査読論文

SMEs and Its Constraints:
Empirical Study on Central Asia and Eastern Europe

MADGAZIEVA Sevara *, INABA Kazuo **

Abstract

This paper aims to examine small and medium-sized firms in transitional countries, which consist of countries in three areas, (Central Asia, Central Europe, and the Balkans), and to show how various constraints affect these firms' performance. This empirical analysis includes an investigation into the main determinants of the growth of firms in these areas.

The empirical model specifies that these small and medium-sized firms' growth is determined not only by features such as size or age, but also by other specific factors such as an index of financial constraint and the local tax rate. The data are taken from the Business Environment and Enterprise Performance Survey, which was conducted by the World Bank and which covered 12 countries (Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Serbia, and Slovakia) in the period from 2002 to 2013. A dummy is used to investigate whether the small and medium-sized firms in these countries face tax and financial constraints. The sample is divided into three geographical areas, (Central Asia, Central Europe, and the Balkans) to examine the characteristics of each area.

The empirical findings show that, although corporate income tax is as major barrier for these firms, financial constraints do not affect their performance. The regression results by area show that the tax barrier is particularly severe in Central Asian countries.

Keywords

Panel Data Analysis, Financial Constraints, Tax Burden, Transition Economies

---

* Correspondence to: MADGAZIEVA Sevara
Graduate school of Economics, Ritsumeikan University
1-1-1 Nojihigashi, Kusatsu, Shiga 525-8577, Japan
E-mail: gr0036ex@ed.ritsumei.ac.jp

** Correspondence to: INABA Kazuo
Professor, Faculty of Economics, Ritsumeikan University
1-1-1 Nojihigashi, Kusatsu, Shiga 525-8577, Japan
E-mail: inabak@ec.ritsumei.ac.jp

Contents

1. Introduction

Recent changes taking place in the economic and political lives of countries with transitional economies cannot remain unnoticed. In particular, these countries have been passing through another stage of transition related to market relations. Features of this transition period include the widespread privatization of national economic entities, the appearance of new types of ownership, banking system reforms, and the revitalization of financial markets (Abaturov, P. (2000))

Another important feature of this period is the formation of a new social class: owners or proprietors. A state's well-being can be determined by the level of development in its small and private businesses, in other words, how much those businesses contribute to national economic growth.

What are the advantages small and medium-sized enterprises (SMEs) relative to large enterprises (LEs)? SMEs can adapt to fluctuating market conditions rapidly without large capital. In most cases, SMEs are the main producers of indispensable products that satisfy a wide range of consumers. In other words, as SMEs are less capital-intensive than LEs, they have an easier time establishing services and reorienting to other activities (Beck T., Demirgüç-Kunt A. and Levine R., 2005). Under normal business conditions, SMEs can invest funds in the development of new areas of activity; build production capacity; and create opportunities for economic growth, employment, and high living standards (Beck T., Demirgüç-Kunt A. and Levine R., 2005). SMEs respond quickly to changes in a country's

business environment, so they can serve as indicators of both economic development and the effectiveness of government reforms. However, SMEs' role in industrial activity is still underestimated, and their opportunities are not often used to their full capacity. In addition, many problems hamper the development of the private sector in the observed countries.

Besides, SMEs' activities play a notable role in both developing and developed countries by contributing to increased employment, export growth, and poverty reduction. The global evidence regarding SME operations shows that competitive economic systems cannot exist without properly functioning SMEs.

However, SMEs in the developing world certainly are different from those in the developed world. The former have strong competitiveness in employment creation but are weak in output contribution (Harada, Yuji Honjo and Nobuyuki, 2006). In other words, in the developing world, SMEs' productivity is much lower than that of LEs. SMEs usually face difficulty in accessing advanced technologies, locating financing, and overcoming a lack of skilled management.

After analyzing foreign and domestic experiences, we can specify that SMEs offer the following advantages over LEs: more rapid adaptation to local economic conditions, relatively low costs (especially in management), lower capital requirements, and the ability to more rapidly introduce changes in products or the production process in response to the demands of local markets.

Given the development of Central Asian countries' market relations, the creation and development of the small-business sector is the basis for social restructuring, thus providing training for the population and helping to create a market economy.

The main purposes of this paper are to investigate the determinants of SMEs' performance through a cross-country analysis and to propose lessons for further SME development in Central Asia and Eastern Europe.

