PHD THESIS

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RELATIONS OF ECONOMIC COMPETITIVENESS AND TAXATION IN THE EUROPEAN UNION

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PRELIMINARIES AND OBJECTIVES OF THE STUDY

The dissertation deals with the analysis of competitiveness and taxation and the possible correlations between those, in the EU and Hungary.

The research is timely from the point that the role of different taxes being the highest revenues of the budget has become more important in the economic development, in the recent years. Decrease or increase in certain tax rates or changes in the taxation structure have relatively high importance in modifying the competitiveness and economy of given countries. Different authors interpret competitiveness in their own way, although they all agree that the role of economic development of a country and, thus, its competitiveness are to improve the life quality, "well-being" and life standard of the inhabitants. The current study took on only the analysis of economic factors of national competitiveness. The analysis primarily cover the macroeconomic indicators that possibly have direct relation with tax revenues and tax burdens, which well describing and overall indicators of the economy. As results of the analyses, an evaluation of the macroeconomic situation and role of Hungary and further members of the EU and the problems of economic policy to be solved will be presented.

The *objective* of the dissertation is to define and also to analyse (cluster analysis, regression analysis, order analysis) and group the relations between competitiveness and taxation, by introducing the specific taxation systems of the EU countries. From the aspect of the results obtained, the competitive status of the EU-25 will be describe for the years 2001 to 2004, by using different macroeconomic indicators, tax revenues and burdens.

MATERIAL AND METHODS

The structure of the dissertation follows the directions written in the PhD Doctoral Rules *(University of Kaposvar, 2005)*. The analyses involve 15 member states of the EU and the new accessed countries. The analyses of economic competitiveness and tax revenues were carried out both separately and aggregately, and these consider and evaluate all the 25 countries of the EU.

The research is based on secondary data of the following sources: printed and electronic (CD-ROMs and internet) publications of EUROSTAT, HSO and different sites of the internet. The international data are provided by the national statistical offices of the member states and are harmonised and organised into comparable databases by EUROSTAT.

In the dissertation, an evaluation of a static situation is presented, which was observed by using a classifying method, and afterwards, cluster analysis of the population, which resulted in new models. Multivariable analysis was used to analyse the population.

Chapter Results is divided into two parts; the first one shows the analyses of tax revenues, which was carried out in two aspects also used internationally:

1. Composition of tax revenues:
    - direct tax revenues
    - indirect tax revenues
    - social contribution*
2. Comparison of tax burdens according to their economic roles:
    - Consumption taxes
    - Labour taxes
    - Wealth taxes

Analysis of tax revenues is carried out by expressing it in the proportion of the Gross Domestic Product (GDP), ensuring the comparability of different states. It was also considered that, due to national peculiarities, the analysis of the common

* here, national insurance contributions paid by employees and employers are considered

features and compatibility of taxation systems were feasible limitedly, focusing for only the most important questions. For further detailed analysis, the classification of taxes by different revenues was more suitable, because many – mainly the newly joined states – do not use wealth taxes.

After the analysis of tax revenues, the analysis of *competitiveness of national economies* was carried out. A model was created, based on the involved parameters that were selected out after having reviewed the indicators being the basis of the definitions of competitiveness:

- GDP,
- employment,
- labour productivity,
- unemployment rate,
- export – import,
- and inflation.

Both static and dynamic indicators were used, because in many cases there were not data available to define dynamic indicators. However, it was important that the classification was based on dynamic indicators, well describing the period analysed, or on the average figures.

The classification of the member states was carried out with k-centred cluster analysis, which means a non-hierarchical method and creates "k" disjunctive classes of the observed objects.

As first step of the comparing analysis of the two groups of factors (indicators of tax incomes, indicators of competitiveness) the relations between the features were analysed. Here, also the minimal wage was involved; because a close relation was expected with the income tax revenues. Considering that not every state defines it, the averages of the EU-15 or NMS-10 were used. Correlation analysis was used to find out the strength of the relation between factors (*Szűcs, 2002*).

After the correlation analysis, regression functions were fitted to find out the functional relations (*Molnár- Barna, 2004b*). In the regression analysis of the two or more variables, both linear and non-linear functions were tried. The models and its parameters were tested by variance analysis and t-test.

