

Taxes and Entrepreneurship in Former Communist Countries

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Abstract. *This paper analyzes the influence of the fiscal framework on entrepreneurship, seeking to quantify the magnitude of this influence. It starts by reviewing the main findings of the literature, showing that, while there is consensus that both tax levels and the bureaucracy that surrounds tax payments have a negative effect on entrepreneurship, there is no unanimity regarding which of the two have a stronger effect. It then continues with an empirical approach, which resides in estimating an OLS regression of two measures of entrepreneurship activity (the number of enterprises that are newly created during one year, and the total number of enterprises that exist in one year in a country) on three fiscal explanatory variables (profit tax levels, labor tax levels, and the time spent to pay taxes), using a panel sample of 27 post-communist countries across a period of 15 years. Empirical results suggest that both tax levels and the bureaucracy that surrounds tax compliance have a negative effect on entrepreneurial activity. The level of the profit tax exerts the strongest negative influence on both the number of newly created enterprises, and the total number of enterprises that exist in a country, while the level of the labor tax exerts a negative, albeit weaker influence, which is significant only for the total number of enterprises. The time spent to pay taxes (expressed as the number of hours per year) returns the lowest coefficient, yet it has a statistically significant negative effect on both the number of newly created and the total number of enterprises.*

Keywords: fiscal framework, tax burden, fiscal compliance costs, determinants of entrepreneurship, former communist countries.

Introduction

Entrepreneurship plays a crucial role for economic, social, and technological development. Small and medium-sized enterprises (SMEs) are the key contributors to job creation, why they also stimulate economic growth by innovating, increasing competition, and fostering high productivity. Successful entrepreneurship can lead to the creation of wealth not only for the entrepreneurs themselves, but also for their employees, investors, and the broader community. It is therefore relevant to study the determinants of entrepreneurship, the factors that support or discourage it. The impact of the fiscal framework (both tax levels and the bureaucracy related to tax compliance) on entrepreneurship is one of the central questions in this respect. Tax-related barriers are perceived as the most burdensome for the success of SMEs and entrepreneurial activity in general (Aristovnik & Obadić, 2015; Ravšelj & Aristovnik, 2018; Ravšelj et al., 2019). This paper aims to investigate to what extent the fiscal framework is hurting entrepreneurial activity, and more specifically what dimension of the fiscal framework has the most negative effect (tax levels *per se*, or the bureaucracy that surrounds tax compliance). We start by reviewing existing literature on this topic, and then we implement an empirical approach that consists in estimating an OLS regression on a panel sample of 27 former communist countries across a period of 15 years (2006-2020).

Literature review

Scientific literature investigates the impact of taxation on entrepreneurship from two main perspectives: on one hand, by looking at the impact of tax levels *per se*, and on the other hand, by analyzing the impact of the bureaucracy that surrounds tax payments on various measures of entrepreneurial activity. In other words, as explained by Ravšelj et al. (2019), the literature divides tax policy barriers into taxation costs and tax compliance costs. Most of the papers look at only one side of the fiscal framework. Among those few papers that look at both sides, there is no consensus on which side has a stronger negative impact on entrepreneurship activity.

A seminal paper that discusses extensively only one side of the fiscal framework, namely the impact of taxation levels, is Djankov et al. (2010). They use survey data for a sample of 85 countries in 2004, and look only at the impact of corporate tax rates *per se*, finding that they have a large and adverse effect on entrepreneurship, as well as on corporate investment and FDIs. Moreover, they also show a negative correlation between corporate tax rates and economic growth, and a positive correlation between corporate tax rates and the size of the informal economy. Da Rin et al. (2011) formulate a reverse research question, namely whether, and to what extent, reducing the level of corporate income tax can foster entrepreneurship. Using a country-industry level panel database for 17 European countries between 1997 and 2004, they show that lowering corporate income taxation can foster entrepreneurship, yet the effect is at work only below a given initial threshold tax level. In the same spirit, Belitski et al. (2016) use a panel of 72 countries in the period 2005–2011 to find that higher tax rates discourage entry (and that corruption often offsets the negative influence of high taxes on entry). Venâncio et al. (2020) also analyze solely the impact of corporate taxation on entrepreneurship, taking advantage of a policy measure that reduced corporate tax rate for start-ups located in certain areas in Portugal. Using difference-in-differences and IV regression, they show that this tax reduction increased firm entry and new firm job creation. Moreover, they show that high corporate tax rates are a constraint in particular for high-quality entrepreneurship. Actually, a subset of papers look at the impact of tax levels on the quality rather than the quantity of firms. For instance, Mukherjee et al. (2017) and Darnihamedani et al. (2018) conclude that increases in corporate tax rates reduce innovation, as they discourage innovative entrepreneurship, whereas income taxes seem to have no relationship. Block (2021) explains that high levels of corporate income taxes are mostly hurting innovative entrepreneurship, as they are perceived as reducing the “prize” for successful innovation.

