



How to analyse determinants of entrepreneurship and self-employment at the country level? A methodological contribution

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ABSTRACT

The aim of the article was to empirically support a hypothesis, that no matter what measure of entrepreneurship or self-employment we choose at the country level, the determinants indicate the same direction of impact. Methodologically, four measures of entrepreneurial and self-employment activity were utilized as dependent variables in regression models. Entrepreneurial activity in the article was operationalized by Eurostat and OECD self-employment rates, and by Global Entrepreneurship Monitor rates of established business ownership rate and total early-stage entrepreneurial activity (TEA). Based on the obtained results, the determinants of entrepreneurship and self-employment influence all four presented measures in the same direction.

1. Introduction

Increasing data availability allows us to conduct empirical studies in the field of entrepreneurship more frequently. As Koellinger and Roy Thurik (2012) together with Davidsson and Wiklund (2007) note, there is a large number of published studies with a focus on different levels of analysis, such as micro (firms or companies), meso (regions or industries) and macro (countries or cross-countries). Each of these above-mentioned analyses require, besides a theoretical background, a proper empirical and methodological strategy. Collected empirical evidence, allows us to seek the most suitable solutions, when it comes to the selection of data sources, variables and scientific methods. Such a debate might improve the quality of future studies in the fields of entrepreneurship and self-employment (e. g. Apergis and Payne, 2016; Stenholm et al., 2013; Iversen et al., 2007; Congregado, 2007 or Coviello and Jones, 2004).

Presented study aims to extend the empirical knowledge on the measurement of entrepreneurship at the country level and its determinants. The motivation for conducting this study lies in a large number of recently published studies focused on the cross-country determinants of entrepreneurial activity and self-employment (e. g. Nikolaev et al., 2018; Rusu and Roman, 2017; Roman et al., in press; Dempster and Isaacs, 2017; Dvouletý, 2017a; Nicolae et al., 2017; Canever and Menezes, 2017; Hall et al., 2016; Hoogendoorn et al., 2016; Carbonara et al., 2016, Calá et al., 2015 or Valdez and Richardson, 2013) which are often based on different measures. First, the question is whether the various studies, based on different operationalisations of entrepreneurial activity and self-employment indicate the same impact of the cross-country determinants or not. If the studies, aiming to explore drivers of entrepreneurship and self-employment, deliver contradictory conclusions on the impact of economic and institutional variables, then it is very difficult to form any policy recommendations, i. e. aiming to change the business environment (Szerb et al., 2013;

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Parser, 2009). Second, from an empirical experience (e. g. Baptista and Thurik, 2007 or Grilo and Thurik, 2004) it is well known, that determinants of entrepreneurship and self-employment might change over the time and across regions. Therefore if we want to compare the different measures of entrepreneurship and self-employment methodologically, then we need to work with the same group of countries and follow it for the exact same time period. This kind of empirical exercises, aiming for a harmonization are still very rare in entrepreneurship research, despite the fact that these studies are very important for the whole community.

The debate on the measurement of entrepreneurship and self-employment at the country level is not novel (see e. g. Henrekson and Sanandaji, 2014; Acs et al., 2014; Marcotte, 2013; Rogoff, 2012; Acs et al., 2008, Iversen et al., 2007 or Congregado, 2007), however, this article aims to push this discussion further on, by an empirical assessment of the differences across various indicators on an example of a harmonized sample. Particularly, the article exploits a dataset of eleven countries over the period 2001–2015. Methodologically, four measures of entrepreneurial and self-employment activity are utilized as dependent variables, and for each of the dependent variables, a comparative regression model is estimated with a set of country-level determinants. Entrepreneurial activity in the article is operationalized by Eurostat (2017) self-employment rate, OECD (2017) self-employment rate, and by Global Entrepreneurship Monitor (2017) rates of established business ownership rate and total early-stage entrepreneurial activity (TEA). The main aim of the article is to empirically support a hypothesis, *that no matter what measure of entrepreneurship or self-employment we choose at the country level, the determinants indicate the same direction of impact*, because the country-level determinants affect the most of entrepreneurs and self-employed individuals in the economy.

