

How Farmers Become Entrepreneurs - Prenatal Diagnostic of Rural Firms in Bulgaria

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ABSTRACT

This contribution examines the formation of non-farm start-up intentions among farmers in rural Bulgaria and fills a gap in the study of rural entrepreneurship. The paper applies the Theory of Planned Behavior, extending it by the constructs of perceived corruption and capital endowment. The 2008/2009 sample consists of 195 farm households. Formative operationalisation with Partial least squares is pioneered. Results are indicative for entrepreneurial motivation in transitional settings. Households with a positive attitude towards the start-up idea, with a pronounced perception of the prevailing corrupt business environment and with better capital endowment are more likely to aspire entrepreneurship.

1. INTRODUCTION

As most of their colleagues, Bulgarian policy makers seek to revive rural regions to accelerate prosperity and reduce regional disparities and subsequently rural-urban migration pressure. The main issues are the overwhelming number of semi-subsistence farms with low-income capacity and, at the same time, a lack of rural regional employment opportunities that would offer alternative or additional income sources (Macours and Swinnen, 2008). Because of its potential to create jobs, rural entrepreneurship has attracted the attention of researchers and politicians. Thurik et al. (2008) report for instance that it takes about eight years to see an effect of self-employment on unemployment. Moreover, the way to entrepreneurship entry is also not a short one. The literature reports that less than half of the aspiring entrepreneurs end up registering their firm (Aldrich, 1999; Davidsson, 2006; Grilo and Irigoyen, 2006). Successful entrepreneurs seem to be a rare species, but a lot of hope is put in them.

What are the factors that determine that an intention for entrepreneurship is formed? Is it possible to tell if a stillborn or vital business unit will emerge? We try a step in this direction. This paper looks at entrepreneurship from the very beginning of the process. We want to explore the determinants of aspiring entrepreneurship. This means that we concentrate on the

stage preceding the actual birth of a new firm. Our focus is on the formation of non-farm start-up intention among farmers in Bulgaria.

We contribute to the research of entrepreneurial intentions in several ways. First, we apply a rather well-known theory, Ajzen's Theory of Planned Behavior (TPB), on a population from a transitional setting. We expect to find a slightly different mindset of the decision-makers compared to developed countries. Second, in contrast to other surveys, we target rural residents, and in particular farmers. Their living conditions and choice options differ from those found in urban areas. Both the transitional and rural context are still understudied. Third, we contribute to theory and method development. To our knowledge, this is the first study operationalising the constructs of TPB in the context of entrepreneurial intentions in a formative way. We rely on multidimensional constructs and reveal the concrete factors, which generate the motivation to start a new venture. As an extension to theory, we introduce the perception of corruption as a new construct. It is especially relevant in societies with inefficient formal institutions, thus opening up the doors for opportunistic behavior, and we expect it to directly influence the start-up intention. We are also digging deeper into the role of capital endowment. In sum, our approach not only has a particular value because it looks at setting in which the TPB was widely not used before, but adds significantly to theory and methodology.

2. THEORETICAL MODEL

As a relatively new field of research, entrepreneurship has not yet arrived at the base of solid theoretical ground. There is a plethora of attempts to tackle its main determinants and theory stays eclectic (Verheul *et al.*, 2002). Some authors concentrate on the psychological characteristics of entrepreneurs in the hope to decode what makes them so different from the

rest of the population. Most prominent variables studied are the willingness to bear uncertainty (Khilstrom and Laffont, 1979), the need of achievement (McClelland, 1961) or the tolerance for ambiguity (Schere, 1982; Furnham and Ribchester, 1995). Others focus on the importance of the situational factors, which lead to the creation of opportunities to be exploited. Examples here are competence-destroying technological change (Tushman and Anderson, 1986), industry dynamics (Hannan and Freeman, 1987) or market structures (Acs and Audretsch, 1990). Empirical studies soon showed that it is rather the interplay of individual and environmental characteristics that leads to the creation of new enterprises (Shane, 2003; Sarason *et al.*, 2006). Another problem is that many studies rely on data from established entrepreneurs. This ex-post practice inevitably goes along with memory decay of the respondents and survival bias. The pre-venture phase offers a chance to account not only for those, who would not survive at some later point but also for those who would not even try based on the information they have at the point of the decision-making as reflected in this study. While it is admitted that this departure has its own shortcomings, it opens new explanatory avenues, so far neglected.

The Theory of Planned Behavior (TPB), developed by Ajzen (1991), is a tool that allows exposing the most important factors that form the predictors of intentions. We chose this theory for mainly two reasons as a suitable vehicle for our analysis.

First, the TPB is universally applicable as it refers to essential principles of human behavior. It allows merging the vast number of factors that should be considered in the analysis of entrepreneurial decision elegantly into only three main predictors: attitude towards the behavior, social norms and perceived control. These three form the intention to perform a behavior (in our case to start a non-farm business). The theory concentrates on the mind of the individual decision maker, where all possible internal and external factors are processed. An individual decides to create a venture after (hopefully) careful consideration of all relevant

factors. But what is relevant? It depends on the person, the setting (e.g. rural versus urban) and the planned activity. Further, each individual has her/his own perspective, which may be distorted in specific ways (perception biases). Examples here are the assumption that things will turn out well and the illusion of control (Baron, 2004). Such distortions may be due to the personal cognitive ability, experience, and exposure to information or observation of what others do.

Second, besides its simplicity, the appeal of this theory comes from the fact that it has been successfully verified in a myriad of studies examining different types of behavior (Armitage and Conner, 2001; Fischbein and Ajzen, 2010). In contrast to many other theories, there is also evidence in support of the causality direction of the suggested predictors. Webb and Sheeran (2006) provide an overview of 47 experimental tests on the relation between intention and behavior and conclude that medium to large change in intention leads to small to medium change in behavior. To our knowledge, the first application of the TPB in the field of entrepreneurship goes back to Kolvereid (1996). We could identify about a dozen of studies¹, which continued his quest and tried to test this approach in the context of entrepreneurial intentions. The validity of TPB in the domain of entrepreneurship is confirmed by these studies.

After a thorough literature review and considering ideas developed in the eclectic theory of entrepreneurship, we chose to draw also on additional, supportive theories, which seem especially relevant for the case of rural entrepreneurial intentions. We refer, among others, to a theoretical framework dealing with the analysis of rural non-farm employment by Möllers and Buchenrieder (2005). They stress for instance that in a rural setting the motivation of

¹ Autio et al. (2001), Diaz-Garcia and Jimenez-Moreno (2010), Gelderen et al. (2008), Krueger et al. (2000), Linan (2008), Linan and Chen (2009), Linan et al. (2011), Segal et al. (2005), Shook and Bratianu (2010), Tegtmeier (2008), Tkachev and Kolvereid (1999), Yordanova and Tarazon (2010).

diversifying into the rural non-farm economy is often distress-pushed. They also point on the importance of capital assets, conceptually united in the so-called capital asset pentagon, which especially in a transitional environment might play a crucial role with regard to access to employment. With the TPB at the core, we arrive at a tailor-made theoretical lens, constructed from the following components: (1) behavioral intentions at the centre; (2) the push or pull motivation which helps to categorize types of entrepreneurs and identify incentives to which they may react; (3) the capital asset pentagon, which allows to look at five types of capital and their influence on entrepreneurial intentions; and (4) the institutional setting, in which employment decisions are embedded; it not only influences the incentive structure, but determines the transaction cost. In particular, we are interested in the perception of corruption and its influence on entrepreneurial intentions. In the following, we introduce the TPB and the complementing theoretical concepts.

2.1 The Theory of Planned Behavior

As briefly mentioned above, the Theory of Planned Behavior (TPB) predicts intentions by three components: attitudes towards the behavior, subjective norms and perceived behavioral control (Figure 1, second column).

When the model is adapted to the plan of starting a non-farm business, it can be interpreted as follows: First individuals construct beliefs. Ajzen and Fishbein (2005) distinguish three types of them – behavioral, normative and control beliefs (left hand side of Figure 1). The projection of what will happen if one is involved in self-employment represents the **behavioral belief**. It corresponds to the expectations of the farmer. This conceptualization contains the subjective perception for utility held by the decision-maker and provides a bridge to the common economic approach to occupational choice (Douglas and Shepherd, 2000;

Douglas and Shepherd, 2002; Möllers and Buchenrieder, 2005). If positive outcomes are expected, **positive attitudes towards starting a business** are developed. **Normative beliefs** reflect what one considers the norm in the society with regard to taking up self-employment. Does it have a positive connotation from the point of view of the others to run a non-farm business or not? What will the family, friends and peers of the decision-maker say? This belief is adjusted on the basis of the personal propensity to follow the norms or to deviate from them (**subjective norm**): despite the fact that all attachment figures of a potential business starter are against the idea, this might not stop her/him if their opinion is not considered important.

Figure 1 about here

Control beliefs deal with the perceived difficulty of starting and running a non-farm business. If one believes in her/his own ability to face and overcome all the possible hurdles on the way, this is one important key to developing an entrepreneurial intention. For example, many people may shrink from competitors. Yet the specific individual may believe to have discovered a niche and expect that through her/his marketing abilities enough customers can be attracted; this deviation from the common opinion reflects the self-confidence that is needed to form a start-up intention. In the TPB, this individual perception is termed **perceived behavioral control**. All three constructs, namely attitudes, subjective norm, and perceived behavioral control, form together the **intention** to start a non-farm business.

