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JEL Classificiation M13, M21, L25, L26
Preliminary statement

GIBRAT'S LAW AND JOVANOVIC'S LEARNING THEORY: AN EMPIRICAL TEST FOR SMALL FIRMS IN A POST-CONFLICT ECONOMIC SETTING

This article tests the validity of Gibrat's Law and Jovanovic's learning theory for growing small and medium-sized firms (SMEs) in post-conflict economy of Kosovo. Despite evolving body of evidence suggesting that Gibrat's Law does not hold, there is a lack of empirical evidence from transitional and post-conflict economies. This study provides econometric analysis of the relationship of age, size and growth of SMEs. The article is based on pooled SME surveys conducted by Riinvest Institute (2004- 2006). Econometric findings show that Gibrat's Law does not hold in all model specifications while support the conventional Jovanovic's learning theory based on growth-size-age model suggesting important policy implications for promotion of small firms in Kosovo.

Key words: size, age, Gibrat's Law, Jovanovic's learning theory, growth, SMEs, Kosovo

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The paper was received on September 27th, 2017. It was accepted for publication on February 13th, 2018.

1. Introduction

A number of studies have focused on the relationship between the firm growth and firm size and age. The debate on what constitutes small and young firm growth is still ongoing, particularly for developing and transition countries (Almsafir et al. 2015; Peric and Vitezic, 2016; Santarelli & Tran, 2017; Kravchenko et al. 2017). The central focus of the researchers and policymakers was to address the question "what determines the growth of SMEs?" Their interest steamed from the recent empirical evidence that small firms grow faster than larger firms. If small firms grow faster than larger firms, then, it can have very important implications for policy efforts to address the unemployment. This is a very important issue to be addressed in transition countries where unemployment is one of the main challenges, especially in Kosovo where unemployment is estimated to be around 45% (Krasniqi, 2012a). Kosovo is the latest country in the region to embark on the transition process in order to establish a market economy. In this context, SMEs can play an essential role in this transition path to a market economy. Hence, designing policies oriented toward creating a business-friendly environment, especially aimed at growth-oriented small businesses with higher potential to employment generation and growth is now crucial.

In search for solutions to generate jobs and economic growth, several authors have argued that policy efforts should focus on encouraging the formation and growth of high quality and high growth companies with higher ability to generate jobs for others (Shane, 2009; Krasniqi and Desai, 2016; Krasniqi and Desai 2017; Fiala 2017). This is confirmed by recent evidence on EU-15 which show that expenditures on employment incentives have a positive impact on employment growth for firms of all sizes, but this impact is significantly reduced for smaller firms, suggesting that employment incentive programs are less effective for small firms (Román et al. 2017). These arguments have direct implications for various intervention programs for supporting small firms.

In this vein, this article reviews main theories of small firm growth using Gibrat's Law as a departure point to develop discussion about the determinants of SME growth. It explores e whether the growth pattern of small firms differs from that of larger ones by testing Gibrat's Law i.e. relationship of age-size and growth of the firm. There is lack of studies testing Gibrat's Law in post-conflict economies. For example, Bernner et al. (2015) suggest that there is ample evidence on Gibrat's Law been applied in developed countries, but there is lack of research on Gibrat's Law in the developing countries.

This paper contributes to the transition literature by filling an important gap in understanding small firm growth in the unique post-conflict economy of Kosovo – doing an empirical test of Gibrat's Law. Furthermore, the purpose of this study is

to analyse the role of SMEs in creating jobs in post-conflict economy of Kosovo, and in helping to reduce the unemployment rate by examining the role of firm size on the growth for small firm, using employment growth as the firm growth measurement. Furthermore, finding the role of small firms the study assists policy makers and other international donor organizations concerned with development of entrepreneurship and small firms.

The econometric analysis in this article showed a statistically significant and non-linear relationship of size and age with growth of the firm refuting validity of Gibrat's Law and supporting Jovanovic's learning theory. That is, smaller and younger firms grow faster than larger and older ones.

This paper is organized as follows. Section 1 provides a literature review on theories and empirics of small business growth. In particular it is focuses on the Gibrat's Law and Jovanovic learning theory. Section 2 describes the data set used in this paper. In section 3 we derive an econometric model which will test empirically Gibrat's Law validity. Finally, section 4 provides some conclusions and policy recommendations.

