

**PUTTING ENTREPRENEURIAL INTENTIONS INTO CONTEXT:
REGIONAL INSTITUTIONS AND THE INTENTION-BEHAVIOR LINK**

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Abstract

We examine the role of regional formal and informal institutions in the intention-behavior link in entrepreneurship. Using multilevel regression analyses on a longitudinal sample of university students embedded in 40 European regions, we find evidence that regional formal and informal institutions have distinct and unique influences on the entrepreneurial intention-action relationship. In particular, our results show that the intention-behavior link is strengthened in regions characterized by a high quality of government and weakened in regions featuring a high quality of the social security system and a strong work ethic culture. Our findings provide important insights into the interdependence between individual and contextual factors regulating the entrepreneurial process by integrating the role of regional institutions as important contingencies. Our study provides valuable theoretical and policy implications.

Keywords: Intention-behavior link; regional institutions; regional quality of government; regional quality of social security systems; regional work ethic.

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INTRODUCTION

Entrepreneurship research has long studied the determinants of entrepreneurial intent in individuals (see, e.g., Schlaegel & Koenig, 2014), with “the formation of an intention to start a business as a step in the process of founding an organization” (Kautonen et al., 2015, p. 655). According to the Theory of Planned Behavior (TPB), intentions are considered immediate behavioral antecedents (Ajzen, 1991). The TPB has been validated empirically on a broad range of human behaviors. Prior meta-analytic studies found that intentions, on average, explain between 22 and 28 percent of the variation in behavior (see, e.g., Armitage & Conner, 2001; Sheeran, 2002). These predictions, however, seem to be less accurate in regard to founding a new venture (cf. Kautonen et al., 2015) because of the complex, uncertain, and time-spanning nature of this process (van Gelderen et al., 2015). As a result, the link between entrepreneurial intentions and behavior has attracted a number of recent research efforts focusing on its underlying mechanisms and boundary conditions (Adam & Fayolle, 2015).

While prior research has mostly focused on individuals’ characteristics as contingencies of the intention-behavior link (see, e.g., van Gelderen et al., 2015; Gielnik et al., 2014), little attention has been paid to contextual characteristics. Such an approach is valuable from a theoretical standpoint given the substantial body of research contextualizing the entrepreneurial process (Schmutzler et al., 2018) together with the potential for multilevel theorizing in entrepreneurship research (Shepherd, 2011). Specifically, entrepreneurship has often been described as a ‘regional event’ (Feldman, 2001; Stuetzer et al., 2014) because of the dependence of individual entrepreneurial activity on regional characteristics, such as regulations and regional demand. Hence, it is important to develop a regional perspective on the intention-behavior link. Among the regional factors, institutions – the formal and informal rules of the game in a society (North, 1990) – have been identified as drivers of entrepreneurial activity (e.g., Urbano & Alvarez, 2014; Welter & Smallbone, 2011). A regional institutional perspec-

tive on the intention-behavior link might therefore offer an enhanced understanding of the underlying mechanisms that explain the complex and uncertain business gestation process, specifically the relationship between an individual's entrepreneurial intention and subsequent entrepreneurial behavior (Van Gelderen et al., 2015).

Integrating institutional theory arguments with the Mindset Theory of Action Phases (MTAP) (Gollwitzer, 2012; Heckhausen & Gollwitzer, 1987), our study fills this gap by examining the interplay between an individual's intention to start a company and the characteristics of the regional formal (quality of government and quality of social security systems) and informal institutions (postmaterialist and work ethic culture), in determining actual entrepreneurial behavior. Using multilevel regression analyses on a longitudinal sample of university students embedded in 40 European regions, we find evidence that regional formal and informal institutions have distinct and unique influences on the entrepreneurial intention-action relationship.

Our work contributes to the existing literature in several ways. First, we offer a nuanced theory-grounded analysis of the contextual mechanisms that regulate the intention-behavior link in entrepreneurship. Our multilevel conceptual model offers theoretical arguments that extend the notion of 'supportive regional environment' (cf. Kibler et al., 2014) and sheds light on the regional embeddedness of entrepreneurship. In particular, with respect to Kibler et al. (2014), we examine how regional institutions moderate the intention-behavior translation process in a more comprehensive way by focusing on both formal and informal institutional factors, as encouraged by Bruton et al. (2010). Second, our results contribute to TPB and MTAP by demonstrating that the translation of entrepreneurial intentions into actions might be better understood by multilevel theorizing and that the transition of phases and relative mindsets may be less rigid in entrepreneurship than in other simpler decision-making processes (Kautonen et al., 2015). Finally, we complement recent research on country-level

institutional contingencies of the intention-behavior link (Shirokova et al., 2016) by focusing on the regional level.

THEORETICAL BACKGROUND

This paper builds – on the one hand – on the TPB and the MTAP as a theoretical basis of the intention-behavior link and – on the other hand – on institutional theory arguments as a lens to understand the regional influences affecting the translation of entrepreneurial intentions into action. We integrate these approaches and elaborate on the role of the regional institutional context in the intention-behavior link.

Entrepreneurial intentions and goal pursuit

The TPB is one of the most widely used models of the cognitive determinants of human behavior. It views intention, that is, an individual's readiness to perform a certain behavior, as the immediate antecedent of that behavior (Ajzen, 1991). From a social psychology perspective, an intention is the state of mind that occurs prior to the decision to act (Ajzen, 1991). The TPB posits that stronger subjective norms, a more positive attitude toward the behavior, and stronger perceived behavioral control strengthen intention, which, in turn, will lead to increased chances of adopting that behavior (Ajzen, 1991). The strength of an intention to perform a specific behavior is considered to be the most important predictor of subsequent action (Gollwitzer & Sheeran, 2006). The TPB has been used to predict a wide range of behaviors and has been successfully tested by several meta-analytic reviews (see, e.g., Armitage & Conner, 2001).

In the entrepreneurship field, a substantial body of literature has applied the TPB to predict entrepreneurial intentions (see Schlaegel & Koenig, 2014 for a review), viewing the emergence of an intention to start a business as crucial for subsequent entrepreneurial behavior. However, there is also growing evidence that intention strength is not the sole determi-

nant of action, particularly in the entrepreneurship context. In 1944, Lewin et al. made the important distinction between goal intention and goal implementation. The TPB is concerned with how people form goal intentions, which specify a certain desired end point and have the form of ‘I intend to reach x’. However, it remains unclear what this person will actually do about this intention and when s/he will act. Merely forming a goal intention may not guarantee goal implementation and achievement, particularly when the necessary activities are comprehensive, not well-practiced, and not part of an everyday routine (Brandstätter et al., 2003). Starting a business is a socially embedded, complex and uncertain process that requires multiple activities and a certain level of commitment over time. The TPB seems to apply best to relatively simple, discrete acts, such as voting (Van Gelderen et al., 2015). Accordingly, meta-analytic studies suggest that the relationship between (goal) intentions and action is stronger for single acts than for those that require more complex constellations of activities (Sheeran, 2002). For example, a recent study on the entrepreneurial behaviors of 161 intentional founders reported that almost 70 percent of these individuals did not (or did only to a minor degree) act on their intentions one year after the reporting (Van Gelderen et al. 2015).

Acknowledging these limitations, the MTAP distinguishes between the formation and the implementation of intentions and suggests that the course of goal pursuit can be segmented into different phases (Gollwitzer, 2012). In the first phase, the so-called *pre-decision phase*, an individual is forced to choose among her or his desires and – by doing so – turns them into goals. As suggested by intention models, people are likely to commit to goals that are perceived as both highly desirable and feasible. The first phase ends when people have formed a firm goal intention (in our case, for example, “I intend to become an entrepreneur”). Once goals are set, the *pre-action phase* begins and individuals face the second task, which is getting started with goal-directed behavior. In the case of starting a new business, the execution of goal-directed behavior is not straightforward and predetermined but needs to be

planned by deciding on when, where and how to act. Because goal intentions might require relevant opportunities to act, they often cannot be realized immediately (Brandstätter et al., 2003). In the third phase, the *action phase*, people conduct and complete goal-directed activities. Finally, in the fourth phase, the *post-action phase*, the individual needs to decide whether the desired goal has been achieved or whether further striving is necessary.

Gollwitzer (2012) stresses that different mindsets apply in these four phases. In phases one and four, people are in a *deliberative mindset*, which facilitates the setting of preferences. Because they do not yet know which goal they want to pursue (phase 1) or they contemplate future action based on what they have achieved (phase 4), they are open-minded and receptive to all kinds of information concerning the desirability and feasibility of different goals. In phases 2 and 3, when people have committed themselves to a certain goal, their mindset becomes focused on information concerning the implementation of their goal and they enter an *implemental mindset*; they want to discover good opportunities to act – that is, generic, favorable conditions for startup activities – and will be more receptive to information about where, when, and how to implement their intention. General information concerning the desirability and feasibility of the goal is often avoided in this phase or is perceived in an overly optimistic way because it might distract from goal pursuit. Heckhausen & Gollwitzer (1987) have used the allegory of ‘crossing the Rubicon’ for this transition from a deliberative (or motivational) to an implemental (or volitional) state of mind.

However, the assumption that people only consider the desirability and feasibility of different goals in the pre-action phase and start to act once goals are set does not seem to fit the entrepreneurial process well. Starting a new business takes place in a context of true uncertainty that requires continuously acting and getting feedback on one’s business idea (Davidsson, 2015). People are only able to evaluate the viability of their venture idea once they have conducted some initial gestational activities. From a theoretical point of view, efforts to

start a new business should progressively reduce the doubts concerning a perceived opportunity; otherwise, the venture idea is likely to be abandoned (Shepherd et al., 2007). Doubt, fear, and action aversion have been introduced as factors that delay action and weaken the link between entrepreneurial intention and behavior (Van Gelderen et al., 2015). Thus, the notion that potential entrepreneurs set themselves a firm goal and try to implement their goal without considering general information concerning the desirability and feasibility of the goal is likely to be misleading. In a recent empirical study, Delanoë-Gueguen & Fayolle (2018) provide some evidence that entrepreneurs indeed move from a motivational to a volitional phase during the process of creating a new business. However, they estimate that, on average, nascent entrepreneurs conduct 3.3 gestation activities before truly committing to their venture.

