IMPACT OF TAX EVASION ON THE ECONOMIC GROWTH IN THE EUROPEAN UNION

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Abstract

The relevance of the research topic emerges from the fact that an important part of the fiscal revenues is lost annually through activities of fiscal planning, fiscal circumvention and tax evasion, undertaken by the private sector. In this respect, the aim of the paper is to estimate, by using the econometric analysis, the impact of tax evasion on the economic growth in the European Union for the period 1997-2010 for which the data was available. For the tax evasion it have been used index as a proxy that optimizes by maximum. Thus the main hypothesis (that the index tax evasion positively influences the economic growth) was not rejected, even after including some specific control variables in the regressive models. In other words, as tax evasion is increased the economic growth is likely to decrease.

Keywords: tax evasion, fraud, economic growth, tax burden, panel model,

Clasificare JEL: F43, H26

1. Introduction and context of the study

During the year 2008, the world economy was entering its biggest economic crisis after the great recession between 1929-1933, affecting well-developed countries as well as emerging countries, thus demonstrating the level of interdependency of the world’s economies. Starting with the last trimester of the year 2008, the crisis spread to several European countries as well, in a context where financial growth was unsustainable. Managing the economic boom proved to be difficult, the fiscal policy fuelled imbalances by spending revenues related to additional increase, which led to larger fiscal deficits.

In a time of crisis, tax evasion is amplifying and stopping it is being very hard to accomplish. In these conditions, the development of shadow economy, which is a generator of tax evasion, leads to a low level of collection of contributions to the state's general budget. In order to improve the collection system and to draw the revenue from the shadow economy into the system, developing and implementing an efficient system of collecting taxes and duties is imposed.

The relevance of the research topic emerges from the fact that an important part of the fiscal revenues is lost annually through activities of fiscal planning, fiscal circumvention and tax evasion, undertaken by the private sector. We consider it is essential to fight the tax evasion and fiscal circumvention phenomena, so that the fiscal authorities can collect the level of tax revenues approved democratically, thus, financing goods and public services and the redistribution of goods and fortunes between the members of society can be possible.

In this paper we aimed to estimate, by using the econometric analysis, the impact of tax evasion on the economic growth in the European Union for the period 1997-2010 for which the data was available. For the tax evasion it have been used index as a proxy that optimizes by maximum. In this respect the main hypothesis (that the index tax evasion positively influences the economic growth) was not rejected, even after including some specific control variables in the regressive models. In other words, as tax evasion is increased the economic growth is likely to decrease.

The remainder of the paper is consist as follows. Next section briefly discuss the literature review regarding the relation between tax evasion and economic growth. In section 3 are presented
the methodology and data used to test the empirical model. Section 4 report the results for both restricted and extended model and Section 5 concludes.

2. Literature review

Tax increment is particularly important for a state, because it is the main way to attract financial resources for it. The effects are preceded by the multiple changes in the social economic life, manifesting in the form of microeconomic and macroeconomic effects, meaning under the form of some phenomena “that are necessarily the result of a cause, being indestructibly connected to it” [7].

The effects of taxation are also considered complex and ample, with important characteristics, which transpose the nature of the effects, the development of the scheme, the localisation and evaluation of the acquired amplitudes, as well as the use of the results into social economic policies. These effects are manifested and can be found in the legal, financial, economic and psychological areas. The effects of taxation reveal “the repercussions and changes that the introduction of a new tax increment causes upon the economic balance of a single subject or upon the general economic balance” [5].

Cebula and Feige (2011) describe tax evasion as being the process through which the state is deprived of the revenues that are legally owed to it, the ability of the Government to provide public services being reduced and, at the same time, increasing the burden of public debt. According to the estimations of the European Commission, tens of billions of Euro, most of the time representing undeclared and untaxed amounts, exist in off-shore accounts, diminishing national tax revenues. Applying some decisive actions, that have as objective the reduction of fraud and of tax evasion, could contribute to the collection of additional revenues worth billions of Euro for the public budgets in Europe [3].

Chen (2003) integrates tax evasion into an AK-type growth model with public capital. Within the model, government authorities optimize the tax burden on taxpayers, while individuals optimize their level of tax evasion. The obtained results indicate that an increase in the unitary cost of tax evasion and penalties / fines is likely to help reduce tax evasion, while an increase in tax controls contributes to the reduction of the avoidance tax only if the cost of ensuring compliance with tax law it's not too big [4].

