

Capital is not enough: Opportunity entrepreneurship and formal institutions

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Abstract

We examine how economic institutions, measured by the Economic Freedom of the World (EFW) index, affect the relationship between capital—human, social, and financial—and opportunity-motivated entrepreneurship (OME). To do this, we develop a multi-level model that connects theories of human and social capital at the micro-level to institutional theories at the macro-level. Using data from the Global Entrepreneurship Monitor (GEM), we then test the predictions of our model and find evidence that economic institutions play a crucial role in the relationship between these three distinct types of capital and OME. Our results are somewhat counter-intuitive—as the quality of the institutional environment improves, human and financial capital become less important determinants of entrepreneurship while the relationship between social capital and entrepreneurship substantially strengthens.

Keywords: economic freedom, entrepreneurship, financial capital, human capital, institutions, social capital

JEL Codes: E22, J24, L14, L26, M13

Abbreviations and definitions:

OME=opportunity-motivated entrepreneurship

GEM=Global Entrepreneurship Monitor

TEA = Total early-stage entrepreneurial activity

Institutions = economic freedom (Fraser Institute)

human capital = college education

financial capital = household income

social capital = ties with other entrepreneurs

1. Introduction

Capital is often perceived as central to entrepreneurship (Audretsch & Keilbach, 2004; Schumpeter, 1934). Whether human capital (Bosma, Praag, Thurik, & Wit, 2004; Cooper, Gimeno-Gascon, & Woo, 1994), financial capital (Cooper et al., 1994; Schumpeter, 1934), or social capital (Cope, Jack, & Rose, 2007; Davidsson & Honig, 2003; Kim & Aldrich, 2005), the extant literature highlights the theoretical importance of these individual-level resources for successfully starting and managing new business ventures. Yet, previous empirical findings have been largely mixed (Martin, McNally, & Kay, 2013), and some scholars have questioned the conditions under which these different forms of capital can influence the entrepreneurial process (e.g., see Light & Dana, 2013 for a critique of the social capital literature).

There is a strong theoretical and empirical evidence that the quality of the institutional environment influences entrepreneurial behavior. Overwhelmingly, the evidence in this literature suggests that high-quality (i.e., market supporting) institutions, often measured by some proxy of economic freedom (e.g., see Bradley & Klein, 2016), are likely to encourage risk and experimentation and lead to higher rates of innovation and net business formation. Previous studies, for instance, find that formal economic institutions such as competitive markets, the banking system, and the structure of property rights are critical drivers of self-employment (Gohmann, 2012; Nyström, 2008), business births (Herrera-Echeverri, Haar, & Estévez-Bretón, 2014; Nikolaev, Hall, Pulito, & VanMetre, 2013; Powell & Weber, 2013), total early-stage entrepreneurship (Bjørnskov & Foss, 2013, 2008, 2016; Boudreaux, 2014; Gohmann, Hobbs, & McCrickard, 2008; Kreft & Sobel, 2005; McMullen, Bagby, & Palich, 2008; Sobel, 2008; Sobel, Clark, & Lee, 2007; Sobel & Hall, 2008) and innovation (Boudreaux, 2017; Simón-Moya, Revuelto-Taboada, & Guerrero, 2014; Young, Welter, & Conger, 2017). Most of these studies

adopt a transactional cost approach (Acs, 2006; Acs, Desai, & Hessels, 2008; Acs & Szerb, 2007) and argue that high quality economic institutions lower the cost of engaging and managing new business ventures (e.g., by reducing the cost of regulatory burden or uncertainty associated with currency fluctuations). Even after accounting for model uncertainty, economic institutions tend to be one of the strongest and most robust determinants of opportunity-motivated entrepreneurship across countries (Nikolaev, Boudreaux, & Palich, 2018).

Despite these recent empirical insights, however, “few studies consider how the combination of individual- and country-level factors drive new business activity in a single framework” (De Clercq, Lim, & Oh, 2013; p.303) . One notable exception is a study by De Clercq et al. (2013) which finds that institutions associated with supportive financial and educational systems tend to leverage both human capital and social capital, but have no effect on the relationship between financial capital and the likelihood to start a new businesses.¹ Notwithstanding this impressive study, more work is needed to assess how formal institutions that

¹ Our study differs in important ways—both theoretically and empirically. First, we focus on level 2 formal institutions in Williamson’s (2000) four level hierarchy. Within this theoretical framework, formal institutions are often proxied with economic freedom. In our case, we use the Economic Freedom of the World (EFW) index, which is a complex composite indicator that captures formal institutions related to five areas (1) size of the government, (2) rule of law, (3) freedom to trade internationally, (4) sound monetary policy, and (5) credit, business, and market regulations. Importantly, the majority of the 43 distinct items used to create the EFW index are based on objective indicators such marginal tax rates, rate of inflation, tariffs, etc. (Gwartney et al., 2016). In contrast, De Clercq et al., (2013) focus on a specific set of institutions and rely on people’s subjective valuation to gauge the supportiveness of the educational and financial systems. In addition, our study focuses on opportunity entrepreneurship because of its potential for economic growth and job creation, spans over a longer period of time, and covers a more extensive number of countries. In additional robustness tests, we also show how our findings different with respect to necessity-driven ventures and nascent entrepreneurship. Finally, our multi-level theoretical framework makes different predictions than those in De Clercq et al., (2013). For example, our model suggests that as the quality of the institutional environment improves, financial capital will become a weaker determinant of opportunity entrepreneurship. Similarly, based on the second-best institutions model (Rodrik, 2008), we argue that the importance of social capital will also diminish in economies with better institutions. Our findings also differ in important ways. For example, we find that as the quality of the institutional environment improves (i.e., EFW goes up), human and financial capital become less important determinants of entrepreneurship while the relationship between social capital and entrepreneurship improves. Because we use similar empirical models, our findings suggest that measurement of both institutions and entrepreneurship may be critical and call for further research.

reflect other important areas of the institutional environment such as the rule of law, government size, or business, labor and credit markets regulations affect the relationship between capital endowments and opportunity-entrepreneurship (Bylund & McCaffrey, 2017; Williamson, 2000).

In this paper, we address this gap in the literature by examining how economic institutions, measured by the Economic Freedom of the World (EFW) index, attenuate the relationship between three distinct forms of capital—financial, social, and human capital—and the individual decision to engage in opportunity-motivated entrepreneurship. Thus, we contribute to recent calls in the literature to examine entrepreneurship as a *multi-level* phenomenon (cf., Shepherd, 2011) that cannot be fully understood without considering the institutional context in which entrepreneurial action is embedded (e.g., Goltz, Buche, & Pathak, 2015; Wennberg, Pathak, & Autio, 2013; Xavier-Oliveira, Laplume, & Pathak, 2015).

We define entrepreneurship as an “attempt at a new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business” (GEM, 2016). Our dataset further allows us to focus on opportunity entrepreneurship, understood as the pursuit of potentially valuable business opportunities as perceived by individual actors (Boudreaux, Nikolaev, & Klein, 2017). This is important because over a billion people around the world, ranging from street sellers to unemployed college graduates, are “pushed” into entrepreneurship not to pursue meaningful opportunities for personal growth and development, but because they lack alternative employment options (Brewer & Gibson, 2014; Margolis, 2014). These necessity-driven entrepreneurs have low growth aspirations, earn significantly less, and rarely create job opportunities for others (Block & Wagner, 2010). On the contrary, opportunity-motivated entrepreneurs are “pulled” into entrepreneurship by opportunities that promise high individual rewards including higher income or a greater sense of autonomy (GEM, 2016). They

are significantly more likely to have high growth aspirations, create jobs, and grow their business over time (Block & Wagner, 2010; Block, Sandner, & Spiegel, 2015; Reynolds et al., 2005). Thus, we focus on opportunity entrepreneurship because of its potential to contribute to long-term economic growth and new job creation and its relevance for public policy (Acs, 2006; Autio & Acs, 2010; Estrin, Korosteleva, & Mickiewicz, 2013; Hessels, Gelderen, & Thurik, 2008; Minniti & Lévesque, 2010). This allows us to complement the findings of previous studies that do not examine the two categories independently of each other (e.g., De Clercq et al., 2013).

In carrying out this research we make several contributions to the literature. First, there are reasons to believe that the effectiveness of financial capital depends on the quality of the institutional environment. Because alternative sources of financial capital such as loans or angel funding are more scarce in countries with lower-quality institutions (De Soto, 2000), an individual's own source of capital (i.e., personal wealth) can play a disproportionately more important role in launching and managing new ventures in such institutional contexts. In contrast, well-functioning financial institutions provide individuals with more options to fund their ventures as lenders often accept collateral (Adelino, Schoar, & Severino, 2015) and offer greater creditor protection (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997; Qian & Strahan, 2007), which can reduce the overreliance on self-funding for new business start-ups.

Second, theoretical and empirical evidence suggests that the effect of social capital on entrepreneurial entry can also depend on the presence (or absence) of a high-quality economic institutions (Aidis, Estrin, & Mickiewicz, 2008). In countries with lower-quality formal institutions, often characterized by lack of respect for the rule of law, informal institutions such as social ties and generalized trust can fill the formal institutional gap by lowering uncertainty in

social and market interactions (Rodrik, 2008). These “second best” institutions can thus disproportionately facilitate people in launching and managing new business ventures.

Finally, the relationship between human capital (i.e., education) and entry into entrepreneurship is also likely to depend on the quality of the prevailing economic institutions. This is because individuals with low levels of educational attainment are more likely to engage in entrepreneurship out of necessity rather than opportunity in countries with low quality economic institutions (Acs 2006). That is, more educated people who live in countries with high quality economic institutions will have greater incentive to invest their talents in a productive way through market experimentation and innovation compared to their counterparts who live in a less supportive institutional environment (Baumol, 1990).

Our findings suggest that economic freedom moderates the relationship between capital (i.e., human, financial, and social) and opportunity-motivated entrepreneurship (OME). Specifically, human and financial capital are important determinants of entrepreneurship in countries with lower-quality institutional environments, and this effect decreases as the quality of the institutional environment improves (i.e., as the environment becomes pro-market). In contrast, we find that social capital is less important when economic freedom is lower but becomes more important as the quality of the institutional environment increases.

2. Theoretical Development

Institutions are often defined as the “rules of the game in a society” (North, 1990). They are critical to entrepreneurial behavior because they reduce uncertainty in social interactions (North, 1990) and determine the relative rewards from engaging in different productive and non-productive market and non-market activities (Baumol, 1990; Murphy, Shleifer, & Vishny, 1991). In this way, institutions play a fundamental role in the allocation of entrepreneurial talent to different sectors of the formal and informal economy (Baumol, 1990). In this paper, we draw on

institutional theory (Acemoglu, Johnson, & Robinson, 2001; North, 1990; Baumol, 1990; Williamson, 1979) to develop a multi-level model in which the relationship between individual-level resources such as human, financial, and social capital and the decision to engage in opportunity-motivated entrepreneurship is dependent on the quality of the institutional environment.

Specifically, we use the “four levels of institutional analysis framework,” which was developed by Williamson (2000). A number of recent theoretical papers have used this conceptual framework as a starting point to analyze the institutional context of entrepreneurial action (Bylund & McCaffrey, 2017; Estrin et al., 2013; Misangyi, Weaver, & Elms, 2008; Pacheco, York, Dean, & Sarasvathy, 2010). According to Williamson’s (2000) framework, institutions can be categorized into a four-level hierarchy. The first level of institutional analysis, which is at the top of his hierarchy, represents informal rules of the game such as customs, traditions, taboos, and religious norms that are deeply embedded in society. These informal institutions emerge slowly and can change spontaneously over a long period of time (100 to 1000 years). The second level represents formal institutions, which define the economic “rules of the game” such as protection of property rights and formal regulatory rules (e.g., taxes, labor law regulations, etc.). These formal institutions determine the effectiveness of government organizations and emerge and change more rapidly (10 to 100 years). The third level emphasizes the governance of contractual relations, or “the play of the game,” which determines the extent to which government organizations align with private transactions and can change even more rapidly (1 to 10 years). The three previous levels, in turn, determine the fourth level, which represents the incentive structure in society that influences *resource allocation* including the allocation of talent into productive and non-productive entrepreneurial and non-entrepreneurial activities (Williamson, 2000).

Previous theoretical and empirical studies suggest that level two institutions are particularly important in the context of entrepreneurship because they determine the potential rewards (future profits) that entrepreneurs get to appropriate (Acemoglu et al., 2001; Estrin et al., 2013). This is important because opportunity-motivated entrepreneurs are willing to engage in highly risky behavior that can come at great personal and economics cost in order to capture future returns. We follow majority of previous empirical studies on the topic and measure level two (formal) institutions as economic freedom (Bjørnskov & Foss, 2008; McMullen et al., 2008). In that sense, our study is consistent with the institutions-entrepreneurship literature which has so far used the market logic inherent in the concept of economic freedom as a conceptual foundation for empirical investigations (Su, Zhai, & Karlsson, 2016).