This justifies the notion that contextual factors can be expected to matter once people have formed an entrepreneurial intention (Kibler et al., 2014; Shirokova et al., 2016) because they are likely to affect the extent to which aspiring entrepreneurs perceive opportunities to act, that is, to start a business. The regional angle in this regard is crucial because entrepreneurs obtain support, resources, and legitimacy primarily from regional organizations and actors, and they typically address a regional market (Feldman, 2001; Stuetzer et al., 2014; Sternberg, 2009). Hence, as goal intentions have no specific point of reference in time, people might delay their implementation if they do not find a favorable and supportive regional context to support them (Kibler et al., 2014).

The role of the regional institutional context in intention implementation

Regional institutions are an important element for new venture creation. Drawing on North (1990), we define regional institutions as the “rules of the game” in a geographically delimited area below the national and above the local level or, more formally, as the humanly de-

vised constraints at the region level shaping human interaction (cf. North 1990). These rules can be categorized into “formal” and “informal” regional institutions. Institutions define the incentive structure for economic activities but also, more generally, what behaviors of individuals are considered legitimate and appropriate (DiMaggio & Powell, 1991). Previous research has mainly examined the role of *national* institutions and their direct link to the level and quality of entrepreneurship (Autio et al. 2013). From an entrepreneurship perspective, national formal institutions constitute laws, regulations and policies that govern and foster new venture creation (Urbano & Alvarez, 2014). They should be stable and efficient because this helps reducing the risk, uncertainty and transaction costs associated with entrepreneurial activity (Welter & Smallbone, 2011). Formal institutions at the regional level also play an important role in economic value creation because subnational institutions set formal rules and are frequently responsible for implementing national regulations (Chan et al., 2010). For instance, in Europe, nearly 70 percent of all public-sector investments are administered by local and regional governments (CEMR, 2016).

Informal institutions, on the other hand, are embodied in noncodified norms, values, customs, traditions, and codes of conduct (North, 1990). Informal institutions are often referred to as “culture”. They are socially constructed and develop over time. In line with Hofstede (2001), we view a regional culture as the “collective programming of the mind” (p.1) that distinguishes the inhabitants of one region from another. Although the idea that culture can boost economic outcomes is not new in the literature (Hoselitz, 1957), research showing the positive impact of a regional (entrepreneurial) culture on entrepreneurial activity has emerged only recently (see, e.g., Kibler et al., 2014; Obschonka et al., 2015; Stuetzer et al., 2016). In the next section, we argue how certain regional formal and informal institutions, or the “regional rules of the game”, may specifically influence the entrepreneurial intention-behavior link.

HYPOTHESES DEVELOPMENT

The direct effect of intention on behavior

Our baseline hypothesis centers on the link between entrepreneurial intentions and behavior. We draw on Thompson's (2009) definition of entrepreneurial intentions as "a self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do so at some point in the future" (p. 676). Entrepreneurial behavior, on the other hand, encompasses all concrete activities that can be considered relevant for starting a new business (Bird & Schjoedt, 2009).

In line with the TPB's assumptions that goal-directed behavior is directly dependent on the strength of goal intentions (Ajzen, 1991; Sheeran, 2002), we propose that individuals' entrepreneurial intentions are positively related to their subsequent entrepreneurial behavior. While the MTAP outlines a more nuanced relationship (Brandstätter et al., 2003; Gollwitzer, 2012), overall, it also acknowledges the positive link between the strength of goal intentions and entrepreneurial behavior. Prior studies converge in asserting that the strength of entrepreneurial intention reflects motivations for a certain behavior and the extent to which people are committed to investing and work to pursue such behavior (Bird, 1988). Surprisingly, few studies have investigated the influence of entrepreneurial intentions on start-up activities using a longitudinal research design (some exceptions include Kibler et al., 2014; Van Gelderen et al., 2015). On that basis, our first hypothesis is as follows:

Hypothesis 1: An individual's entrepreneurial intention is positively related to subsequent entrepreneurial behavior.

Regional formal institutions as moderators of the intention-behavior link

As explained above, regional formal institutions have been found to be important for economic value creation, including start-up activity. Our argument is that aspiring entrepreneurs

will more likely be concerned with the quality of such institutions once they have formed an entrepreneurial intention; as such, they are less likely to pay close attention to the nature of regional formal institutions and their contingency effects on new venture creation until they try to initiate entrepreneurial action. For example, they might not be aware of the actual regulations and policies concerning firm formation in their region until they have formed an entrepreneurial intention and started to act upon that intention. Moog and Backes-Gellner (2009), for instance, find strong evidence that labor market entrants in Germany overestimate the degree to which start-ups are affected by regulations. Hence, even without direct personal contact with government agencies, the overall regional perception of the quality of formal institutions is likely to affect whether people take entrepreneurial action.

We proxy regional formal institutions through *regional quality of government* and *regional quality of the social security system*. The underlying rationale for this theoretical focus is three-fold. First, as noted by Castaño et al. (2015) institutional quality is particularly important to determine the “social structure” that can be conducive to entrepreneurship; they also report greater effect of such dimension in European countries than in Latin American and Caribbean countries. Second, and as outlined in further detail below, we expect the quality of both institutions to be particularly relevant for the intention-action translation process – but in distinct ways. Third, the quality of government and of the social security system vary substantially across European regions (Pitlik & Kouba, 2013; Beatty et al., 2000), which further justifies using these institutions for a regionally-focused analysis of the intention-behavior link.

Regional quality of government. The regional quality of government refers to the strength of the rule of law, the effectiveness of bureaucracy, and the lack of corruption at the regional level (Holmberg et al., 2009). An efficient and well-structured regional government contrib-

utes to stability, reduces uncertainty, shapes systems that are more predictable, and reduces the need for corruption, which is likely to affect entrepreneurial activities (Chan et al., 2010).

We argue that individuals, once they have formed an entrepreneurial intention, will be more likely to act upon such an intention if the regional quality of government is high. High-quality governments will be more effective at creating framework conditions that provide aspiring entrepreneurs with the resources necessary for new venture creation, such as technical, financial and information-based support (Xu & Yang, 2014), thus increasing people's confidence in performing start-up activities. Conversely, a low-quality government is associated with institutional turbulence and frequent regulatory changes (Peng, 2003); in such circumstances, entrepreneurs may need to establish informal connections with government officials, particularly at the local level, and see circumnavigating the rules as a necessary, albeit unpleasant, mean to facilitate transactions and gain competitive advantage (Gui et al. 2014). A low-quality regional government, thus, might increase concerns regarding entrepreneurial entry. In sum, a high regional quality of government is expected to facilitate the translation of aspiring entrepreneurs' start-up intentions into action, which leads us to the following hypothesis:

Hypothesis 2a: The regional quality of government moderates the relationship between an individual's entrepreneurial intention and subsequent entrepreneurial behavior, so that the relationship will be stronger when the regional quality of government is high than when it is low.

Regional quality of the social security system. The quality of the social security system describes another important element of the formal institutions in a region. The social security system includes arrangements in the case of illness or unemployment, payments for retirement, maternity and family allowance, and workplace injury. It represents a large share of public investment and captures the extent of redistributive and socially oriented government efforts (Luo & Chong, 2018).

While prior research has proposed that the social security system influences individuals' entrepreneurial entry decisions in several ways (Henrekson, 2005), we argue that it impacts specifically how individuals act upon intentions by affecting the doubt- and action-aversion tendency of intentional entrepreneurs in two ways. First, a well-developed social security system creates a "safety net", particularly for people in paid employment or on study loans (Wennekers et al., 2005). In such a context, individuals might perceive higher opportunity costs related to switching from a (potential) wage job to self-employment. Intentional entrepreneurs might hence postpone their efforts to start a business and opt for paid employment because of the generous social security provisions. Second, as prospective employers, intentional entrepreneurs are likely to favor less invasive security systems, as these might imply fewer regulations, lower labor costs and greater bureaucratic compliance (Hessels et al., 2007). Conversely, we argue that a weak social security system increases the likelihood of intentional entrepreneurs to take action due to a decrease in concerns and burdens as well as to a higher attractiveness of entrepreneurship as potential employers (Hessels et al., 2008). Hence, we postulate the following hypothesis:

Hypothesis 2b: The regional quality of the social security system moderates the relationship between an individual's entrepreneurial intention and subsequent entrepreneurial behavior, so that the relationship will be weaker when the regional quality of social security systems is high than when it is low.

Regional informal institutions as moderators of the intention-behavior link

While informal institutions are likely to matter for different phases of the entrepreneurial process, we suggest here that they specifically matter for those individuals who have formed intentions and, thus, have entered an implemental mindset. In fact, culture might provide the normative and motivational boundaries that reduce (or increase) uncertainty, doubts and concerns that usually weaken the intention-behavior relationship (Kibler et al., 2014). Culture also has a high degree of regional variability (Obschonka et al., 2015; Stuetzer et al., 2016). We

proxy regional informal institutions through *work ethic* and *postmaterialism*. Our choice of these indicators, which is motivated in more detail below, is twofold. First, work ethic and postmaterialism constitute two fundamental, contemporary and contrasting normative underpinnings of entrepreneurial activity, with work ethic relatable to the pursuit of success and with postmaterialism associated with non-monetary goals of new venture creation. Second, we build on prior research (e.g., Balci et al., 2012; Gohmann, 2012) to propose that the presence of both institutions will frame an effective normative and resource-based context allowing aspiring entrepreneurs to act upon their entrepreneurial intentions and implement their business ideas.

