IDENTIFICATION AND ESTIMATION OF THE INFLUENCE OF GENERAL MACROECONOMIC FACTORS ON CHANGES IN COUNTRY’S TAX CULTURE

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Vytautas Magnus University, Lithuania

Abstract. The article presents the concept of tax culture by accentuating the possibilities of tax culture expression. The general factors that influence changes in tax culture are distinguished and defined. The general macroeconomic factors that influence changes in tax culture are presented. Based on the aforementioned factors, changes in the tax culture of Member States and the macroeconomic factors are analyzed in their entirety, and the influence of such factors on the changes of tax culture is calculated and assessed.

Key words: tax culture, tax culture expression, tax macroeconomic indicators, participants of tax system, general macroeconomic factors of tax culture

Introduction

The concept of tax culture is a sparsely studied phenomenon both in Lithuania and worldwide. Compared to Lithuania, the numbers of foreign researchers interested in this field are quite large, and they keep growing (Schmölders, 1970; Schneider, F., Klingmair, 2004; Reckers, Sanders, Roark, 1994; Spitaler, 1954; Pausch, 1992; Neree, 2000; Nerre, 2001). However, there are also more and more Lithuanian scientists who are keen on researching the relations between economics and culture as well as tax culture (Laumenskaitė, 2001; Beržinskas, 2002; Baltrušaitis, 2008; Jurgelevičienė, 2005; Levišauskaitė, Šinkūnienė, 2006; and Pukelienė, Šinkūnienė, 2007). However, the number of works analyzing the problems of assessing tax culture is currently relative small, and the variety of methods of researching this specific field is quite lacking. Factors influencing tax culture, upon which the effectiveness of the tax system and the success of the country’s economic politics depend, are rarely analyzed. Therefore, the accentuation, analysis and assessment of the factors influencing tax culture changes in the country and the effectiveness of the tax system are the presumptions of the utmost significance for the country’s economic and social growth.
The object of the research is the influence of general macroeconomic factors on changes in the country’s tax culture. The aim of the study is to assess the influence of general macroeconomic factors on changes in the country’s tax culture. The following objectives were formulated in order to achieve the set goal: 1) define the general macroeconomic factors influencing changes in tax culture; 2) present the methods of the influence of the general macroeconomic factors on changes in tax culture; 3) assess changes in the tax culture of the EU Member States under the influence of macroeconomic factors, based on the methods of influence of the general macroeconomic factors on changes in tax culture. The following research methods were employed: comparative analysis of scientific literature, graphical analysis, mathematical modeling and statistical comparative analysis.

1. Tax culture in terms of the influencing macroeconomic factors

Tax culture as a social phenomenon is expressed through people, i.e. citizens of a country, who participate in the tax system creation and assessment processes, and through the results of their activities. The expression of tax culture is perceived ambiguously. Depending on the significance the concept of tax culture was granted by the authors using this definition, it may be perceived in the following three ways: through the attitude of tax system participants, through their behaviour on separate account, and the synthesis of attitude and behaviour prisms. The possibility of expressing tax culture via attitude (Boos, 1999) or behavioral (Martines-Vazquez, 2000; and Tanzi, 2000) aspects in seen rather rarely. The third version is more common: the synthesis of the first two expression possibilities (attitude and behaviour) (Schumpeter, 1929; Spitaler, 1954; Pausch, 1992; Neree, 2000; Nerre, 2001; Fagbemi, Uadiale, Noah, 2010) is applied, meaning that tax culture is related to the practical application of the tax system and influenced by national culture as a social system which is expressed through one’s personality. Each and every tax influences the way of thinking and behaviour of the tax system participants in both the economic and psychological way. Meanwhile, the economic, social, historic, geographic and psychological differences have an impact on the taxpayers of a specific country (Rakauskienė, 2006). Therefore, the impact of the factors influencing tax culture may be analyzed in general, i.e. through the entirety of the attitude and behaviour of the participants by further expanding the factors influencing tax culture with social and economic aspects. Thus, tax culture is the entirety of the tax relations formed in national culture to optimize the tax revenue, which encompasses the attitude and behavior of tax system participants in the system.

