DIGITALES ARCHIV

Kokashvili, Nino; Barbakadze, Irakli; Kapanadze, Ketevani

Book

How participating in the shadow economy affects the growth of Latvian firms

Provided in Cooperation with:
University of Tartu

This Version is available at:
http://hdl.handle.net/11159/785

University of Tartu
Faculty of Social Sciences
School of Economics and Business Administration

HOW PARTICIPATING IN THE SHADOW ECONOMY AFFECTS THE GROWTH OF LATVIAN FIRMS

Nino Kokashvili, Irakli Barbakadze, Ketevani Kapanadze

Tartu 2017

How participating in the shadow economy affects the growth of Latvian firms

Nino Kokashvili[1], Irakli Barbakadze[2], Ketevani Kapanadze[3]

Abstract

This paper examines the relationship between the growth of Latvian firms and their involvement in the shadow economy in 2015. When up to 10% of the overall economic activity of firms is in the shadow economy, this had a growth-enhancing effect on firms that recorded non-positive growth during the last five years. Using the perceptions of corruption and interview languages as instruments of measuring the shadow economy participation rate, the authors conclude that there is a positive relationship between perceptions of corruption and the shadow economy participation rate.

JEL Classification: O17; E26; E24; J46; J28; D22

Keywords: Shadow Economy, Firm Growth, Company Managers, Latvia

---

[1] University of Tartu, PhD, e-mail: ninokokashvili92@gmail.com
[2] PMC Research Center, e-mail: iraklibarbaqadze1@yahoo.com
[3] CERGE-EI, PhD, e-mail: ketevani.kapanadze@cerge-ei.cz

1. INTRODUCTION

Informal firms hamper the economic performance of countries in two main ways. First, informal firms are small and unproductive. Second, they compete with productive formal firms for their share of the market (Gomory, 1994). This paper elaborates on the first way, and how participation in the shadow economy affects firm growth in Latvia.

The Baltic region is a good location in which to study the reasons for and consequences of the shadow economy. Among the Baltic states, the shadow economy is biggest in Latvia. In this region, Latvian firms are the most dissatisfied with their national tax system and government (Sauka and Putniņš, 2011). This could explain why the size of the shadow economy is significantly larger in Latvia (21.3%) than in Estonia (14.9%) and Lithuania (15.0%) (Putniņš and Sauka, 2015).

The impact of participation in the shadow economy on firm performance is a topic requiring investigation. The novelty of this research lies in its effort to study this relationship based on firm-level data using survey data[4] from company managers in Latvia in 2015. A survey of company managers provides information not only on misreported business income, but also misreported wages and the number of employees. In order to calculate the shadow economy participation rate in firms, this paper uses the methodology provided by Putniņš and Sauka (2015).

The reasoning behind the decision to participate in the shadow economy is not exogenously given and depends on various political, economic, social and institutional factors. This paper uses interview languages and perceptions of corruption as instruments to measure the shadow economy participation rate and address the problem of possible endogeneity. Hypothetically, high corruption encourages firms to operate in the shadow economy (Johnson et al., 1998).

In addition to political, economic, social and institutional factors, Tanzi (1982) highlights the attitudes of company managers, as well as basic religious and cultural characteristics. The data do not provide information about the nationality of company managers. However, the interview language, which is an appropriate proxy for socialization, is used instead. Theoretically, in business operations foreign managers behave differently to their local counterparts.

Examining the relationship between participation in the shadow economy and firm growth shows that firms involved in shadow economic activity for up to 10% of the overall economic activity of the firm experience higher growth. The study shows that participation in the shadow economy has a growth-enhancing effect only for firms that have non-positive growth. These firms are more flexible in crises. At the same time, 10% of the shadow economy participation rate does not exclude them from the financial market. In addition, these firms also take advantage of public goods and services. This result corresponds with the idea that for poorly performing firms, the shadow economy represents a means of survival. This paper also concludes that there is a positive correlation between perceptions of corruption and the shadow economy participation rate.

The rest of the paper is structured as follows. The next section reviews the existing literature about the possible implications of the shadow economy. Thereafter, the following section introduces the measurement of the shadow economy participation rate. The fourth section

---

[4] The survey is conducted by the Baltic International Centre of Policy Study (BICEPS).

presents the data and the methodology. The fifth section discusses the empirical results and the robustness of the estimates and the last section provides the conclusions.

2. LITERATURE REVIEW

The shadow economy is all about human behavior, driven by incentives and disincentives. The majority of previous studies concentrate more on the public policy aspects of the shadow economy. However, the role of informal firms in economic development is an area that requires more investigation. On the one hand, some studies focus on the similarities between formal and informal firms but, on the other hand, there are arguments that these two types of firm are very different. So far, there has been no universally accepted conclusion on the effect of shadow economy participation on firm performance.

The romantic view, based on the work of De Soto (1989/2000), states that unofficial firms have similar characteristics to those of official firms. Hypothetically, informal firms are productive, and without significant transformation costs, these informal firms might benefit from all of the advantages of the market. Using a sample of 399 private business owners in Lithuania, Aidis and Praag (2004) concluded that illegal entrepreneurship experience (IEE) signals positive benefits for a legal business as well as economic development. Indeed, there needs to be additional incentives to shift such illegal activities to the official market. Schneider (1998) shows that more than 50% of earnings in the shadow economy are distributed across official sectors, which supports economic growth. Similarly, Bhattacharyya (1999) highlights that the informal sector, due to cheap prices, allows for the consumption of more non-durable and durable goods in the United Kingdom.

In contrast to the romantic view, the parasite view considers informal firms as harmful to the economy. Informal firms gain more by avoiding taxes and regulations, which offset their small scale and lower productivity (Farrell, 2004). If informal firms have a more advantageous position than formal firms, the latter will be forced out of the market. As a result, informal firms hurt the economic performance of countries in two ways. First, they are small scale and unproductive, and secondly, they compete with productive formal firms and take away their market shares (Gomory, 1994). Moreover, countries with a large shadow economy face the problem of over-taxation (Muller et al., 2013). Such over-taxation hampers investment and, therefore, is a key impediment to economic growth. Another way that the shadow economy affects a country's economic performance is through public services. Loayza (1996) argues that an increase in the size of the shadow economy negatively affects economic growth because it leads to a significant reduction in the quality of public services.

In contrast to the romantic and parasite views, the dual view considers unofficial firms to be significantly different from official firms. This view is the continuum of the earliest framework of the unofficial economy by Rauch (1991), which concludes that less productive workers work in informal firms, and accordingly they receive lower wages. Amaral and Quintin (2006) reach the same conclusion that formal and informal workers differ systematically, even though labor markets are perfectly competitive. Using data from developing countries, La Porta and Shleifer (2008) analyzed the size and productivity of formal and informal firms. They found that informal firms are much smaller and less productive than formal firms.