The structure of the article is conventional. The following part is dedicated to the discussion on the measuring country level of entrepreneurship and self-employment. Section three introduces the collected dataset and variables, and it presents the empirical strategy and obtained econometric estimates. The final section concludes the article and it suggests avenues for future research.

2. Measuring entrepreneurship and self-employment rates at the country level

According to Marcotte (2013), Acs et al. (2008), Iversen et al. (2007) and Congregado (2007), the measurement of entrepreneurial and self-employment activity at the country and cross-country levels is still an under-represented area of research, despite the need to have reliable data for conducting empirical studies. Empirical scholars operationalize entrepreneurship/self-employment differently. According to Stenholm et al. (2013) there two approaches how to measure country level of entrepreneurial activity. The first one relies on self-reports of randomly selected individuals (surveys) and the second one is based on the records obtained from national business registries. Iversen et al. (2007) have tried to compare the historical perception of entrepreneur with the particular measures of entrepreneurship and self-employment in the economy. A very comprehensive overview of existing measures was recently written by Marcotte (2013).

One common approach is to express entrepreneurial and self-employment activity as a ratio of the population of registered businesses/number of self-employed (e. g. Koellinger and Roy Thurik, 2012 or Dvoutelý and Mareš, 2016a, 2016b). Frequently is also used the variable, representing the rate of newly established/registered enterprises (e. g. Dempster and Isaacs, 2017; Dvoutelý, 2017b; Nicolae et al., 2017; Carbonara et al., 2016 or Fritsch et al., 2015). Nevertheless, Congregado (2007) together with Van Stel (2005) argue, that methodology of national statistical offices differ, and therefore it is better to use adjusted harmonized data for instance from Eurostat or OECD databases. Inspired by this idea, Van Stel (2005), with his colleagues created EIM Compendia database, where they adjusted and harmonized American and European data obtained from OECD. Unfortunately, this dataset is limited by available years and countries (e. g. Hoogendoorn et al., 2016). Other scholars (e. g. Lado-Sestayo et al., 2017; Ferreira et al., 2017; Acs et al., 2008, Reynolds et al., 2005 or Sternberg and Wennekers, 2005) work with the data obtained from the Global Entrepreneurship Monitor surveys, particularly with the rates of established business ownership rate, total early-stage entrepreneurial activity (TEA), high-growth activity or TEA innovation activity. Additionally, Kaufman index of entrepreneurial activity for the US should be mentioned (Hafer, 2013).

Another approach, how to solve, this measurement issue, is to work with more complex indices aiming to capture the whole entrepreneurial ecosystem, such as Global Entrepreneurship Index, former Global Entrepreneurship and Development Index¹ (Acs and Szerb, 2009; Acs et al., 2014).

At the same time, we need to mention the fact, that there are indicators measuring “general level of entrepreneurship and self-employment” (overall rates) and those, aiming to monitor just the “specific rates” (e. g. high-growth enterprises, necessity/opportunity driven entrepreneurship). However, from the economic and institutionalist's perspective, the macroeconomic environment influence the most of the entities present in the economy (e. g. Davidsson and Wiklund, 2007, Van Metre and Hall, 2011 or Chauhan and Das, 2017).

However, the variety of utilized indicators does not reflect their comparability in empirical practice. Generally, a little is known about the differences in various measures of activity and correlations between them. Marcotte (2013) was one of the first scholars who employed bivariate correlation analysis and compared different measures of entrepreneurial activity. She has found highly positive and significant correlations between registered business activity (obtained from World Bank) and data from Global Entrepreneurship Monitor. Her observation was later supported by Henrekson and Sanandaji (2014). Nevertheless, Marcotte (2013) admits, that robustness of her findings is limited by the sample size and she encourages other scholars to validate her results when more observations are available. Presented studies were limited by period till 2010. Positive correlations between different “stock