The factors influencing tax culture may be distributed into general and specific factors. This is so due to the fact that tax culture is dependent on general social-economic factors which are inherent to culture and economics in general, and specific factors typical of the tax system (Fig. 1).
The concept of tax culture shows the qualitative difference of human activities when compared to other norms of economic life. Therefore, macroeconomic factors influence the attitude and behaviour of tax system participants through the level of the country’s culture, its historic experience, development level, social and demographic position, studying and education system, upbringing. The tax system is formed along with the country itself; thus, the attitude and behaviour of taxpayers is determined by the historic experience of the country’s development, the result of which is the current tax system. As the system undergoes radical changes, the citizens of the country are always presented with a possibility to compare the current tax system with the former one, which in turn may not always yield positive results. The level of the country’s economic development and the social status of its citizens condition the living standard of those very citizens and the redistribution of the country’s revenue. This in turn influences the development of tax system and the size of the budgetary revenue.

According to L. P. Feld and B. S. Frey (2002), such demographic factors as age, gender, family status, income (Doerrenberg, Duncan, Fuest, Peichl, 2012) and the national identity level influence the behaviour of taxpayers. Demographic factors tell on the number of residents in the country and the workforce quantity and level upon which the collection of tax revenue depends. A well arranged and effective education system of the country grants its youngest citizens fundamental knowledge, introduces the social rules and civic attitudes, and awards the general knowledge of social sciences, i.e. introduces to the main economic tendencies, discusses the running of the tax system and substantiates its necessity, allows to better understand the decisions of the government,
and inspires to deepen the knowledge of social sciences while studying on a higher educational level (Doerrenberg, Peichl, 2010). The transfer of both the cultural and the tax culture values is heavily influenced by family, parental upbringing, and attitudes regarding the tax system. This is so due to the fact that parental attitude towards the country and its government, approval / disapproval of the tax system and behaviour towards such system will be the major influencing factors in the decisions of the young generation regarding all of these issues.

After summing up the above listed indicators and assessing their positive and negative aspects in terms of tax culture, it can be said that they reflect the behaviour of taxpayers rather than the attitude towards taxes and the tax system. Also, one should note that all of the attitude factors influencing tax culture have not been fully assessed so far.

2. Methods

Five general social-economic factors were distinguished to have been most frequently used in scientific literature (see Fig. 1), and a questionnaire-based survey was given. During 2005 and 2006, a group of taxpayers from the Lithuanian taxing system was surveyed (550 respondents – separate natural persons and legal entities). At that time, three most specific general social-economic factors of the Lithuanian tax culture were identified (Fig. 2). The respondents did not pay special attention to the rest two factors (historic experience and economic upbringing in the family).

Analysis of the distribution of opinions regarding the general factors showed that the opinions of natural persons and legal entities practically coincided as to the major

![Graph: Distribution of the respondents’ opinion regarding the general social-economic factors of tax culture, %](image-url)

**Fig. 2.** Distribution of the respondents’ opinion regarding the general social-economic factors of tax culture, %

*Sources: authors’ calculations based on questionnaire data.*
factors of this group. The taxpayers have selected the country’s development level (61.1 percent of natural persons and 66.3 legal entities) as the first priority; the second one was education and upbringing system level (respectively 37 and 44.2 percent), and the third was the citizens’ social standing factor (respectively 43.6 and 44.7 percent). Therefore, the social-economic taxing culture factors such as the country’s economic development, upbringing and education level and the citizens’ social standing were chosen as influencing the selection of the tax-payers’ macro-economical factors. They are subject to the general country’s cultural and economic development. By classifying the obtained factors in terms of attitude and behaviour synthesis, one macroeconomic factor (education and upbringing system level) is reflected through the taxpayers’ attitude, and the rest two factors through their behaviour in terms of the tax system.

Four to seven indicators were selected for each of the general social-economic factor to the group of overall impact, which reflected the tax culture, and they were identified in the international statistics databases (EUROSTAT, Eurofund, and World Resources Institute) as well as in the databases of the Lithuanian Department of Statistics. In order to reflect each tax culture factor more evenly, the number of indicators was reduced to two for each factor, which, referring to the conception of taxing culture, reflects the influence of this factor on the taxing culture in the best way (Table 1) (Šinkūnienė, Levišauskaitė, 2009; Lago- Peñas, I. and S., 2010; Uadiale, Fagbemi, Ogunleye, 2011).

