International Journal of Business, Human and Social Sciences
ISSN: 2517-9411
Vol:4, No:6, 2010

Evaluation of the Burden of Taxation Received by Households in Lithuania

V. Boguslauskas, G. Jakstonyte And L. Giriunas

***Abstract*—**Many foreign and Lithuanian scientists, analyzing the evaluation of the tax system in respect of the burden of taxation, agree that the latter, in principle, depends on how many individuals and what units of the residents constitute a household. Therefore, the aim of scientific research is to substantiate or to deny the significance of a household, but not a resident, as a statistical unit, during the evaluation of tax system, to be precise, determination of the value of the burden of taxation. A performed scientific research revealed that evaluation of the tax system in respect of a household, but not a resident, as a statistical unit, allows not only to evaluate the efficiency of the tax system more objectively, but also to forecast practicably existing poverty line, burden of taxation, and to capacitate the initiation of efficient decisions in social and tax fields creating the environment of existence.

***Keywords*—**burden of taxation, household, tax system evaluation.

I. Introduction

GLOBAL economical tendencies, speed of their development and drive condition new research and discussions in field of tax system evaluation. During the creation and refinement of the latter, residents of the country receive more attention, though, the households, which are defined as one of three major elements of economy in economical literature, and their analyses do not receive sufficient amount of attention.

Household income and consumption expenditure is economical variable of exceptional importance. First of all, they are among the main indicators allowing to judge on the existing general level of prosperity in the country. Furthermore, household solutions regarding the specific part of income to consume or to save are important contributor to economical advancement and prosperity – these solutions determine processes of capital accumulation and enlargement of economical potential. Namely in this field of evaluation of economical situation of the country, the investigations were started to be cultivated several decades ago, when in Wisconsin University households were started to be analyzed not only as one of the major sectors of economy, but also as one of the objects of the burden of taxation.

In Lithuania, household research in respect of the tax system evaluation is still not being developed, whereas preceding scientific research completed by the foreign scientists enables to think that still there is no unanimous tax system evaluation methodology prepared, and different authors evaluate the latter applying different methods or simply presenting intuitive evaluations, unsubstantiated with calculations. Yet, research completed by the foreign scientists, who during the evaluation of the tax system began to speak also about a household as a statistical unit, does not enable us both to evaluate the importance of households in an objective way as a set of particular statistical units and to forecast the burden of taxation and the results of changes in the tax system they receive.

Objective of scientific research – to evaluate the amount and weight of the burden of taxation received by the households during the analysis of the tax system.

Object of research – tax system and its participants.

In order to achieve the objective the following tasks were completed: to identify the role and importance of the households in the tax system; to perform the examination of the specter of evaluation of the burden of taxation; to perform a classification of households in respect of tax system evaluation; to evaluate the value of the burden of taxation received by the households.

The following article consists of analysis of scientific works, economical literature, analytic works, laws and regulations of the Republic of Lithuania, and practice of evaluation of the role of the burden of taxation for households on a plane of tax system evaluation. Tax system evaluation methodologies and their indicators were examined combining monographic, logical, statistical methods of analysis and comparative method. The results of empirical research allow to state that conditionally great weight of households, but not of residents, as statistical units, exists in evaluation of the tax system, and, to be precise, value of the burden of taxation.

II. Process Of Scientific Research And Interpretation Of Results Received

Value of the burden of taxation is an extremely important indicator in tax system efficiency evaluation for the households, because, with reference to the principle of trade

Vytautas Boguslauskas is with the Economics and Management Department, Kaunas University of Technology, Kaunas, Lithuania. (Phone: +370-37-300565; fax: +370-37-300565; e-mail: vytautas.boguslauskas@ktu.lt).

Gintarė Jakstonyte is with the Economics and Management Department, Kaunas University of Technology, Kaunas, Lithuania. (Phone: +370-648-25777; fax: +370-37-300565; e-mail: gintare.jakstonyte@ktu.lt).

