

**WHICH ENTREPRENEURS EXPECT TO EXPAND THEIR BUSINESSES?
EVIDENCE FROM SURVEY DATA IN LITHUANIA**

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Abstract

This paper presents an empirical study based on a survey of 399 small and medium size companies in Lithuania. Applying bivariate and ordered probit estimators, we investigate why some business owners intend to expand their firms based on growth expectations, while others do not. Our main findings provide evidence that the characteristics of the owners matter. Those with higher education and 'learning by doing' attributes either through previous job experience or additional entrepreneurial experience are more likely to expand their businesses. In addition, the model implications include that the intentions to expand are correlated with exporting and with size of the enterprise: medium and small size companies are more likely to grow than micro enterprises and self-employed entrepreneurs. We also analyse the link between the main perceptions of constraints to business activities and growth expectations and find that the factors, which are perceived as main business barriers, are not necessary those, which are associated with low growth expectations. In particular, perceptions of both corruption and of inadequate tax systems are main barriers to growth.

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1. INTRODUCTION

In this paper, we focus on the factors affecting enterprise growth in the transition country context. We use a data sample based on a survey of 399 SME owners in Lithuania. Lithuania provides an excellent example of a transition country that has successfully transformed its status from a centrally planned Soviet republic to a fast-growing, sovereign, market-oriented and democratic EU member state. We are specifically interested in the factors affecting two types of growth expectations: intention to increase the number of employees and intention to increase business turnover. Though growth expectations might be viewed as a subjective assessment, a number of authors have indicated that business growth is at least partially determined by the entrepreneur's motivations and intentions for the business (Bird, 1988; Davidsson, 1991; Kolvereid, 1992; Cooper, 1993; Herron and Robinson, 1993; Cliff, 1998; Wiklund et al., 2003). In addition, by asking entrepreneurs about their expectations regarding the future, we alleviate the problem of endogeneity, unlike the typical situation where growth indicators are explained by some contemporary characteristics of firms.

In our analysis, we incorporate a set of explanatory variables including human capital measures, firm level attributes, sectoral affiliation and export behaviour. In addition, we include perceptions of the main external barriers, i.e. taxes and corruption into account as they may have an influence on growth expectations.

Our study provides the following contributions. Firstly, our data is unusually rich in its representation of both micro enterprises and self-employed entrepreneurs. This allows us to more accurately compare the effect of firm size on growth aspirations for all SME size categories. Our results indicate that while small and medium firms expect to grow, the smallest firms i.e. micro firms do not; thus there seems to be a stagnant pool of very small enterprises. This finding contradicts a negative link between size and employment growth found in other studies (Faggio and Konings 2003; Bechetti and Trovato 2002) We argue that the discrepancy stems from the fact that the smallest firms are being typically underrepresented in other studies¹. Secondly, we are able to test the effect of the two most significant business barriers on growth aspirations. Here we find that both the high level of taxes as well as corruption are identified as negatively related to growth aspirations. Thirdly, the characteristics of the owners matter. Those with higher education and 'learning by doing' attributes either through previous job experience or additional entrepreneurial experience are more likely to expand their businesses.

This paper is organised as follows. Section 2 presents relevant literature in terms of theoretical developments and empirical findings. Section 3 describes the survey and resulting sample of entrepreneurs. Section 4 presents the variables used in our estimation model and Section 5 presents our results. Section 6 concludes.

2. LITERATURE ON DETERMINANTS OF SME GROWTH

We now turn to a brief literature review. First we argue that the growth of businesses and employment growth in particular are key performance indicators for SMEs. Next, we discuss findings on the determinants of growth.