¹ Please note that the data from Global Entrepreneurship Index are available for period of years 2006–2018, for details see Acs et al. (2017) and for the most recent data see Global Entrepreneurship Index (2018) on the following link: <https://thegedi.org/2018-global-entrepreneurship-index-2/>.

levels” of entrepreneurship and self-employment have been also observed in studies by Iversen et al. (2007) and Stenholm et al. (2013). Nevertheless, despite these positive correlations, the country-levels of entrepreneurship and self-employment (and their relative rankings) differ across used measures and indicators. In other words, it does not mean that these indicators capture the same pool/number of entrepreneurs – they just approximate the level of activity from different methodological and theoretical angles.

3. Empirical comparisons

The objective of the study is to empirically support a hypothesis, *that no matter what measure of entrepreneurship or self-employment we choose at the country level, the determinants indicate the same direction of impact*, because the country-level determinants affect the most of entrepreneurs and self-employed individuals in the economy no matter what measure we use. We may argue to what extent, but most of them are influenced in a similar way by the legislative and institutional framework (North, 1990; Bruton et al., 2010), economic (demand-side) determinants and (supply-side) population characteristics (Grilo and Thurik, 2004).

The empirical approach begins by an estimation of bivariate correlations between four measures of entrepreneurial/self-employment activity. The second empirical exercise is based on the employment of multivariate regression analysis, aiming to demonstrate differences in determinants of entrepreneurship and self-employment across indicators.

3.1. Correlations between indicators

The starting point is the estimation of correlations between four measures of entrepreneurial/self-employment activity, operationalized by Eurostat (2017) self-employment rate, OECD (2017) self-employment rate, and by the Global Entrepreneurship Monitor (2017) rates of established business ownership rate (EBOR) and total early-stage entrepreneurial activity (TEA). The selection of these four measures was motivated mainly by its usage in the previous research and by the data availability. The aim was to compare indicators that represent the stock of the population rather than new entry rates (Iversen et al., 2007). In addition, data from the national statistical offices could not be used for this purpose, because of the differences in the methodology of the national statistical offices. Therefore first selection of available measures offered occupational data from OECD and Eurostat – that were also often used in empirical studies (e. g. Carree et al., 2002; Noorderhaven et al., 2003). The second source of available measures was the Global Entrepreneurship Monitor survey, where the scholars most often work with two rates, Established Business Ownership Rate (EBOR) and Total Early-Stage Entrepreneurial Activity (TEA). EBOR (used for instance by Sternberg and Wennekers, 2005 and Dvouletý, 2017a) seems to be the closest counterpart to the rates from OECD and Eurostat, because it also represents to some extent occupational choice of being an entrepreneur, especially in terms of receiving payments/profits from the activity. On the contrary, TEA is quite different from the three above-mentioned indicators and it differs mainly in case of payments. Nascent entrepreneurs still do not need to receive regular income/payments from their activity. Surprisingly, this indicator belongs to those most frequently used in the previous studies (e. g. Ferreira et al., 2017; Roman et al., 2017; Calá et al., 2015) and therefore it should be taken into account in this empirical exercise as well.

Collected variables cover years 2001–2015 for eleven European countries, namely for Belgium, Denmark, France, Germany, Greece, Hungary, Ireland, Netherlands, Slovenia, Spain and Sweden. The countries and measures were selected based on the availability of the data. For the comparability of the results, it was important to collect a sample of countries, having complete data for the all four measures and at the same time, having data for the whole time period (see Table 1). Therefore only eleven countries and four indices could have been included in the empirical analysis. Development of all four average rates over time is depicted in Fig. 1 below.

The next step is the estimation of correlations between measures of entrepreneurial activity, because it is very important to see, whether the correlation coefficients are tightly linked with each other, i. e. to observe similarity among indicators. Results can be found in Table 2. All correlation coefficients were found to be statistically significant ($p < 0.05$) and positive. The highest coefficient is between the self-employment rates obtained from Eurostat (2017) and OECD (2017). On the contrary, the lowest coefficient was observed for total early-stage entrepreneurial activity (TEA). This is quite to be expected, since the three above mentioned indicators capture the active population, compared with TEA which represents only early-stage activity. Additionally, both GEM (2017) indicators, are also highly correlated as they come from the same survey. These positive correlations are in the line with the findings of Marcotte (2013) and Iversen et al. (2007).