The inefficiency of informal firms is not exogenously determined. First, in the case of formal firms, productivity increases in line with a firm's size (Hsieh and Olken, 2014). Size is not the only reason that formal firms are more productive than informal firms. La Porta and Shleifer

(2014) show that there is a sharp difference in productivity between informal and formal firms of the same size. Another indicator of low productivity in the informal sector is low wages. Using cross-country data, La Porta and Shleifer (2008) found that wages in small informal firms are half those in small formal firms. The wage gap increases according to firm size. Furthermore, Gennaioli et al. (2013) document that managers' education has a crucial role in the productivity gap between formal and informal firms. La Porta and Shleifer (2008) also conclude that formal and informal firms are different in terms of human capital only at the managerial level.

Based on previous studies, there is no clear evidence about the reasons for or the consequences of the shadow economy. The reasons behind the existence of the shadow economy vary from country to country. This paper mostly concentrates on the consequences of shadow economy participation, and particularly how firm participation in the shadow economy affects their own performance.

3. MEASURES OF THE SHADOW ECONOMY

In the last two decades, the number of studies investigating the informal economy has significantly increased. There are three common methods for measuring the size of the shadow economy, namely direct approaches, indirect approaches and model estimates (Schneider and Enste, 2000).

Indirect approaches are mostly macroeconomic and these provide information about the dynamics of the shadow economy over time. Indirect approaches measure the following: discrepancy between national expenditure and income statistics (Franz, 1985; Smith, 1985); discrepancy between official and actual labor force (Contini, 1981; Boca, 1981); transaction approach (Feige, 1990); currency demand approach (Cagan, 1958; Tanzi, 1982); and electricity consumption method.

A more structural model assumes that the effects of the shadow economy show up simultaneously in production, labor, and money markets. In the case of the Multiple Indicators Multiple Causes (MIMIC) approach, to ascertain the actual size of a shadow economy, the relevant measure should be calibrated using estimates from the currency demand approach (Feld and Schneider, 2010). The main advantage of this method is the flexibility it allows for including any causes and indicators of the shadow economy. However, such flexibility can have a negative side because different causes and indicators give us different estimates and this can be problematic when selecting the optimal estimate. An additional disadvantage of the model is that estimates are sensitive to the calibration method.

To sum up, the main advantage of macro-based approaches is that they are relatively easy to estimate. The basic macro indicators are calculated by national statistics offices and there is no need to conduct an additional survey. Another positive aspect of these approaches is that they give us the opportunity to compare countries. On the other hand, the main limitation is that all of these macro models are based on strict and sensitive assumptions, the changing of which dramatically alters the results.

While indirect models are based on macroeconomic indicators, direct approaches use income audits (Clotfelter, 1983; Feige, 1986; Feinstein, 1991) or survey data (Zienkowski, 1996). The main advantage of these methods is the detailed information they can provide about the

structure of the shadow economy. However, the results of the survey are sensitive and mostly depend on the formulation of the questionnaire and the respondents' willingness to cooperate.

This paper uses the direct approach and the survey data of company managers. Survey data is different from other data in the following ways. First, all survey-based approaches face the risk of underestimating the total size of the shadow economy. The problem here is that respondents try to avoid questions about tax evasion or provide untruthful answers. For this data, this risk is minimized by using different kinds of survey techniques, such as gradually introducing the most sensitive questions after asking the less sensitive questions. Second, the salient point of the dataset is that it is a survey of managers – people who have information about all possible sources of the shadow economy. These sources include personal income and profit taxation. With this in mind, the authors use the techniques provided by Putninš and Sauka (2015).

This index is based on the income approach of GDP calculation[5] and contains the following steps.

Step 1.

The first step aims to find under reported employee remuneration ($UR_{remuneration}$) and under reported corporate income ($UR_{OperationIncome}$). Under reported employee remuneration consists of two elements: under reported salary and under reported employees. Therefore, firm i's total under reported employee remuneration is calculated using equation (1).

$$UR_{remuneration,i} = 1 - (1 - UR_{salary,i}) \times (1 - UR_{employee,i}) \tag{1}$$

In the case of $UR_{OperationIncome,i}$ this indicator is directly estimated from the survey question[6].

Step 2.

The second step calculates the shadow economy participation rate of the firm. This is a weighted average of $UR_{remuneration}$ and UR_{profit}, where weights are in accordance with the structure of the country's GDP.

$$ShadowParticipation_i = \alpha_c \times UR_{remuneration,i} + (1 - \alpha_c) \times UR_{OperationIncome,i} \tag{2}$$

Where α_c is the ratio of employees' remuneration to the sum of employees' remuneration and gross operation income of the company[7].

Direct and indirect methods have several limitations. Method selection mostly depends on the aim of the study. For studies which concentrate more on the structure of the shadow economy, a direct method is much more appropriate to use.

---

[5] The sum of gross remuneration of employees and gross operating income of the firms.
[6] Question #36 – "Please, estimate the extent of under reporting business income by firms in your industry in 2014".
[7] In the case of Latvia, α_c is around 0.45 in 2015.

4. DATA AND METHODOLOGY

4.1. Data

This paper uses 2015 survey data from Latvian company managers. The survey is conducted by the Baltic International Centre of Policy Study (BICEPS). The questionnaire contains six sections: (i) company characteristics; (ii) exporting; (iii) productivity; (iv) financing; (v) innovations; and (vi) taxes and attitudes. This paper mostly concentrates on section six, taxes and attitudes, which covers information about under reported business income, number of under reported employees and under reported salaries paid to employees.

In order to increase the number of respondents and to ensure the accuracy of the data, the questionnaire begins with non-sensitive questions about levels of satisfaction with the government and its tax policy. In this way, respondents were asked for their opinions on the government's tax policy and business legislation. The questions used a five-point Likert scale, ranging from 1 (very dissatisfied) to 5 (very satisfied). This survey used an indirect approach to obtain information about under reported salaries and business income. The indirect and gradual approach is recommended by methodological studies (Kazemier et al., 1992; Gerxhani, 2007).

The first section of the questionnaire includes information about the company. Data was obtained from firms in six different industries. The largest number of observations are from the service industry (49.0%) and the smallest from the construction industry (5.2%) (Table 3 in Annex 2). The majority of the firms surveyed are limited liability companies (85.7%). The distribution of firms by size shows that the vast majority (about 73.6%) are small, with less than 20 employees (Table 5 in Annex 2).

The first section of the questionnaire provides information about financial condition of the companies in 2015 and 2010, which is used to calculate the growth of each company over a five-year period. This paper concentrates on firm growth measured in terms of volume of sales. According to the data, 11.5% of the firms experienced no growth in the last five years. Conversely, 53.3% of the firms experienced positive growth while 35.2% of the firms recorded negative growth. The highest average growth was recorded in wholesale (4.9%) and the lowest growth (-0.2%) was recorded in retail. It is worth mentioning that foreign-owned firms experienced more growth (11.7%) than local firms (1.9%). Descriptive statistics show that a firm's growth correlates with several firm characteristics but the main concern of this paper is to ascertain how participation in the shadow economy affects a firm's growth.