Lukas Giriunas is with the Economics Department, Vilnius University, Vilnius, Lithuania. (Phone: +370-676-36715; fax: +370-37-300565; e-mail: pritinas@gmail.com).

cycle, it is true to say, that due to the growing burden of taxation for business entities, tax burden received by the households also grows implicitly. Households pay income tax and payments into Compulsory health insurance and State social security funds from the income received. Companies pay payments into social insurance from the same income, furthermore, resident, already from the taxable income, pays excise duties, value-added tax, whose value is established from the excise duties also. Thus, a multiplex taxation is legalized, when from a tax a value of contiguous tax payable is calculated [13]; that is exactly the reason why it is essential to identify the burden of taxation the households receive before constructing a model of evaluation of the burden of taxation for the households.

There are a lot of different methods of tax system evaluation; however, the most popular remains the indicator of the burden of taxation in global economical practice. Independently of the fact that the latter, subject to the country, its state-of-the-art and other economical indicators, is differentiated and individualized in global scientific practice, it remains the only indicator adapted and fitted to the evaluation of the households in the country. In order to reach the latter aim, in 2004 at Wisconsin University, scientific research was completed, during which a model, dedicated to the development of the research of direct burden of taxation that households in USA receive, was created [15]. Equation (1) represents that during the creation of the model of evaluation of the burden of taxation for the households in Lithuania it is referred both to methodology created at Wisconsin University and substantiated with empirical research, and governing state principles of calculation methodology of the burden of taxation.

$$\Delta = (A + B) \times \beta, \quad (1)$$

where:
A – direct burden of taxation;
B – indirect burden of taxation;
β – number of household members.

Thereby, national budget fiscal income, received from the households, will consist of the land tax paid by households, whose exact scope is announced exclusively by the State tax authorities, because income, reflected in the national budget, from the following tax are received from both business entities and the households; property inheritance tax and income tax of residents are paid only by the households.

Reference [10] shows that while using only state fiscal income, received from the households, for calculations, not all, but only fiscal and household income should be evaluated, excluding various allowances received, pensions and other support allocated to the households. Equation (2) represents direct burden of taxation for households.

$$Direct burden\ of\ taxation, percent = \frac{A+B+X+\Delta+E}{\Phi+\Gamma+H+I} \times 100, \quad (2)$$

where:
A – land tax paid the households;
B – property inheritance tax paid into national budget (NB);
X – income tax for residents, paid into NB;
Δ – fiscal income of State social security fund, received from the households, i.e., compulsory state social insurance contributions of insured and voluntary working persons and state voluntary social insurance contributions;
E – fiscal income of Compulsory social security fund, received from the households, i.e., compulsory health insurance contributions of farmers and other individual economy users for themselves and adult family members, working in a farm; and compulsory health insurance contributions of persons who pay 10% of average wage size contributions for themselves;
Φ – average annual gross wage in the country;
Γ – income from business and individual activity;
H – agricultural income;
I – income from property and rent [5].

Differently than calculating direct burden of taxation, evaluation of indirect burden of taxation for households will employ not only fiscal income of households. It is because independently of size of fiscal income, sooner or later fiscal income becomes expenditure [14]. For the following reason, not only average annual net wage in the country, but also returned income tax overpay for the last calendar year, support appointed to the households by EU structural funds, income from business and individual activity, agricultural income, income from property and rent, various allowances and pensions, i.e., unemployed allowance, vocational training allowance, custodial allowance, sickness allowance, death benefit, income support allowance after child‘s birth, maternity (paternity) allowance, family or child‘s allowance, disability pension, retirement pension, premature retirement pension, survivor‘s benefit, early retirement allowance respecting the market situation and funeral expenses allowance will be attributed to annual household income.

Whereas, indirect burden of taxation for households is calculated not from the household income, but from expenses, accordingly, savings and already paid direct household taxes must be subtracted from previously mentioned not only fiscal household income, in order to evaluate realistic size of household expenses. Income evaluate net, and not gross wage size, therefore, direct household taxes will involve land tax and property inheritance tax.

