SMES GROWTH IN THE CZECH REPUBLIC: SOME MACROECONOMIC PERSPECTIVES

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Abstract

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Small and medium enterprises (SMEs) are seen as a vehicle for employment generation, wealth creation, economic growth and development in countries that have a sound investment climate. SMEs, account for approximately one-third of GDP, over 50% of the value added, 99% of the share of total registered enterprises, and represent 60% of total employment in the Czech Republic. In the light of this background, the paper explores the influence of some macroeconomic variables on SMEs growth in the Czech Republic for the period 1995–2013. In order to assess the impacts of these critical macroeconomic variables (e.g., rate of unemployment, economic growth, credit provided by the financial sector) on SMEs growth, we employed an econometric technique. Our findings suggest a concave relationship between unemployment and SMEs growth in the Czech Republic. More precisely, it signifies that beyond a turning point, unemployment is likely to slow down SMEs growth in the country. Our results further hint at a positive relationship between economic growth and SMEs growth. However, our empirical estimates showed an insignificant relationship between domestic credit provided by the financial sector and SMEs growth in the country. The government of the Czech Republic should continue to provide an enabling investment climate and support for bolstering a sustainable SMEs development within the country. Similar to the extant literature, we have also implored the Czech government to do more with regard to the provision of easier access and affordable credits/loans to SMEs. We have also called for the reduction of bureaucratic bottlenecks that might have to do with SMEs legislations in the country.

Keywords: SMEs growth, unemployment, economic growth, finance, enterprises

INTRODUCTION

Recent studies have proven that small and medium enterprises (SMEs) are vehicles for job creation, economic growth and development in both developed and developing countries (Yusuf and Dansu, 2013; Walczak and Voss, 2013; Ardic, Mylenko and Saltane, 2012; European Commission, 2010; Ayyagari, Beck and Demirguc-Kunt, 2007). SMEs represent the majority of all the enterprises within the global economy are seen as the main driving force of entrepreneurship development. SMEs account for over 90% and 60% of the share of total number businesses and employment in advanced economies (OECD, 2013). However, the development of these enterprises will only be possible if there is a favourable internal and external environment for them to flourish.

SMEs roles in the Czech Republic, Central, and Eastern Europe could be traced to the result of a long history of economic growth and industrialization since the 20th century. Arguably, it was not until 1989, that SMEs development in modern-day Czech Republic begun to take centre stage as an important driver of the country's market competitiveness amid an increasingly financialized world economy. Since then, the Czech economic system has changed

from a centrally planned economy to a pluralistic market-driven economy. Consequently, SMEs were reinvented as microeconomic entities, after the restructuring, reforming and later privatizing the state-owned enterprises (Beran and Frková, 2003).

Data available from the Czech Statistical Office (2014) and the Ministry of Industry and Trade (2012), show that SMEs account for approximately one-third of GDP and over 50% of the value added. In addition, SMEs represent 60% of total employment, and also account for 99.8% of all registered enterprises in the Czech Republic. SMEs significantly contributed the country's GDP during economic upswings. It thus confirmed that SMEs is an integral part of the Czech economy, thus policy makers should pay serious attention to its development given the crucial roles it plays within the economy.

Despite the importance of these enterprises, their growth and development in the country appears to be below expectations. According to some studies, financial needs (Beran and Frková, 2003; OECD, 2013; Ardic, Mylenko and Saltane, 2012), government administrative bottlenecks, lending interest rate, innovation and competitiveness (OECD, 2010; Tabas, Beranová and Martinovičová, 2012), household and government spending (Muller *et al.*, 2014), integration into the European affairs and increasing internationalization (OECD, 2010; Clifton, Gärtner and Rehfeld 2011; Procházková and Kubíčkova, 2012; Dasan, 2013; Kubíčková and Procházková, 2014; Muller *et al.*, 2014; Zapletalová, 2014; Verter and Osakwe, 2015), among others, are the significant external environmental factors that are either contributing to or militating SMEs growth in the Czech Republic.

