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The Hungarian Tax System and its Effects on Self-Employed Agriculturists in the Hungarian North Great Plain Region

Theses of the doctoral (phd) dissertation

Written by:
ANDREA GÁSPÁR

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The Doctoral School

Name of PhD School: **Doctoral School of Management and Business Administration**

Science Branch of School: **management and business Administration**

Head of School: **Dr. István Szűcs**
                              Professor
                              Doctor of Hungarian Academy of Sciences (Economic Sciences)
                              MTA doctor
                              SZIE, Department of Economics and Social Sciences
                              Institute of Economic Analysis and Methodology

Consultant: **Dr. György Katalin dr.Takácsné**
                              Associate Professor,
                              Candidate in Economics
                              SZIE, Institute of Business Economics and Organization

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 Approval of the Head of School   **Approval of the Consultant**

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1. INTRODUCTION

1.1.Timeliness and background of the topic

The history of taxation is almost as old as human history itself. Since people started to live in groups and communities and forming a social structure they have had common necessities which need to be met (for example, in ancient times such needs were to provide the essential life conditions for medicine-men, chiefs and the elderly, while in today's social conditions these necessities include education, health care, a pension scheme, a road system, public safety, national defense, disaster management, public administration etc.)

Tax liability applies to everyone, to all citizens of a given state. In some way or another, taxation is necessary in powerful states, in developed countries and in countries belonging to the third world as well.

Tax is a service in disguise, a financial contribution imposed by the state or a body of public law being the functional equivalent of a state on individuals equally, in accordance with the same general principles.

Nowadays the organization and farming methods of agricultural production in Hungary are very colorful, with a wide range of scales and structures, showing fluctuations in efficiency. In respect of ways of farming, Hungarian agriculture can be considered the most colorful sector of the national economy. Even its structure is different from the ones used by most member states of the European Union. Almost all forms of enterprise can be found here, as in Hungary agricultural activity can be done individually or as a company.

The state has always accorded special attention to agriculture and levied a tax on the income deriving from such activities. (PM decree on the implementation of MT decree on income tax of household and subsidiary economies) It was more than 20 years ago that the act regulating personal income tax entered into force and specified the treatment and taxation of income from agricultural activity.

The Income Tax Act (SZJA) which is still in force came into effect on 1 January 1996. This act is functioning as substantive law and it determines the regulations concerning the behavior of legal entities concerning taxation (among others their rights and obligations).

Agricultural and other organizations are taxable according to corporation tax, while the taxation of agricultural activities done by private entities and self-employed individuals fall under personal income tax law, although beginning with 1 January 2010 self-employed individuals can again opt for corporation tax.

1.2.Definition of the topic

My PhD thesis focuses on the history of the Hungarian tax system and the effects of its elements concerning self-employed agriculturists in the North Great Plain Region. Taxation has always been a topical issue or problem in Hungary, as a considerable part of the tax system is revised annually, even during the course of the year, thus decreasing predictability and making it difficult for taxpayers to plan in advance.

Over the past few years the controversy on tax burdens has proved that personal income tax rate cannot be treated separately from social security contribution rate. There are two reasons to consider them together:

- on the one hand, social contribution is closely related to wage incomes
- on the other hand, unlike in the case of personal income tax rate, there is only one social contribution rate, which decreases the progressivity of the income tax system.

1.3. Objectives

In the draft of my PhD thesis I would like to achieve the following objectives:

1. To present the evolution of the Hungarian tax system, along with a historical study of the changes affecting personal income tax (SZJA) and social security contribution (TB) rate
2. To analyze self-employed agriculturists' income tax and social security burdens in the North Great Plain Region between 2000-2008
3. To study the relationship between tax burden and its determinant factors (with correlation and regression analysis), as well as to cluster the constituent counties of the North Great Plain Region according to the amount of tax burden in years 2006 and 2008
4. To quantify the economic effects of SZJA (income and corrective effects) and reveal the reasons for changes
5. To study the combined effect of SZJA and TB with the help of the Laffer-curve
6. To examine the international changes in the tax system (flat-rate tax) and its introduction in Hungary with its expected effects.

2. MATERIAL AND METHODS

2.1. Research Hypothesis

Based on the findings of bibliographic data I have formulated and tested the following hypotheses in my dissertation:

1. *Hypothesis (H1)*
   1.1 Hypothesis (H1.1)
   In spite of the declared intentions, the tax law changes between 2000-2008 (regarding tax rate, tax scales and allowances) did not help to decrease the tax burden of self-employed agriculturists in the counties of the region under study.

   1.2 Hypothesis (H1.2)
   In contrast to the original goals, tax reduction in the period 2000-2008 resulting from the economic effects of SZJA negatively influenced the per capita amount of taxes paid in the region.

2. *Hypothesis (H2)*
   The change in the minimum wage had a different effect on the incomes subject to consolidation and the income of self-employed agriculturists in the North Great Plain Region.

3. *Hypothesis (H3)*
   Hungarian personal income tax burden is uniform, non region dependent; therefore there are no differences among self-employed agriculturists at county level.

4. *Hypothesis (H4)*
   Self-employed agriculturists are subject to high tax burden and if examined according to their SZJA and TB, they are situated at the lower end of the Laffer curve.

5. *Hypothesis (H5)*
   A 20% flat rate income tax system can provide the same personal income tax revenue in the North Great Plain Region.

The database I used to prove my hypotheses and the methods of investigation will be presented in the following chapter.

2.2. Selecting data source and methodological issues

In my thesis I used *secondary sources of data.* I only examined data from period 2000-2008. I did not take into account data from earlier years, although I would have been able to get better results and draw more reliable conclusions if I had analyzed data referring to a longer time period. Unfortunately, I did only have access to incomplete data from the earlier years, the comparability of which is questionable.

The secondary (ecoscopic) data I used during the research were obtained from the data base of the Hungarian Tax and Financial Control Authority and the Hungarian Central Statistical Office.

International data was provided by national statistics and the data base of OECD, as well as various conference publications and websites.

My research was carried out in the North Great Plain Region in Hungary, dealing with individual farmers from three counties: Jász-Nagykun-Szolnok, Szabolcs-Szatmár-Bereg megye and Hajdú-Bihar

The first data base was the cumulative data of income tax declarations provided by self-employed agriculturists in the three counties under study between 2000-2008.

As a second data base I used the individual income tax declarations of self-employed agriculturists from the years 2006 and 2008. However, this data collection was not cumulative, as it contained serially all the lines and columns provided by each individual taxpayer involved in the study for the respective years.

