
Keywords and phrases: entrepreneurial intentions; intention-behavior link; formal institutions; GUESSS; student entrepreneurship

Abstract: Entrepreneurial behavior is usually initiated by formation of corresponding intention. At the same time, entrepreneurial intentions do not always materialize constituting in this way an intention-behavior gap in entrepreneurship. The environmental triggers of entrepreneurial intention-action translation remain to be understudied. With a piece of cross-country data derived from the GUESSS survey conducted in 2011 and 2013/2014, we study the entrepreneurial intention-action link among university students focusing on the essential context-specific moderators of this relationship. Namely, we reveal country financial market institutions and property rights protection system to impact the link between entrepreneurial intentions and further start-up activities.

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Intention-behavior translation in student entrepreneurship: 
An institutional perspective

Introduction

Recent empirical evidence suggests that, even though young people are becoming more educated, levels of youth unemployment are increasing worldwide (Ernst & Young, 2013; Schott, Kew & Cheraghi, 2015). According to Ernst & Young report, youth unemployment is a “ticking bomb” in all countries; therefore, creating an environment that would support young people to take risks, launch ventures, and create jobs is gaining critical importance (Ernst & Young, 2013). Moreover, fostering entrepreneurial activity among youth allows involving an extremely prominent population group in terms of their economic potential into the labor market (Kvedaraite, 2014). The results of these efforts are reflected in an emerging phenomenon of an early interest to entrepreneurship (Åstebro et al., 2012; Bergman et al., 2016; Martinez, Mora & Vila, 2007; Sieger et al., 2011). Namely, in 2012-2014 around one third of the young respondents to the GEM adult population survey expressed entrepreneurial intentions, with the highest rates attributed to individuals aged 18-24 (Schott, Kew, & Cheraghi, 2015). However, there is a limited knowledge on triggers of the transformation of mere intentions into an actual start-up behavior among young people (Shirokova, Osiyevskyy, & Bogatyreva, 2016).

While intentional models of human action suggest a direct link between intentions and subsequent behavior, in practice, however, not every declared intention is eventually transformed into an operating venture, creating in this way an intention-action gap. A growing body of research addressing the issue of intention-behavior translation in entrepreneurship has found entrepreneurial intentions per se to be able to explain about 30% or less of variance in subsequent behavior (e.g., Kautonen, Van Gelderen & Fink, 2015; Kautonen, Van Gelderen & Tornikoski, 2013; Shirokova, Osiyevskyy, & Bogatyreva, 2016; Van Gelderen, Kautonen & Fink, 2015). It might be, therefore, inferred that translation of entrepreneurial intentions to actual start-up activity can be impeded or facilitated by a variety of situational factors and circumstances.

Entrepreneurial activity is heavily influenced by institutional environment. Formal institutions represent “rules of the game” or regulatory pillars that marshal the behavior of economic agents (North, 1990; Peng, 2009). They are developed in order to diminish uncertainty, thereby facilitating business interactions and development (Li & Zahra, 2012). Therefore, individuals are more likely to translate their entrepreneurial intentions into start-up activities in a country with well-developed institutions, as in this case the overall risk of doing business is expected to be lower (Wan & Hoskisson, 2003).

Thus, drawing on the premises of intentional models of entrepreneurial action and institutional approach, with a piece of cross-country data derived from the Global University Entrepreneurial Spirit Students’ Survey 2011 and 2013/2014, we address the following research question: do country-level institutional peculiarities affect the entrepreneurial intention-action translation among youth and what is the direction of their impact? More specifically, we develop conceptual links and explain mechanisms underlying country-specific institutions that may shape the intentions-behavior translation by student entrepreneurs.

This paper aims to make several district contributions. First, we extend the existing knowledge within the entrepreneurial cognition domain by specifying the external factors that might affect the actual shift from entrepreneurial intentions to start-up activities (Liñán &
Second, having assessed the impact of country-specific institutional conditions on the process of entrepreneurial intentions-behavior translation, we contribute to the stream of comparative international entrepreneurship literature (Terjesen et al., 2016). Finally, having addressed the focal relationships in a very specific context of student entrepreneurship (on average our respondents are around 25 years old), we introduce new insights to the youth entrepreneurship literature stream (Hulsink & Koek, 2014).

**Theory and research hypotheses**

**Intention-behavior translation in entrepreneurship**

The notion of intentionality of human action takes its origins in the social psychology literature (Lewin, 1935; Miller, Galanter, & Pribram, 1960; Greve, 2001). Resulting from the seminal work of M. Fishbein and I. Ajzen, the Theory of Reasoned Action (TRA) became one of the first solid theoretical frameworks to shed the light on the antecedents of behavioral intentions and to link them to actual behavior (Fishbein, 1967; Fishbein & Ajzen, 1975). As presumed by the TRA, actions that individuals undertake are the outcomes of corresponding intentions, the latter being a product of two antecedents: attitudes related to positive or negative evaluation of the behavior and subjective norms reflecting perceived social pressure to proceed or not to proceed with the behavior. Further, the Theory of Planned Behavior extended this framework to include an additional element potent of influencing both intentions and behaviors – perceived behavioral control, standing for assumed ease or difficulty of pursuing actual activities (Ajzen, 1985; 1991). The link between intentions and action is also corroborated by the Rubicon model (Gollwitzer, 1990, 1999; Heckhausen & Gollwitzer, 1987). This framework distinguishes four action phases: deliberation (predecisional) phase related to goal setting, planning (preactional) phase presuming building up strategies for reaching the determined goals, volition (actional) phase characterized by acting upon selected strategies, and evaluation (postactional) phase where estimation of action outcomes happens (Achtziger, Gollwitzer, 2008). The process of going through the phases accordingly entails intention formation, initiation, realization, and deactivation, demonstrating in this way the crucial role of intentions as important triggers of human behavior. In similar vein, Action Regulation Theory emphasizes the role of intentions supplemented with concrete action plans in the process of action initiation (Frese & Zapf, 1994).