At this point, it is important to keep in mind that there is a difference between the intention and actually transforming this intention into behavior. Sometimes objective obstacles prohibit the realization of start-up plans. Such obstacles might arise from changing circumstances, e.g. an unexpected change in law, or from misjudgment. For example, one may believe to have the

necessary skills and later discover that they are not sufficient. In the face of such misjudgment, the start-up idea is eventually given up.

2.2 *Necessity (push) versus opportunity (pull) motivation*

Entrepreneurship research has adopted the classification of two types of motivation to create a new venture: necessity and opportunity. The first operationalisation of these types was offered by (Reynolds *et al.*, 2001) in the Global Entrepreneurship Monitor. The concept is also known as **push-pull** and stems originally from migration theory (Lee, 1966).

Necessity (push) is observed when individuals decide to go into self-employment because they need to tap new income sources; they feel pushed into alternative employment due to adverse economic conditions. Waged employment is often not available to them. Necessity based self-employment is a way to deal with economic distress and shocks. These entrepreneurs are usually forced to act on less attractive opportunities. Push self-employment mostly creates only one or a very limited number of jobs. Push entrepreneurs are forced to act on less-attractive, but more accessible opportunities, where entry barriers are not so high. Often many competitors share a relative slim profit margin – typical examples are small grocery or coffee shops. Necessity based entrepreneurship hardly contributes to boosting economic development (Acs, 2006; Hessels *et al.*, 2008; Mandelman and Montes-Rojas, 2009).

Opportunity (pull) based entrepreneurship comes into play when individuals are motivated by a unique lucrative market opportunity that they want to take advantage of. Opportunity based entrepreneurship differs from necessity based entrepreneurship by the target sector of industry (with higher profit potential) and with respect to growth aspirations (Shane *et al.*, 2003; Morris *et al.*, 2006). Opportunity (pull) entrepreneurs expect their ventures to grow more and provide more new jobs compared to pull entrepreneurs (Acs *et al.*, 2008).

It is important to distinguish between the two types of motivation because push and pull entrepreneurs will not only react on different stimuli, but also the impact on rural development is expected to be different (Hessels *et al.*, 2008). We believe that the push-pull motivation can be read from the individual behavioral beliefs.

2.3 Capital endowment

Previous research has indicated that the resource endowment of a rural household determines its ability to act on opportunities (Möllers, 2006; Winters *et al.*, 2009). Even if pushed by necessity, households need to think about the best way to use whatever resources they have. This will determine their intentions with regard to what kind of product or service could be offered.

Because we are concentrating on the phase before the individuals actually have done real steps towards starting a business, we work mostly with perceptual variables. In this respect we follow the call advocating stronger reliance of such types of variables in economic models (Arenius and Minniti, 2005; Grilo and Irigoyen, 2006), arguing that the perceived and not the actual reality has a stronger impact on the willingness to become entrepreneur. In the TPB, one of the key components is the perceived behavioral control. In our view it is influenced by the capital endowment of the household and its members.²

If one is thinking about creating a venture, a judgment is made about whether the means necessary for the start-up are present or not. This judgment may be realistic or not, but reflects the perceived control of the decision maker. In order to make this more tangible for the purpose of our analysis, we propose to extend the TPB framework with a construct called “capital endowment” as shown in Figure 2. We hypothesize that the effect of the endowment

² We chose to refer to the capital asset pentagon representing the financial, physical, natural, human, and social capital assets of an individual or household (Ellis, 2000).

with different types of capital is mediated by the perceived control. The importance of each capital type is expected to vary according to the planned type of business (Grilo and Irigoyen, 2006), but it is straightforward to include land (representative for natural capital of the researched farm households), financial endowment, the social contacts that would be eventually useful and also the level of education, representing human capital³.

2.4 Institutional perspective: the importance of corruption

Institutions provide the incentives structure in an economy by defining the choice set available to potential entrepreneurs. In particular they decide about the transaction and production costs and hence about the profitability and feasibility of engaging in economic activity (North, 1991). In the context of our empirical case, the rural setting of Bulgaria, we deem it important to put a special focus on corruption. Corruption was highlighted by several authors as a major obstacle for doing business in the transitional context (Manolova and Yan, 2002; Smallbone and Welter, 2006; Manolova *et al.*, 2008; Pashev, 2008; Amorós, 2009; Aidis *et al.*, 2010). In the entrepreneurship literature the so called ‘evasive entrepreneurship’ highlights that corrupt environments trigger businesses that make use of this institutional setting. It was introduced by Coyne and Anderson (2004), who extended Baumol’s well-known framework of productive and unproductive entrepreneurship (Baumol, 1990)⁴ They define ‘evasive entrepreneurship’ as directing of resources and efforts in evading the tax

³ Because of the remoteness of rural areas, we believe that the internet can play also a major role when it comes to gathering information and forming the intention for a start-up. It can be considered as an indicator for a certain level of human capital, but also gives a hint about the level of physical infrastructure in the village and in the household.

⁴ The distinction between productive and unproductive entrepreneurship is one of the major recent contributions to the entrepreneurship literature. **Productive** entrepreneurship includes activities, which benefit both the entrepreneur and the society as a whole. **Unproductive entrepreneurship** benefits the entrepreneur, but harms the society.

system or in avoiding unproductive activities of other agents. Examples could be paying tax inspectors to conceal non-compliance, or bribing officials, who would otherwise deliberately delay the processing of firms documentation, making the system prohibitively slow (Pashev, 2008). We assume that such an institutional environment also impacts on the entrepreneurial intention (Figure 2). Yet, it does not necessarily lead to unproductive or evasive business ideas.

Coyne and Anderson (2004) back their evasive entrepreneurship construct with qualitative evidence from Romania – a country similar to Bulgaria when it comes to the legacy of the communist past. Indeed, Bulgarian citizens remain among the most pessimistic in the world about their government’s efforts to fight corruption. Roughly 75% of them perceive the national courts as corrupt (Transparency International, 2007). Tax evasion is common practice, and complicated and non-transparent procedures, combined with wide-spread bribing, round up a picture of insecure business environment (Manolova and Yan, 2002). Potential entrepreneurs may react differently: some might give up, while others might explicitly rely on bribes and use them to bring their future business forward. One may argue that if corruption is seen as “greasing or sanding the wheels” mechanism (Méon and Sekkat, 2005), it belongs to the “perceived control” construct. So why design a special construct? The reason is that even if all other factors are positive, an individual might still shy away from joining the “dirty game” (Coyne and Leeson, 2004). We want to allow this variation and propose to add a construct called “corruption perception” to the model of TPB, representing the specific institutional context (Figure 2).

The schematic representation of all components belonging to our theoretical framework is shown in Figure 2.

Figure 2 about here

Depending on one's capital endowment and the satisfaction with it, farmers eventually feel a desire to change their employment situation. This triggers the push- or pull-impulse for starting to think about creating a venture or rejecting this idea (big bubble in Figure 2). The result of this process is an intention. It may manifest itself in new-born businesses, with different potential in terms of growth and mode of operation. Because this event is uncertain and lies in the future, dashed lines are used.

3. DATA AND METHODS

In this section, first the survey design and data set are presented. Afterwards the rationale behind the selection of Partial Least Squares (PLS) as analytical tool will be explained.

3.1 Data and survey instrument

Data were collected in a household survey in rural Bulgaria in 2008/2009⁵. The main foci of the survey were the structural adjustment of farms and the associated changes in rural livelihoods. Therefore only rural households were included, which had been active in farming either in 2003 and/or in 2006. A structured questionnaire was used. Beside agricultural data (e.g. farm size, production structure and share of sales), it covered relevant socio-economic aspects such as demography, employment and preferences. The main body of data analyzed in this paper comes from a special TPB module of the survey instrument. At first, 271 Bulgarian farm households were surveyed in face-to-face interviews in the native language. The data revealed that only 24 of them had start-up aspirations. This observation is in line with the fact, that only about 10% of the total population in active age are self-employed in Bulgaria (NSI, 2007). Obviously, the original sample was too small to ensure enough variance for most multivariate techniques. To correct for that, additional 40 observations with start-up intentions

⁵ The origin of the dataset will be revealed after finishing the review process. Appropriate acknowledgements will also be made.

within the next five years were collected. Such sampling procedure is justified by King and Zeng (2001) who explain that in the face of misbalanced distribution any additional case from the smaller group contributes more information. The literature suggests that start-ups are most likely around the age of thirty (e.g. Delmar and Davidsson, 2000; Lévesque and Minniti, 2006; van der Zwan *et al.*, 2010), so after removing pure pensioner households and applying listwise deletion, the final sample comprised 195 observations, of which 56 (29%) stated to plan a start-up.

3.2 Modelling the TPB with Partial Least Squares

We depart from the well-described theoretical framework of the TPB. A major empirical problem with this theory is that its constructs (e.g. attitudes) are abstract and not directly measurable. We refer to them as “latent variables” or “latent constructs”. For empirical applications, operationalisation by measurable variables (also called “indicators”) is needed. Usually, when for instance logit analysis is applied, only one indicator is taken as a proxy for the whole latent construct. This inevitably results in loss of information. Another challenge is that the theory suggests indirect effects - e.g. from behavioral beliefs to an attitude and to an intention (Figure 1). The exact sequence can hardly be simultaneously modeled with traditional regression techniques. Yet, it can be easily done with the help of structural equation modeling.