In the aggregate analyses, the states were put in orders, according to their indicators of tax revenues and competitiveness. In first step, orders were made by each indicator, than based on the aggregated numbers of places, the final order were set up. The strength of relation between orders of different indicators was calculated by Kendall's concordance indicator.

Finally, aggregate analysis of the two sets of indicators is used to define the aggregate model of the EU-25, which can be used for geographic differentiation by social, economic, thus economic political aspects.

The results are shown in territorial informatical maps, and conclusions are drawn in each step of the analyses.

RESULTS

Tax revenues

After the detailed analysis and assessment of the tax revenues, the states were grouped by considering the direct and indirect taxes and social contributions together (Figure 1).

Cluster "**Averages**" contains Ireland, Cyprus, Malta and the United Kingdom. All the three revenues of these countries represent an average figure in the percentage of the GDP.

Most of the states (14) belong to the cluster **"Low taxes – high contributions"**. Although the indirect taxes are about the average, but a bit lower than in the first group. Taxes of corporate and personal incomes are the lowest here; however the social contributions are rather high. Thus, entrepreneurs benefit from low corporate tax rates, while employment suffers from the high proportion of social contributions if it comes from high tax burden. It is also important that high employment* rate can result in high proportion of the social taxes.

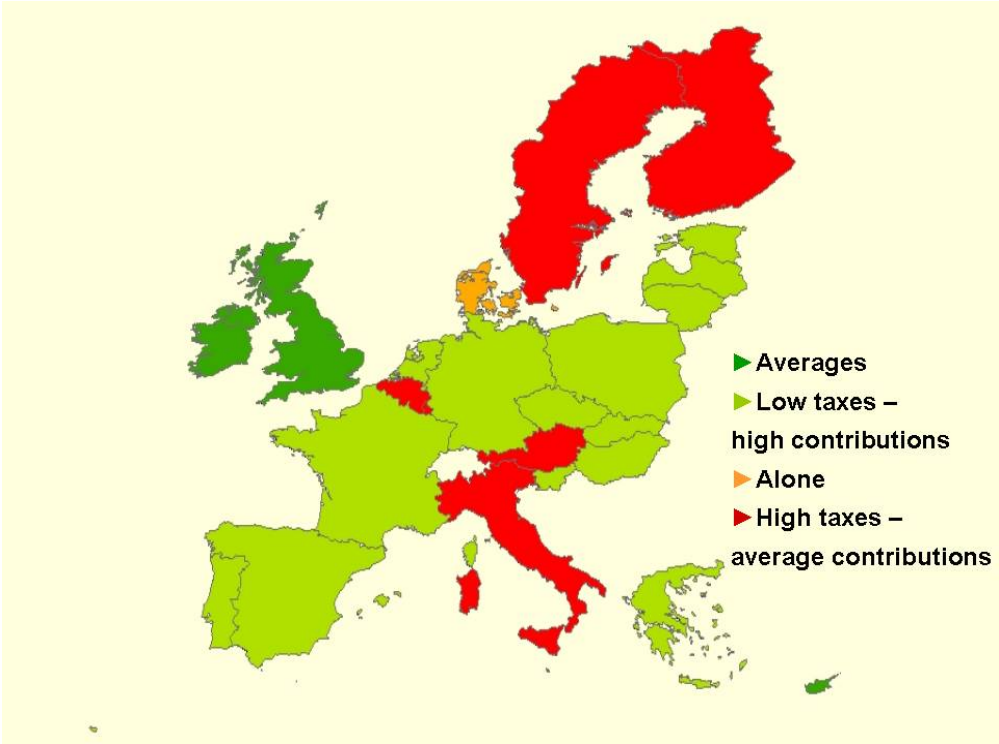
Only Denmark entered Cluster 3 **("Alone")**. Here the proportion of direct and indirect taxes is high with a low social contribution level.

Cluster 4 **"High taxes – average contributions"** contains: Belgium, Italy, Luxemburg, Austria, Finland, and Sweden. Here, the revenues from indirect taxes are about average or little higher, the proportion of social revenues varies. Neither the indirect taxes are favourable in these countries, as the revenues of both the corporate and personal incomes are higher than the average.