2. Gibrat's Law and Jovanovic's learning theory

Until recently, research interest was focused on differences of rates of growth among small and large firms. This enabled economists to analyze the relationship between the size of a firm and its growth rate. The research efforts to explain patterns of growth of small and large firms are summarized in Gibrat's Law or the 'Law of Proportionate Effect' literature (put forward in 1931 by Robert Gibrat). This Law which maintains that a firm's growth is independent of its size has remained a major issue in the theoretical and empirical literature until today (Heshemati, 2001; Pereira and Temouri, 2018). Following Singh and Whittington (1975) and Reid (1993) Gibrat's Law can be expressed by following equation:

$$\frac{S_{it}}{S_{i,t-1}} = \varepsilon_{it} \tag{1}$$

where the size of firm i at time t is denoted by S_{it}, and ε_{it} is a random variable distributed independently of size in previous period $S_{i,\,t\text{-}1.}$ Singh and Whittington (1975) argue that the Gibrat's Law has some important economic implications. Firstly, it suggests that the growth rate of a firm in the current period does not have an influence on its growth in the subsequent period. This means that the growth rate of the firm is a random phenomenon. Secondly, if the growth of the firm is

independent of its size, then the Law implies that there is no optimum size of the firm. Finally, the Law implies that industrial concentration will grow over time. The Gibrat's Law assumes that factors that have an impact on firm growth, such as growth of demand, managerial capacities, innovation, organizational structure and luck are distributed randomly across firms (Wilson and Morris, 2000). They argue that if the impact of these factors does not persist over time, the growth of the firm in period *t+1* is stochastic, unrelated to growth in period *t*, then in time some firms will be lucky and grow the over subsequent period and become very large while the remaining firms will remain small or even decline.

The main conclusion resulting from the Gibrat's Law is that growth of firms in the same industry is a random phenomenon regardless of whether firms are small or large. The law implies that expected growth should not be affected by any other variable after controlling for the industry because the probability of a particular rate of growth during a certain period of time is the same for all firms in a given industry (Becchetti and Trovato, 2002). This implies that a large set of variables which might affect small firm growth are not taken into consideration as the law assumes that firm growth is a stochastic phenomenon. This argument stimulated a wide range of research work investigating other firm and business environmental determinants of small business growth (Krasniqi et al. 2008; Krasniqi, 2012b; Peric and Vitezic, 2016; Pereira and Temouri, 2018).

However, the majority of studies reviewed in this article show that the law does not hold. There are a number of competing arguments which are explained below. First, firms usually enter the market under the Minimum Efficient Scale (MES) and over time grow to reach it. This explanation is linked to the common knowledge of the U-shaped average cost curve in the short run as most of the new entrants are small firms which operate below their MES. Firms below the MES have the incentive to expand production while larger firms which are above the efficient size will not. The extent to which firms can grow varies across industries and depends to a larger extent on economies of scale within the industry. Acs and Audretsch (2001) argue that in markets with only insignificant scale economies, the likelihood of survival is greater for new entrants but the opportunity to grow in the post-entry period is limited by the extent to which there is a gap between the MES and the actual size of the firm. Additional explanation as to why small firms grow faster than larger firms is grounded on the flexibility of small firms to adapt to the economic and/or industry dynamics which is discussed later in this section. Now we turn to the discussion of the impact of firm age on firm growth.

In his explanation of deviations from the proportional growth, Jovanovic (1982) introduced another approach to firm growth, the so called 'noisy selection' model based on the life cycle learning theory. Based on this model, firms in a small, perfectly competitive industry differ in size because they learn at different

rates about their real efficiency over time (firm age variable). In his famous article published in *Econometrica*, *(*1982, p. 649-650) Jovanovic states:

> 'Efficient firms grow and survive; inefficient firms decline and fail. Firms differ in size not because of the fixity of capital, but because some discover that they are more efficient than others ...for each firm, the mean of its costs may be thought of as the firm's 'true cost'. The distribution of true costs among the potential firms is known to all, but no firm knows what its true cost is. All firms have same prior beliefs, and each firm regards itself as a random draw from the population distribution of true costs. This 'prior' distribution is then updated as evidence comes in'.