In the context of entrepreneurship, the relationship between intentions and subsequent behavior is supported by the premises of the abovementioned psychological perspectives [see, e.g., (Kautonen et al., 2015; Kautonen et al., 2013; Liñan and Rodriguez-Cohard, 2015) for the TPB application; (Gielnik et al., 2014) for the Action Regulation Theory application; (Van Gelderen et al., 2015) for the Rubicon Model of Action Phases] as well as of more field-specific theoretical developments, e.g., Model of Entrepreneurial Intentionality (Bird, 1988; Bird and Jelinek, 1989; Boyd and Vozikis, 1994), Model of Entrepreneurial Event (Shapero and Sokol, 1982). Empirical evidence corroborates the suggested theoretical predictions (Delanoë, 2013; Goethner et al., 2012; Kautonen et al., 2013; 2015; Liñan and Rodriguez-Cohard, 2015; Shirokova et al., 2016). For instance, Liñan and Rodriguez-Cohard (2015) found that entrepreneurial intentions significantly predict start-up behavior explaining 12.8% of its variance. Kautonen and colleagues (2013; 2015) revealed an explanatory power of entrepreneurial intentions to account for around 30% of variation in actual activity. Kolvereid and Isaksen (2006) found that entrepreneurial intentions determine actual entry into self-employment. Therefore, basing on the theoretical arguments and existing empirical evidence, we propose the following hypothesis:

**Hypothesis 1:** Entrepreneurial intentions are positively associated with the scope of subsequent startup activities among youth.

However, even though the link between intentions and actions is theoretically well-justified, empirical studies in entrepreneurship reveal the explanatory power of intentions with
regard to subsequent behavior to be relatively moderate (Kautonen et al., 2013; 2015; Liñan and Rodríguez-Cohard, 2015; Shirokova et al., 2016). In other words, entrepreneurial intentions do not always lead to actual start-up activities. The discrepancy between the former and the latter might be caused by a variety of environmental forces including the variations in the country-level institutional settings.

**Institutions and entrepreneurial intention-behavior translation**

Entrepreneurship as a social activity is deeply embedded into institutional context (Autio and Fu, 2015; Estrin et al., 2013). Therefore, a significant body of research has been devoted to exploration of this phenomenon through the lenses of institutional theory (Bruton et al., 2010). Institutions set up conditions for business interactions defining the limitations and opportunities for starting and running a venture (Crnogaj and Hojnik, 2016; Urbano & Alvarez, 2014; Thornton et al. 2011; Veciana and Urbano, 2008). They represent the “rules of the game” (North, 1990) that guide behavior of individuals and organizations. The institutional forces influencing the behavioral choices of economic agents are usually divided into formal (rules, regulations, constitutions, contracts) and informal (attitudes, norms, values, and conventions) (North, 1990; 2005; DeClercq et al., 2013; Urbano and Alvarez, 2014). Both formal and informal institutions are often associated with one of the three pillars - regulative, normative, and cognitive (Scott, 1995; 2007). The regulative pillar encompasses formally established laws, policies, and regulations; the compliance to them is officially monitored and enforced by authorities of various levels (Bruton et al., 2010; Manolova et al., 2008). With respect to entrepreneurship, their aim is to reduce risk of starting a new venture and enable entrepreneurs to acquire resources being supported by formal rules and procedures (Busenitz et al., 2000). The normative dimension stands for less formal uncodified values and norms that define social desirability of certain behavior and activities, including those related to entrepreneurship (Yousafzai et al., 2015). The cognitive pillar is built up by perceptions and cognitive frameworks through which individuals interpret the reality (Urbano and Alvarez, 2014). Recently, a new conducive institutional dimension has been added by Stenholm and colleagues (2013) to the classical ones. This dimension is described as a country’s capability to produce ‘high-impact’ entrepreneurial firms in terms of their innovative capabilities and knowledge dissemination and includes such aspects as information technology legislation, university-industry collaboration, venture capital availability, and access to the latest technologies (Stenholm et al., 2013).

The impact of formal and informal institutions on entrepreneurship has well been documented in the literature (e.g., Autio et al., 2015; De Clercq et al., 2013; Kibler and Kautonen, 2016; Kibler et al., 2014; Peng, 2006; Peng and Zhou, 2005; Stenholm et al., 2013; Yousafzai et al., 2015). When it comes to a narrower phenomenon of entrepreneurial intention-behavior translation, there have been fruitful efforts to assess the role of informal institutions in this process. Namely, Kibler and colleagues (2014) revealed the importance of social legitimacy of entrepreneurship as a force potent to trigger the shift from intentions to self-employment. The importance of cognitive elements in this process has also been established (Van Gelderen et al., 2015). However, knowledge on the impact of formal institutions on entrepreneurial intention-action transformation remains limited whereas Welter and Smallbone (2011) stipulate that “in all countries, the development of entrepreneurship and the behavior of entrepreneurs are influenced by the appropriateness and operation of formal institutions” (Welter and Smallbone, 2011: 109).

Out of the multifaceted variety of formal institutions, those related to financial resources availability and property rights protection will presumably have the most notable impact on young would-be entrepreneurs. Due to their young age, they are very unlikely to have solid financial assurance to fund their potential start-ups (Ozgen & Minsky, 2013). Therefore, if the institutional arrangements regulating access to financial resources are unfavorable, entrepreneurial intentions might never result into an operating venture. The same
applies to the property rights protection mechanisms: because of the lack of important connections and resulting inability to pull the necessary strings, facing underdeveloped system of property rights protection, young aspiring entrepreneurs might feel unsafe and either abandon the idea of putting their entrepreneurial intentions into motion or postpone it. In what follows, we explicate the possible moderating effect of financial market and property rights system institutions on the process of entrepreneurial intention-behavior translation in more detail.

**The role of financial market institutions**

Shift from mere entrepreneurial intentions to full scale start-up activities requires massive mobilization of resources (Brush et al., 2008; DeClercq et al, 2013). Among a variety of entrepreneurial resources, as noted by Blanchflower and Oswald (1998), lack of financial capital can be the main factor augmenting the entrepreneurial intention-action gap. Regardless of a growing importance of bricolage and bootstrapping strategies (Baker & Nelson, 2005; Bhide, 1992) and readiness of young entrepreneurs to rely on them (Hulsink & Koek, 2014), the individuals who are about to transform their entrepreneurial intentions into actual start-up behavior are dependent on the overall financial system that is one of the key characteristics of the country’s business environment expected to account for specific needs of entrepreneurial firms (Bowen & DeClercq, 2008; DeClercq et al, 2013).

Ability to access financial resources allows starting new business at a cost-minimizing scale and overcome short-term negative shocks (Estrin & Mickiewicz, 2011). In line with this idea, ample empirical evidence suggests the positive relationship between country-level financial institutions and engagement in entrepreneurship (e.g., Bowen & DeClercq, 2008; Crnogaj & Hojinik, 2016; George & Prabhu, 2000; Ho & Wong, 2007; Samila & Sorenson, 2011; Urbano & Alvarez, 2014). Well-developed system of financial capital provision creates an encouraging ambiance for entrepreneurial intention-action translation. The availability of financial assets increases the likelihood of pursuing previously discovered business opportunities (Stenholm et al., 2013). Therefore, aspiring entrepreneurs with intentions to act upon a promising opportunity will be more inclined to do so if they are confident of receiving adequate means of searching for financial support guaranteed by institutional settings. Additionally, as shown by Samila and Sorenson (2011), would-be entrepreneurs anticipating financing needs are more likely to launch ventures when the supply of capital expands.