Summarising, very definite difference were not found between groups, although one or two typical features differentiate the countries well. While in the first group the countries can be found with average tax revenues, the second contains those with the lowest direct tax revenues, in the third Denmark with outstandingly high taxes and contributions, and in the fourth 6 states were grouped that have high tax revenues, as well.

* employees are the tax-payers, because contributions need to be paid by or after them

Figure 1: Aggregated model of tax revenues in the EU (2001-2004)



Source: own edition based on Eurostat data

Analysis of economic competitiveness

To carry out the analysis of macroeconomic indicators, k-centred multivariable analysis was chosen. Not each of the indicators was involved that had been individually analysed previously, because those describing similar elements of the economy give similar information. In order to ensure proportionality, the following indicators were involved in the analysis:

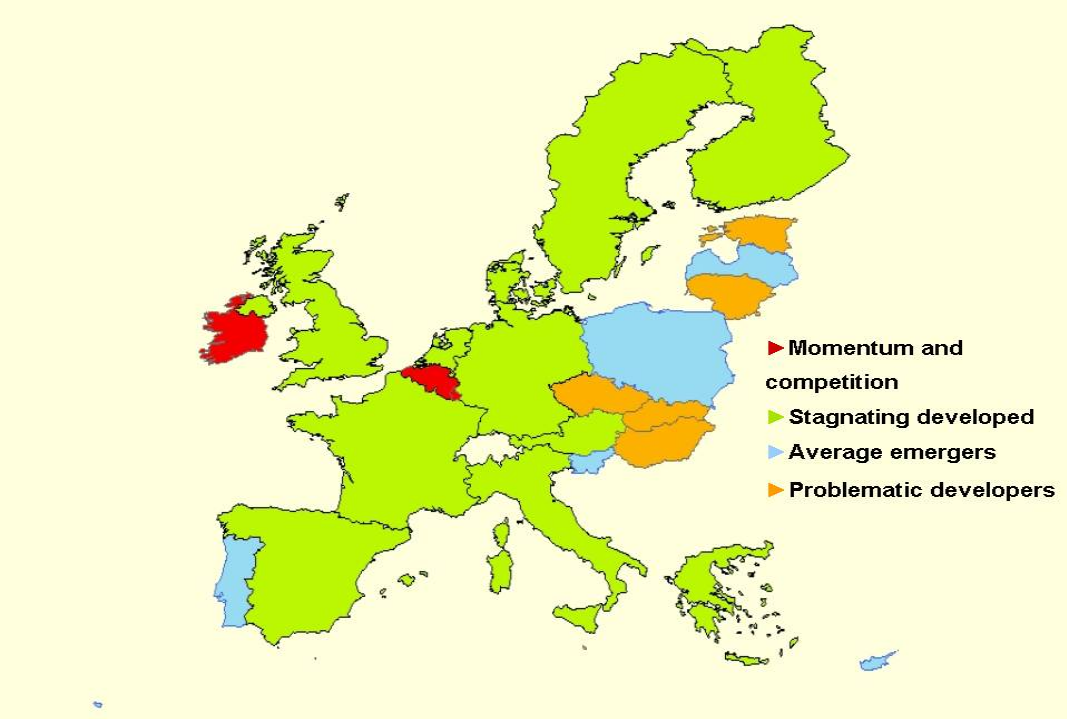
- average rate of PPS from 2001 to 2004,
- average rate of employment from 2001 to 2004,
- average labour productivity from 2001 to 2004,
- unemployment rate from 2001 to 2004,
- proportion of import in GDP from 2001 to 2004,
- proportion of export in GDP from 2001 to 2004,
- average inflation rate from 2001 to 2004,

Based on preliminary investigations, four groups were created; the members of the groups are shown in Figure 2.

"Momentum and competition": three countries belong to this cluster**;** all of them show intensive and continuous development. Between 2001 and 2004, there was an extreme increase in employment, and the unemployment rate is lower than the average, in these states. Labour policy, thus, meets the requirements of the EU here, unfortunately in none of the other groups. Also the indicators, showing the openness of the economy are high: the proportion of export is higher than 100 per cent of the GDP and import hits 90 per cent. At the end of the period, inflation was at an average level. Labour productivity is also outstandingly high; the income per capita is much higher than in the other states of the union. The members of this group produce at a high economic level and also their growth is fast, due to these, their competitiveness is hardly hittable by the others. It must be mentioned that the results come from the analysis of only the four years of the study; before that, more Western European states would have belonged here.