**TABLE 1. General social-economic factors of tax culture and their reflecting indicators**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Factor-reflecting indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>The economic development level</td>
<td>GDP per capita, EUR</td>
</tr>
<tr>
<td>of the country</td>
<td>Occupation level in the country, percentage from the employable</td>
</tr>
<tr>
<td></td>
<td>population number</td>
</tr>
<tr>
<td>Upbringing and education level</td>
<td>People with university education, percent</td>
</tr>
<tr>
<td>in the country</td>
<td>Costs of education, percent from GDP</td>
</tr>
<tr>
<td>Country citizens' social standing</td>
<td>Income level received by the medium society, percent</td>
</tr>
<tr>
<td></td>
<td>Gini index to measure economic inequality</td>
</tr>
</tbody>
</table>

*Source: compiled by the authors according to Šinkūnienė, Levišauskaitė, 2009; Lago- Peñas, I. and S., 2010.*

The indicators such as GDP per capita (purchasing power standards (PPS) and occupation level in the country (percent), reflect the country’s economic development level, relatively showing the personal income of a separate citizen, the level of paid taxes and inclusion of active tax system participants into the economic-social life. GDP is the most frequently used universal taxing measure showing the taxation limits. GDP is also a social economic standing measure, because the distribution into society layers
is performed as per received income level, which is shown by the GDP structure. The occupation level is calculated as the number of occupied population including all the employable country’s people expressed in percentage. The more labour force and the more taxing system participants in the country, the more economic goods are created, the quicker economics grows, and more taxes are collected on a stable basis.

Such indicators reflect the upbringing and education level in the country as people with university education and costs contributed to education, percent from GDP. An indicator of people with university education is calculated as the ratio of students participating in university education, without referring to their age and gender, and people of the same age (18–28 years) expressed in percentage. The more educated people, as a rule receiving higher income, come from the medium society as its stabilization element and the basis of tax culture. Costs for education (percent from GDP) are expressed as the public costs to education and GPD percentage ratio. Education process quality and quantity depend upon the costs contributed to education, so these costs show the actual support and priorities in the country in distributing the budget allocations.

The country citizens’ social standing factor is reflected by the Gini index and the income level of medium society (percent) stating income distribution inequality and social, economic stability level, as an option of taxing culture integrity expression. The Gini index is the most widely used economic inequality measurement indicator. In terms of tax culture, the higher social polarization increases income inequality and instability in society due to uneven possibilities to participate in economic, social and state life. The income received by medium society (in percentage) shows the income distribution in the medium society layers.

Higher values of all the indicators reflecting tax culture as presented in Table 1 show a higher tax culture level in the country, except the Gini index, the larger value of which shows a lower tax culture level, because it promotes social inequality.

The influence of macroeconomic factors on tax culture changes is calculated by using the formation scheme of the generalized mathematical model for tax culture assessment (Bu kevičiūtė, Mačerinskienė, 1999; Šinkūnienė, 2009):

\[
I_{TC}^{\text{changes in the influence of macroeconomic factors}} = \alpha \times \frac{\Delta MACRO}{\Delta I_{TC}} \times \Delta I_{TC}^\% \%, \tag{1}
\]

where

- \( I_{TC} \) – tax culture index, the margins of which are the following:
  - [0–0.5] – lower tax culture level
  - [0.5–0.8] – medium tax culture level
  - [0.8–1.0] – high tax culture level
- \( \alpha \) – weight ratio of macroeconomic factors (equal to 0.5)
\[
\Delta MACRO \quad - \text{variation of macroeconomic factors during the period:} \\
\Delta MACRO = MACRO_{t+i} - MACRO_t,
\]

where

\( MACRO \) – value of the macroeconomic factor
\( t \) – initial year of the period
\( i \) – number of years in the period

\[
\Delta I_{TC \text{points}} \quad - \text{variation of taxing culture index in points during the period:} \\
\Delta I_{TC \text{points}} = I_{TC(t+i)} - I_{TC(t)}
\]

\[
\Delta I_{TC \%} \quad - \text{percent variation of taxing culture during the period:} \\
\Delta I_{TC \%} = \frac{\Delta I_{TC}}{I_{TC(t)}} \times 100.
\]