Improving access to credit is recognized to be an important line of policy aimed at entrepreneurship support (Urbano & Alvarez, 2014). Young intentional founders are particularly perceptive of the developments in the financial institutional environment due to limited personal wealth (Bowen & DeClercq, 2008; Ozgen & Minsky, 2013). Even though borrowings from family and friends might play an important role at the initial stage (Edelman et al., 2016), a young aspiring entrepreneur will eventually need to access other sources of external funding, such as bank loans, venture capital or investment companies. Therefore, before making a decision to shift from entrepreneurial intentions to start-up activities, he or she must evaluate the odds to successfully reach them taking into account the peculiarities of given institutional environment. If the odds are against him/her, entrepreneurial intentions might never materialize in an operating venture. On the contrary, well-developed financial institutions and transparent regulations in this domain reduce the overall uncertainty thereby facilitating intention-behavior translation. Basing on these premises, we suggest the following hypothesis:

**Hypothesis 2:** The country-level financial market institutions reinforce the relationship between entrepreneurial intentions and start-up behavior among youth, so that in countries with well-developed financial institutions the relationship becomes stronger.

**The role of property rights protection system**

Another important institution potent of influencing entrepreneurial intention-behavior translation among youth is country-level system of property rights protection. According to Williamson (2000), property rights protection represents a set of the key “rules of the game”
with respect to business activity. This institution encourages entrepreneurial alertness by increasing a feeling of internal control (Harper, 2003), thereby facilitating materialization of entrepreneurial intentions in the form of an operating venture. Stable and effective enforcement of property rights ensures ‘transactional trust’ which, in turn, reduces the overall uncertainty of doing business (Fogel et al., 2006) making it easier to transform entrepreneurial intentions into actual behavior. It encourages the entrepreneurial action through the rule of law (Bowen & De Clercq, 2008; Lim et al., 2010) ensuring high-quality legal protection for those who decide to shift from entrepreneurial intentions to start-up activities. On the contrary, weak property rights settings discourage would-be entrepreneurs from acting upon their intentions because of high risks of expropriation, sense of insecurity, and low quality of contracting institutions (Desai et al., 2003; Estrin et al., 2013). In this vein, existing empirical evidence corroborates the importance of property rights and legal protection system as an influential facilitator of entrepreneurial cognitions (Lim et al., 2010) and engagement into entrepreneurial activity (Carbonara et al., 2016; Desai et al., 2003; Sobel, 2008; McMullen et al., 2008; Yano et al., 2013).

High level of property rights protection stimulates the development of opportunity-driven entrepreneurship (McMullen et al., 2008) which may be of a particular importance for young individuals who consider entrepreneurial career as one of the possible ways to achieve their ambitions. Contrariwise, weak legal protection will hamper entrepreneurial intention-behavior relationship for young people as due to their age and lack of experience they often have limited network of social connections useful to overcome the inefficiency of the system. In light of these points, the following hypothesis may be put forward.

**Hypothesis 3:** The country-level property rights protection reinforces the relationship between entrepreneurial intentions and start-up behavior among youth, so that in countries with well-developed property rights system the relationship becomes stronger.

The overall theoretical model is presented in Figure 1.
Method

Sample

Traditional theory of planned behavior reasoning (Ajzen, 1985) suggests the direct causality going from intentions to actions. Yet, the reverse causal link may also be possible, as engagement in actions might influence the perceptions of these actions (attitude, perceived behavioral control, and perceived subjective norms) and – through these mediators – the intentions themselves. Hence, in order to reduce the threat of such reverse causality (going from actions back to intentions), the proposed in this paper theoretical model has to rely on data collected in two points in time, with sufficient time lag between the measure of revealed intentions and the following actions. Moreover, the literature on entrepreneurial intentions specifically emphasizes the need of sufficient time for intentions to materialize (e.g., Kautonen et al., 2015). Yet, the sufficient amount of time needed to move from mere intentions to feasible start-up activities is not well defined (Ancona et al., 2001). On the one hand, the time lag must be long enough for the entrepreneurial process to unleash (Gielnik et al., 2014). On the other hand, it should be reasonably short to maintain the predictive power of intentions, which inevitably change over time as the conditions change (Gielnik et al., 2014; Kautonen et al., 2015; Sutton, 1998). Most prior studies of intentions-actions translation were designed with a time lag between 1 and 3 years (Delanoë, 2013; Gielnik et al., 2014; Kautonen et al., 2015; Kibler et al., 2014; Liñan and Rodríguez-Cohard, 2015; Obschonka et al., 2015; Van Gelderen et al., 2015). This choice is well justified by prior research, suggesting that most start-up activities take place in the first 12-18 months of the entrepreneurial process (Carter et al., 1996; Davidson and Honig, 2003; Gielnik et al., 2014; Reynolds and Curtin, 2008). In addition, the specific study of the temporal aspect of entrepreneurial intention-action translation by Gielnik and colleagues (2014) report that that the impact of entrepreneurial intentions on start-up behaviors is most pronounced in the first 12 months.

Therefore, following the guidance of the prior literature, in the current paper we rely on the data collected in in two different time periods, with a lag of at least two years between measurement of entrepreneurial intentions and startup activities, which should be sufficient to allow the intentions to materialize or be abandoned. The two-year time lag is also appropriate considering the focus of the study on the entrepreneurial intention-behavior translation within a student sample. Obviously, the full-time students devote much time to their studies; therefore, within this context the speed of implementation of entrepreneurial intentions is limited by their university commitments. Hence, we extend the suggested 12-months’ time lag of Gielnik and colleagues (2014) to 24 months, with entrepreneurial intentions captured in 2011 and start-up activities in 2013/2014.

We rely on the data from two waves of the Global University Entrepreneurial Spirit Students’ Survey (GUESSS), from 2011 and 2013/2014. The GUESSS survey, used extensively in the studies of student entrepreneurship (e.g., Zellweger, et al., 2011; Edelman et al., 2016), was originally launched in 2003 and repeated every two years ever since. The 2011 and 2013/2014 questionnaires were specifically designed to rigorously capture the relevant constructs of the theory of planned behavior applied to entrepreneurial context, among other things, with specific blocks of questions assessing students’ entrepreneurial intentions and startup related actions.