"Problematic developers": the analysis grouped 5 states in this cluster. Here, the employment increases at the slowest rate. Their economy can be considered as open, with the dominance of import, in general. That means that from 2001 to 2004, these states were given lots of products and services by the EU, thus supplying the increasing demands on the critical markets. Because the labour productivity remained low, despite of their increasing GDP, they can not reach their Western European neighbours. The inflation rate is significantly higher than the average, in all the four year of the period analysed. Unemployment rate remained high; the proportion of unemployed in the active population is the highest in this group. It can be summarised that in the Czech Republic, Estonia, Lithuania, Hungary, Malta and Slovakia, the economic development accelerated prior to their accession to the EU; however the economic policy still needs to face many problems.

Figure 2: Model of simplified economic competitiveness in the EU-25 (2001-2004)



Source: own edition based on Eurostat data

"Stagnating developed": the results of the analysis show that the EU-10 countries bear stable or slowly developing economy. Employment rate is about the average, similar proportion of the population is employed in these countries. There is a small or medium increase in GDP with a slowing tendency. The proportions of export and import are low in the GDP with similar percentages. Inflation rate is also at an average level; this means a relatively high, but lasting price level. In these countries, labour productivity is around the average, the average increase of employment rate reflects on stable competitiveness. This performance of the economy* is not a stop in the development at all, but rather an intention to maintain a balance and to achieve definite objectives and maintain results.

*According to economic indicators, economic development slowed down in 2001 not only in the EU but the world market experienced slowdown as well.

The "Average emergers"

Cyprus, Latvia, the Netherlands, Poland, Portugal, Slovenia belong in this group. Their all indicators move around the average level with the exceptions of the growth in employment, which was extremely little, and the inflation that was high in these countries, during the years analysed. Although, the growth of GDP is average, it is higher than in case of the "stagnating developed" countries. Both the export and the import represent an average level with similar percentages. Labour productivity is at the medium level, with the highest figure in the Netherlands and the lowest one in Latvia, within the EU-25. Unemployment rate is also around the average with the exception of Poland (10.3%).

Summarising, states belonging to the first and third clusters are the winner in competitiveness, although in case of the further two groups the judgement is not definite. These took good direction to develop their economies; and total evaluation of competitiveness is not feasible on the basis of only economic indicators. Further investigations of social, infrastructural, etc. indicators are needed, as well.

Relations of economic competitiveness and tax revenues

Regression analysis of consumption taxes, proportion of export in GDP and labour productivity

The aggregate analysis of the three variables was based on the following linear function:

$$y = 4{,}275 - 0{,}012x_1 - 0{,}020x_2,$$

where parameter "a" is not relevant for the variables. Parameter "b_1" means: 1% increase of the proportion of export in the GDP results in 0.012% decrease of the consumption taxes, while labour productivity remains stable. Parameter "b_2" means that 1000 PPS increase in labour productivity causes 0.02% decrease in consumption tax revenues, while the export ration stays stable. Relative error is high, 18.2 per cent. Thus it can be stated that increase in both the export revenues and labour productivity results in an opposite trend, that is, decrease of the consumption tax revenues.

Regression analysis of the revenues from other product taxes and import revenues

The correlation between the indicators is positive and moderately strong (r = 0,484). The proportion of import revenues explains the revenues from product taxes in 23.4 per cent. The variance analysis of the model and the parameters showed significance. The relative error of the model is 32.44%, which very high figure can be the result of that product taxes are introduced in only few countries and in low rate. The used function:

$$\hat{y} = 2{,}79 - 0{,}018x\,,$$

means that 1 per cent increase of the proportion of import in the GDP causes 0.018 per cent decrease in the proportion of product taxes.

