

Bade, Marco

Article — Published Version

Conversion and contagion in entrepreneurship: A cross-country analysis

Strategic Entrepreneurship Journal

Provided in Cooperation with:

John Wiley & Sons

Suggested Citation: Bade, Marco (2021) : Conversion and contagion in entrepreneurship: A cross-country analysis, Strategic Entrepreneurship Journal, ISSN 1932-443X, John Wiley & Sons, Ltd, Chichester, UK, Vol. 16, Iss. 1, pp. 207-239, <https://doi.org/10.1002/sej.1412>

This Version is available at:

<https://hdl.handle.net/10419/264520>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/4.0/>

RESEARCH ARTICLE



WILEY

Conversion and contagion in entrepreneurship: A cross-country analysis

Marco Bade

Department of Finance and Investment,
Technische Universität Berlin, Berlin,
Germany

Correspondence

Marco Bade, Department of Finance and
Investment, Technische Universität Berlin,
Sec. H 64, Straße des 17. Juni 135, 10623
Berlin, Germany.
Email: marco.bade@tu-berlin.de

Abstract

Research Summary: Consistent with the theories of planned behavior and social contagion, this study is based on the notion that entrepreneurial intentions affect entrepreneurial behavior (“conversion channel”), which in turn affects others’ intentions (“contagion channel”). GMM estimation results of a simultaneous equation model suggest that entrepreneurial intentions and new business ownership are reciprocally related. The conversion channel appears to be the stronger force in the relationship. Additional moderator analyses suggest that environmental munificence, as expressed by regulatory quality, advanced stage of the economy, and economic growth strengthen, whereas the GDP level weakens the relationship. Furthermore, entrepreneurial perceptions, exits, and knowing other entrepreneurs promote the conversion channel but mitigate the contagion channel. These findings yield implications relevant for research and policy makers.

Managerial Summary: A positive feedback loop in the economy is a situation where two events reinforce each other. In such situation, small and random changes in the economy, such as policy changes or economic shocks, are magnified. This study shows that there is a positive feedback loop in entrepreneurship between entrepreneurial intentions and behavior: individuals’ entrepreneurial intention determines actual entrepreneurial behavior, which in turn encourages others to develop entrepreneurial intentions. The positive

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. *Strategic Entrepreneurship Journal* published by John Wiley & Sons Ltd on behalf of Strategic Management Society.

feedback loop is strengthened by environmental munificence, weakened by living standards, and ambiguously affected by entrepreneurial perceptions, experience, and networks. These findings deepen our understanding of how startup hotspots emerge, emphasize the importance of accounting for structural influences, and contribute to the discussion on cross-country variation in entrepreneurial activity.

KEYWORDS

conversion, entrepreneurial intentions, new business ownership, social contagion, theory of planned behavior

1 | INTRODUCTION

Two highly relevant questions in entrepreneurship research are: (a) what makes individuals develop entrepreneurial intentions, and (b) what encourages them to turn intentions into behavior? The study of these questions has led to the development of two growing lines of entrepreneurship research based on two different theories. Concerning the second question, researchers argue that nascent or latent entrepreneurship determines actual entrepreneurship. Essentially, this idea is based on the theory of planned behavior proposed by Ajzen (1991). Individual preferences and attitudes toward entrepreneurship shape individuals' intentions, which may eventually translate into actual behavior. This suggests that entrepreneurial intentions precede new business ownership in the order of entrepreneurial engagement levels, and that intention is the best predictor of behavior (e.g., Grilo & Irigoyen, 2006; Grilo & Thurik, 2005; Krueger Jr., Reilly, & Carsrud, 2000; van Stel, Storey, & Thurik, 2007). Concerning the first question posed above, previous research suggests the existence of peer effects in entrepreneurship (e.g., Andersson & Larsson, 2016; Anglin, McKenny, & Short, 2018; Nanda & Sørensen, 2010; Qin & Estrin, 2015) based on the theory of social contagion (e.g., Burt, 1987; Schoenewolf, 1990). The basic idea is that people adapt to their environment and become who they are surrounded with (Nikolaev & Wood, 2018).

Given that intentions precede behavior, and that this in turn may have contagious effects on others' entrepreneurial intentions, there seems to be a dual link: individuals' entrepreneurial intention determines actual entrepreneurial behavior (conversion channel), which in turn encourages others to develop entrepreneurial intentions (contagion channel). The idea of positive feedback loops in the economy goes back to Arthur (1989, 1990), who argues that positive feedback results from increasing returns and magnifies the effect of small, random occurrences in the economy. Examining positive feedback between intentions and behavior in the entrepreneurship context, and the underlying mechanisms may provide novel insights into the emergence of startup hotspots, such as the Silicon Valley and Route 128 (e.g., Kenney & Von Burg, 1999), or, more recently, London, Paris, and Berlin as Europe's startup capitals (e.g., Nepelski, Piroli, & De Prato, 2016; Statista, 2020). Hence, investigating both channels of the dual link is of theoretical and empirical interest. On one hand, it is important to theoretically understand how startup hotspots emerge. On the other hand, it may be interesting to quantify the relative importance of the two links.

The economic importance of this topic arises from the fact that the presence of mutual effects reinforces or multiplies each and every influence from third factors resulting from, for example, shocks in the entrepreneurship landscape or policy changes (e.g., Andersson & Larsson, 2016; Glaeser, Sacerdote, & Scheinkman, 2003). The reciprocity of the relationship suggests that intentions and behavior are not only directly related but also indirectly, as they affect each other with each and every cycle through the described theoretical feedback loop. Suppose, for example,

changes in the environment affect entrepreneurial intentions. This will be directly passed on to entrepreneurial behavior through the conversion channel, which in turn affects others' intentions through the contagion channel. This suggests that an increasing rate of entrepreneurial intentions will be associated with feedback to itself, which will start the feedback cycle again, such that the total strength of the intentions–behavior link (conversion channel) will be substantially different from the initial direct part of the link. The same applies to the behavior–intentions link (contagion channel). Policy makers as well as researchers should consider this when analyzing the influence of shocks or policy changes on entrepreneurial activity. Despite its relevance, the positive feedback loop between intentions and behavior in entrepreneurship has been fairly overlooked in the literature.

To address this research gap, this study uses data from multiple sources and applies the generalized methods of moments (GMM), which is a particularly suitable approach in panel data research and for simultaneous equation models to deal with endogeneity. The analysis suggests the existence of a reciprocal relationship between entrepreneurial intentions and new business ownership. As is typical in research on peer effects, however, the possibility that the behavior–intentions link is caused by homophily, self-selection, or confounding factors cannot be excluded. This means that this study faces a reflection problem in the sense of Manski (1993), which occurs when trying to predict individual behavior using the behavior of a group that includes the focal individual. Without experimental data, omitted variables as a source of endogeneity always is an issue in the analysis of peer effects. Therefore, the results are to be understood as suggestive evidence.¹

To determine whether the relationship between entrepreneurial intentions and behavior depends on third factors, and therefore to better understand what drives the positive feedback loop, this study performs moderator analyses. It is conceivable that structural influences, for example, the quality of regulation in the private sector or living standards, may influence the relationship between intentions and behavior. Similarly, entrepreneurial perceptions, past experiences, and the presence of role models may affect the strength of the relationship. In fact, the results indicate that a favorable economic environment has a rather positive influence on the relationship except for GDP as a proxy for living standards, which weakens the relationship. In contrast, entrepreneurial perceptions, exits, and knowing other entrepreneurs ambiguously affect the relationship, as they promote the conversion of latent entrepreneurs to actual ones but mitigate social contagion.

To the best of my knowledge, there are no attempts in the literature simultaneously considering both links between intentions and behavior in entrepreneurship. Thus, this study sheds new light on the dynamics of the entire relationship and the relative strength of the two channels. The moderator analyses represent another contribution to the literature on contagion and conversion in entrepreneurship, as the results offer insights into the mechanisms constituting the relationship. After all, this study contributes to the discussion about potential catalysts of entrepreneurial activity.

The remainder of the article is organized as follows. Section 2 presents the theories of planned behavior and social contagion, and, in addition, the conceptualization of conversion and contagion based on the two theories. Section 3 develops the hypotheses. Section 4 outlines the empirical setting, including the data and variables, the simultaneous equation model, and the estimation method. Section 5 presents the results of the main model and the moderator analyses as well as some additional post hoc analyses. Section 6 discusses the results, derives implications for academic research and policy makers, and discusses limitations of the study. Section 7 concludes the article.

2 | THEORY

2.1 | Theory of planned behavior

The theory of planned behavior is a psychological theory establishing a connection between intentions and behavior. It is an extension of the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The basic idea of the theory of planned behavior is that humans' behavioral intention determines their actual behavior, while

attitude toward that particular behavior, subjective norms as well as perceived behavioral control determine humans' intention (Ajzen, 1991). The theory of planned behavior assumes that human beings usually behave in a sensible manner. This means that they make use of all available information and take into account the implications of their actions either implicitly or explicitly. Consequently, the performance of a specific behavior depends on the intention to perform such behavior (Ajzen & Fishbein, 1980; Nishimura & Tristán, 2011).

Since the late 1980s, there is a growing body of literature on entrepreneurial intentions as the first step in the process of new business creation. Most commonly, studies in this stream of research employ the theory of planned behavior as the theoretical framework (e.g., Autio, Keeley, Klofsten, Parker, & Hay, 2001; Bird, 1988; Gieure, del Mar Benavides-Espinosa, & Roig-Dobón, 2020; Kautonen, van Gelderen, & Fink, 2015; Kautonen, van Gelderen, & Tornikoski, 2013; Kolvereid, 1996; Krueger Jr. et al., 2000; Nishimura & Tristán, 2011; Tkachev & Kolvereid, 1999; van Gelderen et al., 2008). In the entrepreneurship context, the rationale is that preferences and attitudes toward entrepreneurship shape individual intentions, which may eventually translate into actual entrepreneurial behavior. Accordingly, entrepreneurial intention appears to be the best predictor of entrepreneurial activity (Krueger Jr. et al., 2000). In other words, entrepreneurial intentions naturally precede new business ownership in the order of entrepreneurial engagement levels (van Stel et al., 2007).

2.1.1 | Conceptualization of conversion

Conceptually, the translation of entrepreneurial intentions into new business ownership involves two levels of entrepreneurial engagement: intention and behavior. Consistent with the theory of planned behavior and evidence from previous related research,² the rate of entrepreneurial intentions should be positively related to the rate of new business ownership, which represents entrepreneurial behavior. This part of the relationship between entrepreneurial intentions and behavior, the intentions–behavior link, is eventually based on the conversion of latent entrepreneurs into actual entrepreneurs.

While the concept of conversion has been developed as an individual-level phenomenon, in this study I examine country-level data. Consequently, conversion is captured on the macro level and therefore does not directly measure an individual's probability to convert. As pointed out by van Stel et al. (2007), a higher conversion rate means that a higher proportion of individuals, who aim to become entrepreneurs, actually complete setting up a business. This conversion interpretation is somewhat problematic because cross-country-based entrepreneurship surveys like the Global Entrepreneurship Monitor do not follow individuals over time (see also Sternberg & Wennekers, 2005). However, in line with van Stel et al. (2007), it is argued that it is likely that strong statistical associations between macro-level entrepreneurship rates imply strong statistical associations at the individual level. Therefore, conversion as conceptualized in this study may be a reasonable proxy for the individual-level chances of conversion.

2.2 | Theory of social contagion

The idea of the theory of social contagion in the entrepreneurship context is that entrepreneurial behavior or new business ownership influences entrepreneurial intentions of others. In essence, this revolves around theories proposing that entrepreneurs are shaped by social influences and collective social processes. Anglin et al. (2018) comprehensively explain the concept of social contagion as follows: individuals use others' emotions, beliefs, or behaviors as information signals that potentially make them to think or act in the same or in a similar way (see also Angst, Agarwal, Sambamurthy, & Kelley, 2010; Burt, 1987; Schoenewolf, 1990).

The underlying mechanisms of social contagion have two different types. First, there are individual mechanisms. These work through social ties and the observation of others' behaviors. Better connected individuals are more influential than less connected ones (Iyengar, van den Bulte, & Valente, 2011). Second, there are collective mechanisms,

such as mass media sources (television, newspapers, social media, etc.) and normative pressure related to conformity and homophily (Aral & Walker, 2011; Coleman, 1988; Jackson, 2008). The collective mood of individuals is seen as an important driver of social trends (Olson, 2006). Individual and collective mechanisms operate together but are almost impossible to observe by researchers.

Social contagion can occur if three conditions are satisfied. First, there must be exposure to the contagious belief or behavior (Meade & Roediger, 2002). This means that individuals observe others' behavior either directly (e.g., within one's network) or indirectly. The latter means that the behavior is observable via the mass media (Angst et al., 2010; Strang & Soule, 1998). Second, individuals must be able to change their belief or behavior (e.g., Angst et al., 2010). Third, there must be similarities between the adopters and the originators of the belief or behavior (e.g., Scherer & Cho, 2003). These similarities concern, for example, risk perceptions and career or socioeconomic status, and make the potential adopter compare her situation with that of the originator. The comparison gives the potential adopter a reason to consider the adoption of the originator's belief or behavior (Marsden, 1998).