In 2013-2014, students from 34 countries and 759 universities took part in the study. The obtained sample contains 109026 observations (5.6% response rate). From this GUESSS sample, we were able to detect 1537 answers belonging to respondents who also answered the

1http://www.guesssurvey.org
GUESS questionnaires in 2011. The 2011-2013/2014 matching was performed employing the voluntarily reported e-mail field in both questionnaires. From this matched sample, we eliminated 103 observations belonging to respondents from countries with less than 10 answers (needed minimum to be able to reliably estimate country averages).

This resulted in the **final sample of 1434 observations** used in all further analysis, comprising the responses from 9 countries and 142 universities. The distribution of the observations by country is the following: Brazil (629), Germany (174), Netherlands (174), Switzerland (134), Hungary (120), Austria (103), Estonia (53), Singapore (28), and Russia (19). At the level of an individual student, the focal sample has the following composition: (1) gender: 41% males; (2) marital status: 75% single; 11% living with a partner; 13% married; 1% divorced; (3) age distribution (years): min=19, max=40, average=25.3; (4) education level: 66% undergraduate students; 27% master students; 4% PhD students; 2% MBA students; (5) field of study: 38% business, economics and law; 33% natural sciences and medicine; 13% social sciences; 16% other.

**Testing the Sample Selection Bias**

Since the design of the employed GUESS survey is not longitudinal (every time a new wave of student subjects are invited to participate), the overlap between the two waves is predictably minimal. In our study, the resulting sample of individuals with matched 2011 – 2013/2014 answers reaches only 1.3% of the full 2013/2014 sample, or 1.5% of the 2011 sample. Obviously, retaining only small portion of observations for further analysis exposes the study to a possible sample selection bias.

As a first check of the representativeness of the smaller subsample, we tested the difference in the means for the intentions variable (in the 2011 sample) and scope of start-up activities variable (in the 2013/2014 sample) of the selected and not selected observations; the difference was not statistically significant (p>0.05).

Then, we explicitly controlled for the possible sample selection bias using the Heckman’s (1979) two-stage correction method, following the procedure outlined in Certo et al. (in press). On the first stage, we predicted the probability of a respondent being present in both survey waves and hence getting into our sample (1 – in the final sample; 0 – otherwise) using a probit model on the full sample of GUESSS respondents. In line with the guidance of the Heckman procedure (see Certo et al., in press), the first-stage model comprised a set of variables that do not appear in the second stage (exclusion restrictions: characteristics that can reasonably predict getting into the final sample but are not part of the second-stage regression models): (1) the total length of study, as of 2011 (since individuals who studied longer are likely to graduate before the second survey wave); (2) university dummies (since the universities administering the GUESS survey might influence the chances of having students in both waves); (3) respondent’s education level (ordinal variable); (4) respondent’s marital status. In addition to these unique for the first stage variables, we also added a set of second stage covariates: (5) age; (6) gender; (7) country; (8) field of study dummies, and (9) career choice intentions (dummy-coded). The built first-stage model predicts getting into the final sample reasonably well (Wald $\chi^2=1229.17$, $df=239$, $p<0.0001$, McKelvey and Zavoina's pseudo-$R^2=0.233$, count $R^2=0.979$). Then, we estimated the inverse Mill’s ratio ($\lambda$), to be used further in all second-stage regression models as a control for selection bias.

**Measures**

**Dependent Variable: Scope of Startup Activities**

Entrepreneurial behavior refers to individual ability to turn ideas into actions that result in new venture creation. Following the guidance of the prior studies of intentions-actions link in entrepreneurship analyzed through the theory of planned behavior lens (Kautonen et al., 2015; Van Gelderen et al., 2015), we measure the entrepreneurial intentions and actions at the same level of specificity (Ajzen, 2011) – with respect to starting a new
business—matched in terms of action, target, time and context (Kautonen et al., 2015). The entrepreneurial behavior was measured in the second wave of survey (2013/2014 years) by calculating the aggregated index of individual actions that constitute the behavioral category of starting a new venture—the scope of start-up activities that a student has already carried out on his or her way to the new venture creation. Similarly to Kautonen and colleagues (2015), the list of start-up activities was adopted from Global Entrepreneurship Monitor (GEM) and Panel Study of Entrepreneurial Dynamics (PSED), comprising the following ten items in response to the question: “Please indicate which of the following activities you have already carried out in order to start your own business (multiple answers possible)”: “(1) Discussed product or business idea with potential customers”, “(2) Collected information about markets or competitors”, “(3) Written a business plan”, “(4) Started product/service development”, “(5) Started marketing or promotion efforts”, “(6) Purchased material, equipment or machinery for the business”, “(7) Attempted to obtain external funding”, “(8) Applied for a patent, copyright or trademark”, “(9) Registered the company”, “(10) Sold product or service”. The resulting index variable was calculated by counting the number of start-up activities that a student has undertaken. By design, the index is measured on a count scale from 0 (no activities) to 10 (full engagement in all listed startup activities, including individuals who reported operating a business).

Independent Variables and Moderators

Students’ entrepreneurial intentions variable was captured in 2011 survey using a specific question regarding the future career aspirations of the respondent: “Which career path do you intend to pursue right after completion of your studies?” The dummy variable for assumed the value of 1 if the answer to the question was “As a founder...” with options “continuance in the firm I have already founded”/”foundation of an own firm”/”start as a freelancer”/”foundation of a franchise company”. All other answers about career aspirations (as an employee, as a successor of a family firm, others (e.g., travel), “do not know”) were coded as 0. Obviously, capturing the entrepreneurial intentions construct through a single-item dummy-coded variable might not be optimal; yet, the focal survey question about career plans is unambiguous and specific enough to reliably assess the underlying construct. Using single-item intentions measure is an acceptable research practice for questions about professions (e.g.: Schoon & Duckworth, 2012); furthermore, and Kolvereid and Isaksen (2006) reveal that such single-item measure of entrepreneurial intention has high convergent validity with alternative, multi-item measures. Finally, employing only two distinct levels of the variable (having / not having intentions), rather than gradual continuous intention strength, is not likely to compromise the results testing the study’s hypotheses focusing on the context dependence of intentions-actions translation in student entrepreneurship context.