Aggregate model of personal income tax, labour productivity, inflation rate and minimal wage

There is a strong and positive correlation of the indicators ($r = 0{,}607$). According to coefficient "D", the indicators analysed explain the personal income tax revenues in 36.8%. Both the model and the parameters were significant ($p<0{,}05$). As the dependent variable was the personal tax revenues in the analysis, the results show how the changes in labour productivity, inflation rate and minimal wage influence the personal tax revenues. The best fitting function is:

$$\hat{y} = 7{,}591 + 0{,}166x_1 - 0{,}761x_2 - 0{,}003x_3$$

Although the function fits with large error (20.95%), the impacts of changes are the following:

a) 1000 PPS increase in labour productivity causes 0.166% increase in the personal income tax revenues.

b) If the rate of inflation increases by 1%, the personal income tax revenues will decrease by 0.761%.

c) Increase of the minimal wage by 1 euro causes 0.003% decrease in the personal income tax revenues.

It needs to be emphasised that the model enables the change of only one of the variables, and everything else is stable. Increase of the labour productivity, thus in optimal case, increase of GDP, raises the proportion of taxes paid; while rise in the inflation rate and minimal wage causes less personal income tax revenues by reducing employment, thus increases the willingness to avoid taxing.

Comparison of orders of economic indicators and tax burdens

The results of the analysis will show the relations of the level of competitiveness and tax revenues in the proportion of the GDP in the EU-25.

The order of competitiveness and level of competitiveness were parallel, according to the indicators of GDP between 2001 and 2004. The results of the two approaches resulted in that the same countries (Luxemburg, Ireland, Belgium, the Czech Republic, etc.) belonged to the groups above the average. The winners of competitiveness are those countries where the level of PPS was the highest during the period. Those states belong to the second third of the order, whose development slowed down, but is still stable (the United Kingdom, Sweden, the Netherlands, Denmark, etc.). At the end, a few of the South European states and Germany stand with slow development of the employment and low export-import figures. The countries standing at the end of the list (Portugal, Greece, Italy) are in the group below the average, according to the growth of the GDP, with the exception of Poland.

In the first third of the order, Sweden, Finland, Denmark and France take place, by their tax revenues. In these countries, the proportion of tax revenues in the GDP is high. In the middle, Luxemburg, Malta, Portugal and Hungary stand, while at the end Spain, Latvia and Lithuania; and despite of its first place in the competitiveness, Luxemburg.

The analysis of the orders has not proven that economic competitiveness and tax revenues are depending from each other. Greece, Slovakia and Latvia standing at the end of the competitiveness order have low tax revenues expressed in percentage of the GDP. Luxemburg (1^{st}, 13^{th}) and Ireland (2^{nd}, 19^{th}) although take quite

different places. Countries with medium competitiveness (Denmark, France, Sweden) have generally high tax revenues compared to their GDP. In case of the new members, the picture is mixed: the Czech Republic: 3rd, 12th, Cyprus 8th, 7th and Hungary standing at the 10th and 9th places. The results prove that the order of competitiveness is highly influenced by the growth of PPS. States with stable and slowing down development have generally higher tax revenues.

Aggregate model of economic competitiveness and tax revenues

The clusters were defined according to the above discussed two groups of indicators (Figure3).

Cluster 1 **("Luxemburg"):** this country represents outstanding indicators. Neither its tax revenues influenced its exclusive situation. Its economic competitiveness is ensured by high growth of employment and GDP, high labour productivity and low unemployment; the inflation is average, and the minimal wage is the highest in this country. The analysis of tax revenues show a very diverse composition, both compared to the other countries and within tax types. While its revenues from added value taxes and other consumption taxes are lower than those of the other countries, the corporate income taxes expressed in the percentage of GDP are the highest. Both the product tax and personal income tax revenues are around the average. It is interesting that the contributions paid by the employers are low, while those of the employees are quite high.

"Western coast": the Western states are far behind Luxemburg and with a small difference after cluster 3. In case almost all of the indicators (employment, GDP, inflation, labour productivity and unemployment rate) the average of the group was moderate. The proportions of export and import are high with the dominance of export. Indirect tax revenues are moderate in the percentage of the GDP, out of the direct taxes, the personal income tax revenues are high, compared to the other groups and the corporate tax revenues are around the average. Neither the social contributions show outstanding figures. It can be interesting that Ireland belongs to this group, because, in the analysis of competitiveness it was part of the cluster