Thus, indirect burden of taxation for households will be calculated according to (3).

$$Indirect\ burden, = \frac{C\alpha + D\beta}{K+\Lambda+M+Y+O+\Gamma+H+I-A-B-\Pi} \times 100, \quad (3)$$

where:
C – value-added tax, paid into NB;
ά – coefficient, defining what part of added value is paid by the households;

D – excises paid into NB;
β – coefficient, indicating what part of excises is paid by the households;
K – sum of allowances received by the households, i.e., unemployed, vocational training, custodial, sickness, income support after child's birth, maternity (paternity), family or child's, funeral expenses allowances, and death benefit;
Λ – sum of pensions received by the households, i.e., disability, retirement, premature retirement pensions, survivor's benefit;
M – average annual net wage in the country;
Y – returned income tax overpay;
O – EU support, appointed to the households;
Γ – income from business and individual activity;
H – agricultural income;
I – income from property and rent;
A – land tax paid by the households;
B – property inheritance tax paid into NB;
Π – household savings [5].

Indicator of the burden of taxation is not sufficiently informative when collectively state and household's economical situation and financial potential, level of shadow economy are not evaluated [12]. Nearly the most important task becomes the evaluation of that part of the household income which remains for the taxpayer after the taxes are paid, because financially it is easier for the household, which receives more income, to pay the same amount of the taxes payable than for one which receives less income. To reach this aim a gross domestic product per capita is also evaluated, though not for a household, where it composed of different number of residents receiving differentiated income. Reference [1] shows the results of scientific research completed in household sector enables to state that strong negative correlation between the size of a household and gross domestic product per capita exists. Thereby, the evaluation of the latter from the aspect of the household burden of taxation becomes both insignificant and purposeless element.

TABLE I
GDP AND HOUSEHOLD SIZE CORRELIATION RESEARCH IN LITHUANIA

	2004	2005	2006	2007	2008	Correlation coefficient
Household size	2	2	2	1.99	1.99	
GDP per capita, EUR	5285	6112	7064	8465	9589	-0.9039

Traditionally, like many foreign scientists state, economists apply the size of GDP in practice calculating the size of household, and not vice versa. However, few scientific surveys completed in Pennsylvania, Carnegie Mellon University, were carried out applying the inverted principle of evaluation, when, subject to the average household size, the size of GDP per capita is identified [2]. The results received allow performing a legitimate and expedient interpretation of the burden of taxation received by the households, for this purpose applying value of GDP per capita, which is calculated using the average household size indicator. Positive results of evaluation are influenced by the fact, that conditionally smaller household creates lesser added value, which, in turn, influences lower level of the market stimulation. The latter influences speed of technological development and productivity of the business entities, directly conditioning tax system efficiency.

Size of the households becomes more and more relevant social-economical indicator, suitable not only for international comparisons of the created state welfare in social sphere, but also for tax system efficiency and tax burden value evaluation [7]. Many foreign scientists agree that while composing a sampling for the household research, the following persons should not be involved:

- ✓ Single state dependants;
- ✓ Single persons living apart from the family, but materially supported by it;
- ✓ Citizens of foreign countries legally working in a country;
- ✓ Military families living in military towns.

The elaboration of the households not involved in a sampling is the essential condition of successful development of research. Single state dependants, according to the household research performed by the Department of Statistics under to the government of the Republic of Lithuania, are defined as persons living in custodial institutions, performing obligatory soldiering or imprisoned. In further research sampling will not involve persons living in residential nurseries; child, disabled, old people's houses, hostels; boarding school pupils; persons, performing obligatory soldiering and persons, living in imprisonment institutions; and persons, living apart from the family but materially supported by the latter are the children learning in professional schools and students who study both in Lithuanian and foreign high schools but financially dependent on the family. Fig. 1 represents the results of the 9 years long Lithuanian statistical data analysis enable to state that even 5 per cent of the country's residents cannot be included into detailed household research.