Following prior studies in the empirical literature (Bjørnskov & Foss, 2008; McMullen et al., 2008; Bradley & Klein 2016; Nikolaev et al., 2018), we measure economic freedom with the Economic Freedom of the World (EFW) index (Gwartney, Lawson, & Hall, 2016). The EFW index is a complex composite indicator that consists of five main areas—(1) government size, (2) legal system, (3) sound monetary policy, (4) international trade, and (5) regulation. We focus on the overall index because the five areas of the index tend to operate in concert and are strongly interconnected with each other and (Gwartney et al., 2016). That is, in order for the institutional environment to operate efficiently, it is necessary to have not only free and open markets but also a strong legal system, enforcement of property rights, sound monetary policy, and lower levels of business and labor regulation (Bennett & Nikolaev, 2016; Gwartney et al., 2016) One advantage of using complex composite indicators such as the EFW index is that they provide a summary of a wide range of institutional and policy variabls that are often difficult to assess individually. As a result, a large literature in economics and policy analysis has emerged focusing on the effects of

the overall EFW index on variety of social, economic, and political outcomes (for a review, see Hall & Lawson, 2014 who provide overview of over 400 studies). In this respect, our paper is more closely related to the institutional literature that examines the overall effect of the institutional contexts with less precise claims about causality (e.g., Nikolaev & Bennett, 2016)

Economic institutions and entrepreneurship

Economic institutions such as competitive markets are one of the strongest predictors of entrepreneurship across countries (Bradley & Klein, 2016; Schumpeter, 1934; Nikolaev et al., 2018). Overwhelming evidence suggests that in high-quality institutional environments where intellectual and private property is protected, there are low levels of regulation and minimum government intervention (e.g., low corporate taxes), individuals are more likely to start opportunity-driven (high-growth) business ventures (Gwartney, Lawson, & Holcombe, 1999; Nikolaev et al., 2018). In high-quality institutional environments, entrepreneurs face less uncertainty due to stable monetary policy, lower administrative, labor, and financial costs, which ultimately lowers the costs of starting and operating new business ventures (De Soto, 2000). High-quality institutional environments are also more market-oriented with less government intervention, leading to an economy with fewer subsidies and taxes (Gwartney et al., 2016). that can distort the allocation of entrepreneurial talent to less productive sectors of the economy (Boudreaux, Nikolaev, & Holcombe, 2018).

An economy with higher level of economic freedom is also more likely to promote productive entrepreneurship and less likely to promote unproductive or destructive entrepreneurship (Baumol, 1990, 1996; Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002; Minniti, 2008; Sobel, 2008). This is because institutions shape the relative rewards from different productive and unproductive market and non-market activities and thus shape the *allocation* of

entrepreneurial talent towards these activities (Boudreaux et al., 2018; Djankov et al., 2002). In addition, high quality institutional environments—especially regulatory environments—tend to promote entrepreneurial flexibility, which reduces uncertainty and facilitates market innovation (Young et al., 2017).

Entrepreneurs are alert to new opportunities (Kirzner, 1978) and use opportunity recognition (Shane, 2000) to exploit existing profitable opportunities, but they also use an active creative process (Alvarez & Barney, 2007) to pursue entrepreneurial opportunities. The literature overwhelmingly shows that these mechanisms are more effective in societies with more economic freedom (Bjørnskov & Foss, 2008; Boudreaux, 2014; Bradley & Klein, 2016; Herrera-Echeverri et al., 2014; McMullen et al., 2008; Nyström, 2008; Powell & Weber, 2013; Simón-Moya et al., 2014). For these reasons, we propose our first hypothesis:

Hypothesis 1. There is a positive association between the quality of the institutional environment and entry into opportunity-motivated entrepreneurship.

2.1. The moderating role of economic institutions in financial capital and entrepreneurship

Previous studies suggest that financial capital² is a strong determinant of entrepreneurship (Acs & Szerb, 2007; Fairlie & Krashinsky, 2012). This is because financial capital reduces liquidity constraints³ (Blanchflower & Oswald, 1998; Evans & Jovanovic, 1989; Holtz-Eakin, Joulfaian, & Rosen, 1994; Lindh & Ohlsson, 1996) and provides cushion that can help nascent firms survive during their formative years (Bates, 1990). In addition, financial capital provides collateral, which can be used to obtain external funding (Simoes, Crespo, & Moreira, 2016).

² Financial capital is measured as household income, which is strongly correlated with wealth (Bricker, Henriques, Kimmel, & Sabelhaus, 2016; Saez & Zucman, 2016). This measures an individual's personal financial resources.

³ Hurst & Lusardi (2004) argue that liquidity constraints are not really present as the majority of the relationship between assets and entrepreneurial entry is found only for those with wealth beyond the 95th percentile in the wealth distribution. However, (Fairlie & Krashinsky, 2012) bifurcate samples into opportunity and necessity entrepreneurs and finds that, when this selection bias is considered, liquidity constraints are found to be present.

We expect this relationship to be stronger in countries with lower-quality institutional environments (i.e., lower levels of economic freedom). In lower-quality institutional environments individuals often have difficulty accessing capital (De Soto, 2000). Countries with lower level of economic freedom, for example, have significantly more capital controls and financial regulations that can hinder financial capital transfers (Gwartney et al., 2016) and in turn lower the probability of successful innovation (King & Levine, 1993) and entrepreneurship (Acs & Szerb, 2007). Previous research also indicates that household wealth is an important determinant of entrepreneurial entry (Henley, 2005) and the absence of equity options, such as collateral, could lead to lower overall start-up rates (Black, de Meza, & Jeffreys, 1996). If lower-quality institutions hinder access to financial capital, then entrepreneurs must rely increasingly on their own sources of funding.

In addition, countries with lower level of economic freedom are characterized by high levels of corruption, lack of respect for the rule of law, and bigger public sector (Gwartney et al., 2016) which means that entrepreneurs will need more resources to overcome such bureaucratic regulatory burden in order to be able to successfully launch their own business. This is even more relevant for new start-ups since most new ventures are started with the entrepreneur's own resources or those of angel investors (Shane, 2008). Because receiving external loans, grants, and other sources of financial capital is more difficult in lower-quality institutional environments (De Soto, 2000), we theorize that an individual's own sources of capital are crucial for starting and running new ventures. Hence, we expect that financial capital should matter more to entrepreneurship in lower-quality institutional environments.

In contrast, financial capital should be less important to entrepreneurship in high-quality institutional environments. Individuals in high-quality institutional environments should face less

constraints receiving external loans, grants, and other sources of financial capital such as angel funding. Thus, an individual's own sources of financial capital become only one of many alternative options to raise funds. If individuals lack their own sources of funding, they can borrow funds with the promise of future repayment. Moreover, if individuals do need to raise outside capital, well-functioning financial institutions often accept collateral (Adelino et al., 2015) and assign greater creditor protection (La Porta et al., 2000, 1997; Qian & Strahan, 2007), both of which reduce the need for an individual's own source of capital and decrease start-up costs. Therefore, we expect financial capital to be a less important determinant of entry into entrepreneurship in high-quality institutional environments. Taken together, this leads to the following hypothesis:

Hypothesis 2. As the institutional environment improves, financial capital becomes a weaker determinant of entry into entrepreneurship.

2.2. The moderating role of economic institutions in social capital and entrepreneurship

There is a large literature on the benefits of social capital⁴ for starting and managing new business ventures (Adler & Kwon, 2002; Cope et al., 2007; Kim & Aldrich, 2005; Westlund & Bolton, 2003). Social capital increases entrepreneurial performance by increasing an individual's business network (Bosma et al., 2004; Cohen, Prusak, & Prusak, 2001), which helps aid embeddedness (Batjargal, 2003; Cooke & Wills, 1999) and knowledge transfer (Tsai, 2001). At the macro-level, social capital is associated with higher levels of trust and reciprocity (Fukuyama, 1995; Putnam, 1995), which can facilitate market transactions such as loan repayments (Cassar, Crowley, & Wydick, 2007; Cassar & Wydick, 2010). When a community is more trusting,

⁴ Social capital gained popularity after Coleman (1988) laid its theoretical foundation by drawing parallels with other types of capital such as financial and human capital. Since then, a large body of literature has emerged in different disciplines to explain how social capital functions as both social norms (Fukuyama, 2001; Putnam, Leonardi, & Nanetti, 1994) and networks (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998), that have important implications for business and value creation.

opportunities for lending are cultivated because repeated interactions between the borrowers and their families establish long-term relationships (Van Bastelaer, 2002). Hence, social capital should have a positive effect on entrepreneurship.

We hypothesize that this relationship depends on the quality of the institutional environment. More specifically, we argue that in countries with lower-quality institutional environment, social capital is more important for entrepreneurship. This is because informal institutions often fill the institutional gap left by ill-functioning formal institutions by establishing order and facilitating social and market exchange (Rodrik, 2008). Lower-quality institutional environments are often plagued by high regulatory burden, more government intervention, less freedom of exchange, and unequal property rights protection (Gwartney et al., 2016). More regulation is also associated with higher levels of corruption (Holcombe & Boudreaux, 2015). Thus, prior studies have shown that social capital plays a critical role in countries that have extractive governments (e.g., Russia) or where political connections allow individuals to circumvent the formal “rules of the game” (Aidis et al., 2008; Du & Mickiewicz, 2016). These environments provide an unequal playing field where entrepreneurs seek to establish and maintain political and social connections to gain unfair advantages (Ge, Stanley, Eddleston, & Kellermanns, 2017). In other words, entrepreneurs in highly corrupt environments are forced to become corrupt themselves in order to have survive and can’t rely on the market mechanisms to level the playing field. Without these connections, entrepreneurs are at a competitive disadvantage and might find it difficult to start and maintain their ventures. In such environments, group collectivism, or the “clan mentality” (who you know), tends to dominate decision-making in most realms of life (Hofstede & Hofstede, 2001) including entrepreneurship. Therefore, we expect that social capital is a more important determinant of entrepreneurship in lower-quality institutional environments.

Countries with high-quality economic institutions, on the other hand, reward individual merit with high material and social status. This encourages financial, affective, and intellectual autonomy (Schwartz, 1999, 2006). In that sense, social ties (who you know) become less important. Instead, rewards are largely distributed through the market mechanism, which values creativity and effort (Hayek, 1945; Gorodnichenko & Roland, 2011; Nikolaev & Salahodjaev, 2017). In addition, there is equality before the law despite one's political and social ties (Gwartney et al., 2016) which reduces the necessity of insider connections and social ties. Therefore, while social capital can greatly benefit entrepreneurs in high-quality institutional environments, we hypothesize that social ties are even more important in countries with lower quality of formal institutions. For these reasons, we propose the following hypothesis:

Hypothesis 3. As the institutional environment improves, social capital becomes a weaker determinant of entry into opportunity-motivated entrepreneurship.

2.3. The moderating role of economic institutions in human capital and entrepreneurship

Theoretically, the relationship between human capital (i.e., education) and entrepreneurship is far from conclusive (e.g., Simoes, Crespo, & Moreira, 2016). More generally, there are two main mechanisms with contrasting effects that have been previously proposed. On the one hand, people with higher education are more likely to have better opportunities for wage-employment, which can lower their incentive to start their own ventures (Van Der Sluis, Van Praag, & Vijverberg, 2008). On the other hand, people with higher educational attainment are more likely to have advanced and more specialized knowledge that can allow them to identify new market opportunities for self-employment (Parker, 2004; Simoes et al., 2016). The empirical literature has replicated this theoretical ambiguity (Rees & Shah, 1986; Blanchflower, 2004; Brown, Farrell, & Harris, 2011; Van Der Sluis et al., 2008; Simoes et al., 2016). One possible explanation for this empirical heterogeneity is that individuals at the bottom of the ability distribution, i.e., those with

lower levels of educational attainment, are more likely to start a business out of necessity while those at the top of the ability distribution are more likely to take advantage of market opportunities (Simoes et al., 2016; von Greiff, 2009).

Because we focus on opportunity-motivated entrepreneurship, we hypothesize that the relationship between human capital and entrepreneurship depends critically on the institutional environment. By rewarding effort and innovation with high social status, pro-market economic institutions such as competitive markets are more likely to create an environment that encourages experimentation and innovation (Baumol, 1990; North, 1990). In turn, a more vibrant and economically dynamic environment can provide more educated people with more abundant opportunities to apply their specialized knowledge to new business creation. In addition, highly educated people will have greater incentive to invest their time and effort in market-oriented ventures (Baumol, 1990), including entrepreneurship, instead of seeking employment in the public sector, which can be an attractive and safe option in countries with greater bureaucracy (i.e., lower economic freedom). In general, a more vibrant economy also implies that better educated people will have more wage-employment opportunities, which can increase the opportunity cost of self-employment (McMullen et al., 2008). However, countries with higher-quality (pro-market) institutions, where job opportunities are abundant, often experience a shortage of high-skilled labor, and are likely to attract highly-skilled people from countries with lower levels of economic freedom (Nejad & Young, 2016). Thus, relatively speaking, more educated (high-skilled) people will have a greater incentive and more market opportunities to engage in entrepreneurship compared to their counterparts in countries with lower quality institutions. Taken together, this leads to the following hypothesis:

Hypothesis 4. As the institutional environment improves, human capital becomes a stronger determinant of entry into opportunity-motivated entrepreneurship.

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Insert Figure 1 About Here
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In summary, while we theorize that human, financial, and social capital are all important antecedents of entrepreneurship, we also propose that the extent to which these individual-level resources affect entrepreneurial decision-making depends on the quality of the institutional environment. More specifically, in lower-quality institutional environments, we expect that financial and social capital to be more important for successfully starting a business while human capital to be a weaker determinant of entry into entrepreneurship. Individuals who lack financial capital and social connections in lower-quality institutional environments will face higher start-up costs, regulatory burdens, and social and political obstacles, all of which will reduce the likelihood of entry into entrepreneurship. In high-quality institutional environments, however, many of these costs and regulatory burdens are much lower. Own sources of income (i.e. financial capital), and social connections (i.e. social capital) consequently become less important. For ease of interpretation, the relationships and hypotheses discussed above are presented in Figure 1.