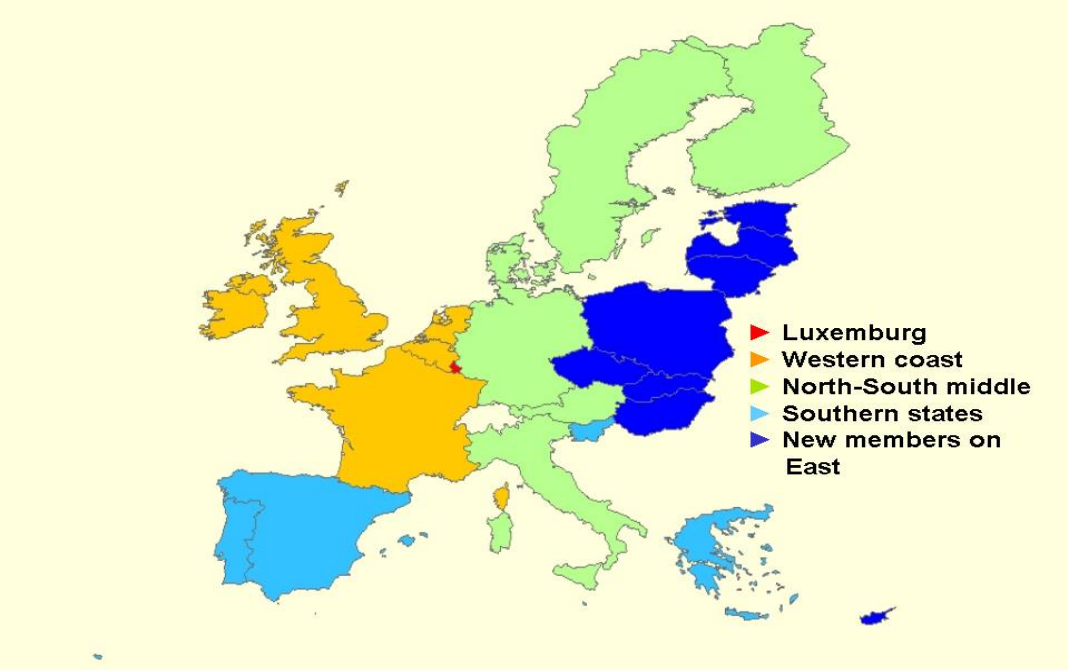
"Momentum and competition", which reflects on the different composition of tax revenues.

Denmark, Germany, Italy, Austria, Finland, Sweden listed in **cluster "North-South middle axis"** had been in the same cluster "Stagnating developed" in the analysis of the competitiveness. Stagnating is also typical for his cluster. Growth of employment and of the GDP was low, compared to the other countries. The proportions of export and import are the lowest in these countries in the GDP with the dominance of the export. The further five economic indicators show an average level with the lowest inflation rate, which can be the sign of stability. There is a definite difference in the composition of tax revenues. The proportion of indirect tax revenues is high in case of all types of taxes. Within the direct taxes, personal income tax revenues represent the highest share, corporate taxes stand at moderate level. Contributions paid by the employers are high, while those of the employees are rather moderate. These states are the core of the EU with their viable economies and relatively high tax revenues.

Cluster 4 containing also 5 countries mainly from South is named "**Southern states"**. Employment – one of the greatest problems – increased in 2001 to 2004 compared to the other groups. The growth of GDP was only small. The economy is moderately open with the dominance of import. Inflation and unemployment are high, while labour productivity is low. The minimal wage is around the average. The indirect taxes give moderate and low proportion, while the direct tax revenues are moderate. The social contributions of employees are the highest in this group.

"**New members on East"** cluster contains the EU-10 countries. Here, the growth of employment rate is the lowest, while that of GDP is the highest. The proportions of import and export are around the average of the EU. Import is higher than export, due to the foreign investments and the relatively cheap production factors (labour). Growth of GDP however has not been able to compensate the poorer development of these countries, thus labour productivity is the lowest in this group.

Figure 3: Aggregated model of simplified economic competitiveness and tax revenues in the EU-25 (2001-2004)



Source: own edition based on Eurostat data

Unemployment is quite high, with a very low or, in several cases, no minimal wage paid. Direct taxes (personal income, corporate tax revenues) are lower; however the contributions paid by employers are the highest, generally. Other taxes of consumption are the highest, due to the import duties involved. In these countries, there are not product taxes introduced. In general, these countries are developing, going through a significant transition, having serious social challenges where the proportion of tax revenues continuously changes, due to series of tax reforms.