I decided to examine these two years because they brought significant changes in the tax law, which had an effect on the taxation of self-employed entrepreneurs. These changes include the following:
- in 2007 the concept of minimum-income was introduced;
- in 2008 self-employed entrepreneurs' 35% tax rate on dividends was abolished;
- the brackets of the progressive tax chart were widened;
- they introduced contribution liability based on twice the amount of the minimum wage;
- there was another minimum wage increase

2.3. Methodology

For the analysis of complex issues I used the SPSS 11.0 software package. The most frequently used methods of revealing the relations between variables were correlation and linear regression analysis. As for data reduction methods, I opted for cluster analysis. In the statistical analysis I tried to be methodologically correct, therefore I always took into account the possible restrictive factors when conducting a study. During statistical analysis the level of significance I established as criterion validity for the models was 5%. Data management, the calculation of statistics, changes, distribution patterns and graphs were done with the help of the MS Office Excel spreadsheet program.

In my analysis I examined the data coming from self-employed entrepreneurs who declared their income and realized a profit in the years in question, as my goal was to reveal the factors which determine the taxation of entrepreneurs in the three counties, respectively the data affecting tax output. I did not examine the tax burden of self-employed entrepreneurs who opted for flat rate taxation.

Afterwards I studied the economic effects of taxation on self-employed entrepreneurs involved in agricultural activities, focusing on two main issues:
- *income effect*: the rate of income absorption by tax burden;
- *corrective effect*: the motivating effect of tax allowances.

When examining the evolution of tax burden I calculated three types of taxes with different content:
- *Tax Burden 1*: I did not filter out the modifying effect of tax allowances. This is the nominal tax burden indicator which is
  - The quotient of calculated tax and the consolidated tax base (for incomes declared as part of the consolidated tax base);
  - The quotient of the sum of entrepreneurial income tax plus the tax on dividends and the entrepreneurial tax base (for entrepreneurial incomes).

- *Tax Burden 2*: I took into account the modifying effects of tax allowances, which is:
  - the quotient of tax discounted with allowances and the consolidated tax base (for incomes belonging to the consolidated tax base);
  - the quotient of entrepreneurial income tax discounted with allowances and the entrepreneurial tax base (for entrepreneurial incomes).
- *Tax Burden 3*: the actual tax liability, the real tax burden calculated after taking into account all possible tax allowances and exemptions. This is:
  - The quotient of the tax discounted with all the allowances and the consolidated tax base (for incomes belonging to the consolidated tax base);
  - The quotient of the sum of the entrepreneurial income (discounted with allowances) and the tax on dividends and the entrepreneurial tax base (for entrepreneurial incomes).

Next, I used the Laffer-curve to examine the combined effect of personal income tax and social security contribution on self-employed agriculturists' lives and the economic effect of these two types of taxes on entrepreneurs.

Finally, taking into consideration the regulations and specifications of the flat-rate tax system of 2011 I performed model calculations on the data and relations from 2008 in order to quantify the expectable effects of the flat-rate personal income tax system on the taxation of self-employed agriculturists in the North Great Plain Region.

3. RESULTS

3.1. Evolution of tax revenues

In Hungary the share of indirect taxes and contributions within the total amount of tax revenues is higher than the average in the European Union, while the rate of direct taxes, especially that of the personal income tax is lower.

In our country value added tax, social security contributions, personal income taxes and corporate taxes account for more than 80% of the total tax revenue. In 2008 the four above-mentioned tax categories amounted to HUF 7,673,168, which was 80% of all the tax and tax-related revenues handled by APEH (HUF 9,289,799).

Between 2000-2008 in Hungary the amount of tax and tax-related revenues handled by APEH rose by 223,0%, while the personal income tax which I examined showed a slightly smaller increase of 213,1%. Filtering out the distorting effect of inflation revenues increased by 140,6%, while personal income tax rose by 134,4% in 2008.

In Hungary personal incoe tax and social security contributions accounted for almost 55% of the total amount of tax revenues in the years in question.

5-6% of Hungary's total amount of tax and tax-related revenues derived from the North Great Plain Region.

After examining the evolution of tax and tax-related revenues handled by APEH in the North Great Plain Region for years 2000-2008 I concluded that social security contributions were the tax category which grew at the fastest pace, as they grew by 2,1 times between 2000 and 2008. Filtering out the effect of inflation that means a 30% increase.

Out of the constituent counties of the North Great Plain Region the largest share of the total tax revenues was provided by Hajdú-Bihar County both in 2000 and 2008. In 2000 the smallest contribution in the region came from Szabolcs-Szatmár-Bereg County, while in 2008 it was provided by Jász-Nagykun-Szolnok County.

3.2. Results of the analysis on tax return data affecting the amount of personal income tax

At the end of 2007 the average number of registered business ventures was 4% higher than in the previous year. In the region in question the number of self-employed entrepreneurs filling in their tax returns increased from 3,528 in 2000 to 3,609 in 2008.

The study of the consolidated tax base

The largest constituents of the consolidated tax base affecting most self-employed entrepreneurs are income from employment and entrepreneurial withdrawals, which account for almost 85-90% of the consolidated tax base. Per capita entrepreneurial withdrawal in the region grew at 3.1 times the rate of the first year. This is due to the practice of self-employed entrepreneurs to treat the amount serving as a base for social contributions as entrepreneurial withdrawal.

Regarding the income subject to consolidation I concluded that there is a strong positive correlation between the amount of minimum wages and both incomes subject to consolidation (income from employment and entrepreneurial withdrawal), but the explanatory value of the regression lines is different. The relation between income from employment and minimum wage is stronger than the

relation between income from employment and entrepreneurial withdrawal. Consequently, regression analysis partly proved my H2 Hypothesis, according to which:
"The change in the minimum wage had a different effect on the total taxable income and the income of self-employed agriculturists in the North Great Plain Region."

When compared to the data from the first year, the number of individuals declaring calculated tax in the North Great Plain region increased by 5,4% in the period in question. Apart from the stagnation in years 2003-2005, tax per capita showed a steady increase, having grown by more than 2.5 times by 2008.

The number of taxpayers applying for tax credit in the region had grown by 16.9% by the end of 2008. The per capita amount in 2008 was almost 4 times bigger than in the base year, which is due to increasing the limit of tax credit brackets and its amount. The number of tax base decreasing tax allowances grew from 14 in 2000 to 23 in 2008. As compared to year 2000, the number of taxpayers applying for tax allowances in the North Great Plain Region decreased by 30,1% by 2008, while the per capita amount grew by 1.7 times. This is due to the fact that the number of claimants decreased because of changes in the law, but owing to the increase in the tax base the available amount rose. On average, the change in the per capita rate in Hajdú-Bihar County was smaller (it grew 1.6 times the original amount), while in Jász-Nagykun-Szolnok County it was more significant (growing by 1.9 times). I concluded that the increase in the amount of tax credit claimed is not due to the increase in the number of tax credit types. In the region the number of individuals paying tax on the decreased tax base in 2008 was 34.8% higher than in 2000.