The moderator variables in this study were taken from external sources. The country-level financial market institutions were assessed as a sum of two indices from the Global Competitiveness Report 2013-2014: (1) Ease of access to loans (“How easy is it to obtain a loan in your country with only a good business plan and no collateral?” (1 = impossible, 7 = easy)), and (2) Venture capital availability (“Entrepreneurs with innovative but risky projects can generally find venture capital in your country” (1 = not true, 7 = true)). The country-level property rights protection was assessed using the 2013 International Property Rights Index (IPR2, comprising three sub-indices: Legal and Political Environment, Physical Property Rights, and Intellectual Property Rights), measured on a scale from 0 (lowest level) to 10 (highest level).

Control Variables

To account for the additional sources of heterogeneity in entrepreneurial actions, we included a set of control variables.
On the individual level we control for the respondent’s demographics: age in years and gender (0 – males, 1 – females) [Kolvereid and Isaksen, 2006; Van Gelderen et al., 2015]. Moreover, since the student’s educational background can potentially influence the entrepreneurial intentions and actual entrepreneurial activities (Kolvereid and Moen, 1997), we controlled for student’s primary field of studies (dummy coded categories), attending at least one course in entrepreneurship (0 – no, 1 – yes), and subjective assessment of the university entrepreneurial environment (measured with a 7-point Likert scale adopted from Franke and Lüthje (2004) with three items: “The atmosphere at my university inspires me to develop ideas for new businesses” / “There is a favorable climate for becoming an entrepreneur at my university” / “At my university students are encouraged to engage in entrepreneurial activities”; Cronbach Alpha is 0.90).

On the country level, we accounted for the main effects of the level of a country’s economic development (GDP per capita in 2013), Global Entrepreneurship Monitor 2013 Total Early-Stage Entrepreneurial Activity index (TEA), and country unemployment level in 2013. In order to be able to estimate the individual effects of these country-level controls, as well as the main effects of the hypothesized moderators (financial market institutions and property rights protection), we did not include country dummy variables in our models.

Data analysis and results

Descriptives, correlations, and means comparisons

Descriptive statistics and the correlation matrix for the variables in the study are presented in Table 1.

With respect to correlations, the key concern emerges because of (predictably) high association between the country’s GDP per capita and institutional quality: r=0.918 and r=0.745 for property rights index and financial market institutions index, respectively. Also, the other correlations over 0.7 are between GDP per capita and TEA index (r=−0.751), TEA index and property rights index (r=−0.821), and unemployment rate and financial market institutions index (r=−0.761). All these high associations create the possible multicollinearity concerns: indeed, although the average VIF in the regression model with the main effects of the predictors in Table 1 is 3.98, the VIF values for two individual predictors is well over the stipulated cut-off point of 5.0: 11.99 for property rights index and 10.39 for GDP per capita. Removing the three control variables (GDP per capita, TEA index, and unemployment rate) leads to the decrease in average VIF to 1.76, with maximal VIF of 3.88 for financial market institutions index.

Considering the theoretical importance of controlling for country-level contextual factors (GDP per capita, TEA index, and unemployment rate), in the main analyses we opted for the model with these controls; yet, to make sure that our results are not exposed to multicollinearity threats, in the robustness checks section we demonstrate that the model without these variables produces the same results.

The “raw” mean comparison of the two groups of subjects (students with entrepreneurial intentions in 2011 vs. students without them) provides the initial support for hypothesis 1. The average number of subsequent startup activities in the group of 141 students who revealed entrepreneurial intentions in 2011 is 2.41, as compared to 0.65 for the 1293 students with no prior entrepreneurial intentions (difference statistically significant at p<0.001 level). A more nuanced estimation of this difference is studied below in the regression models.
Table 1.
Descriptive statistics and Pearson correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
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<tbody>
<tr>
<td>(1) Scope of startup activities index, 2013/2014</td>
<td>0.823</td>
<td>2.456</td>
<td>0.000</td>
<td>10.000</td>
<td>1</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>(2) Entrepreneurial intentions (EI), 2011</td>
<td>0.098</td>
<td>0.298</td>
<td>0.000</td>
<td>1.000</td>
<td>0.214</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(3) Financial market institutions index</td>
<td>5.957</td>
<td>0.828</td>
<td>4.200</td>
<td>8.700</td>
<td>-0.020</td>
<td>-0.085</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(4) Property rights index</td>
<td>6.705</td>
<td>1.157</td>
<td>4.500</td>
<td>8.200</td>
<td>-0.039</td>
<td>-0.141</td>
<td>0.685</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Age</td>
<td>25.333</td>
<td>3.839</td>
<td>19.000</td>
<td>40.000</td>
<td>0.086</td>
<td>0.046</td>
<td>-0.052</td>
<td>-0.055</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) Gender</td>
<td>0.594</td>
<td>0.491</td>
<td>0.000</td>
<td>1.000</td>
<td>-0.152</td>
<td>-0.094</td>
<td>0.023</td>
<td>0.035</td>
<td>-0.077</td>
<td>1</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(7) Attending an entrepreneurship course</td>
<td>0.461</td>
<td>0.499</td>
<td>0.000</td>
<td>1.000</td>
<td>0.104</td>
<td>0.066</td>
<td>-0.289</td>
<td>-0.359</td>
<td>-0.019</td>
<td>-0.059</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) University entrepreneurial environment</td>
<td>3.998</td>
<td>1.604</td>
<td>1.000</td>
<td>7.000</td>
<td>-0.005</td>
<td>0.052</td>
<td>-0.052</td>
<td>-0.203</td>
<td>-0.019</td>
<td>-0.023</td>
<td>0.242</td>
<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(9) GEM TEA index, 2013</td>
<td>12.287</td>
<td>4.724</td>
<td>5.000</td>
<td>17.300</td>
<td>0.046</td>
<td>0.138</td>
<td>-0.385</td>
<td>-0.821</td>
<td>0.071</td>
<td>-0.056</td>
<td>0.313</td>
<td>0.200</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) GDP per capita in 2013, USD</td>
<td>31336.050</td>
<td>24315.660</td>
<td>11208.080</td>
<td>84748.370</td>
<td>-0.050</td>
<td>-0.140</td>
<td>0.745</td>
<td>0.918</td>
<td>-0.035</td>
<td>0.041</td>
<td>-0.355</td>
<td>-0.172</td>
<td>-0.751</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(11) Unemployment rate, 2013</td>
<td>6.437</td>
<td>1.588</td>
<td>3.100</td>
<td>10.500</td>
<td>0.037</td>
<td>0.053</td>
<td>-0.761</td>
<td>-0.432</td>
<td>-0.051</td>
<td>-0.006</td>
<td>0.282</td>
<td>0.032</td>
<td>0.244</td>
<td>-0.615</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: n=1434. All Pearson correlations with absolute values above |r|>0.05 are significant at the 5% level; |r|>0.07 are significant at 1% level; |r|>0.09 are significant at 0.1% level.
Regression models

Since our outcome, the scope of startup activities, is by design a count variable, we employed the negative binomial estimation models. Also, in each of the equations we included the inverse Mill’s ratio (λ) to account for possible sampling bias. This sampling control variable did not demonstrate statistically significant impact in any of the models; this suggests that the reported results are unlikely to be subject to sample selection bias.