Some Empirical Evidence

Some researchers (Wennekers, van Stel, Thurik and Reynolds, 2005; Van Stel, Thurik and Reynolds, 2005; Van Stel, Storey and Thurik, 2007; Van Stel *et al.*, 2010; Mukorera and Mahadea, 2014) find the cause and effect relationship between economic growth and entrepreneurship performance in countries across the globe. However, entrepreneurship is too broad in the present study. Given that the interest in the study of SMEs is globally recognized, we have decided to narrow our research on the effects of some selected critical macroeconomic indicators like economic growth (GDP), unemployment, and domestic credit (by the financial sector) on SMEs growth. Ahmad (2012) investigates the main constraints to SMEs growth in the Kingdom of Saudi Arabia. The results indicate that the difficulties, in accessing finance, bureaucratic bottlenecks, as well as the unfriendly business environment, are the major constraints to SMEs performance in the country. Similarly, Jasra *et al.* (2011) find a robust positive relationship between SMEs performance and the money supply, entrepreneurs' skills, and business plan in Pakistan. In the same direction,

Mukorera and Mahadea (2014) analyze the structural link between micro and small-scale enterprises (MSEs) growth and some macroeconomic indicators in Zimbabwe. Using a Vector Error Correction Model (VECM), their findings suggest that unemployment, inflation, money supply and real GDP have an influence on MSEs growth in the country. Plehn-Dujowich and Grove (2012) find that the unemployment rate, economic growth, and the growth of entrepreneurship are interrelated. Their findings suggest that the unemployment rate causes entrepreneurship to grow. On the other hand, entrepreneurship influence economic growth and vice versa. Similarly, Thurik *et al.* (2008) stress that enterprises, unemployment, and economic growth are interwoven. Thurik (1999) establishes that there is an inverse relationship between the rate of unemployment and enterprise growth. Evans and Leighton (1990) reveal a positive connection between unemployment and the growth of new enterprises, whereas Fritsch and Mueller (2004) and Bekeris (2012) find a negative relationship between unemployment and business growth.

In the Czech Republic, Dasan (2013) finds a positive relationship between internationalization and SMEs performance in the Czech Republic and Russia. Dasan argues that these enterprises transfer best practices developed globally to their overall business. In addition, they are most likely to be more ambitious than domestic SMEs. Similarly, Muller *et al.* (2014) find that household and government spending have a positive influence on SMEs growth in the European Union member states, Czech Republic included. Similarly, Mateev and Anastasov (2010) find that firm-specific characteristics such as current liquidity, internally generated funds, leverage, factors of production, future growth opportunities are important drivers of firms' growth and performance. More so, a recent study reveals a positive association between innovation and financial performance of SMEs in the Czech Republic (see Tabas, Beranová and Martinovičová, 2012). In short, Tabas *et al.* (2012) stress that innovation is essential for SMEs performance since it is a strategic lever upon which firms can improve on their existing competencies, and in turn their overall competitiveness in the present era of globalization.

Studies on SMEs are based mostly on internal environmental factors, empirical research on the effects of social and macroeconomic factors on SMEs growth in the Czech Republic appears to be scanty. Thus, this study bridges this gap. Therefore, the present study focuses on analyzing the relative impacts of some critical macroeconomic indicators such as economic growth, rate of unemployment and domestic credit provided by the financial sector on SMEs growth in the Czech Republic. Also, in the study, we have attempted to provide policy makers and/or other stakeholders with some measures that can be taken to enhance the overall

brand competitiveness of Czech SMEs relative to sustainable SMEs growth in the country.

The rest of the work is organized as follows: Section 2 presents the definition and the development of SMEs in the Czech Republic. Section 3 presents the materials and methods; Section 4 presents results and discussion. Finally, section 5 concludes the study with policy recommendations, limitation and suggestions for future research.

Definition and Development of SMEs in the Czech Republic

Tab. I presents the current definition of SMEs, which was proposed by the European Commission (2005), adopted by the European Union Member States (Czech Republic included) and entered into force in 2005. Micro enterprises are enterprises that employ less than ten employees and whose annual turnover does not exceed 2 million euros.

Small businesses are enterprises that employ less than 50 employees and whose annual turnover does not exceed 10 million euros. Medium sized are enterprises that employ less than 250 employees and whose annual turnover does not exceed 50 million euros or whose annual total balance sheet does not exceed 43 million euros (Tab. I).