The amount of tax payable in various tax categories also increased. In 2000 69.3% of the tax payable on the consolidated tax base turned into tax payable after allowances, while in 2008 this rate was 76.6%. Similarly, in 2000 51.8% of the tax payable on the consolidated tax base was turned into tax payable on the tax base decreased with tax allowances, the same rate for 2008 being 69.0%.

In 2000 2,110 individuals, in 2008 2,366 individuals declared tax on the consolidated tax base, while the per capita amount increased by almost three times in the period in question. Therefore Hypothesis 1.2 according to which:
"In contrast to the original goals, tax reduction in the period 2000-2008 resulting from the economic effects of SZJA negatively influenced the per capita amount of taxes paid in the region."
 was not completely confirmed, as in the case of incomes subject to consolidation it was not proved.

Nominal tax burden (Tax burden 1.) reached a peak in 2003 (26.4%) and a lowest point in 2007 (21.9%), but the actual tax burden shows bigger fluctuations than nominal tax burden, which is due to the continuous change in tax allowances. The most significant rise in the actual tax burden (Tax burden 3.) took place in 2002 (by 2.5%), while the most considerable decline was in 2007 (almost by 2%). The reason for this is the abolition of allowances on savings for housing purposes in 2002, respectively a considerable (almost 2.5-fold/taxpayer) increase in the allowance on non-tax bearing income in 2007.

The study of income from entrepreneurial activity
The number of taxpayers declaring income from individual entrepreneurial activity in the region under study fell by 18.9% between 2000 and 2008. In 2000 only 38 taxpayers used income tax deductible items in their tax returns, while in 2008 452 people opted for this category. After 2001 most (about 2/3) of these items were allowances for small businesses, followed by local business tax and special investment reserve. Among expenses the most frequently met item in the region was the cost of materials, goods, semi-finished and finished products (56-58%) and the category of other expenses (accounting for 27-29%). Individual entrepreneurial withdrawal only amounted to 3% of all expenses. The number of individual entrepreneurs involved in agricultural activity filing tax

<u>return</u> in the North Great Plain Region in 2008 decreased by 4.5% compared to 2000. <u>Per capita entrepreneurial personal income tax</u> fell by 18% in the same period.

The highest per capita after-tax entrepreneurial income in the region was reached in 2003 (HUF 1,350,407/person), while the lowest rate was achieved in 2000, the first year under study (HUF 510,178/person).

Using regression analysis on entrepreneurial income I found a medium strong positive correlation between minimum wage and entrepreneurial income, which proves the second half of Hypothesis H2, according to which:
"The change in the minimum wage had a different effect on incomes subject to consolidation and the income of self-employed agriculturists in the North Great Plain Region."

After the examination of individual entrepreneurial incomes I concluded that there is a medium strong correlation between minimum wage and the category in question and minimum wage only accounts for 24.5% of the total variance, which is much less than in the case of incomes subject to consolidation.

The number of individuals using <u>items modifying after-tax income</u> in the North Great Plain Region gradually decreased over the years under study, but the per capita rate showed an increase.

The amount of individuals filing <u>entrepreneurial personal income tax and tax on dividends</u> together was almost three times bigger in 2008 than in 2000. On the other hand, the sum of per capita entrepreneurial personal income tax and tax on dividends fell by 14.5%. Consequently, in the case of incomes from entrepreneurial activity Hypothesis H1.2 was partially proved. According to Hypothesis H1.2
"In contrast to the original goals, tax reduction in the period 2000-2008 resulting from the economic effects of SZJA negatively influenced the per capita amount of taxes paid in the region."

3.3. Results of the examination of tax return data influencing the amount of social security contribution

Self-employed entrepreneurs' social security contribution consists of payment into two separate funds (Pension Insurance Fund and Health Insurance Fund). The largest share of social security contributions among self-employed agriculturists in the North Great Plain Region was given by entrepreneurs based in Hajdú-Bihar County (their number decreased from 66.9% in 2000 to 44.2% in 2008).

Studying the <u>relation</u> between the social security base and the minimum wage I concluded that up to year 2005 entrepreneurs' social security contribution in the North Great Plain Region was less than the minimum wage, while in years 2007-2008 it was less than the minimum social contribution (twice the amount of minimum wage). When examining the relation between social security base and entrepreneurial withdrawal, respectively the minimum wage using regression analysis I found that in the region, on average, entrepreneurial withdrawal (96.6%) showed a stronger positive correlation with social contributions base than minimum wage did (85.6%).

Evolution of contributions to the Pension Insurance Fund
The number of individuals paying pension insurance contribution in the North Great Plain Region in the years under study decreased from 2,135 to 1,473 (by 31,0%). As for the counties, the biggest fall was in Jász-Nagykun-Szolnok County (37.5%) and the smallest in Szabolcs-Szatmár-Bereg (18.5%).

On average, a self-employed agriculturist in the region paid a pension insurance contribution of HUF 63,347 in 2000, while in 2008 the amount was HUF 251,370. The reason for the increase was the growth in the contribution base (due to the minimum wage and entrepreneurial withdrawal) and the change in the contribution rate.

In the North Great Plain Region the per capita pension fund contribution paid by self-employed agriculturists was calculated according to a HUF 1000/month lower base than the pension insurance contribution. This is due to the fact in the case of retired self-employed entrepreneurs (who do not pay a pension insurance contribution) the pension fund contribution is based on realized income and there is no minimum contribution base defined for this category. Up to 2005, the per capita monthly contribution for self-employed agriculturists who were not members of any private pension fund was calculated according to a higher contribution base in all the counties of the area under study. In years 2007-2008 however, private pension fund members paid contributions according to a higher base.

Evolution of contributions to the Health Insurance Fund
The number of individuals paying health insurance contribution in the North Great Plain Region fell from 2,131 in 2000 to 1,469 in 2008 (by 31.1%). The change was similar to the case of pension insurance contributions. Comparing the counties we can find the most significant change in Jász-Nagykun-Szolnok and in Hajdú-Bihar Counties.
On average, an entrepreneur in the North Great Plain Region paid a contribution of HUF 31,678 in 2000 and HUF 52,545 in 2008. The reason for the increase was the growth of the contribution base (minimum wage and entrepreneurial withdrawal), as well as the change in the contribution rate.

The number of individuals paying employee health insurance contribution in the North Great Plain Region changed to the same extent as employers' contribution.

3.4. The economic effect of personal income tax on entrepreneurs in the North Great Plain Region

I focused on two economic effects of the personal income tax on self-employed agriculturists, namely the income effect and the corrective effect.