In Jovanovic's view, firms are unaware of their real efficiency and consequently they choose their level of output on the basis of their costs in order to maximize their profits. Essentially the model assumes that the new entrants (entrepreneurs) starting a business are more uncertain about their real managerial abilities and the entrepreneurial activity than the incumbents and, moreover, investment becomes risky as the chances for success are unknown. However, firms adjust their decision-making about the level of output based on their true cost once they enter the market as they are expected to learn over time. Firms will learn over time about their real abilities by observing how well they perform in the real business world. Thus, entrepreneurs who have underestimated their abilities in one period will expand production in the next period, while those who overestimate their abilities will reduce the output or fail and even exit the market.

Jovanovic introduced the time element (age) in the discussion of the firms' growth through the entrepreneur's learning process over time. In addition, he also explained how firms reach the point where there is diminishing return to experience and decreasing probability that an aging firm achieves additional gains from learning and experience. Following this reasoning one would expect that younger firms grow faster than older firms, because initially they are not certain about their real cost efficiency. However, over time entrepreneurs will change their behaviour as they learn to separate their 'inherent ability from random business fluctuations' (Audretsch and Acs, 1990). The main shortcoming of Jovanovic's model is that it assumes no technological progress, taking into account only the learning of entrepreneurs and its effect on firm growth (Ericson and Pakes, 1995). Jovanovic's model augmented by the technological progress will be more useful in explaining small firm dynamics, though not sufficient to capture other factors contributing to firm growth. Also, the Jovanovic model implausibly discounts the role of knowledge and experience accumulated prior to the start-up because it holds that the only way to learn about real efficiency is to enter into a business (Cressy, 1999). Actual entrepreneurs may have worked previously as managers in the related business field and can make use of accumulated knowledge and experience in operation of a new firm.

Despite these limitations, Jovanovic's and Gibrat's model are being widely used in explaining the small firm growth pattern. The recent empirical evidence shows that the hypothesis of the independence of growth of the firm and size is contradicted in many studies, using different samples in terms of time, region, sector of activity and size (see Evans, 1987a, 1987b; Reid, 1993; Sutton, 1997; Wagner, 1992; Hart, 2000; Farinas and Moreno, 2000; Yasuda, 2005, Krasniqi, 2007, Hashi and Krasniqi, 2011).

Evans (1987b) examined the relationships between the firm's growth and its size and age in the US manufacturing sector in the period of 1976-82 and found that growth is a decreasing function of the firm size and age - in line with Jovanovic's model. Dunne and Hughes (1994) provided evidence from UK quoted and unquoted companies in financial and non-financial sectors for the period of 1975-85. Their findings suggest that smaller firms grow faster than larger ones and that Gibrat's Law does not hold. Also, the age of the company was negatively correlated to the growth of the firm which is consistent with the learning theory approach.

A study by Harhoff et al. (1998) analyzing a large data set of around 11,000 firms in manufacturing, trade, services, and construction in former West Germany contradicts the Law of Proportionate Effect. Almus and Nerlinger (2000) in their analysis of 39,355 start-ups in the manufacturing sector in Germany, show that the Gibrat Law is rejected for a group of young firms belonging to both technology intensive and less technology intensive industries suggesting that small firms have greater growth potential than larger ones. Also, Audretsch et al. (1999) using a large longitudinal data of Italian manufacturing firms rejects the law. Hart and Oulton (1996) conducted a study covering 30,000 enterprises in the United Kingdom for the period of 1989-93 and supported the hypothesis that smaller firms grow faster than larger firms. Harabi (2003) too, found similar results for a sample of 370 enterprises from Morocco, supporting the view that size and age are negatively linked to the growth of the firm, contradicting Gibrat's law. Similar results are reported by Bartlett and Bukvič (2001) in their study of 167 SMEs in Slovenia indicating a negative relationship between size and age of the enterprise and its growth. McPherson (1996) too in the study of micro and small firms in Southern Africa found an inverse relationship between age, size and growth of the firm. Weiss (1998) in the study of the Austrian farm sector and Davidsson et al. (2002) for the Swedish small firms show that size and age matters and have a negative influence on the growth of the firm. Recently, Park et al. (2010) analyzing panel data of 7,889 Korean manufacturing firms during 1994-2003 provides evidence that both firm size and age have a significant negative effect on firm growth.