4.2. Model

This section will model the relationship between firm growth and participation in the shadow economy. In order to avoid the possible problem of endogeneity, the authors used an instrumental variable technique. The main model has the following specification:

$$Growth_i = \alpha + \beta ShadowParticipation_i + \gamma \sum Control_i + \varepsilon_i \qquad (3)$$
$$ShadowParticipation_i = \theta + \delta \sum Instruments_i + \mu \sum Control_i + \epsilon_i \qquad (4)$$

where in the first equation $Growth_i$ is a dependent variable for the i-th observation, $Control$ is a vector of exogenous control variables, and α, β and γ are the parameters to estimate. In the first stage, shadow economy participation is regressed on $Control$ and $Instruments$ (equation

4), ε_i and ϵ_i are zero-mean error terms, and the correlations between them are presumably non-zero.

In the model, shadow economy participation rate is measured using equation (2) as a weighted average of under reported wage/number of employees and under reported business income. The main limitation when measuring shadow economy participation using survey data is that the results are inclined to be biased downward. In order to address this problem, the scale of the data is reduced and a categorical variable is created instead of a continuous variable. Therefore, the shadow economy participation rate categories are as follows: 0%; 0% − 10%; 10% − 30%; 30% − 50%; and above 50%. As a result, the first stage in the model is the ordered probit model[8].

Growth is measured on the basis of change in turnover over a five-year period (from 2010 to 2014). The self-reported information from the company managers does not reveal the turnover. If this turnover covers declared sales without informal activities, there exists a naïve relationship between turnover and the shadow economy participation rate. Greater shadow economy participation is associated with lower turnover and the correlation should be negative and significant. However, this study is based on data where the correlation between under reported business income and turnover is low (–0.097); therefore, the data does not have the limitations mentioned above.

Control variables are divided into firm attributes, firm decisions and firm resources. The classical firm attributes are firm age and size. The topic of how a firm's size and age determines its growth has its origins in Gibrat's law. According to this law, a firm's size and age are neutral in the case of firm growth. However, empirical studies have not provided supporting evidence (Becchetti and Trovato, 2002). The negative effect of age on a firm's growth is robust among countries and industries (Robson and Bennett, 2000; Reichstein and Dahl, 2004). The relationship between a firm's size and growth is also negative and significant in most cases (Dunne and Hughes, 1994; McPherson, 1996; Goddard et al., 2002). However, other studies find that Gibrat's law holds above a certain size threshold. Bigsten and Gebreeyesus (2007) show that this threshold is over 400 employees. In terms of measuring a firm's size, this study uses the number of employees (full-time equivalent), including managers.

"Learning by exporting" is a key aspect of how a firm can make market gains through knowledge transfer with their exporting activities (Love and Ganotakis, 2013). Golovko and Valentini (2011) also conclude that there is a strong positive relationship between exporting and growth. Besides, there is a positive relationship between foreign ownership and a firm's growth. Based on panel data on Indonesian firms, Lipsey et al. (2010) found that employment growth is relatively high in foreign-owned firms compared to locally-owned firms.

Human and financial resources are positively correlated with firm growth (Sexton and Bowman-Upton, 1991; Bamford et al., 1997; Queiro, 2015). In the case of human resources, the authors use the managers' education, which is a categorical variable ranging between primary or secondary education (=1) and postgraduate degree (=4). In order to control for firm access to financial resources, this study uses a dummy variable.[9] The EU fund dummy is also used to control for other sources of finance.

---

[8] To estimate the two stage IV model, authors use the cmp ("conditional mixed process") command in STATA 14.0.

[9] =1 if the company wanted to raise the money for the project during the last three years but was unable to obtain sufficient financial resources, =0 otherwise.

The decision to participate in the shadow economy is made by company managers. Therefore, factors which affect managerial decisions simultaneously determine the rate of shadow economy participation. This study places greater emphasis on managers' perceptions. Interview language is used as a proxy for the managers' socialization. There is no clear conclusion about the relationship between the size of a shadow economy and corruption. Hypothetically, corruption and the shadow economy can either be complements (Johnson et al., 1998; Hindriks et al., 1999; Hibbs and Piculescu, 2005) or substitutes (Schneider and Enste, 2000; Dreher et al., 2008). The relationship depends on the country's heterogeneity. Dreher and Schneider (2010) concluded that the size of the shadow economy and corruption are complements in low-income countries, but there are no robust results in high-income countries. On the other hand, Virta (2007) concluded that the type of corruption was of importance. In particular, higher corruption leads to a larger informal economy when bribes are paid to obtain licenses.

The novelty of this study is that it is based on information taken from company managers instead of employees. However, it is not possible to ascertain the nationality of all company managers, though the interview language is used as a proxy for the managers' socialization. Managers who are interviewed in a non-Latvian language are considered foreigners. Theoretically, foreign managers differ from local managers in terms of participation in the shadow economy. This study uses a two-stage instrumental variable model. Perceptions of corruption and socialization in local society are used as instruments of measuring participation in the shadow economy. The results of the model are presented in the next section.

5. EMPIRICAL RESULTS

Results from the Ordinary Least Square (OLS) and Instrumental Variable (IV) models are presented in Table 1. The first column shows that participation in the shadow economy up to 10% of overall economic activity has a significant positive effect on informal firm compared to formal firm growth (0% of shadow economy participation). Firms which are engaged in shadow economic activity up to 10% recorded higher growth by 0.1 percentage points.

According to the first stage of regression, the perceptions of corruption have a positive significant effect on the shadow economy participation rate as can be seen in Table 1. Firms that perceive corruption as an impediment to growth are more likely to have a higher shadow economy participation rate. However, interview language has no significant explanatory power with regard to shadow economy participation.

The results from the second stage of the instrumental variable model confirm that foreign-owned firms are associated with higher growth in Latvia. Exporting firms are more likely to experience higher growth than local firms. It is worth mentioning that firms funded by the EU are associated with higher growth, while financial constraints in general do not have a significant effect on growth. Moreover, managers' education neither enhances nor hinders firm growth. The effect of a firm's size on its growth is consistent across specifications. A similar result is captured with regard to firm age. Therefore, large and old firms are associated with high growth rates.

