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Tax Burden of Economic Sectors in Kyrgyz Republic

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Kırgızistan Cumhuriyeti'nde Ekonomik Sektörlerin Vergi Yükü

Abstract

In the theory there are different methods of calculation tax burden, each of them has the advantages and lacks. Advantage of two-parametrical model consists in simplicity measurements and validity. Model it is based on parameters of material capacity and labor -intensiveness of the enterprise. The author realizes idea of use of the constructed matrix for definition of tax burden of sectors of economy of the Kyrgyz Republic, using statistical data of the finance of the enterprises. The analyses of these parameters testify: 1) about a weight level of tax burden of subjects of economy; 2) its uneven distribution; 3) inefficient system of the taxation which generates sources of shadow economy.

Key Words : Tax, Tax Burden, Material Capacity, Labor-Intensiveness.

JEL Classification Codes : H20, H21, H26.

Özet

Teoride vergi yükü hesaplamasında kullanılan farklı yöntemler bulunmaktadır. Bu yöntemlerin her birinin diğerine göre üstünlükleri olduğu gibi eksiklikleri de mevcuttur. Bunların içinden iki parametreli modelin avantajı, halen geçerliliğini koruyan basit bir hesaplamaya dayanıyor olmasıdır. Modelde kullanılan parametreler işletmelerin işgücü yoğunluğu ve malzeme (üretim) kapasitesidir. Çalışmada Kırgızistan'daki veriler kullanılarak Kırgızistan ekonomisindeki sektörel vergi yükü bir matris biçiminde ele alınmaya çalışılmıştır. Bu parametreler kullanılarak ekonomideki vergi yükünün ağırlığı, dengesiz dağılımı ve kayıt dışılığın vergileme üzerindeki etkinsizliği test edilmeye çalışılmaktadır.

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Beyan

Kırgızistan-Türkiye MANAS Üniversitesi, İ.İ.B.F. Maliye Bölümü tarafından 24–27 Ekim 2007 tarihleri arasında Bişkek'te düzenlenen 2. Uluslararası Kamu Maliyesi Sempozyumunda sunulan aynı başlıklı çalışmanın özeti "The Proceedings" kitabında ayrıca basılmıştır.

1. Introduction

Nowadays the problem of tax burden parameters calculation is one of the most important and the most debatable in the taxation theory.

In the scientific literature it is possible to meet different techniques of definition of tax burden at a micro level. Features of their application are shown in interpretation of such key moments, as quantity of the taxes included in calculation of tax burden, and also definition of an integrated parameter which the sum of taxes corresponds with. The basic idea of optimum technique search has lied in making a parameter of tax burden universal so that allow to compare a level of the taxation in different branches of a national economy and the different countries of the world economy from the perspective of globalization.

However we consider that in reaching the maximal accuracy in calculations it is impossible to achieve simplification and laconism.

S. Dow, the professor of economic faculty of Sterling University (Great Britain), has pointed to Z. Debra's idea, who is believed to be convinced advocate of mathematization of the economic theory, that "Mathematic constantly demands *the relaxation of assumptions, strengthening of conclusions, the big generalization* (italics by the author). Accepting the mathematical form, the economic theory will be compelled to follow to these requirements. The mathematic demands simplicity ."

2. Two-parametrical Model for Kyrgyz Economy

In our opinion, two-parametrical model of cumulative tax burden by A.V. Ignatov fully meets these purposes. It allows defining the tax burden of the juridical person by four basic taxes paid by then both as the tax bearer and as the agent. These taxes and assignments are the value-added tax (VAT), income tax from physical persons, assignments to social fund and profits tax. As parameters it is possible to show the indexes of labor-intensiveness (l) and material intensiveness (m).

If to accept rates of current tax system of the Kyrgyz Republic, then total tax burden in gross-product will make:

$$0,2 + 0,1l + 0,29l - 0,2m + 0,1x[1 - (1 + 0,29)l - m] + 0,1x\frac{(1 - 0,1)l}{l + m}x[1 - (1 + 0,29)l - m] \qquad (1)$$

Here;

l is a share of labor payment expenses in net- product accepted for 1;

m is a weight of material inputs, amortization, services and other expenses in net-product. As well as in the previous model, here VAT is considered.