2.2.1 | Conceptualization of contagion

The above descriptions of social contagion suggest that the concept of social contagion is not limited to small entities. Instead, it might cascade beyond the boundaries of smaller networks and spill over to individuals outside the network or ecosystem, for example, via mass media or countrywide social norms. This suggests that higher numbers of former and active entrepreneurs might encourage further entrepreneurial activity beyond the regional level. In fact, cascades in human behavior can take place automatically and implicitly (Frith & Frith, 2012). This does not even require personal ties between people (Nikolaev & Wood, 2018). Indeed, this is how contagion is considered in the study. It is analyzed on a level without the necessary presence of social ties, which has rarely been studied in the entrepreneurship-contagion literature. In particular, this study takes a country-level perspective. Certainly, contagion should be most relevant at the regional level or within groups where people have social ties with each other. However, considering the above arguments, it is well conceivable that contagion might also be observable on the countrywide level.³

Concerning the engagement level, this study focuses on contagion from behavior, that is, engagement in a startup, to entrepreneurial intentions. Thus, it involves the same engagement levels as conversion. Given the considerations on the natural ordering in engagement levels in the previous section, entrepreneurial behavior does not directly induce other people to start a new firm, but makes them develop entrepreneurial intentions first. Therefore, contagion as considered in this study concerns the influence of actual entrepreneurial behavior on entrepreneurial intentions of others. This conceptualization allows the necessary conditions of social contagion and planned behavior to be satisfied. First, entrepreneurial behavior (of people within the same country) is observable both directly through social ties and indirectly through the mass media. Second, individuals are able to develop entrepreneurial intentions resulting from changes in their beliefs. Third, there should also be enough potential similarities among individuals (e.g., at the attitudinal level toward entrepreneurship) within the population of a country.

After all, the country-level new business ownership rate is conceptualized as the main influential unit that may cause contagion. In particular, the analysis considers the influence of the new business ownership rate on entrepreneurial intentions to capture social contagion. This behavior-intentions link is the second part of the relationship between intentions and new business ownership.

2.2.2 | Note on peer effects

Social contagion is not the only mechanism through which peer effects arise. Following Manski (1993), three explanations are possible if the behavior, states, and characteristics of socially tied individuals are found to be correlated.

First, individuals within a social group may have influenced each other, which is the explanation that research on social contagion usually aims for. Second, individuals' behaviors are correlated because persons may self-select into groups of similar people. This phenomenon is sometimes referred to as homophily. If individuals choose a location at which they interact with peers, such as a firm or other social group, it is difficult to distinguish between selection effects and actual peer effects. Third, there could be some shared environmental factor that influences the behavior of individuals in that group, so that their behaviors are correlated. In Section 6, the three explanations of peer effects will be revisited and discussed in more detail.

3 | HYPOTHESES

3.1 | Reciprocal relationship

Taken together, the theories of planned behavior and social contagion suggest that there may be a dual link or reciprocal relationship between entrepreneurial intentions and new business ownership. Entrepreneurial intentions naturally precede new business ownership, while there may be contagion from new business ownership to others' entrepreneurial intentions. Considering macro-level rates of new business ownership and entrepreneurial intentions, the following is hypothesized:

Hypothesis 1. *Entrepreneurial intention and new business ownership rates are reciprocally related, such that*

- a. *the share of people stating entrepreneurial intentions positively influences the share of people owning a new business, and*
- b. *the share of people owning a new business positively influences the share of people stating entrepreneurial intentions.*

The intentions–behavior link may be labeled the conversion channel, while the behavior–intentions link may be labeled the contagion channel.

3.2 | Moderators

A comprehensive literature-based overview on what may affect or moderate the relationship between entrepreneurial intentions and behavior is provided in Table 1.

From this literature review, it appears that there are two important groups of variables that may be predictors of intentions and behavior, and affect the relationship: first, environmental conditions, and, second, entrepreneurial perceptions, experience, and networks. Therefore, this study focuses on potential moderators from these two main groups.

3.2.1 | Environmental munificence

Environmental conditions are important drivers of new business creation (Drucker, 1985; Kirzner, 1973; Shane & Venkataraman, 2000). Economic, technological, social and demographic, political, institutional or regulatory changes disrupt the competitive equilibrium in the market or industry, and give rise to competitive imperfections, which may be seized by entrepreneurs (Shane, 2003). Favorable environmental conditions may be interpreted as environmental

TABLE 1 Literature on the relationship between entrepreneurial intentions and behavior

Group of factors	Study	Relevant finding	Channel
Environment (economic, institutional, environmental dynamism, etc.)	Grilo and Thurik (2005); Grilo and Irigoyen (2006)	Lack of financial support is positively or not related to latent entrepreneurship; administrative complexities are negatively related to both latent and actual entrepreneurship.	Conversion
	van Stel et al. (2007)	Minimum capital required to start a business and labor market regulations lower nascent and actual entrepreneurship rates.	Conversion
	Hunt (2015)	Institutional munificence in the nascent sector may invite aimless entry of incoherent, poorly performing, and failing firms, which may cause social costs.	Contagion
	Shirokova, Osiyevskyy, and Bogatyreva (2016)	Favorable university entrepreneurial environment strengthens the link between entrepreneurial intentions and behavior of students.	Conversion
	Anglin et al. (2018)	Collective entrepreneurial optimism and venture creation and growth are curvilinearly related. Environmental dynamism strengthens the relationship.	Contagion
Perceptions, attitude, experience, networks/role models	Nanda and Sørensen (2010)	Coworkers with entrepreneurial experience increase <ul style="list-style-type: none"> the likelihood that individuals will perceive entrepreneurial opportunities to start a new business. other individuals' motivation to follow up on those opportunities. Contagion effects are strongest for those who have less exposure to entrepreneurship in other aspects of their lives.	Contagion
	Neneh (2019a)	Anticipated regret and proactive personality strengthen the relationship between entrepreneurial intentions and behavior.	Conversion
	Neneh (2019b)	Proactive personality strengthens the relationship between entrepreneurial intentions and behavior.	Conversion
	Weiss, Anisimova, and Shirokova (2019)	Relationship between intention and behavior is <ul style="list-style-type: none"> weakened by regional hierarchy values as a form of cognitive regional social capital. strengthened by regional cultural diversity and regional breadth of associational activity as a form of structural regional capital. strengthened by high levels of regional generalized trust as a form of relational regional social capital. 	Conversion
	Gieure et al. (2020)	Individuals show an attitude toward starting a business when they have the knowledge or capacity (entrepreneurial skills) to start a business.	Conversion

(Continues)

TABLE 1 (Continued)

Group of factors	Study	Relevant finding	Channel
Environment and perceptions	Ma et al. (2020)	Business and political networks are positively related to opportunity identification. Entrepreneurial passion weakens the relationship between business networks and opportunity identification, but strengthens the relationship between political networks and opportunity identification. Entrepreneurial alertness strengthens the relationship between business networks and opportunity identification.	Contagion
	Türk, Zapkau, and Schwens (2020)	Prior entrepreneurial exposure is positively related to entrepreneurial passion. Medium to high levels of learning orientation strengthen the relationship.	Contagion
	Edelman and Yli-Renko (2010)	Opportunity perceptions mediate between objective environmental characteristics and entrepreneurial efforts to start a new business.	Conversion
Demography	Shirokova et al. (2016)	Family entrepreneurial background, age (being older), gender (being a man) strengthen the link between entrepreneurial intentions, and behavior of students.	Conversion
Cognitive mechanisms	Nikolaev and Wood (2018)	Men and younger respondents are more exposed to contagion from other self-employed people, as they are more inclined to state entrepreneurial intentions.	Contagion
	Zollo, Rialti, Tron, and Ciappei (2021)	Linear thinking styles of entrepreneurs positively moderate the relationship between entrepreneurial orientation and strategic entrepreneurial behavior, but not the relationship between passion and entrepreneurial orientation. Nonlinear thinking styles positively moderate the relationship between passion and entrepreneurial orientation, but not the relationship between entrepreneurial orientation and strategic entrepreneurial behavior.	Conversion
Individual motivation	van Stel et al. (2007)	Necessity-driven nascent entrepreneurs are more likely to start a new business than opportunity-driven nascent entrepreneurs.	Conversion

Note: This table provides an overview of what is known about the relationship between entrepreneurial intentions and behavior. It also includes studies considering both intentions/latent/nascent entrepreneurship and actual new business ownership or self-employment, studies explicitly examining the relationship between two of these entrepreneurship concepts, as well as studies analyzing moderators of the relationship. Studies focusing only on one of the two components of the relationship are not included. For example, studies on the antecedents of entrepreneurial intentions are not presented here.

munificence, which should basically promote entrepreneurship. The main argument is that resources required by startups are better accessible in more munificent environments (Anglin et al., 2018; Zott & Amit, 2007). As a result, barriers to entrepreneurship are reduced and more people are inclined to become entrepreneurs, while latent entrepreneurs face smaller hurdles when they try to put their intentions into practice. Moreover, people may share a more

positive attitude and collective mood toward entrepreneurship causing even more people to develop entrepreneurial intentions to be put into practice. This may result in contagion-like firm entry (e.g., Hunt, 2015). All this suggests that environmental munificence facilitates conversion and contagion, and thus strengthens the positive feedback loop. This study considers four factors constituting environmental munificence as predictors of entrepreneurial intentions and behavior, and as moderators of the relationship between the two: the regulatory quality in the private sector, the stage of economic development, economic growth, and the level of GDP. In the following, I will discuss some particularities of the four environmental moderators in more detail.

Regulatory quality

Hunt (2015) finds that particularly institutional munificence facilitates new business creation and may cause cascades of firm entry into the economy. Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) argue that countries with burdensome business regulations are more likely to be undemocratic, have problems with corruption, larger shadow economies, and lower levels of social wealth. Klapper, Laeven, and Rajan (2006) find that more severe and costly regulations hamper new business creation and firm growth. These findings suggest that reducing the burden of business regulations, thus enhancing regulatory quality, promotes new business entry. Therefore, the relationship between intentions and behavior becomes stronger, as more people are inclined to become entrepreneurs and to convert intentions into new business ownership. Relatedly, van Stel et al. (2007) emphasize the role of regulatory quality for entrepreneurial activity. However, they point out that business entry regulations related to time, cost, and procedures required to start a business only modestly affect the rates of entrepreneurial activity. This is why this study will consider entry regulations only as a control variable. The focus will be on a more complex measure that takes into account multiple dimensions of the regulatory quality in the private sector, such as fairness of competitive practices, investment freedom, financial freedom, and so on.⁴ In line with prior research and the above considerations on the influence of environmental munificence, it is expected that the regulatory quality will promote entrepreneurial activity and strengthen the relationship between entrepreneurial intentions and behavior.

Advanced stage of the economy

A growing body of literature emphasizes that economic development and entrepreneurship are more interconnected than ever before (e.g., Audretsch, 2007; Naudé, 2013; Toma, Grigore, & Marinescu, 2014). Per definition of the International Monetary Fund, advanced economies are better integrated into global markets and have a more diverse industry structure than developing economies (IMF, 2020). Economic integration and industrial diversity facilitate free flow and availability of production factors, goods, and services enhancing small and new business practice (e.g., Coulibaly, Erbao, & Mekongcho, 2018). Moreover, credit availability is better and the level of equity investment is higher (Anglin et al., 2018). Thus, financing frictions are less severe. This means that both financial resources and production factors required by new firms are better accessible. As a result, barriers to entrepreneurial activity are reduced, more people are inclined to become entrepreneurs, and converting intentions into new business ownership is enhanced. This should strengthen the feedback loop between entrepreneurial intentions and behavior (e.g., Almodóvar-González, Fernández-Portillo, & Díaz-Casero, 2020; Carree & Thurik, 2008; Galindo & Méndez, 2014).

Economic growth

Anglin et al. (2018) argue that low environmental munificence coincides with economic downturns. Thereby, they establish a link between the business cycle and environmental munificence. A possible measure to capture the business cycle and thus the level of environmental munificence is the rate of economic growth, which is a driver of entrepreneurial activity (e.g., Koellinger & Thurik, 2012; van Stel et al., 2007). Economic growth proxies for economic progress, which manifests not only via income growth but also via new methods of production, innovation, and entrepreneurial activity (e.g., Galindo & Méndez, 2014; Holcombe, 2003). Furthermore, phases of economic growth

accompany higher consumer demand enhancing sales and cash flows of firms. Capital as well as product markets relax and investment increases. Similar to the effects of economic integration and industry diversity of advanced economies, this facilitates the availability of physical and financial resources for latent entrepreneurs and new business owners (e.g., Anglin et al., 2018). Consequently, economic growth should strengthen the relationship between entrepreneurial intentions and behavior.

GDP level

Despite being a factor of economic munificence, the situation might be different with GDP as a proxy for living standards. If living standards are high, the average income of employed people is high. If employed people earn a lot of money, their incentive to become self-employed is rather weak. In other words, people risklessly earning a well amount of money as an employee may have a less favorable attitude toward more risky self-employment. In fact, people in wealthier economies "... admire entrepreneurs more than they want to become one" (Kelley, Bosma, & Amorós, 2011, p. 21). Consequently, they should be less interested in others' business ownership, be less exposed to contagion from other entrepreneurs, and even if they had entrepreneurial intentions, the chance that they would convert them into a business would be rather small. Put differently, employment options in poorer countries are less attractive what causes self-employment to be more attractive. Hence, people are more determined to leave the employee status when they see many others being entrepreneurs. This is called the "demonstration effect" (Wennekers, van Wennekers, Thurik, & Reynolds, 2005). Moreover, they put more effort in converting to self-employment if they have entrepreneurial intentions (e.g., van Stel et al., 2007). This suggests that conversion and contagion should be weaker in wealthier countries. Thus, GDP should weaken the feedback loop between entrepreneurial intentions and behavior.

