnic fractionalization index (Drazanova, 2019). Robust standard errors are in parentheses. The null hypothesis of the Hansen-J statistics (the instrument is valid and uncorrelated with the error term, and excluded instruments are correctly excluded from the estimated equation) is accepted at the 99 percent level in all the specifications. All specifications include time and country-fixed effects.*

Table 1 shows the results of the three basic models using our growth proxies. The findings support the positive relationship between capitalism and economic growth. Even though our results fail to show statistical significance in all the specifications where the dependent variable is life expectancy or total international trade, we find a strong relationship (at the 99 percent significance level) with neonatal mortality in all the estimates. When using the instrumental-variables approach, the results are qualitatively similar: for each additional point of economic freedom in one year, neonatal mortality decreases the following year between 1.3 and 1.8 deaths for every 1,000 live births. Further, for each additional point of economic freedom, poverty decreases between 2 and 12 percentage points. These results are statistically significant at the 90 percent level or higher. The results also support a strong positive relationship between economic freedom and (1) internet users as a percentage of the population and (2) the percentage of the population with access to electricity.

The results in Table 1 are significant and support the descriptive evidence shown in Figures 1 and 2. Capitalism thus enhances living standards and helps satisfy people's needs, driving sustained economic growth.

3.2. Entrepreneurship and Economic Growth

The results in Table 1 are significant and support the descriptive evidence shown in Figures 1 and 2. Capitalism thus enhances living standards and helps satisfy people's needs, driving sustained economic growth.

To measure the relationship between entrepreneurship and growth, we use the established-business-ownership variable from the Global Entrepreneurship Monitor data set. This variable is defined as the percentage of the population (between 18 and 64) who are currently owner-managers of a business that has paid salaries or any other payments to owners for at least 42 months. We use this variable as a proxy for stable entrepreneurship. According to the Global Entrepreneurship Monitor (2020), entrepreneurial activity goes through several developmental phases. There is a nascent phase when entrepreneurs are getting organized before formally registering for the business. Following this phase, the business is considered a new business for up to 42 months, after which the business is considered an established business. Then, considering this, any business that passes the 42-month benchmark, while still at the early stage, will help project the intensity of business activity in society.

According to data from the U.S. Bureau of Labor Statistics' Business Employment Dynamics, about 80 percent of new businesses with employees during the first year in business while this percentage decreases to about 50 percent during the first 5 years and about 30 percent during the first 10 years. The Bureau estimates that only 25 percent of new businesses make it to 15 years or more.

Figure 3 plots our proxies for growth and entrepreneurship using the mean by year of the sample. The results are very similar to those in Figure 1. As expected, as entrepreneurship increases, our six proxies improve: lower neonatal mortality, higher life expectancy, more internet usage, more access to electricity, and more international trade. However, poverty does not improve.

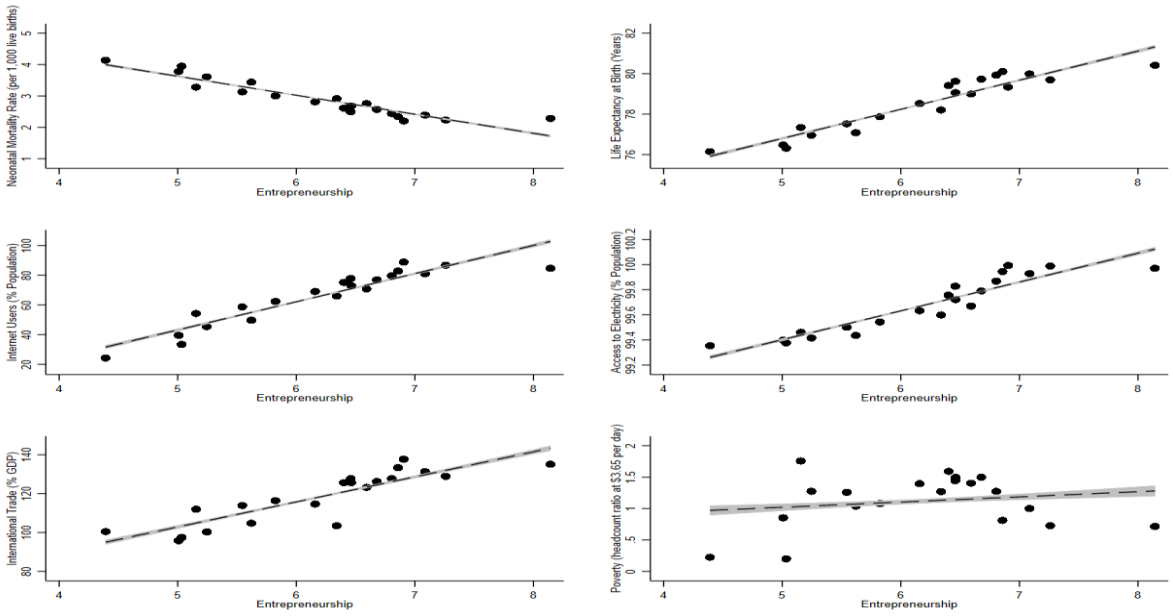

Figure 3. Entrepreneurship as the engine of economic growth in the EU (average by year).