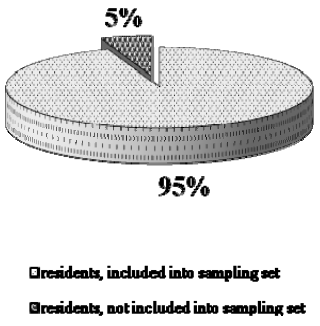

Fig. 1 Sampling set of Lithuanian household research

At first sight, conditionally low 5 per cent value has a potential, together with the growing number of state residents, to distort the results of research performed and error value identified. Commonly, households in Lithuania are being identified with the residents of the country; therefore, state economical and social indicators are calculated not per household, as a statistical unit, but per resident. The results of such analysis of economical and social indicators normally do not reflect the reality fully, because, for example, lifer does not participate actively in economical state life, though, he is a structural unit of state residents. The latter can buy goods or services, therefore, in turn, would have influence on the formation of the burden of taxation, but, on the other hand, he is completely state dependent, specifically – dependent on other taxpayers, creating the added value for the state; for the following reason, the burden of taxation for the households grows. Wherefore, after completing the sampling of the residents for the household research development, openings for more objective, with conditionally lower relational error, extraction of the indicator of the burden of taxation, when the latter is higher than the one received per capita or generally for the state, are created.

In order to evaluate the exact value of the burden of taxation received by the households, it is not enough to compose a sampling set of the state residents; for objective evaluation, the essential condition is the determination of the average state household size. While trying to intercombine the latter two methodologies, it is possible to identify and adapt the means and methods of the household size identification which exist in global practice for the further research.

TABLE II
METHODOLOGIES APPLIED TO IDENTIFY THE HOUSEHOLD SIZE

Author	Description of methodology
Smith, Nagle&Cody (2002)	Employment of regressive models is one of the major technical means not only for household size identification, but also for the interpretation of analysis of their changes and added value created [8].
Gelman A., Little T.C. (1998)	The analysis of number of adults, specifically – consenting state residents [4].

As one of the most widely applied means for scientific research in the household size identification area practical employment of regressive models is dominant. Reference [11] shows that in practice specific household size identification models are applied using exclusively statistical data, yet, despite the variation of the sampling variables, the results of research enable to state that, nevertheless, the most important is the structure of the model. In foreign economical literature we can meet the household size identification methodology where the latter is evaluated in accordance with the number of consenting state residents [4]. The scientists notice, that namely the following method of indicator value identification may be included as purely additional, though, enough informative, variable while applying regressive models. When identification of household size both applying regressive and combined models was completed, it emerged that the latter is more expedient.

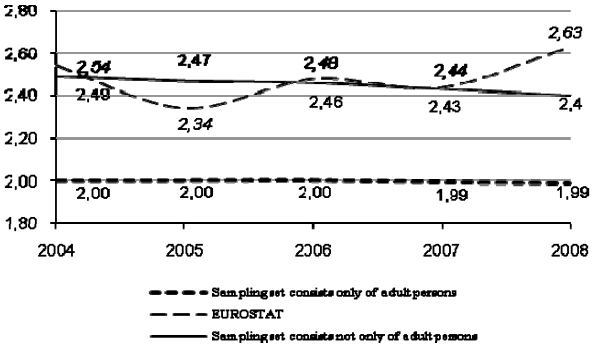

Fig. 2 Average size of households in Lithuania

Fig. 2 represents that the calculated household size, when regressive model employs the sampling of statistical data, where set is composed only of adults, is clearly distinct from the general context, however, is the most suitable to develop the research of the household burden of taxation. The main arguments why, in further household research it is purposeful to trust regressive model also involving the number of the state adults in the latter as the additional variable, are the following:

- ✓ Large households do not influence the results received, because under-aged members of the households are not being evaluated, after all, they do not create added value and are treated like indirect market consumers;
- ✓ According to the foreign scientists, the size of the household, when all the residents of the state are being evaluated, is conditioned by conditionally high standard error, influenced by the evaluation of the residents, who do not create added value;
- ✓ Regression in the sizes announced by EUROSTAT, when all state residents are evaluated, and with the help of regression model household size is identified involving additional notional variable is equal to 0,6274, whereas, applying only regression model – 0,4626, which shows a stronger relationship between the first variables;
- ✓ The validity of practical application expediency of adapted model is influenced by the fact, that, after the sampling, when factor of adults is also involved, analogous and uncorrupted integrated sampling results are received – 5 and 95 per cent.