Statistical data available from the Czech Statistical Office (2014) as shown in Tab. II, the total of registered SMEs in both individual and legal entities (employing 0–249) in the Czech Republic has steadily increased from 1,077,844 in 2009 to 1,124,910 in 2013. The share of SMEs in the total number of active enterprises in the country in 2013 was 99.83%. Looking at the growth of SMEs and its share of the total companies in the Czech Republic, one cannot ignore its importance to the economy of the country. Even though the number of legal entities employing 0–249 has increased, collectively, in comparison with 2012, individual and legal

I: *Definition of SMEs by the European Commission*

Enterprise size	Employees	Annual turnover	Annual balance sheet total
Large	≥ 250	≥ €50 million	≥ €43 million
Medium-sized	< 250	≤ €50 million (in 1996 €40 million)	≤ €43 million (in 1996 € 27 million)
Small	< 50	≤ €10 million (in 1996 € 7 million)	≤ €10 million (in 1996 €5 million)
Micro	< 10	≤ €2 million (previously not defined)	≤ €2 million (previously not defined)

Source: European Commission

II: *Czech Republic: Trends of SMEs development, 2009–2013*

Year	Total SMEs	SMEs-Legal entities	SMEs- Individuals	Total enterprises	SMEs (% of total enterprises)
2009	1,077,844	238,271	839,573	1,079,668	99.83
2010	1,106,908	256,876	850,032	1,108,736	99.84
2011	1,137,439	272,204	865,235	1,139,267	99.84
2012	1,143,218	228,564	914,654	1,144,943	99.85
2013	1,124,910	255,631	869,279	1,126,880	99.83

Source: Czech Statistical Office, 2014; Ministry of Industry and Trade, 2012

III: *Czech Republic: SME and entrepreneur scoreboard, 2009–2013*

Indicator	Unit	2009	2010	2011	2012	2013
Employees, SMEs	Number, thousand	1,893	1,833	1,820	1,875	1,782
Employees, SMEs	% of total enterprises	61.1	60.6	59.9	61.7	60.0
Employees, total enterp	Number, thousand	3,096	3,026	3,038	3,037	2,972
Performance, SMEs	CZK million	3,902,932	4,103,537	4,151,379	4,218,203	4,314,975
Performance, SMEs	% of total enterprises	52.8	51.7	49.7	50.0	51.3
Performance, total enterp,	CZK million	7,396,822	7,930,365	8,359,308	8,435,390	8,403,087
Business loans, SMEs	CZK million	13,833	11,788	12,210		
Business loans, SMEs	% of total business loans	18.8	17	18.1		
Business loans, total million	CZK million	73,772	69,543	67,447		
Interest rate to SMEs	%	4.46	4.08	3.83		
Interest rate large firms	%	3.72	3.47	2.86		
Bankruptcies, total	Number	1,691	1,984	2,168		
Bankruptcies, total	Yearly growth rate, %	157	17.3	14.3		

Source: Czech Statistical Office, 2014; Ministry of Industry and Trade, 2012

entities declined by 18,308 enterprises. As shown in Tab. III, this decrease is partly attributed to lack of financing, inability to compete favourably with the already well established enterprises, and the recent economic meltdown in Europe and other parts of the world that led to bankruptcies of some companies. Some of these enterprises winded up a few years after going to the market.

The importance of finance to SMEs is now widely recognised. Access to finance in forms of credit and loans could provide development opportunities for businesses and the economy, in general. On the other hand, lack of access to finance caused job creation and investment in SMEs to decrease even during the supposed recovery period in the Czech Republic (OECD, 2013). As shown in Tab. III, the SME loans declined between 2009 and 2010 but rose in 2011. The lending interest rate is another factor for SMEs development. Many businesses, especially micro and small enterprises, may not borrow much when the interest rate is high even if there is money supply expansion in the form of credit and loans.