However, the previous exercise also confirms the differences between the actual values and development of all indicators over time (see again Fig. 1). One may for example notice that TEA shows completely different development, compared to the other three indicators. This might be caused by the fact that TEA measures only a specific part of the whole entrepreneurial activity. On the other hand, quite close development over time indicate EBOR and Self-employment Rate from Eurostat. Nevertheless, given the theoretical assumption and the high-level of positive correlations we might still assume similarity in the impact of country-level determinants.

3.2. Independent variables and summary statistics

The following part is dedicated to a multivariate analysis. Building on the initial observation from the previous section, the additional drivers/determinants of entrepreneurship and self-employment need to be introduced in order to estimate multivariate regression models.

Roman et al. (2017) and Dvouletý (2017a) have recently reviewed findings of scholars dealing with the cross-country determinants of entrepreneurship. Determinants of entrepreneurship may be divided into several categories that take into account the

Table 1
Number of observations for the dependent variables across countries.
Source: STATA 14, own calculations

| Country/variable | Self-employment rate Eurostat ^a | Self-employment rate OECD ^b | Established business ownership rate ^c | Total early-stage entrepreneurial activity (TEA) ^d |
|------------------|--|--|--|---|
| Belgium | 15 | 15 | 15 | 15 |
| Denmark | 15 | 15 | 13 | 13 |
| France | 15 | 15 | 14 | 14 |
| Germany | 15 | 15 | 14 | 14 |
| Greece | 15 | 15 | 13 | 13 |
| Hungary | 15 | 15 | 14 | 14 |
| Ireland | 15 | 15 | 14 | 14 |
| Netherlands | 15 | 15 | 15 | 15 |
| Slovenia | 14 | 15 | 14 | 14 |
| Spain | 15 | 15 | 15 | 15 |
| Sweden | 15 | 15 | 13 | 13 |
| Total (N) | 163 | 165 | 154 | 154 |

^a *Self-Employment Rate* from Eurostat (2017) represents a percentage of economically active population “who work in their own business, farm or professional practice. A self-employed person is considered to be working if she/he meets one of the following criteria: works for the purpose of earning profit, spends time on the operation of a business or is in the process of setting up his/her business.”.

^b *Self-Employment Rate* from OECD (2017) represents “a percentage of 18–64 population who are currently an owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months.”.

^c *Established Business Ownership Rate* from Global Entrepreneurship Monitor (2017) represents “of 18–64 population who are currently an owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months.”.

^d *Total early-stage Entrepreneurial Activity (TEA)* from Global Entrepreneurship Monitor (2017) represents “a percentage of 18–64 population who are either a nascent entrepreneur or owner-manager of a new business.”.

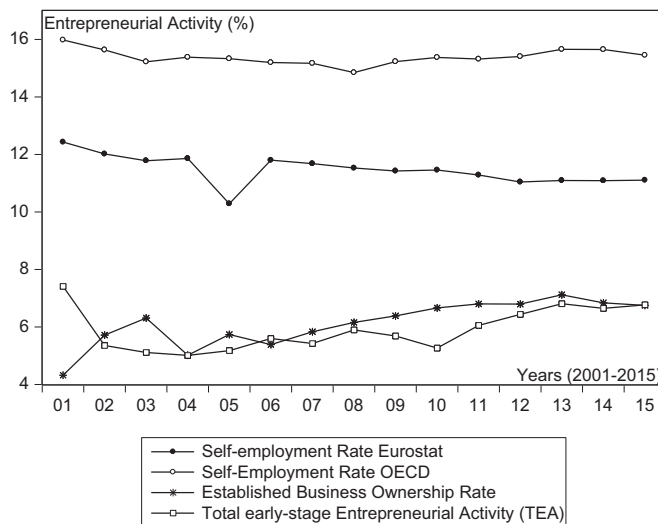


Fig. 1. Average entrepreneurial and self-employment activity over years 2001–2015.
Source: Eviews 9, own calculations