In Figure 4 we consider the means by country. The results are not as expected, either because of the endogeneity problem or because entrepreneurship is not directly related to our growth measures. This relationship is corroborated by the findings of the econometric analysis using the entrepreneurship data shown in Table 2.

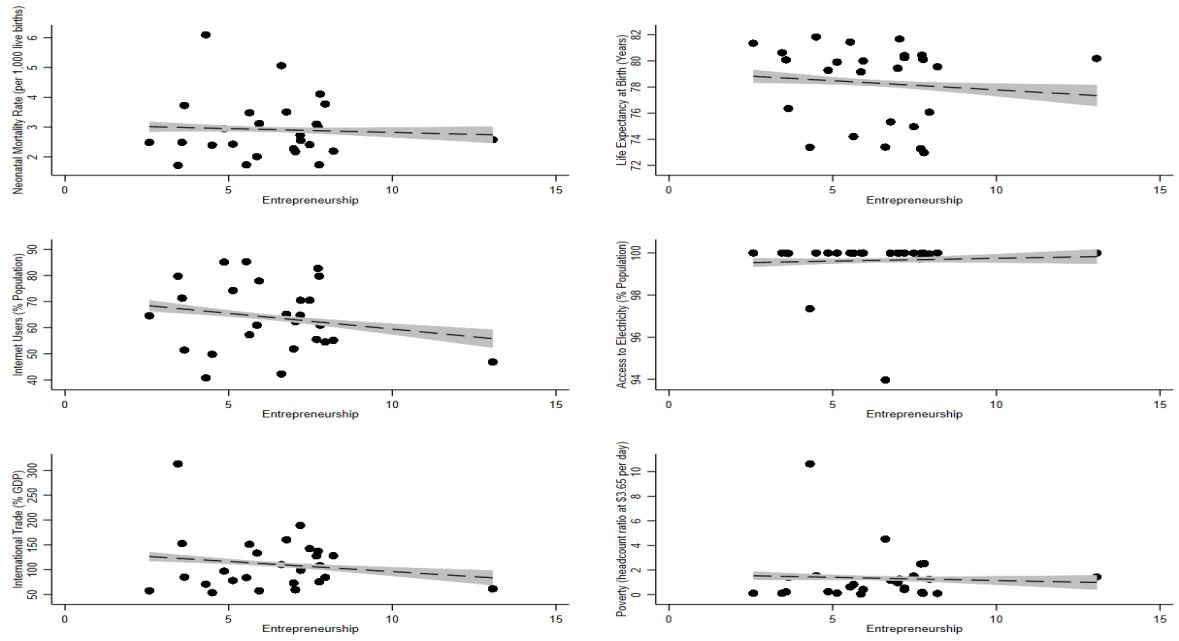

Figure 4. Entrepreneurship as the engine of economic growth in the EU (average by country).

Table 2. Capitalism as a catalyst of economic growth: panel-data fixed-effects and instrumental-variables regressions.

	Neonatal Mortality			Life Expectancy at Birth			Internet Users (% Population)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Entrep	-0.052**			0.010			0.253		
	(0.025)			(0.022)			(0.356)		
Entrep(-1)		-0.047*	-0.713**		-0.009	0.123		0.176	7.411**
		(0.024)	(0.308)		(0.019)	(0.111)		(0.366)	(3.565)
FC	-1.196***	0.159***	0.153	2.950***	-0.977***	-0.930***	57.161***	-6.442***	0.473
	(0.185)	(0.052)	(0.356)	(0.197)	(0.092)	(0.128)	(3.583)	(0.802)	(4.128)
Oil_P	-0.014***	0.008***	-0.016	0.042***	-0.023***	-0.007*	0.695***	-0.340***	0.179
	(0.003)	(0.002)	(0.012)	(0.002)	(0.003)	(0.004)	(0.032)	(0.048)	(0.141)
Obs	376	357	357	376	357	357	376	357	357
R2	0.885	0.895	-0.604	0.985	0.986	0.981	0.932	0.924	0.572
	Access to electricity			Total International Trade			Poverty		
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Entrep	0.019			0.138			-0.007		
	(0.013)			(0.836)			(0.031)		
Entrep(-1)		0.019	0.178**		0.049	3.653		-0.017	-0.438**
		(0.015)	(0.084)		(0.766)	(3.012)		(0.028)	(0.209)
FC	-0.022	-0.044	-0.116	17.292***	-4.085	-1.826	-0.321*	-0.389**	0.536
	(0.023)	(0.046)	(0.097)	(4.587)	(2.659)	(3.488)	(0.160)	(0.166)	(0.800)
Oil_P	0.000	-0.001	0.004	0.209***	-0.175	0.286**	0.004*	-0.000	0.004
	(0.000)	(0.001)	(0.003)	(0.055)	(0.113)	(0.119)	(0.002)	(0.002)	(0.021)
Obs	376	357	357	376	357	357	325	320	320
R2	0.838	0.870	0.526	0.978	0.977	0.967	0.936	0.943	0.845