3. Data and methods

3.1. Dependent variable

The main outcome variable in this study is opportunity-motivated entrepreneurship (OME). OME happens when individuals perceive valuable business opportunities. Thus, they are “pulled” into entrepreneurship by the promise of high individual rewards including higher future income or a greater sense of autonomy and well-being. In that sense, OME is closely related to the Schumpeterian vision of entrepreneurship that encourages innovation and economic prosperity (McMullen et al., 2008) with prior research linking OME to high growth aspirations and subsequent business growth (Reynolds et al., 2005). Therefore, the focus of our paper is on OME

because of its potential for economic growth and new job creation via high growth businesses creation that is relevant for public policy (Acs, 2006; Autio and Acs, 2010; Hessels et al., 2008; Minniti and Lévesque, 2010; Estrin et al., 2013). We use, TEAYY from the Global Entrepreneurship Monitor (GEM) survey, which indicates whether an individual is involved in early-stage entrepreneurial activity (TEA). The GEM survey also differentiates whether an individual is involved in entrepreneurship out of necessity (TEAYYNEC) or due to an opportunity (TEAYYOPP). We use the latter variable as our main measure of entrepreneurship—opportunity motivated entrepreneurship (OME). Thus, OME is a dummy variable that takes a value of 1 if an individual is involved in early-stage opportunity entrepreneurship and 0 otherwise.

3.2. Predictor variables

There are three measures of capital that we use as our predictor variables of interest: human capital, financial capital, and social capital. Human capital is commonly measured by higher education in both the entrepreneurship and economics literatures (e.g., see Parker, 2004) and prior studies indicate that it could be particularly important determinant of opportunity entrepreneurship (e.g., see Simoes et al., 2016 for review). Therefore, we measure human capital with an indicator as whether an individual has received education at the college level or higher (tertiary education) or not. This variable is calculated from the GEMEDUC harmonized education variable where it takes a value of 1 if an individual has a college education and 0 otherwise.

Second, previous studies indicate that access to financial resources (financial capital) is an important antecedent of opportunity entrepreneurship, which often requires substantial initial investment or collateral that can be used to obtain business loans (e.g., see Simoes et al., 2016). While we do not have data on individual's household wealth (e.g., savings, household assets, etc.), we use household income as a proxy for financial capital. Household income is strongly and

positively correlated with household wealth, substantially increases the likelihood of obtaining external funding, and can be especially important in the case of opportunity entrepreneurship (Parker, 2004; Bricker, Henriques, Krimmel, & Sabelhaus, 2016; Saez & Zucman, 2016; Simoes et al., 2016). Thus, our financial capital variable is derived from a household income variable, GEMHHINC, that is measured in income terciles. This variable captures one's personal wealth. More specifically, financial capital is a dummy variable that takes a value of 1 if an individual's household income is in the highest income tercile and 0 if it is in the middle or lowest tercile.

Third, entrepreneurship is an economic activity, but it is also a social endeavor that is shaped by how people's attitudes, skills, and social networks are formed and developed (Festinger, 1954; Ruef, 2010; Shane, 2000). Thus, a large literature has emerged studying the effects of social capital, which is often defined as "the benefits entrepreneurs derive from their social networks" (Baron, 2015). Within this literature, an important source of social capital are people's ties with other entrepreneurs. Studies in relational demography, for instance, suggest that having ties with other entrepreneurs can influence one's identity, personal preferences, goals, and strategies (e.g. see Reuf, 2010; Qin & Estrin, 2015). In this literature, the fundamental factors guiding entrepreneurial activity are related to the ability of entrepreneurs to establish physical presence in order to collaborate with one another. Spatial proximity increases interpersonal trust (Matlay & Westhead, 2005; Ruef, 2002) and allows entrepreneurs to acquire tacit knowledge, develop social relationships, and recruit co-founders that are fundamental resources in the process of starting and managing new ventures (Ruef, 2010; Stuart & Sorenson, 2003) In addition, entrepreneurial groups are often formed on the basis of shared socio-demographic characteristics (Nikolaev & Wood, 2017). It is well-documented, for instance, that entrepreneurship tends to occur in clusters (e.g. see (Nikolaev & Wood, 2017)). In this respect, having ties with other entrepreneurs can lead to

homophilous affiliations as entrepreneurs influence the values, identities, and psychological dispositions of those around them (Ruef, 2010; Nikolaev & Wood, 2017). Further support for this relationship comes from social networking theory, which suggests that various phenomenon such as entrepreneurship can spread through social networks in a rather automatic way via mechanisms such as emotional contagion, informational cascades, or the bandwagon effect (Christakis & Fowler, 2009; Nikolaev & Wood, 2017). Therefore, we measure social capital with individual's ties to other entrepreneurs. This measure is a dummy that takes a value of 1 if an individual knows someone who has created a business in the past two years and 0 otherwise. This is consistent with recent research using the GEM data, which builds upon the extant literature (Davidsson, 1991; Davidsson & Honig, 2003). This literature argues that "ties with entrepreneurs' functions as a "second-hand experience of entrepreneurship (that) is a relevant driver of an individual's entrepreneurial intentions through vicarious learning" (Pathak, Xavier-Oliveira, & Laplume, 2013, p. 2095). All capital variables are taken from the Global Entrepreneurship Monitor (GEM) dataset for the years 2002 to 2012 (Reynolds et al., 2005).

In addition to our measures of human, financial, and social capital, we are interested in examining how the institutional environment affects the efficacy of these capital measures on entrepreneurship. We use a country-level measure of economic freedom to measure the quality of a country's institutional environment. Our measure of economic freedom is taken from the economic freedom of the world index by the Fraser Institute (Gwartney et al., 2016). The index was originally proposed and developed with input from leading economic scholars, including Nobel laureates Milton Friedman, Gary Becker, and Douglas North. The cornerstone of the index is the degree of personal choice, voluntary exchange, freedom to compete, and protection of personal and private property that is enjoyed by citizens (Gwartney et al., 2016). The index has

five main areas—(1) government size, (2) legal system, (3) sound monetary policy, (4) international trade, and (5) regulation. These five areas have a total of 24 components (e.g., government consumption, integrity of the legal system, credit market regulations, etc.) that are built from 42 distinct variables (e.g., top marginal income tax rate; business cost of crime, licensing restrictions, etc.). Economic freedom is then calculated as the average of these five components and takes a value from 1 to 10, where 10 indicates high freedom and 1 indicates very little freedom.

In that sense, the EFW index is a broad composite measure of formal institutions that captures multiple dimensions of economic and political institutions (Gwartney et al., 2016). The index is closely related to other cross-national measures that are commonly used to assess the institutional context across countries such as legal origins (La Porta et al., 2008), protection against expropriation (Acemoglu et al., 2001), constraints on executive (Marshall and Jagers, 2002), or variety of indices that measure the quality of the regulatory environment and government efficiency (e.g., see World Bank Governance Indicators).

Table 1 presents the substantial cross-country variation in the quality of economic freedom and the capital measures. We observe a substantial variation in opportunity-motivated entrepreneurship (OME). For example, 3.24 percent of all individuals are engaged in OME in France compared to 12.82 percent participation in OME in Iceland. Despite this cross-country variation, we do not observe a clear pattern between our capital measures and OME. This indicates that the relationship between capital and OME is more complicated than the literature suggests.

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Insert Table 1 About Here
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3.3. *Control variables*

In addition to our measures of economic freedom and human, financial, and social capital, there are several variables we use as controls. We include several measures of individual ability that are expected to influence entrepreneurial behavior. Self-efficacy is coded 1 if the individual entrepreneur believes he or she has the knowledge, skills, and experience required to start a new business and 0 otherwise. Opportunity recognition is coded 1 if the entrepreneur envisions good business opportunities in the next six months and 0 otherwise. Fear of failure is coded 1 if the entrepreneur responds that fear of failure is likely to prevent him or her from starting a business and 0 otherwise. These variables are taken from the GEM data for the years 2002 to 2012.

We also include individual-level characteristics that are expected to influence entrepreneurial behavior. We include an individual's gender as a predictor variable because findings indicate that female entrepreneurs have lower survival rates, profits, employment, and sales than their male counterparts (Fairlie & Robb, 2009), and women are attracted to entrepreneurship due to its flexibility (Shane, 2008). Female is coded 1 if the individual is female and 0 if male. Age and Age (squared) are continuous variables that denote the age of the entrepreneur and its squared value, respectively. These individual characteristics are all taken from the GEM data for the years 2002 to 2012.

Lastly, we also include control variables at the country-level that are expected to influence entrepreneurial behavior. Log GDP is the natural logarithm of a country's gross domestic product per capita. Log pop is the natural logarithm of a country's total population. These variables are taken from the World Bank's country indicator's database for the years 2002 to 2012. Log GDP is used to control for the 'natural rate' of entrepreneurship in economic development (Wennekers, Wennekers, Thurik, & Reynolds, 2005).

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Insert Table 2 About Here

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These variables and their definitions are provided in Table 2. In addition, we have bifurcated the data into two samples based on the quality of the economic institutions (i.e. economic freedom). This provides a preliminary analysis of the relationship between economic freedom, our capital measures, and opportunity-motivated entrepreneurship (OME). In the below median levels of economic freedom sample, we find higher rates of financial and social capital for those individuals engaged in OME compared to the above median level of economic freedom sample. But, we do not find a similar result for human capital. Therefore, while these samples provide some evidence to suggest that economic freedom alters the relationship between capital and OME, we need a more sophisticated analysis to more carefully examine how economic freedom affects the relationship between human, financial, and social capital and OME. We now turn to a description of our multi-level analysis framework.

3.4. Estimation methods

We merge observations of individual-level entrepreneurs with country-level measures of economic freedom, which necessitates the use of hierarchical linear modeling methods (multi-level modeling). It is important to control for the different levels of analysis in estimation because standard estimation techniques (e.g. OLS) in the presence of clustered data significantly increases the possibility of Type 1 errors. The standard errors are underestimated due to their non-normal distribution (Hofmann, Griffin, & Gavin, 2000). In our multilevel models, random effects refer to the country-specific factors that are assumed to effect the dependent variables, and their use is based on the assumption that the groups are drawn randomly from a larger population (Autio, Pathak, & Wennberg, 2013; Peterson, Arregle, & Martin, 2012).

More specifically, to estimate the influence of country-level factors on an individual's likelihood of participating in opportunity-motivated entrepreneurship (OME) (binary coded), we

employ a multi-level logistic regression model that assumes unobserved country-specific effects (u_i) to be randomly distributed with a mean of zero, constant variance ($u_i \approx \text{IID}(0, \sigma_u^2)$), and uncorrelated to the predictor variables. This method permits the intercept and standard errors to vary randomly across countries (Raudenbush, 1988), and provides greater weights to groups with more reliable level 1 estimates, which in turn, provide greater influence in the level 2 regression (Hofmann et al., 2000).

Consistent with prior work on multilevel modeling (Autio et al., 2013; Wennberg et al., 2013; Xavier-Oliveira, Laplume, & Pathak, 2015), we proceed with a stepwise testing strategy to examine the predictors of OME. First, we estimate the country-level variance in our dependent variables by excluding all predictors and controls in our model. We observe significant country-level variance, which provides support for the choice of a multilevel model over a simple logistic regression model. We refer to these regression models as the "null model". Second, we augment the null model to include individual-level and country-level controls to estimate the share of the variance these predictors explain. Third, we test our hypotheses on how the quality of the prevailing institutions moderates the relationship between our capital measures and OME. We repeat this process for human, financial, and social capital.

Our multi-step model (Snijders & Bosker, 2004) is a logistic regression that takes the following form:

$$\text{Dependent variable} = \beta_{0j} + (\text{individual and country – level controls}) + r_{ij}, \quad (1)$$

$$\beta_{0j} = \gamma_{00} + U_{0j}, \quad (2)$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{country – level predictors}) + U_{0j}, \quad (3)$$

where γ_{00} is the mean of the intercepts across countries, γ_{01} is the slope of the country-level (level 2) predictors; the term U_{0j} represents the random part of the equation, and is a measure of the

country-level residuals; and r_{ij} denotes the individual-level residuals. The country-level equations (2) and (3) predict the effects (denoted as gammas) of level 2 predictors on level 1 intercepts. Model 1 of Table 3 (the null models) is estimated by including only β_{0j} in equation (1) and replacing β_{0j} by equation (2). The effects of individual-level capital are presented in Model 2 and the country-level economic freedom is presented in Model 3. The interactions between economic freedom and the capital measures are shown in Models 4-6. These models were estimated by replacing β_{0j} in equation (1) with that in equation (3). The term "random effects" indicates that we only permit the intercept (constant) term, β_{0j} in equation (1), to vary randomly across countries, which accounts for the variance in the dependent variables. The intercept is explained by country-level predictors. The regression coefficients (slopes) of our independent variables do so random effects, in this context, refers only to random intercepts.

4. Results

4.1. Hypothesis tests

We use a multi-level logistic regression to examine the interaction between economic freedom and human, financial, and social capital as they relate to entry into entrepreneurship, as measured by opportunity-motivated entrepreneurship (OME). We begin this examination with a stepwise process that estimates the country-level parameters (Model 1). We then augment this model to include our baseline controls (Model 2), our measure of economic freedom (Model 3), and then proceed to test our moderating hypotheses (Models 4-6). These results are displayed in Table 3.

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Model 1 presents the results with our control variables and measures of human, financial, and social capital. The results indicate that there is substantial cross-country variation in OME

($\sigma_u^2=.411$; $p=.111$), which validates our choice of a multi-level logistic regression. Model 2 adds our baseline controls, which indicate that human, financial, and social capital all positively influence OME. Model 3 augments this model with our country-level measure of economic freedom. Our findings suggest that economic freedom positively influences OME (odds ratio=1.344; $p<0.001$), which provides support for hypothesis 1. Model 4 tests our second hypothesis that economic freedom moderates the relationship between human capital and OME. The findings suggest that, while individuals with more human capital (i.e. college education) have higher OME (odds ratio=1.181; $p<0.001$), economic freedom lessens this differential (odds ratio=0.961; $p<0.05$). In other words, human capital is associated with greater odds of OME, but this effect decreases as the quality of economic freedom increases. Therefore, we find evidence to support hypothesis 2. Model 5 tests our third hypothesis that economic freedom moderates the relationship between financial capital and OME. Similarly, our findings suggest that individuals with more financial capital have higher odds of OME (odds ratio=1.213; $p<0.001$), but this effect decreases as economic freedom increases (odds ratio=0.790; $p<0.001$). Hence, we find evidence to support hypothesis 3. Model 6 tests our fourth hypothesis that economic freedom moderates the relationship between social capital and OME. While we do uncover a positive relationship between social capital and OME (odds ratio=2.053; $p<0.001$), we find that social capital has a stronger effect on OME as economic freedom increases (odds ratio=1.080; $p<0.001$). This is in contrast to our expectation, and consequently, we fail to find support for hypothesis 4.