Table 1. Regression results of the main model

	Part I	Part II		Part III	
	Growth Rate	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation	Growth Rate
	OLS	I Stage	II Stage	I Stage	II Stage
Shadow Economy Participation Rate (base = 0)					
0 – 10	0.094**		0.107*		0.127**
	(0.045)		(0.060)		(0.062)
10 – 30	0.029		0.052		0.078
	(0.039)		(0.076)		(0.080)
30 – 50	0.017		0.044		0.085
	(0.043)		(0.102)		(0.107)
50 and above	0.054		0.102		0.154
	(0.045)		(0.144)		(0.152)
Foreign Owned	0.128**	-0.008	0.124***	-0.076	0.126***
	(0.060)	(0.276)	(0.045)	(0.289)	(0.046)
Exporter	0.078**	-0.038	0.076***	-0.072	0.078**
	(0.032)	(0.185)	(0.029)	(0.196)	(0.031)
Management Education	-0.021	-0.066	-0.014	-0.059	-0.018
	(0.015)	(0.092)	(0.015)	(0.095)	(0.016)
Size of firm (Log)	0.028**	-0.091	0.027**	-0.084	0.029**
	(0.013)	(0.068)	(0.011)	(0.071)	(0.012)
Age of firm (Log)	-0.059	-0.039	-0.059*	-0.044	-0.055*
	(0.042)	(0.192)	(0.031)	(0.194)	(0.031)
EU Funds	0.085*	-0.219	0.080*	-0.241	0.083*
	(0.046)	(0.298)	(0.046)	(0.313)	(0.047)
Financially Constrained	-0.041	0.086	-0.041	0.081	-0.044
	(0.032)	(0.200)	(0.032)	(0.201)	(0.033)
Corruption					
Minor problem		0.333		0.433	
		(0.330)		(0.322)	
Moderate problem		0.768***		0.732***	
		(0.257)		(0.265)	
Major problem		0.693***		0.727***	
		(0.188)		(0.188)	
Interview language		-0.102		-0.086	
		(0.335)		(0.325)	
Constant	0.144		0.085		0.094
	(0.126)		(0.124)		(0.125)
Industry Dummies	YES	NO	NO	YES	YES
Observations	209	209	209	209	209

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. BREAK DOWN ANALYSIS

The dataset covers firms with positive, zero, and negative growth rates. Table 2 in Annex 3 presents the relationship between the shadow economy participation rate and firm growth in two different groups. The first group of firms has non-positive growth and the second group has positive growth. The results of firms that have recorded non-positive growth correspond to the main findings, and therefore participation in the shadow economy up to 10% of overall economic activity has a growth-enhancing effect.

The dataset covers firms from five different industries. On average, firms in the construction industry have the highest shadow economy participation rate (21.6%). In order to check the robustness of results, the authors excluded the construction industry. By excluding the construction industry, the relationship between the shadow economy participation rate and firm growth remains unchanged. Therefore, the construction industry does not significantly affect the overall results (Table 3 in Annex 3). A similar analysis is carried out in the case of the service industry, which covers around 50% of the sample. In qualitative terms, the results are the same. It is worth mentioning that in the service industry, participation in the shadow economy up to 10% of overall economic activity is associated with higher growth by 0.20 percentage points, while the same indicator in the non-service industry is only 0.13 percentage points (Table 3 in Annex 3).

Table 4 in Annex 3 shows the results of the regression for different sub-groups. The results are robust in the cases of local, non-exporting, and non-financially constrained firms. Participation in the shadow economy up to 10% of overall economic activity is associated with higher growth than in the formal economy.

There are different reasons behind the shadow economy participation rate, which mostly correspond to a country's economic development. Gërxhani (1999) summarizes the possible factors determining a firm's decision on whether to operate in the shadow economy or not. Our findings correspond to two possible factors, namely autonomy/flexibility and survival. Many informal firms, mostly in developed countries, make a decision to participate in the informal sector because they feel they have more autonomy and flexibility in this sector than in the formal (Gershuny, 1979; Harding and Jenkins, 1989; Renooy, 1990). This is why participation in the shadow economy up to 10% of overall economic activity gives firms the chance to grow faster as this level of shadow economic activity makes firms more flexible and gives them greater access to financial markets.

There is a significant positive relationship between perceptions of corruption and participation in shadow economic activity. Johnson et al. (1998) state that the high level of corruption explains the high level of informal activities in Latin America. A similar conclusion is reached by Friedman et al. (2000) that bribery and corruption increase the share of the unofficial economy in the GDP. Over-regulation and corruption discourage official sector production. Therefore, countries in this region have relatively large shadow economies. On the other hand, interview language is used as the second instrument for gauging the decision to participate in the shadow economy but this is significant only in the case of some sub-groups. Therefore, interview language as a proxy of managers' socialization in society does not have a significant effect on shadow economy participation.

7. CONCLUSION

The shadow economy is a topic worthy of discussion, especially in transition countries. To participate in the shadow economy is a decision made by risk-averse managers. This means that all pros and cons are taken into account before arriving at the decision. The shadow economy participation rate is associated with a lower tax burden and fewer regulations. On the other hand, it deters firms from attracting highly qualified workers and they have less access to financial markets. There is no universally accepted conclusion as to how the shadow economy participation rate affects firm growth.

This paper empirically answers the research question in the case of Latvia. The authors use survey data from company managers, and reach the conclusion that participation in the shadow economy up to 10% of overall economic activity has a growth-enhancing effect. This result corresponds with the idea that participation in the shadow economy gives firms the opportunity to be more flexible. On the other hand, having 10% of its activities in the shadow economy, rather than the formal economy, does not exclude a firm from accessing financial markets and public services. This paper also concludes that participation in the shadow economy is beneficial only for firms that have either negative or no growth. This result is in line with the idea that, for most firms, participation in the shadow economy is a way to survive. Future studies should focus on the relationship between formal and informal firms. Informal firms compete with formal firms and take their market share; therefore, this connection calls for further investigation.

REFERENCES

Aidis, R. and Praag, M., 2004. *Illegal Entrepreneurship Experience*. Tinbergen Institute Discussion Papers 04-105/3, Tinbergen Institute.

Amaral, P. and Quintin, E., 2006. *A competitive model of the informal sector.* Journal of monetary Economics, 53(7), 1541-1553.

Bamford, C., Dean, T. and McDougall, P., 1997. *Initial Strategies and New Venture Growth: An Examination of the Effectiveness of Broad vs. Narrow Breadth Strategies. In* Frontiers of Entrepreneurship Research 1997.

Becchetti, L. and Trovato, G., 2002. *The determinants of growth for small and medium sized firms. The role of the availability of external finance.* Small Business Economics, 19(4), 291-306.

Bhattacharyya, D., 1999. *On the Economic Rationale of Estimating the Hidden Economy.* Economic Journal 109/3, 348-359.

Bigsten, A., and Gebreeyesus, M., 2007. *The small, the young, and the productive: Determinants of manufacturing firm growth in Ethiopia.* Economic Development and Cultural Change, 55(4), 813-840.