The main regression models are presented in Table 2.

Among the control variables (see Model 1 in Table 2), the scope of startup activities is influenced by age (b=0.089, p<0.001), gender (b=-1.205, p<0.001) and attending an entrepreneurship course (b=0.982, p<0.001) – a result fully consistent with reported findings in prior studies of student entrepreneurial activities (e.g., Shirokova et al., 2016).

Adding the main effect of entrepreneurial intentions in Model 2 significantly improves the model fit (Δχ²=43.59, df=1, p<0.001), because of the detected significant main effect of this variable on the scope of startup activities (b=1.231, p<0.001). This result suggests that ceteris paribus for every one-unit increase in entrepreneurial intentions (i.e., going from 0 to 1), the expected log count of the number of startup activities increases by 1.23, or the expected count of the number of startup activities increases by e1.23=3.42. This result is fully consistent with the raw comparisons of means of number of startup activities in the two groups of students (with entrepreneurial intentions in 2011 and without them): 2.41 (mean for “intentional group”) / 0.65 (mean for “non-intentional group”) = 3.71. The difference in the estimations (3.42 versus 3.71) is explained by the presence of additional control variables in the negative binomial model (Model 2 Table 2), making the estimated impact more precise. Overall, this provides strong support for hypothesis 1.

The moderating hypotheses 2 and 3 were tested in Models 3-5 in Table 2: adding one each moderator at a time (Models 3 and 4), and then the full Model 5.

In line with our hypothesis 3, the property rights index positively moderates the association between entrepreneurial intentions and the scope of startup activities (b=0.647, p<0.01 when the interaction term is standalone in Model 3, and b=0.921, p<0.001 in the fully specified Model 5). The magnitude of this interaction effect can be illustrated using the following example: (1) when the property rights index is extremely low (1.00), the expected count of startup activities in the “intentional group” exceeds the expected count of startup activities in the “non-intentional group” by 1.56; (2) yet, when the property right index is at the scale mean (5.00), the expected count of startup activities in the “intentional group” exceeds the expected count of startup activities in the “non-intentional group” by 62.3 [the estimates are performed using the parameters in the Model 5].

The negative binomial regression estimates in Models 4 and 5 diverge with respect to the second focal interaction effect in our study: whereas when added standalone (Model 4) the financial market institutions index is not significantly moderating the intentions-actions translation (b=-0.056, p>0.1), in the fully specified Model 5 the moderation becomes significant and negative (b=-0.722, p<0.01). These results contradict our hypothesis 2 (either insignificant or negative effect), and require further examination in robustness tests.

---

3 The Alpha statistics in all reported models was significantly greater than zero, suggesting that the data are over-dispersed, hence justifying the selection of negative binomial estimation over the Poisson model.
Table 2. The Scope of Startup Activities in 2013: Negative Binomial Estimation

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.089</td>
<td>0.066</td>
<td>0.067</td>
<td>0.068</td>
<td>0.068</td>
</tr>
<tr>
<td></td>
<td>(0.022)*****</td>
<td>(0.021)****</td>
<td>(0.021)****</td>
<td>(0.021)****</td>
<td>(0.021)****</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.205</td>
<td>-1.135</td>
<td>-1.114</td>
<td>-1.140</td>
<td>-1.098</td>
</tr>
<tr>
<td></td>
<td>(0.183)****</td>
<td>(0.187)*****</td>
<td>(0.187)*****</td>
<td>(0.187)*****</td>
<td>(0.188)*****</td>
</tr>
<tr>
<td>Attending an entrepreneurship course</td>
<td>0.982</td>
<td>0.884</td>
<td>0.808</td>
<td>0.935</td>
<td>0.882</td>
</tr>
<tr>
<td></td>
<td>(0.211)****</td>
<td>(0.220)*****</td>
<td>(0.223)*****</td>
<td>(0.229)*****</td>
<td>(0.226)*****</td>
</tr>
<tr>
<td>University entrepreneurial environment</td>
<td>-0.057</td>
<td>-0.058</td>
<td>-0.067</td>
<td>-0.070</td>
<td>-0.075</td>
</tr>
<tr>
<td></td>
<td>(0.058)</td>
<td>(0.059)</td>
<td>(0.059)</td>
<td>(0.061)</td>
<td>(0.060)</td>
</tr>
<tr>
<td>GEM TEA index, 2013</td>
<td>-0.034</td>
<td>-0.034</td>
<td>-0.008</td>
<td>-0.048</td>
<td>-0.039</td>
</tr>
<tr>
<td></td>
<td>(0.039)</td>
<td>(0.040)</td>
<td>(0.043)</td>
<td>(0.041)</td>
<td>(0.047)</td>
</tr>
<tr>
<td>GDP per capita in 2013</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Unemployment rate, 2013</td>
<td>-0.046</td>
<td>-0.051</td>
<td>-0.073</td>
<td>0.005</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>(0.083)</td>
<td>(0.085)</td>
<td>(0.088)</td>
<td>(0.092)</td>
<td>(0.107)</td>
</tr>
<tr>
<td>Inverse Mill’s ratio (λ)</td>
<td>-0.028</td>
<td>-0.144</td>
<td>-0.081</td>
<td>-0.092</td>
<td>-0.049</td>
</tr>
<tr>
<td></td>
<td>(0.339)</td>
<td>(0.358)</td>
<td>(0.360)</td>
<td>(0.352)</td>
<td>(0.351)</td>
</tr>
<tr>
<td>Field of study dummies</td>
<td>IN</td>
<td>IN</td>
<td>IN</td>
<td>IN</td>
<td>IN</td>
</tr>
<tr>
<td>Entrepreneurial intentions (EI), 2011</td>
<td>1.231</td>
<td>-2.923</td>
<td>1.606</td>
<td>-0.474</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.202)****</td>
<td>(1.375)*</td>
<td>(1.478)</td>
<td>(1.531)</td>
<td></td>
</tr>
<tr>
<td>Property rights index</td>
<td>0.245</td>
<td></td>
<td></td>
<td>-0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.255)</td>
<td></td>
<td></td>
<td>(0.299)</td>
<td></td>
</tr>
<tr>
<td>Financial market institutions index</td>
<td>0.318</td>
<td></td>
<td></td>
<td>0.417</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.227)**+</td>
<td></td>
</tr>
<tr>
<td>Intentions X Property rights</td>
<td>0.647</td>
<td></td>
<td></td>
<td>0.921</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.214)**</td>
<td></td>
<td></td>
<td>(0.238)*****</td>
<td></td>
</tr>
<tr>
<td>Intentions X Financial market institutions</td>
<td>-0.056</td>
<td></td>
<td></td>
<td>-0.722</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.252)</td>
<td></td>
<td></td>
<td>(0.274)****</td>
<td></td>
</tr>
<tr>
<td>χ² (df)</td>
<td>137.22 (19)</td>
<td>180.81 (20)</td>
<td>239.79 (22)</td>
<td>183.25 (22)</td>
<td>262.30 (24)</td>
</tr>
<tr>
<td>N</td>
<td>1,434</td>
<td>1,434</td>
<td>1,434</td>
<td>1,434</td>
<td>1,434</td>
</tr>
</tbody>
</table>