The more widespread covariance-based family of these models (e.g. done with LISREL or AMOS) relies on assumptions for multivariate normality. In our sample with skewed data this is not given. Moreover, our sample size is quite small in relation to the number of the variables that should be included in the calculation. Another problem is that the data for most of the constructs followed the logic of multidimensionality and requires formative operationalisation of the latent variables. This is not possible with the covariance-based approach. Partial Least Squares (PLS) can deal with the mentioned issues and arose as the

right tool for the operationalisation of our research questions (Chin and Newsted, 1999; Barroso *et al.*, 2010). Because of its partial nature, the PLS requirements in terms of sample size are much less demanding compared to its covariance counterpart. A common rule of thumb recommends taking the largest regression, which is to be calculated within the suggested model and multiplying the number of its independent variables by ten (Chin and Newsted, 1999). The most complicated regression in our case involves six explanatory variables – within the constructs "Expectations" and "Attitudes" (see Table 1 in Section 4.3). Having 195 observations, the dataset exceeds this recommendation by far.

Obviously, every method and survey design has its own pitfalls and limitations. As non-parametric approach, PLS does not allow for statistical inference. Limitation of our sample is that it is not representative.⁶ Another issue is the cross-sectional design, which does not allow for causality statements. Longitudinal data could prove the stability of the intentions and the ability of the model to predict actual business start-ups.

4.3. PLS model of farmers' start-up intention

In PLS, the estimation of the model is done sequentially in two steps. First, the measurement models are estimated and a score is given to the latent variable (or 'latent construct'). Then the system of structural equations (depicting the extended TPB as described in Section 2) is calculated with these scores. We used SmartPLS (Ringle *et al.*, 2005) for the calculation of the structural equation model.

⁶ Three regions were selected according to their degree of economic development – lagging behind, average and prosperous in terms of their gross domestic product (GDP) per capita. From these regions three villages within the region were drawn to represent variations in their economic development within the region.

Table 1 offers an operationalisation of the variables along the theoretical framework proposed in Figure 2. The selection of variables draws on extensive literature review and insights from pilot qualitative interviews with Bulgarian rural residents (not included in the sample). In this way we identified the relevant facets of the suggested theoretical constructs for the surveyed population and included respective questions in the structured questionnaire. The postulated PLS model, in which the indicators are depicted by rectangles, is presented in Figure 3. We proceed with presenting the measurement and the structural models in detail.

Table 1 about here

Figure 3 about here

Measurement model: Within Figure 3, each oval symbol with all the rectangles attached to it represents one measurement model. Our PLS model has eight measurement models. Accounting for the multidimensional structure of the above postulated theoretical constructs, most of the latent variables were presented as a result of their indicators (i.e. formative operationalisation – arrows of rectangles go into the oval, they "form" it). The typical entrepreneurship scholar is probably not familiar with this way of operationalisation. This is most likely due to the fact that the majority of PLS models published in peer reviewed journals are of reflective nature. Yet, a formative operationalisation offers invaluable insights into the make-up of a theoretical construct. In the field of marketing this was recognized some time ago and more and more formative models find their way to the top tier journals (Henseler *et al.*, 2009). We believe this to be a fruitful avenue and apply mainly formative indicators in our analysis. Typical for formative measurement models is that they represent a

census of measurable indicators⁷, which form the latent construct. They can, but must not be correlated with each other. Such type of operationalisation corresponds to a linear regression, where the indicators explain the latent construct (for example attitudes or norms), which is the dependent variable. The advantage of this formative approach is that the direction of impact (the sign) of each indicator can be interpreted. This is different for the reflective measurement models of the constructs ‘control beliefs’ and ‘perceived behavioral control’. Here the latent construct explains the indicators (arrows go outwards the oval – indicators “reflect” the construct). Indicators are interchangeable and highly correlated. The corresponding statistical tool is factor analysis, where the factor is the latent variable. Because the main focus of the capital endowment construct is on explaining the perceived behavioral control, we opted for the reflective operationalisation of the control constructs. For a more detailed discussion about the two modes of operationalisation see (MacKenzie *et al.*, 2005).

Structural model: As described in the theoretical part above, the TPB represents the backbone of our model. While the TPB only considers “attitudes towards a particular behavior”, “subjective norms” and “perceived behavioral control” to model behavior, we extended our model by the constructs “corruption perception” and “capital endowment” to account for the specificity of the post-socialist and rural sample environment. The structural model is depicted just by the ovals and the arrows connecting them (Figure 3).

5. PLS ANALYSIS AND RESULTS

This section first gives detailed information about the validity of the measurement and structural models. In PLS there are only partial regressions being calculated and because of that there is no single measure that gives information about the goodness of fit of the overall

⁷ The reader should note the difference between indicator and latent variable. Indicators are measurable and are used to represent the non-measurable latent variable. Indicators are represented as rectangles and the latent variables as ovals.

model. For this reason, the model quality and results will be analyzed separately for measurement and structural models. Following the usual PLS reporting custom, we start with the measurement models.

5.1 Validity of measurement models

There is a difference in the way reflective and formative measurement models are evaluated with regard to their quality. An easy to follow overview with guidelines is provided by Henseler et al.(2009). In the following two subsections, we will have a closer look at these two types of measurement models within our PLS model.

5.1.1 Reflective measurement models

In the proposed model, two constructs are operationalised in a reflective way: ‘**control beliefs**’ and ‘**perceived control**’. Both are measured based on two indicators (see Table 1 and Figure 2). In the reflective mode, the constructs are one-dimensional and each of the indicators is reflecting this single dimension. This means that removing one of the indicators does not change the content of the latent variable. Thus, it is possible to rely on only two indicators if they are of good quality. Nevertheless, this depends on the discriminant and convergent validity of the reflective measurement model.

Controlling for **discriminant validity** means that we need to prove that a construct is more strongly related to its own measures than to any other construct. This we do by testing the overlap in the variance. The average variance extracted (AVE) represents the shared variance between the construct and its measures. It stands for the amount of variance that a latent variable component captures from its indicators relative to the amount due to measurement error. The value of AVE should be 0.5 or more, implying that more than half of the variance has been accounted for (Chin, 2010). This criterion is satisfied for the case of our two reflective constructs (Table 2).

Table 2 about here

Another test for discriminant validity is the Fornell/Larcker criterion. It states that the AVE of a given construct should be higher than the squared correlation of this construct with any other one in the model (Fornell and Larcker, 1981, p.46). In the fourth column of Table 2, the results are given for the highest value of the squared correlations across all the constructs. The figures indicate that the operationalisation of the latent variables is valid so far.

An additional way to prove discriminant validity is to compare the crossloadings with the indicator loadings. This criterion is also fulfilled for our reflective constructs (Table 3).

Table 3 about here

Given discriminant validity, we need to control for **convergent validity**. This controls for the extent to which the indicators of a respective construct are consistent in their representation. Composite reliability (Werts *et al.*, 1974) reflects this aspect and is shown in Table 2. Another, less conservative measure is Cronbach's Alpha (Cronbach, 1951). It assumes that all indicators are equally weighted (Chin, 1998; Chin, 2010). A value above 0.7 is considered acceptable for both measures; our constructs satisfy this condition.

A third way to check for convergent validity is to look at the indicator loadings. The higher and closer to each other they are, the stronger the convergence. A look in the highlighted cells in Table 3 reveals quite a strong similarity for the items of "perceived control" (0.890 and 0.896) and a bit lower one for "control beliefs" (0.885 and 0.916). According to Chin (2010, p. 674) a range of variance of 0.2 is considered to be evidence that all included items help to measure the same underlying construct. In our case, the range is below 0.1. This value can be interpreted as very good. There is no official threshold accepted for the set range or minimum, but with values above 0.880 we believe to have proven strong convergent validity.

5.1.2 Formative measurement models

The process of determining the scores of the formatively operationalised latent variables is based on the ordinary least squares estimator. Therefore, it is of crucial importance to control for **multicollinearity**, which could bias the item loadings. We applied several tests. The highest value of the variance inflation factor encountered did not exceed 2.5, being far from the critical threshold of 10 (Diamantopoulos and Winklhofer, 2001). In addition, the correlation matrix was screened, and the condition index was controlled for (not shown). Furthermore, each of the items was regressed on the other measures in the respective formative construct as suggested by Backhaus et al. (2003). No multicollinearity problems were detected.

The traditional measures for determining the validity of reflective constructs are not applicable in the case of formative operationalisation. Formative indicators can be completely uncorrelated and therefore internal consistency across components is not an appropriate criterion to determine validity (Bollen and Lennox, 1991). The correlation between them is not explained by the measurement model but is exogenously determined (Diamantopoulos and Winklhofer, 2001). Because the formative indicators explain the latent construct as in a multiple regression, we interpret values for the loadings closer to one as having stronger impact than values closer to zero. This gives a first hint how the selected indicators contribute to explain the variance of the latent construct. The second is to check if the loadings are significantly different from zero. We do that with the help of the bootstrapping procedure (1000 cases and 500 subsamples). Loadings with bootstrap score below 1.96 are considered not to be significant at the 5% level (Ruiz, 2009). These values are shown with a crossed path in Figure 4 about . In the following, the constructs are presented and interpreted in detail.