Previous empirical studies investigating the link between tax evasion and economic growth, such as Braun and Loayza (1994), Roubini and Sala-i-Martin (1995) and Loayza (1996), have shown that an increase in tax evasion has effects negative on economic growth due to the important link between the loss of tax revenue and the level of public spending [2], [6], [8].

Combating fraud and tax evasion implies actions on a national level, the level of the European Union and on a global level. The process of European integration led to a stronger collaboration of the economies of the Member States, thus recording significant volumes of cross-border transactions, as well as the reduction of the costs and the risks linked to these transactions. This fact brought substantial advantages to the citizens and the European companies, but, on the other hand, it generated additional challenges for the national fiscal administrations in what the cooperation and information exchange are concerned. Experience demonstrated the fact that the Member States can meet these challenges efficiently only if they act concertedly, on the basis of a framework agreed at the level of the European Union.

The EU disposes of a solid policy regarding the good governance in the fiscal field. The principles found at the foundation of the European system are: transparency, automated information exchange and loyal tax competition. The EU has issued a series of instruments to increase the ability of the Member States to combat fraud and tax evasion. These instruments refer to the EU legislation, (improving transparency, exchange of information and the administrative cooperation),
to coordinated actions recommended for the Member States (for example, the ones that target the aggressive tax planning and tax havens) and to the specific recommendations for each country, referring to the intensification of the fight against fiscal fraud.

Furthermore, in December 2012, the European Commission presented a course of action that specifies key-activities meant to aid the Member States in their fight against fraud and tax evasion in the field of direct and indirect taxation. In the present, the Member States must improve their national systems, as well as make full use of the European instruments and apply the measures agreed in a coordinated manner.

From the studies carried out regarding the dimension of shadow economy in the EU, it appears that this represents approximately a fifth of GDP [10].

In recent years, it has become more than obvious that fraud and tax evasion represent a serious challenge. The internationalisation of fraud, the economic globalisation, the technological progress and the interdependency between the fiscal authorities in the Member States highlight the limitations of the strictly national approaches and it emphasizes the need of common action.

3. Methodology and data

Impact of tax evasion upon the economic growth in the European Union is quantified by means of a unbalanced set of data, for 25 Member States (due to data unavailability, information from 3 Member States are thus missing: Latvia, Cyprus and Malta), on a period between 1997-2010. In order to put emphasis on the existing connection between tax evasion and economic growth, two main variables have been used: the real rate of economic growth, as a dependent variable and fiscal evasion, as an independent variable.

In order to measure the growth rate of the GDP regarding the volume, the DGP in current prices is evaluated in prices from the previous year, and the volume modifications calculated as such are imposed to the level of a reference year; thus, price modifications will not augment the growth rate (data regarding the dependent variable have been taken from the Eurostat database). Tax evasion is expressed with the help of an index which measures the degree with which this worsens the state of public finances. The index can take values between 0 and 10, 0 meaning the worst scenario, and 10 being the equivalent of an ideal situation. The data has been taken from the World Competitiveness Yearbook.

The IMD World Competitiveness Yearbook, which publishes data every year regarding the competitiveness of nations, analysing and creating a hierarchy for the way in which nations and companies manage their set of competences, regarding the gain of prosperity. The analysis of this Yearbook extends over 59 countries; these economies are chosen due to their impact over the global economy and due to the availability of the compareable statistic data at an international level [12].

In order to make this possible, over 300 competitive criteria have been selected, as a result of extensive research, various sources have been used: economic literature, international sources, national or regional, as well as feedback from business communities, government agencies or universities. The competitiveness factors are split up in 4 large categories:

1. Economic performance (76 criteria): macroeconomic evaluation of autochthonous economy; autochthonous economy, international trades, international investments; employment and prices.

2. Government efficiency (71 criteria): public finances; fiscal policy; institutional framework; social framework; business legislation.

3. Business efficiency (67 criteria): productivity and efficiency; labour market; finances; management practices; attitudes and values.
4. Infrastructure (113 criteria): basic infrastructure, technological, scientific; health, education and environment protection.