Cagan, P., 1958. *The demand for currency relative to total money supply.* In The Demand for Currency Relative to Total Money Supply. NBER.

Clotfelter, C., 1983. *Tax evasion and tax rates: An analysis of individual returns.* The review of economics and statistics, 363-373.

Contini, B., 1981. *Labor Market Segmentation and the Development of the Parallel Economy-The Italian Experience.* Oxford economic papers, 33(3), 401-412.

De Soto, H., 1989. *The Other Path*. New York, NY: Basic Books.

De Soto, H., 2000. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else.* New York, NY: Basic Books.

Del Boca, D., 1981. *Parallel economy and allocation of time.* Micros (Quarterly Journal of Microeconomics), 4(2), 13-18.

Dreher, A., Kotsogiannis, C. and McCorriston, S., 2008. *How do institutions affect corruption and the shadow economy?* International Tax and Public Finance.

Dreher, A. and Schneider, F., 2010. *Corruption and the shadow economy: an empirical analysis.* Public Choice, 144(1-2), 215-238.

Dunne, P. and Hughes, A., 1994. *Age, size, growth and survival: UK companies in the 1980s.* The Journal of Industrial Economics, 115-140.

Farrell, D., 2004. *The Hidden Dangers of the Informal Economy.* McKinsey Quarterly 3: 27–37.

Feige, E., 1986. *A Re-examination of the "Underground Economy" in the United States: A Comment on Tanzi.* Staff Papers (International Monetary Fund), 33(4), 768-781.

Feige, E., 1990. *Defining and estimating underground and informal economies: The new institutional economics approach.* World development, 18(7), 989-1002.

Feige, E. 1994. *The underground economy and the currency enigma.* Public Finance, 119-36.

Feinstein, J., 1991. *An econometric analysis of income tax evasion and its detection.* Journal of Economics, 14-35.

Feld, L. and Schneider, F., 2010. *Survey on the shadow economy and undeclared earnings in OECD countries.* German Economic Review, 109-149.

Franz, 1985. *Estimates of the hidden economy in Austria on the basis of official statistics.* Review of Income and Wealth, 325–333

Friedman, E., Johnson, S., Kaufmann, D. and Zoido-Lobaton, P., 2000. *Dodging the grabbing hand: the determinants of unofficial activity in 69 countries*. Journal of public economics, 76(3), 459-493.

Gennaioli, N., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A., 2013. *Human Capital and Regional Development.* The Quarterly Journal of Economics 128 (1): 105-164.

Gërxhani, K., 2007. *"Did you pay your taxes?" How (not) to conduct tax evasion surveys in transition countries.* Social Indicators Research, 80(3), 555-581.

Gershuny, J., 1979. *The informal economy: Its role in post-industrial society.* Futures 11: 3–15.

Giles, D., 1999. *Measuring the hidden economy: Implications for econometric modelling.* The Economic Journal, 370-380.

Giles, D., Tedds, L. and Werkneh, G., 2002. *The Canadian underground and measured economies: Granger causality results.* Applied Economics, 2347-2352.

Goddard, J., Wilson, J. and Blandon, P., 2002. *Panel tests of Gibrat's law for Japanese manufacturing.* International Journal of Industrial Organization, 415-433.

Golovko, E. and Valentini, G., 2011. *Exploring the complementarity between innovation and export for SMEs' growth.* Journal of international business Studies, 42(3), 362-380.

Gomory, R., 1994. *A Ricardo Model with Economies of Scale.* Journal of Economic Theory, vol. 62, 394-419.

Harding, P. and Jenkins, R., 1989. *The myth of the hidden economy: Towards a new understanding of informal economic activity.* Philadelphia: Open University Press, Milton Keynes

Hibbs, D. and Piculescu, V., 2005. *Institutions, corruption and tax evasion in the unofficial economy.* Göteborg, Department of Economics.

Hindriks, J., Muthoo, A. and Keen, M., 1999. *Corruption, extortion and evasion.* Journal of Public Economics, 74, 395–430.

Hsieh, C. and Olken, B., 2014. *The missing "missing middle".* The Journal of Economic Perspectives, 28(3), 89-108.

Johnson, S., Kaufmann, D. and Zoido-Lobaton, P., 1998. *Regulatory discretion and the unofficial economy.* The American Economic Review, 88(2), 387-392.

Kazemier, B. and Van Eck, R., 1992. *Survey investigations of the hidden economy: Some methodological results.* Journal of Economic Psychology, 13(4), 569-587.

La Porta, R. and Shleifer, A., 2008. *The Unofficial Economy and Economic Development.* Brookings Papers on Economic Activity, Fall: 275–352.

La Porta, R. and Shleifer, A., 2014. *Informality and Development,* Journal of Economic Perspectives, American Economic Association, vol. 28(3), 109-126.

Lipsey, R., Sjöholm, F. and Sun, J., 2010. *Foreign ownership and employment growth in Indonesian manufacturing.* National Bureau of Economic Research.

Loayza, N., 1996. *The economics of the informal sector: a simple model and some empirical evidence from Latin America.* Carnegie-Rochester Conference Series on Public Policy, Elsevier, vol. 45(1), 129-162.

Love, J. and Ganotakis, P., 2013. *Learning by exporting: Lessons from high-technology SMEs. International business review*, 22(1), 1-17.

McPherson, M., 1996. *Growth of micro and small enterprises in southern Africa.* Journal of development economics, 48(2), 253-277.

Muller, P., Conlon, G., Lewis, M. and Mantovani, I., 2013. *From Shadow to Formal Economy: Levelling the Playing Field in the Single Market.* Policy Department: Economic and Scientific Policy.

Pedersen, S., 2003. *The shadow economy in Germany, Great Britain and Scandinavia: a measurement based on questionnaire surveys.* Rockwool Foundation Research Unit.

Putniņš, T. and Sauka, A., 2015. *Measuring the shadow economy using company managers.* Journal of Comparative Economics, 471–490.

Queiro, F., 2015. *Essays on Entrepreneurship and Innovation.* Doctoral dissertation.

Rauch, J., 1991. *Productivity Gains from Geographic Concentration of human Capital: Evidence from the Cities.* NBER Working Papers 3905, National Bureau of Economic Research.

Renooy, P., 1990. *The informal economy: Meaning, measurement and social significance.* Netherlands Geographical Studies.

Reichstein, T. and Dahl, M., 2004. *Are firm growth rates random? Analyzing patterns and dependencies.* International Review of Applied Economics, 18(2), 225-246.

Robson, P. and Bennett, R., 2000. SME growth: The relationship with business advice and external collaboration. *Small business economics*, *15*(3), 193-208.

Sauka, A. and Putniņš, T., 2011. *Shadow economy index for the Baltic countries 2009 and 2010.* Report, Stockholm School of Economics in Riga.