Taken together, all this suggests that factors constituting environmental munificence moderate the relationship between intentions and new business ownership. In accordance with the above discussions, the following is hypothesized:

Hypothesis 2. *Environmental munificence moderates the relationship between entrepreneurial intentions and new business ownership, such that the relationship is*

- a. *stronger if the regulatory quality is higher,*
- b. *stronger in advanced economies,*
- c. *stronger if the economic growth rate is higher, and*
- d. *weaker if GDP is higher.*

3.2.2 | Entrepreneurial perceptions, exits, and knowing other entrepreneurs

This study furthermore considers perceptual variables, exits, and networks as predictors and moderators, in particular, the perceived entrepreneurial skill level, the perceived attractiveness of opportunities, the share of individuals having exited an owned/managed business last year, and the share of individuals knowing other entrepreneurs personally.

The hypothesized influence of these moderators on the relationship between intentions and behavior is based on the following considerations: when people have less confidence in their own skills and the attractiveness of opportunities available to them, no or little experience in a particular situation or network to provide support or advice, they feel they are facing an uncertain situation. Uncertainty causes people to be more inclined to observe the behavior of others in order to base their own behavior on it, as information extracted from the observation of others' views and beliefs helps them reduce uncertainty (e.g., Angst et al., 2010; Felin & Zenger, 2009; Marsden, 1998). This means that people with poor perceptions, lack of experience, or small

networks may be more exposed to contagion from the behavior of others. Thus, contagion should be stronger. However, the chances of these people turning intentions into action and starting a business are rather low (e.g., Arenius & Minniti, 2005). Thus, conversion should be weaker. Conversely, positive entrepreneurial perceptions, extensive experience, and large networks may enhance entrepreneurial self-confidence, which facilitates conversion but reduces exposure to contagion. In the following, I will discuss this in more detail for each of the four moderators.

Perceived skills and attractiveness of opportunities

Individuals show an attitude toward starting a business when they perceive to have the required entrepreneurial skills (e.g., Gieure et al., 2020).⁵ Moreover, the perceived skill level, among others, shapes people's subjective norms, and normative as and control beliefs with respect to entrepreneurial actions, and thereby enhances peoples' self-confidence (e.g., Autio et al., 2001; Liñán & Chen, 2009). Similarly, the perceived attractiveness of opportunities enhances the general attitude toward entrepreneurship and the collective entrepreneurial mood (e.g., Nishimura & Tristán, 2011). Furthermore, an individual's confidence in the available entrepreneurial opportunities increases with the perceived attractiveness of opportunities (e.g., Davidsson, 2015). On the one hand, entrepreneurial perceptions may thus promote conversion, as more confident latent entrepreneurs should be more determined to follow on their intentions. On the other hand, favorable perceptions may go hand in hand with lower perceived uncertainty. As a result, people may be less likely to adhere to the behavior of their peers.

Exits

Considering exits is important for two reasons. First, having exited a business indicates that the individual might have entrepreneurial experience, which is a determinant of entrepreneurial self-image, confidence, and attitude toward entrepreneurship (e.g., Verheul, Uhlaner, & Thurik, 2005). If the level of entrepreneurial experience in a population is higher, more people may perceive good entrepreneurial opportunities and be willing to follow on these opportunities to become entrepreneurs (Nanda & Sørensen, 2010). Furthermore, prior entrepreneurial exposure is positively related to entrepreneurial passion, which is an important characteristic to advance in entrepreneurial processes (Türk et al., 2020). Consequently, entrepreneurial experience should strengthen the conversion channel. Analogous to the above considerations, contagion should be weaker if people have more entrepreneurial experience, thus stronger entrepreneurial confidence and a more positive attitude toward entrepreneurship, as this makes them feel less uncertain. Second, exits per se are important to consider, because entrepreneurial processes are contingent on human and other resources being available to new businesses. The availability of human resources is facilitated by exits (Pe'er & Vertinsky, 2008). Thus, exits per se and as a proxy for entrepreneurial experience should be a predictor of entrepreneurship rates and influence conversion and contagion.

Knowing other entrepreneurs

Considering if people know other entrepreneurs personally is necessary to capture the importance of role models (e.g., Bosma, Hessels, Schutjens, van Praag, & Verheul, 2012). Previous research stresses the importance of knowing other entrepreneurs for one's own entrepreneurial intentions (Liñán, Santos, & Fernández, 2011) and decisions. Role models and personal networks enhance self-efficacy (e.g., Baron, 2000; Begley & Boyd, 1987) and increase individuals' confidence by providing advice, support, and examples (Aldrich, 1999; Arenius & Minniti, 2005; Minniti, 2004). Moreover, by observing role models, entrepreneurs generate insights, which can be used to develop and manage their own business. Before the implementation of a business, learning from other entrepreneurs is unplanned and involves a wide range of role models. After implementation of a business, entrepreneurs learn by the purposeful observation of specific role models in particular contexts relevant for themselves (Zozimo, Jack, & Hamilton, 2017). Consequently, knowing other entrepreneurs affects decision making of latent entrepreneurs as well as business

owners, suggesting that it may affect both the conversion channel and the contagion channel. Following up again on the above considerations, it is expected that knowing other entrepreneurs will promote the conversion channel through a self-confidence enhancing effect and mitigate the contagion channel through an uncertainty reducing effect.

These considerations yield the following hypothesis:

Hypothesis 3. *Entrepreneurial perceptions, exits, and knowing other entrepreneurs moderate the relationship between entrepreneurial intentions and new business ownership, such that conversion is promoted and contagion is mitigated if*

- the perceived entrepreneurial skill level is higher,*
- the perceived attractiveness of opportunities is higher,*
- the share of people having exited a business last year is higher, and*
- the share of people knowing other entrepreneurs personally is higher.*

Figure 1 illustrates the conceptual framework. Table 2 summarizes the expected moderator effects.

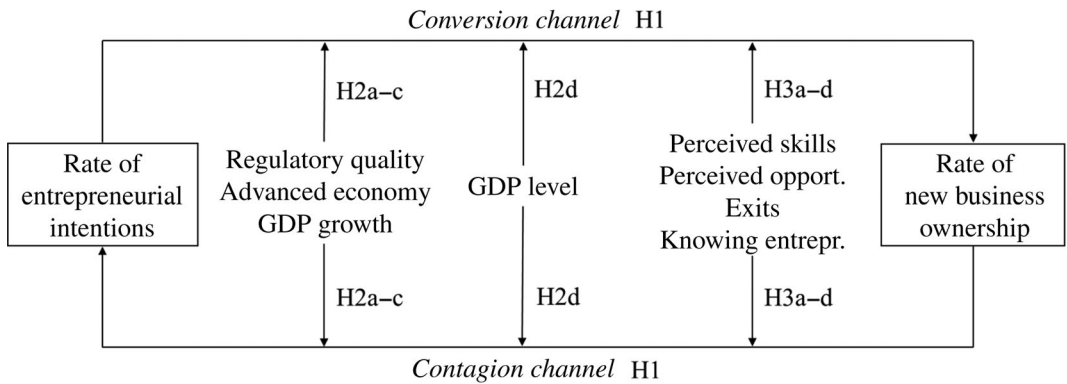


FIGURE 1 Conceptual framework

TABLE 2 Expected moderator effects

Influence on relationship between intentions and new business ownership		
Environmental conditions (H2)		
a. Regulatory quality	+	
b. Advanced economy	+	
c. GDP growth	+	
d. GDP	–	
Perceptions, exits, and knowing other entrepreneurs (H3)	Conversion channel	Contagion channel
a. Perceived skills	+	–
b. Perceived opportunities	+	–
c. Exits	+	–
d. Knowing other entrepreneurs	+	–

Note: This table summarizes the expected moderator effects.

4 | EMPIRICAL SETTING

4.1 | Data and variables

The data used in this study is obtained from multiple sources. Business ownership and entrepreneurial intentions variables are from the Global Entrepreneurship Monitor (GEM), which publishes the results of a worldwide Adult Population Survey on a yearly basis. The Adult Population Survey of the GEM retrieves and publishes data on individuals' characteristics, motivations, aspirations, and attitudes toward entrepreneurial activity. Full national-level data is available 3–4 years after each survey. This study considers data sets from 2006 to 2017, which creates an unbalanced panel of 99 countries⁶ ($N = 99$) and 12 years ($T = 12$).

Most importantly, the variable *Intentions* is defined as the percentage of the population aged 18–64 stating to expect to start a business in the next 3 years. This variable can also be referred to as latent entrepreneurship. The other most relevant variable is the rate of new business ownership (*NewBusiness*). This variable is defined as the percentage of the population aged 18–64 that owns/manages a business with income younger than 42 months. This variable includes any type of business or self-employment.

On the environmental level, the study considers the perceived regulatory quality in the private sector of an economy (*RegQuality*). This variable is calculated by the World Bank based on data from the World Governance Indicators database, and captures the perceived ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. More precisely, it is calculated based on multiple survey-based factors, such as unfair competitive practices, price controls, discriminatory tariffs, burden of government regulations, investment freedom, financial freedom, ease of starting a business governed by local law, and so on.⁷ The regulatory quality score is measured in units of a standard normal distribution, that is, ranging from approximately -2.5 to 2.5 (Kaufmann, Kraay, & Mastruzzi, 2010).

Furthermore, the study considers the country's stage of economic development. The dummy variable *AdvEco* indicates whether a country has an advanced economy according to the definition of the International Monetary Fund (IMF). The categorizing of advanced versus developing economies is based on three criteria: "(a) per capita income level, (b) export diversification—so oil exporters that have high per capita GDP would not make the advanced classification because around 70 % of its exports are oil, and (c) degree of integration into the global financial system" (IMF, 2020).

In addition, this study considers the GDP level as a proxy for living standards (*GDP*; measured by GDP per capita at purchasing power parity) as well as economic growth (*GDPgrowth*; measured by growth rate of GDP per capita at purchasing power parity) to capture the business cycle effect (van Stel et al., 2007). Data on the variables *GDP* and *GDPgrowth* is obtained from the World Development Indicators database of the World Bank. GDP per capita based on purchasing power parity considers both the relative cost of living and the inflation rates of the economy. Considering only exchange rates may distort the real income differences. Thus, it is more useful to use this measure instead of GDP per capita when comparing living standards between countries.

Entrepreneurial perceptions, exits, and knowing other entrepreneurs may be proxies for the state of entrepreneurial culture in a country. The data for the following four variables is obtained from the GEM. The study first considers the perceived skill level (*Suskil*) among individuals. This variable is defined as the percentage of the population aged 18–64 that perceives to have the required skills to start a business. Second, the perceived attractiveness of opportunities (*Opport*) is considered. This variable is defined as the percentage of the population aged 18–64 that perceives the opportunities to start a business as good. These two variables are based on people's subjective assessment of their own skills and opportunities available to them. Third, the variable *Exit* is defined as the percentage of the population aged 18–64 that has exited an owned/managed business in the past 12 months. This variable may proxy for entrepreneurial experience. Fourth, the variable *Know*, which is defined as the percentage of the population aged 18–64 that personally knows someone who started a firm in the past 2 years, may capture the share of people having role models or (experienced) entrepreneurial contacts in their network.

The Startup Business Score (*StartBusScore*, measured on a scale from 0 to 100) is included to control for how easy it is to do business or for entry regulations. Data on this score is obtained from the Doing Business database of the World Bank. This aggregate score is the simple average of scores for each of its component indicators: procedures, time, and cost for an entrepreneur to start and formally operate a business, as well as paid-in minimum capital requirement.⁸ Therefore, this variable controls for typical constraints faced by startups. For instance, a lower score suggests that the constraints with respect to financing and formal implementation of a startup are more severe.

The analysis further considers the rate of established business owners (*Established*) as a proxy for the incumbent firm ownership rate. This variable controls for how common it is to own a business in the country considered (e.g., van Stel et al., 2007; Wennekers et al., 2005). It is defined as the percentage of the population aged 18–64 that owns/manages business with income older than 42 months.

Recall that the data used in this study covers the years from 2006 to 2017. This period includes crisis years, which may affect the results (e.g., Klapper & Love, 2011). Therefore, this study considers a *Crisis* dummy, which equals 1 if the year considered is 2007 or 2008 and 0 otherwise.

The definitions of all variables considered are provided in Table 3. Summary statistics of the variables used in the analyses can be found in Table 4. For sake of brevity, the summary statistics are not discussed here.