However, there are other studies which either fully or partially support the Law of Proportionate Effect (Hall, 1987; Das, 1995; Lotti et al., 2003; Piergiovanni et al., 2002; Diaz-Hermelo and Vassolo, 2007; Serrasqueiro and Nunes, 2008). For example, Hall (1987) analyzed a sample of large firms in the manufacturing sector

and could not reject Gibrat's Law. In a study of firms in the service sector, Johnson et al. (1999) showed that size was significant only after the variable was entered in squared form, suggesting a nonlinear relationship between the size and the growth of the firm. However, both of these studies were biased towards one particular sector: the first one in manufacturing and the second in services. In particular, the findings from manufacturing should be treated with caution as sunk costs in this sector are very high and small firms might be underrepresented compared to larger firms. Another important point to consider is that in the manufacturing sector there is more room for exploiting economies of scale.

In summary, the bulk of the literature reviewed above reject Gibrat's Law while support Jovanovic's learning theory, leading to some important implications for economic theory and policy-makers concerned with growth of the small firm sector. If small firms are able to achieve higher growth rates than larger firms, then promotion policies for small firms would have positive effects on the labour market (Wagner, 1992). Thus, the policy making efforts in combating unemployment (and poverty in developing countries) and stimulating income generation should be shifted to the promotion (subsidies for example) of firms which grow faster (small firms) as those will contribute more to employment generation.

3. Data

Sample. In this paper, the relationship among the firm growth rate, firm size, and firm age in the SME sector in Kosovo is analyzed using the SME survey data conducted by Riinvest Institute. Data were collected through the survey of 600 SMEs in Kosovo by the end of each year: 2004, 2005, and 2006. The survey was designed to study profile, trends and various constraints on the development and growth of SMEs. The firms in the sample were drawn randomly from the business register kept at the Statistical Office of Kosovo (SOK). Final sample is limited to 451 growing SMEs in 2004-2006.

The sample includes SMEs across all regions of Kosovo. In addition, all sectors of business activities are covered. The sample is stratified by three main sectors in order to reflect the differences between trade, production, and services. Statistical stratification was done also in terms of size which includes micro enterprises, small enterprises and medium enterprises. All small and medium-sized firms included in the sample are defined in accordance to the EU definition.[1] The

[1] Enterprises that employ less than 250 employees are considered SMEs (OECD and European Commission). Medium enterprises are considered those with 50-249 employees, small enterprises with 10-49 employees and micro enterprises up to 9 employees.

interviews were conducted through the face-to-face method with the key people in each enterprise, mainly general managers. The survey provides data on the number of employees in current and previous year. In addition, records on employment growth for companies and years in the business and the sector of activity are available. These are crucial for testing Gibrat's Law. Although our sample is representative of entire SME sector, our analysis is limited only at explaining size-age-growth relationship amongst 451 firms which reported growth measured by number of employees.

Although the study uses relatively old data the results and hence conclusions are coherent with the current situation of SME development in Kosovo. For example the average age (8.17 years) and size (12.8 employees) of the companies in the dataset remained the same; around 10.2 years, or 13 employees respectively (see BSCK, 2013). This evidence suggests that although our study uses relatively old data, the results and hence conclusions are coherent with the current situation of SME development in Kosovo. Moreover, the results are comparable, and recommendations may be applied to other TEs with similar weak institutional settings. Moreover, the results are comparable, and recommendations may be applied to other TEs with similar features of small firms sector.

Pooled data. The pooled data technique is used to test the model of small firm growth in Kosovo. The pooled data contains information from three independent surveys over the period of 2002-2004. 'Independently pooled cross-sections technique" is obtained by pooling randomly sampled cross-sections at different points in time (Wooldridge, 2006). Data sets used here meets these conditions: surveys were random and independent of each other, using the same questionnaire and identical dependent and independent variables. This pooled dataset is equally reliable in terms of the representation of SMEs and allows for statistical inference about the whole SME sector because of the increased number of observations and other reasons explained below.