Income effect:
The tax of the consolidated tax base increased by 1.5 percent between 2000-2008. The tax burden reached its peak in 2006, which was due to a 9.7% growth in the minimum wage and the widening of tax brackets used in progressive taxation. In 2005 two-rate tax was introduced into the progressive tax scheme, which led to a marginal increase of 0.2% in the tax burden of self-employed agriculturists' consolidated tax base.
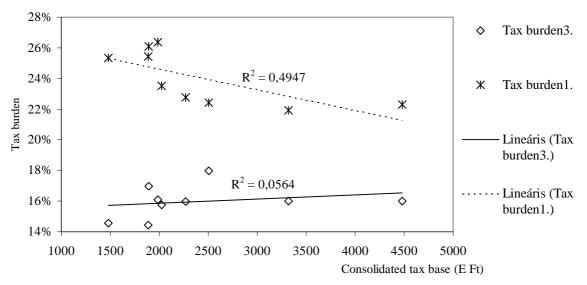According to my calculations the average tax paid by self-employed agriculturists in the North Great Plain Region on their income from entrepreneurial activity was approximately the same in years 2000 and 2008. However, within this period we can see a series of fluctuations. The concept of minimum income was introduced in 2007 and led to a considerable increase in the tax burden.

Corrective effect:
The amount of Tax Burden 1, 2 and 3 can demonstrate the extent of the corrective effect of the tax system. Using narrowed down individual data from the 3rd data row (which contains 530 self-employed entrepreneurs' tax return data from years 2006 and 2008) I tried to discover correlations and connections between the specific data from the two chosen years.

Incomes subject to consolidation:
The real tax burden (Tax Burden 3) grew by 1 percent within the time frame under study, while the nominal tax burden (Tax Burden 1, which does not consider the effect of tax allowances) fell by 3 percent. (Figure 1.)

Source: personal calculations based on database from APEH

Figure 1: Evolution and relation between tax burden and consolidated tax base in the region

My calculations partly proved Hypothesis H1.1 (regarding incomes subject to consolidation). According to my hypothesis:
"In spite of the declared intentions, the tax law changes between 2000-2008 (regarding tax rate, tax scales and allowances) did not help to decrease the tax burden of self-employed agriculturists in the counties of the region under study."
The statement is true in the case of the consolidated tax base.

According to the contribution to the explained variance, the tax on self-employed agriculturists' income subject to consolidation in 2006 was mainly influenced by entrepreneurial withdrawal (24.4%) and the income earned (17.9%). These two income categories subject to consolidation explain 42.1% of the total variance of the tax burden. These factors are followed by tax allowances and tax credit, consequently, according to my calculations the above-mentioned four tax return factors account for 56.6% of the total variance in the tax burden of the consolidated tax base in year 2006.

Based on contribution to the explained variance the two main factors influencing the tax on self-employed agriculturists' income subject to consolidation were entrepreneurial withdrawal (16.3%) and the income earned (27.6%). These two factors account for 43.9% of the total variance of the tax burden. The next two factors determining tax burden are tax allowances and non-taxable incomes. According to my study these four factors explain 57.0% of the variance of the tax on the consolidated tax base in year 2008. Taking into account the next factor (tax credit) as well, the factors I listed above – that is, income, withdrawal, tax allowances, non-taxable income and tax credit - altogether account for 60.3% of the total tax burden.

The results show that the difference in tax burden between 2006 and 2008 is due to the following factors:
-    the increase in entrepreneurial withdrawal: 12.8% of explained variance
-    the evolution of tax allowances: 10.1%
-    non-taxable income 10.6%
-    income earned: 2.1%
-    tax on non-taxable income: 2.6%
-    the change in the income from primary production: 2.1%
-    tax credit: 1.8%

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According to the tax burden defined earlier and the influencing factors from tax returns I divided taxpayers from the years under study into groups. I examined if it is possible to create groups among taxpayers and if this grouping is similar to the one applied on a county level.

When clustering for the real tax burden (Tax Burden 3) in years 2006 and 2008 the data from different counties was organized into different clusters. Using cluster analysis I proved that in the case of incomes subject to consolidation Hypothesis H3 was partially right. According to Hypothesis H3:
    "Hungarian personal income tax burden is uniform, non region dependent; therefore there are no differences among self-employed agriculturists at county level."

I concluded that in spite of the uniformity of the tax system in Hungary the counties of the region display different income and corrective effects of the personal income tax system. However, there are no such significant differences between these economic effects that would indicate the classification of a self-employed agriculturist into a particular county of the region.

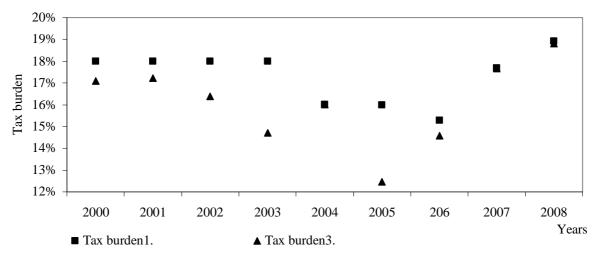*Entrepreneurial income and dividend tax:*
According to cumulative data from the period 2000-2008, tax burden - as result of the change in laws and regulations – showed a hectic decrease until 2005. This was followed by an increase of almost 6% by 2007. At that time the average tax burden of the constituent counties of the region was 34%. In the next year there was a moderate decrease of 4%.
I divided entrepreneurs' taxes on income from entrepreneurial activity into two categories, one of them being entrepreneurial personal income tax and the other dividend tax.

   A) Entrepreneurial personal income tax
Within the period under study both real tax burden (Tax Burden 3) and nominal tax burden (Tax Burden 1) increased in the case of entrepreneurial personal income tax. (Figure 2)

Source: Personal calculations based on database from APEH
Figure 2: Relationship and evolution of Tax Burden 1, Tax Burden 3 and entrepreneurial tax base in the region

Hypothesis H1.1 was proved right (both for income subject to consolidation and income from entrepreneurial activity. According to Hypothesis 1.1:
 "In spite of the declared intentions, the tax law changes between 2000-2008 (regarding tax rate, tax scales and allowances) did not help to decrease the tax burden of self-employed agriculturists in the counties of the region under study."
The hypothesis was also proved right for entrepreneurial income. (Figure 2)

Using preliminary correlation analysis, I selected the factors affecting entrepreneurial income tax which correlate with each other. Next, using linear regression analysis I determined the extent to which correlation data explain the change of tax burden in the group of taxpayers under study. According to contribution to explained variance self-employed agriculturists' income tax burden in 2006 was mainly determined by amortization allowance on non-material goods (27.4%), allowance for small-scale entrepreneurs (6.6%) and all the other expenses deducted in the given fiscal year (4.4%). These three factors altogether account for 38.0% of the tax burden. The next factors which influence tax burden are entrepreneurial withdrawal, the allowance on local business tax, current year acquisitions, income and all deductable costs. According to my calculations all these factors explain 50.3% of the tax burden of entrepreneurial income tax.