4.2 | Simultaneous equation model

This study examines the relation between the rates of entrepreneurial intentions and new business ownership in a setting with simultaneous reciprocity, that is, between yearly observation dates. Considering simultaneous equation models in the entrepreneurship context is rare in the literature. However, such models are considered particularly

TABLE 3 Variable definitions

Variable	Definition
<i>AdvEco</i>	1 if country considered has advanced eco according to IMF; 0 otherwise
<i>Crisis</i>	1 if year considered is 2007 or 2008; 0 otherwise
<i>Established</i>	% 18–64 pop: Owns/manages business with income older than 42 months
<i>Exit</i>	% 18–64 pop: Has exited owned/managed business in the past 12 months
<i>GDP</i>	GDP/capita (at purchasing power parity)
<i>GDPgrowth</i>	GDP/capita annual growth (at purchasing power parity)
<i>Intentions</i>	% 18–64 pop: Expects to start a new business in the next 3 years
<i>Know</i>	% 18–64 pop: Knows someone who started a firm in the past 2 years personally
<i>Nascent</i>	% 18–64 pop: Has been actively trying to start a business in the past 12 months, will be (part) owner of the business, and has been paying salaries for more than 3 months
<i>NewBusiness</i>	% 18–64 pop: Owns/manages business with income younger than 42 months
<i>Opport</i>	% 18–64 pop: Perceives good opportunities to start a business
<i>RegQuality</i>	Score (–2.5 to 2.5); perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development
<i>StartBusScore</i>	Score (0–100); average of scores for each of the component indicators: Procedures, time and cost for an entrepreneur to start and formally operate a business, as well as paid-in minimum capital requirement
<i>Suskil</i>	% 18–64 pop: Perceives to have required skills to start a business
<i>TEA</i>	% 18–64 pop: Setting up firm or owner of young firm

Note: This table provides definitions of all variables used in the analyses.

TABLE 4 Summary statistics

Variable	Mean	SD	Min	Max
<i>AdvEco</i>	0.31	0.46	0	1
<i>Crisis</i>	0.15	0.36	0	1
<i>Established</i>	7.95	5.38	0.42	37.74
<i>Exit</i>	1.37	1.25	0	14.02
<i>GDP</i>	19,097.09	21,859.32	289.56	118,823.65
<i>GDPgrowth</i>	2.14	3.65	−29.83	23.99
<i>Intentions</i>	23.09	15.13	2.36	76.9
<i>Know</i>	39.57	12.17	13.97	85.1
<i>NewBusiness</i>	5.31	4.13	0.44	28.13
<i>Opport</i>	40.93	16.28	2.85	85.54
<i>RegQuality</i>	0.35	0.95	−2.50	2.26
<i>StartBusScore</i>	77.79	14.22	13.09	98.23
<i>Suskil</i>	50.09	14.8	8.65	89.48
<i>TEA</i>	11.66	7.4	2.35	40.15

Note: This table provides summary statistics for all variables used in the analyses.

suitable in country-level comparative survey research with yearly observations, which is typical in this field of entrepreneurship research.

The approach in this study is based on the notion that entrepreneurial intention affects entrepreneurial activity, which in turn affects others' entrepreneurial intentions. Potential causes and effects between entrepreneurial intentions and new business ownership occur at intervals smaller than 1 year. In fact, entrepreneurial intentions might develop within minutes, hours, or days, suggesting that the contagion channel operates much faster than 1 year. The same is true for the conversion channel, as the venture creation process is typically faster than 1 year (Shim & Davidsson, 2018). In fact, the formal implementation of a startup takes just days or a few weeks. For example, the average number of days to formally implement a startup is 6 days in the United States, 8 days in Germany, and 13 days in Cameroon (World Bank, 2020).⁹ Consequently, potentially causal effects subsume into yearly observations in the surveys. Thus, they appear to have simultaneous causality within each single year. Even if there were no truly simultaneous causal effects, they may still look simultaneous, as yearly observations contain enough bi-directional forces. These forces may be so complex and smoothly unfolding that the reciprocal relationship appears constant from an annual survey perspective. After all, the bi-directional forces aggregate to total effects between the two variables of interest capturing the strength of the reciprocal relationship.

Considering simultaneous reciprocity and non-lagged explanatory variables is consistent with the following two rationales. First, humans allocate more attention to recent and novel information, and information decays quickly among large populations (e.g., Wu & Huberman, 2007; Yang & Leskovec, 2010). Thus, contagion resulting from the observation of recent entrepreneurial activity should be more relevant than contagion from past activities. Second, intentions that have not led to the emergence of a new business for a certain period of time (arguably shorter than 1 year) might be abandoned, as the chance that a new business will emerge decreases, whereas the abandonment hazard increases after a few months (Shim & Davidsson, 2018). Consequently, the conversion channel should be most relevant on a timescale of less than 1 year.

In a post hoc analysis (see Section 5.4), I will consider lagged explanatory variables, but no lagged interaction terms, as an alternative specification of the main model. Incidentally, including lagged explanatory variables and interaction terms would give rise to collinearity issues, as variance inflation factors become too high.

Based on these considerations, the equations to be estimated are as follows:

$$\text{Intentions} = f(\text{NewBusiness, environmental variables, perceptual, exit, and network variables, controls, country fixed effects, errors}) \quad (1)$$

$$\text{NewBusiness} = f(\text{Intentions, environmental variables, perceptual, exit, and network variables, controls, country fixed effects, errors}) \quad (2)$$

The rate of entrepreneurial intentions is a function of the rate of new business ownership, and vice versa. Both equations consider the moderator variables introduced above, additional control variables (*Crisis*, *StartBusScore*, *Established*), and country fixed effects to capture unobserved heterogeneity across countries. Note that the variables *Exit* and *Know* are not included in all models and their role is analyzed separately, because the number of observations is considerably smaller when these variables are included due to missing values. Furthermore, in order to ensure identification of both equations, one exogenous variable needs to be excluded from each of the two equations. Therefore, the variable *Established* is excluded from Equation (1), while the variable *StartBusScore* is excluded from Equation (2), such that the variable *Crisis* can be included in both equations. In the moderator analyses, the two equations additionally consider interaction terms between the main predictor [i.e., *NewBusiness* in Equation (1) and *Intentions* in Equation (2)] and the moderator variables.

Clearly, reciprocal relationships give rise to endogeneity resulting from simultaneity and omitted variables. Simultaneous equation models combined with instrumental variable approaches to analyze panel data allow researchers to carefully deal with endogeneity. Addressing endogeneity further allows for a comparatively clean interpretation of the results.

4.3 | Estimation method

The data structure and the simultaneous equations call for the usage of an instrumental variable approach. Pooled OLS or traditional fixed-effect models are not suitable, as they produce inconsistent and biased estimates due to correlation between endogenous variables and error terms (e.g., Judson & Owen, 1999; Nickell, 1981). Therefore, this study makes use of the system generalized method of moments, which is particularly suitable in panel data analysis with short time dimension. As pointed out by Roodman (2009), the GMM may help solving estimation problems related to a short panel, fixed effects, and a lack of appropriate external instruments. In this regard, this method seems to be a reasonable choice in the present study.

Arellano and Bover (1995) and Blundell and Bond (1998) proposed the system GMM estimator as an extension to the standard first-difference GMM estimator developed by Arellano and Bond (1991). The system GMM estimator appears to be superior to the Arellano–Bond estimator because the latter eliminates cross-country specificity, and because lags of variables in the first-difference equations are weak instruments for persistent endogenous variables (Blundell & Bond, 1998). The system estimator uses both levels and first-difference equations. In the first step, first differences are taken to remove unobserved time-invariant country-specific effects. In the second step, assuming that there is no serial correlation in the time-varying errors in the level equations, the method instruments for endogenous variables in the first-differenced equations using deeper lags (two periods or more) of these variables (Bond, Hoeffler, & Temple, 2001). The lagged variables used as instruments are exogenous, meaning that they are not caused from within the model. This enables identification of unique effects of the endogenous variables. The method thus yields consistent and efficient estimates, and reduces the finite sample bias (Baltagi, 2001). The one-step system GMM estimator with cluster robust standard errors, which is used in this study, produces more reliable estimates for finite sample inference than the two-step estimator (Blundell & Bond, 1998; Bond et al., 2001). Following Arellano

and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), two important specification tests are performed in order to test the validity of the instruments (Sargan test), and to test for second-order serial correlation (AR2 test).

5 | RESULTS

5.1 | Conversion and contagion

The results concerning the reciprocal relationship are presented in Table 5.

The specification tests (Sargan and AR2) suggest that the instruments are valid and that second-order serial correlation is not an issue. Variance inflation factors have been calculated to test for multicollinearity. The values are between 1 and 3.35. Thus, multicollinearity should not be a problem.¹⁰

Table 5 contains four models. The first two models in the left half of the table consider *Intentions* and *NewBusiness* as dependent variables without the main predictors. The main independent variables of interest, that is, *NewBusiness* in the *Intentions* regression and vice versa, are included in the two models in the right half of Table 5. Most importantly, the results provide support for Hypothesis 1. First, the results show that the entrepreneurial intentions rate is positively related to the rate of new business ownership. Second, the new business ownership rate is positively related to the rate of entrepreneurial intentions. The coefficients of the main predictors are positive and significant. These results suggest that there is a simultaneous reciprocal relationship between entrepreneurial intentions and new business ownership.¹¹

TABLE 5 Results (reciprocal relationship)

	Intentions (without main predictor)	NewBusiness (without main predictor)	Intentions (with main predictor, H1b)	NewBusiness (with main predictor, H1a)
<i>NewBusiness</i>			1.008*** (0.370)	
<i>Intentions</i>				0.117*** (0.032)
Environment				
<i>RegQuality</i>	−4.756*** (1.332)	−0.523*** (0.201)	−3.673** (1.481)	−0.024 (0.174)
<i>AdvEco</i>	−1.130 (1.896)	−0.610 (0.418)	−1.254 (1.771)	−0.367 (0.358)
<i>GDPgrowth</i>	0.007 (0.179)	−0.053 (0.044)	0.163 (0.172)	−0.075 (0.047)
<i>Log(GDP)</i>	−1.875*** (0.598)	−0.188** (0.080)	−1.477** (0.601)	−0.122* (0.073)
Perceptions				
<i>Suskil</i>	0.445*** (0.061)	0.037*** (0.014)	0.350*** (0.058)	−0.012 (0.018)
<i>Opport</i>	0.219*** (0.051)	0.056*** (0.012)	0.138** (0.059)	0.033*** (0.010)
Controls				
<i>Crisis</i>	−1.472 (1.211)	−0.565* (0.292)	−0.623 (1.070)	−0.383 (0.276)
<i>StartBusScore</i>	0.156*** (0.060)		0.132** (0.062)	
<i>Established</i>		0.459*** (0.038)		0.430*** (0.037)
Observations	1,131	1,131	1,131	1,131
AR2	0.45	0.44	0.77	0.88
Sargan	0.54	0.77	0.54	0.73

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

The cyclical relationship or loop force that seems to be at work may be quantified as follows: the coefficient of *NewBusiness* is 1.026 and significant. This coefficient may capture the strength of the direct part of the behavior-intentions link (contagion channel). Furthermore, the results report a positive and significant coefficient of *Intentions* that amounts to 0.117. Analogously, this coefficient may quantify the direct part of the link between intentions and behavior (conversion channel). The reciprocity of the relationship suggests that intentions and behavior also indirectly affect each other with each and every cycle through the feedback loop. An increasing rate of entrepreneurial intentions will be associated with feedback to itself, which will start the feedback cycle again, such that the total strength of the intentions-behavior link will be substantially different from the initial direct part of the link. One cycle through that theoretical loop would correspond to $1.026 \times 0.117 = 0.12$. This value again travels through the loop: $(1.026 \times 0.117) \times (1.026 \times 0.117) = 0.0144$. After a third cycle, the value would amount to $(1.026 \times 0.117)^3$, and so on. Hence, given the initial strength of the conversion channel of 0.117, we have this value plus the sum of all cycles through the loop: $0.117 + 0.117 \times (1.026 \times 0.117)^1 + 0.117 \times (1.026 \times 0.117)^2 + 0.117 \times (1.026 \times 0.117)^3 + \dots + 0.117 \times (1.026 \times 0.117)^n$. Eventually, this infinite series converges to a value that may represent the theoretical total strength of the conversion channel (for further details on this calculation see, e.g., Breznau, 2018; Martens & Haase, 2006; Paxton, Hipp, Marquart-Pyatt, & Marquart-Pyatt, 2011):

$$\frac{0.117}{1 - 0.117 \times 1.026} = 0.13. \quad (3)$$

This suggests that, *ceteris paribus*, an initial 1-point increase in *Intentions* is eventually associated with an increase of 0.13% points in the new business ownership rate. The direct part of the link accounts for about 90%, while the indirect part accounts for about 10% of the total strength of the conversion channel.¹² Analogously, the total strength of the contagion channel would be given by:

$$\frac{1.026}{1 - 0.117 \times 1.026} = 1.17, \quad (4)$$

where the direct part of the link accounts for about 88%. Using the standardized coefficients,¹³ we have 0.49 (total strength of the conversion channel) and 0.32 (contagion channel). *Ceteris paribus*, an initial one-standard-deviation increase in *Intentions* (*NewBusiness*) would eventually be associated with an increase in *NewBusiness* (*Intentions*) by a total of 0.49 (0.32) standard deviations. This indicates that the conversion channel might be the stronger force in the reciprocal relationship.

5.2 | Moderators

In order to shed light on the mechanisms that constitute the positive feedback loop, moderator analyses are performed. The results are presented in Tables 6–9. The specification tests in all models considering moderator effects suggest that the instruments are valid and that second-order serial correlation is not a problem. In addition, multicollinearity is not an issue, as the variance inflation factors are well below the most commonly used threshold of 10. Recall from Section 4.2 that the number of observations is smaller in the last six models (Table 9) because of missing values for the variables *Exit* and *Know*.