From the statistical point of view, the independently pooled cross section data has several important features (Wooldridge, 2006). Firstly, it consists of independently sampled observations, thus, ruling out the correlation between the error terms across different observations. Secondly, it differs from the single random sample because it controls for changes over time by the inclusion of dummy year variables. This can result in more precise estimators and more powerful diagnostic test statistics. Finally, a pooled data technique is widely used to simply increase the number of observations and hence have a bigger sample size and more robust coefficients (Verbek, 2004; Wooldridge, 2006). Another benefit of using pooled data is that by increasing the number of observations, the problem of the correlation of explanatory variables, becomes less severe and increases the degrees of freedom. However, as noted by Wooldridge (2006), the use of pooled data raises a

minor statistical complication because the population might have a different distribution in different time periods.

It is essential to test for the structural stability of the three sub-samples and time periods. Normally, the Chow test is used for this purpose, but here, we will use the 'interaction dummy variable method' - an alternative approach which has numerous advantages over the Chow test (Verbek 2004; Wooldridge, 2006). As suggested by Wooldridge (2006), the stability of the entire regression can be tested by the usual F-test, i.e., whether or not the parameters are simultaneously equal to zero. The regression results show that the hypothesis is not rejected, suggesting that the regression lines are coincidental, i.e. both the intercept and slope coefficients are the same in the three years. Accordingly, it may be concluded that the three cross sections used in this study can be treated as single ones for purposes of econometric analysis.

Growing vs. non-growing firms. It is important for the purpose of empirical estimation of the determinants of SME growth to breakdown the sample into growing and non-growing firms. Equally, or even more importantly these statistics are useful for the design of policy recommendations provided in the last chapter. As argued earlier, the growing SMEs are more important from the policy makers' point of view as these firms account for most of the new jobs and income generation. Table 1 shows that during the period under consideration (2002-04) less than a third of the firms experienced employment growth.

Table 1:

GROWING AND NON-GROWING FIRMS, AS % OF THE SAMPLE

	Non-growing		Growing firms		Total
Years	No. of firms	%	No. of firms	%	
2002	287	69.0	129	31.0	416
2003	419	71.6	166	28.4	585
2004	449	74.2	156	25.8	605
Total	1,155	71.9	451	28.1	1,606

Source: Riinvest SME surveys (various years)

When comparing the share of growing versus non-growing firms across the years in the sample, we note a slightly decreasing trend of the number of growing firms since 2002. This might be attributed to the decrease in the excessive demand for goods and services following the end of the emergency reconstruction phase in

aftermath of the Kosovo War. In this phase, international donations aimed at the reconstruction of Kosovo generated additional demand for goods and services and contributed to the growth of the SME sector (Riinvest, 2004).

4. Model

In this section we specify a model which empirically tests the validity of Gibrat's Law and Jovanovic's learning theory for the sample of growing firms in Kosovo. Following Audretsch et al. (1999) Gibrat's law is formally expressed as:

$$S_{it} = \varepsilon_i, S_{it-1} \tag{1}$$

where S_{it} and $S_{it\text{-}1}$ are the size of *i*th firm in time *t and t-1* and ε_i is the random variable distributed independently of $S_{it\text{-}1}$. In many empirical studies, the test of Gibrat's law includes the variable age as well in order to test the learning theory put forward by Jovanovic (1982). To determine the size S_{it}, we calculated growth rate of firm. The calculation of the growth rate for each firm requires the existence of employment figures (size of firm) at two points in time, t_1 and t_2 (Almus and Nerlinger, 1999). Growth is defined as the annual logarithmic change in employment between the time the enterprise started and the time of the survey. However, in our surveys we have pooled three surveys containing annual data so firm growth is defined as the growth of number of employees during the survey year. In addition to size, we include the variable age A as well. Following previous work of Evans (1987a), the basic empirical model follows a general function G_{it} in size $S_{it\text{-}1}$ and age $A_{it\text{-}1}$.