Work ethic. The notion that work ethic could act as a cultural catalyst for entrepreneurial activities goes back to Weber's (1930) Protestant work ethic, which stands for work values and attitudes related to Weber's theory of Protestantism and economic growth (e.g., delayed gratification and belief in hard work). In defining work ethic, we draw on Clarke (1983) who conceptualized work ethic as "values, beliefs, intentions, and objectives that people bring to their work and the conditions in which they do it" (p. 122). Work ethic manifests along the dimensions of passion and norm for hard work, work centrality in self-identity and acceptance of wealth accumulation (Miller et al., 2002).

From a regional point of view, we propose that regional work ethic will facilitate action upon entrepreneurial intentions. Starting a new venture requires intentional entrepreneurs to allocate time, resources and efforts to such an end. The regional context in which they are embedded exposes them to norms and stimuli from socially proximal individuals that may facilitate and encourage their start-up decision (Chung & Rimal, 2016). Recently, it has been indicated that work ethic is a major dimension of such a normative influence in the entrepreneurship process (Vedula & Kim, 2018). Here, we argue that work ethic can exert an influence on the intention-behavior link through two specific mechanisms. First, we expect indi-

viduals in the pre-action phase who are embedded in regions with strong work ethic to be more encouraged to put effort into the founding process and positively frame the challenges emerging throughout such a process. This is because work centrality is pervasive in one's own self-identity in high work ethic regions (Dodd & Hynes, 2012), which, in turn, inspires a greater effort at the individual and team level (Gupta et al., 2004). Second, in regions with a strong work ethic, there may be a higher level of social legitimacy for entrepreneurship because, in those contexts, entrepreneurship is more likely to be seen (i) as a means to bridge private and public interests (Anderson & Smith, 2007) and (ii) as inherently bound to ethics and morality, that is, entrepreneurship and public interests are two sides of the same coin, "the coin of value creation and sharing" (Venkataraman, 2002, p. 46). This implies that the regional environment will be more likely to provide valuable resources once an entrepreneurial intention is acted upon, hence strengthening the intention-behavior link (Kibler et al., 2014). Conversely, a region with weak work ethic will amplify individuals' action fears in light of the required efforts and action aversion in the face of weaker external support, which should decrease the likelihood of acting upon founding intentions. We therefore formulate the following hypothesis:

Hypothesis 3a: A regional work ethic moderates the relationship between an individual's entrepreneurial intention and subsequent entrepreneurial behavior, so that the relationship will be stronger when the regional work ethic is high than when it is low.

Postmaterialism. Postmaterialism represents another cognitive pillar of regional culture (Stephan et al., 2015) and is known to affect both the supply of and demand side for entrepreneurship (Uhlaner & Thurik, 2007). While the cultural dimension of work ethic is in line with a traditional view of entrepreneurship as being primarily driven by wealth accumulation and the need for achievement, postmaterialism captures an element of the regional culture that stresses nonmonetary goals and thus offers a complementary view of entrepreneurial ac-

tivity. A high degree of economic prosperity and peace in the last sixty years in economically developed areas such as Europe has reduced younger people's attachment to economic and physical security (known as materialistic values), as they have not experienced poverty and other challenges in childhood; hence, nonmaterial goals such as esteem and self-realization, quality of life, and pro-social or environmental considerations (known as postmaterialist values) have become higher-order needs (Inglehart, 1997).

While postmaterialism has been found to have an overall negative effect on the level of entrepreneurial activity in a country (Uhlener & Thurik, 2007), we claim that it will increase the likelihood of acting upon one's entrepreneurial intention in the pre-action phase. Evidence from developed countries indicates that people increasingly aim to start a business for other than purely monetary reasons (Sieger et al., 2016). Campopiano et al. (2016) show that students see venture creation as a privileged way to introduce innovation in markets and changes in society to pursue social and environmental goals. Intentional entrepreneurs in regions with a strong postmaterialist culture might therefore find a more favorable context for implementing their business ideas. In particular, in regions characterized by a strong postmaterialist culture and goals, intentional entrepreneurs' projects are likely to address needs that are embedded in unique social or community contexts (Robinson, 2006). This will increase intentional entrepreneurs' commitment toward, attractiveness of, and the legitimacy of acting and increase the actions following such intentions. Additionally, concerns about higher-order issues derived from a postmaterialist culture, such as sustainability or environmental protection, create new business opportunities, many of which are specific to and inspired by the regional context. Living in a region with a strong postmaterialist culture also makes people's financial expectations and concerns less pronounced; as such, the aversion to act related to income attainment will decrease. Finally, individuals will also be more flexible in changing major binding assumptions underlying their business idea in a region with a strong post-

materialist culture, as they are less concerned about growth/financial gain. By contrast, in regions with a low level of postmaterialism, where people are likely to stress monetary goals, the obstacles of starting a profitable business might be perceived as greater once people have formed an entrepreneurial intention. Hence, we postulate the following hypothesis:

Hypothesis 3b: Regional postmaterialism moderates the relationship between an individual's entrepreneurial intention and subsequent entrepreneurial behavior, so that the relationship will be stronger when the level of regional postmaterialism is high than when it is low.

Our conceptual model is depicted in Figure 1.

Insert Figure 1 about here

METHODOLOGY

Data

The main data in this paper stem from the 2013/14 and 2016 data collections of the Global University Entrepreneurial Spirit Students' Survey (GUESSS). GUESSS investigates students' entrepreneurial intentions and behaviors in different countries around the world and has served as a basis for numerous publications in the entrepreneurship context.² The data are gathered by means of an online survey. The 2013/14 data collection took place in 34 countries between October 2013 and February 2014, and the 2016 data collection occurred in 50 countries between April and July 2016. We identified those students who took part in both waves of the survey (1,383 respondents).³ Given our focus on the moderating effect of regional factors on the entrepreneurial intention-behavior link, we excluded all those observa-

² See <http://www.guesssurvey.org/publications/publications/academic-journals.html>.

³ GUESSS uses the students' email as a unique identifier in that context. The students provided their email on a voluntary basis to participate in a lottery of different prizes. Apart from the pooling, we analyzed the data anonymously. Both, the 2013/14 and 2016 GUESSS waves had sample sizes of more than 100,000 respondents. The pooled sample is relatively small because not all the countries and universities took part in both GUESSS waves and because students might have left university.

tions belonging to countries from which we were unable to obtain regional data.⁴ Because the purpose of this study is to examine the translation of entrepreneurial intentions into actions, we also excluded all those students who were already self-employed or who already engaged in business gestation activities in 2013/14 (97 individuals). This choice is in line with prior research investigating the intention-behavior gap in entrepreneurship (see, e.g., van Gelderen et al. 2015; Kautonen et al., 2015).

Our final sample consists of 666 students with no prior or ongoing self-employment activities in the 2013/14 GUESSSS wave and who took part also in the 2016 GUESSSS wave and for which we were able to obtain full data coverage for our variables of interest. These students were enrolled in 86 European universities spread across 40 NUTS-2 regions (NUTS: Nomenclature of Territorial Units for Statistics) in 7 countries (Austria, Germany, Estonia, Spain, Hungary, Italy and Poland). The number of observations by country ranges from 27 (Estonia) to 209 (Germany). We statistically tested the representativeness of our final sample by comparing it with a ‘mirrored’ version of the full GUESSSS 2013/14 dataset. The results did not indicate any statistically significant difference between the two samples for the intention construct, meaning that our longitudinal sample does not suffer from nonrandom attrition bias in terms of this variable (see Table A-1 in Appendix A).

We use the GUESSSS 2013/14-16 data to examine the relationship between entrepreneurial intentions – formulated in 2013/14 – and entrepreneurial behavior formulated in 2016. Entrepreneurial intentions require a certain amount of time to materialize into actual entrepreneurial behavior (Kautonen et al., 2015). From an empirical point of view, however, this time lag should not be too long to ensure the predictive power of intentions. Previous studies of the intention-behavior link in entrepreneurship implement a time lag in the range of 1 to 3

⁴ These countries include Australia, Brazil, Canada, Colombia, Japan, Malaysia, Russia and represent approximately 500 observations. Due to too few observations, we removed Belgium with 1 observation, Greece with 2 observations, Liechtenstein with 8 observations, the Netherlands with 2 observations, Portugal with 5 observations, and Slovenia with 3 observations.

years (see, for instance, Kibler et al., 2014; Van Gelderen et al., 2015). The GUESSS 2013/14-16 longitudinal sample, on which our study is based, implies a time lag of 2.5 years, which is in line with previous research.

There are methodological advantages of using student samples when studying entrepreneurial intentions and behaviors and the translation of intention into behavior. One major benefit is that student samples reduce endogeneity problems, for example, because intervening effects in the form of entrepreneurial and professional experience may be less present in student samples relative to samples of the general (or working) population (Bönte et al., 2016). In addition, we find student samples relevant for our regionally-focused study of entrepreneurship because previous evidence suggests that students, on the one hand, tend to study in their home region (Gibbons & Vignoles, 2012) and, on the other hand, tend to start entrepreneurial activities in the region where they studied (Larsson et al., 2017).

Dependent variable

Entrepreneurial behavior. Following prior research investigating the intention-behavior relationship in entrepreneurship (see, e.g., Kautonen et al 2015; Shirokova et al. 2016), our dependent variable captures the extent of the actions taken toward starting a new business. It counts the number of activities that a student has carried out by 2016 to start her or his business. In the literature, this variable is also referred to it as ‘scope of start-up activities’ (Shirokova et al 2016). These activities include discussing a product or business idea with potential customers; collecting information about markets or competitors; writing a business plan; starting product/service development; starting marketing or promotion efforts; purchasing material, equipment or machinery for the business; attempting to obtain external funding; applying for a patent, copyright or trademark, registering the business; selling a product or service; or nothing of the above done so far. Hence, respondents could choose between eleven

different (nascent) entrepreneurial activities.⁵ The count variable takes a value of zero if the student did not undertake any entrepreneurial activity by 2016.