To gain more insight into these relationships, we display these interactions in Figures 2, 3, and 4. Overall, the results suggest that economic freedom is an important determinant of the efficacy of human, financial, and social capital on entrepreneurship. At low levels of economic freedom, human and financial capital have much explanatory power. Possessing more education

and more financial resources increases the odds of OME when there is a lower-quality institutional environment. Conversely, improvements in the quality of the institutional environment lead to a smaller effect of human capital or financial capital on OME until there is no difference in the rates of OME between entrepreneurs who have and do not have human or financial capital. This can be seen in the human capital figure when economic freedom increases to 9 (out of a possible 10) and slightly more than 8 (out of a possible 10) in the financial capital figure. Social capital, on the other hand, tends to have more explanatory power as the quality of economic freedom increases. At low levels of economic freedom, more social capital is associated with higher odds of OME, and this effect only increases as the quality of the institutional environment (i.e. economic freedom) increases.

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Insert Figures 2, 3, and 4 About Here
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4.2. *Necessity and Nascent Entrepreneurship*

Until now, we have focused solely on how economic freedom and capital affect opportunity entrepreneurship. We emphasize OME because this sort of entrepreneurship underlies the Schumpeterian vision of entrepreneurship as leading to innovation, economic growth, and prosperity (McMullen et al., 2008). GEM data, however, contains useful measures of alternative forms of entrepreneurship like necessity-motivated entrepreneurship (NME) and nascent entrepreneurship. While we have designed our models to examine OME, we are also able to examine how economic freedom moderates the relationship between capital and these other forms of entrepreneurship. The results from this analysis are presented in a supplemental appendix.

The results for NME suggest that those without a college education (human capital), those who lack ties to other entrepreneurs (social capital), or those who lack personal wealth (financial capital) are more likely to be involved in necessity-motivated entrepreneurship (NME) at low

levels of economic freedom, but these effects are generally statistically insignificant at conventional levels (95% confidence intervals illustrate this). However, those who possess social capital are more likely to be involved in NME as economic freedom increases. We do not find a similar effect for financial capital or human capital. Generally speaking, we do not find a statistically significant relationship between the interaction of financial capital and economic freedom on NME, and while we do find that those who possess human capital are more likely to be involved in NME at higher levels of economic freedom, this relationship is once again statistically insignificant at the highest levels of economic freedom.

Nascent entrepreneurship is defined by GEM as an entrepreneur who is “involved in setting up a business but has not paid any wages.” We emphasize that the entrepreneur has not paid any wages because this is the distinguishing characteristic between a nascent entrepreneur and other early-stage entrepreneurs (less than 42 months old) such as owner-managers of new firms and owner-managers of established firms. The results for nascent entrepreneurship are very similar to our results for opportunity-motivated entrepreneurship (OME)—with the exception of the interaction between human capital and economic freedom, which is now statistically insignificant. The similarity between OME and nascent entrepreneurship is likely due to the high correlation between nascent entrepreneurship and OME in our dataset (71.3%), which arises because nascent entrepreneurship is one of the two components of total early-stage entrepreneurial activity (TEA) where OME is derived.

5. Discussion, limitations, and concluding remarks

5.1. Discussion

Our findings suggest that economic freedom moderates the relationship between all forms of capital and opportunity-motivated entrepreneurship (OME). Specifically, human and financial capital are shown to be important determinants of entrepreneurship in countries with lower-quality

institutional environments, and this effect decreases as the quality of the institutional environment increases (i.e., as the environment becomes pro-market). In contrast, we find that social capital is less important when economic freedom is lower while this relationship is stronger in countries with more pro-market institutions. We hypothesized that economic freedom might act as a moderating variable and facilitate stronger effects of social capital on entrepreneurship in lower-quality institutional environments and weaker or even non-existent effects of social capital on entrepreneurship in high-quality institutional environments. We based this hypothesis on networking theory that might suggest that social capital is helpful as a second-best case. For instance, when the quality of the business environment is difficult to navigate, knowing someone who has recently started a business might provide an advantage to an entrepreneur who would otherwise face uncertainty and various institutional impediments. While we do not find evidence to support this hypothesis, we can further speculate some possible explanations.

First, the relationship between the quality of economic freedom, social capital, and entrepreneurship might be non-linear. The interaction effects we have presented force the relationships to be linear, which might only capture some—but not all—of the relationship. Future research can examine other functional forms when modeling this relationship formal institutions, social capital, and opportunity entrepreneurship. For example, social capital might be helpful at both low and high levels of economic freedom and make little difference in the middle of the institutional distribution. Our hypothesis predicted that social capital had a stronger effect on OME in lower-quality institutional environments because ties to other entrepreneurs might help entrepreneurs navigate the uncertain and highly regulated business environment. Similarly, social capital could provide a beneficial effect in high-quality institutional environments because networking has been shown to have many positive effects on business performance (Adler &

Kwon, 2002; Cope et al., 2007; Kim & Aldrich, 2005; Westlund & Bolton, 2003). Ultimately, this is beyond the scope of our analysis, but it is certainly worthy of pursuit by future researchers.

In addition, the general availability of social capital declines in the course of modernization, and consequently, its value increases despite institutional improvements⁵ (Putnam, 1995). If there is generally less social capital out there, those who still have it enjoy an additional advantage. Our analysis assumes that the supply of social capital remains constant whereas the decline of social capital says it shrinks.

Second, our findings that economic freedom moderates the relationship between human and financial capital and entrepreneurship helps bridge the knowledge gap in the extant literature. There have been mixed findings in the literature on the efficacy of human or financial capital on entrepreneurship (Martin et al., 2013). Our study provides a potential explanation, which suggests that financial or human capital might be more effective at promoting entrepreneurship in institutional environments with lower levels of economic freedom.

Third, our study has important policy implications. Most countries encourage the development of formal or informal training and access to financial capital as avenues to encourage entrepreneurship. However, the results in the present study suggest that strategies such as incentivizing educational programs and providing access to credit might be far more effective in developing countries with institutions that are less consistent with the principles of economic freedom. Individuals in developed countries, on the other hand, might benefit more from developing their social ties.

5.2. Limitations and future research directions

⁵ We appreciate one reviewer's comments that point out this very plausible explanation.

Inevitably, our study is not without limitations. While we use various measures of human, financial, and social capital from the GEM dataset, these variables could be fine grained more. In this respect, previous research has shown different types of social capital might affect business entry and performance in a heterogenous way. For instance, strong ties (e.g. friends and family) might be less valuable than weak ties (e.g. business partners, lending relationships, outside experts) in some situations, including entrepreneurship (Granovetter, 1973, 1983). Unfortunately, due to data limitations, we are unable to distinguish between strong and weak ties. We only know if entrepreneurs have ties with other entrepreneurs, but we do not know the nature of their relationship. Thus, future studies can examine how different types of social capital affect entrepreneurship under alternative institutional environments. Similarly, future studies can refine our findings by analyzing the effect of more specific types of human or financial capital in different institutional contexts. In this study, we measure human capital as college education and financial capital as the upper tercile (in the income distribution) of household income. Thus, researchers may want to examine how informal types of education (rather than secondary education) and household wealth (e.g., savings, business assets, etc.) affect entrepreneurship under alternative institutional environments. Finally, while we focus on the overall index of EFW, future studies can examine which type of economic institutions—areas of the EFW index—are more likely to influence the relationship between different types of capital and entrepreneurship, which can reveal important mechanisms and trade-offs (Estrin et al., 2013).

5.3. Concluding remarks

In this study, we hypothesized that the institutional environment moderates the relationship between different types of capital and opportunity entrepreneurship. More specifically, using the construct of economic freedom (Gwartney et al., 2016) as a proxy for level two institutions in Williamson's (2000) four-level hierarchy, we examined the extent to which formal economic

institutions at the country-level influence how human, financial, and social capital affect opportunity-motivated entrepreneurship (OME). We found that economic freedom moderates the relationship between OME and both financial and human capital. While individuals with human and financial capital are more likely to engage in OME, they are less likely to do so as economic freedom increases. Our findings, for instance indicate that there is no statistically significant effect of human or financial capital on entrepreneurship in countries with higher levels of economic freedom (i.e., pro-market institutions). In contrast, while social capital has a positive effect on the likelihood of engaging in OME, this relationship is much stronger in countries with higher levels of economic freedom.

These findings are important because they suggest that human and financial capital are more likely to encourage entrepreneurship under the right institutional conditions (i.e., lower level of economic freedom). If policy makers desire to increase entrepreneurship education or access to capital as a means to promote entrepreneurship, our results indicate that such policies will be less fruitful in countries with higher-quality institutional environments (i.e. higher economic freedom). In contrast, improving an individual's social network with other entrepreneurs is likely to encourage participation in entrepreneurship regardless of the institutional environment. These cross-country differences in institutional conditions provide preliminary insights that may explain previous heterogenous findings in the capital and entrepreneurship literature.

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Table 1. Descriptive statistics by country

| Country | N | (%) OME | (%) Human capital | (%) Financial capital | (%) Social capital | EFW |
|----------------|---------|---------|-------------------|-----------------------|--------------------|------|
| Argentina | 5,219 | 9.12 | 40.74 | 79.63 | 39.28 | 6.18 |
| Austria | 6,842 | 6.69 | 23.12 | 77.43 | 40.94 | 7.64 |
| Belgium | 20,423 | 3.88 | 48.27 | 79.57 | 29.13 | 7.41 |
| Brazil | 26,594 | 9.96 | 13.16 | 70.76 | 38.97 | 6.41 |
| Chile | 5,263 | 9.35 | 36.50 | 78.05 | 45.47 | 7.81 |
| China | 21,729 | 10.29 | 26.49 | 71.52 | 59.52 | 6.25 |
| Croatia | 13,579 | 4.77 | 24.59 | 79.43 | 41.05 | 6.62 |
| Czech Republic | 3,550 | 5.66 | 18.96 | 76.65 | 29.49 | 7.15 |
| Denmark | 26,529 | 5.03 | 72.01 | 73.74 | 44.62 | 7.82 |
| Ecuador | 1,506 | 19.52 | 26.10 | 100 | 51.99 | 5.72 |
| Finland | 16,082 | 5.26 | 35.13 | 79.09 | 47.41 | 7.81 |
| France | 17,526 | 2.73 | 39.28 | 75.15 | 37.45 | 7.33 |
| Germany | 49,983 | 4.84 | 36.81 | 80.92 | 36.87 | 7.63 |
| Greece | 15,386 | 6.21 | 40.24 | 86.50 | 36.94 | 7.04 |
| Hong Kong | 4,041 | 2.57 | 19.10 | 81.94 | 26.38 | 8.81 |
| Hungary | 17,634 | 5.17 | 30.24 | 77.76 | 31.75 | 7.21 |
| Iceland | 13,123 | 11.83 | 31.94 | 83.02 | 63.95 | 7.60 |
| India | 9,528 | 7.78 | 31.51 | 72.39 | 40.66 | 6.45 |
| Ireland | 15,270 | 6.70 | 52.76 | 85.14 | 39.02 | 7.90 |
| Israel | 10,661 | 4.92 | 54.74 | 78.34 | 36.79 | 7.26 |
| Italy | 17,831 | 3.20 | 22.02 | 89.26 | 31.71 | 7.21 |
| Japan | 15,036 | 3.24 | 51.33 | 82.00 | 21.28 | 7.62 |
| Jordan | 1,831 | 16.28 | 60.30 | 100 | 68.60 | 7.19 |
| Korea | 9,764 | 5.97 | 52.86 | 77.25 | 36.08 | 7.39 |
| Latvia | 13,172 | 7.14 | 45.17 | 78.04 | 40.94 | 7.34 |
| Lithuania | 3,933 | 6.31 | 71.93 | 75.67 | 30.66 | 7.45 |
| Mexico | 2,935 | 5.35 | 30.70 | 64.36 | 43.92 | 6.78 |
| Netherlands | 23,580 | 6.24 | 33.19 | 82.59 | 32.45 | 7.60 |
| Norway | 9,451 | 7.84 | 48.55 | 81.60 | 39.31 | 7.53 |
| Peru | 1,853 | 28.28 | 10.63 | 100 | 62.98 | 7.43 |
| Poland | 7,283 | 5.01 | 28.85 | 75.92 | 41.18 | 7.01 |
| Portugal | 7,745 | 6.16 | 27.88 | 84.91 | 31.30 | 7.21 |
| Romania | 9,015 | 3.87 | 38.45 | 76.79 | 35.72 | 7.34 |
| Russia | 19,101 | 2.88 | 67.12 | 82.72 | 34.28 | 6.47 |
| Singapore | 7,284 | 7.02 | 53.58 | 90.25 | 31.03 | 8.77 |
| Slovakia | 3,940 | 8.45 | 19.16 | 73.40 | 45.25 | 7.38 |
| Slovenia | 20,657 | 4.89 | 32.01 | 81.15 | 46.62 | 6.84 |
| South Africa | 12,451 | 3.82 | 8.93 | 90.19 | 28.49 | 6.99 |
| Spain | 212,005 | 4.54 | 37.64 | 82.21 | 32.61 | 7.44 |
| Sweden | 41,129 | 3.07 | 23.64 | 92.83 | 45.51 | 7.48 |
| Switzerland | 14,569 | 6.08 | 32.71 | 78.91 | 37.42 | 8.35 |
| Taiwan | 2,029 | 3.10 | 33.66 | 100 | 28.93 | 7.42 |
| Thailand | 2,631 | 15.96 | 31.51 | 63.40 | 41.73 | 6.68 |
| Turkey | 11,867 | 5.67 | 31.15 | 77.23 | 33.26 | 6.85 |
| Uganda | 2,749 | 16.59 | 9.09 | 100 | 67.41 | 6.97 |
| United Kingdom | 118,935 | 5.70 | 37.77 | 70.53 | 25.08 | 8.17 |
| United States | 33,894 | 9.52 | 61.59 | 81.19 | 33.78 | 8.11 |

Table 2.