As presented in Tab. III, in all the years, the interest rate for SMEs was higher than larger firms. Dietrich (2010) states unequivocally that the lack of negotiating power of SMEs especially micro and small enterprises, has significant power in explaining differences in lending rates to large companies and small businesses. Similarly, Lacina and Vavřina (2013) argue that SMEs are more likely to face higher costs for bank credits or loans and higher rejection rates than larger firms. The total number of employees in SMEs decreased between 2009 and 2013. More so, the decline in 2013 as compared to 2012 was about 93 thousand (4.96%) of total 1,782 thousand employees. The share of SMEs employees on the total enterprises in the Czech Republic in 2013 was also slightly decreased from 61.7% in 2012 to 60% in 2013, representing a decrease by 1.8% (see Tab. III). The decrease is partly attributed to the technological advancement of the country that has paved ways for many enterprises to substitute labour for capital inputs. Tab. III also shows that in 2013, SMEs performance or turnover was 4,315 billion CZK, which is compared to 2012, an increase of 97 billion CZK (2.3%). More so, the share of SMEs in a total of enterprises' performance in 2013 was 51.3%. Arguably, the importance of SMEs to Czech economy cannot be overemphasised.

MATERIALS AND METHODS

The study employed mainly secondary data such as books, journal articles, and statistical reports. Annual statistical data for the analysis were obtained from the Czech Ministry of Industry and Trade (MIT), and Czech Statistical Office (CSO).

In this work, we have used an econometric technique. In an attempt to test the relationship(s) that may exist among the selected variables of interest, a simple, ordinary least squares (OLS) method (see equation 1) was used. For the purpose of stabilizing the variance that may exist in the time-series data, all the variables were transformed into the natural logarithms form.

$$\ln SMEgrow_t = \alpha_0 + \ln ECOgrow_t + \ln UNEMP_t + \\ + \ln UNEMP_t{}^\wedge 2 + \ln DomCrFINSec_t + \mu_t, \tag{1}$$

where
SMEgrow indicates SMEs growth, and it is captured by the number of SMEs; ECOgrow shows economic growth (proxied by GDP); UNEMP is the rate of unemployment while UNEMP^2 indicates the quadratic term of the unemployment rate; DomCrFINSec stands for the domestic credit provided by the financial sector (% of GDP); and u_t captures the error term (or residuals). Tab. IV shows our prior signs for the variables in the model.

RESULTS AND DISCUSSION

Owing to the short-span of the available time-series data (1995–2013), we assume all the variables to share a stochastic trend. For this reason, to guide against the pitfall of spurious regression result, we opted to subject the residuals of the initial OLS estimates to robust econometric checklist (see Tab. VI). Specifically, our approach is grounded in one of the seminal works of cointegration technique, popularly referred to as the two-step process of Engle-Granger cointegration method (see Engle and Granger, 1987). Having obtained the residuals from the OLS estimate, we used the Augmented Dickey-Fuller test for unit root (see Tab. V).

Tab. VI presents results of the diagnostic tests. The findings of the tests appear to fulfil the prior econometric classical test as all the P. values of the diagnostic tests in Tab. VI are greater than 5% level. The results of the tests further hint that the variables in the model do not suffer from

IV: *Brief description of the variables in the model*

Variable	Name	Description of the variable	Prior signs
SMEs	SMEgrow	SMEs are the total annual number of registered micro, small and medium enterprises (employing 0–149) in the Czech Republic	
Unemployment rate	UNEMP	Unemployment rate is derived from the share of the unemployed in total labour force.	+/–
Domestic credit	DomCrFinSec	Domestic credit provided by the financial sector of the economy such as monetary authorities and deposit money banks.	+
GDP	Ecogrow	Indicates economic growth in the country	+

V: *Unit Root Test for Residuals derived from OLS estimate*

Augmented Dickey-Fuller test for residuals using one lag	
Test with Constant	**Test with Constant and Trend**
Test Statistic (t-value): –4.4395*	Test Statistic (t-value): –5.2201*
Asymptotic p-value: 0.0001	Asymptotic p-value: 6.567e-005

Note: We have information criterion (AIC) to determine the order of the lag length of the error term prior to the ADF test. The asterisk (*) indicates significance alpha level at 1%

VI: *Model robustness checklist*

Test Type	Test Statistic [p-value]
Normality (Jarque-Bera)	3.916 [0.141]
Normality (Doornik-Hansen)	4.900 [0.086]
Autocorrelation (Durbin-Watson)	2.092
First-order Autocorrelation (Breusch-Godfrey)	0.140 [0.714]
First-order Autocorrelation (Ljung-Box Q')	0.189 [0.664]
ARCH of order 1 (LM)	0.0023 [0.962]
Heteroskedasticity (White's)	17.548 [0.175]
Robust-variant Heteroskedasticity	7.502 [0.112]
Parameter Stability (CUSUMSQ)	[0.810]