3. Results

The EU countries have been selected to determine the influence of macroeconomic factors on the changes of tax culture due to the availability and relevance of their data. However, due to the complexity of the taxpayers’ questionnaire survey, which should be performed in all the Member States, the Lithuanian taxpayers’ survey data were selected in the research methodology by determining the tax culture factors. In our opinion, it is not going to distort the research results because Lithuania belongs to a group of the newest EU countries, which makes the larger part of the EU; 55.2 percent of our import and 65.9 percent of export are directed to the Member States whose economic and taxing environment is relevant to the development of the Lithuanian tax system and tax culture. The data of the period 2000–2009 were selected for the research due to their availability and comparability.

The EU variations of the general social-economic factors, i.e. the country’s economic development, upbringing and education system level, citizens’ social standing during 2000–2009 are presented in Fig. 3. The growth of these macroeconomic factors in the period under analysis was observed in seven EU countries, mainly due to the increase of macroeconomic indicators during 2000–2007, where the largest positive variation (16.8 percent in Malta) was conditioned by the rapid macro-economic growth (even 35.4 percent) namely in this country during the period of 2000 to 2007, surpassing the variations in the group of these factors of all the EU countries during the period of 2000–2009. The negative macroeconomic decrease was observed in 20 EU countries, the most rapid trends were noted in Luxembourg, Greece and Romania both in the study period (the indicators of macroeconomic factors were reduced respectively by 32.5, 46.8 and 66.3 percent) and during separate time spans (an extremely sudden deterioration of the macroeconomic standing was observed during 2007–2008 – respectively by 27.8, 46.6 and 60.0 percent).
This consistent pattern in the trends of the growth of macroeconomic factors has not expressed, and different countries have taken the leader’s positions in macroeconomic growth during different time spans. For example, during the period 2000–2007, the largest variation of macroeconomic factors was observed in Malta, Estonia and Bulgaria (respectively in the reducing sequence), in 2007–2008 in Estonia, Cyprus, and Poland, in 2008–2009 in Romania, Germany and Poland. The current analysis has disclosed a consistent pattern of another nature: all the above-mentioned countries, which experienced the speediest positive macroeconomic variations during the period under analysis (and separate time spans in this period) are the newest EU member states: in 2000–2009 Malta, Cyprus and Estonia experience the fastest macroeconomic growth (12–7 percent). There was a reduction of the macroeconomic indicators in the rest newest EU countries (63 percent of the newest member states) (except Bulgaria, whose growth was 1.91 percent during the period).

A poorer situation was observed in the old EU countries, where the positive variations of the macroeconomic indicators were observed only in 20 percent of the old countries (Holland, Belgium, and the United Kingdom). Thus, an analysis of separate spans during the surveyed period shows that the macroeconomic factors increased only during the period 2000–2007 by (0.54 percent on the average) due to the macroeconomic growth of the above-mentioned EU countries. There was a reduction during the remaining spans of that period. The fastest reduction of the macro-economic factors was observed during the period 2007–2008 (5.76 percent on the average), because macroeconomic growth the of the EU countries was minor (only three countries whose positive macroeconomic variations spread within the margin of 5–12 percent) in comparison with the very fast
reduction of the macroeconomic factors (three countries whose negative macroeconomic variation spread within the margin of even 28 to 60 percent).

The general level of tax culture in the EU countries for the period 2000–2009 declined by 4.66 percent on the average, i.e. the reduction of this tax culture by 0.95 percent on the average was caused by the general social-economic factors (Fig. 4).

During the study period, the general variation trend was observed in the tax culture of the whole EU. The positive influence of these factors upon tax culture was notable in these twelve EU countries where the tax culture increased: the strongest impact of these factors on the tax culture growth was felt in Bulgaria, Greece, Hungary, and Latvia (respectively, 45.11, 36.31, 34 and 18.9 percent), except Romania, where the macroeconomic factors reduced the general tax culture growth by 4.27 percent. The negative variations of tax culture occurred in five EU countries, and during the study period no positive influence of macro-economic factors upon the tax culture variation was observed in any country; this group of factors influenced the general Slovakian tax culture decline by 56.01 percent; it was the largest negative $I_{TC}$ variation in the EU countries during the period 2000–2009.