This paper consists of four sections. Following this introduction, the next section outlines the previous research on key theories of SME development and the empirical studies in that area. The third section includes a specification of the study's model, a description of its data, and an interpretation of its results. The concluding remarks are shown in the last section.

2. Literature review

2.1. Overview of SMEs

According to Panandiker (1996), enterprises' sustainable development and growth relies upon various factors. The most significant of these factors are the market and technology. Market size can be defined by the level of real income per capita and by population size, which has a direct influence on the number of buyers.

In general, enterprises' production activity can be divided into two main categories: consumer goods and industrial goods. With respect to consumer goods, SMEs produce final goods for the market; for industrial goods. However. SMEs manufacture products for other enterprises. In recent years, the relationship between SMEs and LEs has become very important (Richard, 1996), even though this connections could have an unfavorable influence on SMEs. One obvious problem is that many SMEs, when they serve as the LEs' suppliers, have difficulties meeting tight schedules and product specifications (Semlinger, 1993). This problem is mainly of a technical, managerial, and organizational nature, and it can be observed in both the developing and the developed world (Kaplinsky, 1994, p. 394).

The pattern of SME development in developing countries was first widely described by Hoselitz (1959), Staley and Morse (1965), Parker (1979), and Anderson (1982). These authors' findings are often referred to as the classical theories of SME development. Later, authors such as Berry and Mazumdar (1991) and Levy (1991, 1993) described the experience of SMEs in newly industrialized Asian and West European countries. Their ideas are referred to as the modern theories of SME development. These modern theories emphasize the importance of subcontracting networks and the economic benefits of both agglomeration and clustering, as these phenomena contribute to sustainable SME development.

The classical theories are more likely than the modern theories to be applicable to Central Asian countries, as introducing the cluster approach in these regions requires an understanding of what a cluster is. Relying on cluster development requires considering side effects such as the possibility of blocking companies' opportunities. It is possible for an individual company to be more competitive than a cluster. Determining the role that large companies should play in cluster development is also challenging, although they are differentiated from small firms in terms of specialization (Pilineko, http://www.innosys.spb.ru/?id=748).

Therefore, the modern theories on SME development, which emphasize the benefits of

clustering and industrial agglomeration, are more applicable to countries with already developed institutional frameworks and whose governments are willing to support the activities of subcontracting networks and clusters. These countries include advanced nations such as Japan, the United States, and the United Kingdom. Indeed, the sustainable development of innovative clusters is critically dependent on access to the best sources of scientific knowledge and modern technology, as well as on the availability of significant financial resources. An innovative process orientation cluster requires a well-developed infrastructure, as well as both intellectual and financial capital. Innovative clusters can be a kind of platform for the continuous interaction of financial and intellectual capital.

2.2. Empirical studies on SMEs

Based on the theoretical background above, a large number of studies have been conducted to determine the relationship between SMEs' role in the economy and their role in society in general.

Gebremariam, Gebremedhin, and Jackson (2004) explored the critical roles that small businesses played in economic growth and poverty alleviation in West Virginia, using time-series data for 1980-2001. The results of their empirical study showed that there was a positive relationship between the size of a small business and the economic growth it created. In addition, the results indicated that there was a strong inverse relationship between the incidence of poverty and the economic growth due to small businesses. The study's conclusion was that the anti-poverty impact of small business development is mainly through due to these businesses' impact on economic growth.

Again, Beck, Demirguc-Kunt, and Levine (2005) explored the relationship between the relative size of the SME sector and measures of both economic growth and poverty alleviation. This study used a new database on the share of SME labor in 45 countries' total manufacturing labor forces in 1990-2000. The main finding was that, although SME sector development was one of the driving forces in flourishing economies, SMEs did not cause growth. Moreover, a cross-country comparison revealed that SMEs did not exert a favorable impact in terms of poverty alleviation, so no significant relationship between SMEs and measures of poverty was found.

Many studies have been done, not just on the impact that SME development has on economic growth, but also on the determinants of SMEs' growth acceleration.

Mateev and Anastasov (2010) provided a cross-country empirical analysis that

explored firm's specific factors associated with SME growth and performance. Using a panel dataset of SMEs from six European transitional economies, the authors concluded that a firm's growth is related not only to size (a traditional determinant) but also to other specific characteristics of its financial structure and productivity.