Composed formulas represent this or that tax: the first composed - the VAT paid at purchase of material resources; the second - the tax estimated from labor payment fund which is formally kept from personnel incomes, but in fact from the organization where he/she works; the third - insurance payments; the fourth - the VAT raised at realization of assessed deliveries; the fifth - the profit tax; the sixth – income tax paid to personnel due to net profit. Feature of last one related with its starting from macroeconomic situation where for the labor payments the share of net profit is addressed which corresponds to a share of labor payment fund (*l*) in the sum of shares of labor payment and material inputs fund (*l* + *m*).

The calculation result is presented in the form of a matrix (see table. 1). Lines of a matrix reflect this or that size of payment fund, and columns reflect some size of material inputs, and on their crossing the total size of tax burden is displayed. Sizes of insurance assignment and profits at the given values of payment fund and material inputs are functionally unequivocally defined; therefore there is no necessity for their display for a matrix. It is necessary to mean that the total size of the named four parameters is identical net-product equal to 100%, hence the size of *m* and *l* in aggregate can be equal less than 100%. In case the sum of payment fund, material inputs and insurance assignments is equal to net-product or 100%, then the profit will be zero. Such situation is considered with resulted values of the greatest possible material inputs (*m*) at the given parameters of labor input (*l*).

The outermost parameters of a diagonal are characteristic for cases (they are allocated) when the organizations will aim to profit minimization that in a reality is the most possible. Data of the constructed matrix show a high level of tax burden on those fields of economy, where the biggest weight are covered by the payment fund (and accordingly smaller material inputs), and the low tax burden in the enterprises with a small share of payment fund and the big share of material inputs. Disorder of parameters on these subjects is extremely big - from 5,8-10,4 som on each 120 som gross-product up to 47,2 som. At the given stage it is necessary to emphasize *objective character* of these parameters of tax burden.

Further using parameters of material and labor intensiveness, calculated on the basis of material inputs, labor payment expenses and product (of gross revenue) of the enterprises by the kinds of activity received on statistical reports[1], we have realized the

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[1] *Финансы предприятий Кыргызской Республики 2000-2005 // НСК КР, Бишкек: 2006. С. 32, 130-148.*

[2] Вылкова Е.С. *Расчёт налогового бремени в современных российских условиях // Налоговый вестник № 12, 2002. С. 132-135; № 1, 2003. С. 136-139.*

idea of definition of tax burden levels on the enterprises of the basic economy branches of the Kyrgyz Republic.

The parameters of tax burden defined on the basis of these data (see table 2) in general do not differ much more from the parameters of tax burden calculated on model of *Vylkova*, from 14,73% up to 19,56%, regarding to gross-product that expresses essentially correctly chosen approaches to definition of tax burden in one and other case.

However these parameters testify about not so much high tax burden of definite subjects of real sector (up to 46,7% of the *Added Cost*) if to compare to tax capacity at a rate of 22,59%, taken place in economy of Kyrgyz Republic in 2006, rather than about its actual misdistribution. So relatively low tax loading (up to 20% of the added cost) is performed by the enterprises manufacturing tobacco products; textile and sewing products; vehicles and the equipment; other nonmetallic mineral products. And, on first two branches the sum *m* and *l* makes 93%, i.e. is as much as possible approached to 100%, which informs about low (less than 5%) or even a *zero level of profitability*. The actual state of affairs in these economy branches of Kyrgyzstan testifies to opposite.

In the same way it is possible to analyze branches on which parameters of labor input considerably lower than 17% (*1%* in metallurgical manufacture), accepted as base on the first model (they are noted in column 2 of tab. 2). For example, in 2005 the enterprises who process wood and manufacture products from wood had a share of production and sale expenses, including social insurance assignments, in net-product of all about 14% (only the sum *m* and *l* has made 13%). Hence the profit should exceed expenses more than in 5 times. However the profit tax declarations do not confirm it. To attribute it only on statistical faults is wrong. In our opinion, to a greater extent it is necessary to consider as consequence of imperfection.