Yet Block (2021) also argues that besides tax levels, the high complexity of tax legislation can hinder entrepreneurial activity. This leads us to a second strand of literature, which analyzes both the impact of tax levels and tax compliance costs on entrepreneurship. One of the few papers that assesses both dimensions is Ravšelj et al. (2019), who apply hierarchical cluster analysis on a sample of EU countries and provide evidence that the administrative burden of the fiscal system has a more prominent impact than tax burden itself, for entrepreneurship activity in EU countries (measured as new business density and total early-stage entrepreneurial activity). Other papers find that the impact of tax levels or tax compliance costs for entrepreneurship differs depending on the specifics of the countries and of the entrepreneurial activities: Roman et al. (2023) find that the profit tax negatively influences the performance of SMEs only in countries from Western Europe, while the number of taxes paid (as a measure of compliance burden) negatively influences the performance of SMEs in all EU countries. By contrast, Bacher & Brühlhart (2013) use a highly stylized model to assess what effects the tax burden, the progressivity of the tax schedule, and the

complexity of the tax code have upon firm birth rates, working with data for Switzerland. They find that both the level of taxation and the complexity of the overall corporate tax code have a significantly negative impact on firm birth rates, yet the first has a stronger negative impact than the second (estimating that a percentage point change in the corporate tax level would decrease firm births by 0.2 per cent). Moreover, they conclude that the progressivity of tax schedules has a positive, yet small impact on firm birth rates.

The third strand of literature looks only at the impact of tax compliance costs (and, in general, bureaucratic burden) on entrepreneurship. For instance, Braunerhjelm & Eklund (2014) use a panel of 118 countries over a period of six years and perform OLS regressions finding that the administrative burden imposed on firms by the tax system reduces new firm formation. Their most robust estimate indicates an elasticity of entry with respect to the tax administrative burden is -0.3 , meaning that a reduction in the burden by 10 percent translates into a 3 percent increase in entry. At the same time, Aristovnik & Obadić (2015) use a non-parametric approach (data envelopment analysis) on a sample of EU SMEs to conclude that countries where the shortest time is spent on tax administration, among other things, have the strongest SMEs growth. The fact that simplified fiscal regimes have a positive impact on entrepreneurship was also shown, among others, by Aghion et al. (2017), who analyze data on French income tax for 1994-2012, by Lignier & Evans (2012), who use survey data about the burden imposed by the tax system upon SMEs in Australia, and by Weber (2015), who resorts to word count of US tax codes as a proxy for fiscal complexity.

Overall, the scientific literature that deals with the impact of the fiscal framework on entrepreneurship is not very rich, and there is no unanimous conclusion among the papers that tackle this subject. While there is consensus that both tax levels per se, as well as the bureaucratic burden that surrounds tax compliance have a negative effect on entrepreneurship, it is unclear which one has the strongest effect. In other words, it is unclear whether a policymaker who wants to encourage entrepreneurship in a country should only focus on simplifying tax administration, or it should rather reduce tax levels, or both actions are required.

Methodology

In order to empirically investigate whether the quality of the fiscal framework influences entrepreneurship activity in a country and, if it does, to what extent, we decided to use panel data for a sample of 27 former communist countries¹ from Central and Eastern Europe and Central Asia. The motivation for choosing this sample is twofold: on one hand, these states have a relatively similar past from an economic and political point of view, and on the other hand, the countries started building from scratch their market economy frameworks relatively at the same time, both being arguments supporting the idea that these states are “a perfect real-life laboratory” that fosters comparability. Of course, we control for inherent differences in GDP and population levels, as well as for USSR membership. The analysis period consists of 15 years (2006-2020) and it was selected based on data availability, especially of data for entrepreneurship activity, which is available, from the World Bank, only for this period.

¹ Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lithuania, Montenegro, North Macedonia, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Ukraine, and Uzbekistan.

For each country, entrepreneurship activity is measured using two indicators: the number of newly registered companies per calendar year, and the stock (total number) of registered companies by December 31 of each year respectively. Figure 1 shows the averages for these two indicators across the entire analyzed period: we observe that the number of newly register companies across the entire sample decreased strongly in 2009-2011, on the backdrop of the financial crisis, then embarked on an upward trend, suggesting that the more countries were developing as democracies and market economies, the stronger people's entrepreneurial initiatives became; it decreased again in 2018, which was regarded as a challenging year for financial markets², and again in 2020, along with the COVID-19 pandemic. The average number of existing companies in a year follows an upward trend throughout the entire period, suggesting that existing companies have built resilience over time.