2.1 Business performance measures

Even though no consensus regarding the definition of small business performance exists, venture profitability and increase in employees are two ways in which business performance is typically measured (Chandler and Hanks 1993; Robinson 1999; Vesper 1996; Watkins et al. 2003). However, the profitability indicator is problematic in the context of SMEs for two reasons. Firstly, SMEs frequently rely on simplified accounting where the measures of profit are not clear-cut. Secondly, it is typical for many new firms to follow a period of losses or low profitability in the initial phase of their existence. Thus, growth and growth expectations may be a better measure of performance. As argued by Johnson *et al.* (2000): 'Employment growth is perhaps the most important measure of performance from a welfare perspective. A private sector is successful in a post-communist country only to the extent it manages to create jobs'. (p. 13). Similar conclusions are supported by other authors. For instance Klapper *et al.* (2002) stress that the SME sector is the most dynamic part of transition economies. One may also note, that the importance of employment creation by the SME sector is also crucial in high income economies, as documented by Lopez-Garcia (2002) who confirms the role of SMEs as absorbing employment released from both industry and agriculture, by creating jobs in the service sector. And finally, while we focus on employment, the issue of growth can also be captured by the investment dimension, as in Fries *et al.* (2003).

Growth can be either measured by backward looking accounting and employment data or by forward looking expectations of owners. As the data is typically generated by surveys, there is a serious risk of substantial measurement error if data for several past years is collected. Moreover, in case of new recent start-ups there is not much past history to rely on, which leads to the sample selection bias. In addition, some studies have indicated that perceptions of performance may be more insightful indicators than objective measures because perceptions draw on the insider's knowledge (Osborn et al. 1980; Watson et al. 2003) of firm's goals, strategy, structure and processes. Though it is not without controversy, there is increasing evidence indicating that attitudes such as intentions to grow a business can be used to predict behaviour (Davidsson 1991; Wiklund et al. 2003).

2.2 Determinants of growth

The results of a number of studies indicate that both business and business owner characteristics can influence business growth. Existing studies have shown that human capital as measured by work experience, education and other skills that increase knowledge accumulation are not only important characteristics of entrepreneurial capacity (Sexton and Upton 1985) but have a positive influence on both firm survival, growth (Cooper et al. 1994) and entrepreneurial performance (Cooper and Gimeno-Gascon 1992; Chandler and Hanks 1998). Education seems to provide the knowledge base and analytical and problem-solving skills to more effectively deal with the demands of entrepreneurship (Watson et al. 2003). In a study of the influence of venture teams on venture performance, Watkins et al. (2003) find a significant and positive relationship between perceived venture growth and higher levels of education and work experience. They also found that younger business owners with fewer employees were significantly more likely to grow their ventures than the sample as a whole. However other studies have indicated that middle aged entrepreneurs are more likely to grow their businesses than other age groups (Burns 2001). Business sector may have an influence on these results with younger entrepreneurs growing their firms faster in IT sectors (Burns 2001). As a result, the relationship between business owner's age and business growth is still not completely understood.

Work experience can further supplement an entrepreneur's education with more practically based skills for venture performance. However perhaps even more importantly, previous entrepreneurial experience i.e. in having started up another private business may increase the likelihood for growth in the current business. This is a result of 'learning by doing' in which the entrepreneur improves their skills and chances for business success by building up their entrepreneurial experience. The different roles, which are played by the technically related work experience and by the entrepreneurial experience, may be linked to the recent empirical work based on the distinction between the two alternative views of entrepreneurship (Lazear 2004). Namely, the first view is based on belief 'that entrepreneurs are technical specialist who base their new companies on innovation' (*Ibid.*, p. 208). If this view is correct, both previous sector-relevant job experience and specialist education may be critical factors determining entrepreneurial success. An alternative view however is that entrepreneurs are 'generalist', 'jacks of all trade', as their main role is in co-ordinating a range of activities, about which they need some sufficient amount of knowledge. In our interpretation and application of Lazear's (2004) results, previous entrepreneurial experience and a more broad type of education may be more conducive to entrepreneurial success.