Table: 1

Matrix of Definition Net-Burden on the Enterprises of Economy of the Kyrgyz Republic (Som from every 120 Soms. Gross-Product)*

Max m (%)	L (%)	m (%)																	
		05	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
93	05	33,8	30,8	28,6	26,6	24,8	23,1	21,5	19,8	18,2	16,7	15,1	13,5	12,0	10,4	8,9	7,4	5,8	4,3
86	10	36,0	33,1	30,7	28,6	26,7	24,9	23,2	21,5	19,8	18,2	16,6	15,0	13,4	11,8	10,2	8,7	7,1	
80	15	37,5	34,7	32,4	30,3	28,3	26,4	24,6	22,9	21,2	19,6	17,9	16,3	14,7	13,1	11,5	9,9		
73	20	38,7	36,1	33,8	31,7	29,7	27,8	26,0	24,2	22,5	20,8	19,2	17,5	15,9	14,3	12,7			
66	25	39,7	37,2	35,0	32,9	30,9	29,1	27,3	25,5	23,8	22,1	20,4	18,7	17,1					
59	30	40,7	38,3	36,1	34,1	32,1	30,2	28,4	26,7	24,9	23,2	21,5	19,9						
53	35	41,6	39,3	37,1	35,1	33,2	31,3	29,5	27,8	26,0	24,3	22,6							
46	40	42,4	40,2	38,1	36,1	34,2	32,4	30,6	28,8	27,1									
39	45	43,2	41,1	39,1	37,1	35,2	33,4	31,6	29,8										
32	50	44,0	42,0	40,0	38,0	36,2	34,4												
25	55	44,8	42,8	40,8	39,0	37,1													
19	60	45,6	43,6	41,7	39,8														
12	65	46,4	44,4																
05	70	47,2																	

** It is calculated by the author by A.V. Ignatov's technique.*

Table: 2
Modern Level of Tax Burden on Sectors of Economy of the Kyrgyz Republic

Sectors of Economy	Parameters		Tax Burden		
	of material capacity (% in net- product)	of labour-intensiveness (% in net- product)	som from every 120 soms of gross-product*	% to gross-product**	% to the added cost***
Manufacture of tobacco products	86	7	7,1	5,9	10,7
Textile and sewing manufacture	85	8	7,1	5,9	10,7
Manufacture of vehicles and the equipment	75	11	10,2	8,5	15,5
Manufacture of other non-metallic mineral products	68	9	11,8	9,8	17,8
Manufacture of machines and the equipment	66	12	13,4	11,2	20,4
Manufacture of foodstuff, including drinks	61	6	13,5	11,3	20,5
Extraction fuel-energy minerals	67	20	14,3	11,9	21,6
Manufacturing industry	55	5	15,1	12,6	22,9
Mining industry	65	20	15,9	13,3	24,0
Transport	59	13	16,3	13,6	24,2
Metallurgical manufacture and manufacture of ready metal products	51	1	less 16,7	less 13,9	25,3
Hotel and restaurants	54	15	17,9	14,9	27,1
Construction	50	8	18,2	15,2	27,6
Manufacture of an electric equipment, the electronic both optical equipment	54	21	19,2	16,0	29,1
anufacture and distribution of the electric power, gas and water	45	10	19,8	16,5	30,0
Communication	43	14	21,2	17,7	32,2
Trade, sphere of services	25	5	24,8	20,7	37,6
Processing of wood and manufacture of products from a tree ****	10	3	30,8	25,7	46,7

Notes:
** It is certain by the author according to a matrix and to parameters of labour-intensivness and material capacity. It can be used as an independent parameter.*
*** It is expressed in percentage by simple mathematical calculations.*
****It is calculated on the basis of interrelation of tax burdens in relation to the added cost and gross-product in view of factor of the added cost, equal 0,55.*
***** There are no parameters of tax burden on an agriculture that is connected with specificity of the taxation of subjects of this branch of economy.*