According to contribution to explained variance the main factors which determined self-employed agriculturists' entrepreneurial income tax burden in 2008 were income counting into the tax base (25.5%), expenses deductible in the fiscal year (28.5%), amortization allowance on non-material goods (4.6%) and allowance for small-scale entrepreneurs (1.7%). All these factors accounted for 60.2% of tax burden in 2008.

The results show that the change in tax burden from year 2006 to year 2008 was influenced by:
- change in the allowance for small-scale entrepreneurs: 21.6%
- allowance on local business tax: 5.9%
- change in the income counting into the tax base: 2.4%
- change in the expenses deducted in the fiscal year: 7.5%

The 4 tax return data presented above explain 37.4% of the change in tax burden to year 2008.

B.) Dividend tax

In 2006 both a 25% and a 35% dividend tax was applied to the dividend base. In 2008 the regulations were changed and the 35% dividend tax was abolished, which resulted in a decrease in tax burden for individual entrepreneurs (Table1.).

Table 1: Dividend tax (Tax Burden 3.) in the region 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Dividend tax (Tax burden 3.)	9,9%	13,4%	18,3%	18,5%	17,5%	13,1%	15,4%	17,4%	11,8%

Source: Personal calculations based on database from APEH

The weakest correlation for year 2006 was the one between dividend tax and entrepreneurial withdrawal, subject to a tax rate of 25%.

I formed taxpayer groups for years 2006 and 2008 using the tax burden determined earlier and tax return data behind it. I examined if it is possible to create groups among taxpayers and if this grouping is similar to the one applied on a county level. The counties were classified differently in 2006 and in 2008, which proves that Hypothesis H3 is also right for income from entrepreneurial activity.

According to hypothesis H3:
"Hungarian personal income tax burden is uniform, non region dependent; therefore there are no differences among self-employed agriculturists at county level."

The examined data made clustering possible, but the individuals included into a particular group according to their consolidated income, income from entrepreneurial activity and its tax burden could not be identified as residents of a particular county. In other words, it is not possible to

classify entrepreneurs into different counties with regard to income subject to consolidation and income from entrepreneurial activity, respectively the tax return data behind these factors.

3.5. Description of the combined effect of personal income tax and social security contribution on individual entrepreneurs with the help of the Laffer curve
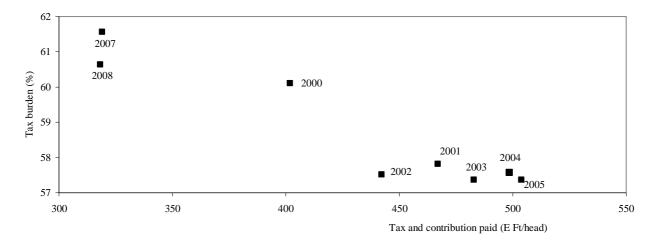
The change in the tax rate and tax scales affects entrepreneurial income as in the case of a higher tax rate they can spend less income after taxation. It also influences the amount of tax paid because higher tax results in higher tax revenue (up to a certain extent).

In this subsection of my thesis I examined the combined effects of personal income tax and social security contributions on income, respectively on tax revenues (that is, the effect of taxation on agro-economy).

As the study involved the analysis of two tax types, it was worth examining the change in the tax chart between 2000 and 2008, taking into consideration social security contribution as well. The change in marginal tax rates indicate that the well-known progressivity of personal income tax is not always evident because due to the upper limit of social security contribution individuals belonging to the highest income group have a relatively smaller contribution to pay.

When determining individual entrepreneurs' total tax burden we have to add all the taxes they are liable to pay. In the North Great Plain Region 24.6% of the self-employed agriculturists under study received a wage income and 57.5% opted for entrepreneurial withdrawal, which both belong to income subject to consolidation. Individual entrepreneurs are liable to pay income tax on both their income subject to consolidation and their income from entrepreneurial activity (income tax, dividend tax). In 2008 tax burden was increased because of the introduction of minimum income, but it was decreased due to the abolition of the 35% dividend tax. The average tax burden for self-employed agriculturists in the North Great Plain Region (only SZJA) was 30.6%. This is roughly twice the amount of the tax on the consolidated tax base. This is increased by compulsory social security insurance, which includes the contributions paid both as an employer and as an insurant. Consequently, higher tax rate leads to decreased tax revenue.

Examining the taxes and social security contributions paid by self-employed agriculturists in the North Great Plain Region with regard to tax rates applied in the given year I observed that eliminating the distortive effect of inflation the increase in tax burden decreases the per capita amount of tax and social contribution. (Figure 3)

Source: personal calculations based on database from APEH

Figure 3: Per capita tax and contribution burden of self-employed agriculturists in the North Great Plain Region between 2000-2008 at constant prices

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As a result, Hypothesis H4, according to which
    " Self-employed agriculturists are subject to high tax burden and if examined according to their
            SZJA and TB, they are situated at the lower end of the Laffer curve."
was not proved right. I could not display the SZJA and TB burden of self-employed agriculturist in
the region along a curve and I could not prove that they were overtaxed.

3.6. Modeling the effect of flat-rate personal income tax on individual entrepreneurs' income

In my research I performed model calculations in order to examine the effects of the introduction of
the flat-rate personal income tax system. Since the start of my research there have been several
changes in the tax system, such as the introduction of flat-rate taxation beginning with 1 January
2011. However, I believe my results are still worthwhile as I examined the issues above mainly with
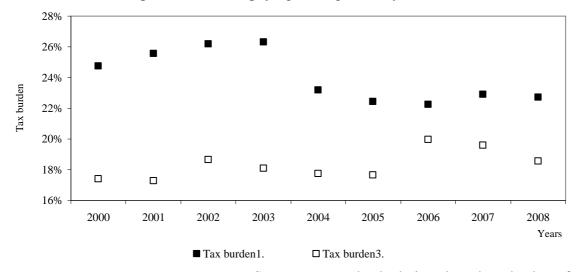regard to the taxation practice of self-employed agriculturists.

Taking into account international data from countries using flat-rate taxation I determined the ratio
of personal income tax and the total amount of tax paid. I concluded that in Hungary the rate of
personal income tax payment is on average 5% higher than in the rest of the countries.