Variable descriptions, means, and standard deviations by economic freedom sample.

| Variables | Descriptions | Total | Above median EF | | Below median EF | |
|-------------------------|---|------------------|------------------|--------------------|------------------|--------------------|
| | | | OME | Not OME | OME | Not OME |
| Age | Age of respondent | 41.89 (13.96) | 40.07 (11.59) | 43.55 (14.36) | 36.67 (11.03) | 40.97 (13.78) |
| Female | Gender (1=female; 0=male) | 50.66 (50.00) | 36.40 (48.11) | 52.77 (49.92) | 36.12 (48.04) | 50.93 (49.99) |
| Self-efficacy | Coded 1 if an individual believes he or she possesses the skills necessary to become an entrepreneur and 0 otherwise. | 47.11 (49.92) | 89.07 (31.20) | 44.02 (49.64) | 85.51 (35.20) | 43.68 (49.60) |
| Opportunity recognition | Coded 1 if there will be good opportunities for the individual to start a business in the next six months and 0 otherwise. | 31.82 (46.58) | 60.99 (48.78) | 34.11 (47.41) | 52.63 (49.93) | 26.29 (44.02) |
| Fear of failure | Coded 1 if the individual is afraid of failure and 0 otherwise. | 38.91 (48.75) | 19.82 (39.86) | 37.75 (48.48) | 25.60 (43.65) | 42.15 (49.38) |
| Human capital | Tertiary education variable (1=college education; 0=else.) | 37.53 (48.42) | 51.40 (49.98) | 39.28 (48.84) | 44.52 (49.70) | 34.90 (47.66) |
| Financial capital | Household income coded in terciles (1=highest tercile; 0=middle or lowest tercile). | 79.78 (40.16) | 82.33 (38.14) | 77.09 (42.02) | 88.40 (32.02) | 81.60 (38.75) |
| Social capital | Coded 1 if the individual knows someone who has created a business in the past two years and 0 otherwise. | 36.75 (48.21) | 64.72 (47.78) | 32.81 (46.95) | 67.62 (46.79) | 35.78 (47.94) |
| GDP per capita | Gross domestic product per capita (\$US) | 31486 (16154) | 40884 (13994) | 39795 (13574) | 20444 (15613) | 24617 (14431) |
| Population ^a | Country-level population. | 96.6 (229) | 73.8 (91.4) | 63.9 (75.3) | 187 (387) | 117 (290) |
| Economic freedom (EF) | Economic freedom of the world index by the Fraser Institute. Comprised of five areas: Size of government, protection of property rights, freedom of money, freedom of international trade, and freedom from regulations. Measured as the average of the five components on a scale from 1 to 10 | 7.47 (0.55) | 7.93 (0.33) | 7.91 (0.33) | 6.99 (0.44) | 7.10 (0.40) |
| Number of observations | | N=716,124 | N=22,195 (3%) | N=314,406 (44%) | N=22,251 (3%) | N=357,272 (50%) |

Note. Sample means are presented and standard deviations are presented in parentheses. ^a Denoted in millions.

Table 3.

Effect of human, financial, and social capital on entrepreneurship: the interaction of economic freedom (Odds ratio).

| | Opportunity-Motivated Entrepreneurship | | | | | |
|-----------------------------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Fixed part estimates | | | | | | |
| Individual-level (level 1) | | | | | | |
| Age | | 1.083*** (0.00) | 1.083*** (0.00) | 1.084*** (0.00) | 1.084*** (0.00) | 1.083*** (0.00) |
| Age (squared) | | 0.999*** (0.00) | 0.999*** (0.00) | 0.999*** (0.00) | 0.999*** (0.00) | 0.999*** (0.00) |
| Female | | 0.746*** (0.01) | 0.746*** (0.01) | 0.746*** (0.01) | 0.746*** (0.01) | 0.746*** (0.01) |
| Self-efficacy | | 5.635*** (0.09) | 5.634*** (0.09) | 5.634*** (0.09) | 5.638*** (0.09) | 5.636*** (0.09) |
| Opportunity recognition | | 1.901*** (0.02) | 1.898*** (0.02) | 1.899*** (0.02) | 1.898*** (0.02) | 1.898*** (0.02) |
| Fear of failure | | 0.577*** (0.01) | 0.577*** (0.01) | 0.578*** (0.01) | 0.578*** (0.01) | 0.578*** (0.01) |
| Financial capital | | 1.233*** (0.02) | 1.230*** (0.02) | 1.228*** (0.02) | 1.213*** (0.02) | 1.231*** (0.02) |
| Human capital | | 1.181*** (0.01) | 1.181*** (0.01) | 1.181*** (0.01) | 1.178*** (0.01) | 1.181*** (0.01) |
| Social capital | | 2.049*** (0.02) | 2.049*** (0.02) | 2.049*** (0.02) | 2.048*** (0.02) | 2.053*** (0.02) |
| Country-level (level 2) | | | | | | |
| GDP (log) | | 1.028 (0.03) | 0.863*** (0.03) | 0.862*** (0.03) | 0.860*** (0.03) | 0.863*** (0.03) |
| Population (log) | | 0.977 (0.04) | 0.990 (0.04) | 0.990 (0.04) | 0.994 (0.04) | 0.991 (0.04) |
| Economic freedom (EF) | | | 1.344*** (0.06) | 1.369*** (0.06) | 1.683*** (0.08) | 1.277*** (0.05) |
| Moderating effects | | | | | | |
| Human capital x EF | | | | 0.961* (0.02) | | |
| Financial capital x EF | | | | | 0.790*** (0.02) | |
| Social capital x EF | | | | | | 1.080*** (0.02) |
| Random part estimates | | | | | | |
| Number of observations | 1156624 | 716124 | 716124 | 716124 | 716124 | 716124 |
| Number of countries | 50 | 45 | 45 | 45 | 45 | 45 |
| Variance of random intercept | 0.411 | 0.199 | 0.151 | 0.151 | 0.153 | 0.151 |
| % of variance, ρ | 0.111 | 0.0571 | 0.0439 | 0.0439 | 0.0444 | 0.0437 |
| Model fit statistics | | | | | | |
| Degrees of freedom ^a | 13 | 24 | 25 | 28 | 28 | 28 |
| Prob > χ^2 | *** | *** | *** | *** | *** | *** |
| Log-likelihood | -218114 | -136681 | -136655 | -136653 | -136608 | -136647 |
| AIC ^b | 436252 | 273407 | 273359 | 273356 | 273266 | 273343 |
| LR test of $\rho=0$ ^c | *** | *** | *** | *** | *** | *** |
| LR test of model fit ^d | --- | --- | --- | * | * | * |

Notes: Standard errors in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$, two-tailed tests. Estimates are represented as odds ratio (OR). OR > 1 represents a positive relationship and OR < 1 represents a negative relationship.

^a the degrees of freedom include year fixed effects (2002-2012), a constant term (intercept), and a random intercept (country-level).

^b AIC is Akaike's information criterion = $2k - 2 \times (\log \text{likelihood})$, where k denotes the degrees of freedom (number of predictors in the model).

^c Statistically significant ($p < 0.001$). LR test of $\rho = 0$ confirms that country-level variance component is important.

^d LR test performed between Models 3 and either Model 4, Model 5, or Model 6 using maximum-likelihood estimates (MLE).

Figure 1. How economic institutions moderate the effect of human, financial, and social capital on entrepreneurship.

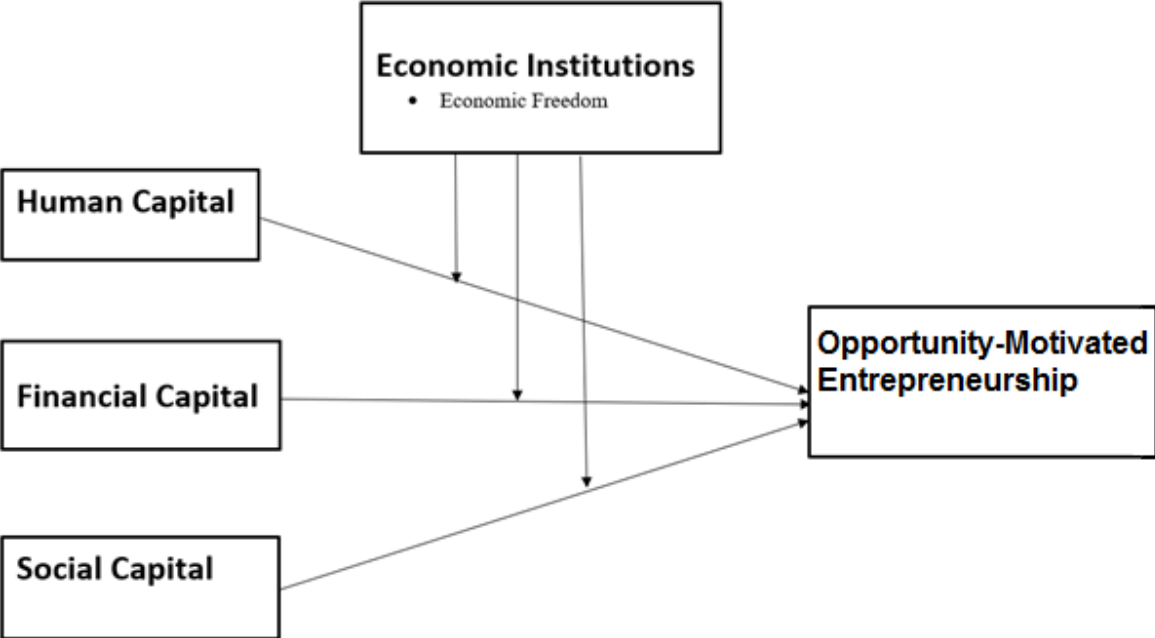
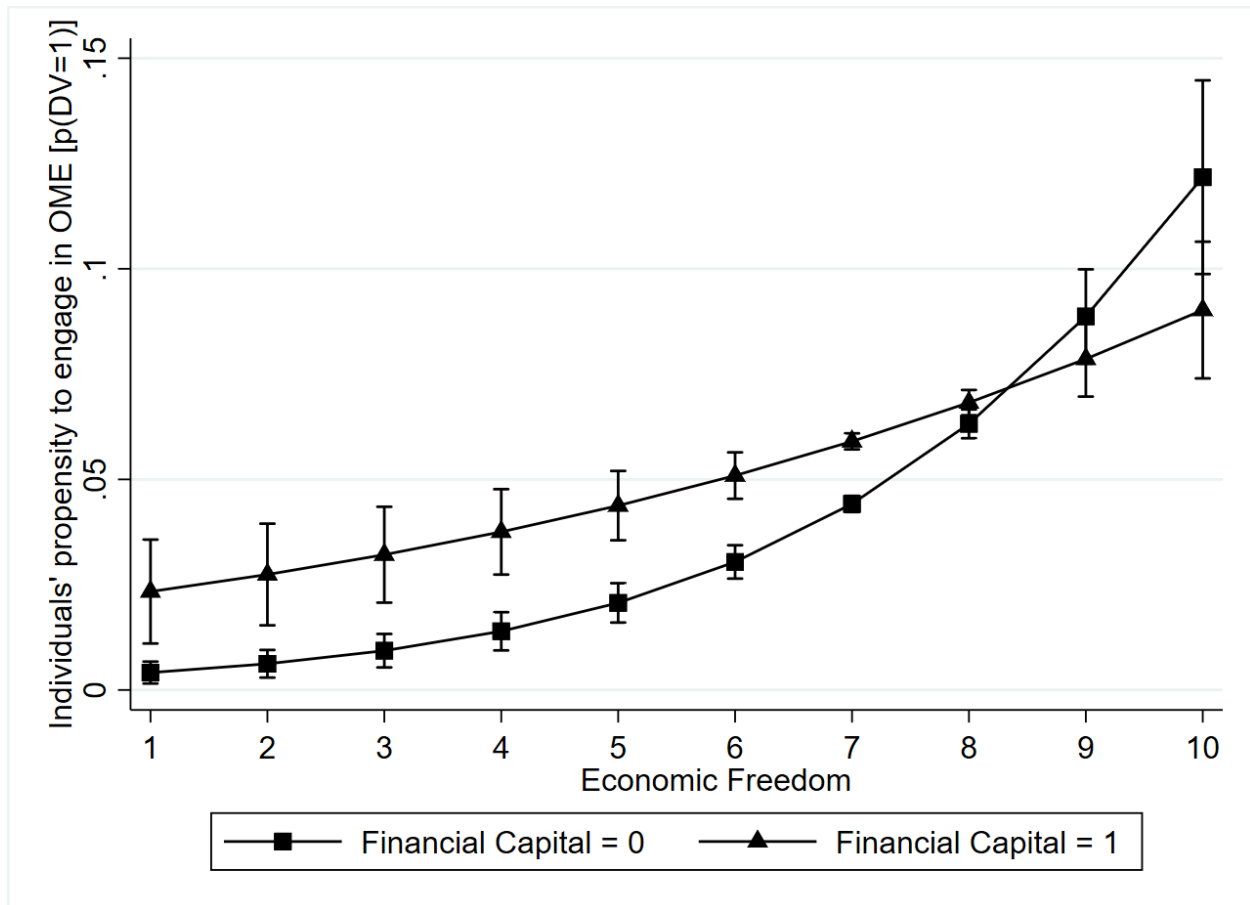
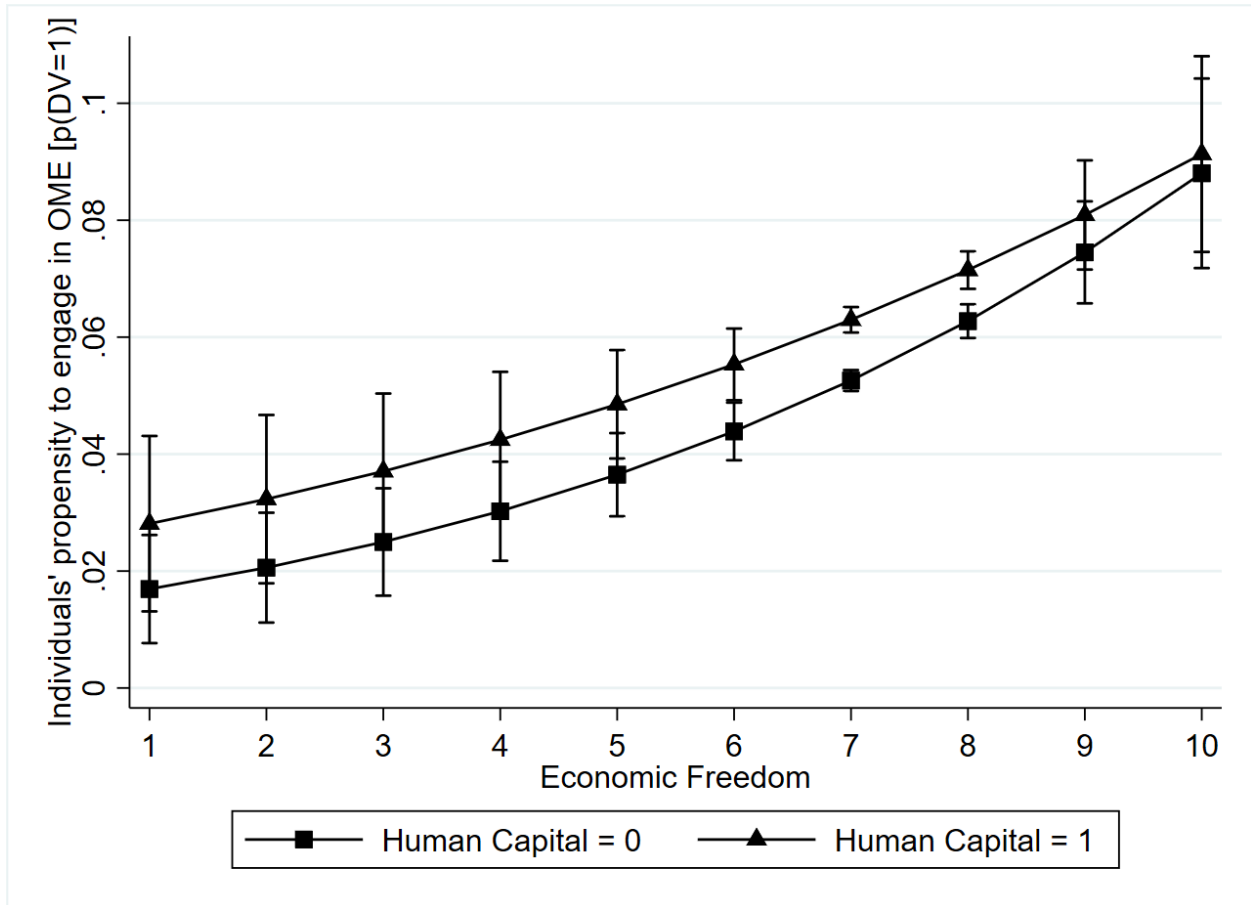