On a related theme, in a review of literature on the antecedents to business start-up and growth, Storey (1994) found reasonable evidence indicating a negative relationship between being unemployed before starting a business and subsequent business growth. Though unemployed individuals experience a strong push into self-employment, they may not have the skills needed to grow the business and may have lower growth aspirations.

Studies in Western countries have indicated that gender affects business development. More specifically, female businesses tend to be smaller and are less likely to grow than male-owned businesses (Cooper et al. 1994). A study by Cliff (1998) indicates that female business owners tend to have lower growth thresholds for their businesses than men, which can partially explain the tendency for women to have smaller businesses with lower turnovers. However, in a study of Norwegian entrepreneurs, Kolvereid (1992) did not find any significant differences between male and female entrepreneurs in terms of growth aspirations. Similarly, in transition countries such as Lithuania, growth aspirations of female entrepreneurs are not different from male entrepreneurs (Aidis 2003).

A study by Faggio and Konings (2003) on five transition countries shows a negative relationship between firm size and firm growth indicating that smaller firms are likely to grow faster than larger firms. However, as stressed by the authors, the small firms are heavily underrepresented in their sample. Similarly, Becchetti and Trovato (2002) found a negative link between size and growth (and positive with age of business), controlling for a wide range of factors, albeit again their sample contains firms with more than ten employees only. On the other hand, the results reported by Fries *et al.* (2003), based on a large cross-country sample from transition economies including micro firms, indicate a positive, albeit non-linear relationship between growth (as measured by both revenues and assets) and size. Similar findings are reported by Batra *et al.* (2003), using the WBES survey. Batra *et al.* show that while the difference between medium and small size companies in growth rate is not significant, it becomes significant in relation to large firms, which grow faster.

Another important determinant of growth relates to the international versus domestic orientation of sales. As confirmed by Beck *et al.* (2002), utilizing a large cross-country survey, for which 80 percent of firms are small and medium sized, exporting is a highly significant factor affecting firm growth. Similar results based on the same sample are

reported by Batra *et al.* (2003). In addition, Becchetti and Trovato (2002), found a positive, albeit marginally insignificant effect of exporting on growth for their sample of Italian firms.

Three studies, which focus directly on the link between business barriers and growth, are Johnson *et al.* (2000), Beck *et al.* (2002) and Batra *et al.* (2003). The latter two are both based on the WBES survey conducted by World Bank in 80 countries between mid 1998 and 2000. The econometric findings of the studies vary, and they are not fully compatible, as the survey instruments are different and the size distribution of firms in the samples differ. The first study (Johnson *et al.* 2000) does not cover firms with less than ten employees. Perception of barriers is captured by assessment of the extent of 'extralegal payments' in the business sector in which the company operates, and by assessment of the credibility of courts in enforcing contracts. On both measures, no significant effects on firm growth was found (Johnson *et al.* 2000).

On the other hand, Beck *et al.* (2002) relies on a more extensive range of indicators, and a larger sample with wide cross-country variation. They consider three dimensions: quality of financing, quality of the legal system, and corruption, all three based on 7-11 detailed questions with answers based on 6 point Likert scale. If a single dimension is included in the specification separately, all three turn out to have highly significant negative effect on firm growth. The effect of corruption becomes insignificant, when the three are included jointly, possibly due to multicollinearity. Another interesting finding is that the significance of these factors vary with the size of company: 'small firms report the highest financing and corruption constraints, whereas large firms report the highest legal constraints' (Beck *et al.* 2002, pp. 13-14). Similarly, using the same sample but different specifications, Batra *et al.* (2003) find that financing, high taxes and corruption are significantly and negatively associated with business sales growth.

In a related study in Lithuania, Aidis (2004) found that business barriers do not influence the business in isolation but have an inter-related effect. For instance, business owners who were affected by formal barriers such as the tax level and business legislation were found to be more likely affected by informal barriers such as governmental corruption at the national level and the implementation of business regulations. In our study, we are interested in testing if the main business barriers identified by SME owners, namely taxes and corruption would have a negative effect on growth aspirations.