VII: *OLS results, using observations (1995–2013)*

Dependent variable: lnSMEs				
Variable	**Coefficient**	**Std. Error**	**t-ratio**	**p-value**
Constant	–13.117	3.785	–3.465	0.004***
lnUNEMP	16.859	5.496	3.067	0.008***
lnECOgrow	1.0496	0.294	3.57	0.003***
sq_LnUNEMP	–4.44	1.544	–2.876	0.012**
lnDomCrFINSec	–0.553	0.421	–1.314	0.210
Sum squared resid	1.05	S.E. of regression	0.274	
R-squared	0.882	Adjusted R^2	0.848	
F(4, 14)	26.078	P-value(F)	2.33E-06	

Note: ** indicates statistically significant at the 5% level; *** indicates statistically significant at the 1% level

heteroskedasticity. Therefore, we can further argue that the econometric model is correctly specified. For more about the model's robustness, we refer you to Tab. VI. Given that the classical assumptions of the regression model have been deemed to be fulfilled, we now turn our attention to the estimated parameters of the econometric model (see Tab. VII).

As presented in Tab.VII, the results hint at a positive relationship between economic growth (ECOgrow) and SMEs growth, statistically significant at the 0.01 level. All things being equal, a 1% increase in economic growth may stimulate SMEs growth by 1.05%. This result is in line with the works of Plehn-Dujowich and Grove (2012); Muller *et al.* (2014); Mukorera and Mahadea (2014) who also find a positive relationship between economic and SMEs growth. However, even though there is an inverse relationship between domestic credits provided by the financial sector (DomCrFINSec) and SMEs growth in the Czech Republic, it is statistically insignificant.

Although it was not our main interest in the study to uncover if there is a substantial direct/linear relationship between the rate of unemployment (UNEMP) and SMEs growth in the Czech Republic. Nevertheless, we report the findings since this will come handy when looking at the results of the non-linearity between the two variables (i.e. UNEMP and SMEs growth). Our initial result implies that UNEMP is positively related to SMEs growth at the 0.01 level. The result is similar to the findings of scholars who have established that necessity-driven form of entrepreneurship is most likely spurred by unemployment (e.g., see Evans and Leighton, 1990; Plehn-Dujowich and Grove, 2012). This initial result, however, contradicts the findings of Thurik (1999), Fritsch and Mueller (2004), and Bekeris (2012), among others. Based on these mixed findings, we now show that the relationship between the rate of unemployment and SMEs growth may not after all be linear as widely posited in the extant literature, albeit in the Czech context. With regard to the estimated parameter of the squared UNEMP,
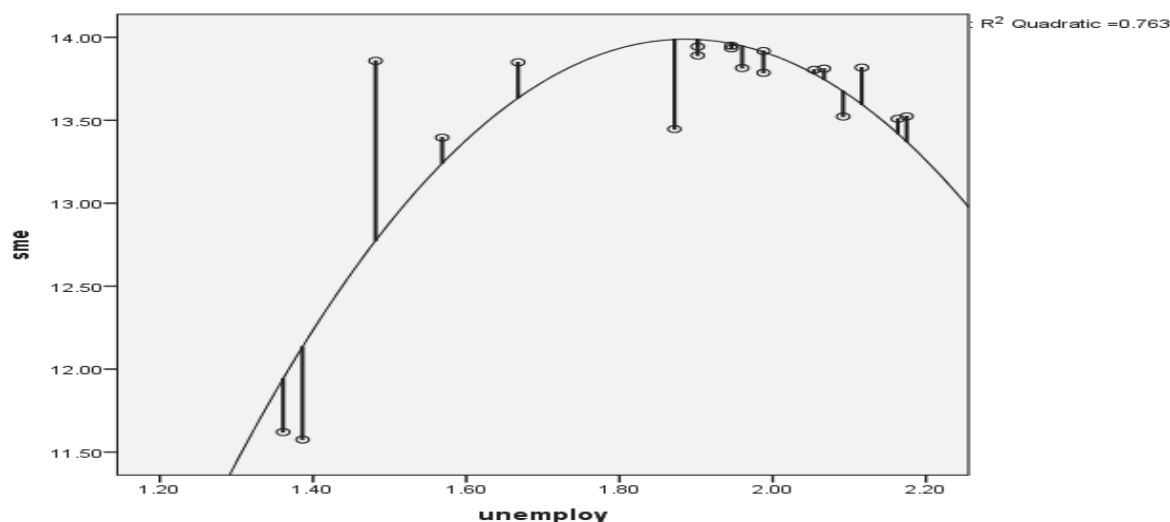
1: *Czech Republic: SMEs growth Vs unemployment rate (Non-Linearity)*