Notes. *** p<0.001; ** p<0.01, * p<0.05, † p<0.10 (two-tailed). Heteroskedasticity-robust standard errors are reported in parentheses.
**Robustness tests**

We performed a series of robustness checks to test the sensitivity of the reported results to alternative model specifications and operationalizations of the predictors (Table 3).

<table>
<thead>
<tr>
<th></th>
<th>Model 6: No Brazil</th>
<th>Model 7: Omitted collinear controls</th>
<th>Model 8: Ease of access to loans</th>
<th>Model 9: Venture capital availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.141 (0.040)***</td>
<td>0.068 (0.021)***</td>
<td>0.067 (0.021)***</td>
<td>0.068 (0.021)***</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.388 (0.271)***</td>
<td>-1.070 (0.190)***</td>
<td>-1.105 (0.188)***</td>
<td>-1.090 (0.188)***</td>
</tr>
<tr>
<td>Attending an entrepreneurship course</td>
<td>1.256 (0.348)***</td>
<td>0.817 (0.234)***</td>
<td>0.882 (0.227)***</td>
<td>0.875 (0.226)***</td>
</tr>
<tr>
<td>University entrepreneurial environment</td>
<td>-0.208 (0.086)*</td>
<td>-0.071 (0.060)</td>
<td>-0.076 (0.060)</td>
<td>-0.073 (0.060)</td>
</tr>
<tr>
<td>GEM TEA index, 2013</td>
<td>-0.123 (0.094)</td>
<td>-0.039 (0.047)</td>
<td>-0.000 (0.000)</td>
<td>-0.006 (0.000)</td>
</tr>
<tr>
<td>GDP per capita in 2013</td>
<td>-0.000 (0.000)</td>
<td>-0.000 (0.000)</td>
<td>0.038 (0.000)</td>
<td>0.006 (0.000)</td>
</tr>
<tr>
<td>Unemployment rate, 2013</td>
<td>0.110 (0.170)</td>
<td>0.038 (0.116)</td>
<td>0.000 (0.100)</td>
<td>0.000 (0.100)</td>
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<td>Inverse Mill’s ratio (λ)</td>
<td>-1.366 (0.534)*</td>
<td>-0.123 (0.354)</td>
<td>-0.046 (0.352)</td>
<td>-0.048 (0.352)</td>
</tr>
<tr>
<td>Field of study dummies</td>
<td>IN</td>
<td>IN</td>
<td>IN</td>
<td>IN</td>
</tr>
<tr>
<td>Entrepreneurial intentions (EI), 2011</td>
<td>-1.496 (2.854)</td>
<td>-1.176 (1.521)</td>
<td>-0.738 (1.558)</td>
<td>-0.685 (1.499)</td>
</tr>
<tr>
<td>Property rights index</td>
<td>-0.025 (0.316)</td>
<td>-0.163 (0.125)</td>
<td>0.114 (0.272)</td>
<td>-0.098 (0.328)</td>
</tr>
<tr>
<td>Financial market institutions index</td>
<td>0.613 (0.304)*</td>
<td>0.183</td>
<td>0.877 (0.485)</td>
<td>0.758 (0.415)</td>
</tr>
<tr>
<td>Ease of access to loans</td>
<td>(0.054)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venture capital availability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intentions X Property rights</td>
<td>1.278 (0.489)**</td>
<td>0.911 (0.236)***</td>
<td>0.813 (0.227)**</td>
<td>1.018 (0.250)***</td>
</tr>
<tr>
<td>Intentions X Financial market institutions</td>
<td>-0.937 (0.336)**</td>
<td>-0.592 (0.267)*</td>
<td>-0.056 (0.267)*</td>
<td>-1.092 (0.252)</td>
</tr>
<tr>
<td>Intentions X Ease of access to loans</td>
<td>(0.336)**</td>
<td>(0.267)*</td>
<td>-1.092 (0.497)*</td>
<td>(0.576)**</td>
</tr>
<tr>
<td>Intentions X Venture capital availability</td>
<td></td>
<td></td>
<td></td>
<td>-1.617 (0.576)**</td>
</tr>
<tr>
<td>(\chi^2) (df)</td>
<td>209.13 (24)</td>
<td>240.37 (21)</td>
<td>251.17 (24)</td>
<td>279.17 (24)</td>
</tr>
<tr>
<td>N</td>
<td>805</td>
<td>1,434</td>
<td>1,434</td>
<td>1,434</td>
</tr>
</tbody>
</table>
Notes. *** p<0.001; ** p<0.01, * p<0.05, † p<0.10 (two-tailed). Heteroskedasticity-robust standard errors are reported in parentheses.

First, to ensure that our results are not driven by the respondents from the largest country in our sample (Brazil, N=629 or 44% of the sample), we estimated the regression on the subsample without these observations. The results (see Model 6 in Table 3) are in line with the main analysis Model 5 (fully specified model with both moderators in), except for the predictable significant main effect of the inverse Mill’s ratio, suggesting that this subsample might not represent the original population.

Second, in Model 7 we tested the possibility of multicollinearity confounding our reported results; yet, omitting the collinear controls (GDP per capita, TEA index, and unemployment rate) did not change the results of hypotheses testing.

Third, we tested the possibility of the unexpected negative intentions by financial market institutions interaction to be driven by the way we operationalized the latter variable, as a sum of Ease of access to loans and Venture capital availability indices from the Global Competitiveness Report. For this, in the Models 8 and 9 we use these individual indices separately; yet, the results for both operationalizations remain unchanged, i.e., the significant negative moderation remains.