Independent variable

Entrepreneurial intention. We used Liñán & Chen's (2009) 6-item scale to measure entrepreneurial intention. The items are as follows: "I am ready to do anything to be an entrepreneur," "My professional goal is to become an entrepreneur," "I will make every effort to start and run my own firm," "I am determined to create a firm in the future," "I have very seriously thought of starting a firm," and "I have the strong intention to start a firm someday." (1 = strongly disagree; 7 = strongly agree; $\alpha = 0.92$). We calculated the total entrepreneurial intention score by taking the average of the six items. We also verified the scale's convergent and discriminant validity, following Liñán & Chen's (2009) procedure, and tested the result of that procedure using Confirmatory Factor Analysis.⁶

Moderating variables

We derive our regional formal and informal institutional variables from the 2008 European Values Study (EVS).⁷ In contrast to other studies that measure regional influence with an individual respondent's perception (cf. Kibler et al., 2014), our variables have the advantage of being aggregated measures. The fact that our measures of regional institutions are all constructed based on data from 2008 – and hence at an earlier point in time than the other predictor variables – is due to data constraints; however, this approach also allows to reduce two major endogeneity concerns. We elaborate on this choice in the footnote of Table 1.

We proxy the regional quality of formal institutions with two variables, measuring NUTS-2 residents' confidence in two institutions, namely, (i) government and (ii) the social

⁵ Our assumption is that people, who state that they have done "nothing of the above so far", have conducted at least one other gestation activity not included in our list of activities. We ran a robustness check excluding the item "nothing of the above done so far". The results were unchanged.

⁶ The results are available from the authors upon request.

⁷ <http://www.europeanvaluesstudy.eu/page/survey-2008.html>.

security system. Measuring the quality of formal institutions with people's perceptions of these institutions is a common practice in the social sciences (Sønderskov & Dinesen, 2014). In fact, there is evidence that people's confidence in formal institutions is associated with more objective measures of the quality of such institutions and people's direct experience with the public service (Roussey & Deffains, 2012). While the survey does not distinguish between *national* and *regional* government or social security systems when asking respondents about their confidence in these institutions, we expect substantial regional variation in the quality of these formal institutions – which will make EVS respondents perceive them differently depending on the region in which they reside.⁸ Regional informal institutions are proxied using a region's level of (i) work ethic and (ii) postmaterialism.

Regional quality of government. Our first proxy for the regional quality of formal institutions is the degree of regional confidence in the government. This variable is based on data from the EVS 2008 and is measured as an unconditional average response in each NUTS-2 region to the question of how much confidence citizens have in government (-4 = none at all, -3 = not very much, -2 = quite a lot, -1 = a great deal) (Sønderskov & Dinesen, 2014). We use the negative values of the original scales so that higher values indicate a higher level of confidence.

Regional quality of the social security system. Our second proxy for the regional quality of formal institutions is the degree of regional confidence in the social security system. This variable is based on data from the EVS 2008 and is measured as an unconditional average response in each NUTS-2 region to the question of how much confidence NUTS-2 citizens

⁸ The regional variation of confidence in government and in the social security system within our sampled countries supports this conjecture (see Table B-1 in Appendix B). For exemplary information on regional components of the social security system in two of our sample countries, we refer to the European Union (2013) and Austria's Social Affairs Ministry (2016), which elaborate on regional social security systems in Germany and Austria.

have in the social security system (-4 = none at all, -3 = not very much, -2 = quite a lot, -1 = a great deal) (Sønderskov & Dinesen, 2014).

Regional work ethic. Our first proxy for regional informal institutions is a region's level of work ethic, which is measured in the EVS 2008 as an unconditional average response in each NUTS-2 region to the question of whether work is considered important in life. The scale ranges from 1 = work is not at all important in life to 4 = work is very important in life and is in line with Stam et al. (2013).

Regional postmaterialism. Our second proxy for regional informal institutions is regional postmaterialist values, which are measured as an unconditional average in each NUTS-2 region of the degree of postmaterialist values of NUTS-2 citizens (1 = Materialist, 2 = Mixed, 3 = Postmaterialist). This variable is based on an index developed by Inglehart (1971) that was included in the EVS 2008.

Control variables

We also include a rich set of control variables into our estimations: perceived behavioral control, entrepreneurship education, business student, male student, student's age, logged regional per capita GDP (a proxy for regional economic prosperity), and country dummies. The control variables are presented and explained in Table 1.

Insert Table 1 about here

Analytical strategy

We conduct a multilevel mixed-effects Poisson regression analysis to test our hypotheses, accounting for the count data nature of our dependent variable. Multilevel regression techniques are appropriate to test our conceptual model for several reasons. First, by accounting for the interdependency between individual- and region-level data, it reduces the likelihood of obtaining biased results in the coefficients, standard errors, and confidence intervals (Autio et

al. 2013). This is indeed relevant for our analysis because of the multilevel structure of our data. Our econometric approach is dual: first, we include country-level fixed effects through our country dummies; second, we specify a two-level random intercept model, with a random intercept specified at the NUTS-3 level. We deem this random intercept strategy appropriate given that our remaining fixed-effects covariates are primarily at the individual and NUTS-2 levels, which stresses the need to further control for potentially important effects at the NUTS-3 level while, at the same time, keeping the model parsimonious.

The estimation results presented below confirm the relevance of our multilevel estimation strategy because, in most cases, highly statistically significant likelihood-ratio test results indicate that there is enough variability between NUTS-3 regions to favor the multilevel mixed-effects over the standard Poisson estimator. Likewise, the corresponding estimated variance components reveal that there is substantial unobserved variability between NUTS-3 regions. To underscore the high explanatory power of regional factors *vis-à-vis* country-level factors in predicting entrepreneurship, we performed five additional analyses involving a prediction of our dependent variable, entrepreneurial behavior, by a random intercept (1) at the country level, (2) at the NUTS-2 level, (3) at the NUTS-3 level, as well as well as by a random intercept (4) for NUTS-2 regions nested in countries and (5) for NUTS-3 regions nested in countries. Each of the five regressions omits the fixed-effect covariates, instead comparing the unobserved variability produced by each regression as an indicator of the relative explanatory power of each respective geographical level. We find that there is more unobserved variability between regions than between countries and that there is less unexplained variability between countries than between NUTS-2 and NUTS-3 regions within each country. The results are available from the authors upon request.

RESULTS

Table 2 reports the descriptive statistics of the variables present in this study together with their pairwise correlations. Table B-1 in Appendix B shows the descriptive statistics of the NUTS-2 institutional variables in the sample at the national level; as shown, there is variation in terms of institutional variables within countries, highlighting the need to focus on regional aspects of both formal and informal institutions.

Insert Table 2 about here

Our estimation results involving unstandardized regression coefficients are presented in Table 3. Model (1) includes only individual-level and region-level variables as well as country dummies. Models (2) to (7) serve to test our hypotheses. Our empirical results provide strong support for the intention-behavior link formulated in Hypothesis 1: entrepreneurial intention has a positive and statistically significant relationship with entrepreneurial behavior (coeff. = 0.292, $p < 0.001$) (see Model 2, in Table 3). Effect sizes are discussed in Appendix C.

Insert Table 3 about here

In Hypothesis 2a we posit that the positive link between entrepreneurial intention and subsequent entrepreneurial behavior is enhanced when the regional quality of government is high. This hypothesis is confirmed by Model (3), which provides evidence of a positive interaction between entrepreneurial intention and the regional quality of the government (coeff. = 1.105, $p < 0.01$). This result remains stable when all interactions are considered simultaneously in Model (7). For all our moderation hypotheses, effect sizes are discussed in Appendix C.

In Hypothesis 2b, we propose that the positive intention-behavior link is weakened when the regional quality of the social security system is high. Our results in Model (4) support this hypothesis given the negative and statistically significant interaction between entrepreneurial intention and the regional quality of the social security system (coeff. = -0.740,

$p < 0.01$). Again, this negative interaction is still significant when all interactions are considered simultaneously in Model (7).

Regarding the moderating effect of regional informal institutions on the intention-behavior link, in Hypothesis 3a, we posit that the link between entrepreneurial intention and subsequent entrepreneurial activities is stronger when regional work ethic is high. This hypothesis is not supported (see Model 5) given the negative and statistically significant interaction term between entrepreneurial intention and regional work ethic (coeff. = -1.217, $p < 0.01$). The interaction effect becomes marginally significant (coeff. = -0.763, $p < 0.10$) in Model (7).

Finally, in line with Hypothesis 3b, we find a positive and statistically significant interaction effect between entrepreneurial intention and regional postmaterialism on entrepreneurial behavior (coeff. = 0.624, $p < 0.05$) (see Model 6). However, this interaction becomes non-significant in Model (7).

To better interpret our significant interaction effects, we plotted them using Stata's margins procedure. Figure 2 displays these plots with the intention-behavior link moderated by each of the significant regional formal and informal institutional moderators used in this study (see Model 7 in Table 3).

Insert Figure 2 about here

Robustness checks

We test the robustness of our main results in three different ways. First, we consider the case of students changing regions between wave 1 and wave 2. Second, we exclude students undertaking entrepreneurial action as a temporary effort only during their studies. Third, we test the possibility that regional institutions can have a direct impact on entrepreneurial intention.

Students' mobility across regions. One may argue that students may not necessarily start their business in the region where they studied in wave 1, and this may represent a threat to our analysis. In our sample, only 25 students changed their NUTS-2 region between wave

1 and wave 2.⁹ When excluding those students from our analysis, the main results change only with regard to the regional work ethic-entrepreneurial intention moderation, which now becomes statistically non-significant in the full model (see Model 7 in Table D-1 in Appendix D).