Figure 2. The interaction between country-level economic freedom and individual-level financial capital on opportunity-motivated entrepreneurship (OME).



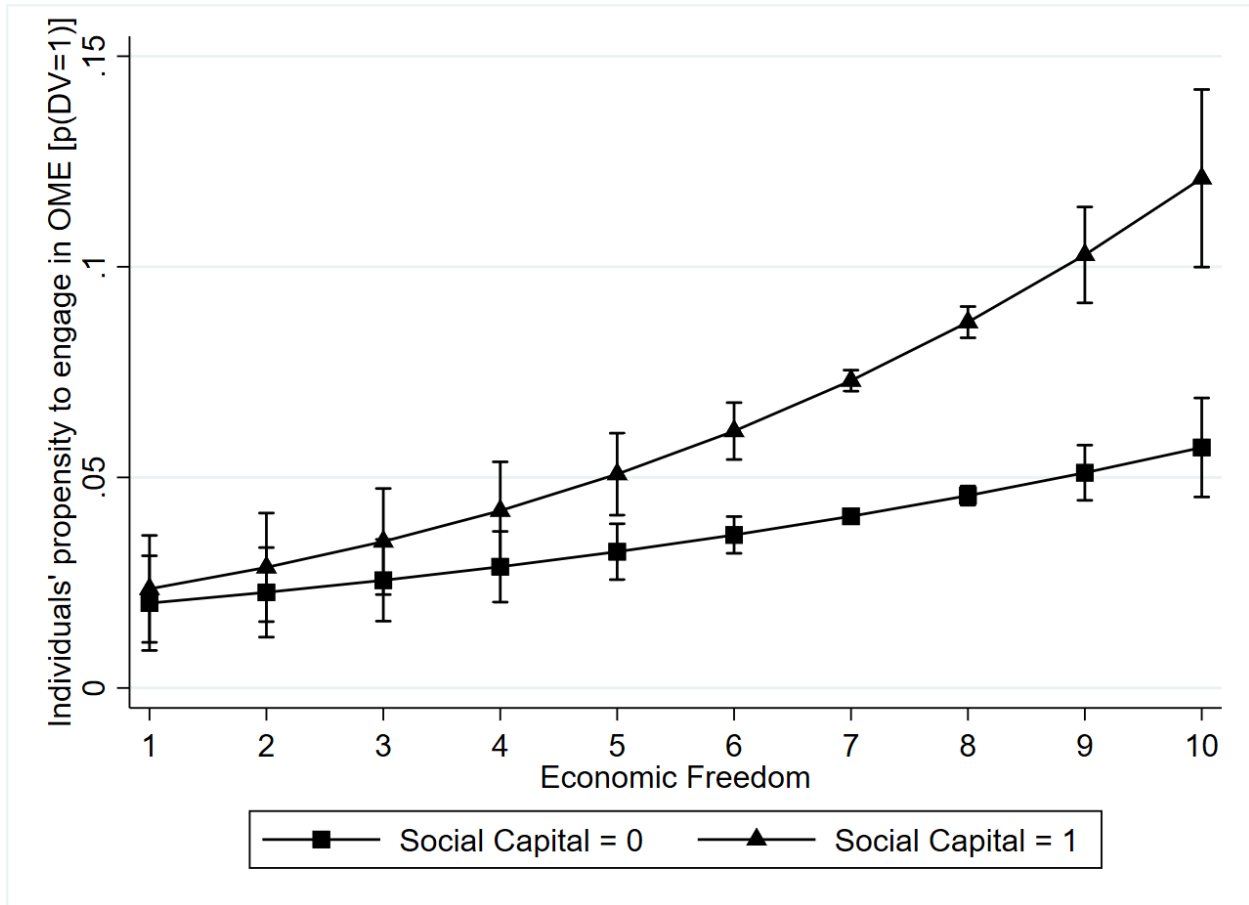
Note. Financial Capital =1 if an individual’s household income is in the highest tercile and 0 otherwise. Economic Freedom is measured by the Fraser Institute’s Economic Freedom of the World index. 95% confidence intervals reported.

Figure 3. The interaction between country-level economic freedom and individual-level human capital on opportunity-motivated entrepreneurship (OME).



Note. Human Capital =1 if an individual has a college education or higher and 0 otherwise. Economic Freedom is measured by the Fraser Institute’s Economic Freedom of the World index. 95% confidence intervals reported.

Figure 4. The interaction between country-level economic freedom and individual-level social capital on opportunity-motivated entrepreneurship (OME).



Note. Social Capital =1 if an individual knows someone who has created a business in the past two years and 0 otherwise. Economic Freedom is measured by the Fraser Institute's Economic Freedom of the World index. 95% confidence intervals reported.

Appendix

Necessity-Motivated Entrepreneurship

Appendix Table 1. (Necessity-Motivated Entrepreneurship)

Effect of human, financial, and social capital on entrepreneurship: the interaction of economic freedom (Odds ratio).

| | Necessity-Motivated Entrepreneurship | | | | | |
|-----------------------------------|--------------------------------------|----------------|----------------|----------------|----------------|----------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Fixed part estimates | | | | | | |
| Individual-level (level 1) | | | | | | |
| Age | | 1.10*** (0.01) | 1.10*** (0.01) | 1.10*** (0.01) | 1.10*** (0.01) | 1.10*** (0.01) |
| Age (squared) | | 1.00*** (0.00) | 1.00*** (0.00) | 1.00*** (0.00) | 1.00*** (0.00) | 1.00*** (0.00) |
| Female | | 0.83*** (0.02) | 0.83*** (0.02) | 0.83*** (0.02) | 0.83*** (0.02) | 0.83*** (0.02) |
| Bachelors | | 0.77*** (0.02) | 0.77*** (0.02) | 0.77*** (0.02) | 0.15*** (0.24) | 0.77*** (0.02) |
| Financial capital | | 0.71*** (0.02) | 0.71*** (0.02) | 0.74 (0.23) | 0.72*** (0.02) | 0.71*** (0.02) |
| Self-efficacy | | 3.79*** (0.02) | 3.79*** (0.02) | 3.79*** (0.02) | 3.79*** (0.02) | 3.79*** (0.02) |
| Opportunity recognition | | 1.27*** (0.02) | 1.27*** (0.02) | 1.27*** (0.02) | 1.27*** (0.02) | 1.27*** (0.02) |
| Fear of failure | | 0.87*** (0.02) | 0.87*** (0.02) | 0.87*** (0.02) | 0.87*** (0.02) | 0.87*** (0.02) |
| Social capital | | 1.71*** (0.02) | 1.71*** (0.02) | 1.71*** (0.02) | 1.71*** (0.02) | 0.46*** (0.21) |
| Country-level (level 2) | | | | | | |
| GDP (log) | | 0.64*** (0.04) | 0.59*** (0.05) | 0.59*** (0.05) | 0.60*** (0.05) | 0.59*** (0.05) |
| Population (log) | | 1.03 (0.05) | 1.03 (0.05) | 1.03 (0.05) | 1.03 (0.05) | 1.03 (0.05) |
| Economic freedom (EF) | | | 1.17* (0.07) | 1.18* (0.07) | 1.09 (0.07) | 1.05 (0.07) |
| Moderating effects | | | | | | |
| Financial capital x EF | | | | 1.00 (0.03) | | |
| Human capital x EF | | | | | 1.25*** (0.03) | |
| Social capital x EF | | | | | | 1.20*** (0.03) |
| Random part estimates | | | | | | |
| Number of observations | 1,117,236 | 684,726 | 684,726 | 684,726 | 684,726 | 684,726 |
| Number of groups | 50 | 45 | 45 | 45 | 45 | 45 |
| Variance of random intercept | 0.952 | 0.324 | 0.306 | 0.306 | 0.306 | 0.307 |
| % of variance, ρ | 22.4 | 8.9 | 8.5 | 8.5 | 8.5 | 8.5 |
| Model fit statistics | | | | | | |
| Degrees of freedom | 13 | 24 | 25 | 28 | 28 | 28 |
| Prob > χ^2 | *** | *** | *** | *** | *** | *** |
| Log Likelihood | -79,053.44 | -55,809.19 | -55,806.51 | -55,806.50 | -55,783.58 | -55,785.88 |
| AIC ^a | 158,110.90 | 111,664.40 | 111,661.00 | 111,663.00 | 111,617.10 | 111,621.80 |
| LR test of $\rho=0$ ^b | *** | *** | *** | *** | *** | *** |
| LR test of model fit ^c | --- | --- | --- | * | * | * |