The roles of innovation and productivity can be seen in firms' level studies in Italy (Hall, Lotti, and Mairesse, 2008). They examined Italian SMEs in 1995-2003. The relationships between the firms' research and development decisions, innovation outcomes, and productivity were estimated. Their results indicated that research and development intensity depends on a set of firm and market characteristics as well as on international competition. The researchers concluded that firm size, research and development intensity, and investment in equipment enhanced the likelihood of both process and product innovation. Therefore, both kinds of innovation have a positive impact on firm productivity.

Regional evidence on SMEs in developing Asian countries can be found in the study done by Tambunan (2009). In this cross-country comparison of recent developments, the author considers SMEs' contributions to countries' export earnings and their impact on women's empowerment, which helps provide a full picture of the current situation in the private sector of developing Asian countries. Moreover, the author deals with theories that are meant to explain the relationship between patterns of SME development and levels of economic development.

2.3. SMEs' obstacles

In the research on how SMEs overcome the impact of various constraints, Levy (1993) explored Sri Lanka's leather industry and Tanzania's furniture industry in 1989-1990. The results of this study show that a lack of access to financing was a binding obstacle for almost all SMEs in both countries and that, when firms were able to obtain external financing, they were faced with difficult relationships with the lenders. Regulatory and tax constraints also hindered the growth of the smallest firms in Tanzania; in Sri Lanka, the regulatory burden rose along with firm size. Neither Sri Lanka's small firms nor Tanzania's SMEs reported marketing or technical constraints to be a significant barrier to their growth. However, this mainly reflects their narrow markets and limited information.

Beck (2007) explored the financial constraints of SMEs in the developing world, showing that SMEs were more constrained by financial and other obstacles than were their larger counterparts. Beck pointed out the important role that government plays in reforming or creating an institutional environment, as well as in providing a regulatory

framework and enhancing competition.

Beck, Demirguc-Kunt, and Soledad Martinez Peria (2008) investigated lending practices—specifically the obstacles to and drivers of bank financing—related to SMEs around the world. Using data from 91 banks in 45 countries, the authors revealed that banks acknowledge the profitability of the SME sector but are reluctant to extend loans to such firms due to the macroeconomic instability in developing countries and the tough competition in developed countries.

Banerjee (2014) investigated the importance of employment and profit growth for young firms in advanced economies using business-register data and firm-level surveys. The author suggested that there was a link between financial constraints and firm growth but that this link varies with firms' age distribution.

Moreover, there are differences in SME financing among government types and between bank types (private or public; domestic or foreign-owned). The most substantial difference was between banks in developing and advanced countries. Compared to those in developed nations, the banks in developing countries were typically less exposed to SMEs and thus provided less funding and charged higher interest rates. Generally, the main finding of this study was that, for SMEs, the lending environment was much more important than bank ownership type or firm size.

3. Empirical analysis and results

Based on the previous studies, this model is meant to help investigate the effects that various factors—some that are economy-wide (inflation and tax rate) and others that are firm-specific (age and size)—have on firms' sales size due to the resulting financial constraints. The main purposes of this paper are, first, to relate firm's sales not only to traditional determinants but also to other firm-level specifications associated with the number of employees, and second, to define the impact that financial and tax constraints have on their activity.

The study especially focuses on obstacles for SMEs, based on the following hypothesis: The performance of SMEs is heavily stifled by tax rates and lack of access to financing.

3.1. Model specification and data

This model's functional form is of the Cobb-Douglas type, which can be explained in terms of capital (assets) and labor (employment), as follows:

$$Log\_sales_{ijt} = \alpha_0 + \beta_1 Log\_assets_{ijt} + \beta_2 Log\_employee_{ijt} + \beta_3 tax\_rate_{jt} + \beta_4 fin\_constr_{ijt} + \beta_5 age_{ijt} + \beta_6 CPI_{jt} + \beta_7 SME\_dummy_{ijt} + \beta_8 area\_dummy_{ijt} + \varepsilon_{ijt}$$

Sales and capital assets are deflated by consumption price index. The consumer price index (CPI) is also a proxy for the economic instability values provided by the World Bank Database (WBD).

It is widely accepted that firm performance (sales) can be estimated using the firm's size and length of time operating in the market. Nevertheless, some empirical studies have suggested models that include firm-specific characteristics other than size and age (Honjo and Haranda, 2006; Mateev and Anastasov, 2010).

Therefore, a main difference between this study and previous ones is that the model includes constraint variables to explain the degree to which access to financing acts as an obstacle for SMEs in transitional countries, as well as whether SMEs suffer from or benefit from the existing business environment.