In the case of consolidated tax, when I eliminated the effect of inflation I noticed that the lower the
upper tax rate, the higher the per capita amount of SZJA payment was in the North Great Plain
Region. In 2004 and 2006 the upper tax rate was lowered by 2-2%, while in 2004 the lower tax rate
was decreased by 2%. The increase in the per capita consolidated SZJA tax due to the changes was
most intensive in Jász-Nagykun-Szolnok County (14.3%). At the same time, despite the changes, in
Szabolcs-Szatmár-Bereg the amount of per capita consolidated SZJA tax paid decreased by 3.6%.

Entrepreneurial taxation consists of personal income tax and dividend tax. Considering the
combined effect of the two tax types (Figure 4) Hypothesis H5 was partially proved right.
According to H5:
    "A 20% flat rate income tax system can provide the same personal income tax revenue in the North
                Great Plain Region."
The assumption is only right if allowances and exemptions are abolished. Flat-rate personal income
tax is only justified if the tax allowance system is eliminated, so Hypothesis H5 is right, because a
20% tax rate without allowances can provide the same budgetary revenue in the region. With the
present allowance system a 23-24% tax rate would be necessary to obtain
the same tax revenue, provided that taxpaying willingness stays the same.

Source: personal calculations based on database from APEH

Figure 4: Evolution of Tax Burden 1 and Tax Burden 3 as indicators of entrepreneurial personal income tax and dividend tax in the North Great Plain Region

Taking into consideration the regulations of 2011 I performed model calculations to examine the expectable effects of the flat-rate personal income tax system on the taxation of self-employed agriculturists in the North Great Plain Region. My research was based on the following assumptions:

- the data of 2011 was defined according to the rate of change between 2006 and 2008,
- I used the relations from 2008, but the regulations from 2011.

According to the results the expectable per capita amount of consolidated tax for self-employed agriculturists in 2011 was the following:

- without child allowance: HUF 399,400/person
- with child allowance for one child: HUF 219,400/person
- with child allowance for two children: HUF 99,400/person

In 2008 the per capita amount of SZJA on consolidated income was HUF 282,437/person in the North Great Plain Region.

I determined a 20% tax rate for constant budgetary revenue. Beginning with 2011 the tax rate used in flat-rate personal income taxation is 16%, which is applied for a 1.27% higher tax base (because of supergrossing). Therefore the 16% tax rate means a much heavier tax burden for private individuals.

Studying the regulations of 2011 I observed that flat-rate taxation results in higher tax payment

- in case of childless individuals whose consolidated income is less than HUF 293,450 /month
- in case of individuals with one or two children whose income does not exceed HUF 71,600/month.

According to my data self-employed agriculturists in the region do not reach this income bracket (because of the total amount of wage income, entrepreneurial withdrawal and other incomes subject to consolidation), therefore flat-rate taxation is unfavorable for this entrepreneurial group (without child allowances). My calculations supported this assumption, as the average amount of consolidated tax based on the 2008 data (considering supergrossing and tax allowances) was higher in the tax group in question for year 2011 (without child allowances).

Taxation of income from entrepreneurial activity was not significantly modified by new regulations, so I did not perform any calculations in that respect.

3.7. New and original results

Based on my research I formulated the following new and original scientific results:

➢ *Applying scientific methods to secondary databases I proved that self-employed agriculturists' real tax burden increased between 2000 and 2008* in the counties of the North Great Plain Region and the changes in regulations did not mean a decrease in the real tax burden.
I proved that tax decrease had opposing effects on the taxation of consolidated incomes and entrepreneurial incomes in years 2000-2008. In the case of individual entrepreneurs per capita tax on consolidated income increased, while tax on entrepreneurial income decreased. Allowances had a considerable effect on the tax burden of self-employed entrepreneurs, but restrictions on allowances decreased their moderating effect on the amount of tax burden

➢ Using regression analysis I proved that the minimum wage defined by the law is in a strong correlation with both the entrepreneurial withdrawal (deductible as an expense and serving as a base for social security contributions) and wage income. The degree of this correlation is different in each case. On the other hand, there is only a moderate positive correlation between minimum wage and income from entrepreneurial activity. My calculations confirmed that the change in the minimum wage defined by the law has had a different increasing effect on consolidated income and income from entrepreneurial activity.

➢ Using cluster analysis I demonstrated that the uniformity of the income tax system manifests itself in the Hungarian personal income tax system too, which is non region dependent, showing no significant county-level differences among individual entrepreneurs in the North Great Plain Region. There are no considerable differences among self-employed agriculturists' tax burdens in the counties of the region under study, therefore county-level clustering is not possible.

➢ I have pointed out that providing the abolition of allowances a 20% flat-rate income tax could have ensured unchanged budgetary revenue between 2000-2008. If there had not been any changes in the allowance system, an average 23-24% flat-rate tax system could have provided the same budgetary revenue according to the regulations in force in 2000-2008. Using model calculations I proved that the 16% flat-rate tax system introduced in 2011 (which actually means a higher tax rate because of supergrossing) only results in a smaller tax burden for individual entrepreneurs who can benefit from family allowance for at least one child.

4. RECOMMENDATIONS

The topics discussed in my thesis open the door to wide-ranging and complex conclusions, some of which I will present below.

Through taxation the state has an influence on economic actors, because it modifies the income accessible to taxpayers, thus taxpayers' behavior. In my research I followed the evolution of direct taxes (particularly personal income tax) and contributions affecting individual entrepreneurs.

The advantages of direct taxes are that they make it easier to enforce equality than indirect taxes and they enable the state to offer specific support to certain social groups. Their disadvantage is that they can have a discouraging effect on decisions concerning consumption delay, i.e. savings.

The amount of tax burden has an effect on household incomes, influences price level, occasionally it is part of welfare transfers, increases income and encourages taxpayers through allowances, in other words, it plays an important role in social processes. Most often tax allowances do not favor the social groups they were designed for, but the individuals who are able to validate their preferences in their tax returns. In addition, each tax credit makes the tax system more sophisticated, so that their extensive use can even make it completely confusing. This is a characteristic of the Hungarian tax system, especially in the case of personal income tax.

Personal income tax is an important tool from the point of view of all three classic functions of the state (provision, redistribution, stability). The Hungarian SZJA system does not fully comply with the basic tax principles; neither does it completely meet the requirements for a good tax system.

Up to the 20th century there were several great tax reforms in Hungary, which had a significant effect on private individuals' tax burden. These reforms also prove that the Hungarian tax system has gone through a particular evolutionary process, as in some cases the taxes applied were not adapted to Hungarian peculiarities, economic and social structures, instead, the line of change was determined by the surrounding countries and international trends. Some of the biggest deficiencies of the Hungarian tax system are the lack of stability and computability, which notably influence taxpaying behavior.