that is, sq_LnUNEMP, the result of the research suggests that the rate of unemployment has a non-linear effect on SMEs growth in the Czech context. Stated differently, and in terms of the quadratic term of UNEMP, the finding indicates indicate the possibility of a concave (non-monotonic) relationship between the unemployment rate and SMEs growth. Therefore, implying that beyond a turning point, a further rise in the unemployment rate is likely to slow down SMEs growth in the Czech Republic (see Fig. 1).

Limitations and Future Studies

We would like to point out to the possibilities of other important variables such as the interest rate spread, taxation, trade openness, the inflation rate, and economic freedom indicators that were not captured in our present study. These variables are likely to have an impact on SMEs growth in the Czech Republic. Thus, future studies should incorporate some of these socioeconomic indicators to assess their relative impacts on SMEs growth in the country. More so, given that the findings of this study are still preliminary in nature, our results only demonstrate associations between the selected variables of interest, but not causality. It is highly possible that unemployment does not 'Granger cause' SMEs growth. In the light of the statements above, we encourage other authors in this field to investigate further if indeed there is a causality between unemployment and SMEs growth. In addition, they should also determine if the quadratic term of unemployment has a decreasing return to SMEs growth in similar economies. The key question would be what particular threshold value is unemployment seemed to slow down SMEs growth in the Czech Republic and similar economies? We invite scholars, pundits and public policy makers to address this important question in the Czech context and/or other EU countries that may be facing a similar trend. We have also not completely ruled out the possibility of a spurious outcome given the limited time series of the study. But for sure, this result warrants further investigation and/or scholarly debate in the literature.

CONCLUSION

Small and medium enterprises (SMEs) are widely seen as a vehicle for economic growth in countries that are poised to develop and remain globally competitive in the current era of economic globalization. Undoubtedly, there is a good investment climate in the Czech Republic as compared to the formal Soviet Union and Eastern European countries. Even though, SMEs growth in the country is below expectation, these enterprises account for one-third of GDP and represent 60% of total employment in the country in 2013. Against this background, the study addresses some of the drivers and/or challenges of SMEs growth in the Czech Republic from the theoretical standpoint of macroeconomics. We have employed an econometric technique in order to assess the effects of the selected critical macroeconomic variables (i.e., economic growth, rate of unemployment, domestic credit provided by the financial sector) on SMEs growth. Our results indicate a concave relationship between unemployment and SMEs growth in the Czech Republic. More precisely, it suggests that beyond a turning point, unemployment is likely to slow down SMEs growth in the country. Moreover, consistent with the literature, our data suggest that economic growth has a substantial impact on SMEs growth. However, our empirical results show an insignificant relationship between domestic credit provided by the financial sector and SMEs growth in the country. Nevertheless, this contribution provides unique insights that may be a reference point for subsequent research in this area.

The government of the Czech Republic should continue to provide an enabling investment climate and support for bolstering a sustainable SMEs growth and development. For instance, the government should provide easier access and affordable credits and loans to SMEs and reduce bureaucratic bottlenecks. We also hope that with more commitments on the part of the Czech government in providing various kinds of support for the different business/industry clusters across the regions in the country, it will go a long way in having a catalytic effect on the competitiveness of Czech SMEs' brands and importantly drive sustainable growth further within the Czech SMEs ecosystem. It is on this note that we conclude our paper and we hope that it will further stimulate discourse and/or debate in the literature, especially with the finding on the relationship between rate of unemployment and SMEs growth.

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