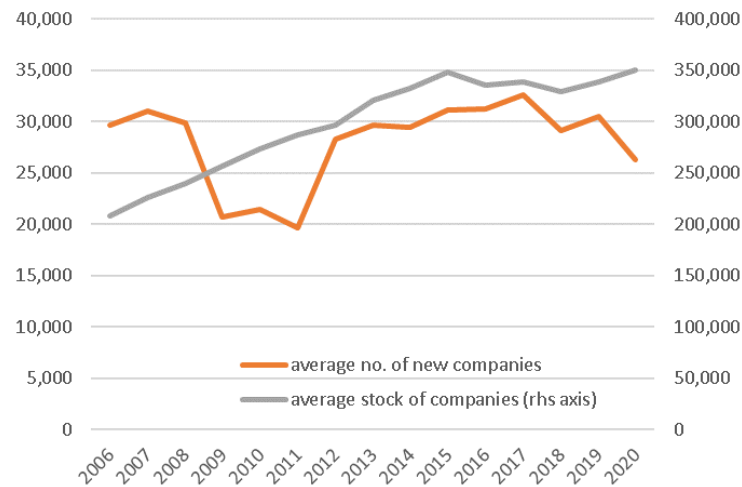


Figure 1. Entrepreneurship indicators

Source: Source: World Bank, authors' own research.

The quality of the fiscal framework is measured by using three indicators from the World Bank's *Doing Business* database: 1) the time spent to pay taxes (expressed as number of hours per years); 2) the level of the profit tax (expressed as percentage of profits); and 3) the level of the labor tax (expressed as percentage of profits). We have chosen these indicators because, following the approaches from the literature, we have sought to measure how burdensome the fiscal framework is from two perspectives: the financial burden of tax levels, as well as the bureaucratic burden of fiscal rules, the second being best reflected by the time needed to comply with these rules. We also preferred to analyze labor and profit tax levels separately, as we suspect that the influence of taxes may be different depending on the object being taxed. Figure 2 shows the evolution of the average fiscal indicators throughout the entire period: while in terms of labor tax levels and time spent to pay taxes there seem to be improvements over time, profit tax levels remain, on average, constant.

² In 2018, major stock indices (from US, Europe, as well as Asia) saw annual losses, amid the occurrence of several events with global impact, such as the US's trade war with China, Brexit uncertainty, and rising interest rates.

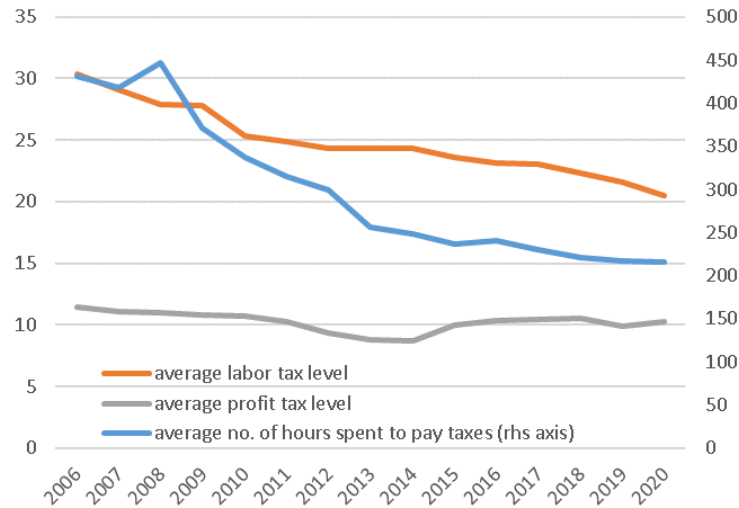


Figure 2. Fiscal framework indicators

Source: Source: World Bank, authors' own research.