The formation of the present tax system started with the tax reform of 1987-1988. Previously, in the socialist planning economy personal and corporate tax systems had been treated separately. The above mentioned tax reform introduced equal taxation of personal income.

The regulations of the tax system in Hungary have followed the practice of developed countries since 1988. Value added tax (ÁFA) and income tax were introduced for corporations, individual businesses and private individuals alike. The focus of taxation was moved from taxes on production to taxes on consumption, affecting wage incomes the most. The most serious problems of the system are the administrative burden arising from its structure, the high number of contributions and tax types, the individual payment of certain taxes and the considerable time and expert knowledge needed for filing one's tax return, which altogether make taxation unnecessarily complicated. According to a survey carried out by the World Bank the Hungarian tax system ranked only 127th in tax simplicity among all countries of the world in 2008.

Examining the historical evolution of the Hungarian tax system and its peculiarities affecting individual entrepreneurs I came to the conclusion that the Hungarian tax system is a structure taken over from other nations, it is not a result of organic development, and thus unfortunately it is not a well-functioning system. One of its main problems is the overtaxation of the population. When compared with other member states of the European Union, Hungary belongs to countries with a higher average tax burden; it even exceeds the average of the Union. In 2007, the average tax

burden was 39.8% in Hungary and 37.5% in the EU-27. In terms of structure, in Hungary direct taxes account for 25.7% of all tax revenue, while contributions amount to 34.1%. In contrast, in the member states of the European Union the rate of direct taxes is 3% higher than the rate of contributions.

The Hungarian tax system is too complicated, nontransparent in many respects and not stable. In terms of personal income tax and contributions to the social security fund, the formerly mentioned characteristics are even more evident. It was not the objective of my research to evaluate the changes necessary to correct these deficiencies; therefore I will not make any recommendations in this respect.

The country needs a tax system which meets the basic taxation principles, namely:
- it is stable and computable, because agriculture is quite unpredictable itself (weather conditions, prices, influence of other countries)
- it should take into consideration the characteristics of particular regions and territorial units (in terms of support and allowances)
- it must be cheap both in terms of control and fulfillment of tax liability
- it should be simple, transparent and easy to follow for the taxpayer
- it should encourage greater taxpayer willingness

The number of individual entrepreneurs in Hungary is large, they account for 58% of all enterprises. In the North Great Plain Region the rate of agriculturists is significant.

As far as tax return structure is concerned, personal income tax return can be divided into several parts. However, I examined only two of them, incomes subject to consolidation and entrepreneurial income, as these were related to the topic of my research. Analyzing the data from the North Great Plain Region I concluded that the tax return data behind these two income categories are not connected. Wage income is neither related to the expenses deducted in the given year nor the dividend base declared by entrepreneurs. All these facts raise the idea of recreating the present tax return regulations. In my opinion, because of the contradiction presented above it is not necessary to file all tax returns for a given year on the same tax return form. Provided that an individual entrepreneur does not do any other activity for a living, that is, he/she is a full-time entrepreneur, it would be easier to calculate their real tax burden if entrepreneurial withdrawal were not part of their consolidated income, even if that would involve more administrative burden from some respects.

The present tax return form itself is long, complicated and nontransparent in many cases. The time spent on filing one's tax return is also long, which does not encourage law-abiding behavior and fulfillment of the obligation to pay taxes in real terms.

In my research I came to the conclusion that *tax burden is influenced differently by tax return data.* There is a strong positive correlation between the income reached in the fiscal year and the deducted expenses. The question raised by this result is whether the proportionate change of the two tax return data is caused by the declaration of deliberately increased expenses (that is, arising from tax evasion) or by a proportionate growth of expenses resulting from a growth of income.
I was surprised to see that several tax-deductible items were not used by taxpayers in the region. With the elimination of these items taxation principles would prevail better.

The changes in tax regulations between 2000-2008 did not mean a real *tax burden relief* for self-employed agriculturists in the North Great Plain Region. Nominal tax burden (Tax Burden 1) shows a decrease, but due to restrictions in the number and use of tax allowances real tax burden (Tax Burden 3) on incomes subject to consolidation grew. Tax on income realized by the enterprise (Tax Burden 1 and Tax Burden 3) decreased.

It was not the objective of my research to measure *taxpaying willingness*, but I examined the effect of changing tax rates on tax revenue. Tax burden of self-employed agriculturists has become so high that any further rise would lead to a decreased taxpaying willingness (although I think this is true for all individual entrepreneurs, not just for this branch of the national economy). In my opinion, imposing more sanctions or increasing their severity would not solve the problem efficiently. Taxpaying willingness cannot be increased successfully with an increase in the amount of possible sanctions.

Unfortunately, tax evasion, grey and black economy are widely spread, which also explains high tax rates. As part of the population does not declare tax (tax evasion, tax avoidance), tax rates are higher and tax revenues have to be paid by individuals who are willing to fulfill their tax obligations, thus ensuring that tax revenues remain constant.

Tax administration for taxpayers is costly; the operation of the control system does not encourage tax collection in a satisfactory way.

The change in tax rates and scales influences entrepreneurs' income, because in the case of a higher tax rate they can spend less income after taxation. It also affects the amount of tax paid because higher tax results in higher tax revenue (up to a certain extent).

According to my calculations, in 2008 the average tax rate on the consolidated tax base characteristic for the region was 16%. The tax due represents 16% of all income counting into the consolidated tax base (which is discounted with allowances). Flat-rate taxation is only worth considering if the several allowances and exemptions are abolished. If allowances are eliminated from the system, tax will account for 22.3% of the consolidated tax base.

When determining individual entrepreneurs' tax burden we have to add all the taxes they are liable to pay. In the North Great Plain Region 24.7% of the self-employed agriculturists under study received a wage income and 57.5% opted for entrepreneurial withdrawal. Both of these are part of the consolidated tax base. Individual entrepreneurs are liable to pay income tax on both their income subject to consolidation and their income from entrepreneurial activity (income tax, dividend tax). In 2008 tax burden was increased because of the introduction of minimum income, but it was decreased due to the abolition of the 35% dividend tax. The average tax burden for self-employed agriculturists in the North Great Plain Region (only SZJA) was 30.6%, which is roughly twice the amount of tax on the consolidated tax base. This is increased by the compulsory social security insurance, which includes the contributions paid both as an employer and as an insurant. Social contribution amounted to 44.5% in 2008. All added together, they result in a high tax burden, but we cannot prove that it is situated at the lower end of the Laffer curve. Consequently, increased tax rate does not necessarily lead to less tax revenue.