CONLCLUSIONS AND RECOMMENDATIONS

Based on the results obtained in the detailed analyses of indicators of tax revenues, tax burdens and economic competitiveness in the period between 2001 and 2004, the following conclusions are drawn.

Increase of international trade of goods and services has up-valued the role of value added tax types. The increase is the most eye-catching in case of the new members as the result of the adaptation to the single market of the EU. Out of the indirect taxes, VAT is the highest source of revenue for the national governments and the most harmonised tax type of the common budget. The proportion of indirect tax revenues in the GDP was the highest in Denmark, Cyprus, Hungary, Malta, Slovenia and Sweden. That means that not only the favourable market opportunities providing huge amount of turnover result in high tax revenues but the high consumption taxes as well.

According to the results of the analysis of direct taxes, typically the Northern states (Denmark, Sweden, Finland) are above the average, while those at the peripheries and of NMS-10 are below it. Due to the difference between the tax systems of the countries, different relations can be seen between the personal income tax revenues and labour based contributions.

In Finland and Sweden, the labour based tax burdens are extremely high. Also, the personal income tax revenues are above the average, while the social contribution revenues are low. The high tax burden of labour is caused by high income tax rates and/or high incomes.

Denmark is individual because of its high personal income tax revenues and low social contributions, with average level of taxes and contributions of labour. The reason for it can be explained by the high incomes.

Revenues of personal income taxes are lower than the average in Belgium, France, Germany and Austria, with higher contributions paid. Altogether, tax burdens on labour are higher; in this case it is due to the rate of contribution, which is higher than the average.

Malta, Cyprus, Ireland, Luxemburg and the United Kingdom with outstanding low labour burdens have average or low income tax revenues and social contributions.

Hungary, Portugal, Slovenia, Slovakia, Lithuania had lower personal income tax revenues than the other countries in the period analysed. While the contributions paid by employers and employees were high or around the average. The burden taking ability of labour was somewhat higher than the average (36%), due to their high contribution rate and low wages.

The revenues from corporate income taxes represent lower proportion in the direct taxes, with high variation in the period analysed. In the new member states, these revenues started continuous shift, thanked to their developing economy and opened market of production factors.

Revenues from social contributions decreased differently (by 0.1-2.4%), because of the difference of the insurance systems. In the United Kingdom, the Netherlands, Luxemburg and Ireland, the employees pay quite low contribution. In the majority of the NMS countries, especially Estonia, Hungary and Slovakia the contribution rate paid by the employees is higher than that of the employers.

The results of the analysis of competitiveness show that GDP per head and its growth rate well describe the economic competitiveness of a given country.

The indicators of economic competitiveness involved give whole picture on the macroeconomic competitive situation of the member states, while considering the requirements of the EU on the competitiveness (employment, standard of life). Conclusions of the analysis:

Absolute winners are: Belgium, Ireland and Luxemburg. Both the groups “Problematic developers” and “Average emergers” took worse places, which is the result of employment problems, low or moderate labour productivity and high inflation rate. Expressions “developing” and “emerging” are reasonable, as these countries achieved the highest growth in the period analysed.

Several macroeconomic factors have impact on the tax revenues of countries. Out of these, many relations were found between the macroeconomic indicators

analysed and the tax revenues. All these explain that precautious and targeted developing of taxation systems is an outstandingly important task of the governments, because tax revenues will increase only if taxation does not hold back the development of the economy. An increase in labour productivity can result in increase in corporate income tax revenues as well. Labour productivity is defined as the ratio of the number of employment and the GDP (PPS), thus increase in productivity can be achieved by increasing GDP or reducing employment – this must not be a goal. Thus, growth of the GDP contributes to the increase in corporate tax income revenues.

It is proved that increase in labour productivity results in decrease of the consumption tax revenues, according to the analysed data of the EU-25.

Increase in labour productivity can be achieved by increasing the minimal wages, which is determined by the way of calculation of the indicators. In my opinion, this means that increase of the minimal wage can reduce employment and, thus, on its own increase labour productivity.

According to the results of the aggregate analysis of labour productivity, inflation and minimal wage, an increase in labour productivity increases tax revenues, while that of inflation or of minimal wage decreases it. It can be stated that growing minimal wages axe the number of tax payers and enhance incomes belonging to lower tax rate, which thus can cause shortage in the budget.