3. SURVEY AND SAMPLE CHARACTERISTICS

Our analysis is based on data collected by one of the authors in Lithuania. From September - December 2000, Lithuanian language questionnaires were sent out to private business owners throughout Lithuania. Due to the inability to obtain accurate lists of operating private businesses in Lithuania², the survey was not based on a random sample and most addresses were obtained through the membership lists of various entrepreneurship organizations. This may have resulted in a bias for businesses that are older and have higher turnovers than the average private business in Lithuania. The response rate was high, at fifty percent. Of the 505 respondents, 399 were business owners³.

3.1 Growth

Our analysis of growth intentions is based on responses to the following question from the survey:

- In the next five years, do you think that your business will:
(please mark all relevant responses):*
- (a) increase the number of employees*
 - (b) increase turnover*
 - (c) decrease the number of employees*
 - (d) decrease turnover*
 - (e) stay the same*
 - (f) I don't know*

The question is asked in a depersonalised, objective mode, i.e. about expectations, not intentions or strategies of the owner, to avoid possible bias. The respondents would typically assume that growth is something positive and might be inclined to present themselves in a better light, if asked about their intentions and potential. The wording applied here suggests that it is not only the entrepreneur, who is responsible for the enterprise development.

The analysis was greatly facilitated by the fact that all respondents who declared an expected increase in employment, also declared an expected increase in turnover, but not vice versa. These results lead to the following ranking, presented in Table 1.

Table 1 about here

As the number of responses in the lowest category is relatively small, combining it with the one above may be reasonable, as illustrated by an alternative categorisation (b) above. We estimated alternative models, using both specifications (see below). In particular, we applied the ordinal probit estimator, where, for a sequence of cut points: $k_0, \dots, k_i, \dots, k_n$ (with k_0 corresponding to $-\infty$ and k_n to $+\infty$), the probability of observing an outcome i is given by:

$$P(\text{outcome} = i) = P(k_{i-1} < X\gamma + u < k_i) = \Phi(k_i - X\gamma) - \Phi(k_{i-1} - X\gamma) \quad (1)$$

where $X\gamma$ is a matrix of explanatory variables with a corresponding (column) vector of coefficients and $\Phi(\cdot)$ refers to the standard normal cumulative distribution function.

In addition to this model, we also applied a simpler binary probit model, with the dependent variable distinguishing between the entrepreneurs predicting employment growth and all other outcomes:

$$P(\text{outcome} = 1) = \Phi(X\gamma) = \int_{-\infty}^{X\gamma} \phi(t) dt \quad (2)$$

4. VARIABLES DEFINED

In deriving the set of explanatory variables, we draw from the literature discussed in section 2. Our particular interest is in the link between perceptions of business barriers and growth expectations. The difference in explanatory power of barriers may not correspond to their direct ranking. To give an example, demand and financial constraints, typical for hard-budget market economy are commonly perceived as a major nuisance, as confirmed by the survey results. Yet it does not imply these have the most impeding impact on growth. Assessment of

the importance of given obstacles may indicate problems in everyday business, which the entrepreneurs may be able to overcome nevertheless. Quite a different set of factors may influence the decisions to develop and expand.

The survey generated data on a number of characteristics that are consistent with our prior expectations on a possible set of determinants of growth. Firstly, we have size, as measured by employment. The variable distribution is highly skewed to the left, with 43 observations in the self-employed category, i.e. with no employment other than the owner of the business (see Table 2). For that reason, we categorise the employment variable, using the four size categories, as recommended by the standard EU definition. The benchmark category is 'self employed' and we introduce dummy variables for micro, small and medium size enterprises correspondingly (see Table 2). Three observations with employment above 250 are eliminated from the analysis. Testing for the relationship between size and growth expectations is important, since as indicated in section 2, the link between the size and growth of enterprises remains a highly debated issue in the literature.