Apparently, the calculated parameters of tax loading on the given two-parametrical model definitely testify as to high tax burden *in relation to the added cost* for the enterprises of separate branches of economy, if to estimate it by means of the standard criteria, and about its *non-uniform distribution.* Experts in this question often result as

argument a share of tax revenues on branches of economy in gross national product. The resulted approach of calculation of a level of tax burden is represented more proved as allows to use concrete data on separate subjects or branches of economy as a whole. A question, how much they reflect true position i.e. as the shadow sector, it appears, influences these parameters does not mention the given technique as it is based on relative parametres.Known lawful and illegal schemes of minimization of tax payments concern both material inputs, and charges on a payment, and products. It is represented, that decrease will be as a whole proportional and is not reflected in the factors underlying a technique.

In our opinion, the unfair distribution of tax burden which are taking place in operating system of the taxation of the Kyrgyz Republic, also generates scale "shadow" economy or "grey" schemes (on wages due to reduction composed, connected with the profit tax and deductions from fund of a payment, from the formula), and also manipulations with the documents, allowing to increase material inputs with the purpose of reduction of the profit tax and reception of offset under the VAT.

3. Conclusion

On the basis of the lead analysis it is possible to draw following basic conclusions.

1. The calculated data of tax burden of subjects of economic activities show, that the disorder of fluctuations of a level of tax burden is wide enough, the differentiation of a level of tax burden at various managing subjects is great, that contradicts the basic principle of validity inherent in the classical theory of the taxation.

2. The proexhausted calculations allow to draw a conclusion on negative influence, first of all, the VAT and deductions in Social Fund, owing to their dependence on specificity of formation net-product on development of economy as a whole when one branches initially receive tax, preferences and others due to the present tax press cannot receive a necessary impulse for the accelerated development.

3. The used model of calculation of tax burden has revealed an inefficiency of the tax system stimulating development of "shadow" economy.

4. Practical result of researches in the field of definition of weight of the taxation was the opportunity of statistical definition of a measure of progressiveness or regressiveness of tax system of the Kyrgyz Republic that is necessary for calculation of efficiency of planned tax reforms within the limits of the working model of regulation of economy with a view of construction of the optimum tax system, capable to carry out in an equal measure fiscal and adjusting functions.

Appendix: 1
Calculation of Parameters Material-Capacity (m) and Labour-Intensivness (l) on the Enterprises of Economy of the Kyrgyz Republic for 2005 y.*

Sectors of Economy	Proceeds of Enterprises of Economy	Material inputs, amortization, miscellaneous costs		Expenses for a payment	
		mln. som.	percent to proceeds	mln. som.	percent to proceeds
Manufacture of tobacco products	1068,3	923,5	86	71,4	7
Textile and sewing manufacture	1247,5	675,7	85	99,4	8
Manufacture of vehicles and the equipment	260,3	195,8	75	28,8	11
Manufacture of other non-metallic mineral products	4287,7	2894,7	68	392,3	9
Manufacture of machines and the equipment	1443,5	946,0	66	178,6	12
Manufacture of foodstuff, including drinks	5542,7	6114,4	61	350,7	6
Extraction fuel-energy minerals	631,8	422,4	67	126,1	20
Manufacturing industry	38472,2	21026,5	55	1844,1	5
Mining industry	790,1	517,5	65	156,2	20
Transport	5297,9	3104,3	59	683,2	13
Metallurgical manufacture and manufacture of ready metal products	19393,0	9799,3	51	157,7	1
Hotel and restaurants	610,2	331,1	54	92,1	15
Construction	4405,9	2197,1	50	366,3	8
Manufacture of an electric equipment, the electronic both optical equipment	1385,7	743,2	54	217,5	21
anufacture and distribution of the electric power, gas and water	11224,4	5075,4	45	1147,8	10
Communication	4813,2	2063,2	43	671,9	14
Trade, sphere of services	4097,9	1005,0	25	207,2	5
Processing of wood and manufacture of products from a tree	81,0	8,0	10	2,6	3

** Note: It is calculated by the author according to: the Finance of the enterprises of the Kyrgyz Republic 2000 - 2005 // National Statistical Committee of Kyrgyz Republic, Bishkek: 2006.*

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