The firms' data are extracted from the dataset of the Business Environment and Enterprise Performance Survey (BEEPS), which was provided by the World Bank. The data cover 12 countries (Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Serbia, and Slovakia) from 2002 to 2013. The World Bank has conducted this survey of firms every three to four years in each country. However, the surveys were not conducted sequentially, so dataset is an unbalanced panel.

Table 1 shows a list of the dependent and explanatory variables used in this analysis, along with their expected sign. This study uses income tax as it has direct influence to companies' performance. Since the rate of income tax is differs by countries by using this variable we could identify how much the income tax hinders the development of SMEs.

The access-to-financing constraint[1] (fin_constr) is often ranked as one of most critical constraints in the business environment for SMEs. Small firms consistently report greater financing obstacles than do medium or large firms (Beck, Demirgüç-Kunt, Laeven, and Maksimovic, 2006). In this study, these financial constraints include limited access to external funding. Generally, small firms are believed to face greater financial constraints than large firms, and small firms obviously have much greater difficulty in accessing external financing. Thus, there is a negative relationship between access to credit and firms' growth. Initially, the data for fin_constr in this survey was presented in terms of the

degree to which access to financing was an obstacle to the firms' current operations, e.g. in World bank survey data it was shown, like "moderate obstacle", "severe", "not obstacle" or "minor obstacle", but in a regression to get proper results we could not use those meanings of financial constraint. Respectively, we converted it to binary one, so, we use "1" if financial constraint was any kind of obstacles and "0" if otherwise.

The expected sign of the age variable was negative, as younger firms were considered likely to grow faster than older firms (Mateev and Anastasov, 2010).

Table 1. Dependent and explanatory variables.

Variable	Definition	Expected sign	Source
Dependent variable			
Log_sales	Log of sales, at 2002 constant price		BEEPS
Firm-specific characteristics			
Log_assets	Log of assets, at 2002 constant price	+	BEEPS
Log_employee	Log of employment	+	
Constraint variables:			
Tax_rate	Income tax rate, as a proxy for a business's tax burden (in percent)	-	WBD
Fin_constr	Financial constraints (access to financing)	-	BEEPS
Explanatory and dummy variables			
CPI	Consumer price index (2002 price = 100)	-	WBD
Age	Years of existence	-	BEEPS
DSM	Dummy for SMEs	+	
Fin_constrDSM	Dummy for SMEs' financial constraints	-	
Tax_rateDSM	Dummy for SMEs' tax_rate	-	
D_CE	Dummy for Central European countries	+	
D_B	Dummy for Balkan countries	+	
D_CA	Dummy for Central Asian countries	+	

This model includes SME dummies (fin_constrDSM and tax_rateDSM) for exploring how access to financing differently affects the coefficients for LEs and SMEs. For defining "*fin_constrDSM*" and "*tax_rateDSM",* we multiply dummy for SMEs with the constraint variables, e.g. fin_constrDSM =fin_constr*DSM and tax_rateDSM= tax_rate*DSM.

The model also includes area dummies (with Central Asia treated as the base area); D_CE and D_B are the dummies for Central European and Balkan countries, respectively.

Table 2 shows the distribution of the sample by country, industry, and size.

Table 2. Distribution of the sample enterprises.

	Micro (< 5 employees)	Small	Medium	Large	Total
Country					
Bulgaria	56	833	653	342	1,884
Croatia	24	873	531	347	1,775
Czech Republic	5	326	239	184	754
Hungary	194	272	242	184	892
Kazakhstan	17	660	626	385	1,688
Kyrgyz Republic	14	336	288	102	740
Poland	33	602	483	313	1,431
Romania	25	689	511	397	1,622
Serbia	48	456	357	275	1,136
Slovakia	2	347	256	213	818
Tajikistan	0	570	331	178	1,079
Uzbekistan	0	333	339	450	1,122
Sector					
Food	21	449	424	319	1,213
Machinery and equipment	12	326	310	217	865
Manufacturing	50	884	697	483	2114
Textiles	5	62	94	123	284
Paper and paper products	0	14	1	5	20
Other manufacturing	13	438	435	355	1,241
Retail	136	2,033	1,357	747	4,273
Wholesale	59	731	450	227	1,467
IT	14	182	82	40	318
Other services	108	1,178	1,006	854	3,146
Total	**418**	**6,297**	**4,856**	**3,370**	**14,941**

Source: BEEPS dataset (2002-2013) and author's calculations.