We are also interested in examining if human capital variables such as sector-relevant job experience, entrepreneurial experience, starting from employment or non-employment, education, age and gender are related to growth intentions. In particular, the first two may be perceived as proxies for the distinction between 'specialist' and 'generalist' human capital, as defined by Lazear (2004). We include these as well as firm level variables such as export orientation, location and sectoral affiliation in our estimations. Export orientation provides us with an indication of the influence of internationalized business operations on business growth. Capital city location is included in order to control for the effects of rapid economic growth concentrated in the capital city as compared to the rest of the country. This specific capital city development vs. underdeveloped smaller cities characterizes many transition countries. Finally controlling for sector effects is a standard for these types of estimations.

For all of the barriers included in the survey questionnaire, figure 1 below illustrates the frequency of responses identifying a given barrier as one of the three most important ones.

Figure 1 about here

Our estimation strategy was to include dummy variables for seven barriers, which were most frequently identified. It turned out that only those related to taxes and corruption were significant. In addition, there is multicollinearity between the tax dimensions, which makes the coefficients sensitive to small changes in specification and data, i.e. not robust and problematic to rely on. There is no single straightforward solution to this problem. Our response was to restrict ourselves to the two of the most important business barriers, namely 'taxes to high' and 'corruption at the national level' and exclude 'frequent changes to tax policies' and 'ambiguity of taxes'. However, interpreting the results, one should bear in mind that the retained tax indicator should not be narrowly related to the level of taxes, but interpreted as a proxy for a broader cluster of problems with tax system.

The results of three specifications are reported below. Our dependent variable relates to expected growth categorised into four ranks, as described above, where the highest rank is the expected positive growth of both employment and turnover. In the first specification, we use the dependent variable with four categories and include indicators for human capital, exporting, location, employment size categories, sectoral controls and perceptions of barriers,

as described above. In the specification two, we use three categories of expected growth (instead of four) as dependent variable and in specification three we compress the dimensions further, by using expected employment growth as a binary variable, to see if the results are robust to the modification. See Appendix 1 for a summary of the independent and dependent variables used in our estimation model.

5. RESULTS

All the estimation results are presented in Table 2. Unemployed prior to starting a business, age and gender are not significant as predictors of growth expectations. Age is highly insignificant, while gender is marginally significant in one specification, and insignificant in others. Interestingly, the sign of the gender coefficient is positive in all specifications, indicating that the impact of gender may be very different from that observed in high income countries; if anything women entrepreneurs have higher growth aspirations than their male counterparts. Unemployment prior to starting a business also has the expected negative sign. The other human capital measures are either significant or marginally insignificant depending on the specification. In particular, we found no evidence that the ‘specialist’ experience is more relevant than ‘generalist’ or vice versa. Both seem to matter, as documented by coefficients on experience in the same sector of activity and on entrepreneurial experience. Though ‘learning by doing’ through previous job experience and entrepreneurial experience does have a positive effect. In addition, we found a clear general positive effect of higher education. On the firm level, we can see a clear positive effect of exporting, and positive, albeit insignificant effect of business being located in the capital city. Sectoral affiliation is mostly insignificant, apart from some negative effect on growth expectations of ‘services activities other than trade’.

Size effects are clearly important. Medium, small and micro size companies expect to grow, while the self-employed express little interest in developing their business. Moreover, the coefficients in Table 2 are neatly ordered according to size group: the larger the size category, the more likely is that the company will grow. Here, our results are consistent with those obtained from research based on samples, which include the smallest firms, as in Fries *et al.* (2003). It may also be interpreted as providing support for the arguments presented by Earle and Sakova (2001) theorizing that in transition countries, own account workers (business without employees) a more likely a form of hidden unemployment than a form of entrepreneurship. This is clearly a point of concern for policy makers.

Taxes and corruption have a negative effect on growth aspirations throughout. The result is consistent with the literature discussed above. In the case of corruption it also indicates that this barrier, while not named as very important by the majority of entrepreneurs (see Figure 1), has a detrimental effect on growth where encountered.