The simplified model of economic competitiveness and tax revenues has not showed any correlation, according to the analysis of the 25 countries. Analysis of the orders of countries has proved that not those countries are more competitive that have higher tax revenues. Consequently, the taxation structure, as well as the sources and forms of incomes of a given country are basically determined by the level of development, specific socio-economic situations, problems (unemployment, inflation, etc.) and different national intentions.

Position of Hungary:

Hungary has the highest revenues from indirect taxes. The consumption taxes of the new member states were similar in the period analysed. Therefore, the reason for such a high tax yield is not exclusively the high tax rates applied but also the more intensive trade, more open market of Hungary.

Compared to the average, the direct tax revenues are low; the burden taking ability of labour is above the average. Employees pay higher social contributions than employers; although contributions paid by the latter are also higher than the EU-25 average.

Taking account all tax types, tax burdens are not higher in Hungary than the EU average. This is also proved by that Hungary belonged to the average, most populated group of the aggregated model of tax revenues; where the proportion of direct tax revenues is low or moderate and the contributions represent a high share. In case of the indirect taxes, however, Hungary took place in the high group.

The analysis of the GDP proved that the growth of GDP and the PPS figures had been achieved prior to the period analysed maintained their level higher than the average of the NMS-10; which was considered as moderate level in the analysis of the competitiveness. Although, the average rates of employment and labour productivity of Hungary were lower than the average.

The cluster analysis on competitiveness has grouped Hungary into the cluster "Problematic developers", which means that Hungary faces several challenges influencing the productivity of the economy, as well, similar to those of the other group members. The expression "developing" reflects on an accelerated growth of the economy in Hungary prior to the EU accession, which is not true for those countries of "Average emergers" that have not accessed yet.

Although a few of the EU-10 states stand before Hungary in the competitiveness order, it needs to mention that the order was mostly influenced by the growth of PPS. This is shown by the places taken by Czech Republic: 3rd, 12th, Cyprus 8th, 7th and Hungary standing at the middle of both orders (10th and 9th places).

According to the social economic endowments of the member states, it is important to keep the taxation systems partly in the competence of the national governments, which would be also proved by further analyses of social and infrastructural indicators. It is the task of the EU to impede the negative tax competition by tax harmonisation and ensuring equal conditions.

The maps of the models could help in defining the territorial development difference. Based on the indicators involved, the uncompetitive countries are pointed out. In my opinion and according to statistics, the main task of the EU is to eliminate these differences in the future, because inequalities causes further problems not only in given countries but at the level of the EU as well.

NEW SCIENTIFIC RESULTS

1. a) Based on the analysis and assessment of the chosen indicators, such as:

   - growth rate of GDP per head (PPS),
   - average growth rate of employment
   - average labour productivity
   - unemployment rate
   - proportion of import in GDP
   - proportion of export in GDP
   - average inflation rate

   a simplified model of economic competitiveness has been developed.

   b) Based on the model, the states of the European Union were grouped in four clusters: "Momentum and competition", "Stagnating developed", "Problematic developers", "Average emergers".

2. Position of Hungary:

   a) In the simplified model of economic competitiveness, Hungary was grouped into the cluster "Problematic developers", where the Czech Republic, Estonia, Lithuania, Malta and Slovakia are listed, as well.

   b) As result of the analysis of tax revenues and tax burdens, Hungary was grouped into the most populated cluster "low taxes, high contributions".

3. Several functional relations have been found between the tax revenues and indicators of the simplified economic competitiveness:

   - Minimal wage – labour productivity,
   - Corporate income tax revenues – labour productivity,
   - Revenues from consumption taxes – export – labour productivity,
   - Personal income tax revenues – labour productivity – inflation – minimal wage.

4. The analysis of orders showed no direct relation between the economic competitiveness and the volume of tax revenues. Neither more competitive

countries have higher proportion (in the percentage of GDP) of tax revenues, nor are low tax yields typical for less competitive countries.

5. According to the aggregate model of economic competitiveness and tax revenues, geographically well bordered groups were defined: “Luxemburg”, “Western coast”, “North-South middle axis”, “Southern states”, “New members on East”.

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