Table 2
Correlations between measures of entrepreneurial activity (*p < 0.05).
Source: STATA 14, own calculations

| Variable | Self-employment rate Eurostat | Self-employment rate OECD | Established business ownership rate | Total early-stage entrepreneurial activity (TEA) |
|---|-------------------------------|---------------------------|-------------------------------------|--|
| <i>Self-Employment Rate Eurostat</i> | 1.0000 | | | |
| <i>Self-Employment Rate OECD</i> | 0.9783* | 1.0000 | | |
| <i>Established Business Ownership Rate</i> | 0.7361* | 0.7533* | 1.0000 | |
| <i>Total early-stage Entrepreneurial Activity (TEA)</i> | 0.3620* | 0.3004* | 0.4957* | 1.0000 |

Table 3

Summary statistics.

Source: STATA 14, own calculations

| Variable / statistics | Mean | Min | Max | N |
|--|-------|-------|-------|-----|
| Self-Employment Rate Eurostat | 11.50 | 6.67 | 26.92 | 163 |
| Self-Employment Rate OECD | 15.38 | 8.65 | 39.61 | 165 |
| Established Business Ownership Rate | 6.04 | 1.27 | 19.61 | 154 |
| Total early-stage Entrepreneurial Activity (TEA) | 5.81 | 1.63 | 11.37 | 154 |
| Unemployment Rate | 8.64 | 2.12 | 27.47 | 165 |
| FDI Inflows | 7.45 | 16.07 | 87.44 | 164 |
| Start-up Procedures | 6.31 | 3.00 | 15.00 | 143 |
| Economic Freedom Index | 69.01 | 54.00 | 82.60 | 165 |

legislative and institutional framework (North, 1990; Bruton et al., 2010), economic (demand-side) determinants and (supply-side) population characteristics (Grilo and Thurik, 2004) and entrepreneurship, R&D and innovation policies (Dvouletý, 2017a). Following this categorization, extent of the study and the data availability, we have tried to include in the analysis most of the previously mentioned categories of variables. We have ended-up with the factors controlling for the role of economic development, foreign direct investments and business environment.

Economic development is represented by a non-linear development of unemployment rate (e. g. Dvouletý, 2017c or Fritsch et al., 2015) and the variable was obtained from the World Bank database (2017). Additional variable accounts for the role of foreign direct investments (FDI), net inflows (% of GDP), which was used for instance in the recent study by Abdesselam et al. (2017) or Danakol et al. (2017). The business environment is furthermore operationalized by the two variables, Doing Business statistics variable measuring a number of start-up procedures to establish an enterprise (World Bank, 2017), and by the Economic Freedom Index, which is published by Heritage Foundation (2017). Both variables were used in the previous empirical studies (e. g. Saunoris and Sajny, 2017; Dempster and Isaacs, 2017, Carbonara et al., 2016, Aparicio et al., 2016; Van Metre and Hall, 2011 or Bruothová and Hurný, 2016). For the rest of the determinants we had to be control by the set of country-dummy variables. Table 3 presents summary statistics below.

3.3. Determinants of entrepreneurship and self-employment

The next part of the article is dedicated to the testing of a hypothesis, that no matter what measure of entrepreneurship or self-employment we choose at the country level, the determinants indicate the same indicate the same direction of impact. For each of the dependent variables, a comparative regression model is estimated with a set of country-level determinants. Models were estimated in software STATA 14 with the robust standard errors to overcome potential threats of heteroscedasticity and autocorrelation. The level of collinearity among the estimated parameters was tested with the help of correlation matrices and Variance Inflation Factors test and one can conclude, that no multicollinearity is present in estimates (Wooldridge, 2010). Stability and robustness of results are increased by a set of dummy variables for each of the country and by bootstrapping estimation (Royston and Sauerbrei, 2009). Final models are based on 10,000 replications and they can be found in Table 4 below. Despite the fact that not all variables were found to be statistically significant, the signs of coefficients in all four estimated models are in a harmony and they empirically support the stated hypothesis. Based on the presented findings, it looks like the determinants of entrepreneurship and self-employment influence all four presented measures similarly and thus increases the robustness of presented empirical findings. The purpose of the study is not to dive into the interpretation of obtained coefficients, which are generally in the line of existing research on the determinants of entrepreneurship and self-employment.