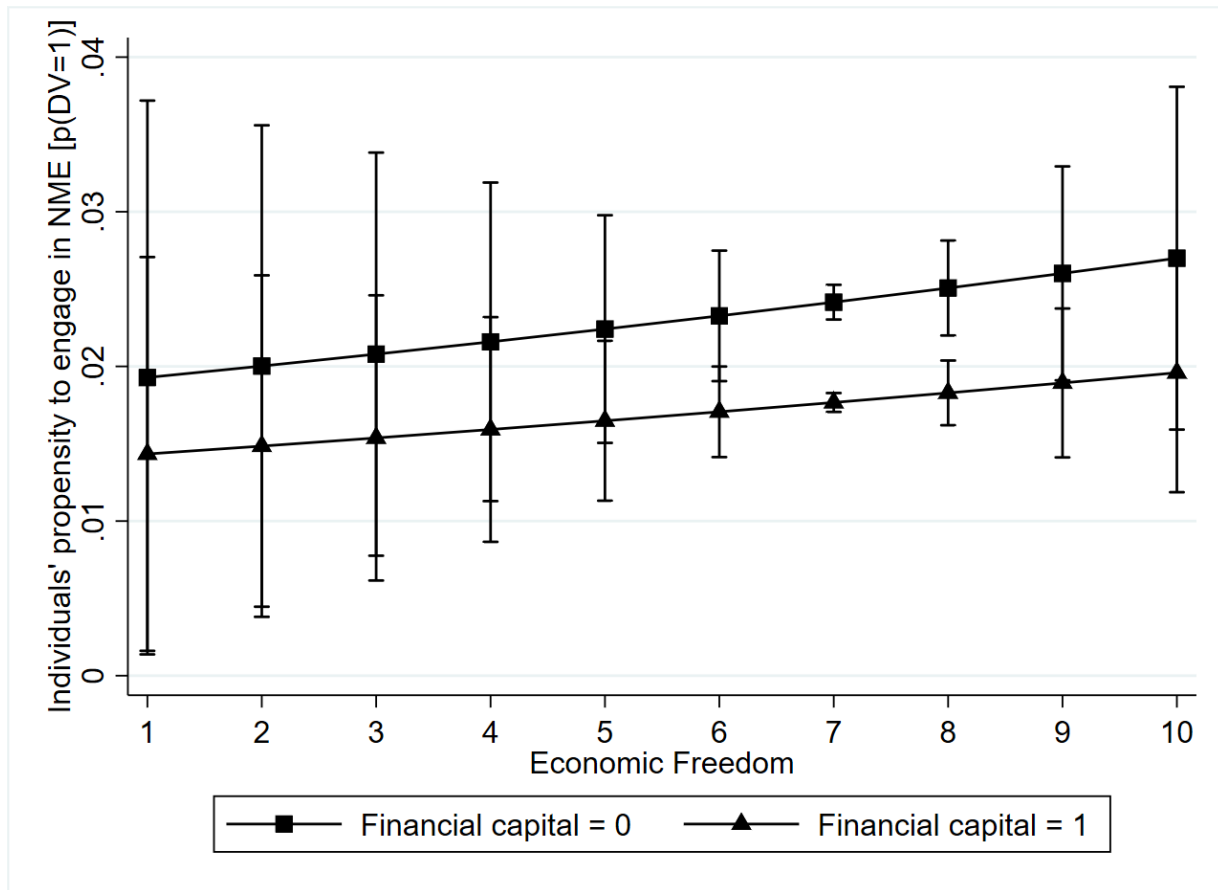
Notes: Standard errors in parentheses. ***p<0.001; **p<0.01; *p<0.05, two-tailed tests. Estimates are represented as odds ratio (OR). OR>1 represents a positive relationship and OR<1 represents a negative relationship.

^aAIC is Akaike's information criterion = 2k-2 x (log likelihood), where k denotes the degrees of freedom (number of predictors in the model).

^bStatistically significant (p<0.001). LR test of $\rho=0$ confirms that country-level variance component is important.

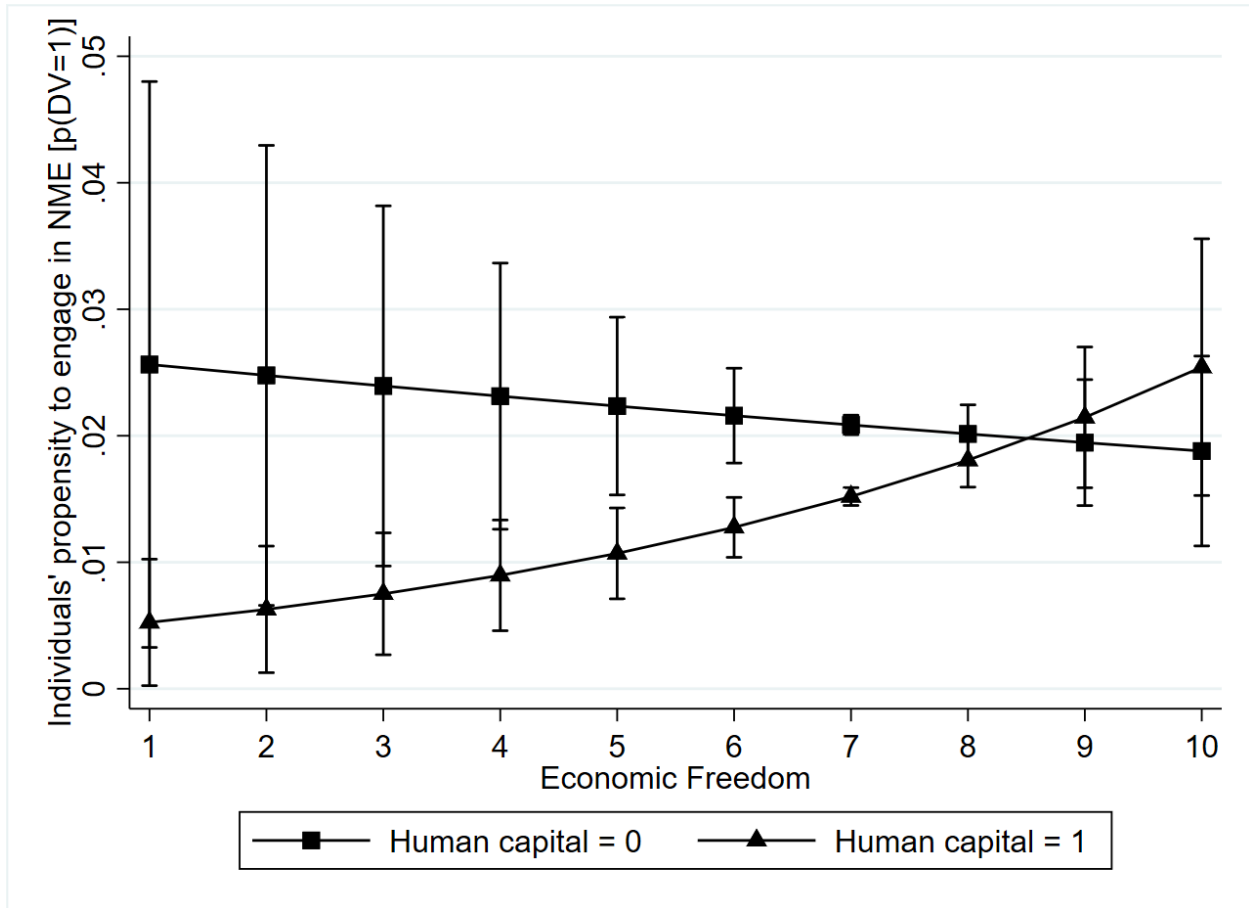
^cLR test performed between Models 3 and either Model 4, Model 5, or Model 6 using maximum-likelihood estimates (MLE).

Appendix Figure 1. (Necessity-Motivated Entrepreneurship). The interaction between country-level economic freedom and individual-level financial capital on necessity-motivated entrepreneurship (NME).



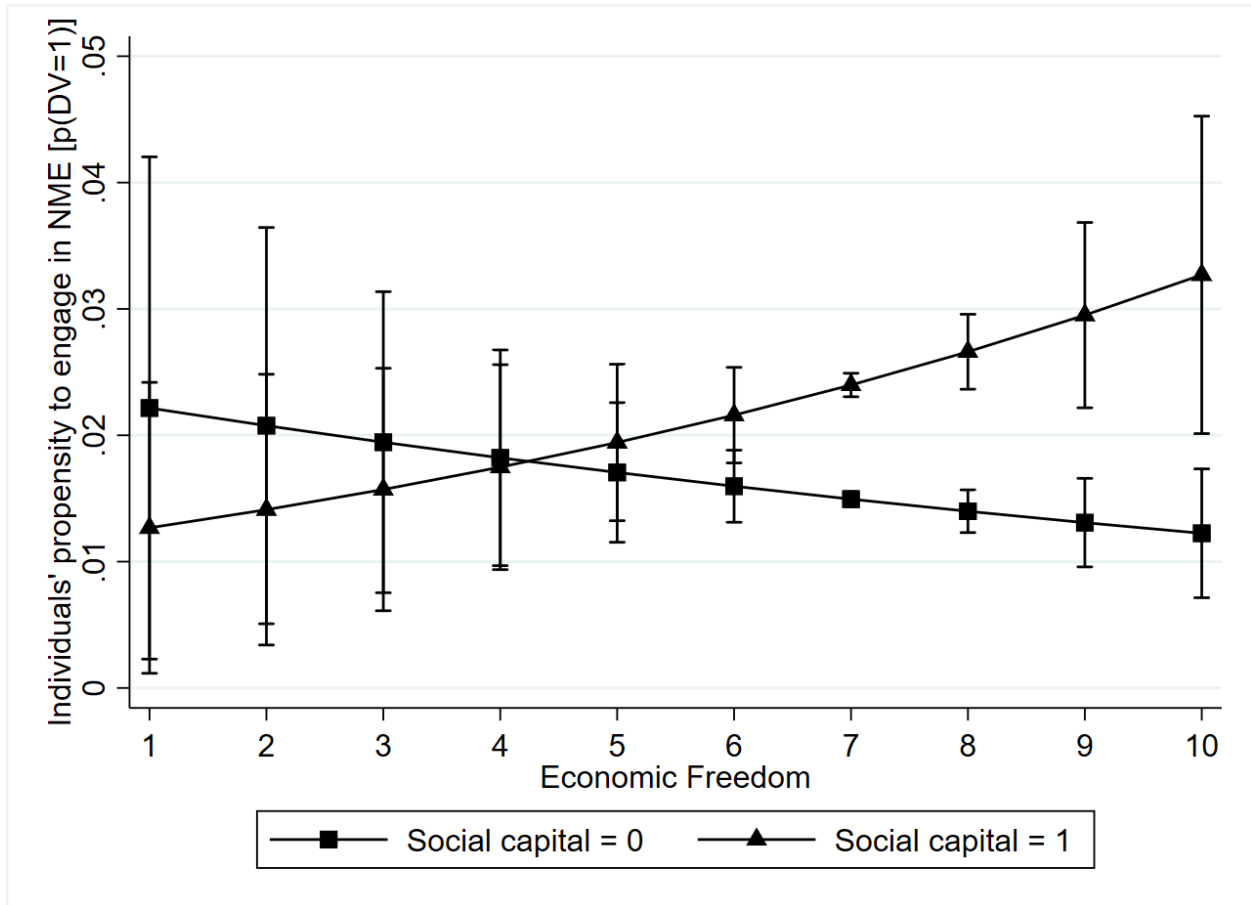
Note. Financial Capital =1 if an individual’s household income is in the highest tercile and 0 otherwise. Economic Freedom is measured by the Fraser Institute’s Economic Freedom of the World index. 95% confidence intervals reported.

Appendix Figure 2. (Necessity-Motivated Entrepreneurship). The interaction between country-level economic freedom and individual-level human capital on necessity-motivated entrepreneurship (NME).



Note. Human Capital =1 if an individual has a college education or higher and 0 otherwise. Economic Freedom is measured by the Fraser Institute’s Economic Freedom of the World index. 95% confidence intervals reported.

Appendix Figure 3. (Necessity-Motivated Entrepreneurship). The interaction between country-level economic freedom and individual-level social capital on necessity-motivated entrepreneurship (NME).



Note. Social Capital =1 if an individual knows someone who has created a business in the past two years and 0 otherwise. Economic Freedom is measured by the Fraser Institute's Economic Freedom of the World index. 95% confidence intervals reported.

Nascent Entrepreneurship

Appendix Table 2. (Nascent Entrepreneurship)

Effect of human, financial, and social capital on nascent entrepreneurship: the interaction of economic freedom (Odds ratio).

| | Nascent Entrepreneurship | | | | | |
|-----------------------------------|--------------------------|-----------------|-----------------|----------------|----------------|----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Fixed part estimates | | | | | | |
| Individual-level (level 1) | | | | | | |
| Age | | 1.060***(0.00) | 1.060***(0.00) | 1.060***(0.00) | 1.061***(0.00) | 1.060***(0.00) |
| Age (squared) | | 0.999***(0.00) | 0.999***(0.00) | 0.999***(0.00) | 0.999***(0.00) | 0.999***(0.00) |
| Female | | 0.775***(0.01) | 0.775** (0.01) | 0.775***(0.01) | 0.775***(0.01) | 0.775***(0.01) |
| Financial capital | | 0.962* (0.02) | 0.961 (0.02) | 0.961* (0.02) | 2.631***(0.51) | 0.962* (0.02) |
| Self-efficacy | | 4.791***(0.08) | 4.789***(0.08) | 4.789***(0.08) | 4.791***(0.08) | 4.792***(0.08) |
| Opportunity recognition | | 1.958***(0.02) | 1.956***(0.02) | 1.956***(0.02) | 1.956***(0.02) | 1.956***(0.02) |
| Fear of failure | | 0.652***(0.01) | 0.652***(0.01) | 0.652***(0.01) | 0.653***(0.01) | 0.653***(0.01) |
| Social capital | | 1.907***(0.02) | 1.907***(0.02) | 1.907***(0.02) | 1.906***(0.02) | 1.028 (0.16) |
| Human capital | | 1.14*** (0.013) | 1.14*** (0.013) | 1.159 (0.18) | 1.139***(0.01) | 1.140***(0.01) |
| Country-level (level 2) | | | | | | |
| GDP (log) | | 0.767***(0.02) | 0.699***(0.03) | 0.699***(0.03) | 0.698***(0.03) | 0.699***(0.03) |
| Population (log) | | 0.929***(0.03) | 0.934***(0.03) | 0.934 (0.03) | 0.937 (0.03) | 0.935 (0.03) |
| Economic freedom (EF) | | | 1.199***(0.05) | 1.200***(0.05) | 1.361***(0.07) | 1.134** (0.05) |
| Moderating effects | | | | | | |
| Human capital x EF | | | | 0.998 (0.02) | | |
| Financial capital x EF | | | | | 0.873***(0.02) | |
| Social capital x EF | | | | | | 1.086***(0.02) |
| Random part estimates | | | | | | |
| Number of observations | 1173002 | 729172 | 729172 | 729172 | 729172 | 729172 |
| Number of countries | 50 | 45 | 45 | 45 | 45 | 45 |
| Variance of random intercept | 0.696 | 0.378 | 0.37 | 0.37 | 0.369 | 0.369 |
| % of variance, ρ | 0.128 | 0.0415 | 0.0399 | 0.0399 | 0.0398 | 0.0398 |
| Model fit statistics | | | | | | |
| Degrees of freedom ^a | 13 | 23 | 24 | 28 | 28 | 28 |
| Prob > χ^2 | *** | *** | *** | *** | *** | *** |
| Log-likelihood | -171498 | -112331 | -112331 | -112322 | -112309 | -112314 |
| AIC ^b | 343019.922 | 226659 | 226644 | 224694.3 | 224667.2 | 224678.3 |
| LR test of $\rho=0$ ^c | *** | *** | *** | *** | *** | *** |
| LR test of model fit ^d | --- | --- | --- | * | * | * |

Notes: Standard errors in parentheses. ***p<0.001; **p<0.01; *p<0.05, two-tailed tests. Estimates are represented as odds ratio (OR). OR>1 represents a positive relationship and OR<1 represents a negative relationship.

