

## **The tax-budgetary block of the RIM**

Block of Taxes and the Budget of the RIM is one of the key parts of the model. Its importance is explained by the importance of the taxation and fiscal systems in managing the economic development. In recent years, up to 40% of the GDP have been re-distributed through the state budget system.

At present, more than 100 equations were constructed for the time series of taxes and subsidies. A VAT calculation procedure has been realized.

The tax-budgetary block is subdivided into tax and budgetary subblocks or modules.

### **Several problems of tax and budgetary statistics**

In Russia, the situation with the public finance statistics is rather unsatisfactory. As it was said in the OECD report on this issue "...data on the budgetary sphere in Russia can bring anyone to despair due to their inconsistency".

Users face various problems:

1. A whole section of finance statistics is missing in Russia, which is statistics of the taxable basis.
2. Starting from 1992, the budgetary classification has been permanently changing. As a result, official data on the budget execution are incomparable for different years.
3. There are large discrepancies in the budgetary materials provided by the government institutions. So, if different data sources are used, one can draw mutual exclusive conclusions on the situation with public finance and, in general, on the prospects of the social and economic development.
4. There are no official statistical data on the enlarged budget. There are no data on extra-budgetary funds. As it is said in the mentioned above OECD report "...some of extra-budgetary funds could be hardly identified not speaking of their monitoring" (p.72)

We obtain estimates of the enlarged budget ourselves, and re-estimate the indicators for the previous years with the account for the current budgetary classification.

The obtained indicators of the state budget (especially for 1992-1997, and in the first place those of the budget deficit) differ significantly not only from the official data but from the estimates published in various research papers.

We carried out the assessment of the obtained results. One of the aspects was as follows

As it is known, budget deficit is one of the main causes of inflation. Therefore, the correlation coefficient between various budget indicators and the inflation index could be a *relative quality estimate* of the compared estimates of the budget deficit.

In the Table below, one can find correlation coefficients between the GDP deflators and the budget deficit estimates in 1992-1997 obtained by reconstruction and taken from the competent sources.

**Table****Correlation coefficients between the budget deficit and GDP deflator****1992-1997, r**

	1992	1993	1994	1995	1996	1997	
	<b>Budget deficit, % of GDP</b>						<b>R</b>
<b>Official data</b>	3,4	9,3	10,3	3,4	4,4	4,9	<b>-0,017</b>
<b>Reconstruction</b>							
Consolidated budget	39,6	14,1	11,5	5,4	8,7	7,6	<b>0,928</b>
Federal budget	38,2	15,1	11,9	4,9	7,9	6,3	<b>0,947</b>
<b>Institute of Economic Analysis<sup>1</sup></b>							
Federal budget (international methodology)	22,4	10,6	11,4	5,4	9,1	6,8	<b>0,896</b>
<b>Bureau of Economic Analysis<sup>2</sup></b>							
Federal budget	44,2	9,9	9,8	5,9	8,9	8,4	<b>0,867</b>
<b>Institute of Economy in Transition<sup>3</sup></b>							
Consolidated budget (including extra-budgetary funds)	23,5	7,6	11,7	5,3	7,7	9,1	<b>0,797</b>
Federal budget	27,9	9,3	12,2	4,9	7,4	6,3	<b>0,880</b>
<b>IMF<sup>4</sup></b>							
Consolidated budget (including import subsidies)	18,4	9,4	10,4	5,7	9,5	7,5	<b>0,853</b>
Federal budget (net of import subsidies)	10,4	6,5	11,4	5,4	9,1	6,8	<b>0,305</b>
<sup>1</sup> A.Illarionov. "How Russian financial crisis was organized". Voprosy Ekonomiki, №11, 1998.							
<sup>2</sup> Bureau of Economic Analysis. Survey of Economic Policy in Russia in 1997, M., 1998							
<sup>3</sup> "Economics of the transition period. Essays of the economic policy in the post-communist Russia, 1991-1997". M., 1998. (IET data with the adjusted GDP estimates)							
<sup>4</sup> 1992 г. – IMF Survey. Russian Federation. 1994. P.126 1993-1997: World Economic Outlook, May 1998, p. 100; IMF Survey, Vol. 27, № 15, August 3, 1998							

In accordance with the suggested criterion for comparisons we can conclude that the budget deficit estimates obtained by reconstruction are not worse than those taken for comparison.

## **Approaches to constructing the tax and budget module of RIM**

Taking into account the general incomparability of the soviet and current taxation systems, the regression equations for the tax module of the RIM were constructed on the basis of 1992-2001 data. However, the equations for taxes on production, enterprise profits tax and property tax, and export/import duties were constructed for the national economy for the period of 1992-2001, and for the whole period of 1980-2001.

It should be mentioned that profits tax apart, data on property tax, and export/import duties are not broken by industries, so for these variables regression equations were constructed for the national economy as a whole.

In the equations for the enterprise profits tax, enterprise property tax, income tax, and VAT the nominal tax rates were used (basic in case of tax rates differentiation). We plan to use for forecasting purposes the *estimated tax rates equal* to the products of the nominal rates and indices of conventional tax collection, which are in their turn the products of the relative changes in tax collection and the tax base. The latter are estimated on the basis of the Ministry of Economics projections or by experts.

There is no unified scheme for constructing regression equations for different types of taxes and subsidies in the tax module.