5.2.1 | Environmental munificence

The results of the regressions considering environmental moderators are presented in Tables 6 and 7.

TABLE 6 Results (moderators 1/4)

	Intentions (mod. RegQuality, H2a)	NewBusiness (mod. RegQuality, H2a)	Intentions (mod. AdvEco, H2b)	NewBusiness (mod. AdvEco, H2b)
<i>NewBusiness</i>	0.963** (0.405)		1.020*** (0.193)	
<i>Intentions</i>		0.078*** (0.016)		0.107*** (0.033)
Environment				
<i>RegQuality</i>	−7.667*** (2.563)	−1.618*** (0.547)	−3.263*** (1.253)	−0.070 (0.171)
<i>NewBusiness</i> × <i>RegQuality</i>	0.461* (0.245)			
<i>Intentions</i> × <i>RegQuality</i>		0.041*** (0.015)		
<i>AdvEco</i>	0.388 (2.358)	0.301 (0.448)	−4.520* (2.689)	−0.364 (0.679)
<i>NewBusiness</i> × <i>AdvEco</i>			0.587* (0.591)	
<i>Intentions</i> × <i>AdvEco</i>				−0.002 (0.030)
<i>GDPgrowth</i>	0.074 (0.106)	−0.011 (0.031)	0.112 (0.116)	−0.073 (0.046)
<i>Log(GDP)</i>	−1.218* (0.651)	−0.100 (0.071)	−1.841* (0.972)	−0.128* (0.073)
Perceptions				
<i>Suskil</i>	0.312*** (0.067)	−0.013 (0.013)	0.351*** (0.060)	−0.008 (0.018)
<i>Opport</i>	0.174*** (0.063)	0.056*** (0.020)	0.128*** (0.045)	0.035*** (0.011)
Controls				
<i>Crisis</i>	−0.897 (1.080)	−0.178 (0.283)	−0.528 (1.080)	−0.402 (0.271)
<i>StartBusScore</i>	0.124* (0.067)		0.183* (0.098)	
<i>Established</i>		0.433*** (0.039)		0.432*** (0.036)
Observations	1,131	1,131	1,131	1,131
AR2	0.76	0.67	0.73	0.86
Sargan	0.29	0.21	0.60	0.73

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

The results confirm Hypothesis 2a–d. The coefficients of the interactions between *RegQuality* and *NewBusiness* as well as between *RegQuality* and *Intentions* are positive and significant (see left half of Table 6). This suggests that regulatory quality strengthens both, the conversion channel and the contagion channel. Furthermore, an advanced state of the economy (*AdvEco*) promotes the contagion channel, as the coefficient of the interaction between *AdvEco* and *NewBusiness* is positive and significant. This cannot be confirmed regarding the conversion channel (see right half of Table 6). In contrast, *GDPgrowth* strengthens the conversion channel but not the contagion channel (see left half of Table 7). Indeed, as hypothesized, *GDP* as a proxy for living standards mitigates both the conversion channel and the contagion channel, and thus weakens the relationship between entrepreneurial intentions and behavior. However, only the interaction between *GDP* and *Intentions* (conversion channel) is significant (see right half of Table 7).¹⁴ Put together, on one hand, environmental munificence in terms of regulatory quality, economic growth, and an advanced state of the economy strengthens the relationship between entrepreneurial intentions and behavior. On the other hand, however, higher living standards weaken the

TABLE 7 Results (moderators 2/4)

	Intentions (mod. GDPgrowth, H2c)	NewBusiness (mod. GDPgrowth, H2c)	Intentions (mod. GDP, H2d)	NewBusiness (mod. GDP, H2d)
<i>NewBusiness</i>	0.972*** (0.211)		1.853** (0.911)	
<i>Intentions</i>		0.087** (0.038)		0.332*** (0.121)
Environment				
<i>RegQuality</i>	−4.433** (1.766)	−0.055 (0.218)	−3.774*** (1.333)	0.113 (0.198)
<i>AdvEco</i>	−0.806 (1.986)	−0.368 (0.370)	−1.771 (2.136)	−0.308 (0.340)
<i>GDPgrowth</i>	0.005 (0.179)	−0.163** (0.078)	0.088 (0.116)	−0.008 (0.039)
<i>NewBusiness</i> × <i>GDPgrowth</i>	0.019 (0.032)			
<i>Intentions</i> × <i>GDPgrowth</i>		0.008** (0.004)		
<i>Log(GDP)</i>	−1.409** (0.584)	−0.129 (0.100)	−0.992 (0.890)	−0.055 (0.107)
<i>NewBusiness</i> × <i>log(GDP)</i>			−0.092 (0.111)	
<i>Intentions</i> × <i>log(GDP)</i>				−0.027** (0.013)
Perceptions				
<i>Suskil</i>	0.332*** (0.056)	0.002 (0.029)	0.285*** (0.099)	0.001 (0.027)
<i>Opport</i>	0.147*** (0.045)	0.030** (0.015)	0.153*** (0.049)	0.023* (0.012)
Controls				
<i>Crisis</i>	−0.896 (1.053)	−0.370 (0.280)	−0.784 (0.982)	−0.390 (0.267)
<i>StartBusScore</i>	0.137** (0.057)		0.112 (0.083)	
<i>Established</i>		0.421*** (0.035)		0.377*** (0.036)
Observations	1,131	1,131	1,131	1,131
AR2	0.75	0.56	0.81	0.82
Sargan	0.78	0.72	0.67	0.74

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

relationship and seem to be detrimental to entrepreneurial activity, as entrepreneurship as a career might appear less attractive if living standards are high.

5.2.2 | Entrepreneurial perceptions, exits, and knowing other entrepreneurs

Tables 8 and 9 contain the results of the regressions considering interaction terms between the main predictors and perceptual, exit, and network variables. The results confirm Hypothesis 3a,c,d and partly Hypothesis 3b.

Perceptual variables, exits, knowing other entrepreneurs appear to mitigate the contagion channel but promote the conversion channel, as the coefficients of the interactions between *Suskil*, *Opport*, *Exit*, and *Know* and *NewBusiness* are negative and significant except for the interaction between *Opport* and *NewBusiness*. In addition, all four interactions between these variables and *Intentions* are positive and significant. Thus, although they may have a rather positive influence on both entrepreneurial intention and new business ownership rates,¹⁵ their moderating influence on the relationship is not clear, as they opposingly affect conversion and contagion. Indeed, this is what has been hypothesized: people in economies with more favorable entrepreneurial perceptions, more experience, and greater networking with role models are less exposed to contagion from other entrepreneurs but more determined to convert entrepreneurial intentions into practice.

TABLE 8 Results (moderators 3/4)

	Intentions (mod. Suskil, H3a)	NewBusiness (mod. Suskil, H3a)	Intentions (mod. Opport, H3b)	NewBusiness (mod. Opport, H3b)
<i>NewBusiness</i>	3.235** (1.256)		1.944** (0.878)	
<i>Intentions</i>		0.029 (0.035)		0.019 (0.028)
Environment				
<i>RegQuality</i>	−3.554** (1.491)	−0.132 (0.120)	−5.451* (2.864)	−0.050 (0.467)
<i>AdvEco</i>	1.441 (2.001)	−0.487** (0.210)	0.787 (2.916)	−0.693* (0.359)
<i>GDPgrowth</i>	−0.092 (0.136)	0.035 (0.035)	0.015 (0.123)	0.034 (0.036)
<i>Log(GDP)</i>	−2.617*** (0.882)	−0.032 (0.060)	−1.667** (0.731)	−0.006 (0.070)
Perceptions				
<i>Suskil</i>	0.382*** (0.108)	−0.019 (0.014)	0.285*** (0.075)	0.003 (0.012)
<i>NewBusiness × Suskil</i>	−0.033 [†] (0.017)			
<i>Intentions × Suskil</i>		0.001 [†] (0.001)		
<i>Opport</i>	0.301*** (0.101)	0.031*** (0.009)	0.213** (0.089)	0.001 (0.013)
<i>NewBusiness × Opport</i>			−0.014 (0.014)	
<i>Intentions × Opport</i>				0.001*** (0.0005)
Controls				
<i>Crisis</i>	−0.248 (1.200)	0.013 (0.198)	−1.024 (0.996)	−0.144 (0.218)
<i>StartBusScore</i>	0.132** (0.067)		0.144** (0.067)	
<i>Established</i>		0.426*** (0.037)		0.427*** (0.037)
Observations	1,131	1,131	1,131	1,131
AR2	0.77	0.72	0.58	0.60
Sargan	0.81	0.83	0.67	0.70

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

5.3 | Post hoc: Early stage entrepreneurial activity and nascent entrepreneurship

To provide further insight into the mechanisms, some alternative specifications of the main model are analyzed. The first alternative specification considers the rate of total entrepreneurial activity (*TEA*) instead of the new business ownership rate (*NewBusiness*). The variable *TEA* measures the percentage of the population aged 18–64 that is actively setting up a firm or owning a young firm. More precisely, *TEA* considers people who have been actively trying to start a business in the past 12 months, will be (part) owner of the business, and have been paying salaries for more than 3 months, in addition to the new business owners. Consequently, the *TEA* rate is a combined measure of nascent entrepreneurship and new business ownership, and most frequently used in research based on GEM data.¹⁶ Hence, *TEA* includes the phases right before and after the start of a new firm. The GEM denotes activity in this combined phase as “early-stage entrepreneurial activity”.¹⁷ This alternative specification therefore analyzes the dual link between latent entrepreneurship or entrepreneurial intentions on the intentions side and early stage entrepreneurial activity, including nascent entrepreneurship and new business ownership, on the behavior side. The results of this alternative specification are presented in the left half of Table 10.

The *Intentions* variable has a positive and significant coefficient in the *TEA* regression. Recall that this may capture the strength of the direct part of the conversion channel. In addition, the coefficient of *TEA* in the *Intentions* regression is positive and significant, and may capture the strength of the direct part of the contagion channel. Based on standardized coefficients,

TABLE 9 Results (moderators 4/4)

	Intentions (Exit and Know)	NewBusiness (Exit and Know)	Intentions (mod. Exit, H3c)	NewBusiness (mod. Exit, H3c)	Intentions (mod. Know, H3d)	NewBusiness (mod. Know, H3d)
NewBusiness	0.666** (0.269)	0.069*** (0.021)	1.272*** (0.366)	0.053*** (0.017)	2.977** (1.169)	0.010 (0.022)
Intentions						
Environment						
RegQuality	-3.093*** (1.108)	0.025 (0.132)	-1.663 (1.603)	-0.007 (0.130)	-2.705* (1.497)	-0.180 (0.137)
AdvEco	-1.174 (2.206)	-0.220 (0.336)	-2.752 (2.024)	-0.456 (0.339)	-0.315 (1.718)	-0.393 (0.291)
GDPgrowth	0.163 (0.168)	0.030 (0.034)	0.189 (0.178)	-0.030 (0.035)	0.019 (0.194)	0.032 (0.029)
Log(GDP)	-2.062** (0.936)	-0.283*** (0.065)	-1.395* (0.724)	-0.190*** (0.055)	-2.165*** (0.696)	-0.076 (0.073)
Perceptions						
Suskil	0.412*** (0.120)	0.003 (0.013)	0.321*** (0.104)	0.004 (0.014)	0.255*** (0.064)	-0.001 (0.012)
Opport	0.084* (0.048)	0.022** (0.011)	0.095 (0.067)	0.021* (0.012)	0.166 (0.115)	0.039** (0.017)
Exits and Networks						
Exit	2.010*** (0.644)	0.413*** (0.135)	3.843*** (1.008)	-0.667 (0.516)	2.588*** (0.629)	0.244** (0.109)
NewBusiness × Exit			-0.131* (0.069)			
Intentions × Exit				0.021** (0.010)		
Know	0.060 (0.109)	0.036*** (0.012)	-0.027 (0.093)	0.044*** (0.013)	0.172 (0.134)	-0.019 (0.017)
NewBusiness × Know					-0.039** (0.018)	0.002*** (0.0005)
Intentions × Know						
Controls						
Crisis	-0.124 (1.375)	-0.019 (0.236)	0.249 (1.364)	-0.169 (0.223)	-0.067 (1.447)	0.091 (0.217)
StartBusScore	0.143** (0.068)		0.099 (0.066)		0.102 (0.072)	
Established		0.442*** (0.035)		0.440*** (0.034)		0.428*** (0.029)
Observations	691	691	691	691	691	691
AR2	0.91	0.86	0.98	0.67	0.93	0.81
Sargan	0.78	0.60	0.64	0.68	0.70	0.95

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

TABLE 10 Alternative specifications: TEA and nascent

	Intentions (TEA)	TEA (Intentions)	Intentions (NewBus. and Nascent)	Nascent (Intentions and NewBus.)
TEA	1.119*** (0.187)			
Intentions		0.307*** (0.046)		0.147 *** (0.028)
NewBusiness			0.789*** (0.153)	0.092 (0.114)
Nascent			0.715*** (0.150)	
Environment				
RegQuality	−3.144*** (1.130)	0.413 (0.308)	−3.301*** (1.153)	0.185 (0.306)
AdvEco	−1.668 (1.607)	0.403 (0.601)	−1.512*** (0.503)	−0.201 (0.125)
GDPgrowth	0.056 (0.120)	0.035 (0.064)	0.124 (0.138)	−0.075 (0.067)
Log(GDP)	−0.976** (0.477)	−0.321** (0.129)	−0.698 (1.591)	0.615 (0.473)
Perceptions				
Suskil	0.192*** (0.061)	0.045 (0.029)	0.311*** (0.083)	0.072*** (0.019)
Opport	0.061 (0.041)	0.055*** (0.017)	0.113* (0.062)	0.039** (0.016)
Controls				
Crisis	−0.166 (1.059)	−0.378 (0.510)	−0.377 (1.154)	−0.546 (0.461)
StartBusScore	0.115** (0.054)		0.124** (0.053)	
Established		0.348*** (0.049)		−0.084 (0.066)
Observations	1,131	1,131	1,131	1,131
Sargan	0.45	0.53	0.52	0.31
AR2	0.67	0.75	0.78	0.56

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

in this setting, the conversion channel (total strength based on β -coefficients: 0.76) again seems to be the stronger force in the relationship (contagion channel: 0.64), while the numbers are higher than in the baseline model presented above.¹⁸

The results suggest that the additional consideration of nascent entrepreneurial activity on the behavior side of the relationship affects both conversion and contagion. Regarding the conversion channel, this is intuitive because the conversion of intentions into nascent entrepreneurship is considered in addition to the conversion of intentions into business ownership. Concerning the contagion channel, the result requires a little more attention. Recall from the Theory section that social contagion can only occur if individuals observe others' behavior (Angst et al., 2010; Meade & Roediger, 2002; Strang & Soule, 1998). Therefore, one might suppose that nascent entrepreneurship is hardly contagious in the absence of social ties because the initial actions that have been undertaken by nascent entrepreneurs to start a new business are not necessarily publicly observable. Consequently, it is conceivable that (the additional) contagion from nascent entrepreneurship to others' intentions is driven by people who have social ties and talk to each other, such that nascent entrepreneurial activity can be identified by others.