Nevertheless, it is worth mentioning that non-linear and changing influence of unemployment rate was observed for example in the recent studies written by Dvouletý (2017c) and Fritsch et al. (2015). The obtained finding indicates, that especially when there is an increase in unemployment, some individuals join entrepreneurship/self-employment out of necessity. However, this non-linearity suggests that if there is a substantial increase in unemployment (e. g. an economic recession), then, the initial positive effect turns into a negative (as the recession/economic crisis has effect on the most entrepreneurs and self-employed in the economy).

The role of inward foreign direct investments (FDIs) has been questioned by several scholars, among others by Barbosa and Eiriz (2009), De Backer and Sleuwaegen (2003), Danakol et al. (2017) or by Abdesselam et al. (2017). Authors discuss the crowding out the effect of inward FDIs on domestic level of entrepreneurship that can be also seen in obtained econometric estimates. The role of business environment (represented by the economic freedom index) and start-up bureaucracy (represented by number of start-up procedures to establish an enterprise) is rooted in the theory of institutions, suggesting that bad environment and formal institutions might discourage individuals to establish a business (e. g. Dvouletý, 2017a; Dempster and Isaacs, 2017, Carbonara et al., 2016 or Aparicio et al., 2016). Both of these assumptions were supported also by the obtained empirical evidence indicating that lower economic freedom and more bureaucratic procedures were during the analysed period associated with lower levels of entrepreneurship and self-employment.

Table 4

Determinants of entrepreneurship and self-employment across different measures of entrepreneurial activity for years 2001–2015.

Source: STATA 14, own calculations

| Model number | (1) | (2) | (3) | (4) |
|--|--------------------------------------|--------------------------------------|--|---|
| Independent variables / dependent variable | <i>Self-employment rate Eurostat</i> | <i>Self-employment rate OECD</i> | <i>Established business ownership rate</i> | <i>Total early-stage entrepreneurial activity (TEA)</i> |
| <i>Unemployment rate</i> | 0.0234 (0.0699) | 0.207 ^{**} (0.0807) | 0.192 [*] (0.116) | 0.190 [*] (0.113) |
| <i>Unemployment rate squared</i> | –0.00703 ^{***} (0.00236) | –0.00741 ^{***} (0.00283) | –0.00386 (0.00415) | –0.00906 ^{**} (0.00362) |
| <i>FDI inflows</i> | –0.00513 (0.00560) | –0.000507 (0.00731) | –0.00862 (0.0121) | –0.00609 (0.0119) |
| <i>Start-up procedures</i> | –0.0116 ^{***} (0.0466) | –0.147 ^{**} (0.0584) | –0.0205 (0.0760) | –0.259 ^{***} (0.0744) |
| <i>Economic freedom index</i> | 0.0794 ^{**} (0.0392) | 0.0555 (0.0487) | 0.208 ^{***} (0.0615) | 0.120 [*] (0.0694) |
| <i>Constant</i> | 6.072 ^{**} (2.927) | 10.23 ^{**} (3.652) | –11.94 ^{**} (4.527) | –4.175 (5.111) |
| Country dummies | Yes | Yes | Yes | Yes |
| Observations | 142 | 143 | 135 | 135 |
| R ² | 0.982 | 0.988 | 0.771 | 0.510 |
| Adjusted R ² | 0.980 | 0.987 | 0.743 | 0.448 |
| AIC | 293.0 | 365.2 | 522.7 | 474.0 |
| BIC | 340.3 | 412.6 | 569.2 | 520.5 |

Estimated Robust SE Regressions with Country Dummies based on 10,000 Replications; Standard errors in parentheses.