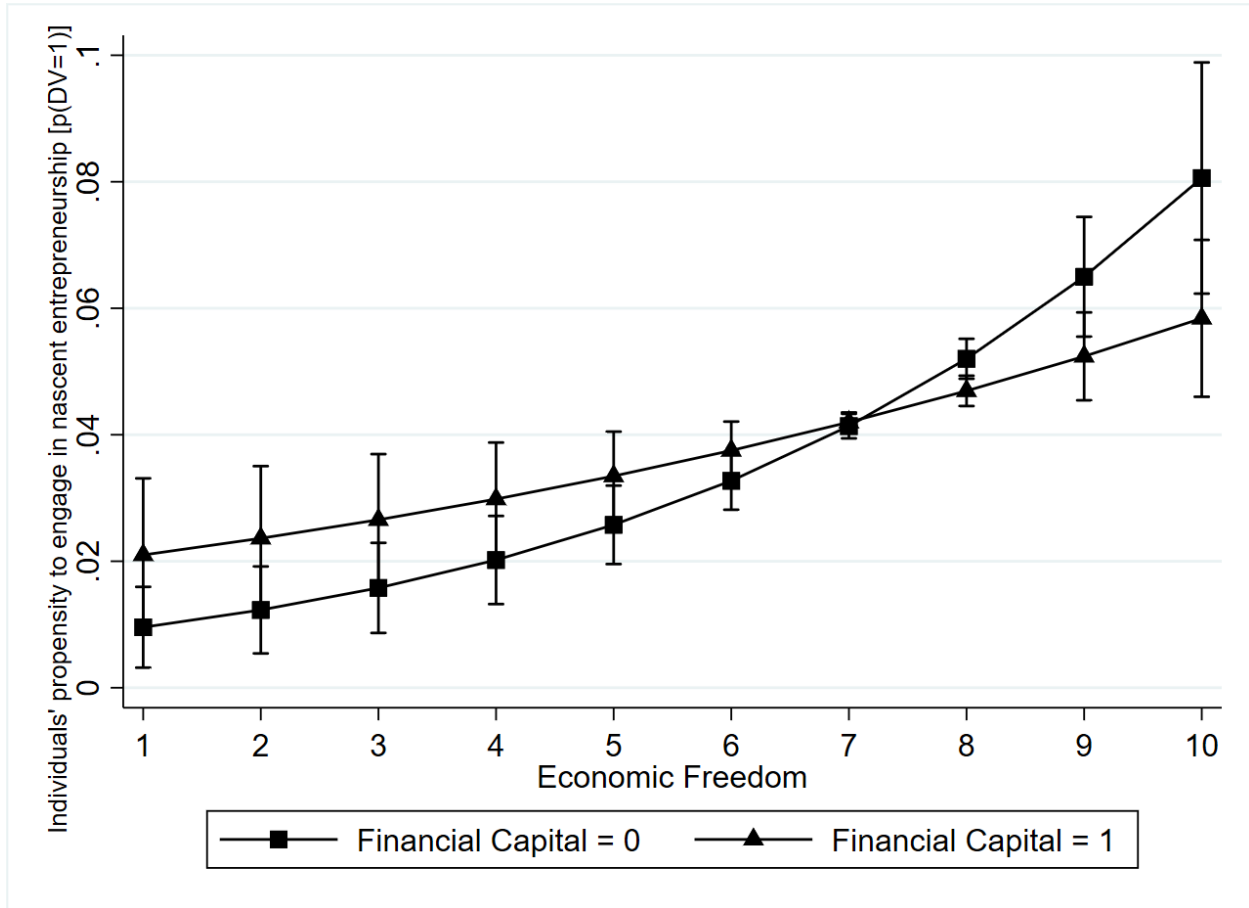
^a the degrees of freedom include year fixed effects (2002-2012), a constant term (intercept), and a random intercept (country-level).

^bAIC is Akaike's information criterion = 2k-2 x (log likelihood), where k denotes the degrees of freedom (number of predictors in the model).

^cStatistically significant (p<0.001). LR test of $\rho=0$ confirms that country-level variance component is important.

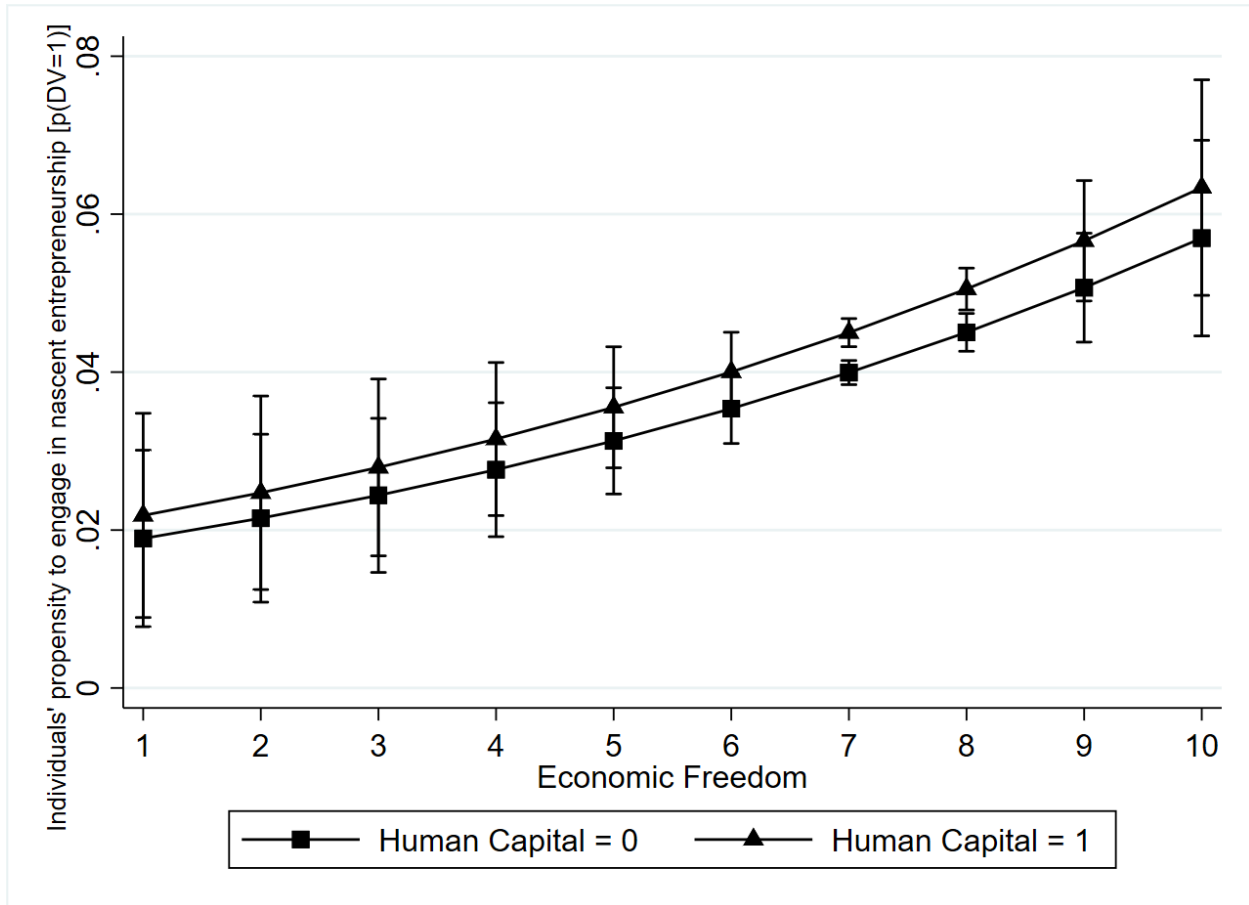
^dLR test performed between Models 3 and either Model 4, Model 5, or Model 6 using maximum-likelihood estimates (MLE).

Appendix Figure 4. (Nascent Entrepreneurship). The interaction between country-level economic freedom and individual-level financial capital on nascent entrepreneurship.



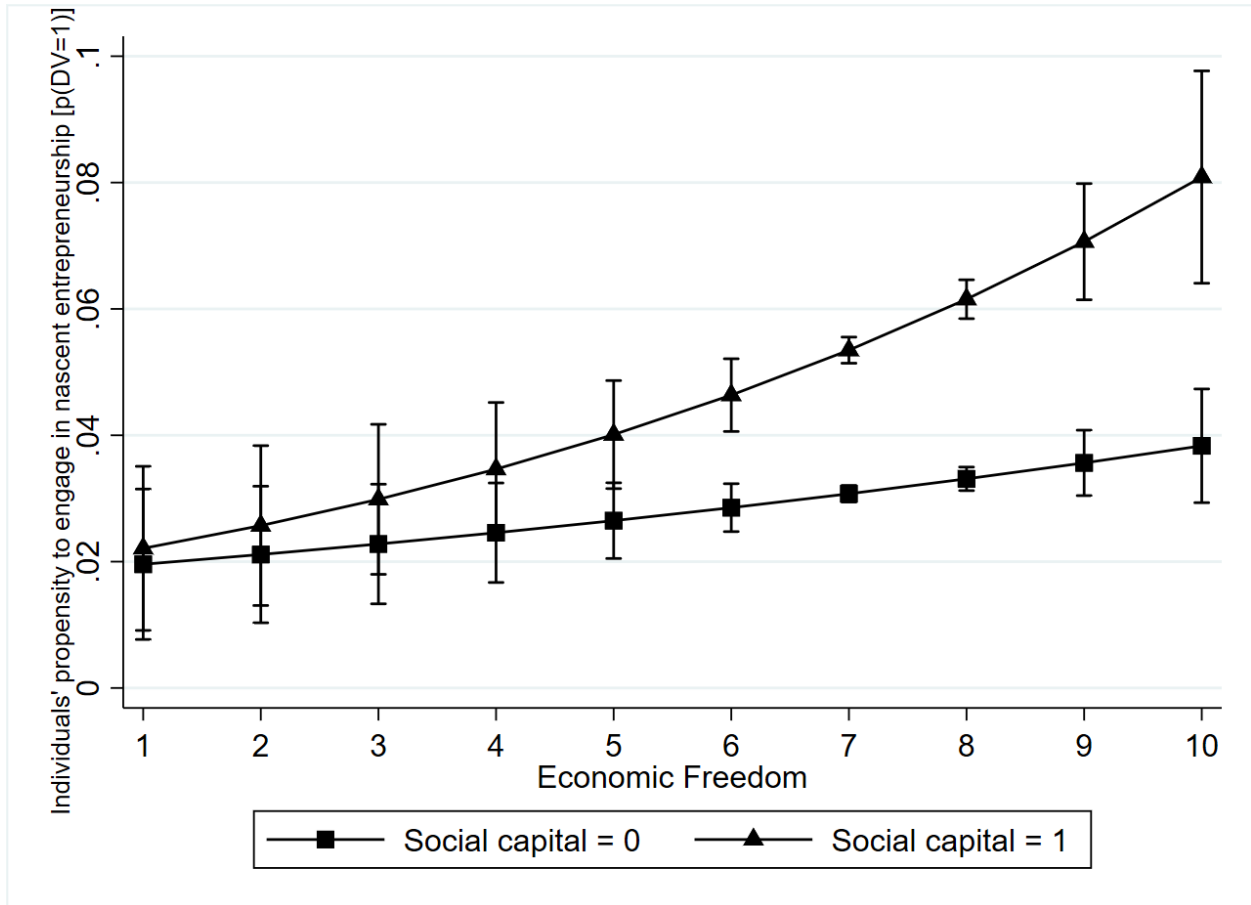
Note. Financial Capital =1 if an individual’s household income is in the highest tercile and 0 otherwise. Economic Freedom is measured by the Fraser Institute’s Economic Freedom of the World index. 95% confidence intervals reported.

Appendix Figure 5. (Nascent Entrepreneurship). The interaction between country-level economic freedom and individual-level human capital on nascent entrepreneurship.



Note. Human Capital =1 if an individual has a college education or higher and 0 otherwise. Economic Freedom is measured by the Fraser Institute’s Economic Freedom of the World index. 95% confidence intervals reported.

Appendix Figure 6. (Nascent Entrepreneurship). The interaction between country-level economic freedom and individual-level social capital on nascent entrepreneurship.



Note. Social Capital =1 if an individual knows someone who has created a business in the past two years and 0 otherwise. Economic Freedom is measured by the Fraser Institute's Economic Freedom of the World index. 95% confidence intervals reported.