For some further insight into this, a second alternative specification is analyzed. This specification first considers *Nascent* entrepreneurial activity as a function of *NewBusiness* (contagion from new businesses to nascent entrepreneurs) and *Intentions* (conversion of intentions into nascent entrepreneurship), and, second, *Intentions* as a function of *NewBusiness* (contagion from new businesses to intentions) and *Nascent* (contagion from nascent entrepreneurship to intentions). The variable *Nascent* is based on the definition of the GEM and considers people who have been actively trying to start a business in the past 12 months, will be (part) owner of the business, and have been paying salaries for more than 3 months. The regression results are presented in the right half of Table 10.

TABLE 11 Alternative specification: Past intentions and new business ownership

	Intentions	NewBusiness
<i>Non-lagged NewBusiness</i>	0.886* (0.466)	
<i>Lag1(NewBusiness)</i>	0.998* (0.567)	
<i>Lag1(NewBusiness)</i>	−0.544 (0.416)	
<i>Lag3(NewBusiness)</i>	−0.148 (0.375)	
<i>Non-lagged Intentions</i>		0.092* (0.052)
<i>Lag1(Intentions)</i>		0.009 (0.033)
<i>Lag2(Intentions)</i>		−0.005 (0.036)
<i>Lag3(Intentions)</i>		0.026 (0.031)
Environment		
<i>RegQuality</i>	−3.000 (1.989)	0.142 (0.176)
<i>AdvEco</i>	−1.782 (1.864)	−0.757 (0.479)
<i>GDPgrowth</i>	0.442*** (0.133)	0.008 (0.038)
<i>Log(GDP)</i>	−2.063* (1.171)	−0.044 (0.076)
Perceptions		
<i>Suskil</i>	0.406*** (0.072)	−0.023 (0.021)
<i>Opport</i>	0.129* (0.073)	0.023* (0.012)
Controls		
<i>Crisis</i>	1.070 (2.068)	0.085 (0.428)
<i>StartBusScore</i>	0.155 (0.109)	
<i>Established</i>		0.408*** (0.073)
Observations	536	536
Sargan	0.48	0.46
AR2	0.28	0.25

Note: * $p < .1$; ** $p < .05$; *** $p < .01$. Method: GMM-SYS. Cluster robust standard errors in parenthesis. The figures reported for the Sargan test and AR2 test are the p -values for the null hypothesis, valid specification.

The results show that both new business ownership and nascent entrepreneurship seem to be contagious in the sense that they positively influence entrepreneurial intentions. The coefficients of *NewBusiness* and *Nascent* are positive and significant in the *Intentions* regression results. Furthermore, the *Nascent* regression results suggest that nascent entrepreneurship and entrepreneurial intention rates are related through a conversion channel similar to the one identified in the main model, as the coefficient of *Intentions* is positive and significant in the *Nascent* regressions results. Notably, the results cannot confirm the existence of a (direct) contagion channel from new business ownership to nascent entrepreneurship rates. The coefficient of *NewBusiness* in the *Nascent* regression results is positive but not significant. In a way, this non-finding provides support for the theoretical considerations discussed above, as contagion indeed seems to work based on a behavior–intentions link and not a behavior–behavior link.

5.4 | Post hoc: Past intentions and new business ownership

Even if many firms might be created within a year, it is conceivable that there is a notable group of firms whose formation spans a period greater than the period between the GEM survey observation dates. Likewise, there may be people whose entrepreneurial intentions are based not only on current entrepreneurial activities of others but also on past observations, as people may use all past information rather than just the most recent information

(Young, 2009). Therefore, it seems reasonable to consider past intention and new business ownership rates in another post hoc analysis.

Recall from Table 3 that the main variables of interest concern intentions projecting 3 years forward and entering business ownership stretching up to three and a half years backward in time. In order to match the analysis with the variable definitions, the regressions consider 1-year, 2-year, and 3-year lags in addition to the non-lagged main predictors (i.e., *Intentions* in the *NewBusiness* regression, and vice versa). The regression results are displayed in Table 11.¹⁹

On the one hand, the results suggest that last year's and the current year's new business activity have a positive and significant influence on the rate of stated entrepreneurial intentions. Information on new business ownership rates from 2 or 3 years ago appear to play no significant role. Hence, people seem to use more recent information from observing other entrepreneurs. This is consistent with the rationale that humans allocate more attention to recent and novel information, and that information decays among large populations (e.g., Wu & Huberman, 2007; Yang & Leskovec, 2010). On the other hand, only the current year's intentions have a positive and significant impact on the rate of new business ownership. This suggests that conversion may most often operate on a timescale smaller than 1 year, such that only the conversion of individuals between observation dates is visible in the data. The coefficient of the previous year's intentions, which might also capture some individuals converting their intentions within 1 year but not between observation dates, is also positive but insignificant. Similarly, intention rates from 2 or 3 years ago do not seem to significantly affect the new business ownership rate. This furthermore suggests that intentions that have not led to the emergence of a new business for a longer time (about 1 year) are rather abandoned. This is consistent with Shim and Davidsson (2018) who find that after a few months, the chance that a new business will emerge decreases, whereas the abandonment hazard increases, such that the average observable venture creation process is shorter than 1 year.

6 | DISCUSSION

The results presented in this study yield implications that are particularly relevant for researchers and policy makers.

6.1 | Implications

The results regarding the conversion channel are consistent with both the theory of planned behavior and previous empirical research. For instance, van Stel et al. (2007) provide evidence that the new business rate is higher in countries with a higher rate of nascent entrepreneurship. Grilo and Thurik (2005) as well as Grilo and Irigoyen (2006) find that the rate of new business ownership is positively related to the rate of latent entrepreneurship. Essentially, the results of this study are in line with those in the aforementioned works. The finding that latent entrepreneurship and nascent entrepreneurship are similarly related through the conversion channel is quite new to the literature, because previous research has focused on the conversion of latent or nascent entrepreneurship into new business ownership. This means that nascent entrepreneurship has previously been considered on the intentions side instead of the behavior side of the relationship.

Regarding the contagion channel, the results presented above are consistent with social contagion theory yet new to the literature in that most of the entrepreneurship research focuses on contagion within smaller networks, regions, or ecosystems, whereas this study provides indication for country-level contagion among people without the necessary presence of social ties. For instance, previous research argues that engagement in entrepreneurship often depends on individuals' access to information and resources from social networks (Gompers, Lerner, & Scharfstein, 2005; Lerner & Malmendier, 2013; Saxenian, 1994; Sorenson & Audia, 2000). In addition, social

networks determine individuals' career aspirations and attitudes toward entrepreneurship (Giannetti & Simonov, 2009). Nanda and Sørensen (2010) find that individuals surrounded by coworkers who have been entrepreneurs in earlier days are more likely to become entrepreneurs themselves. These findings suggest that observing and learning from other entrepreneurs encourages entrepreneurial activity and facilitates one's own entry (e.g., Bosma et al., 2012; Scherer, Adams, Carley, & Wiebe, 1989; van Auken, Stephens, Fry, & Silva, 2006). Extending this stream of research, the results of this study indicate that peer effects in entrepreneurship might cascade beyond small entities and spill over to individuals outside the network or region. This is consistent with the rationale of implicit and automatic contagion in the absence of social ties (Frith & Frith, 2012; Happé, Cook, & Bird, 2017).

Furthermore, the results suggest that the conversion channel might be of greater economic relevance than the contagion channel at the country level. However, contagion in entrepreneurship, which is often omitted from main stream entrepreneurship models (Nikolaev & Wood, 2018), also seems to play an important role in entrepreneurial processes at the countrywide level without the necessary presence of social ties. In fact, country-level contagion as considered in this study might be weaker than on the regional or local level. It is conceivable that the contagion channel is stronger (relative to the conversion channel) at the regional or local level where more people share social ties. At this level, individual mechanisms (e.g., social ties and the observation of others' behavior) might be as relevant as collective mechanisms (e.g., mass media, normative pressure, collective mood). Moreover, if people have social ties, they might be more exposed to others' behavior, and the similarities among people living in the same region might be stronger than among people living in the same country. All this suggests that contagion could outweigh conversion at the regional or local level such that it is the stronger force in the relationship.

Regarding the conversion channel, note that the sample may include entrepreneurs who start a business without a preceding statement of aspiration (e.g., Brinckmann, Grichnik, & Kapsa, 2010; Henley, 2007), such as hobbyists, necessity entrepreneurs, and accidental entrepreneurs. Yet, the behavior performed by these entrepreneurs may be based on cognitive and behavioral planning in the sense of the theory of planned behavior (Kautonen et al., 2015). These individuals increase the new business ownership rate but do not affect the intentions rate. The sample may also include individuals who report behavioral intentions but do not subsequently exercise the focal entrepreneurial behavior. These individuals increase the intentions rate but not the new business ownership rate. Both types of individuals affect the informativeness of the numbers calculated, especially with respect to the conversion channel. This should be kept in mind when interpreting the strength of the conversion channel.

The presence of a positive feedback loop implies that changes in the entrepreneurial environment, perceptions, or behaviors might not only directly affect entrepreneurs, but also simultaneously unfold indirect effects. Thus, both the conversion channel and the contagion channel need to be considered to fully understand how startup hotspots emerge and how policy makers may promote entrepreneurial activity. Additionally, environmental conditions as well as entrepreneurial perceptions and behaviors, which could be influenced by policy makers, moderate the relationship. The reciprocity of the relationship causes that moderators affect not only one of the channels but the entire relationship. These findings emphasize the role of structural influences on entrepreneurial processes, which is an important implication for researchers as well as policy makers that might instrumentalize the feedback loop to multiply the impact of policy measures.

In addition, the results of the moderator analyses have shown that an advanced economy, economic growth, and regulatory quality, on the one hand, and high living standards, on the other hand, differently affect the mechanisms that constitute the relationship between intentions and behavior in entrepreneurship. Hence, a differentiated view of environmental factors is necessary, as the results suggest that environmental munificence does not always facilitate positive feedback in entrepreneurship. Relatedly, Hunt (2015) finds that institutional munificence facilitates new business creation, which, however, could be associated with undesirable contagion-style over-entry into the startup economy. This suggests that the feedback loop between intentions and behavior might have a downside in the sense that too many incoherent, poorly performing, and failing firms enter the economy.

Moreover, a rather provocative implication from the results would be that favorable entrepreneurial perceptions, experience, and networks may slow down the feedback loop by mitigating contagion. Indeed, at second glance, this

does not seem implausible, because if this were not the case, we would possibly have Silicon Valleys all over the world. In other words, if an economy has reached advanced levels of entrepreneurial activity and culture, the rate of new business formation should decline due to saturation in the startup sector (e.g., Hunt, 2015) and a lack of availability of further human and other resources required to start new businesses (e.g., Pe'er & Vertinsky, 2008).

6.2 | Limitations and further research

This study has some limitations related to the data, variables, and level of analysis. First, entrepreneurs are treated as a homogenous group, as demographic variables are not considered. Future research may consider individual differences among entrepreneurs, because gender, age, education, relative position in the income distribution, and so on, play a role in entrepreneurial processes (e.g., Nikolaev & Wood, 2018; Shirokova et al., 2016), and may affect both conversion and contagion. Recall that this study takes a macro-level perspective due to the available data and therefore considers structural influences, whereas the consideration of individual traits would require a micro-level analysis.