6. CONCLUSION

Our study focused on factors affecting the growth of new firms, which is arguably the key indicator of business performance and entrepreneurship as well as an important factor in overall economic development. In particular, we discover that growth expectations differ according to firm size, with small and medium size enterprises expecting growth and micro firms and self-employed less so. Arguably, we are able to detect these effects, due to a broad

coverage of size dimension by our sample. Analysis of the results in the available literature shows that the link between size and growth is sensitive to sample coverage. We also analyse the link between the perceptions of barriers by business owners and their growth expectations. Both taxation and corruption were found to be significant barriers to the growth aspirations of SMEs in our sample.

An interesting but not surprising result was the significant influence of private business experience on intention to grow in the current business. This effect may be more important in the transition context than in advanced western countries since 'entrepreneurial' skills were never taught (directly or indirectly) in the centrally planned system. Our results seem to indicate that 'learning by doing' has proved to be an important form of human capital in the transition context.

Finally, we are able to confirm two further results, consistent with the literature. Firstly, export orientation is an important factor facilitating growth of small firms. Secondly, human capital matters: higher education of entrepreneurs is correlated with higher growth expectations. Further research in this area would be useful in order to model the interactions between the characteristics of entrepreneurs, perceptions of barriers and growth expectations in more detail.

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Appendix 1: Variables defined

Independent Variables	Characteristic	N	Mean	SD
Human capital				
<i>Higher education</i>	One if the respondent has a university education, zero otherwise.	393	0.72	0.45
<i>Job experience in same sector</i>	One if the respondent has previous employment experience in the sector where they started their own business, zero otherwise.	389	0.48	0.50
<i>Experience with other business</i>	One if the respondent had started a private business besides their current business, zero otherwise.	395	0.02	0.14
<i>Unemployed prior to starting</i>	One if the respondent had not been in employment prior to starting their private business, zero otherwise.	395	0.73	0.26
<i>Business owner's age</i>	Continuous variable measuring business owner age.	390	42.76	8.77
<i>Age2</i>	Age variable squared	390	1905.2	787.9
<i>Female</i>	One if the respondent is female, zero otherwise.	396	0.25	0.43
Firm level attributes				
<i>Exporting</i>	One if the business is exporting, zero otherwise.	396	0.48	0.50
<i>Location: Vilnius</i>	One if the business is located in Vilnius, zero otherwise.	394	0.26	0.44
<i>Micro</i>	One if the business has less than 9 employees, zero otherwise.	396	0.34	0.48
<i>Small</i>	One if the business has 10 to 49 employees, zero otherwise.	396	0.39	0.49
<i>Medium</i>	One if the business has 50 to 249 employees, zero otherwise.	396	0.16	0.37
<i>Turnover*</i>	Ordinal variable indicating annual business turnover for 1999. Five categories: (1) up to \$ 25 000 USD; (2) \$ 25 001 – 125 000 USD; (3) 125 001 – 250 000 USD; (4) \$ 250 001 – 1 250 000 USD; (5) more than \$ 1 250 000 USD.	388	3.00	1.39
Barriers				
<i>Taxes</i>	One if 'taxes are too high' is considered one of the three most important business barrier, zero otherwise.	368	0.63	0.48
<i>Corruption</i>	One if 'corruption at the national level' is considered one of the three most important business barrier, zero otherwise.	368	0.16	0.37
Sectors				
<i>Retail trade</i>	One if the business is engaged in retail trade, zero otherwise.	396	0.25	0.43
<i>Wholesale trade</i>	One if the business is engaged in wholesale trade, zero otherwise.	396	0.15	0.36
<i>Busin. services.</i>	One if the business is engaged in business services, zero otherwise.	396	0.14	0.35
<i>Other services</i>	One if the business is engaged in other service activities besides business services, zero otherwise.	396	0.17	0.38
<i>Construction</i>	One if the business is engaged in construction, zero otherwise.	396	0.04	0.19
Dependent Variables	Characteristic	N	Mean	SD
<i>Growth expectations (using four ranks)</i>	Ordinal variable indicating the respondent's growth aspirations in the next five years. Four categories: (1) decrease turnover or employment; (2) the same or don't know; (3) increase turnover, but not employment; (4) increase employment and turnover.	393	3.08	0.98
<i>Growth expectations (using three ranks)</i>	Ordinal variable indicating the respondent's growth aspirations in the next five years. Modified to three categories: (1) the same or don't know or decrease turnover or employment; (2) increase turnover, but not employment; (3) increase employment and turnover.	393	2.81	1.32
<i>Growth expectations (positive employment growth as binary outcome)</i>	One if the respondent plans to increase employment in the next five years, zero otherwise.	399	0.46	0.50