The essential condition for the evaluation of the household burden of taxation is the analysis of general household burden of taxation, when necessity to evaluate both the size of the household and its influence on the calculation of the latter emerges. Reference [3] shows that after evaluating the value of general household burden of taxation, it will be a more precise state tax system household policy evaluation indicator

than of other tax tariff, with the distinct bases, comparison. Fig. 3 represents rapid increase in the indicator of the household burden of taxation in 2006 was conditioned not only by the changes in legislative base – expansion of the excise duty tariff, reduction of tax deductions, action implemented by the State tax inspectorate when the volume of widely spread shadow economy was reduced by few ten per cent. Openings for the further stabilization in growth of the household burden of taxation were created both by following development of tax administration and stiffening the responsibilities for fiscal income violations.

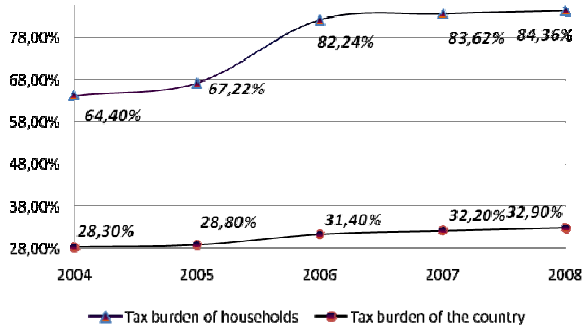

Fig. 3 Dynamics of evaluation of burden of taxation for the households in Lithuania

Conditionally oversized burden of taxation for the households enable us to state, that the research accomplished is not accurate: Fig. 3 represents that from the first sight higher than 80 per cent burden of taxation may be not understood logically, while predominant value of the burden of taxation in the country does not reach the limit of 35 per cent. Though, such a proportion should not surprise knowing that the households are not just one of the three main sectors of economy, but also the main source of economical resources.

Essentially, households are the ultimate users of goods and services created by society, however, they can also be engaged in various economic activities, i.e. constitute one more of three sectors of economy – business subjects [15]. Goods and services created by the households can be appointed to internal needs or market; this is the way the households intercept part of the burden of taxation fallen on the business subjects, and the third sector of economy – the state – only perform the role of goods redistribution. Meanwhile, the remaining part of nearly 15 per cent of the burden of taxation falls on the foreign investors, because trade cycle cannot be defined in the closed space. That is the main reason why the evaluation of the value of indicator of the burden of taxation is fairly conditional measure of tax system evaluation.

III. Conclusion

Size of the burden of taxation is an extremely important tax system efficiency evaluation indicator for the households, because, with reference to the principle of trade cycle, it is possible to state that while the burden of taxation increases to the business subjects, the burden of taxation which falls on the households is also indirectly increasing.

Performing the sampling of the households of Lithuanian residents for the development of research, extremely favorable circumstances and conditions to calculate and evaluate the indicator of the burden of taxation objectively, with conditionally smaller relational error, are created; especially when the scientific research proves that the latter is more than two times higher than the one which falls on one state resident or the whole state generally.

Essentially, households are the ultimate users of goods and services created by the society, however, they can also be engaged in various economic activities, i.e. constitute even two of three main sectors of trade cycle; therefore, the burden of taxation which fall on the latter fluctuates near 80 per cent, while the burden of taxation existing in the country is equal approximately to 30 per cent.

The results received allow performing legitimate and expedient interpretation and evaluation of the size of the burden of taxation which falls on the households, for this purpose applying the value of GDM per capita, which is calculated using the average household size indicator. The positive results received are influenced by the fact that conditionally smaller household creates lesser additional value, which, in turn, conditions lower market stimulation level, which influences rates of technological development and efficiency of business subjects, directly influencing tax system efficiency.