The positive influence of macroeconomic indicators upon the tax culture growth manifested itself in the five old and six new EU countries; however, the influence upon the tax culture increase in the new countries was larger due to the new available but not used economic and social options. Meanwhile the negative influence of these factors on...
the tax culture reduction was expressed mainly in the old EU countries, which had no such potential development possibilities. Analysis of the influence of macroeconomic indicators upon tax culture in the EU countries for the period 2000–2009 shows that the general tax culture reduction by 0.95 percent was influenced by the reduction of macroeconomic indicators. Starting from 2004–2005, nearly in all the old EU countries where the tax culture was on the medium (in Denmark high) level, its reduction started (except Ireland and the Netherlands where tax culture did not reduce but started to increase). It does not mean that the tax culture level has declined; just the tax systems of the old countries started adjusting to the process of tax systems in the new countries, responding to the strong eastern development wave.

**TABLE 2. Index of tax culture and tax culture level in 2000–2009**

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2004</th>
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<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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<td>0.90</td>
<td>0.90</td>
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<td>0.76</td>
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**Sources:** authors’ calculations based on Eurostat data.
The analysis has shown (Fig. 4, Table 2) that the tax culture level is lower in the newest and the older EU countries whose macroeconomic indicators are low (Spain, Italy, Portugal and Greece) due to insufficiently developed taxing systems, economic and social state policy; on the other hand, the low taxing cultural level of these countries, in turn, have contributed to their worse macroeconomic indicators.

Conclusions

- Based on the analysis of scientific literature, the factors influencing tax culture were divided into two groups – general and specific. This is so due to the fact that tax culture is dependent on the general social-economic factors which are inherent to culture and economics, and the specific factors typical of the tax system.
- The analysis of scientific literature revealed five macroeconomic factors. Questionnaire-based surveys (according to the Lithuanian sample) were employed to select three most important factors (economic development level, education system level, and social status of the citizens) influencing the general culture of the country and its economic development.
- Four to seven indicators were selected for each of the three factors. These indicators reflect tax culture and are identified in international statistics databases (EUROSTAT, Eurofund and World Resources Institute) or in the database of the Lithuanian Department of Statistics. To better reflect each factor of tax culture, the number of indicators was reduced to two for each factor, which structurally represent the influence of the respective factor on tax culture the best in terms of the concept of tax culture. The influence of macroeconomic factors on changes in tax culture is determined by employing the formation scheme of a generalized mathematical model for tax culture assessment.
- Analysis of the influence of macroeconomic factors on tax culture has shown that the factors of this group had a negative impact on changes in tax culture (under the influence of macroeconomic factors the decrease of tax culture reached 0.95 percent, and the general $I_{MK}$ showed an average drop of 4.66 percent).
- The common tendency of change in the entirety of the observed tax culture and tax culture influenced by macroeconomic factors is noticed in the studied member states during the period under analysis. The positive influence of these factors on tax culture was expressed in the twelve EU countries in which tax culture was growing. The only exclusion was Romania, where the macroeconomic factors decreased the general growth of the country’s tax culture by 4.27%. Negative changes in tax culture were observed in fifteen member states. No positive influence of the macroeconomic factors on changes in tax culture was noted in either of these countries during the period under study.
Following respective calculations it became evident that the macroeconomic influence on the growth of tax culture in new member states was stronger than in older countries because of the new but not yet applied economic and social possibilities to develop the current potential.

Almost in all older EU countries which had the tax culture of a medium level (high level in Denmark), the decrease of tax culture started during 2004–2005 (except for Ireland and the Netherlands, the tax culture of which started growing instead of decreasing). This did not mean that the level of tax culture had dropped. It simply showed that the tax systems of older countries entered the process of adapting to the tax systems of the new countries by reacting to the large-scale development of the East. The tax culture of all these countries either increased or remained stable at the end of the study period (except for the high level tax culture of Denmark, which decreased by 4.47 percent during 2000–2009 due to influencing macroeconomic factors).

The results of the analysis have shown that the new and old member states whose macroeconomic indicators are lower (Spain, Italy, Portugal and Greece) have a low tax culture due to underdeveloped tax systems, economic and social national politics. On the other hand, the low level of tax culture of these countries in turn determines their poor macroeconomic indicators.

REFERENCES