Schneider, F., 1998. *Further Empirical Results of the Size of the Shadow Economy of 17 OECD-Countries over Time*. Congress of the IIPF Cordowa, Argentina and discussion paper, Department of Economics, University of Linz, Linz, Austria.

Schneider, F. and Enste, D., 2000. *Shadow Economies around the World Size, Causes, and Consequences.*

Sexton, D. L. and Bowman-Upton, N., 1991. *Entrepreneurship: Creativity and growth*. Macmillan Pub Co.

Smith, J., 1985. *Market motives in the informal economy.* In The economics of the shadow economy. Springer Berlin Heidelberg.

Tanzi, V., 1982. *Underground Economy and Tax Evasion in the United States: Estimates and Implications*. The Underground Economy in the United States and Abroad, Lexington Books.

Torgler, B., 2007. *Tax compliance and tax morale: a theoretical and empirical analysis.* Edward Elgar Publishing.

Virta, H., 2007. *Corruption and Shadow Economy: Differences in the Relationship between Countries*. Discussion Paper No.

Zienkowski, L., 1996. *The Polish Experience in Estimates of the Hidden Economy.* Research Bulletin, 5(1), 3-8.

APPENDICES

Appendix 1. Literature summary

Table 1. Causes of shadow economy

Causes of shadow economy	Authors	Results
Tax and social security contribution burden	Giles (1999) Giles and Tedds (2002) Feld and Schneider (2010)	While the difference between before and after tax income is significant, the likelihood of working in the shadow economy is greater.
Intensity of regulations	Johnson et al. (1998) Friedman at al. (2000)	More regulations always lead to a larger shadow economy.
Probability of detection	Pedersen (2003) Zukausakas (2015)	Significant negative effects of perceived risk of detection of conducting undeclared work in the shadow economy.
Tax morale	Torgler (2007) Körner et al. (2006) Alm et al. (2006) Putniņš and Sauka (2015) Schmolder (1975) Schneider and Enste (2000) Feld and Larsen (2005/2010).	Negative effect of tax morale on the size of shadow economy.

Table 2. Measures of shadow economy

	Measures of shadow economy	Authors	Limitations
Direct approaches	Discrepancy between national expenditure and income statistics	Franz (1985) O'Higgins (1989) Smith (1985)	Such discrepancy reflects all omissions and errors in the national accounts, meaning that this estimate is therefore of questionable reliability.
	Discrepancy between official and actual labor force	Bruno Contini (1981) Del Boca (1981)	The main weakness of this method is that a reduction of participation in the shadow economy can be caused by other factors. Moreover, people can work in both the formal and informal economies.
	Transaction approach	Feige (1979/1989/1996)	Empirical requirements which are necessary to get reliable estimates are so difficult to fulfill. Therefore, this application may lead to doubtful results.
	Currency demand approach	Cagan (1958) Tanzi (1982)	The main limitation is that most transactions in the shadow economy are held by cash but not all transactions.
	The physical input (electricity consumption)	Kaufmann and Kaliberda (1996)	Not all shadow economy activities require a considerable amount of electricity and also there is a considerable differences in the elasticity of electricity/GDP across countries which changes over time.

Model estimates	Multiple Indicators Multiple Causes (MIMIC)	Feld and Schneider (2010)	Multiple causes and multiple indicators give us different estimates, and choosing the optimal one is problematic because of its subjective manner. Additional disadvantage of the model is that estimates are sensitive to the calibration method and still there is no universally accepted method which is more suitable.
Indirect approach	Survey data	Zienkowski (1996) Kim (2003)	Results from survey data are sensitive and mostly depends on the formulation of questionnaire, and also the respondents' willingness to cooperate.
	Income audits	Clotefelter (1983) Feige (1986) Feinstein (1991)	

Appendix 2. Descriptive statistics

Table 1. Variable definition

Variables	Questions
Growth of the firm	Please provide the following approximations about the company: Annual turnover (EUR) Currently and 5 years ago (2010).
Shadow Economy Participation Rate	1) Please, estimate the extent of underreporting business income by firms in your industry in 2014; 2) Please, estimate the extent of underreporting number of employees by firms in your industry in 2014 (percentage of unregistered employees); 3) Please, estimate the extent of underreporting salaries paid to employees by companies in your industry in 2014;
Foreign Owned	What percentage of the company is owned by: Private foreign individuals, companies or organizations;
Exporter	Sales of goods and services can occur in the domestic (Latvian) market, can be indirectly exported by selling domestically to a third party that subsequently exports the good/service, or can exported directly to another country. Please estimate how the company's sales turnover is split between these three channels;
Management Education	What is the highest level of education attained by the company's top manager 1. Primary or secondary school 2. Vocational 3. Undergraduate degree 4. Postgraduate
Size of Firm (Log)	Please, provide the following approximations about the company: Number of employees (full-time equivalent), including management (currently)
Age of Firm (Log)	In what year did the company begin operating?
EU Funds	What was the source(s) of the financing raised during the past three years?
Financially Constrained	Was the financing that your company raised during the past three years sufficient to fund desired new projects/investments/growth or did you want, but were unable to obtain, more financing?
Corruption	To what extent would the following changes in the business environment increase the productivity of the company (i.e., increase the company's output for the same amount of inputs, such as workers)? - The level of corruption and amount of unofficial payments in Latvia decreases

1. Growth of the firm – calculated as growth of sales during five years (2010 – 2014)
2. Shadow economy participation rate– calculated from equation (2)
3. Foreign owned – It is a dummy variable (=1 if foreign ownership is higher than 10%, =0 otherwise)
4. Exporter – It is a dummy variable (=1 if firms is either direct or indirect exporter, =0 otherwise)
5. Management education- shows the highest level of education
6. Size of firms - measured by number of full-time employees
7. Age of firms- measure by the time when the company starts operation
8. EU funds – it is a dummy variable (=1 if the company get the money from the European Union in the last 3 years , =0 otherwise)
9. Financially constrained – it is a dummy variable (=1 if the company had financial constraint during last 3 years , =0 otherwise)

Table 2. Summary statistics and correlation matrix

	Growth of sales	Shadow Economy Participation Rate	Foreign Owned	Exporter	Management Education	Size of Firm (Log)	Age of Firm (Log)	EU Funds	Financially Constrained
Growth of firm	1.000								
Shadow Economy Participation Rate	-0.021	1.000							
Foreign Owned	0.271	-0.004	1.000						
Exporter	0.270	-0.056	0.214	1.000					
Management Education	0.029	-0.117	0.114	0.108	1.000				
Size of Firm (Log)	0.221	-0.126	0.273	0.309	0.250	1.000			
Age Of Firm (Log)	-0.061	-0.035	0.037	0.023	0.021	0.470	1.000		
EU Funds	0.151	0.001	0.060	0.139	0.072	0.235	0.187	1.000	
Financially Constrained	-0.112	0.032	-0.095	0.023	-0.071	0.101	0.189	0.000	1.000