References

[1] Anchorena J. (2006). Household Size and Productivity. Carnegie Mellon University Press, 12, 2-10.
[2] Anchorena J. (2005). The Mechanics of Economic Development: Simulations. Carnegie Mellon University Press, 9, 28-44.
[3] Feldstein M. & Poterba J. (1996). Empirical Foundations of Household Taxation. The University of Chicago Press, ISBN: 0-226-24097-5.
[4] Gelman A. & Little T.C. (1998). Improving on Probability Weighting for Household Size. Public Opinion Quarterly, 62, 398-404.
[5] Jakstonyte G. (2008). Lietuvos namų ūkių mokesčių naštos vertinimas. Apskaitos ir finansų mokslas ir studijos: problemos ir perspektyvos, 1(6), 34-39.
[6] King, Mervyn A. (1984). Welfare Analysis of Tax Reforms Using Data. Journal of Economic Literature, 22(1), 183-214.
[7] King, Mervyn A. (1983). Welfare Analysis of Tax Reforms Using Data. Journal of Public Economics, 21, 13-24.
[8] McCaffery, E. J. (2006). Behavioral Economics and Fundamental Tax Reform. Law and economics working paper series, 50.
[9] McCaffery, E.J. (2008). Where's the Sex in Fiscal Sociology? Taxation and Gender in Comparative Perspective. Law and economics working paper series, 70.
[10] Novosisnskiene A. (2006). Reforms and problems of the Lithuanian tax system. Economic Science for Rural Development: Proceedings of the international scientific conference. Finance and credit diversification, 11, 112-121.
[11] Office of Financial Management (OFM) (2009). Employer-Sponsored Health Insurance Overview.

<http://www.ofm.wa.gov/shpo/healthin/employerbaseins/empspon healthins.pdf>.
[12] Piggott, J. & Whalley, J. (1996). The Tax Unit and Household Production. Journal of Political Economy, 104(2), 398-418.
[13] Poterba J. (1987). Household Behaviour and the Tax Reform Act of 1986. Economic Perspectives, 1, 101-119.
[14] Poterba J. (1984). International Comparisons of Household Saving. The University of Chicago Press, ISBN 0-226-67621-8.
[15] Wisconsin Department of Revenue (2004). Wisconsin Tax Incidence Study. Division of Research and Policy, <http://www.revenue.wi.gov/ra/txinci04.pdf>.

V. Boguslauskas, 15 07 1946. Doctor of Social sciences, field of engineering economics, since 1975, Kaunas University of Technology, Kaunas, Lithuania. Professor, since 2003, Kaunas University of Technology, Kaunas, Lithuania.

He worked as the HEAD of Finance department 1994-98, HEAD of Finance and Accounting department 1998-2000, HEAD of Accounting department, KTU, 2001-till now. Important works: *Flexible pricing (2000), Financial evaluation of company's activities (2001), Basics of econometrics (2004).* Published in SocINDEX with Full Text, Index Copernicus, CEEOL, Current Abstracts, SocINDEX, TOC Premier data bases.
Interests: formalization and modeling of the company's control processes, econometric analyses. Tutor of 11 successfully defended doctoral dissertations.

G. Jakstonyte, 10 01 1984. Master in Economics, since 2009, Kaunas University of Technology, Kaunas, Lithuania.

She worked as Assistant professor in Kaunas University of Technology, faculty of Economics and management at Accounting department, since 2008, Kaunas, Lithuania. Fields of study: business taxation, tax system administration evaluation research. Important works: *Evaluation of the accountant's professional image and its prestige influence on selection of accounting speciality at universities (2009), Fiscal policy significance to small business building (2009), Graphic model of income tax declaration (2006)*. Published in ISI Web of Sciences, IBSS, EBSCO, VINITI, CEEOL and DOAJ data bases.

L. Giriunas, 13 12 1983. PhD student in the area of Management of social sciences, since 2009, Vilnius University, Vilnius, Lithuania.
Important works: *Optimisation of the company's auditorial functions (2009), Evaluation of the accountant's professional image and its prestige influence on selection of accounting speciality at universities (2009), Evaluation of condition of internal control system in the company (2009).*
Published in KTU conference, BSS, EBSCO, VINITI, CEEOL and DOAJ data bases.