$$G_{it} = g\left(S_{it-1}, A_{it-1}, \varepsilon_{it}\right) \tag{2}$$

Gibrat's Law and Jovanovic learning theory can be empirically tested using following expression:

$$log\, G_{it} = \alpha + \beta\, log\, S_{it-1} + \gamma\, log\, A_{it-1} + \varepsilon_{it} \tag{3}$$

Gibrat's Law implies that $\beta = 0$, and the learning model (Jovanovic, 1982) implies that $\gamma < 0$. By contrast, if $\beta < 0$ or $\beta > 0$ Gibrat's law is not confirmed because in the first case smaller firms would grow at higher rates compared to larger firms,

while the opposite would hold if second is true. Refereeing to Jovanovic learning theory if $\gamma < 0$, then younger firms would grow faster than their older counterparts.

Utilizing the Riinvest SME dataset described in the previous section we test Gibrat's Law and Jovanovic's learning theory using OLS regression with robust standard errors (Table 2). We use the robust option available in Stata, as our diagnostics show some problem of heteroscedascity and normality. This is because OLS usually "tends to track outliers, fitting them at the expense of the rest of the sample" (Hamilton, 2006, p. 239), especially in the cross-section data. This might also lead to inefficiency of estimators and biased results. The robust regression techniques deals with these problems Therefore we use the robust standard errors technique based on Huber-White sandwich estimates option which does not assume identically distributed errors. Several variants of Gibrat's Law and Jovanovic's learning theory have been tested empirically in Table 1 specifications [1], [2] and [3].

Table 2.

OLS REGRESSION ESTIMATES

	[1] growth_rg		[2] growth_rg		[3] lngrowth_rg	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Age	-0.003***	0.007	-0.008***	0.005		
agesq			0.000**	0.028		
Lnage					-0.032	0.338
Size	-0.002***	0.000	-0.007***	0.000		
sizesq			0.000****	0.000		
lnsize					-0.426***	0.000
Cons	0.404	0.000	0.473	0.000	-0.449	0.000
Model summary						
No observations	451		451		451	
R-squared	0.160		0.280		0.484	

Note: ***significant at 1%; **significant at 5%; * significant at 10%.

The logarithmic form fitted the data best (R-squared of 0.48, compared to 0.28 and 0.16). The logarithm of employment (*lnsize*) at the beginning of each year was used as a proxy for size of the firms. The natural logarithm is used because the non-linear relationship between growth and size of the firm. As firm size increases

the ability and opportunity for a firm to grow decreases because firm gets closer to the minimum efficient scale. Another reason for using logarithms is for purely econometric reason. The sample includes few firms who employ a large number of employees in comparison with other firms in the sample. It was important to keep these few high growing firms in the sample for the purpose of investigating fast growth. Taking logs improved normality distribution and significance of the coefficients.

The age (*lnage*) of the firm indicates the number of years that the firm has been conducting its business. The natural log is used because of its non-linear relationship with growth which produced the best fit. As a firm gets older there is a decreasing return from learning from experience. A priori it is expected that this variable (age) has a negative relationship with growth.

As can be seen from Table 2, variables size and age have the expected statistically significant negative signs. However, the impact of these variables is very small in specifications [1] and [2] of Table 2 where percentage growth rate (*growth_rg*) is used as the dependent variable.

In specification [3], the logarithmic form is used for dependent and independent variables, to test whether the findings are sensitive to nonlinear forms to both dependent and independent variables. Findings show statistically significant impact of age and highly statistically significant and negative impact of size where depended variable is calculated as logarithm of growth (*lngrowth_rg*). Model diagnostics suggest high explanatory power of models suggesting that size and age are amongst the most important variables explaining small firm growth.

To conclude, this econometric exercise showed that the logarithmic form of both age and size as explanatory variables and logarithm of employment growth as a dependent variable provided the best fit to data.

5. Conclusion

The study examined the validity of the Gibrat's law and Jovanovic's learning theory in Kosovo for the small growing firms. Empirical evidence provided in this article showed that Gibrat's Law does not hold for growing small firms in Kosovo. Econometric analysis confirmed the view that smaller firms grow at faster rates than larger firms; thus, firm size and growth rate are not independent in the small firm sector, as predicted by Gibrat's Law. This implies that when small firm expand their current size it needs to increase the number of employees. Thus, small firms are labour intensive.