The main hypothesis of this study is that tax evasion determines the dynamic economic growth, based on a function with the following formula:

\[
GDP = f(EVAS)
\]

(1)

where “GDP”- real rate of economic growth, and “EVAS”- tax evasion, quantified with the help of an index described above. The scatter graph of this function is presented in the Figure 1, the method used for creating this graphic being the “Regression line”. As can be seen, there is a positive linear connection between the index which shows the tax evasion and the economic growth in the European Union.

Figure no. 1 The relation between GDP and EVAS

Source: own processing with EvIEWS 6

In order to test the existence of the link between tax evasion and economic growth in the European Union, econometric analysis has been used as the main method. Thus, the naive panel model based on the method of the smallest squares (OLS - ordinary least squares) is the following:

\[
Y_{it} = \alpha + \beta \times X_{it} + \epsilon_{it}
\]

(2)

where: \(Y_{it}\) – dependent variable – real GDP growth rate (%); \(\alpha\) – free-term coefficient; \(\beta\) – independent variable coefficient; \(X_{it}\) – independent variable – tax evasion (index takes values between 0 and 10); \(\epsilon_{it}\) – residual error; \(i\) – country; \(t\) – time period (1997-2010).

4. Results

By solving the simple linear regression (naive model), in which cross-sectional fixed effects have been introduced, the following estimations have resulted (table no. 1):

<table>
<thead>
<tr>
<th>Variables</th>
<th>OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
</tr>
<tr>
<td>C</td>
<td>-1.225782</td>
</tr>
<tr>
<td>EVAS</td>
<td>0.865913</td>
</tr>
</tbody>
</table>

| R-squared | 0.127170 |
| F-statistical | 1.608515 |
| Prob(F-statistical) | 0.036213 |


Analysing the data several conclusions can be drawn. First, standard error evaluation of the regression function coefficients is lower (absolute value) than the coefficient values. This means that these coefficients have been correctly estimated. Second, the probability attached to the t-Statistical test are inferior to the level of relevancy of 1%; thus, coefficients are considered significant from a statistical point of view. Third, the correlation coefficient, with a value of 12.71%, shows the fact that the statistical link between economic growth and tax evasion is weak, the modifications that occurred in the evolution of economic growth being present in the tax evasion modification. In other words, a growth of the index value, i.e. an improvement of the public finances situation under the impact of tax evasion with 1% determines an increase of 0.865% to the economic growth rate. Fourth, the Durbin-Watson test, with a value of 2, under the critical threshold, indicates the fact that the residual variables are not autocorrelated.

Thus, it can be observed how the proposed model can be considered representative in order to describe the link between economic growth in the European Union and tax evasion, in the period 1997-2010. The linear effect identified in the case of tax evasion has been isolated by introducing five control variables, the extended panel model thus taking the following formula:

\[ GDP_{it} = \alpha + \beta \times EVAS_{it} + \sum_{k=1}^{n} \beta_k X_{kit} + \mu_i + \delta_t + \varepsilon_{it} \quad (3) \]

where: \( \alpha \) – constant, \( \beta \) – interest variable coefficient, \( \beta_k \) - independent control variable coefficient from \( k \) to \( n \), \( X \) – independent control variables, \( \mu_i \) – reflects cross-sectional fixed effects, \( \delta_t \) – time-dependent effects, which take into consideration factors which weren't taken into account, which may vary in time, \( i \) – country, \( t \) – time, \( \varepsilon_{it} \) – residual error.

The control variables set originates from literature and it includes: gross formation of fixed capital (investments), employment work force occupation rate, inflation, direct foreign investments and tax burden. Gross formation of fixed capital (FBCF) is made of resident producers investments in fixed actives during a given time span, as a percent of GDP. Occupation rate (EMPL) is calculated by the division of people employed whose age is between 20 and 64, at the total population of the same age category. Inflation (INFL) shows the change rate of economy prices, taken as a whole The fourth control variable is proxied by net foreign direct investments (ISD), illustrates the net inputs (inputs of new investments less decapitalized) in foreign economy investitures, and are divided to the GDP. Finally, the tax burden (BURDEN), or tax ratio, is computed by taking the total tax payments for a particular fiscal year as a fraction or percentage of the Gross National Product (GNP) or national income for that year.