5.2 *Validity and quality of the structural model*

The inner model was calculated with the so-called path weighting scheme. It weights differently neighboring latent variables depending on whether they are antecedents or consequence of the focal latent construct. The algorithm produces a component that can be both, best predicted and at the same time be a good predictor for subsequent dependent variables. It is the only inside approximation weighting scheme, which accounts for the constructs' direction of impact (Chin, 1998). The quality of the structural model is judged by the significance of the structural paths and the explained variance of the endogenous latent variables (Fornell and Larcker, 1981). Standardized path coefficients should be at least 0.2 (Chin, 1998). All TPB path coefficients show the expected sign (compare Figure 3 with Figure 4). This confirms the nomological validity of the constructs operationalisation (Chin, 2010). More details on the individual interpretation of the indicators will follow in Section 5.3

5.3 *Interpretation of (formative) measurement model results*

The dependent construct '**start-up intention**' is predominantly formed by the stated intention to start a non-farm business within the next five years, it shows the highest loading with 0.783. The second indicator, covering start-up intentions due to lack of jobs (push indicator), is also significant in this construct, with slightly weaker effect on the latent variable. The item accounting for the short-term plans to start within the next twelve months was insignificant. We should keep this in mind because in the next step the software estimates the structural coefficients in a way, which maximizes the variance explained of the dependent latent constructs. At this point, it is already clear that our model will give insights about the medium, but not the short-term motivation to start a non-farm business.

Following the TPB, we start with the ‘**expectations**’ construct.⁸ All of the suggested indicators for this latent variable are significant. Since they all have an identical scale from one to five, it is possible to directly compare the strength of influence of each item. According to our model (Figure 4 about) the strongest impact is caused by the variable “fast_dev” that stands for “*With my own business I expect to achieve a faster professional development*” (see Table 1 for variables definitions). It has the highest loading compared to all other indicators (0.321). The second most important indicator with a loading of 0.302 is “utilise_resour”. It stands for the statement: “*I believe I could better utilize the resources with my own business*”. That means that for the surveyed sample the pool of potential non-farm entrepreneurs is characterized by the desire for self-fulfilment and pragmatic economic optimization considerations. Interestingly, the indicator “esc_unempl” representing the belief “*My own business helps to escape unemployment*” turned out to be only second-last in impact strength. Still, the variable is significant. This could indicate that not only the unemployed, but also those with less attractive waged jobs think about starting a business. One driver for looking for alternative employment is the expectation to improve their income situation (impr_inc). Some hope for more security with regard to their employment situation (secure_empl). The latter plays a minor, but statistically significant role (coefficient 0.184). The same is true for the expectation to gain a higher degree of independence (independ – coefficient 0.103).

Figure 4 about here

‘**Attitudes**’ are operationalised based on six indicators. One of them, accounting for the risk propensity, is not significant. Risk reflects a preference (Grilo and Irigoyen, 2006) and for that

⁸ This section only presents results on formative measurement models. The valid reflective measurement models do not offer space for deeper interpretation as they correspond to the single dimension of the latent constructs ‘control beliefs’ and ‘perceived control’ as suggested by the TPB.

reason, it was assumed to belong to this construct. But it turns out, it does not explain much of its variance. This does not go in line with the positive relation of low risk aversion and start-ups that is widely reported in the literature (Grilo and Thurik, 2005; Djankov *et al.*, 2006; van der Zwan *et al.*, 2010). In our case the results can be interpreted such that individuals with low but also with high propensity for risk can end up having a positive attitude towards starting own business. The first case would correspond to push-driven, expectedly rather risk-averse household heads, who have no other choice, but to consider this desperate step for diversification hoping for better outcome. The second case represents risk takers who are ready to grab their opportunity. Similar findings were reported in Caliendo *et al.* (2009) where the authors concluded that risk aversion does not matter much for transitions from inactivity or unemployment into self-employment. This seems to be also our case and we consider it to be a hint for push-motivation of the surveyed households.

Among the significant ‘attitude’ indicators, the strongest impact goes to “prefse2farm” standing for the statement: “*I prefer non-farm self-employment to agricultural work*”. The view that most self-employed are successful (most_se_succ) and the general preference for self-employment (like_se) score pretty low in terms of impact with coefficients of 0.213 and 0.161, respectively. These two are typical pull-indicators. Together with the insignificance of the risk indicator, this could be seen as a piece of evidence that those who feel trapped in farm jobs are looking for alternatives and eventually consider to choose the way of self-employment. We interpret this as another hint for predominantly push-driven start-up intentions. The second-strongest indicator is the wish to be independent (own_boss). This confirms findings from previous research (Gelderen and Jansen, 2006; Manolova *et al.*, 2007). It harmonizes also with the statement that self-employment is preferred to wage (prefse2wage) mirroring the desire of households to take control over their employment situation.

With regard to the measurement model of the construct '**norms**', following the recommendation of Fishbein and Ajzen (2010), the indicators are constructed as a product of the perception of what the respective important persons are believed to think (normative beliefs) and the propensity to comply with that (subjective norms) resulting in norms (see Table 1). Our results show that the opinions of the current and former colleagues play a major role (coefficient 0.723).⁹ Because planned businesses are often related to the field of professional expertise of the individual (Manolova *et al.*, 2007) colleagues might be considered as more competent in their opinions than the own family or friends.

Let us direct now our attention to the first construct suggested to extend the TPB for our field of application: '**corruption perception**'. Three out of four indicators are significant. They share the same scale so that we can see that the strongest impact goes to the conviction that bribes are effective to get a permit of any kind (permit_bribe with coefficient 0.604). This is probably due to the expectation that (typical for transition economies with ineffective institutions) extensive paperwork needs to be done and several administrative barriers are to be overcome before the launch of the firm (Manolova and Yan, 2002; Klapper *et al.*, 2006; Demirgüç-Kunt *et al.*, 2011). Whether this perception is supporting or hindering the evolving of enterprises will be discussed in the next section.

The results of the measurement model also suggest that believing bribes to be an effective tool to influence the judicial system are second most important (0.409 for court_bribe) within the corruption construct for the intention to create a venture. This contradicts previous studies, indicating this perception as an obstacle for the start-up (Coyne and Leeson, 2004; Djankov *et al.*, 2005; Manolova *et al.*, 2007; Bowen and Clercq, 2008; Manolova *et al.*, 2008; Estrin and Prevezer, 2010). Believing that graft can change the outcome of a trial will lead to reluctance

⁹ Please remember that at this point only the isolated construct is analyzed and not its relation with other latent variables. This will be done in the next step - analysis of the structural model.

in enforcing rights in a trial unless proper contacts and funds are available. This reluctance could be seen as one more obstacle on the way to registering a legal firm. The impression prevails that the corruption perception is not village specific because of the insignificance of the item: “*In this village one cannot run successfully a business without having good contacts*” (contacts_need). It seems that it is not the local power structure that determines who will eventually become entrepreneur or not. Moreover, there is a general perception that the administration and the courts are not functioning, as they should: the perception for the popular practice of tax evasion and informality of the businesses around is significant (bend_law). This is in line with transitional entrepreneurship literature (Hellman *et al.*, 2000; Pashev, 2008; Tonoyan *et al.*, 2010).

The construct ‘**capital endowment**’ consists of five indicators. Note that they have different scales and it is not possible to compare their strength of impact directly. It turned out that the size of land owned in hectares (own_land) does not contribute to explaining the intention to start a non-farm business – the indicator is not significant. The sample consists mostly of many small-holders and only a few bigger farmers, mirroring the dual farm structure in Bulgaria. The finding implies that land size cannot be taken as a reliable criterion to target potential non-farm entrepreneurs.

With regard to financial capital, we chose to rely on the subjective income perception instead of the absolute amount of money available in the household, which is usually used in the literature (e.g. Evans and Jovanovic, 1989; Kim *et al.*, 2006; Demirgüç-Kunt *et al.*, 2011). One consideration behind this choice was, on the one hand, the well-known difficulty to collect such sensitive information and the inevitable bias, which goes with that (Fisher *et al.*, 2010). On the other side, for different business ideas, a different capital stock is needed. In addition, some households may be content with a smaller income, while others will look for possibilities to increase theirs. The subjective perception (inc_percept) is decisive in terms of

assessing financial endowment as an obstacle or opportunity. Confirming our hypothesis, this indicator is significant and has a positive sign. This is in line with the financial constraint hypothesis of Evans and Jovanovic (1989) and replicates findings from earlier studies (Blanchflower and Oswald, 1998; Dunn and Holtz-Eakin, 2000). The opponents of this idea argued that financial capital is not crucial for many types of activities (e.g. with low entry barriers) and thus should not be restrictive for the start-up decision (Hurst and Lusardi, 2004; Kim *et al.*, 2006; Petrova, 2011; van der Zwan *et al.*, 2011).

Also positive and significant is the influence of our human capital indicator (*edu_max*), reflecting the highest educational level achieved within the household. This is in line with the theory and confirms findings of other scholars (Arenius and Minniti, 2005; Djankov *et al.*, 2005; Manev *et al.*, 2005; Davidsson, 2006; Mandelman and Montes-Rojas, 2009; van der Zwan *et al.*, 2010). It seems that those who are better educated and can use the internet are more likely to consider non-farm self-employment. Probably this enables them to make use of extra-local ideas and to gather start-up relevant information. It may also reduce transport costs to the administration located in the cities. We could not find comparable studies examining the influence of this indicator on the start-up intention.

One specificity of the social capital indicator (*social_cap*) is that it can be transformed into other forms of capital – e.g. asking some friends for money or know-how, borrowing physical assets or land. It is quite difficult to account for all these aspects. Again, we took advantage of the flexibility offered by perceptual variables: we asked the respondents to what degree they agree to have the contacts necessary to overcome usual start-up problems. Thus they anticipated the kind of contacts relevant for their start-up intention. Some might need money, some might need help to get a permit, and some might believe to be fine even without relying on their network too much. Some might not be aware of what they will need, and consequently over- or underestimate the need of contacts. But exactly this subjective

judgment plays a decisive role; reporting the complete, complex, idiosyncratic social network information would not provide much added value in this case. According to our model, having the contacts needed to overcome the usual start-up problems is crucial for the development of start-up intentions. The better the social capital is evaluated the higher the chance to observe an aspiring entrepreneur. Once again this confirms the theory and echoes previous research (Manev *et al.*, 2005; Mueller, 2006; Linan and Santos, 2007; Sequeira *et al.*, 2007; Tornikoski and Newbert, 2007; Ronning, 2011).