Temporary entrepreneurial behavior. To increase the confidence that our sampled students were committed to engaging in entrepreneurial behavior (rather than it being a temporary activity, e.g., to support their studies), we ran a robustness check that involved dropping from the sample those students who did not want their entrepreneurial activities by 2016 to become their main occupation after graduation. When excluding from our analysis those students, the main results change with regard to the two informal regional institutional moderators: the work ethic-entrepreneurial intention moderation becomes marginally significant and postmaterialism-entrepreneurial intention moderation becomes statistically non-significant when tested individually in Models 5 and 6 – and both lose their significance in the full model (see Model 7 in Table D-2 in Appendix D).¹⁰

The direct relationship between institutions and entrepreneurial intention. Following recent recommendations to “investigate the impact of [...] regional [...] cultures on changes in individual attitudes toward entrepreneurship and entrepreneurial intention” (Liñán & Fayolle, 2015, p. 921), we tested the possibility that regional institutions have a direct relationship with entrepreneurial intention. Table D-3 in Appendix D shows the results of the analysis. In line with prior studies (see, e.g., Kibler et al. 2014), our finding shows no statistically significant relationships between regional institutions and students’ entrepreneurial in-

⁹ There are an additional 12 students for which we lack data regarding their exact NUTS-2 regional location in wave 2.

¹⁰ While the slightly diverging results from the first two robustness checks in relation to our main results could be due to statistical reasons (multicollinearity), particularly in Model (7) in Tables D-1 and D-2, there may be theoretical arguments for this finding: regional informal moderators could lose their significance because of regional formal institutions acting as mediators between the moderating effect of regional informal institutions on the intention-behavior link. We refer the interested reader to the Discussion section for further elaborations in that context.

tention apart from the regional quality of the social security system variable, which is negative and statistically significant (coeff. = -0.649, $p < 0.01$).

DISCUSSION

Combining a longitudinal sample of the Global University Entrepreneurial Spirit Students' Survey (GUESSS) with economic and institutional data on 40 NUTS-2 European regions, our study provides new theoretical and empirical insights into the intention-behavior link in entrepreneurship. Our main objective was to examine how individuals' entrepreneurial intentions interact with the regional institutional context to affect their entrepreneurial behavior. In doing so, we first tested the intention-behavior link in response to a scarcity of longitudinal studies in the field. Our results indicate that individuals' entrepreneurial intention is significantly and positively associated with subsequent entrepreneurial behavior, albeit with a somewhat limited effect size. This result confirms the findings of the few studies in the field testing this relationship (see Van Gelderen et al., 2015; Kautonen et al., 2015) and hence supports the TPB (Ajzen, 1991).

The novelty of our work stands on the theorizing and testing of the moderating role of the regional institutional environment in the intention-behavior link. Our model emphasizes the importance of regional institutions for translating entrepreneurial intentions into action, providing a more nuanced understanding of which institutions enable or constrain the intention-behavior link. As such, it extends prior knowledge by confirming the importance of the regional context in entrepreneurship, particularly for the intention-behavior link. Our findings show that regional formal and informal institutions have distinct and unique influences on the entrepreneurial intention-behavior link. All our institutional moderators influence the intention-action link when investigated separately, either positively (regional quality of government and regional postmaterialism) or negatively (regional quality of the social security sys-

tem and regional work ethic). However, when included jointly in one model, the moderations between entrepreneurial intention and the two informal institutional dimensions either lose their significance (see., regional postmaterialism) or become marginally significant (see., regional work ethic). In contrast, the moderations between entrepreneurial intention and the two formal institutional dimensions remain significant at the 5% level and robust across a number of additional tests (see robustness checks section). While this may be due to statistical reasons, especially multicollinearity, there may also be a theoretical explanation for this finding. Williamson (2000) argues that formal and informal institutions work at different levels and are dependent on each other. Informal institutions, such as customs, traditions and norms, have evolved over time and change only very slowly (Stuetzer et al., 2016). Formal institutions develop in accordance with the prevailing norms and values of the population in that spatial entity. Similarly, Tabellini (2008, p. 255) makes the case for a possible “causal effect from values to institutional outcomes”. Thus, it might be that the moderations between entrepreneurial intention and the regional informal dimensions in our full model lose their significance because regional formal institutions mediate the moderating effect of regional informal institutions on the entrepreneurial intention-behavior link. For example, it may be possible that intentional entrepreneurs in regions with a strong work ethic culture find a more favorable context for implementing their business idea *because* these regions offer a higher quality of government. It was beyond the scope of this study to investigate such moderated-mediation effects of different institutional characteristics in more detail. We encourage future studies to do so.

The positive moderation between entrepreneurial intention and the regional quality of government and the negative moderation between entrepreneurial intention and regional quality of social security system were found to be in the expected hypothesized direction. In line with our theoretical framework, these results support the notion of entrepreneurship as a

place-dependent endeavor; they suggest that the regional institutional context regulates the implementation of entrepreneurial intention by providing incentives or disincentives for entrepreneurial behavior. We provide counterintuitive evidence as to the moderating role of a regional work ethic in the relationship between entrepreneurial intentions and actions. Our results indicate that individuals with strong entrepreneurial intentions are more prone to translate their intentions into entrepreneurial actions in regions with a low level of work ethic. Our counterintuitive findings may be explained along three related lines of reasoning. First, they might reveal a sort of “negative peer comparison”: intentional entrepreneurs might observe excessive stress, as well as identity flaws and problems, shown by entrepreneurs in the region who overly identified with their own company and job (Hessels et al., 2017). Second, intentional founders in our sample might not fit with the wealth accumulation morality, as more and more people decide to start a venture for nonfinancial reasons (Sieger et al., 2016). Third, regions with a strong work ethic might simply be more prosperous and offer better alternative employment conditions (see also Kibler et al., 2014).

Implications for theory and practice

In terms of theory, our study contributes to our understanding of the intention-behavior link in entrepreneurship (Kautonen et al., 2015; Van Gelderen et al., 2015) by theorizing and finding supporting evidence for the moderating role of the regional institutional context. Studies that omit regional-level contextual dimensions may provide an incomplete assessment of the new venture creation process. In this sense, and extending the current literature, our work highlights the need to pay increasing attention to both individual and contextual contingencies and to theorize how these dimensions jointly influence the start-up process (Van Gelderen et al., 2015).

Our results suggest that the institutional characteristics of the regional context affect people once they have formed entrepreneurial intentions. Concerning the MTAP, this result

might indicate that aspiring entrepreneurs – at least to some degree – stay in a deliberative mindset after forming an intention to start a business. This is in line with the notion of entrepreneurship as taking place under uncertainty, where people might only be able to evaluate the desirability and feasibility of their venture idea once they have conducted some initial gestation activities. The MTAP acknowledges that people evaluate the success of their goal-striving efforts in the fourth phase, the post-action phase, and might re-evaluate the choice of their goal (Gollwitzer, 2012). However, we argue that in the case of a highly uncertain and complex goal, such as pursuing entrepreneurial behavior, individuals re-evaluate the choice of their goal when taking a first action toward the achievement of that goal. It might also be that – because of the length and complexity of the entrepreneurial process – intentional entrepreneurs may separate the implementation of their entrepreneurial intention into different activities and go through the MTAP phases multiple times. This might also explain how regional factors affect the implementation of entrepreneurial intentions once people have formed strong intentions. Albeit beyond the scope of this article, shedding light on such an extension of MTAP might represent a valuable suggestion for future research.

More specifically, we demonstrate that the regional quality of government and social security systems, as well as regional culture, constitute important regional framework conditions for aspiring entrepreneurs. A further theoretical implication of our study, which builds on Stephan et al. (2015), is that the translation of entrepreneurial intention into action might be better understood by multilevel theorizing (Shepherd, 2011), for example, by integrating institutional theory with micro-level theories such as TPB and MTAP.

Our study also provides important policy implications. We highlight the need for policymakers to take into account that motivating people to become entrepreneurs may not be sufficient because intentional entrepreneurs will actively consider (and be affected by) the regional nature and quality of the formal and informal institutions when acting upon their inten-

tions to start a business. While it is challenging to manipulate often deeply engrained regional cultural traits that can affect the translation of entrepreneurial intention into action, in the medium term, policymakers and other stakeholders (such as university managers) should focus their efforts on measures that improve regional formal institutions. For example, in regions with a low-quality government and a high-quality social security system, the translation of entrepreneurial intention into action is more problematic; policy efforts and education programs in those regions should be focused not only on initiatives stimulating students' intention, which have recently received much attention, but also on regulatory ease as well as resource provision and mentoring programs specifically designed for and dedicated to nascent entrepreneurs. In this way, these programs should contribute to achieving an increased translation of intentions into opportunity-driven new venture creation activities.

Limitations and suggestions for future research

Our study is not free from limitations, all of which offer several opportunities for future research. First, we have focused primarily on certain regional institutional dimensions in line with our conceptual framework. Future studies could test to what extent other regional dimensions may moderate the intention-behavior link, with a particular focus on other elements of the regional entrepreneurship culture (Stuetzer et al., 2016). In addition, future studies might analyze the moderating role of resources, such as social capital, provided within a regional context (Stam & Elfring, 2008; Stam et al., 2014). Investigating the moderating effect of variables other than regional variables might also improve our understanding of the intention-action link in entrepreneurship. Second, our study focuses on the translation of intentions into nascent entrepreneurial activities. This is but one initial part of the entrepreneurial process. It would be insightful to examine to what extent regional moderators influence the conversion of intention into actual venture creation or even venture growth because it is primarily this type of entrepreneurship that adds significant value to a regional economy. Third, we

encourage researchers to further apply longitudinal research designs that extend over a longer time horizon (e.g., panel data containing a larger number of years) to better disentangle the complex and dynamic relationships among individual-level entrepreneurial intentions, the regional institutional context, and new venture creation. Moreover, to verify whether and how intentional founders may refuse the wealth accumulation morality, future research could explore whether students with specific work motivation and value beliefs, e.g., work centrality, delay of gratification, the value of not wasting time (e.g. Miller et al. 2002), are more (less) likely to turn entrepreneurial intention into behavior. Finally, while there are many methodological advantages to using student samples in entrepreneurship (see Bönnte et al., 2016), we encourage future studies to include the working population to further increase the generalizability of our findings.