Besides personal income tax individual entrepreneurs are also liable to pay contributions to the social security fund. In my opinion, these two tax types should be examined together as social contributions represent a significant amount of entrepreneurs' total tax burden. The acts on personal income tax and social insurance overlap in many details and are interrelated. It has become common practice among self-employed entrepreneurs to withdraw the amount equal to minimum wage as entrepreneurial withdrawal (which is an expense factor and in previous years was part of the contribution base). However, this method was just a tactical solution.

Based on specialized literature and the study conducted in my research I concluded that self-employed agriculturists based in the constituent counties of the Hungarian North Great Plain Region are subject to a high personal income tax burden, which cannot be increased any further.

Any further increase or illusive decrease of tax rates aiming at obtaining higher tax revenues would not realize the legislators' original intention, as it would not raise more revenue from taxes.

The increase in the average real tax burden between 2000-2008 was the following:
- consolidated tax base increased from 14.6% to 16%
- entrepreneurial personal income tax and dividend tax grew from 26.9% to 30.6%

Besides personal income tax burden, there is also a high amount of social security contribution, which increased from 44% to 44.5%. In addition, the base for calculation increased too, due to the growth of the minimum wage defined by the law, which serves as a base for contribution payment. Between 2000 and 2008 the amount of minimum wage grew by 2.7 times. These facts clearly illustrate that the decrease in the amount of contributions did not result in a real contribution relief. The amount of contributions paid between 2000-2008 increased to almost twice and a half (2.47) at going price, or it grew by 1.8 times if we use constant price from 2000. Both the burden from personal income tax and social contributions increased in the period under study, while at the same time the rate of self-employed agriculturists declaring a profit decreased from 40.6% to 37.9% of all entrepreneurs filing a tax return.

Beginning with 1 January 2011 another *"tax reform"* took place, introducing the concept of flat-rate family taxation. In this respect, I personally have some doubts as far as individual entrepreneurs are concerned. As the change was only related to the progressive tax chart which affects consolidated income, the new system is not really flat-rate as its name suggests. In addition, some allowances are (still) present in the income tax structure. Although this system makes it easier to calculate income tax, the main problem of the Hungarian tax system is not the difficulty in calculating the amount of tax from the tax base, but the difficulty of determining the tax base due to the large number of allowances and exemptions. As long as allowances and exemptions are an organic part of the personal income tax system, we cannot talk about simplification.

Due to the importance of agriculture, the growth of entrepreneurial tax burden would increase the extent of black economy in the region, which is harmful to the whole society.

In my opinion there is a strong need for a paradigm shift aimed at decreasing overtaxation (tax burden) and on the other hand, at facilitating taxpaying willingness. Some further important tasks with regard to personal income tax are to simplify the tax system and increase transparency, which can be achieved with the current radical tax reform.

5. SUMMARY

The main reason for choosing my research topic was the continuous change in the Hungarian tax system, as well as the fact that the rate of individuals doing agricultural activity in the examined region is 2% higher than the national average, especially in Jász-Nagykun-Szolnok county, which is my line of country.

In order to limit the scope of my research I determined three areas of study, which are closely interrelated:
1. the development of the tax system as compared to international trends
2. the effect of personal income tax on self-employed agriculturists
3. the change of tax burdens in the taxpayer segment and the area under study.

On a theoretical level I included two further areas into my research, namely the analysis of the flat-rate tax system and its effects as a possible way to improve the personal income tax system, as well as the effects of the change in entrepreneurs' tax burdens on income tax revenues. As I examined only a small number of factors of the tax system affecting self-employed agriculturists, I only made a few comments on the subject of obligatory social security contributions.

My work is based on a thorough examination of a wide range of specialized literature. I included a short retrospective description presenting the formation and development of tax systems and the effects of particular tax reforms, with special attention to Hungarian conditions. I examined flat-rate tax as a typical 21st century trend and attempt for tax-reduction, together with its implementation. I elaborated on the tax burdens of self-employed agriculturists, especially the main changes concerning personal income tax. Finally, I presented the role of the Hungarian North Plain Region in national agriculture and its main economic achievements.

Using secondary data, I discussed the changes related to personal income tax and its typical tendencies at present. This issue is especially important nowadays as due to constantly changing regulations taxation has changeable effects on entrepreneurs. After examining the evolution of tax and tax-related revenues handled by Hungarian APEH between 2000-2008 I concluded that personal income tax accounted for nearly 20% of total tax revenues, while the rate of social security contributions and general turn-over taxes was higher than that.

After examining the changes in the contribution of the Hungarian North Plain Region to the national tax revenues I demonstrated the importance of contributions to budgetary revenues and the deviation of the local tax payment rate from the national average, as in the Hungarian North Plain Region personal income tax accounts for a higher rate than general turn-over tax. I also conducted an analysis of the effects of the data in personal income tax declarations on tax burden and its changes in the Hungarian North Plain Region with regard to self-employed agriculturists. I dealt separately with taxes deriving from the total taxable income and the income deriving from independent business activity and the data influencing the declaration of the income related to latter. Regarding the income of entrepreneurs I gave special attention to the effects of entrepreneurial personal income tax and capital return tax. I pointed out that the minimum wage defined by the law has a different influence on withdrawals and on wage income. After consulting the data provided by income tax declarations I did not identify any county-specific factors that could justify a county-based classification of entrepreneurs, which proves that a common tax system does not lead to significant differences in entrepreneurial tax burdens between counties.

On a theoretical level I examined a possible solution, namely the effects of the introduction of flat-rate personal income tax on tax burdens. I concluded that theoretically a tax rate of 20% combined

with the abolishing of tax exemptions would provide the same tax payment. I also presented the difficulties of the introduction of flat-rate taxation in this taxpayer segment. The changes regarding taxpaying willingness were considered constant.

I examined the economic implications of taxation between the years 2006 and 2008 according to data from entrepreneurial tax declarations. I focused on two economic effects: the income effect and the corrective effect. As for the income effect, I analyzed the changes in tax burdens and the individual tax declaration data influencing the amount of tax burdens. I proved that tax burdens were influenced by different factors and to a different extent in 2006 and in 2008. When analyzing the corrective effect, I examined the corrective influence of tax benefits and exemptions. I concluded that without tax exemptions tax burden decreased, but when taking into account tax exemptions it slightly increased. This can be explained by the fact that in the time period under study tax exemptions became more restricted and their number was reduced.

Based on international references and the available data we can assume that self-employed agriculturists' tax burdens are already so high that the reduction of tax rate would not lead to an increase in tax revenues, as their taxes are situated.

I have arrived at the final conclusion that in the constituent counties of the Hungarian North Plain Region the tax burden of self-employed agriculturists is substantial and cannot be increased any further. The reduction of tax burden can be achieved by two methods: by simplifying the personal income tax system and decreasing the amount of social security contributions.

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