*Notes: * p<0.10, ** p<0.05, *** p<.01. Entrep is our proxy for entrepreneurship. Entrep(-1) is Entrep lagged by one year. FC is a dummy variable to control for the financial crisis and COVID that equals 1 for 2007, 2008, 2009, 2020, and 2021 and 0 otherwise. Oil_P is the annual average price of West Texas Intermediate. Models (1), (2), (4), (5), (7), (8), (10), (11), (13), (14), (16), and (17) are estimated using robust standard errors clustered by country in parentheses. Models (3), (6), (9), and (18) are estimated with instrumental variables and a two-step generalized method of moments. The instrument for Entrep is the Economic Freedom of the World Index. Robust standard errors are in parentheses. The null hypothesis of the Hansen-J statistics (the instrument is valid and uncorrelated with the error term, and excluded instruments are correctly excluded from the estimated equation) is accepted at the 99 percent level in all the specifications. All specifications include time and country-fixed effects.*

The results presented in Table 2 suggest that entrepreneurship increases growth but this causation is mediated through economic freedom. In other words, when we employ the instrumental-variables methodology, the results are qualitatively similar to those in Table 1, in which all results showed the expected signs and all estimates are statistically significant at the 95 percent level except for life expectancy and international trade. Further, an additional percentage point in our proxy for entrepreneurship is associated with a reduction of 0.7 deaths per 1,000 live births, an increment of 7.4 percentage points of the population using the internet, an increment of 0.15 percentage points of the population with access to electricity, and a reduction of 0.44 percentage points of the population in poverty. Thus, the relationship between entrepreneurship and growth might not be direct but mediated by economic freedom.

4. Policy Implications

The study's findings provide several key insights. First, the positive relationship between economic freedom and growth underscores the critical role of free-market policies in fostering economic prosperity. Second, the indirect role of entrepreneurship in growth emphasizes the importance of institutional frameworks that support innovation, risk-taking, and scalability. Importantly, our results align with prior literature but also highlight nuances such as the variability of entrepreneurship's impact depending on the level of economic freedom.

Alternative explanations, such as reverse causality or the influence of other institutional variables (e.g., governance quality or legal frameworks), merit further exploration. For example, nations with high economic growth might adopt policies that enhance freedom rather than the reverse. Addressing these counterarguments in future research could provide a more nuanced understanding of these relationships.

Policy recommendations based on these findings are clear. Policymakers should prioritize strengthening capitalism by reducing regulatory barriers, fostering open markets, and ensuring property rights protection. Programs that support entrepreneurship—such as access to credit, educational initiatives, and infrastructure development—must be paired with free-market reforms to maximize their impact. For the EU, this means promoting cross-border collaboration to harmonize policies fostering economic freedom and entrepreneurship, ensuring sustainable growth across member states.

Finally, this research lays the groundwork for further exploration into the dynamic interplay between capitalism, entrepreneurship, and growth, particularly in diverse institutional settings. Future studies should focus on cross-regional comparisons and longitudinal analyses to deepen our understanding of these vital economic mechanisms.

5. Concluding Remarks

This paper sought to measure the relationships between capitalism, entrepreneurship, and economic growth in EU member states from 2000 to 2021. After identifying strong, positive, and statistically significant correlations in the literature, we empirically tested these relationships. Our contributions include a comprehensive literature review, confirmation of theoretical conclusions with robust econometric evidence, and the use of a nontraditional definition of economic growth, adding nuance to the field.

Our statistical analysis demonstrated a significant correlation between economic freedom (as measured by the Fraser Institute's Economic Freedom of the World Index) and economic growth (using six World Development Indicators proxies). We found that four of the six proxies for growth improved with greater economic freedom, reinforcing the argument that capitalism enhances growth and, consequently, living standards. Using panel-data fixed-effects regression and an instrumental-variables two-step generalized-method-of-moments regression, we confirmed these findings while accounting for major global disruptions, including the financial crisis, the pandemic,

and oil price fluctuations.

Further, we examined the link between growth and entrepreneurship, using the Global Entrepreneurship Monitor's established-business-ownership variable. The results showed a statistically significant correlation except when using poverty as a growth proxy. However, divergence in results by country highlights that entrepreneurship's relationship to growth is indirect and heavily influenced by the institutional context. For instance, in extractive institutional environments like Zimbabwe, Haiti, and Venezuela, entrepreneurship may be a necessity rather than a driver of growth. These observations warrant further investigation. Within the EU, our findings confirm that entrepreneurship acts as an engine of growth, but capitalism is the essential catalyst enabling its impact.

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Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

Author contributions

Conceptualization: Maria Lorca-Susino; Investigation: Maria Lorca-Susino, Rafael Acevedo; Methodology, Data compilation, and Econometric Analysis: Rafael Acevedo; Formal analysis: Rafael Acevedo, Maria Lorca-Susino; Writing – original draft, review, and editing: Maria Lorca-Susino, Rafael Acevedo.

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