Our empirical analysis consists in performing an OLS regression of each of the two indicators for entrepreneurship activity (as dependent variables) on three fiscal framework indicators (as explanatory variables). As mentioned above, we control for GDP and population levels, while we also include a dummy for a country's past membership in the USSR, as we expect that the countries who were part of the USSR have a slightly different social fiber than those who existed only as satellite states³; the regressions also include time fixed effects. Our dependent variables, as well as GDP and population levels are included in logs. All data is obtained from the World Bank. The equation of our models is as follows:

$$ea_{it} = \alpha_0 + \beta_1 no_hours_{it} + \beta_2 profit_tax_{it} + \beta_3 labor_tax_{it} + \beta_4 X_{it} + time\ f.e. + \varepsilon_{it}$$

where ea_{it} represents, in turn, the number of newly registered companies with limited liability (or its equivalent) in country i and calendar year t , or the stock of registered companies with limited liability (or its equivalent) by December 31 in country i and calendar year t , no_hours_{it} represents the time (in hours per year) spent to pay taxes on average by a company in country i and year t , $profit_tax_{it}$ represents the level of the profit tax, expressed as percentage of profits, paid on average by a company in country i and year t , $labor_tax_{it}$ represents the level of the labor tax, expressed as percentage of profits, paid on average by a company in country i and year t , X_{it} represents the vector of controls; $time\ f.e.$ represents time fixed effects, and ε_{it} represents the error term. Estimations are performed in Stata.

Table 1 presents the descriptive statistics of all the variables used in the regression. We observe that the average number of new companies registered in a year throughout the sample is

³ We have also tried including a dummy for EU current membership instead of a dummy for USSR past membership, yet this dummy was not significant. It is possible that EU membership exerts mixed influences on entrepreneurship activity (while it supports it through multiple programs, might also discourage it because of higher competition and bureaucracy), which cancel each other out.

28,008, while the average stock of companies is 298,658. For these two indicators we also have the highest standard deviation, suggesting that values vary a lot from one country to another, and, judging by the skewness parameter, they also have a considerably asymmetric distribution. The smallest number of new companies founded throughout a year was 707 companies in Kazakhstan in 2010, while the highest number was 456,046 in the Russian Federation in 2015. At the same time, the smallest total number of companies that could be found in a country at the end of a year was 2,925 in Kosovo in 2006, while the highest number was 3,962,627 in the Russian Federation in 2015.

Table 1. Descriptive statistics

Variable	<i>no. obs.</i>	<i>mean</i>	<i>std. dev.</i>	<i>min</i>	<i>max</i>	<i>skewness</i>
no. of new companies registered in a year	382	28,008	69,368.2	707	456,046	4.74
total no. of companies that exist at the end of the year	376	298,658	652,907.5	2,925	3,962,627	4.21
profit tax level (% of profits)	369	10.2	5.1	0	24.7	0.18
labor tax level (% of profits)	369	24.7	12.1	0	44.3	-0.45
time needed to pay taxes (no. hours)	369	295.7	226.7	50	2,085	4.65

Source: World Bank, authors' own research.

Regarding the fiscal indicators, the average profit tax is around 10% of profit, ranging from 0% (Croatia 2006-2020) to 24.7% (Kazakhstan 2006 and 2007), while the average labor tax is approximately 25% of profit, ranging from 0% (Armenia 2015-2020, Georgia 2010-2020, North Macedonia 2012-2020) to 44.3% (Ukraine 2006). The average number of hours per year spent to pay taxes is 296, and ranges from 50 (Estonia 2018-2020) to 2,085 (Ukraine 2006-2008). The number of hours spent to pay taxes also seems to vary considerably and be distributed relatively asymmetrical (higher standard deviation and skewness parameter). The total number of observations is slightly different from one variable to another due to data availability, as values are collected from multiple datasets.

Results and discussions

Table 2 presents the results of the regressions: the left section summarizes the results of the first equation, which uses the number of newly created enterprises in a country during a year as dependent variable, while the right section summarizes the results of the second equation, which uses the stock of enterprises that exist in a country at the end of a year as dependent variable. Estimates reveal a significant, negative influence of a burdensome fiscal framework on both the number of newly created and the total number of enterprises that exist in an economy. In terms of magnitude, the level of the profit tax exerts the strongest negative influence, coefficients showing that an increase of 1 percentage point in this tax will result in an average decrease of approx. 4 per cent in the number of enterprises that are newly created during one year, and an average decrease of approx. 2 per cent in the total number of enterprises. The time spent to pay taxes (expressed as the number of hours per year), which we use as a proxy for the levels of bureaucracy and administrative burdens, also exerts a negative, albeit less stronger influence, coefficients showing that an increase of this time with one hour will result in an average decrease of approx. 0.04-0.05 per cent in both the number of newly created and the total number of enterprises. A higher increase in the number of hours is probably needed for entrepreneurs to start perceiving the process as burdensome enough, leading, for some, to the decision of not opening a business or shutting it

down. The level of the labor tax and contributions also exerts a negative influence, but significant only for the total number of enterprises, an increase of 1 percentage point in this tax resulting in an average decrease of approx. 0.6 per cent in this number. Probably, these taxes become burdensome once entrepreneurs start expanding their business, which implies hiring more employees.