CONCLUSION

Using multilevel regression analyses on a longitudinal sample of university students embedded in 40 European regions, our paper shows that regional formal and informal institutions have distinct and unique influences on the entrepreneurial intention-action relationship. Nuanced theoretical and practical contributions are derived from our work that – we hope – will stimulate future research in this promising field of inquiry.

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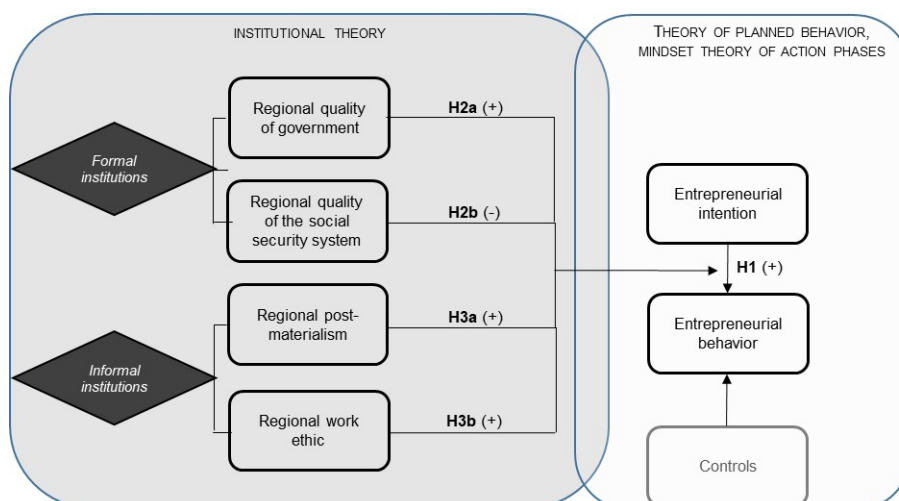


Figure 1. Conceptual model

Table 1. Control variables in the empirical analysis

Variable	How measured / aims to measure	Literature reference	Data source
Perceived behavioral control	Construct based on an averaged four-item scale consisting of students' perceptions of their behavioral control in relation to entrepreneurship in 2013. The items are as follows (7-point Likert scale): "For me, being self-employed would be very easy;" "If I wanted to, I could easily pursue a career as self-employed;" "As self-employed, I would have complete control over the situation;" "If I become self-employed, the chances of success would be very high." (1=strongly disagree, 7=strongly agree; $\alpha = 0.88$).	Souitaris et al. (2007).	GUESSS 2013/14
Entrepreneurship education	Constructed based on an averaged five-item scale. The items are as follows (7-point Likert scale): To what extent did the courses and offerings at their university: (1) "increased your understanding of the attitudes, values and motivations of entrepreneurs", (2) "increased your understanding of the actions someone has to take to start a business", (3) "enhanced your practical management skills in order to start a business", (4) "enhanced your ability to develop networks", (5) "enhanced your ability to identify an opportunity" (1=strongly disagree, 7=strongly agree; $\alpha = 0.96$).	Hahn et al. (2017)	GUESSS 2013/14
Business student	Dummy variable that denotes whether a student studied business management (=1) or not (=0) in 2013.	Bergmann et al. (2016)	GUESSS 2013/14
Male student	Dummy variable indicating a student's gender (1 = male, 0 = female).	Bergmann et al. (2016)	GUESSS 2013/14
Student's age	Student's age at the time s/he participated in the 2013 GUESSS survey.	Mondragón-Vélez (2009)	GUESSS 2013/14
regional per capita GDP (log) ¹⁾	Logged regional per capita GDP, measured in purchasing power standard (PPS) per inhabitant [EUR/INHAB] and as NUTS-3 region average during 2010-2014. Proxy for regional economic prosperity.	Bergmann et al. (2016)	Eurostat
Country dummies	Proxy for unobserved national characteristics.	Grilo & Irigoyen, (2006)	GUESSS 2013/14

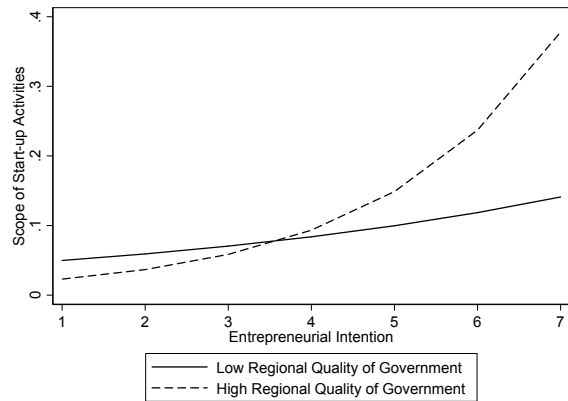
Note: ¹⁾ The fact that our measures of regional institutions are all constructed based on data from 2008 – and hence at an earlier point in time than the other predictor variables – is due to data constraints; however, this approach also allows to reduce two major endogeneity concerns in relation to regional per capita GDP (i.e. regional economic prosperity) that may bias our estimation results. First, regional institutional configurations may be a direct predictor of regional economic outcomes (North, 1990). Since we include both regional institutions and (logged) regional per capita GDP as predictors in our models, a multicollinearity issue could be expected. Creating a time lag between the two groups of variables – by measuring institutions in 2008 and regional per capita GDP as 2010-2014 average – reduces such an issue. Second, economic outcomes could affect institutions and, in particular, informal ones. As noted by Fritsch and Wyrwich (2017), informal institutions such as an entrepreneurship culture are usually deeply rooted in a region's economic history. Therefore, measuring culture would ideally require the use of regional past or historical values because today's regional cultural differences might be the outcome of macro changes e.g., economic development and migration. In our case, using the EVS institutional data from 2008 is the closest approximation of past historical values we can achieve. While the EVS waves date back to 1981, the 2008 wave is the first to provide a comprehensive regional data coverage. We believe that reducing endogeneity in this way, at the same time, should not jeopardize our conjecture that institutional moderators, measured in 2008, affect the translation of entrepreneurial intentions, measured in 2013, to actual entrepreneurial behavior by 2016. This is because institutions (i) change only very slowly, particularly informal ones (Stuetzer et al., 2016) and (ii) are not independent of each other (Williamson, 2000).

Table 2. Descriptive statistics and pairwise correlations

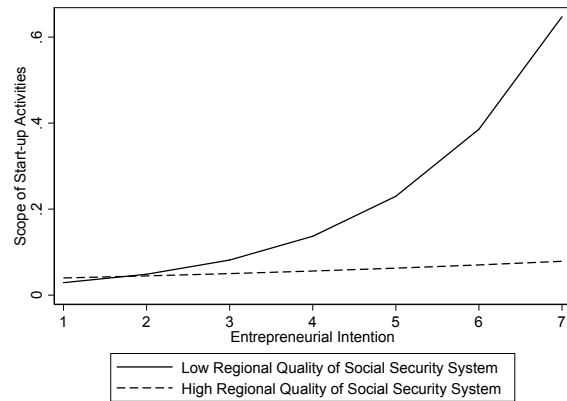
Variable	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11
1 Entrepreneurial behavior	0.19	0.70	0	6											
2 Entrepreneurial intention	3.25	1.77	1	7	0.21*										
3 Regional quality of government	-2.97	0.17	-3.32	-2.65	-0.01	-0.07*									
4 Regional quality of social sec. system	-2.57	0.31	-3.43	-1.86	-0.10*	0.13*	0.03								
5 Regional work ethic	3.37	0.24	2.80	3.79	0.03	0.15*	-0.32*	0.25*							
6 Regional postmaterialism	1.92	0.22	1.23	2.41	-0.01	-0.16*	0.33*	-0.08*	-0.45*						
7 Perceived behavioral control	3.94	1.36	1	7	0.22*	0.54*	-0.12*	-0.01	0.18*	-0.23*					
8 Entrepreneurship education	3.74	1.48	1	7	0.14*	0.32*	-0.18*	-0.01	0.12*	-0.22*	0.37*				
9 Business student	0.16	0.37	0	1	0.11*	0.10*	-0.07	-0.03	-0.00	0.01	0.09*	0.21*			
10 Male student	0.37	0.48	0	1	0.11*	0.06	-0.06	0.09*	0.02	0.01	0.08*	0.02	-0.01		
11 Student's age	22.25	3.39	18	33	0.03	-0.16*	0.18*	0.01	-0.18*	0.20*	-0.12*	-0.18*	-0.05	0.03	
12 regional per capita GDP (log)	10.19	0.44	9.30	11.19	-0.04	-0.22*	0.28*	-0.09*	-0.33*	0.55*	-0.23*	-0.17*	0.01	-0.04	0.19*

Note: N = 666. * $p < 0.05$.

a) Intention*regional quality of government



b) Intention*regional quality of security system



c) Intention*regional work ethic

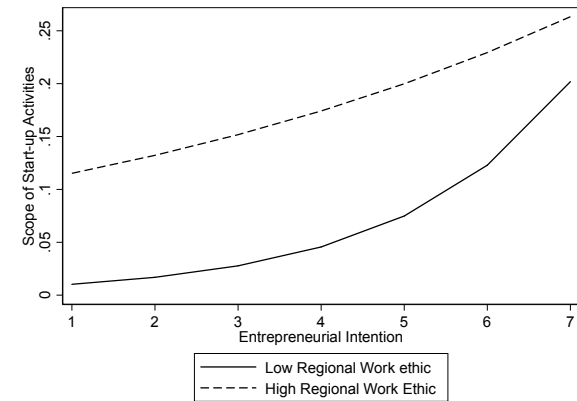


Figure 2. Interaction plots of regional institutional moderating effects on the intention-behavior link in entrepreneurship

Note: The graphs plot the interaction effects between the entrepreneurial intention variable and each significant moderation coefficient of Model 7 in Table 3 at low (mean - 1SD) and high (mean + 1SD) levels of the respective moderator.