### *Other taxes and subsidies on production*

Other taxes and subsidies on production comprise many taxes with different tax basis. There were no available data on collection of these taxes in 1992-1994. In addition, the available data for the last years on budget classification and on the institutional industries does not correspond to the SNA classification of industries. That is why the regression equations were constructed for the aggregated sum of taxes included in *other taxes on production* with the account of the tax basis of the main taxes among them.

Regression equations for *other subsidies on production* were constructed for the main subsidized industries: coal and agriculture. It is worth mentioning that *other subsidies on production* are relatively low and are bound to support of specific enterprises and products. Therefore *other subsidies on production* will be an exogenous variable in the forecast.

### *Taxes and subsidies on products and imports*

Out of *taxes and subsidies on products and imports* we selected such important components as excise taxes and VAT. Excise taxes (in particular for oil and gas) were estimated using data on output in basic prices. The main variables in the regression equations for VAT (depending on the industry) are value added with the account for excise taxes, exports, and imports. Taking into account long terms of the VAT return and use of imports for production we introduced variables with lag.

As it was mentioned above, regression equations for export/import duties were constructed for the national economy as a whole.

Equations for the *subsidies on products* were constructed for the subsidized industries. Subsidies on products are usually explained by a special situation in the economy as a whole or in certain industries (for example 70% import subsidies in 1992, passenger transport, communal services, agriculture), or by active lobbying (agrarians and coal industry). The level of subsidies on products is related to the condition of the budget and usually increases before the Parliamentary and Presidential elections.

So, it is rather difficult to figure out definite and permanent factors affecting subsidies on products. In spite of rather good statistical characteristics of the regression equations, in the forecasts for many industries, subsidies on products is an exogenous variable.

### VAT collection estimate

Inter-industrial model is characterized by a rather high level of aggregation (IOT comprises 25 aggregated industries), and various groups of goods and services have different nominal VAT rates. So VAT rates by industries also differ. Goskomstat does not develop estimates of the aggregated VAT rates by industries, the more so for 25 industries. However to estimate VAT collection in the framework of an *aggregated* inter-industrial model it is necessary to use the respective *aggregated* tax rates.

To be able to obtain the VAT rates for industries, which would correspond with the VAT paid by the industries to the budget, a system of equations was compiled and solved (following the suggestion of Clopper Almon):

$$\text{vat}_j^t = \mathbf{X}_j * \mathbf{t}_j + \sum \mathbf{X}_{ij} * \mathbf{t}_i ,$$

where

- $\text{vat}_j^t$  – value added paid to the budget by the industry  $j$ ;
- $\mathbf{X}_j$  – taxable base of the industry  $j$ ;
- $\mathbf{X}_{ij}$  – flow from the industry  $i$  to the industry  $j$  ,
- $\mathbf{t}_i$  – average VAT rate in the industry.

The solution of this system of equations is a vector of the tax rates by industries.

The obtained estimates of the average VAT rates by industries correspond with the a priori considerations on their levels.

### Profit forecast

The Russian economy is characterized by a high share of unprofitable enterprises, which is not the situation in the developed market economies, which the System of National Accounts was developed for. In Russia in 1996 the share of unprofitable enterprises exceeded 50%, and profit tax exceeded the net profit (SNA) in many industries.

As a result, one of the important items of the generation of income account - net operating surplus - does not reflect the size of the disposable and taxable profits in the Russian economy. Consequently the net operating surplus variable can not be used in the model for estimating investment resources and profit tax collection. Due to above-mentioned reasons, the projected estimates of the profit tax in the draft budgets are very unreliable. For example, in 1999 the actual tax collection was 2.3 times higher than the level stated in the law on the federal budget.

Taking into account the specific situation of the Russian economy, it would be advisable to break down the net operating surplus in the Russian national accounts into *net operating surplus of profitable enterprises* and *net operating losses of unprofitable enterprises*. Then, net operating surplus of profitable enterprises could be a base for calculating profit tax by industries, and for more accurate calculations of the VAT and excise taxes.

Due to the above consideration, at this stage of modeling regression equations for profit tax by industries were not constructed, because it is planned to develop a special model for estimating and forecasting the net operating surplus.

A specific task is to construct a model for estimating operating surplus of profitable enterprises, which could be integrated with other models at various levels of the economy. It is supposed to integrate the model for the operating surplus into the RIM.

An econometric model for estimating the operating surplus of profitable enterprises by the main industries of the economy is assumed to comprise two interrelated modules.

The first module will be developed on the basis of the aggregated business accounting data by institutional industries. The second module will be a “linking” one – it will allow to link the variables of the first module to the SNA indicators by the SNA industries. The first module will provide an opportunity to adjust the operating surplus estimates for the short-term forecasts using current data of the Goskomstat. The second module will be used mostly for the mid-term forecasts. We expect this model to allow a “reverse” transition — from the output and costs estimates, which are rather reliably forecasted in RIM, to the taxable profits. To be able to reduce the error, it is supposed to use output and input indicators directly and not their differences.

Further development of the tax module could be along the following lines:

- to develop a better statistics of the taxable basis linked to the data from the Input-Output Table;
- to break down several general tax items.

**СЛОМАТЬ НЕСКОЛЬКО ГЕНЕРАЛОВ ОБЛАГАЮТ НАЛОГОМ ПУНКТЫ.**