Additionally, study found that the new firms grow faster than older firms. This finding supports the conventional learning theory which maintains that firms enter the market under minimum efficient scale as they are small in size, thus their ability to exploit economies of scale increases as there is an increasing rate of return form experience. Older firms also grow slower than new firms because overtime time there is diminishing rate of return to experience. Econometric analysis showed a statistically significant and non-linear relationship of size and age with growth of the firm. Our findings are in line with other studies contradicting the hypothesis of the independence of growth of the firm and size and supporting the Jovanovic's learning theory (Bartlett and Bukvič, 2001; Yasuda, 2005; Krasniqi et al. 2008; Krasniqi, 2012b; Peric and Vitezic, 2016; Pereira and Temouri, 2018)

Consequently, small firms are important consideration for the policy makers and international organizations to create employment in Kosovo. Policy packages to support development of small growing firms can be used to combat high unemployment problem faced by the country. The future SME policy agenda of the country should be targeted towards development of growing SMEs in order to stimulate economic growth and reduce high unemployment rate. In the specific context of Kosovo the policy implications are even more important, if we consider that almost entire private sector consists of small firms (Krasniqi, 2007, 2012b).

Limitations and future research

As with any other survey data, the key limitations of our empirical investigation are the qualitative nature of self-reported survey data. This is not a new problem, as the bulk of empirical work at firm level has been subject to this limitation. First, our dependent variable is self-reported rather than an exact figure taken from company accounts. Most of the companies in our sample are not subject to the strict reporting requirement of joint stock companies and, thus, it is not possible to obtain their official accounts. Second, the cross-section data used in this paper lacks the time dimension. Panel estimation would have been preferable because it would give time dynamics of small firm growth. Third, sole proprietorships were excluded because they are less likely to grow because are not growth-oriented (see Bartlett and Bukvič, 2001). Thus, including sole proprietors in the analysis might produce biased results. Second, the dependent variable is employment growth which is biased toward the labour-intensive firms due to non-available data about the capital growth or other measures of growth. Third, conclusions from our dateset are limited also due to survivorship bias (see Bratkowski, et al, 2000). The sample contains an over-representation of the firms that have survived long enough to be interviewed, and not those which have gone bankrupt, or some of the firms

that operate informally. Finally, as mentioned above our sample is no longer representative for whole SME sector as we use only growing firms.

Despite these limitations, of course, these surveys constitute some of the most important sources of information about the growth of SMEs in transition economies and have produced valuable insights into the size-age-growth relationship. It is important for future research to complement this line of research with panel data in order to capture time dynamics. The panel data technique would be more appropriate and would show a difference in the firm level and also time variation. Finally, testing Gibrat's law and Jovanovic's learning theory for different sectors, size cohorts, a type of firms would provide additional insights on firm growth in transition.

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GIBRATOV ZAKON I JOVANOVIĆEVA TEORIJA UČENJA: EMPIRIJSKI TEST ZA MALA PODUZEĆA U POST-KONFLIKTNOM GOSPODARSKOM OKRUŽENJU

Sažetak

Ovaj članak testira validnost Gibratovog zakona i Jovanovićeve teorije učenja za rastuća mala i srednja poduzeća u post-konfliktnom gospodarstvu Kosova. Iako brojna istraživanja sugeriraju kako Gibratov zakon nije prihvaćen, nedostaju empirijska istraživanja iz tranzicijskih i post-konfliktnih ekonomija. Ovo istraživanje pruža ekonometrijsku analizu odnosa starosti, veličine i rasta malih i srednjih poduzeća. Članak se temelji na istraživanju malih i srednjih poduzeća koje je proveo Riinvest institut (2004-2006). Ekonometrijski rezultati ukazuju kako Gibratov zakon nije dokazan, dok je prihvaćena konvencionalna Jovanovićeva teorija učenja temeljena na modelu rast-veličina-starost što rezultira važnim implikacijama za promociju malih poduzeća na Kosovu.

Ključne riječi: veličina, starost, Gibratov zakon, Jovanovićeva teorija učenja, rast, mala i srednja poduzeća, Kosovo