Second, the role of individual motivation is not considered in this study. It seems natural that individual motivation has an influence on people's exposition to contagion and on the conversion chances of intentions. For example, van Stel et al. (2007) find that necessity-driven nascent entrepreneurs are more likely to convert to business owners than opportunity-driven nascent entrepreneurs, because they are "forced" to become self-employed due to a lack of alternative employment options. In multinational surveys like the GEM, however, it is problematic to record individual motivation in a consistent manner worldwide. This problem is evident from the fact that survey participants in developing countries often do not understand the differences between necessity and opportunity motives to start a business. For instance, in Uganda and Sri Lanka, and probably in many other developing countries, the view prevails that only high-status employment (i.e., in the government or in large companies) is regarded as employment and everything else as unemployment (Rosa, Kodithuwakku, & Balunywa, 2006). As a result, many survey respondents in developing countries are considered or consider themselves necessity entrepreneurs, even though they are actually driven by opportunity. Consequently, accounting for individual motivation in cross-country studies is problematic. Further research may take a regional perspective and consider structural and motivational differences across regions within countries (e.g., metropolitan vs. small agglomeration vs. rural areas), where motivation can be retrieved consistently. It is well conceivable that the strength of the contagion and the conversion channels are different across regions and between people with opportunity and necessity motives. Moreover, it is possible that the contagion channel is significantly driven by agglomeration and by people being "contaminated" in terms of entrepreneurial intentions by agglomeration areas with a high density of entrepreneurs.

A third limitation is related to the reflection problem. In economics, peer effects are difficult to identify (Manski, 1993; Sacerdote, 2001). As mentioned in the note on peer effects in the Theory section, correlated states, characteristics or behaviors in a social group might be due to "true" social contagion, homophily and self-selection, or environmental confounding. Without experimental data, it is difficult to distinguish between these three explanations when studying the behavior of individuals within a social group or population. However, this study focuses on contagion from new business owners to non-business owners who may have entrepreneurial intentions. As suggested by the theory of planned behavior, intentions precede new business ownership. Typically, an individual is not a new business owner and latent entrepreneur at the same time.²⁰ Individuals with entrepreneurial intentions may turn into owners of a new business after a certain period of time, or abandon their plans and leave the group of latent entrepreneurs. Consequently, the two groups of latent entrepreneurs and new business owners are distinct from each other. This implies that the individual behavior of a latent entrepreneur (new business owner) does not necessarily aggregate into the mean behavior of the group of new business owners (latent entrepreneurs). This mutes the influence of individual behavior of a latent entrepreneur (new business owner) on the mean behavior of the group of new business owners (latent entrepreneurs), which would give rise to the reflection problem in the first

place. Consequently, the problem of not knowing whether the mean group behavior is the cause or the effect of individual behavior should be less of an issue in this study.

Confounding, however, is a major challenge in economics and business research with observational data. When working with non-experimental data, the empirical approach has to attempt to minimize the impact of confounding by, for example, including a rich set of control variables. In the context of peer effects in entrepreneurship, confounding means that unobserved environmental factors could be correlated with entrepreneurial intentions and new business rates. Nikolaev and Wood (2018, p. 478) point out that "... unobserved institutional support mechanisms, such as government subsidies or other kinds of training programs, can provide incentives for individuals to pursue self-employment and, at the same time, be correlated with the proportion of regional entrepreneurs." Due to data limitations, explanations like this cannot be ruled out. Therefore, similar to other studies on peer effects in entrepreneurship, the results presented here with regard to social contagion should be understood as suggestive evidence.

7 | CONCLUSION

This study examined the links between entrepreneurial intentions and behavior, which create a positive feedback loop between the two. The analysis presented indication that the rates of entrepreneurial intentions and new business ownership are reciprocally related. Consistent with the theory of planned behavior, entrepreneurial intentions seem to determine individuals' behavior. Simultaneously, consistent with the theory of social contagion, there seem to be peer effects from entrepreneurial behavior to others' intentions. Hence, the mechanisms constituting the relationship appear to involve two levels, namely the intentional and the behavioral level. The theories of planned behavior and social contagion appear to be well suited to jointly explain the relationship between entrepreneurial intentions and new business ownership. After all, by considering conversion and contagion in one analysis, this study extends and merges conversations on two streams of entrepreneurship research.

The results of the moderator analyses provide novel insights into the mechanisms that constitute the positive feedback loop. Favorable environmental conditions differently affect conversion and contagion: most of the factors considered seem to promote conversion and contagion, while higher living standards appear to weaken the relationship between intentions and behavior. Furthermore, positive entrepreneurial perceptions, exits, and knowing other entrepreneurs mitigate contagion but promote the conversion of latent entrepreneurs into new business owners. Where previous research has emphasized the role of individual motivation and personal traits, the analyses in this study highlight that we can better understand the relationship and the positive feedback loop between entrepreneurial intentions and behavior by accounting for structural influences. Thereby, the results contribute to the discussion on cross-country variation in entrepreneurial activity and on what factors fuel entrepreneurship in general.

ENDNOTES

¹ This will be addressed more directly in the discussion section.

² Note Table 1.

³ Contagion should still be bound to the country level because framework conditions for startups, such as the speed of technological change, economic growth, government support, regulatory quality, and so on, should be the same within countries, but considerably different across countries. Moreover, the assumption of individuals self-selecting into another group or population by moving to another country with higher rates of entrepreneurship is hardly conceivable due to the existence of market frictions. People would have to pay high costs related to, for example, the loss of friends and moving away from the family (McMullen & Warnick, 2016; Nikolaev & Wood, 2018). Some people may be able to accept this, but this is by no means the rule.

⁴ For further details on this measure see Section 4.1.

⁵ What is meant here is the perception of people (e.g., the respondents in the Global Entrepreneurship Monitor survey), that is, people's subjective assessment of their own skills and the opportunities available to them.

- ⁶ A list of all countries considered in this study is available upon request.
- ⁷ Further details on the variables, data sources, and aggregation methodology can be found in the documentation on the World Governance Indicators website: info.worldbank.org/governance/wgi/Home/Documents.
- ⁸ According to the World Bank (2020), the Startup Business Score “...measures the number of procedures, time, cost, and paid-in minimum capital requirement for a small-size to medium-size limited liability company to start up and formally operate in each economy's largest business city. To make the data comparable across 190 economies, Doing Business uses a standardized business that is 100% domestically owned, has a start-up capital equivalent to 10 times the income per capita, engages in general industrial or commercial activities and employs between 10 and 50 people 1 month after the commencement of operations, all of whom are domestic nationals. The starting a business indicators consider two cases of local limited liability companies that are identical in all aspects, except that one company is owned by five married women and the other by five married men. The overall score for starting a business is the average of the scores obtained for each of the component indicators.”
- ⁹ Certainly, these numbers do not cover the entire process from intention/idea to implementation but the fact remains that new businesses are often started faster than within a year.
- ¹⁰ The variance inflation factors are available upon request. The values satisfy the most common rules of thumb, such as the “rule of 10.”
- ¹¹ At this point, great caution is required when trying to draw causal inference that is always problematic when working with observational data. However, using panel data and instrumental variable approaches protects against the central threats to valid causal inference (Allison, 2005). Consequently, the results presented here could be understood as suggestive evidence. Furthermore, note that the method used (GMM) ensures that the effects identified are not subject to endogeneity, because the used instruments (lagged values of explanatory variables) induce changes in the respective explanatory variables but do not have an independent effect on the dependent variable, if the instruments used are valid.
- ¹² Breznau (2018) provides another interpretation of the reciprocal effects between two variables. He pictures a field in which the two magnets (the focal variables) simultaneously and constantly exert a mutual force on each other. “The coefficients represent constant forces in this stable field” (ibid., p. 277). This means that new business ownership and intentions constantly affect each other during a year, which results in a reciprocal relationship that is theoretically simultaneous, and thus recorded in the annual surveys of the GEM.
- ¹³ The formula to calculate standardized coefficients is given by $\beta_j = b_j \frac{SD_{x_j}}{SD_y}$, where b_j is the regression coefficient and SD_{x_j} is the standard deviation of predictor x_j , and SD_y is the standard deviation of the dependent variable. Standard deviations are provided in the summary-statistics table.
- ¹⁴ Note that the negative coefficients of *RegQuality*, *AdvEco*, and *GDP* (not the interaction terms) are reasonable because entrepreneurship rates are higher on average in developing countries, where the above variables have lower values, than in developed countries (e.g., Naudé, 2010).
- ¹⁵ The coefficients of these variables are positive and some of them are significant.
- ¹⁶ For further details on the definition of nascent entrepreneurship, please see Table 2.
- ¹⁷ See the website of the GEM: www.gemconsortium.org/wiki/1181.
- ¹⁸ The calculation is analogous to those presented in Section 5.1.
- ¹⁹ Note that interaction terms cannot be included due to collinearity issues. Including lagged explanatory variables and interaction terms causes variance inflation factors to become very high (some above 10), which would make the coefficients unreliable and unstable. This precludes the possibility to conduct a moderator analysis in this section.
- ²⁰ Unless the entrepreneur considered has already started a business and is about to start the next at the time of observation.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Hoboken, NJ: Prentice-Hall.
- Aldrich, H. (1999). *Organizations evolving*. Thousand Oaks, CA: Sage Publications.
- Allison, P. D. (2005). Causal inference with panel data. In Proceedings of the annual meeting of the American Sociology Association.
- Almodóvar-González, M., Fernández-Portillo, A., & Díaz-Casero, J. C. (2020). Entrepreneurial activity and economic growth. A multi-country analysis. *European Research on Management and Business Economics*, 26(1), 9–17.
- Andersson, M., & Larsson, J. P. (2016). Local entrepreneurship clusters in cities. *Journal of Economic Geography*, 16(1), 39–66.

- Anglin, A. H., McKenny, A. F., & Short, J. C. (2018). The impact of collective optimism on new venture creation and growth: A social contagion perspective. *Entrepreneurship Theory and Practice*, 42(3), 390–425.
- Angst, C. M., Agarwal, R., Sambamurthy, V., & Kelley, K. (2010). Social contagion and information technology diffusion: The adoption of electronic medical records in US hospitals. *Management Science*, 56(8), 1219–1241.
- Aral, S., & Walker, D. (2011). Creating social contagion through viral product design: A randomized trial of peer influence in networks. *Management Science*, 57(9), 1623–1639.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277–297.
- Arellano, M., & Bover, M. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29–51.
- Arenius, P., & Minniti, M. (2005). Perceptual variables and nascent entrepreneurship. *Small Business Economics*, 24(3), 233–247.
- Arthur, W. B. (1989). Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal*, 99(394), 116–131.
- Arthur, W. B. (1990). Positive feedbacks in the economy. *Scientific American*, 262(2), 92–99.
- Audretsch, D. B. (2007). *The entrepreneurial society*. Oxford: Oxford University Press on Demand.
- Autio, E., Keeley, H., Klofsten, R., Parker, G., & Hay, M. (2001). Entrepreneurial intent among students in Scandinavia and in the USA. *Enterprise and Innovation Management Studies*, 2(2), 145–160.
- Baltagi, B. H. (2001). *Econometric analysis of panel data*. Hoboken, NJ: Wiley Press.
- Baron, R. A. (2000). Psychological perspectives on entrepreneurship: Cognitive and social factors in entrepreneurs' success. *Current Directions in Psychological Science*, 9(1), 15–18.
- Begley, T. M., & Boyd, D. P. (1987). Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2(1), 79–93.
- Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review*, 13(3), 442–453.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143.
- Bond, S., Hoeffler, A., & Temple, J. R. (2001). GMM estimation of empirical growth models. CEPR Discussion Paper No. 3048.
- Bosma, N., Hessels, J., Schutjens, V., van Praag, M., & Verheul, I. (2012). Entrepreneurship and role models. *Journal of Economic Psychology*, 33(2), 410–424.
- Brezna, N. (2018). Simultaneous feedback models with macro-comparative cross-sectional data. *Methods, Data, Analyses*, 12(2), 265–307.
- Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms. *Journal of Business Venturing*, 25(1), 24–40.
- Burt, R. S. (1987). Social contagion and innovation: Cohesion versus structural equivalence. *American Journal of Sociology*, 92(6), 1287–1335.
- Carree, M. A., & Thurik, R. (2008). The lag structure of the impact of business ownership on economic performance in OECD countries. *Small Business Economics*, 30(1), 101–110.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120.
- Coulibaly, S. K., Erbao, C., & Mekongcho, T. M. (2018). Economic globalization, entrepreneurship, and development. *Technological Forecasting and Social Change*, 127, 271–280.
- Davidsson, P. (2015). Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing*, 30(5), 674–695.
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. *The Quarterly Journal of Economics*, 117(1), 1–37.
- Drucker, P. F. (1985). *Innovation and entrepreneurship: Practice and principles*. New York, NY: Harper and Row.
- Edelman, L., & Yli-Renko, H. (2010). The impact of environment and entrepreneurial perceptions on venture-creation efforts: Bridging the discovery and creation views of entrepreneurship. *Entrepreneurship Theory and Practice*, 34(5), 833–856.
- Felin, T., & Zenger, T. R. (2009). Entrepreneurs as theorists: On the origins of collective beliefs and novel strategies. *Strategic Entrepreneurship Journal*, 3(2), 127–146.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Boston, MA: Addison-Wesley.
- Frith, C. D., & Frith, U. (2012). Mechanisms of social cognition. *Annual Review of Psychology*, 63, 287–313.
- Galindo, M. Á., & Méndez, M. T. (2014). Entrepreneurship, economic growth, and innovation: Are feedback effects at work? *Journal of Business Research*, 67(5), 825–829.