* $p < 0.1$.** $p < 0.05$.*** $p < 0.01$.

4. Concluding remarks

The main aim of the article was to empirically support a hypothesis, that no matter what measure of entrepreneurship or self-employment we choose at the country level, the determinants indicate the same direction of influence. The study was motivated by an increasing number of recently published studies focused on the cross-country determinants of entrepreneurial activity and self-employment, as well as in the variety of utilized dependent variables used in these empirical studies. The paper contributes to debate on the measurement of entrepreneurship and self-employment at the country level (see e. g. [Henrekson and Sanandaji, 2014](#); [Marcotte, 2013](#); [Acs et al., 2008](#), [Iversen et al., 2007](#) or [Congregado, 2007](#)), by an empirical assessment of the differences across various indicators on an example of a harmonized sample. Particularly, the article exploited a dataset of eleven countries over the period 2001–2015. The countries and measures included in the analysis were selected based on the availability of the data. Methodologically, four measures of entrepreneurial and self-employment activity were utilized as dependent variables. Entrepreneurial activity was operationalized by Eurostat self-employment rate, OECD self-employment rate, and by Global Entrepreneurship Monitor rates of established business ownership rate and total early-stage entrepreneurial activity (TEA).

In the first step of the empirical analysis, correlations between measures of entrepreneurial/self-employment activity were inspected. In the line with the findings of [Marcotte \(2013\)](#), bivariate correlations between four measures of entrepreneurial/self-employment activity were found to be statistically significant and positive. Building on these promising comparable findings, multivariate regression models, aiming to demonstrate differences in determinants of entrepreneurship and self-employment across indicators were estimated. For each of the dependent variables, a comparative regression model was estimated with a set of country-level determinants. Based on the obtained results, it looks like the determinants of entrepreneurship and self-employment influence all four presented measures similarly and thus increases the robustness of presented empirical findings.

Such an observation is very important for the entrepreneurship researchers and policy-makers because it suggests that macro-economic institutional and economic environment influences the most of the entities (both established and early-stage enterprises) present in the economy in a similar direction. From a research perspective, if the various measures of entrepreneurial and self-employment activity are to be affected by the determinants similarly, then the harmonization and comparability of the previously published studies on the determinants of entrepreneurship and self-employment might be substantially increased. Moreover, if we will be able to confirm the harmonization of the different measures, we will be able to even more reliably compare the previously published studies based on different indicators. Given the obtained estimates, researchers should empirically check the various measures of entrepreneurial and self-employment activity, in order to increase robustness and reliability of their empirical studies. However, this study is limited by the number of analysed European countries and its determinants. It is very important to have a look at the comparison outside of Europe, to see whether these findings will hold in Africa, America or Asia, and especially in the regions, where the environment is more diverse and dynamic.

In addition to the presented findings, the authors aiming to map the overall activity in the country, they should not stick only to TEA indicator (that was nowadays used most frequently in the previously published studies), that accounts only for the level of nascent entrepreneurship. Scholars should also work also with indicators taking into account the occupational definition of

entrepreneurship and self-employment (e. g. self-employment rates from Eurostat/OECD or EBOR). Forthcoming studies should build on the presented findings, when more data will be available and they should also inspect the differences in determinants of entrepreneurship and self-employment with additional measures, especially with the usage other developed indices (e. g. Global Entrepreneurship Index or Kaufman index of entrepreneurial activity). Unfortunately, till this moment, the Global Entrepreneurship Index still does not provide the sufficient number of available years for a dynamic analysis and the Kaufman index of entrepreneurial activity maps only the United States. Especially, the Global Entrepreneurship Index brings an important question for the whole research community by asking – should we stick to the factor-based/stock-based/rate-based definition of entrepreneurship and self-employment, or should we understand entrepreneurship more as a whole ecosystem that captures all phases and nature of business formation, expansion and growth in the particular region?

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