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
Growth of sales	504	0.031	0.193	-1	0.950
Shadow Economy Participation Rate	209	0.175	0.208	0	0.891
Foreign Owned	504	0.117	0.322	0	1.000
Exporter	504	0.345	0.476	0	1.000
Management education	504	3.258	0.936	1	4.000
Size of Firm (Log)	504	2.043	1.492	0	6.413
Age of Firm (Log)	504	2.608	0.470	1.609	4.060
EU Funds	504	0.089	0.285	0	1.000
Financially constrained	504	0.202	0.402	0	1.000

Table 3. Distribution of firms by industry

	% of total firms
Manufacturing	12.7%
Metal/machinery	1.8%
Timber and timber products	3.8%
Food and beverages	2.0%
Other	5.2%
Wholesale	16.1%
Retail	10.7%
Services	49.0%
Construction	5.2%
Others	6.4%

Table 4. Distribution of firms by age

Age of firm	% of total firms
5 -10	32.3 %
11-15	23.4 %
16- 20	17.6 %
21-25	24.2 %
26 above	2.5 %

Table 5. Distribution of firms by size (number of employee)

	% of total firms
Below 5	47.72 %
6 – 15	21.19 %
16 – 25	8.12 %
26 – 35	5.94 %
36 – 45	2.57 %
46 – 55	1.98 %

Table 6. Distribution of firms by legal status

	% of total firms
Individual merchant	9.7%
Limited liability company	85.7%
Joint stock company	2.8%
Branch	0.2%
Other	1.6%

Table 7. Distribution of firms by market orientation

		% of total firms
Non Exporter	Was Non Export and Still Non Exporter	62.9%
	Was exporter and Now is Non Exporter	2.6%
Exporter	Was Non Export and Now is Exporter	5.0%
	Was Exporter and still Exporter	29.5%

Table 8. Average shadow economy participation rate by industry

Industry	Shadow Economy Participation Rate
Manufacturing	15.8%
Wholesale	18.9%
Retail	19.2%
Services	17.6%
Construction	21.6%
Others	12.9%
Total	17.5%

Table 9. Average shadow economy participation rate by firm legal status

Legal status	Shadow Economy Participation Rate
Individual merchant	21.7%
Limited liability company	17.7%
Joint stock company	3.9%
Branch	---
Others	0.0%
Total	17.5%

Table 10. Distribution of average shadow economy participation rate by tax satisfaction

	Average Shadow Economy Participation Rate
Very Unsatisfied	13.5%
Unsatisfied	19.1%
Neither satisfied nor unsatisfied	19.5%
Satisfied	16.2%
Very satisfied	4.5%

Table 11. Distribution of average shadow economy participation rate by tax avoidance

	Average Shadow Economy Participation Rate
Completely disagree	21.7%
Disagree	14.7%
Neither agree nor disagree	21.1%
Agree	20.3%
Completely agree	6.6%

Appendix 3. Regression results

Table 1. Robustness checks

	Growth quantiles (5% and 95% are excluded)		Age quantiles (5% and 95% are excluded)		Size quantiles (5% and 95% are excluded)	
	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation Rate	Growth Rate
	I Stage	II Stage	I Stage	II Stage	I Stage	II Stage
Shadow Economy Participation Rate (base = 0)						
0 – 10		0.0592*		0.217***		0.212***
		(0.0358)		(0.0623)		(0.0520)
10 - 30		0.0693		0.177**		0.237***
		(0.0477)		(0.0809)		(0.0682)
30 – 50		0.116*		0.224**		0.360***
		(0.0639)		(0.109)		(0.0916)
50 and above		0.113		0.344**		0.557***
		(0.0883)		(0.152)		(0.122)
Foreign Owned	-0.261	0.0462	-0.313	0.105**	-0.0703	0.0948
	(0.311)	(0.0303)	(0.297)	(0.0518)	(0.294)	(0.0652)
Exporter	0.0472	0.0292	0.0721	0.0610*	-0.140	0.0842*
	(0.205)	(0.0200)	(0.201)	(0.0351)	(0.197)	(0.0437)
Management Education	-0.0209	0.00791	0.00135	-0.0162	-0.00914	-0.0128
	(0.102)	(0.0101)	(0.0950)	(0.0169)	(0.102)	(0.0225)
Size of firm (Log)	-0.0568	0.0124*	-0.0867	0.0361***	0.0124	0.0261
	(0.0756)	(0.00739)	(0.0736)	(0.0129)	(0.0901)	(0.0200)
Age of firm (Log)	-0.355*	-0.0276	-0.0273	-0.0708*	-0.115	-0.0376
	(0.206)	(0.0229)	(0.221)	(0.0389)	(0.199)	(0.0456)
EU Funds	-0.0590	0.0616**	-0.135	0.0901*	-0.213	0.107
	(0.328)	(0.0299)	(0.317)	(0.0522)	(0.328)	(0.0701)
Financially Constrained	0.232	-0.0167	0.0151	-0.0423	0.0295	-0.0470
	(0.218)	(0.0219)	(0.203)	(0.0353)	(0.204)	(0.0459)
Corruption						
Minor problem	0.341		0.511**		0.466**	
	(0.297)		(0.240)		(0.198)	
Moderate problem	0.629**		0.430		0.295	
	(0.279)		(0.267)		(0.207)	
Major problem	0.670***		0.537**		0.400**	
	(0.203)		(0.213)		(0.157)	
Interview language	-0.354		-0.553*		-0.0714	
	(0.416)		(0.287)		(0.214)	
Constant		-0.0465		0.0655		-0.106
		(0.0823)		(0.137)		(0.157)
Industry Dummies	YES	YES	YES	YES	YES	YES
Observations	186	186	195	195	170	170

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 2. Regression for firms with non-positive and positive growth rate