Table 3 provides the summary statistics for the entire sample. In Table 3, we can evaluate that the older enterprises were predominant, with average period of existence of 21 years; a Croatian company had been in existence for the longest period (316 years).

There were wide fluctuations in the CPI (Consumer Price Index) across countries over the period, reaching up to 279%. The average rate of change for the CPI was 148%, which means that consumer prices in the selected countries increased by 1.48 times during the observation period. The corporate income tax in these countries was also relatively high (16.3%), so it seems to remain a major obstacle to SMEs' development and growth.

Table 3. Summary statistics

Variable	Observations.	Mean	Std. Dev.	Min.	Max.
Log_sales	18,213	6.323	1.296	1.360	13.817
Log_assets	7,669	5.636	1.306	0.170	10.793
Log_employee	21,999	1.387	0.672	0	4.260
Tax_rate	22,763	16.367	8.433	2.5	40.06
CPI	22,763	148.47	43.70	100	279.0
Age	22,535	21.244	16.46	1	316

All variables are in log form except the firm-characteristics variables and the number of years. Dummy variables are not included in the summary statistics.

3.2. Empirical results

Table 4 shows the estimated results for the ordinary-least-squares, fixed-effect, and random-effect estimation methods.

The estimated results show that favor younger firms have greater growth than older firms (i.e., a negative sign for the age variable). This result is consistent with our expectations, and it means that younger firms are likely to be more confident in the market than older firms. This could be explained by the fact that older firms become less competitive even though they can have more business relationships and more established contacts with suppliers and buyers.

The negative effect of income tax for SMEs (tax_rateDSM) indicates that taxes are a greater obstacle for SMEs than for LEs. Access to financing seems to be a relatively small obstacle to the growth of LEs (i.e., the coefficient of fin_contsr is insignificant). Surprisingly, however, the financial obstacles from financing also do not seem to matter for SMEs (i.e., the coefficient of fin_constrDSM is positively and significantly correlated with the dependent variable). The proxy of inflation (CPI) and the area dummy do not appear due to the estimated results having an unexpected sign.

Table 4. Change in sales-panel regressions results. Dependent variable: Log_sales

	Ordinary Least Squares	Fixed Effect	Random Effect
Log_assets	0.632***	0.515***	0.534***
	(0.007)	(0.008)	(0.008)
Log_employee	0.436***	0.544***	0.527***
	(0.014)	(0.014)	(0.014)
Tax_rate	0.006*	-0.048***	-0.028***
	(0.003)	(0.004)	(0.004)
Fin_constr	-0.107*	-0.071	-0.076
	(0.044)	(0.041)	(0.041)
Age	-0.003***	-0.004***	-0.004***
	(0.0004)	(0.0004)	(0.0004)
DSM	-0.225***	-0.193***	-0.180***
	(0.058)	(0.054)	(0.054)
Fin_constrDSM	0.203***	0.162***	0.165***
	(0.047)	(0.044)	(0.044)
Tax_rateDSM	-0.007*	-0.009***	-0.010***
	(0.003)	(0.003)	(0.003)
_cons	2.187***	3.582***	3.149***
	(0.072)	(0.094)	(0.096)
N	6,451	6,451	6,451
R-squared	0.7529	0.7441	0.7428

All variables except the dummies and ratios are in log form.
*$p < 0.1$, **$p < 0.05$; ***$p < 0.01$, represents significances of 10, 5, and 1%, respectively.
Standard errors are in brackets.

To investigate the cross-region differences, we tried to estimate the results for three regions (Central European, Balkan, and Central Asian countries), Table 5 shows the fixed-effect model because the null hypothesis for the Hausman test indicated that the differences between the fixed-effect and random-effect specifications was not systematic.[2]

As expected, the variables that were proxies for firm size had a statistically significant impact on firm performance in all regions. The coefficient for age was estimated to have a negative sign. In Eastern Europe, the estimated tax rate was insignificant and did not have a negative impact on firms' performance, but in Central Asia, this coefficient had a significantly negative influence on firm activity. The coefficient for small firms' tax rate had a significant and negative impact only in Central European countries. Of all the enterprises in our analysis, the only ones with any sales losses due to tax-rate fluctuations

were the companies from Central Europe. The tax burden in Central European countries still hampers these firm's growth. In addition, the firms' activity was hampered by limited access to financing (fin_constr). The enterprises face a challenge when accessing external financing. The findings of some recent empirical studies have stressed that SMEs rely on internally generated funds for asset growth, but that they actually require access to external capital to support sales growth (Honjo and Harada, 2006).