N = total number of observations; SD = standard deviation.

* = The survey turnover was reported in the Lithuanian national currency, the Litas. The exchange rate used here is the official 1999 exchange rate: \$ 1USD = 4 Litas.

Table 1: Categorization of answers for the question on growth expectations

<i>a. variable 'future'</i> (four categories)	frequency of answers:	<i>b. variable 'future_3c'</i> (three categories)	frequency of answers:
(4) increase employment and turnover	182		
(3) increase turnover, but not employment	83	(3) increase employment and turnover	182
(2) the same or don't know	106	(2) increase turnover, but not employment	83
(1) decrease turnover or employment	22	(1) the same or don't know & decrease turnover or employment	128
(missing)	6	(missing)	6
Total	399	Total	399

Figure 1: Percentage of entrepreneurs identifying a given dimension as one of the three most important business barriers.

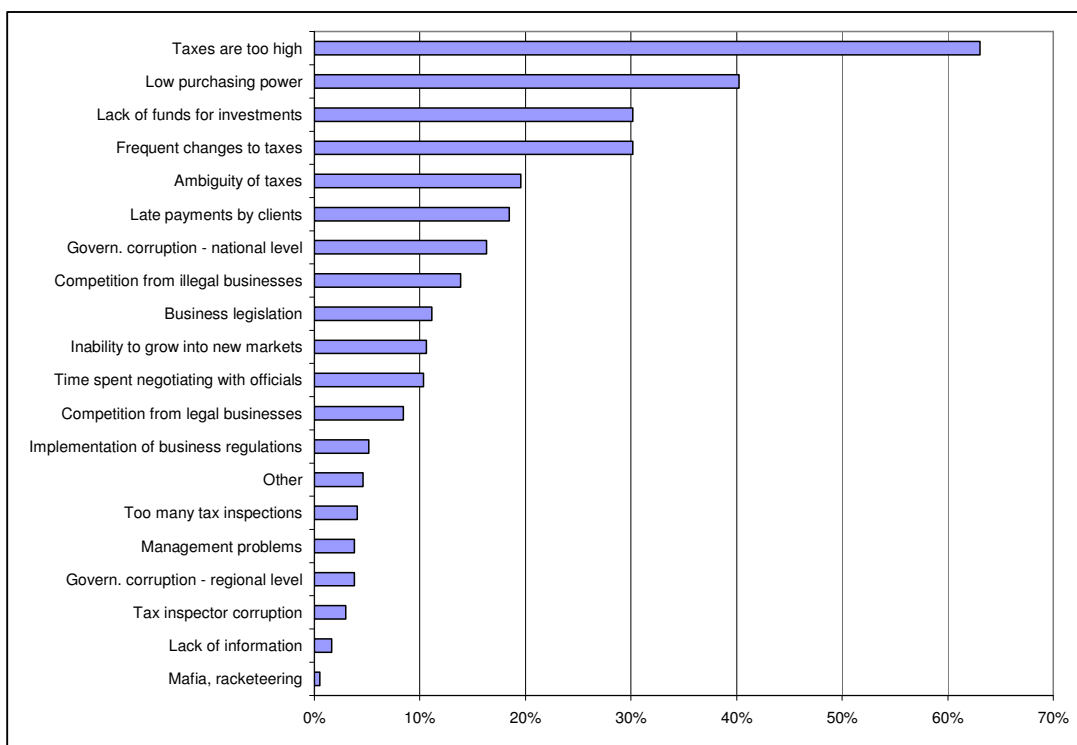


Table 2: Results

	(1)	(2)	(3)
	growth expectations (ordered using four ranks)	growth expectations (ordered using three ranks)	growth expectations (positive employment growth as binary outcome)
<i>Human capital:</i>			
higher education	0.37* (0.15)	0.34* (0.16)	0.26 (0.18)
job experience same sector	0.20 (0.13)	0.25† (0.14)	0.26† (0.15)
entrepreneurial experience	0.27* (0.13)	0.32* (0.14)	0.18 (0.15)
Unemployed prior to starting	-0.24 (0.25)	-0.15 (0.27)	-0.26 (0.30)
business owner's age	-0.08 (0.06)	-0.09 (0.07)	-0.09 (0.07)
age2	0.0008 (0.0007)	0.0010 (0.0007)	-0.0010 (0.0008)
female	0.16 (0.15)	0.23 (0.16)	0.18 (0.18)
<i>Firm level attributes:</i>			
company is exporting	0.34* (0.14)	0.31* (0.14)	0.22 (0.16)
location: Vilnius	0.14 (0.15)	0.16 (0.15)	0.04 (0.17)
<i>Firm size: number of employees (reference category: self employed)</i>			
micro	0.49* (0.23)	0.68** (0.25)	0.56* (0.28)
small	0.57* (0.23)	0.82*** (0.25)	0.82** (0.28)