5.4 Interpretation of the structural model

Overall, the model could explain 0.387 of the variance of the **'intention'** latent construct. According to the TPB, in different settings and different behaviors the intentional predictors may vary in their impact (Fishbein and Ajzen, 2010). In our extended TPB model all but one structural path were found to be significant (Figure 4). **"Norms"** seem not to influence the intention to start a non-farm business. Facing the rather limited number of studies in the field (Table 4), it is difficult to say if this is a stable pattern or not. One should also take into account the different methodologies and operationalisation of the constructs.

Table 4 about here

Also studies from other fields (Sheppard *et al.*, 1988; Ajzen, 1991; Armitage and Conner, 2001; Buchan, 2005; Yordanova and Tarrazon, 2010) reported norms to be insignificant. The strongest factor we could identify in terms of influence is **'attitudes'** (structural coefficient 0.301), followed by **'perceived control'** (0.267). This means that individual preferences seem to be most important when it comes to development of start-up intentions. The finding holds

also when a restricted specification without the constructs “capital endowment” and corruption perception” is run (Appendix 1).

Recall that within the attitudinal construct the voice of the item accounting for the preference for non-farm self-employment over agriculture is the loudest (as shown on Figure 4 about with 0.413 it has the highest coefficient within this latent variable). It is therefore likely that potential business founders in the years to come arise from the group of those who are still in the farming sector against their will, representing a typical push-motive.

Yet, to our surprise we found a positive and significant sign of the structural path pointing from ‘**corruption perception**’ to the ‘**intention**’ (Figure 4 about). This result contradicts previous findings (Djankov *et al.*, 2005; Aidis *et al.*, 2010) claiming that corruption increases transaction costs and thus inhibits firm foundation. In this context, it is justified to interpret that decision-makers who consider starting a business see bribing practices more as a tool to get things done, as “grease” in the administrative machine. A recent article from Harbi and Anderson (2010) reports that corruption encouraged necessity entrepreneurship and discouraged opportunity entrepreneurship. Corruption introduces uncertainty into the business environment and makes it more difficult for companies to grow and develop (Bowen and Clercq, 2008). Further, Dreher and Kotsogiannis (2009) found that the shadow economy and corruption are substitutes: the idea is that if a firm decides to operate in the shadow market, it can protect itself from the graft-prone administrative system, but in order to remain undiscovered, it needs to keep small. The possibility for expansion is further limited because shadow firms cannot turn to the formal court system for enforcing their rights. This forces them to reduce their customer and supplier network to a small and well-known network (Coyne and Leeson, 2004). Therefore, the positive sign of the ‘corruption perception’ variable is interpreted here a clear hint that the firms to be born have no big potential for growth and for job creation.

The latent variable ‘**capital endowment**’, underlines that aspiring entrepreneurs are ready to overcome their anticipated start-up problems with a solid stock of contacts. Human and financial capital are significant, but considering the role of ‘corruption perception’, it is no surprise that it is the social contacts component that fuels self-employment intentions.

One can speculate what kind of business people will lead the firms to be born in rural Bulgaria. A glance over the list with typical business ideas (not shown) reveals that they target mostly petty trade, gastronomy or tailoring. Compared to the common view in the literature, (e.g. Shane (2003) for an overview) our rural entrepreneurs seem not to be the typical Schumpeterian innovative, growth igniting business creators. They are rather unhappy farmers who are probably ready to follow the common practice of bending the law in search for a better way to make ends meet. They will most likely choose to stay informal in order to avoid taxes, which indeed are prohibitive for the majority of rural businesses in the face of “thin” local demand. Overall, a picture of typical representatives of the distress-pushed, necessity-motivated business founders emerges.

6. CONCLUSIONS AND POLICY IMPLICATIONS

As the first application of formative operationalisation in the field of entrepreneurial behavior, our study allows detailed empirical insight at the make-up of each motivational factor for the decision to start a non-farm business. It sheds light on the dynamics behind forming the intention to start a non-farm business in rural Bulgaria. Extending the well-proven Theory of Planned Behavior (TPB) and relying on the flexible Partial Least Squares family of Structural Equation Models, we identify ‘attitudes’ and the newly introduced construct of ‘corruption perception’ as the strongest predictors of (non-farm) start-up intentions in Bulgarian family farms. With the ‘corruption perception’ we include a specificity of the institutional setting that can be seen as typical for the transitional context. ‘Capital endowment’, another construct that we added to the TPB, has also impact on intentions. Its effect is indirect – it goes through the

perception for control and then influences the formation of intention. In other words, ‘perceived control’ mediates the impact of this construct.

The main novel empirical result of our study is that, surprisingly, farmers with a stronger perception of the corrupt business environment, i.e. those who think that bribes are effective and that most local businesses must bend the law, tend to be the ones who develop start-up intentions. We conclude that the firms to be born would themselves rely on widely accepted corrupt practices and remain informal. This is one reason, why we think that the new businesses are likely to offer only limited employment opportunities without real prospects for growth. We further find several hints that entrepreneurial intentions are driven by necessity. The data revealed that the strongest driver of positive attitude towards new-business creation is the preference of non-farm self-employment over farm employment. Thus their dislike of farm activities pushes farmers out of the sector. Further, the expectation for faster personal development through own non-farm business was the strongest indicator among the ‘behavioral belief’ construct. Again, the impression prevails that people feel trapped in the farming sector and consider a start-up as their way out of agriculture in the mid-term.

What are the rural development policy relevant conclusions? Our analysis raises doubts if supporting rural self-employment in Bulgaria is a viable option at all. First of all, we expect that the prevailing distress-push motivation lowers the potential of viable businesses to emerge. This means that positive welfare effects in terms of profit and employment from entrepreneurship will be very limited. Furthermore, there is a high probability that the corrupt business environment will keep the businesses small and illegal. Thus, evasive entrepreneurship is to be expected. Therefore, the key to any rural development policy targeting rural self-employment in Bulgaria is to counteract corruption at first. It looks as if such behavior is hardly stigmatized within the (mostly low-income) rural society of Bulgaria – an alarming signal to policy makers because bribing prevents the most effective use of

social resources. Increasing transparency (e.g. for permits issuing), enforcing tax laws, and restoring the reputation of the courts as effective and stable institution are among the issues to be solved. Although this clearly goes beyond the domain of rural development policy, it seems a necessary condition for successful local solutions. To address the problems of poor and distress-pushed small-scale farmers, who will probably not be able to help themselves by starting small businesses, social policy might be the only sensible option.