- Giannetti, M., & Simonov, A. (2009). Social interactions and entrepreneurial activity. *Journal of Economics & Management Strategy*, 18(3), 665–709.
- Gieure, C., del Mar Benavides-Espinosa, M., & Roig-Dobón, S. (2020). The entrepreneurial process: The link between intentions and behavior. *Journal of Business Research*, 112, 541–548.
- Glaeser, E. L., Sacerdote, B. I., & Scheinkman, J. A. (2003). The social multiplier. *Journal of the European Economic Association*, 1, 345–353.
- Gompers, P., Lerner, J., & Scharfstein, D. (2005). Entrepreneurial spawning: Public corporations and the genesis of new ventures, 1986 to 1999. *The Journal of Finance*, 60(2), 577–614.
- Grilo, I., & Irigoyen, J. M. (2006). Entrepreneurship in the EU: To wish and not to be. *Small Business Economics*, 26(4), 305–318.
- Grilo, I., & Thurik, R. (2005). Latent and actual entrepreneurship in Europe and the US: Some recent developments. *The International Entrepreneurship and Management Journal*, 1(4), 441–459.
- Happé, F., Cook, J., & Bird, G. (2017). The structure of social cognition: In(ter)dependence of sociocognitive processes. *Annual Review of Psychology*, 68, 243–267.
- Henley, A. (2007). Entrepreneurial aspiration and transition into self-employment: Evidence from British longitudinal data. *Entrepreneurship & Regional Development*, 19(3), 253–280.
- Holcombe, R. G. (2003). Progress and entrepreneurship. *The Quarterly Journal of Austrian Economics*, 6(3), 3–26.
- Hunt, R. A. (2015). Contagion entrepreneurship: Institutional support, strategic incoherence, and the social costs of over-entry. *Journal of Small Business Management*, 53, 5–29.
- IMF (2020). World Economic Outlook. Retrieved from <https://www.imf.org/external/pubs/ft/weo/faq.htm>.
- Iyengar, R., van den Bulte, C., & Valente, T. W. (2011). Opinion leadership and social contagion in new product diffusion. *Marketing Science*, 30(2), 195–212.
- Jackson, M. O. (2008). Average distance, diameter, and clustering in social networks with homophily. In C. Papadimitriou & S. Zhang (Eds.), *Internet and network economics. Lecture notes in computer science* (Vol. 5385, pp. 4–11). Berlin: Springer.
- Judson, R. A., & Owen, A. L. (1999). Estimating dynamic panel data models: a guide for macroeconomists. *Economics Letters*, 65(1), 9–15.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The worldwide governance indicators: Methodology and analytical issues. World Bank policy research working paper no. 5430.
- Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 39(3), 655–674.
- Kautonen, T., van Gelderen, M., & Tornikoski, E. T. (2013). Predicting entrepreneurial behaviour: A test of the theory of planned behaviour. *Applied Economics*, 45(6), 697–707.
- Kelley, D., Bosma, N. S., & Amorós, J. E. (2011). Global entrepreneurship monitor 2010 executive report. Retrieved from <https://www.gemconsortium.org/report/gem-2010-global-report>.
- Kenney, M., & Von Burg, U. (1999). Technology, entrepreneurship and path dependence: Industrial clustering in Silicon Valley and route 128. *Industrial and Corporate Change*, 8(1), 67–103.
- Kirzner, I. M. (1973). *Competition and entrepreneurship*. Chicago, IL: University of Chicago Press.
- Klapper, L., Laeven, L., & Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, 82(3), 591–629.
- Klapper, L., & Love, I. (2011). The impact of the financial crisis on new firm registration. *Economics Letters*, 113(1), 1–4.
- Koellinger, P. D., & Thurik, R. A. (2012). Entrepreneurship and the business cycle. *Review of Economics and Statistics*, 94(4), 1143–1156.
- Kolvereid, L. (1996). Prediction of employment status choice intentions. *Entrepreneurship Theory and Practice*, 21(1), 47–58.
- Krueger, N. F., Jr., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15, 411–432.
- Lerner, J., & Malmendier, U. (2013). With a little help from my (random) friends: Success and failure in post-business school entrepreneurship. *The Review of Financial Studies*, 26(10), 2411–2452.
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593–617.
- Liñán, F., Santos, F. J., & Fernández, J. (2011). The influence of perceptions on potential entrepreneurs. *International Entrepreneurship and Management Journal*, 7(3), 373.
- Ma, C., Yang, J., Chen, L., You, X., Zhang, W., & Chen, Y. (2020). Entrepreneurs' social networks and opportunity identification: Entrepreneurial passion and entrepreneurial alertness as moderators. *Social Behavior and Personality: An International Journal*, 48(2), 1–12.
- Manski, C. F. (1993). Identification of endogenous social effects: The reflection problem. *The Review of Economic Studies*, 60(3), 531–542.

- Marsden, P. (1998). Memetics and social contagion: Two sides of the same coin. *Journal of Memetics-Evolutionary Models of Information Transmission*, 2(2), 171–185.
- Martens, M. P., & Haase, R. F. (2006). Advanced applications of structural equation modeling in counseling psychology research. *The Counseling Psychologist*, 34(6), 878–911.
- McMullen, J. S., & Warnick, B. J. (2016). Should we require every new venture to be a hybrid organization? *Journal of Management Studies*, 53(4), 630–662.
- Meade, M. L., & Roediger, H. L. (2002). Explorations in the social contagion of memory. *Memory & Cognition*, 30(7), 995–1009.
- Minniti, M. (2004). Entrepreneurial alertness and asymmetric information in a spin-glass model. *Journal of Business Venturing*, 19(5), 637–658.
- Nanda, R., & Sørensen, J. B. (2010). Workplace peers and entrepreneurship. *Management Science*, 56(7), 1116–1126.
- Naudé, W. (2010). Entrepreneurship, developing countries, and development economics: New approaches and insights. *Small Business Economics*, 34(1), 1–12.
- Naudé, W. (2013). Entrepreneurship and economic development: Theory, evidence and policy. Evidence and policy. IZA discussion paper, (7507).
- Neneh, B. N. (2019a). From entrepreneurial intentions to behavior: The role of anticipated regret and proactive personality. *Journal of Vocational Behavior*, 112, 311–324.
- Neneh, B. N. (2019b). From entrepreneurial alertness to entrepreneurial behavior: The role of trait competitiveness and proactive personality. *Personality and Individual Differences*, 138, 273–279.
- Nepelski, D., Piroli, G., & De Prato, G. (2016). European start-up hotspots: An analysis based on VC-backed companies. Joint Research Centre, JRC Scientific and Policy Report.
- Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49(6), 1417–1426.
- Nikolaev, B. N., & Wood, M. S. (2018). Cascading ripples: Contagion effects of entrepreneurial activity on self-employment attitudes and choices in regional cohorts. *Strategic Entrepreneurship Journal*, 12(4), 455–481.
- Nishimura, J. S., & Tristán, O. M. (2011). Using the theory of planned behavior to predict nascent entrepreneurship. *Academia. Revista Latinoamericana de Administración*, 46, 55–71.
- Olson, K. R. (2006). A literature review of social mood. *The Journal of Behavioral Finance*, 7(4), 193–203.
- Paxton, P., Hipp, J. R., Marquart-Pyatt, S., & Marquart-Pyatt, S. T. (2011). *Nonrecursive models: Endogeneity, reciprocal relationships, and feedback loops* (12th ed.). Thousand Oaks, CA: Sage Publications.
- Pe'er, A., & Vertinsky, I. (2008). Firm exits as a determinant of new entry: Is there evidence of local creative destruction? *Journal of Business Venturing*, 23(3), 280–306.
- Qin, F., & Estrin, S. (2015). Does social influence span time and space? Evidence from Indian returnee entrepreneurs. *Strategic Entrepreneurship Journal*, 9(3), 226–242.
- Roodman, D. (2009). A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, 71(1), 135–158.
- Rosa, P., Kodithuwakku, S.S., & Balunywa, W. (2006). Entrepreneurial motivation in developing countries: What does 'necessity' and 'opportunity' entrepreneurship really mean?. Babson College Entrepreneurship Research Conference (BCERC).
- Sacerdote, B. (2001). Peer effects with random assignment: Results for Dartmouth roommates. *The Quarterly Journal of Economics*, 116(2), 681–704.
- Saxenian, A. (1994). *Regional advantage: Culture and competition in Silicon Valley and route 128*. Cambridge: Harvard University Press.
- Scherer, C. W., & Cho, H. (2003). A social network contagion theory of risk perception. *Risk Analysis*, 23(2), 261–267.
- Scherer, R. F., Adams, J. S., Carley, S. S., & Wiebe, F. A. (1989). Role model performance effects on development of entrepreneurial career preference. *Entrepreneurship Theory and Practice*, 13(3), 53–72.
- Schoenewolf, G. (1990). Emotional contagion: Behavioral induction in individuals and groups. *Modern Psychoanalysis*, 15(1), 49–61.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Shane, S. A. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Cheltenham: Edward Elgar Publishing.
- Shim, J., & Davidsson, P. (2018). Shorter than we thought: The duration of venture creation processes. *Journal of Business Venturing Insights*, 9, 10–16.
- Shirokova, G., Osiyevskyy, O., & Bogatyreva, K. (2016). Exploring the intention–behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *European Management Journal*, 34(4), 386–399.
- Sorenson, O., & Audia, P. G. (2000). The social structure of entrepreneurial activity: Geographic concentration of footwear production in the United States, 1940–1989. *American Journal of Sociology*, 106(2), 424–462.

- Statista (2020). Leading start-up cities in Europe from 2015 to 2019, by number of investments. Retrieved from <https://www.statista.com/statistics/763309/leading-start-up-cities-in-europe-by-number-of-investments>.
- Sternberg, R., & Wennekers, S. (2005). Determinants and effects of new business creation using global entrepreneurship monitor data. *Small Business Economics*, 24(3), 193–203.
- Strang, D., & Soule, S. A. (1998). Diffusion in organizations and social movements: From hybrid corn to poison pills. *Annual Review of Sociology*, 24(1), 265–290.
- Tkachev, A., & Kolvereid, L. (1999). Self-employment intentions among Russian students. *Entrepreneurship & Regional Development*, 11(3), 269–280.
- Toma, S. G., Grigore, A. M., & Marinescu, P. (2014). Economic development and entrepreneurship. *Procedia Economics and Finance*, 8, 436–443.
- Türk, S., Zapkau, F. B., & Schwens, C. (2020). Prior entrepreneurial exposure and the emergence of entrepreneurial passion: The moderating role of learning orientation. *Journal of Small Business Management*, 58(2), 225–258.
- van Aukun, H., Stephens, P., Fry, F. L., & Silva, J. (2006). Role model influences on entrepreneurial intentions: A comparison between USA and Mexico. *The International Entrepreneurship and Management Journal*, 2(3), 325–336.
- van Gelderen, M., Brand, M., Van Praag, M., Bodewes, W., Poutsma, E., & Van Gils, A. (2008). Explaining entrepreneurial intentions by means of the theory of planned behaviour. *Career Development International*, 13(6), 538–559.
- van Stel, A., Storey, D. J., & Thurik, R. (2007). The effect of business regulations on nascent and young business entrepreneurship. *Small Business Economics*, 28, 171–186.
- Verheul, I., Uhlaner, L., & Thurik, R. (2005). Business accomplishments, gender and entrepreneurial self-image. *Journal of Business Venturing*, 20(4), 483–518.
- Weiss, J., Anisimova, T., & Shirokova, G. (2019). The translation of entrepreneurial intention into start-up behaviour: The moderating role of regional social capital. *International Small Business Journal*, 37(5), 473–501.
- Wennekers, S., van Wennekers, A., Thurik, R., & Reynolds, P. (2005). Nascent entrepreneurship and the level of economic development. *Small Business Economics*, 24(3), 293–309.
- World Bank. (2020). *Doing business 2020: Comparing business regulation in 190 economies*. Washington, DC: World Bank.
- Wu, F., & Huberman, B. A. (2007). Novelty and collective attention. *Proceedings of the National Academy of Sciences*, 104(45), 17599–17601.
- Yang, J., & Leskovec, J. (2010). Modeling information diffusion in implicit networks. In 2010 IEEE international conference on data mining, pp. 599–608.
- Young, H. P. (2009). Innovation diffusion in heterogeneous populations: Contagion, social influence, and social learning. *American Economic Review*, 99(5), 1899–1924.
- Zollo, L., Rialti, R., Tron, A., & Ciappei, C. (2021). Entrepreneurial passion, orientation and behavior: The moderating role of linear and nonlinear thinking styles. *Management Decision*, 59(5), 973–994.
- Zott, C., & Amit, R. (2007). Business model design and the performance of entrepreneurial firms. *Organization Science*, 18(2), 181–199.
- Zozimo, R., Jack, S., & Hamilton, E. (2017). Entrepreneurial learning from observing role models. *Entrepreneurship & Regional Development*, 29, 889–911.

How to cite this article: Bade, M. (2022). Conversion and contagion in entrepreneurship: A cross-country analysis. *Strategic Entrepreneurship Journal*, 16(1), 207–239. <https://doi.org/10.1002/sej.1412>