Table 3. Results of the multilevel mixed-effects Poisson regression analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Business student	0.800*** (0.228)	0.812*** (0.229)	0.734** (0.232)	0.834*** (0.234)	0.768*** (0.233)	0.821*** (0.229)	0.773** (0.239)
Male student	0.746*** (0.204)	0.679*** (0.205)	0.706*** (0.205)	0.674** (0.207)	0.706*** (0.206)	0.696*** (0.206)	0.751*** (0.208)
Student's age	0.089** (0.029)	0.101*** (0.029)	0.107*** (0.030)	0.112*** (0.029)	0.108*** (0.030)	0.103*** (0.029)	0.126*** (0.030)
Entrepreneurship education	0.138† (0.080)	0.103 (0.078)	0.130 (0.081)	0.100 (0.079)	0.103 (0.078)	0.095 (0.077)	0.130 (0.082)
regional per capita GDP (log)	-0.890 (0.548)	-0.939† (0.543)	-0.976† (0.571)	-0.857 (0.605)	-0.993† (0.565)	-0.823 (0.539)	-0.663 (0.581)
PBC	0.728*** (0.101)	0.509*** (0.111)	0.495*** (0.111)	0.491*** (0.111)	0.493*** (0.112)	0.514*** (0.112)	0.478*** (0.111)
Intention		0.292*** (0.070)	0.305*** (0.071)	0.226** (0.073)	0.377*** (0.079)	0.291*** (0.070)	0.298*** (0.089)
Reg. quality of government			-0.948 (1.672)				-0.326 (1.698)
Reg. quality of social security system				0.056 (1.051)			-0.952 (1.247)
Reg. work ethic					3.129* (1.223)		3.422** (1.326)
Reg. postmaterialism						-1.145 (1.172)	-0.243 (1.405)
Intent*reg. quality of government.			1.105** (0.347)				0.861* (0.414)
Intent*reg. quality of soc. sec. system				-0.740** (0.263)			-0.653* (0.302)
Intent*reg. work ethic					-1.217** (0.383)		-0.763† (0.428)
Intent*reg. postmaterialism						0.624* (0.297)	0.360 (0.384)
Country dummies ^a	YES	YES	YES	YES	YES	YES	YES
Log Likelihood	-289.87	-280.62	-275.42	-276.14	-273.18	-278.25	-265.90
Chi2	117.80	129.93	129.93	130.30	124.89	133.18	129.27
N	666	666	666	666	666	666	666

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: ^a Austria, Spain, Estonia, Hungary, Italy and Poland (reference country: Germany). All the models are estimated using mixed-effects Poisson regression with a random intercept at the NUTS-3 level. The estimator choice was influenced by Stata's LR specification test. The table reports unstandardized regression coefficients and standard deviations in parentheses.

Appendix A

We statistically tested the representativeness of our longitudinal final sample (N = 666) by comparing it with an adjusted ‘mirrored’ version of the full GUESSSS 2013/14 cross-section. Probability tests for categorical variables (using Stata’s *prtest* command), and *t*-tests for continuous variables (using Stata’s *ttest* command) were used to examine potential selection bias. The only statistically significant difference concerns the age variable. The actual difference in the age distribution is very small: in the mirrored GUESSSS 2013/14 sample the average age is 22.96 whereas in the GUESSSS 2013/14-16 sample the average age is 22.25. This may be because younger students may be more likely to stay in University in the forthcoming years and thus more likely to answer the second wave of the survey. The important finding, however, is that the means of the intention variable are not statistically different between the GUESSSS 2013/14-16 participants and the GUESSSS 2013/14-16 nonparticipants. In other words, our longitudinal sample does not suffer from nonrandom attrition bias in terms of the intention construct.

Table A-1. Representativeness of the sample

	(1) GUESSSS 2013/14 (all, N = 22,886)		(2) GUESSSS 2013/14 (not in GUESSSS 2013/14-16, N = 22,220)		3) GUESSSS 2013/14-16 (N = 666)		Difference (2) – (3)
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>t-value/ z-value</i>
Entrepreneurial intention	3.28	1.73	3.29	1.73	3.25	1.77	t = 0.79
Perceived behavioral control	4.01	1.33	4.01	1.33	3.94	1.36	t = 1.50
Entrepreneurship education	3.67	1.46	3.66	1.46	3.74	1.48	t = -1.22
Business student	0.16	0.37	0.16	0.37	0.16	0.37	z = 0.35
Male student	0.38	0.48	0.38	0.48	0.37	0.48	z = 0.55
Student’s age	22.94	3.93	22.96	3.94	22.25	3.39	t = 4.48*

* $p < 0.05$. Note: The last column reports two types of hypothesis tests to statistically examine the representativeness of our GUESSSS 2013-2016 longitudinal sample relative to the full and mirrored (in terms of universities included as well as students’ self-employment status in 2013) GUESSSS 2013 sample. For the continuous variables, two-tailed *t*-statistics (df = 22,884) obtained from two-sample *t*-tests with equal variances are presented. For the dummy variables, *z*-statistics obtained from two-sample tests of proportions are displayed.

Appendix B

Table B-1. Descriptive statistics of regional variation of the institutional variables

Variable	Country	N^{A)}	Mean	SD	Min	Max
<i>Regional quality of government</i>	Austria	5	-0.764	0.643	-1.688	0.983
	Spain	5	-0.030	1.197	-0.994	1.569
	Estonia	1	1.030	0	1.030	1.030
	Germany	10	0.748	0.589	-1.786	1.870
	Hungary	6	-1.099	0.674	-1.976	-0.451
	Italy	4	-0.002	0.384	-0.871	0.398
	Poland	9	-0.318	0.739	-1.677	0.969
	Total	40	0	1	-1.976	1.870
<i>Regional quality of social security system</i>	Austria	5	0.740	0.223	0.388	0.932
	Spain	5	1.453	0.226	0.377	2.279
	Estonia	1	0.723	0	0.723	0.723
	Germany	10	-0.629	0.861	-2.785	0.065
	Hungary	6	-0.424	0.175	-0.821	-0.294
	Italy	4	0.353	0.044	0.310	0.599
	Poland	9	-1.202	0.313	-1.526	-0.734
	Total	40	0	1	-2.785	2.279
<i>Regional work ethic</i>	Austria	5	0.015	0.446	-0.737	0.522
	Spain	5	0.411	0.444	-0.191	1.076
	Estonia	1	-0.492	0	-0.492	-0.492
	Germany	10	-0.905	1.163	-2.419	1.037
	Hungary	6	0.419	0.291	-0.063	0.699
	Italy	4	1.038	0.442	0.580	1.756
	Poland	9	0.192	0.431	-0.394	0.962
	Total	40	0	1	-2.419	1.756
<i>Regional postmaterialism</i>	Austria	5	-0.218	0.569	-1.046	0.854
	Spain	5	-0.655	0.490	-1.402	0.914
	Estonia	1	-0.790	0	-0.790	-0.790
	Germany	10	1.018	0.962	-0.910	2.238
	Hungary	6	-0.692	0.115	-1.046	-0.474
	Italy	4	0.278	0.416	-0.347	0.771
	Poland	9	-0.799	0.665	-3.149	0.461
	Total	40	0	1	-3.149	2.238

Note: The table reports intra-country regional variation in our regional institutional variables measured at the NUTS-2 level. All variables are standardized. The standard deviation for Estonia is zero because all the cases in our sample are from one region in Estonia. ^{A)} "N" denotes the number of NUTS-2 regions per country.

Appendix C

In this Appendix we discuss the effect sizes of the hypothesized relationships in our model. Model 2 in Table 3 shows the relationship between entrepreneurial intention and entrepreneurial behavior. The coefficient indicates that if a student were to increase her or his entrepreneurial intentions by one point in wave 1, the difference in the logs of expected counts of start-up activities in wave 2 would be expected to increase by 0.292 units (equal to a 24% increase), while holding the other variables in the model constant. The strength of the relationship can also be illustrated using descriptive statistics: 25% of all individuals with strong entrepreneurial intention (≥ 6 ; min = 1, max = 7) in our sample in 2013 had conducted at least one start-up activity by 2016. On average, these people had conducted 0.54 start-up activities by 2016. While this compares favorably to the overall mean of 0.19 start-up activities (Table 2), the relationship appears only of limited strength.

Table C-1 below shows that when students in wave 1 have an entrepreneurial intention with a mean-centered value of -2.24 (which is equivalent to a real value of 1), the scope of their start-up activities (which proxies our dependent variable, i.e. entrepreneurial behavior) at time wave 2 is equal to 0.050 if they are located in regions with low quality of government. On the other hand, the scope of their start-up activities at time wave 2 is equal to 0.023 if they are located in regions with high quality of government. When students in wave 1 have an entrepreneurial intention with a mean-centered value of 3.71 (which means a real value of 7), the scope of their start-up activities in wave 2 is equal to 0.138 if they are located in regions with low quality of government. On the other hand, the scope of their start-up activities at time wave 2 is equal to 0.373 if they are located in regions with high quality of government. Taken together, these results mean that when students have a high entrepreneurial intention in wave 1, being located in regions with high quality of government increases by 2.7 times the scope of their start-up activities in wave 2 (*vis-à-vis* being located in regions with low quality of government). Moreover, these results also show that as students' entrepreneurial intentions in wave 1 increase from low to high values, there is a steeper increase in entrepreneurial behavior in regions with high quality of government *vis-à-vis* regions with low quality of government, which is reflected in the positive interaction term in Table 3.