However, contrary to our expectations, the dummy for the SMEs' financial constraints was insignificant and had a positive relationship to the dependent variable. Hence, in our research on the BEEPS dataset, SMEs did not have severe financial constraints.

Summarizing the estimated results, we can conclude that the younger firms had

Table 5. Regressions results by area. Dependent variable: Log_sales

	Central European countries	Balkan countries	Central Asian countries
Log_assets	0.462***	0.374***	0.486***
	(0.011)	(0.013)	(0.016)
Log_employee	0.627***	0.615***	0.550***
	(0.018)	(0.023)	(0.033)
Tax_rate	0.005	0.005	-0.127***
	(0.007)	(0.009)	(0.008)
Fin_constr	-0.099	-0.173**	0.14
	(0.062)	(0.064)	(0.073)
Age	-0.005***	-0.004***	0.001
	(0.001)	(0.001)	(0.001)
DSM	0.142	-0.482***	-0.133
	(0.107)	(0.116)	(0.083)
Fin_constrDSM	0.161*	0.234***	0.024
	(0.065)	(0.069)	(0.081)
Tax_rateDSM	-0.044***	0.018*	0.001
	(0.006)	(0.007)	(0.003)
_cons	3.218***	3.384***	4.969***
	(0.142)	(0.149)	(0.220)
N	3,235	2,160	1,625
R-squared	0.7675	0.6718	0.8017

All variables except the dummies and ratios are in log form.

*$p < 0.1$, **$p < 0.05$; ***$p < 0.01$, represents significances of 10, 5, and 1%, respectively.

Standard errors are in brackets.

stronger performance than the older firms. In addition, the significant negative effect that corporate income tax had in the Central Asian and Central European nations indicates that SMEs and other enterprises in these areas are exposed to relatively large tax burdens. In spite of the fact that access to financing remains a major obstacle to SMEs' creation, operations, and growth, in our analysis, the firms mostly seemed to rely on internal funding rather than on loans or credits.

Additionally, to investigate the differences between SMEs and LEs, we used a fixed-effects model. Table 6 shows the regression results for both SMEs and LEs.

To avoid the problem of multicollinearity, we dropped the variables that we expected to be highly correlated with the test (in this case, all the dummy variables).

The regression results are almost the same as those of the previous model, particularly for the variables that represent the firms' size (in number of employees and assets), which have a positive and statistically significant impact on the SMEs' growth. In addition, younger SMEs seem to develop more quickly than oldest enterprises (the coefficient for age is negative, which is consistent with our expectations). Tax barriers are a major obstacle that hinders SMEs' development even when they seem to be less financially constrained.

Table 6. Regression results for SMEs and LEs. Dependent variable: Log_sales

	SMEs	LEs
Log_assets	0.504***	0.532***
	(0.008)	(0.025)
Log_employe	0.559***	0.555***
	(0.014)	(0.069)
Tax_rate	-0.060***	-0.049***
	(0.004)	(0.025)
Fin_constr	0.088***	-0.0307***
	(0.016)	(0.052)
Age	-0.005***	0.0004***
	(0.0004)	(0.001)
_cons	3.489***	3.350***
	(0.076)	(0.450)
N	5,669	782
R-squared	0.7028	0.4872

*$p < 0.1$, **$p < 0.05$; ***$p < 0.01$, represents significances of 10, 5, and 1%. respectively.
Standard errors are in brackets.

Surprisingly, the results for LEs indicate that the number of years of operation has a positive effect on their activity. This can be explained by LEs gaining more experience as they become old, but their number of employees and the size of their assets still have a significant influence on their development. However, in this study, financial constraints had a negative influence on LEs' growth; in other words, LEs were more financially constrained than smaller firms were. Thus, we can conclude that LEs' sales volume may be decreased by the difficulty of accessing external financing.