medium	0.80** (0.28)	1.05*** (0.299)	1.00** (0.33)
<i>Barriers</i>			
taxes	-0.31* (0.14)	-0.35* (0.14)	-0.35* (0.16)
corruption	-0.41* (0.17)	-0.34† (0.18)	-0.31 (0.20)
<i>Sectors (reference category: manufacturing)</i>			
construction	0.02 (0.35)	0.05 (0.36)	0.16 (0.38)
retail trade	0.04 (0.18)	0.11 (0.19)	0.15 (0.21)
wholesale trade	-0.05 (0.21)	-0.03 (0.22)	0.11 (0.23)
business services	-0.25 (0.22)	-0.21 (0.23)	-0.23 (0.25)
other services	-0.37† (0.21)	-0.52 (0.22)	-0.30 (0.25)
Log likelihood	-382	-325	-213
LR χ^2	55***	62***	40**
Pseudo R ²	0.07	0.09	0.09
No of observations	338	338	339

Notes

(i) estimator: ordered probit for specifications 1- 2; binary probit for specification 3,

(ii) three companies with employment above 250 excluded from estimation,

(iii) standard errors in parentheses,

(iv) significant at: †0.10 *0.05 **0.01 ***0.001,

(v) ancillary parameters (and constant in specification 3) not reported, and available on request.

Endnotes

¹ See sections 3 and 4 below. Amadeus Database has been a popular source of firm level data, with the smallest firms truncated; a recent paper utilizing it for employment growth estimations is Faggio and Konings (2003). WBES World Bank survey and EBRD surveys are better in this respect, albeit the samples are still skewed; see: Beck *et al.* (2002), Batra *et al.* (2003), Fries *et al.* (2003). All those authors notice the problem.

² As in many other transition countries, an accurate list of legal enterprises in Lithuania does not exist. Previous surveys attempted using the official list of registered businesses from the Lithuanian Department of Statistics indicated that the official register was rife with non-existent businesses or inaccurate addresses. See Aidis (2003) for further discussion.

³ A business owner met the following criteria: they had their own business, it was still in operation and their main business activities were not in the agriculture sector.