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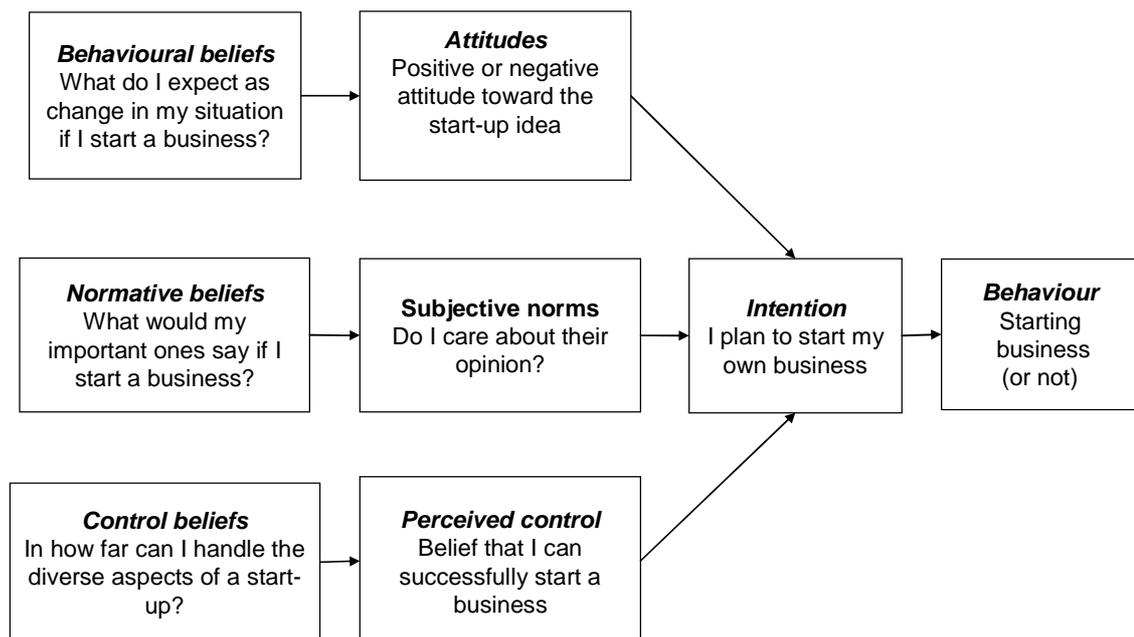
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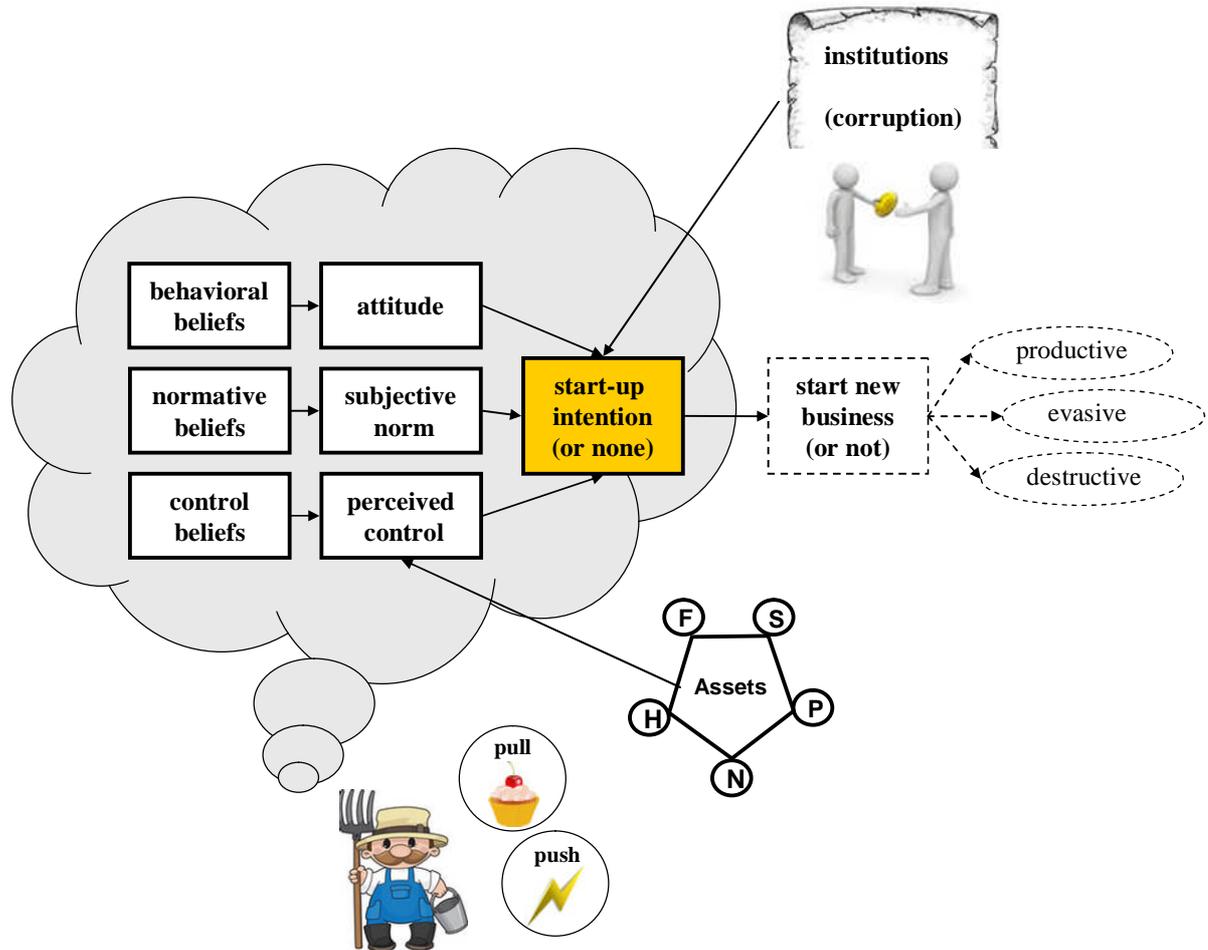
FIGURES

Figure 1 The Theory of Planned Behavior



Source: Adapted from Ajzen, (1991)

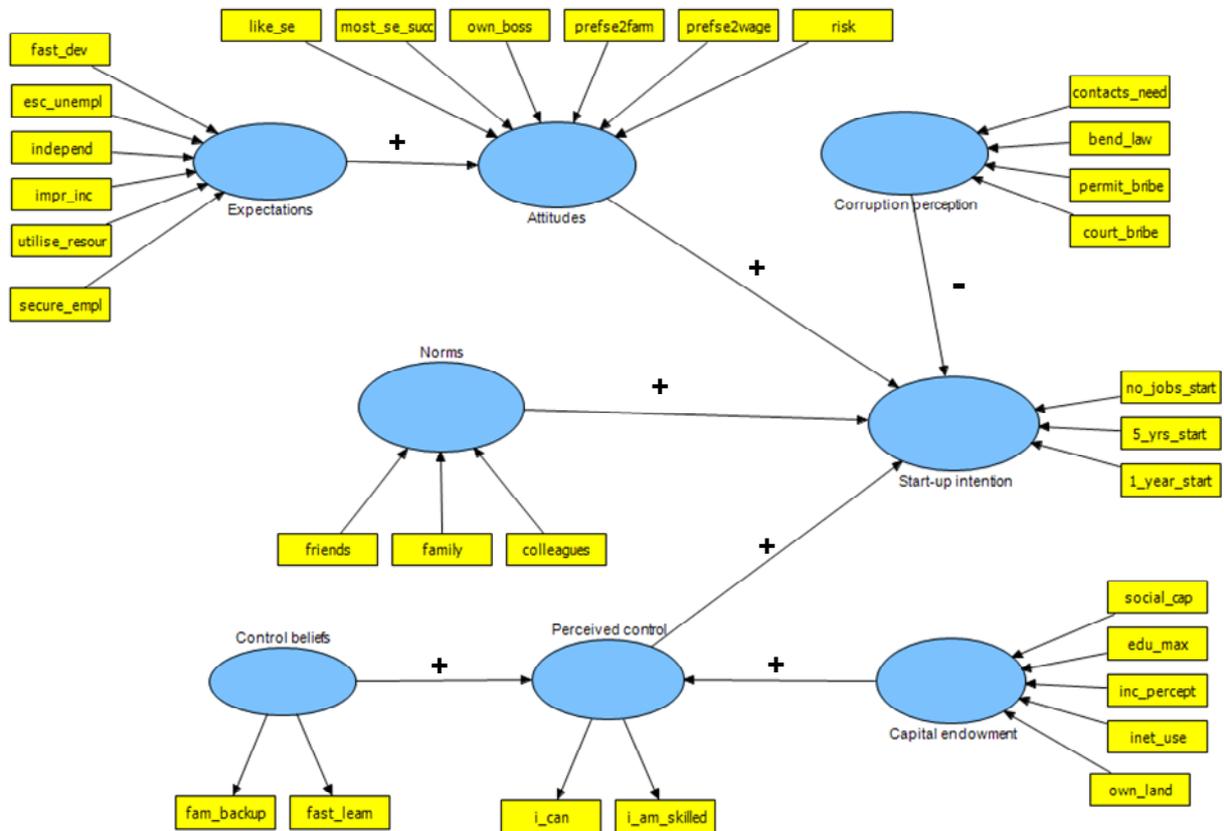
Figure 2 Theoretical framework for the analysis of entrepreneurial intentions



Source: Own presentation adapted from Ajzen, (1991).

Note: The big bubble symbolizes the cognitive mechanism of making the decision, while the objects outside of the bubble correspond to the farmer's objective reality.

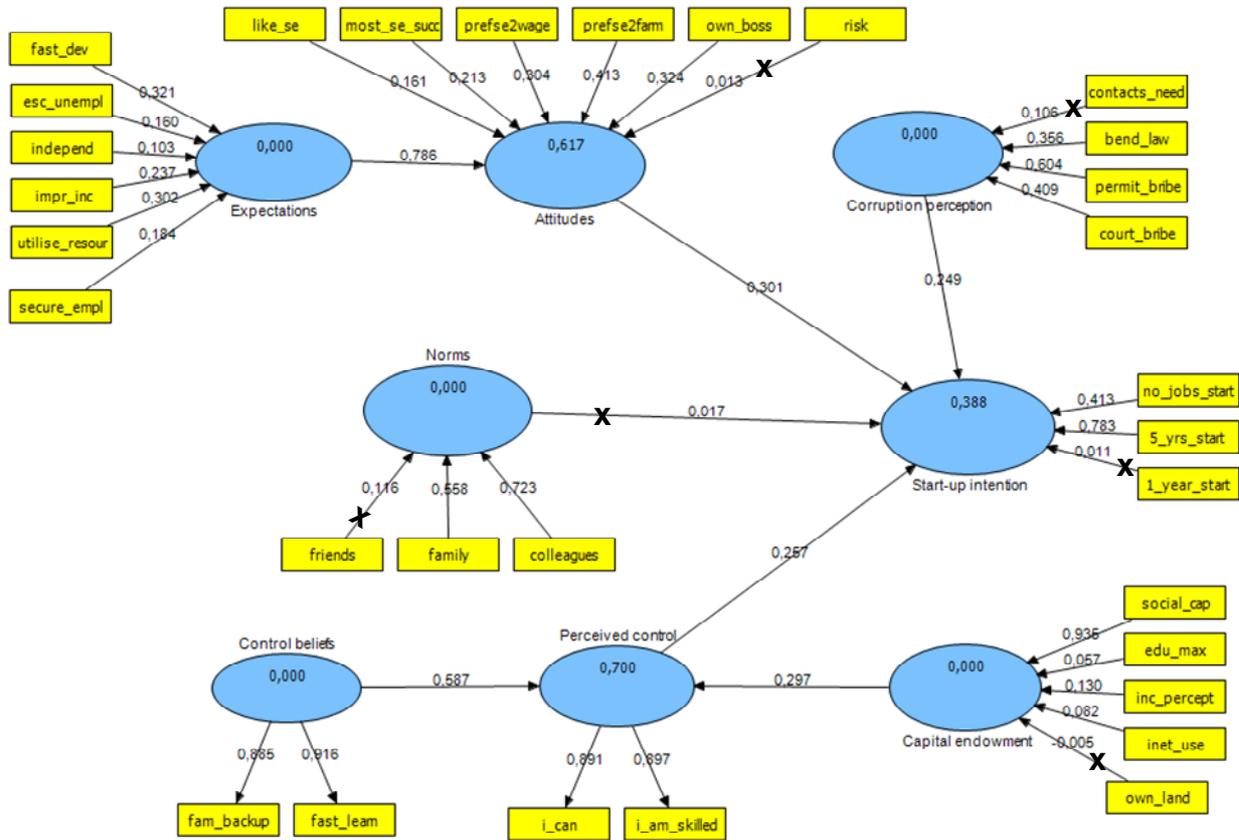
Figure 3 PLS model structure



Source: Own presentation.