4. Conclusion

The findings in the empirical analysis show that SMEs operate in a complex environment and that they confront a variety of constraints. Using the BEEPS dataset, which focuses on 12 countries with transitional economies in the years 2002-2013, the results indicate that age has a significant negative impact on firms' growth and that younger firms seem to have stronger performance. The regression results for the three regions indicate that macroeconomic conditions play an important role in the activity of all enterprises, including SMEs. The negative effect of the corporate income tax is particularly high in Central European and Central Asian nations, and this remains a major barrier to SMEs' growth. However, establishments from the Balkan countries did not face significant sales losses due to tax-rate fluctuations. In addition, contrary to our expectations, SMEs did not show severe financial constraints, as the dummy for this measure was positively correlated with the dependent variable. However, even though SMEs may face difficulties in terms of accessing external financing, our empirical results support the findings of some recent empirical studies, which found that SMEs heavily rely on internally generated funds to fuel asset growth, but that they require access to external capital to support revenue growth (Mateev and Anastasov, 2010).

Based on the results of a regression for the size of the enterprises, younger SMEs grow faster than older and more experienced LEs, but the LEs benefit more from such growth. Tax barriers remain a major obstacle to SMEs' development, but access to financing does not have much of an influence on their activity. In contrast, LEs seem to be more financially constrained. Therefore, we can conclude that SMEs might not bear any sales losses due to difficulty in gaining access to financing, but LEs can suffer from financial constraints due to decreased sales volume.

Some issues remain for further study. Because this study's results included the

interesting finding that the SMEs in the sample did not face financial constraints, future studies should be directed toward further investigation of this topic. In future, we are planning to explore economic structure of Central Asian countries by industry and by size to make analysis of SMEs and LEs separately.

Acknowledgment

This paper is the summary of master thesis done by Madgazieva Sevara. The first draft of revised paper was presented at International Conference on Economic Theory and Policy held at Meiji University on September, 2017 and at International Conference on Economic Structures held at Nagoya University on March, 2018.

We are grateful for all useful and valuable comments provided by Conferences' participants as well as anonymous referees and managing editor.

Notes

1 Access to financing includes both availability and the cost of interest rates, fees, and collateral requirements.

2 Thus, a small p (< 0.05) suggests the rejection of the random-effects specifications.

References

Abaturov, P. (2000). "Small and Medium Business in Uzbekistan: Current State, Problems and Prospects". *Economic Review, No. 3–4*. pp. 52–61.

Anderson, D. (1982). *Small -scale Industry in Developing Countries: A Discussion of the Issues.* World Development.

Ayyagari, M., Beck, T. and Demirguc-Kunt, A. (2007). Small and Medium Enterprises Across the Globe. *Small Business Economics*, pp. 415–434.

Banerjee, R. (2014). SMEs, Financial Constraints and Growth. *BIS Working papers, No 475* .

Beck, T., Demirgüç-Kunt, A. and Soledad M. (2008). Bank Financing for SMEs around the World: Drivers, Obstacles, Business Models, and Lending Practices. *World Bank Policy Research Working Paper* .

Beck, D.-K. A. (2008). Bank Financing for SMEs around the World: Drivers, Obstacles, Business Models, and Lending Practices. *World Bank Policy Research Working Paper* .

Beck, T., Demirgüç-Kunt, A. and Levine, R. (2005, March). SMEs, Growth and Poverty. *NBER Working Paper Series*.

Berry and Mazumdar. (1991). Small-Scale Industry in the Asian-Pacific region. *Asian-Pacific*

Economic literature, pp. 152–168.

Biggs and Oppenheim. (1986). *What Drives the Size Distribution of Firms in Developing countries.* Cambridge: Harvard Institute for International Development.

Blair, G. (2010). *SMEs in Japan: A new growth driver?* Economist Intelligence Unit.

Ceglie, G. and Dini, M. (1999). SME Cluster and Network Development in Developing Countries: the Experience of Unido. *International Conference on Building a Modern and Effective Development Service Industry for Small Enterprises.* Rio de Janeiro.

Dennis, A. (1982). *Small-Scale Industry in Developing countries: A Discussion of the Issues.* Washington D.C.: World Development.

Gebremeskel H. Gebremariam, Tesfa G. Gebremedhin and Randall W. Jackson. (2004). The Role Of Small Business In Economic Growth And Poverty Alleviation In West Virginia: An Empirical Analysis. *American Agricultural Economics Association Annual Meeting.* Denver.

Gloria, P. (2010). Financial Crisis, Trade Finance, and SMEs: Case of Central Asia. *ADBI Working Paper Series 187*.

Goodman E., Bamford J., and Saynor P. (1989). *Small Firms and Industrial Districts in Italy.* London: Routledge.