	Firms with non-positive growth rate		Firms with positive growth rate	
	Shadow Economy Participation Rate	Growth	Shadow Economy Participation Rate	Growth
	I Stage	II Stage	I Stage	II Stage
Shadow Economy Participation Rate (base = 0)				
0 – 10		0.131***		0.159
		(0.041)		(0.126)
10 - 30		0.099*		0.0915
		(0.051)		(0.176)
30 - 50		0.077		0.209
		(0.062)		(0.247)
50 and above		0.121		0.313
		(0.085)		(0.323)
Foreign Owned	-5.704	0.110	-0.038	0.077
	(3,570)	(0.074)	(0.330)	(0.059)
Exporter	0.067	0.044	-0.141	0.074*
	(0.317)	(0.031)	(0.260)	(0.045)
Management Education	-0.177	-0.006	0.159	-0.034
	(0.135)	(0.014)	(0.146)	(0.027)
Size of firm (Log)	-0.021	0.024**	-0.162	0.014
	(0.110)	(0.011)	(0.106)	(0.024)
Age of firm (Log)	-0.104	0.018	0.0873	-0.071
	(0.302)	(0.029)	(0.301)	(0.043)
EU Funds	-0.061	0.043	-0.199	0.059
	(0.661)	(0.059)	(0.384)	(0.061)
Financially Constrained	0.072	-0.036	0.174	0.018
	(0.282)	(0.027)	(0.362)	(0.054)
Corruption				
Minor problem	0.486		0.630*	
	(0.414)		(0.351)	
Moderate problem	1.128***		0.278	
	(0.368)		(0.426)	
Major problem	0.595**		0.647	
	(0.289)		(0.426)	
Interview language	-0.246		1.242*	
	(0.385)		(0.721)	
Constant		-0.256***		0.356*
		(0.096)		(0.201)
Industry Dummies	YES	YES	YES	YES
Observations	101	101	108	108

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 3. Robustness check by industry

	Without service industry		Only service industry		Without construction industry	
	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation Rate	Growth Rate
	I Stage	II Stage	I Stage	II Stage	I Stage	II Stage
Shadow Economy Participation Rate (base = 0)						
0 – 10		0.131*		0.195**		0.119*
		(0.074)		(0.099)		(0.064)
10 – 30		0.0143		0.211		0.081
		(0.085)		(0.135)		(0.081)
30 - 50		0.0702		0.190		0.081
		(0.116)		(0.183)		(0.109)
50 and above		0.113		0.359		0.154
		(0.157)		(0.256)		(0.155)
Foreign Owned	0.081	0.179***	-0.593	0.071	-0.083	0.129***
	(0.347)	(0.051)	(0.626)	(0.124)	(0.289)	(0.047)
Exporter	0.036	0.045	-0.093	0.116**	-0.067	0.079**
	(0.286)	(0.039)	(0.279)	(0.054)	(0.197)	(0.032)
Management Education	-0.066	-0.041**	-0.098	0.011	-0.029	-0.013
	(0.131)	(0.019)	(0.141)	(0.029)	(0.098)	(0.016)
Size of firm (Log)	-0.120	0.043***	-0.005	0.008	-0.096	0.025**
	(0.100)	(0.015)	(0.106)	(0.021)	(0.074)	(0.012)
Age of firm (Log)	0.0359	-0.054	-0.132	-0.007	-0.030	-0.047
	(0.270)	(0.038)	(0.291)	(0.062)	(0.199)	(0.033)
EU Funds	-0.344	0.080	0.000	0.139	-0.230	0.082*
	(0.391)	(0.050)	(0.600)	(0.118)	(0.314)	(0.048)
Financially Constrained	0.142	-0.000	0.105	-0.083	0.073	-0.036
	(0.279)	(0.041)	(0.291)	(0.055)	(0.207)	(0.034)
Corruption						
Minor problem	0.414		0.582*		0.478	
	(0.475)		(0.342)		(0.325)	
Moderate problem	1.098***		0.291		0.708***	
	(0.422)		(0.330)		(0.273)	
Major problem	0.696**		0.721**		0.735***	
	(0.295)		(0.319)		(0.192)	
Interview language	0.534		-0.797*		0.015	
	(0.457)		(0.456)		(0.333)	
Constant		0.124		-0.185		0.067
		(0.133)		(0.265)		(0.127)
Industry Dummies	YES	YES	YES	YES	YES	YES
Observations	103	103	106	106	200	200

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 4. Robustness check by firms' type

	Local firms		Non-exporter firms		Non-Financially constrained	
	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation Rate	Growth Rate	Shadow Economy Participation	Growth Rate
	I Stage	II Stage	I Stage	II Stage	I Stage	II Stage
Shadow Economy Participation Rate (base = 0)						
0 - 10		0.199***		0.146**		0.099*
		(0.065)		(0.058)		(0.057)
10 - 30		0.238***		0.108		0.016
		(0.088)		(0.080)		(0.068)
30 - 50		0.273**		0.094		0.060
		(0.119)		(0.097)		(0.089)
50 and above		0.420***		0.137		0.046
		(0.161)		(0.139)		(0.116)
Foreign Owned			-0.007	0.152**	-0.076	0.163***
			(0.444)	(0.065)	0.196	(0.050)
Exporter	-0.049	0.078**			(0.314)	0.095***
	(0.200)	(0.038)			-0.215	(0.036)
Management Education	-0.055	-0.009	-0.200*	-0.010	(0.237)	-0.024
	(0.094)	(0.019)	(0.113)	(0.018)	-0.173	(0.018)
Size of firm (Log)	-0.076	0.039***	-0.072	0.023*	(0.112)	0.012
	(0.072)	(0.014)	(0.085)	(0.012)	-0.070	(0.013)
Age of firm (Log)	0.006	-0.060	-0.120	-0.008	(0.080)	-0.037
	(0.199)	(0.039)	(0.235)	(0.036)	-0.109	(0.035)
EU Funds	0.051	0.045	0.033	0.080	(0.223)	0.110**
	(0.332)	(0.060)	(0.424)	(0.062)	-0.061	(0.054)
Financially Constrained	0.145	-0.051	-0.069	-0.066*		
	(0.203)	(0.039)	(0.266)	(0.037)		
Corruption						
Minor problem	0.476**		0.375		0.203	
	(0.219)		(0.413)		(0.412)	
Moderate problem	0.403		0.844**		1.043***	
	(0.256)		(0.328)		(0.294)	
Major problem	0.494**		0.992***		0.855***	
	(0.210)		(0.232)		(0.224)	
Interview language	-0.479*		0.023		0.757*	
	(0.263)		(0.402)		(0.420)	
Constant		-0.064		-0.019		0.094
		(0.142)		(0.140)		(0.125)
Industry Dummies	YES	YES	YES	YES	YES	YES
Observations	188	188	142	142	165	165

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

KOKKUVÕTE

Kuidas varimajanduses osalemine mõjutab Läti ettevõtete kasvu

Käesolevas artiklis uuritakse seoseid Läti ettevõtete kasvu ja nende varimajanduses osalemise vahel 2015. Aastal. Antud analüüsi uudsus seisneb seose uurimises tuginedes ettevõtete juhtide küsitlusandmetele. Tulemused näitavad, et kui varimajanduses on kuni 10% ettevõtete üldisest majandustegevusest, siis oli sellel kasvu suurendav mõju ettevõtetele, kes registreerisid viimase viie aasta jooksul negatiivse kasvu. Kasutades korruptsiooni tajumist ja intervjuudes kasutatavat keelt varimajanduses osalemise määra instrumentidena, järeldavad autorid, et korruptsiooni tajumise ja varimajanduses osalemise määra vahel on positiivne seos.