Note: The signs next to the structural paths show the hypothesized direction of impact. The ovals represent the latent constructs and the rectangles symbolize the indicators used to measure them.

Figure 4 Result of PLS estimation for non-farm start-up intentions among farmers



Source: Own calculation with SmartPLS version 2.0 M3 (Beta).

Note: The paths marked with cross (x) are not significant at the 5% level. The ovals represent the latent constructs and the rectangles symbolize the indicators used to measure them. The numbers in the ovals indicate the explained variance of the respective latent construct. The numbers next to the arrows going into the ovals are to be interpreted as regression coefficients. The numbers going out from the ovals to the rectangles are interpreted as factor loadings (e.g. i_can has a loading of 0.891).

TABLES

Table 1. Definition of variables

Construct	Variable	Description
Expectations	fast_dev	With an own business I expect to achieve faster professional development
	esc_unempl	With my own business, I expect to escape unemployment
	Independ	With my own business, I expect to be more independent
	impr_inc	I believe with my own business, I could improve my income situation
	utilise_resourc	I believe I could better utilize the resources with my own business
	secure_empl	My own business could provide secure employment for me
Attitudes	like_se	I like the idea to be self-employed
	most_se_succ	I consider most non-farm self-employed persons to be successful
	prefse2wage	I prefer non-farm self-employment to a waged job
	prefse2farm	I prefer non-farm self-employment to agricultural work
	own_boss	I believe it is better to be my own boss than to work – even for higher salary - for someone else
	Risk	Risk propensity (1 avoid risk – 3 take substantial risk)
Normative beliefs (NB)	supp_friends	My friends will support me if I start my own business.
	supp_family	My family will support me if I start my own business.
	supp_colleagues	My (ex)colleagues will support me if I start my own business.
Subjective norms (SN)	care_friends	I care what my friends would say if I start my own business
	care_family	I care what my family would say if I start my own business
	care_colleagues	I care what my (ex)colleagues would say if I start my start own business
Norms (NB x SN)	Friends	supp_friends multiplied by care_friends
	Family	supp_family multiplied by care_family
	Colleagues	supp_colleagues multiplied by care_colleagues
Control beliefs	fam_backup	My family supports me, I could do start my own business
	fast_learn	I learn fast and would adapt quickly to the new situation
Perceived control	i_can	I know it would be hard, but I could manage my own business
	i_am_skilled	I am experienced and skilled and could handle my own business
Capital endowment	own_land	Size of land owned by household in hectares
	inc_percept	Degree of perceived income sufficiency (1-4 increasing)
	edu_max	Highest level of education achieved within household (1-5 increasing)
	social_cap	I have good contacts and can therefore handle most start-up problems
	inet_use	Dummy for household using internet (yes/no)
Start-up intention	no_jobs_start	Because there are no other jobs, I consider starting my own business
	1yr_start	I plan to start an own business within the next 12 months
	5yrs_start	I plan to start an own business within the next 5 years
Corruption perception	contacts_need	In this village you can not run a successful own business without having good contacts
	bend_law	Most of the businesses here have to bend the law in order to survive
	permit_bribe	Bribes are effective for getting a permit of any kind
	court_bribe	Bribes are effective for influencing the legal system

Note: Where no scale is mentioned, an ordinal scale was used with 1 indicating the lowest level of agreement and 5 the highest. The respondents were asked explicitly about non-farm own business, which is called “own business” for brevity.

Table 2 Results for the reflective measurement models

Construct/ Criterion	Discriminant validity			Convergent validity	
	Factor loadings	AVE	Fornell/Larcker	Composite reliability	Cronbachs Alpha
Required	(≥ 0.700) ¹⁾	(≥ 0.500) ¹⁾	($AVE > \text{Correlation}^2$) ¹⁾	(≥ 0.700) ²⁾	(≥ 0.700) ^{3), 4)}
Control beliefs		0.812	0.812 > 0.663	0.896	0.769
fam_backup	0.885				
fast_learn	0.916				
Perceived control		0.799	0.799 > 0.663	0.889	0.749
i_can	0.891				
i_am_skilled	0.897				

Source: Own calculation with SmartPLS version 2.0 M3 (Beta).

Note: N=195; ¹⁾Fornell & Larcker (1981) ²⁾Nunnally & Bernstein (1994) ³⁾Chin (2010) ⁴⁾Cronbach (1951)

Table 3 Loadings and crossloadings for reflective indicators, N=195

Construct	Control beliefs		Perceived control	
	fam_backup	fast_learn	i_can	i_am_skilled
1. Attitudes	0.536	0.525	0.573	0.581
2. Capital endowment	0.583	0.784	0.603	0.730
3. Control beliefs	0.885	0.916	0.751	0.706
4. Corruption perception	0.085	0.157	0.094	0.138
5. Expectations	0.573	0.614	0.572	0.604
6. Norms	0.337	0.340	0.282	0.285
7. Perceived control	0.676	0.785	0.890	0.896
8. Start-up intention	0.356	0.455	0.423	0.423

Source: Own calculation with SmartPLS version 2.0 M3 (Beta).

Note: Every of the indicators should show higher loading to its construct (shaded cells) than to any of the other constructs.

Table 4 The Theory of Planned Behavior in studies on entrepreneurial intentions

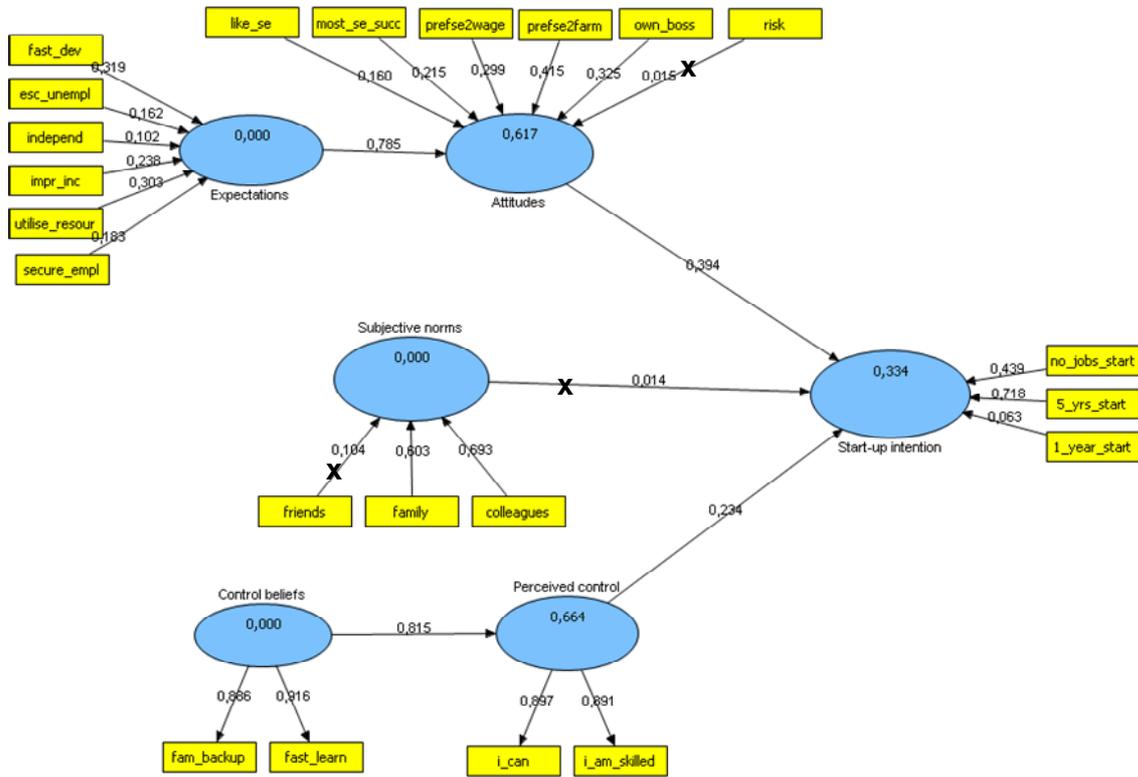
Study	Sample size	Attitudes	Norms	Perceived control	Method
current study.	195	+	n.s.	+	SEM (PLS)
Autio et al. (2001)	3445	+	+/n.s.	+	regression
Diaz-Garcia and Jimenez-Moreno (2010)	967	+	+	+	regression
do Paco et al. (2011)	74	+	n.s.	+	SEM (PLS)
Engle et al. (2010)	1748	+/n.s.	+	+/n.s.	regression
Gelderen et al (2008)	1235	+	+	+/n.s.	regression
Kolvereid (1996)	128	+	+	+	SEM (LISREL)
Krueger et al. (2000)	97	+	n.s.	+	regression
Linan (2008)	226	+	+	+	SEM (PLS)
Linan and Chen (2009)	310	+	n.s.	+	SEM (PLS)
Linan et al. (2011)	549	+	+	+	SEM (PLS)
Segal (2005)	115	+	omitted	+	regression
Shook and Bratianu (2010)	324	+	-	+	regression
Siu and Lo (2011)	205	n.s.	+	+	SEM (LISREL)
Tegtmeier (2008)	185	+	+	n.s.	regression
Tkachev & Kolvereid (1999)	512	+	+	+	regression
Yordanova & Tarrazon (2010)	366	+	+	+	regression

Source: own presentation.