Goodman, E. B. (1989). *Small Firms and Industrial Districts in Italy.* London: Routledge.

Honjo and Harada, Nobuyuki. (2006). SME Policy, Financial Structure and Firm Growth: Evidence From Japan. *Small Business Economics* , pp. 289–300.

Hollenstein, H. (2005). Determinants of International Activities: Are SMEs Different? *Small Business Economics*, pp. 431–450.

Hoselitz, B. (1959). Small Industry in Underdeveloped Countries. *The Journal of Economic History*, 19: 600–618.

Hubner, W. (2000). SME Development in Countries of Central Asia (Kazakhstan, Kyrgyzstan and Uzbekistan): Constraints, Cultural Aspects and Role of International Assistance. *Support to the Private Sector and Industrial Partnership Development.* Vienna: UNIDO.

IFC, World Bank group. (2009). *Business Environment in Uzbekistan as Seen by Private Enterprises.* Tashkent: International Finance Corporation.

Kanamori, T., Jerome Lim, J. and Yang, T. (2007). China's SME Development Strategies in the Context of a National Innovation System. *ADBI Discussion Paper No. 55.*

Kaplinsky, R. (1994). *From Mass Production to Flexible Specialization: A Case Study of Microeconomic Change in a Semi-industrialized Economy.* Washington D.C.: World Development.

Levy, B. (1993). Obstacles to Developing Indigenous Small and Mediu Enterprises: An

Empirical Assesstment. *the World Bank ecoonomic review , vol 7 (1)* , pp. 65-83.

Mateev, M. and Anastasov, Y. (2010). Determinants of Small and Medium Sized Fast growing Enterprises in Central and Eastern Europe: A Panel Data Analysis.

Meghana Ayyagari, T. B.-K. (2007). Small and Medium Enterprises Across the Globe. *Small Business Economics* , pp. 29:415–434.

Panandiker, P. D. (1996). Status of SMEs in Terms of Their Competitive Strenth. *International Conference on Small and Medium Enterprises.* New Delhi.

Parker, W. N. (1979). *Industry* (Vol. XIII). (c. v. In: Burke P (ed) The new Cambridge modern history, Ed.) Cambridge: Cambridge University Press.

Pasadilla, G. (2010). Financial Crisis, Trade Finance, and SMEs: Case of Central Asia. *ADBI Working Paper Series 187*.

Tambunan, T. (2006). Micro, Small and Medium Enterprises and Economic Growth. *Working Paper series no. 14 Center for Industry and SME Studies, Faculty of Economics, University of Trisakti*.

Tambunan, T. (2009). *SMEs in Asian Developing Countries.* Great Britain: Palgrave and Macmillan.

Teraoka, H. (2003). *An Introduction to the History of SMEs and Public Policy for SME Development in Japan.* Osaka: 3-ed, JICA.

Thorsten Beck, Demirgüç-Kunt. (2005, March). SMEs, Growth, and Poverty. *NBER working paper series*.

Thorsten Beck, Demirgüç-Kunt, María Soledad Martínez Pería. (2008). Bank Financing for SMEs around the World: Drivers, Obstacles, Business Models, and Lending Practices. *World Bank Policy Research Working Paper*.

Toshiki Kanamori, J. (2007). China's SME Development Strategies in the Context of a National Innovation System. *ADBI Discussion Paper No. 55.*

Tulus, T. (2009). *SMEs in Asian Developing Countries.* Great Britain: Palgrave and Macmillan.

Uchikawa, S. (2009, October). Small and Medium Enterprises in Japan: Surviving the Long-Term Recession. *ADBI Working Paper Series 169*.

Udell, Allen N. Berger and Gregory F. (2004). A More Complete Conceptual Framework for SME Finance. *Small and Medium Enterprises: Overcoming Growth Constraints.* Washington: World Bank conference.

Vaart, Tom Gibson and H. J. van der. (2008, September). Retrieved 07 14, 2011, from Brookings: http://www.brookings.edu/papers/2008/09_development_gibson.aspx

Wagenvoort, R. (2003 Volume 7 N° 2). Are Finance Constraints Hindering the Growth of SMEs

in Europe? *EIB papers*.

World Bank group, (2009). *Business Environment in Uzbekistan as Seen by Private Enterprises*. Tashkent: International Finance Corporation.

Xiangfeng, L. (2007). SME Development in China: A Policy Perspective on SME Industrial Clustering. *Busiiness Economy 7* , pp. 37–62.