Table C-1 also shows that when students in wave 1 have an entrepreneurial intention with a mean-centered value of -2.24, the scope of their start-up activities in wave 2 is equal to 0.028 if they are located in regions with low quality of social security system. On the other hand, the scope of their start-up activities in wave 2 is equal to 0.039 if they are located in regions with high quality of social security system. When students in wave 1 have an entrepreneurial intention with a mean-centered value of 3.71, the scope of their start-up activities in wave 2 is equal to 0.638 if they are located in regions with low quality of social security system. On the other hand, the scope of their start-up activities at time in wave 2 is equal to 0.078 if they are located in regions with high quality of social security system. Taken together, these results mean that when students have a high entrepreneurial intention in wave 1, being located in regions with high quality of social security system decreases by over 8 times the scope of their start-up activities in wave 2 (*vis-à-vis* being located in regions with low quality of social security system). Moreover, these results also show that as students' entrepreneurial intentions in wave 1 increase from low to high values, there is a steeper increase in entrepreneurial behavior in regions with low quality of social security system *vis-à-vis* regions with high quality of social security system, which is reflected in the negative interaction term in Table 3.

Finally, Table C-1 also shows that when students in wave 1 have an entrepreneurial intention with a mean-centered value of -2.24, the scope of their start-up activities in wave 2 is equal to 0.010 if they are located in regions with low regional work ethic; the scope of their

start-up activities in wave 2 is equal to 0.113 if they are located in regions with high regional work ethic. When students in wave 1 have an entrepreneurial intention with a mean-centered value of 3.71, the scope of their start-up activities in wave 2 is equal to 0.196 if they are located in regions with low regional work ethic; the scope of their start-up activities at time in wave 2 is equal to 0.261 if they are located in regions with high regional work ethic. Taken together, these results mean that as students' entrepreneurial intentions in wave 1 increase from low to high values, there is a steeper increase in entrepreneurial behavior in regions with low work ethic *vis-à-vis* regions with high work ethic, which is reflected in the negative interaction term in Table 3.

Table C-1. The effect of entrepreneurial intention on the marginal effect of regional institutional variables on entrepreneurial behavior

Entrepreneurial intention	Low regional quality of government (-1SD)	High regional quality of government (+1SD)	Low regional quality of social security system (-1SD)	High regional quality of social security system (+1SD)	Low regional work ethic (-1SD)	High regional work ethic (+1SD)
	(2a)	(2b)	(1a)	(1b)	(4a)	(4b)
-2.24	0.050*	0.023†	0.028†	0.039	0.010	0.113*
	(0.024)	(0.013)	(0.015)	(0.027)	(0.007)	(0.050)
-1.39	0.058*	0.034*	0.045*	0.044	0.015	0.128*
	(0.024)	(0.016)	(0.021)	(0.026)	(0.009)	(0.050)
-0.54	0.067*	0.050*	0.070*	0.048†	0.023†	0.144**
	(0.026)	(0.022)	(0.031)	(0.025)	(0.012)	(0.050)
0.31	0.077**	0.075*	0.109*	0.053*	0.035*	0.162**
	(0.028)	(0.030)	(0.046)	(0.025)	(0.015)	(0.053)
1.16	0.089**	0.112*	0.169*	0.058*	0.054*	0.183**
	(0.033)	(0.043)	(0.070)	(0.027)	(0.022)	(0.059)
2.01	0.103*	0.168*	0.263*	0.064*	0.084*	0.206**
	(0.040)	(0.068)	(0.112)	(0.031)	(0.034)	(0.069)
2.86	0.119*	0.250*	0.410*	0.071†	0.128*	0.232**
	(0.051)	(0.112)	(0.186)	(0.038)	(0.059)	(0.084)
3.71	0.138*	0.373*	0.638*	0.078	0.196†	0.261*
	(0.066)	(0.189)	(0.315)	(0.048)	(0.106)	(0.106)

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Note: The marginal effects are based on Model 7 in Table. They are reported for the significant interaction terms using Stata's *atmeans* command.

Appendix D

Table D-1. Regional institutions and the intention-behavior link in entrepreneurship for students who remained in the same region

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Business student	0.791** (0.247)	0.807** (0.248)	0.695** (0.250)	0.826** (0.253)	0.750** (0.250)	0.821*** (0.247)	0.781** (0.259)
Male student	0.956*** (0.222)	0.894*** (0.222)	0.943*** (0.224)	0.913*** (0.225)	0.897*** (0.223)	0.898*** (0.223)	0.990*** (0.231)
Age	0.092** (0.031)	0.101** (0.031)	0.117*** (0.032)	0.117*** (0.031)	0.103** (0.032)	0.109*** (0.031)	0.140*** (0.032)
Entrepreneurship education	0.084 (0.085)	0.056 (0.082)	0.097 (0.086)	0.052 (0.084)	0.066 (0.082)	0.061 (0.082)	0.108 (0.089)
regional per capita GDP (log)	-0.741 (0.635)	-0.739 (0.600)	-0.640 (0.625)	-0.327 (0.654)	-0.818 (0.633)	-0.693 (0.592)	-0.185 (0.649)
PBC	0.842*** (0.110)	0.621*** (0.121)	0.604*** (0.122)	0.580*** (0.120)	0.596*** (0.121)	0.636*** (0.123)	0.589*** (0.123)
Intention		0.304*** (0.077)	0.333***	0.244** (0.079)	0.358*** (0.083)	0.302*** (0.078)	0.236* (0.092)
Reg. quality of government			-2.999 (1.869)				-1.877 (1.938)
Reg. quality of social security system				-1.012 (1.157)			-1.569 (1.367)
Reg. work ethic					1.724 (1.360)		1.754 (1.429)
Reg. postmaterialism						-2.104 (1.499)	0.259 (1.834)
Intent*reg. quality of government.			1.577*** (0.406)				1.400** (0.476)
Intent*reg. quality of soc. sec. system				-0.833** (0.289)			-1.012** (0.320)
Intent*reg. work ethic					-0.849* (0.419)		0.027 (0.461)
Intent*reg. postmaterialism						1.054** (0.386)	0.667 (0.467)
Country dummies ^a	YES	YES	YES	YES	YES	YES	YES
Log Likelihood	-247.49	-239.16	-231.06	-233.20	-236.64	-235.03	-222.28
Chi2	119.47	129.26	126.27	130.73	124.80	131.45	126.12
N	629	629	629	629	629	629	629

[†] $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: ^a Austria, Spain, Estonia, Hungary, Italy and Poland (reference country: Germany). Models 1 and 2 are estimated using OLS regression with clustered standard errors at the NUTS-3 level. Models 3-9 are estimated using mixed-effects Poisson regression with a random intercept at the NUTS-3 level. The estimator choice was steered by Stata's LR specification test.

Table D-2. Regional institutions and the intention-behavior link in entrepreneurship for non-temporary entrepreneurial behavior

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Business student	1.336*** (0.292)	1.332*** (0.292)	1.141*** (0.291)	1.554*** (0.302)	1.285*** (0.297)	1.302*** (0.288)	1.412*** (0.282)
Male student	1.270*** (0.293)	1.243*** (0.290)	1.230*** (0.287)	1.254*** (0.293)	1.197*** (0.294)	1.236*** (0.287)	1.255*** (0.286)
Age	0.018 (0.040)	0.032 (0.041)	0.039 (0.040)	0.065 (0.041)	0.030 (0.041)	0.040 (0.040)	0.083* (0.041)
Entrepreneurship education	0.215† (0.110)	0.179† (0.104)	0.195† (0.107)	0.129 (0.105)	0.172 (0.105)	0.188† (0.103)	0.154 (0.109)
regional per capita GDP (log)	-0.789 (0.615)	-0.759 (0.566)	-0.543 (0.548)	-0.308 (0.552)	-0.882 (0.621)	-0.616 (0.534)	-0.062 (0.446)
PBC	0.831*** (0.137)	0.576*** (0.148)	0.599*** (0.149)	0.554*** (0.143)	0.595*** (0.150)	0.575*** (0.148)	0.579*** (0.141)
Intention		0.342*** (0.093)	0.408*** (0.099)	0.280** (0.096)	0.363*** (0.096)	0.353*** (0.094)	0.348*** (0.102)
Reg. quality of government			-4.121* (1.814)				-4.020* (1.628)
Reg. quality of social security system				-0.777 (0.979)			-0.509 (0.984)
Reg. work ethic					0.239 (1.541)		0.253 (1.321)
Reg. postmaterialism						-2.388 (1.512)	-0.126 (1.616)
Intent*reg. quality of government.			1.650*** (0.463)				2.132*** (0.524)
Intent*reg. quality of soc. sec. system				-1.110*** (0.325)			-1.415*** (0.353)
Intent*reg. work ethic					-0.900† (0.474)		0.370 (0.451)
Intent*reg. postmaterialism						0.692 (0.458)	0.131 (0.506)
Country dummies ^a	YES	YES	YES	YES	YES	YES	YES
Log Likelihood	-183.20	-175.84	-168.88	-166.97	-173.30	-174.17	-157.87
Chi2	101.53	110.64	107.27	119.30	104.61	113.67	145.42
N	642	642	642	642	642	642	642

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: ^a Austria, Spain, Estonia, Hungary, Italy and Poland (reference country: Germany). Models 1 and 2 are estimated using OLS regression with clustered standard errors at the NUTS-3 level. Models 3-9 are estimated using mixed-effects Poisson regression with a random intercept at the NUTS-3 level. The estimator choice was influenced by Stata's LR specification test.

Table D-3. Regional institutions and entrepreneurial intention

	(1)
Business student	-0.058 (0.100)
Male student	0.018 (0.070)
Age	0.008 (0.011)
Entrepreneurship education	0.079** (0.027)
regional per capita GDP (log)	-0.044 (0.101)
PBC	0.143*** (0.029)
Attitude	0.821*** (0.035)
Social norms	0.007 (0.038)
Reg. quality of government	-0.094 (0.243)
Reg. quality of social security system	-0.649** (0.215)
Reg. work ethic	-0.139 (0.215)
Reg. postmaterialism	0.149 (0.316)
Country dummies ^a	YES
Log Likelihood	-895.90
N	676

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: ^a Austria, Spain, Estonia, Hungary, Italy and Poland (reference country: Germany). All the models are estimated using OLS regression with clustered standard errors at the NUTS-3 level.