Note: SEM stays for structural equations model; n.s. – not significant.

APPENDIX

Appendix 1 PLS Model on entrepreneurial intentions in pure TPB form, N=195



Source: Own calculation with SmartPLS version 2.0 M3 (Beta).

Appendix 2 Summary statistics all PLS indicators, N=195

Variable	Mean	Std. Dev.	Min	Max
fast_dev	3.85	1.43	1	5
esc_unempl	4.00	1.32	1	5
independ	4.27	1.31	1	5
impr_inc	4.05	1.37	1	5
utilise_resour	3.82	1.49	1	5
secure_empl	3.82	1.42	1	5
like_se	4.01	1.55	1	5
most_se_succ	3.63	1.33	1	5
prefse2wage	3.45	1.68	1	5
prefse2farm	3.12	1.78	1	5
own_boss	4.10	1.42	1	5
risk	1.89	0.91	1	3
contacts_need	3.63	1.54	1	5
bend_law	3.88	1.32	1	5
permit_bribe	3.53	1.57	1	5
court_bribe	3.50	1.66	1	5
social_cap	3.80	1.50	1	5
edu_max	3.92	0.70	1	5
inc_percept	1.05	0.83	0	3
inet_use	0.28	0.45	0	1
own_land	3.44	8.87	0	106
supp_friends	3.59	1.55	1	5
supp_family	4.61	0.97	1	5
supp_colleagues	3.04	1.54	1	5
care_friends	2.78	1.70	1	5
care_family	4.53	1.02	1	5
care_colleagues	2.24	1.48	1	5
norm_friends	11.02	8.93	1	25
norm_family	21.20	6.78	1	25
norm_colleagues	8.08	7.91	1	25
i_can	3.87	1.54	1	5

Source: own calculation

Appendix 3 Descriptive statistics for selected indicators, N=195

		intention to start self-employment in 5 years (%)						
		1	2	3	4	5		
		N	101	14	24	30	26	
Latent construct	Indicator						Scale	
Expectations	fast_dev	1	24.8	7.1	0.0	0.0	0.0	fully disagree
		2	3.0	14.3	12.5	3.3	3.8	
		3	18.8	14.3	8.3	20.0	0.0	
		4	14.9	14.3	12.5	26.7	19.2	
		5	38.6	50.0	66.7	50.0	76.9	fully agree
	esc_unempl	1	18.8	0.0	0.0	3.3	0.0	fully disagree
		2	6.9	7.1	4.2	0.0	0.0	
		3	12.9	21.4	16.7	3.3	3.8	
		4	22.8	28.6	8.3	40.0	11.5	
		5	38.6	42.9	70.8	53.3	84.6	fully agree
	independ	1	13.9	0.0	8.3	0.0	0.0	fully disagree
		2	12.9	7.1	0.0	0.0	0.0	
		3	5.9	0.0	8.3	3.3	0.0	
		4	6.9	21.4	12.5	10.0	7.7	
		5	60.4	71.4	70.8	86.7	92.3	fully agree
	impr_inc	1	18.8	0.0	0.0	0.0	0.0	fully disagree
		2	12.9	7.1	0.0	0.0	0.0	
		3	12.9	14.3	16.7	3.3	0.0	
		4	11.9	7.1	16.7	20.0	15.4	
		5	43.6	71.4	66.7	76.7	84.6	fully agree
	utilise_resour	1	23.8	14.3	8.3	3.3	0.0	fully disagree
		2	11.9	0.0	0.0	3.3	0.0	
		3	11.9	21.4	20.8	3.3	7.7	
		4	16.8	21.4	20.8	6.7	7.7	
		5	35.6	42.9	50.0	83.3	84.6	fully agree
secure_empl	1	22.8	14.3	0.0	0.0	0.0	fully disagree	
	2	9.9	7.1	4.2	0.0	0.0		
	3	14.9	42.9	20.8	13.3	3.8		
	4	14.9	14.3	20.8	16.7	23.1		
	5	37.6	21.4	54.2	70.0	73.1	fully agree	
Attitudes	like_se	1	29.7	0.0	4.2	6.7	0.0	fully disagree
		2	5.0	7.1	4.2	0.0	0.0	
		3	5.9	14.3	8.3	3.3	3.8	
		4	5.0	14.3	8.3	13.3	11.5	
		5	54.5	64.3	75.0	76.7	84.6	fully agree
	most_se_succ	1	17.8	7.1	8.3	0.0	0.0	fully disagree
		2	10.9	7.1	12.5	0.0	3.8	
		3	22.8	35.7	25.0	20.0	23.1	
		4	21.8	21.4	0.0	40.0	23.1	
		5	26.7	28.6	54.2	40.0	50.0	fully agree
	prefse2wage	1	40.6	28.6	8.3	6.7	7.7	fully disagree
		2	3.0	14.3	8.3	3.3	3.8	
		3	13.9	14.3	8.3	16.7	7.7	
		4	10.9	7.1	12.5	16.7	3.8	
		5	31.7	35.7	62.5	56.7	76.9	fully agree
	prefse2farm	1	58.4	21.4	16.7	3.3	7.7	fully disagree
		2	5.9	21.4	4.2	6.7	0.0	
		3	5.0	14.3	20.8	13.3	11.5	
		4	7.9	14.3	4.2	10.0	11.5	

		5	22.8	28.6	54.2	66.7	69.2	fully agree
	own_boss	1	19.8	7.1	8.3	3.3	7.7	fully disagree
		2	4.0	0.0	4.2	3.3	0.0	
		3	8.9	0.0	16.7	0.0	3.8	
		4	16.8	21.4	4.2	3.3	15.4	
		5	50.5	71.4	66.7	90.0	73.1	fully agree
	risk	1	45.5	42.9	70.8	66.7	11.5	take substantial risks
		2	25.7	28.6	4.2	3.3	3.8	risk neutral
		3	28.7	28.6	25.0	30.0	84.6	risk averse
Corruption perception	contacts_need	1	18.8	14.3	16.7	10.0	15.4	fully disagree
		2	13.9	14.3	8.3	3.3	7.7	
		3	7.9	21.4	16.7	13.3	23.1	
		4	12.9	14.3	12.5	10.0	23.1	
		5	46.5	35.7	45.8	63.3	30.8	fully agree
	bend_law	1	11.9	0.0	12.5	3.3	3.8	fully disagree
		2	9.9	14.3	0.0	10.0	0.0	
		3	17.8	28.6	16.7	13.3	23.1	
		4	18.8	14.3	12.5	20.0	15.4	
		5	41.6	42.9	58.3	53.3	57.7	fully agree
	permit_bribe	1	31.7	21.4	8.3	10.0	7.7	fully disagree
		2	6.9	7.1	4.2	0.0	3.8	
		3	10.9	14.3	16.7	13.3	11.5	
		4	20.8	35.7	20.8	23.3	11.5	
		5	29.7	21.4	50.0	53.3	65.4	fully agree
	court_bribe	1	38.6	21.4	4.2	3.3	15.4	fully disagree
		2	5.9	0.0	0.0	6.7	3.8	
		3	11.9	14.3	8.3	3.3	26.9	
		4	6.9	28.6	20.8	20.0	11.5	
		5	36.6	35.7	66.7	66.7	42.3	fully agree
Capital endowment	social_cap	1	25.7	14.3	4.2	6.7	0.0	fully disagree
		2	8.9	7.1	8.3	0.0	3.8	
		3	7.9	35.7	8.3	6.7	3.8	
		4	17.8	14.3	29.2	20.0	7.7	
		5	39.6	28.6	50.0	66.7	84.6	fully agree
	edu_max	1	1.0	0.0	0.0	0.0	0.0	no schooling
		2	3.0	0.0	0.0	0.0	0.0	elementary
		3	25.7	21.4	20.8	20.0	3.8	primary
		4	50.5	57.1	58.3	73.3	80.8	secondary
		5	19.8	21.4	20.8	6.7	15.4	university or higher
	inc_percept	0	39.6	21.4	16.7	13.3	7.7	can not pay food + house
		1	40.6	64.3	54.2	46.7	42.3	covers only food + housing
		2	16.8	7.1	29.2	33.3	38.5	food, housing + small extras
		3	3.0	7.1	0.0	6.7	11.5	comfortable life
	inet_use	0	87.1	71.4	58.3	63.3	38.5	no internet use
1		12.9	28.6	41.7	36.7	61.5	use internet	

Source: Own calculation.

Note: The shaded columns represent respondents with pronounced intention to start non-farm business in the next five years. All indicators are ordinal increasing. The numbers shown represent percentage from all answers for particular category of the dependent variable (1-5). For example 15.4% of those who stated to be very likely to start business (voted with 5) in the next five years have university education.