Table 2. Regression results

dependent variable: no. of new companies registered in a year (in log)		dependent variable: total no. of companies that exist at the end of the year (in log)	
profit tax level (% of profits)	-0.0382*** (0.00703)	profit tax level (% of profits)	-0.0208*** (0.00584)
labor tax level (% of profits)	-0.00708 (0.00408)	labor tax level (% of profits)	-0.00626* (0.00318)
time needed to pay taxes (no. hours)	-0.000468* (0.000194)	time needed to pay taxes (no. hours)	-0.000351* (0.000170)
log (GDP)	0.962*** (0.0636)	log (GDP)	1.254*** (0.0491)
log (population)	-0.254*** (0.0626)	log (population)	-0.562*** (0.0519)
USSR dummy	0.246** (0.0808)	USSR dummy	0.144* (0.0681)
R ²	0.71	R ²	0.79
No. of observations	369	No. of observations	363

Note: Robust standard errors in parenthesis. *= $p < 0.05$; **= $p < 0.01$; ***= $p < 0.001$.

Source: Authors' own research.

The coefficients obtained for the control variables are in accordance with the economic intuition. GDP levels exert a positive influence on the number of entrepreneurs (both new and total), because economies which produce more usually also consume more, so entrepreneurs can benefit from an increased demand for goods and services, maybe even seizing new business opportunities. These economies also typically have well-developed infrastructure (including financial systems), which provides entrepreneurs with better access to resources such as capital, technology, and skilled labor. Population levels exert a negative influence on the number of entrepreneurs (both new and total), as higher demand may make resources (such as land, capital, and skilled labor) more limited and expensive, which, in turn, can create barriers for entrepreneurs, particularly those with limited financial resources, becoming harder to start and sustain a new business. Both coefficients for GDP and population levels have a higher magnitude for the second equation, suggesting that, besides their impact on the creation of businesses, they also influence the survival of businesses. The USSR dummy has a positive, significant coefficient, suggesting that people coming from the states that were part of the USSR are more inclined to engage in entrepreneurial behavior, probably because in these countries, which are also the less developed from the sample, there are more business opportunities, as much more things still need to be done. Or maybe these societies are characterized by a type of enthusiasm that is specific to people who have been for a long time strongly deprived of any contact with the features of a market economy. The dummy coefficient is higher for the first equation, suggesting that people from former USSR countries are more inclined to open new businesses rather than work on the survival of those already existent. The R-squared for both equations is around 0.7-0.8, suggesting a good fit of the

models: between 70 percent and 80 percent of the variation in the number of firms (newly created and total) could be explained by the variation in the independent variables.

Conclusion

This paper aimed to analyze the impact of the fiscal framework on entrepreneurial activity and to clarify which dimension of the fiscal framework (tax levels per se or the bureaucracy that surrounds tax compliance) has the strongest impact. We start by reviewing the most important findings so far, concluding that while there is consensus that the fiscal framework has a negative impact on entrepreneurship, it is not clear whether tax levels per se or the compliance costs are more hurtful, as the results presented so far in the literature are mixed. Then we go one step further and assess this link empirically, by performing an OLS regression on a panel data sample comprising 27 former communist countries over a period of 15 years (2006-2020) – these countries are considered the perfect “laboratory” for such a comparison.

Empirical results suggest that both tax levels and the bureaucracy that surrounds tax compliance (measured in this paper by the number of hours needed to comply with fiscal obligations) have a negative effect on entrepreneurial activity, in accordance with previous findings in the literature. The level of the profit tax exerts the strongest negative influence on both the number of enterprises that are newly created during one year, and the total number of enterprises that exist in one year in a country, while the level of the labor tax exerts a negative, albeit weaker influence, which is significant only for the total number of enterprises that exist in one year in a country. We interpret this as suggesting that labor taxes become burdensome once entrepreneurs start hiring more employees, as their business grows. The time spent to pay taxes (expressed as the number of hours per year) return the lowest coefficient, yet they have a statistically significant negative effect on both the number of newly created and the total number of enterprises.

These results have important policy implications, as they suggest that, in order to encourage entrepreneurship, policymakers must focus first of all on reducing tax levels, followed by a simplification of compliance procedures. We used the time spent to pay taxes as a proxy for the levels of bureaucracy and administrative burdens, so in our case the simplification would imply focusing on making compliance procedures more time-efficient. Yet this paper opens the path to alternative estimations in which the bureaucratic burden could be estimated by using another proxy, and see whether and how do results change, as other dimensions may be more hurtful for entrepreneurs.

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