The results of the estimation are contained in the table no. 2:

<table>
<thead>
<tr>
<th>Variables</th>
<th>OLS</th>
<th>Fixed Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>p-value</td>
</tr>
<tr>
<td>C</td>
<td>-5.634778</td>
<td>0.0701</td>
</tr>
<tr>
<td>EVAS</td>
<td><strong>0.764548</strong></td>
<td><strong>0.0000</strong></td>
</tr>
<tr>
<td>FBCF</td>
<td>0.233318</td>
<td>0.0020</td>
</tr>
<tr>
<td>EMPL</td>
<td>-0.033097</td>
<td>0.3944</td>
</tr>
<tr>
<td>INFL</td>
<td>0.386473</td>
<td>0.0000</td>
</tr>
<tr>
<td>ISD</td>
<td>-0.006305</td>
<td>0.3075</td>
</tr>
</tbody>
</table>
Because the panel model (Column 2 and 3) might be described using data heterogeneity, this aspect has been investigated in the case of models with fixed effects - FE (cross-sectional and of period) and with random effects - RE. In the models with fixed effects, the \( \alpha_i \) error component can be correlated with the \( x_{it} \) regressors, although, the hypothesis which presumes no existing correlation between \( x_{it} \) and the random component of the error \( \varepsilon_{it} \) is maintained. In the RE models, it is presumed that the \( \alpha_i \) error is completely random, a hypothesis stronger which implies the lack of correlation of this with the regressors.

In the case of models with fixed cross-sectional effects and with fixed period effects, the values of the F test, as well as the Akaike info and Schwarz criteria indicate the fact that the fixed effects are preferable, according to the OLS estimation. Also, this aspect of has been tested with the help of the Redundant Fixed Effects Tests.

Thus, the model with fixed cross-sectional effects (Column 3 and 4) indicates the fact that the interest variable EVAS is significant and positively correlated with the dependent variable, and the relation remain robust after including several control variable. The control variables like gross fixed capital formation (FBCF) and inflation (INFL) are also significant and positively associated with economic growth whereas FDI and BURDEN are insignificant. At the level of the Romanian economy, it was found in previous findings an inverse ratio connection between GDP and unemployment rate, of a moderate intensity [9].

In order to decide whether a random effects (RE) model or a fixed effects (FE) model is more appropriate, the Hausman test was be performed. Its null hypothesis confirms the fact that the specific estimator of the random effects is correct [1]. As it can be seen in the Table no. 2, the probability associated to the Hausman test is, which indicates the fact that the null hypothesis can be rejected, thus the FE model is more appropriate over the RE model.

### 5. Conclusions

The EU has developed a complex set of tools in order to strengthen the EU states capacity of fighting against tax fraud and tax evasion. This set includes the EU legislation (concerning the transparency improvement, the information exchange and the administrative cooperation), coordinated actions, recommended for Member States (such as those concerning aggressive tax planning and tax havens) and the specific recommendations for each country, as part of the European Semester. The EU will also provide financial support for the cooperation between the national fiscal authorities, through the FISCALIS 2020 programme.

The EU system is based on the principle of the automatic exchange of information. In this respect, according to the European Commission (2013), “The EU is a world leader. The automatic exchange of information between Member States was designed back in 2003 and implemented in 2005, through the Directive regarding the taxation of savings income. Thanks to this directive, Member States exchange information related to the non-resident taxpayers’ savings income, worth EUR 20 billion. Furthermore, the Directive regarding the administrative cooperation, which came into effect in January, this year, provides for the automatic exchange of information concerning a wide range of revenues.”
At the EU level, several measures are necessary, as follow [11]:

- adopting the directive proposed revision regarding the taxation of savings income by the European Council and granting the Commission with mandates to negotiate improvements of the same nature in the existing agreements with neighbouring countries.

- The Council should also adopt the draft agreement concerning the fight against fraud and the fiscal cooperation between the EU and Liechtenstein and the mandate to open negotiations with other neighbouring countries of the EU.

- The pending measures to fight fraud in the field of VAT, especially the Quick Reaction Mechanism, should also be adopted by the Council.

- According to the Commission action plan from December 2012, about strengthening the fight against tax fraud and tax evasion, Member States should give priority to certain further concrete actions.

- The principle of the automatic exchange of information in the EU should be extended, in order to include all the relevant types of revenue. The goal will be to ensure that the automatic exchange of information about dividend, capital gains and other revenues as of 2015, takes place. As of 2015, the automatic exchange will also become the EU rule for salary revenues, directors’ fees, pensions, life insurances and revenues from immovable property.”

6. Bibliography