Overall, the conducted additional tests confirm the robustness of our fully specified Model 5, with property rights index reinforcing the intentions-actions translation (in line with hypothesis 3), and financial market institutions index attenuating this relationship (contrary to our theoretical predictions, suggesting the reinforcing effect).

Discussion

Similarly to any other complex human behavior, the entrepreneurship process is triggered by prior formation of intentions; yet, in practice not every declared intention is eventually transforms into startup activities. This study intends to investigate if a substantive portion of the intentions-actions translation, or its opposite – intentions-actions gap, is determined by the institutional environment an intentional entrepreneur is embedded in. The logic behind this conjecture is the observation that entrepreneurial activity is heavily influenced by institutional environment; hence, the move between its antecedents (intentions) to actions can be influenced by this factor.

Grounding our reasoning in the premises of intentional models of entrepreneurial action and institutional approach, we addressed the following research question: do country-level institutional peculiarities affect the entrepreneurial intention-action translation among youth and what is the direction of their impact? More specifically, we concentrated on the role of country-level institutions related to finance availability (access to loans and venture capital) and property rights protection in the process of entrepreneurial intentions-behavior translation by student entrepreneurs.

In line with our theoretical reasoning, our results suggest the significant association between the declared entrepreneurial intentions and the subsequent actions with a two-year lag (hypothesis 1). This result to a large extent corroborates the findings for the prior studies of intentions-actions translation in entrepreneurship context (Delanoë, 2013; Gielnik et al., 2014; Kautonen et al., 2015; Kibler et al., 2014; Liñan and Rodríguez-Cohard, 2015; Obschonka et al., 2015; Van Gelderen et al., 2015), particularly among university students (e.g., Shirowkova et al., 2016).

However, although there is a significant positive association between entrepreneurial intentions and subsequent entrepreneurial behaviors among student entrepreneurs (reflected in the scope of engagement in startup activities before graduation), this association is
reinforced or weakened by a set of institutional peculiarities of the country the entrepreneur is operating in. In particular, we demonstrate that the high level of property rights protection in a particular country strengthens the association between intentions and startup activities (hypothesis 3 supported).

Contrary to our theoretical reasoning, the level of financial market institutions (the aggregate index, or individual dimensions of ease of access to loans for entrepreneurs and venture capital availability) weakens the link between the declared intentions and the subsequent engagement in startup activities. This surprising result, corroborated in the numerous reported robustness tests, might reveal an important peculiarity of the student entrepreneurship. It might be the case that high level of development of financial markets catering to startups also sets the high standards for the aspiring entrepreneurs, in terms of level of development and validation of their venture concepts (reflected in business models, prototypes, business plans, financial projections), and as such these standards delay the entrepreneurial actions. Similarly, student entrepreneurs – because of their age and experience – rarely have the developed credit history or possess the property that can be used as collateral; as such, their chances of getting funding are severely limited. That said, we strongly encourage replicating our findings in the other entrepreneurship contexts, beyond students, to test the generalizability of these results to other populations of entrepreneurs.

This paper aims to make several distinct contributions. First, our findings contribute to the specific stream of entrepreneurship literature – the entrepreneurial intention models – by specifying the contextual moderators (boundary conditions) that determine the strength of the association between entrepreneurial intentions and subsequent actions, in addition to the traditionally studied traits of the entrepreneur (Liñán & Fayolle, 2015). By this means, we also contribute to the literature on entrepreneurial cognition by providing a more nuanced understanding of the intentions-actions gap among student entrepreneurs. Our insights set additional, country-level boundary conditions for the application of the theory of planned behavior framework in explaining the entrepreneurial process as volitional behavior, which is essential for entrepreneurship literature. Our novel contribution lies in explaining the impact of national institutions (particularly, the property rights protection and development of financial markets) on the major building block of the entrepreneurship process – the translation of individual entrepreneurial intentions into actions, or moving from the ‘aspiring’ to the ‘active’ entrepreneurial stage.

Finally, having addressed the focal relationships in a very specific context of student entrepreneurship (on average our respondents are around 25 years old), we introduce new insights to the youth entrepreneurship literature stream (Hulsink & Koek, 2014).

The reported theoretical reasoning, research design and empirical findings open a promising future direction: obviously, the discussed in the current paper set of country-level moderators is by no means exhaustive. The further studies should test additional theoretically justified moderators (from different levels: country, region, industry, individual, etc.) of translation of intentions into entrepreneurial actions. Moreover, the future works can make the first steps towards embracing a more broad view on drivers of entrepreneurial actions. The work of Fayolle and colleagues (2014) can set the agenda for this stream of work, emphasizing the role of socially-determined personal and cultural values and individual motivations as drivers of entrepreneurship processes, complementary to mere intentions.

**Limitations**

This article is based on a cross-country, multilevel moderation model explaining translation of entrepreneurial intentions into start-up behaviors of student entrepreneurs. This approach has some shortcomings that we recommend be addressed in the future studies.

First, our analysis is based on a single method, i.e., the self-report measures obtained from a single informant, potentially vulnerable to a set of biases. We encourage further
studies employing alternative methods of capturing non-cognitive variables (most important, outcome variables – e.g., through observation of the actual behavior: registering a business, conducting market survey, raising funds, first sales, etc.).

Second, our current research is based on a sample representing a single coherent group of subjects – university students. We encourage further replication of the study using different samples, by this means either improving the external validity of the presented findings, or introducing additional boundary conditions for application of the developed moderation framework.

Conclusions and implications

In this paper, we addressed the role of formal institutions in entrepreneurial intention-behavior translation. The results reported in this study have direct implications for entrepreneurship educators, and public policy makers responsible for developing and supporting entrepreneurial ecosystems.

First, our findings indicate that entrepreneurial intentions are a significant predictor of start-up activities among students. Therefore, fostering entrepreneurial intentions at universities should be one of the paramount landmarks for entrepreneurship educators. This can be achieved via development of various curricular and co-curricular activities customized to touch upon different aspects of entrepreneurial learning, e.g., courses on entrepreneurship, mentorship programs, meetings with experienced entrepreneurs, etc.

For public policy makers, our study shows the importance of formal institutions for further materialization of entrepreneurial intentions. Specifically, the attention should be drawn to financial market institutions as they showed negative impact over intention-action translation among youth. As one of the possible explanations to this result is substantial overregulation that goes hand in hand with well-developed institutional system, this effect may be remedied by development of special programs aimed at financial support for young entrepreneurs projects on less strict conditions.

References


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