

Documentation of Social Accounting Matrices for the Regions of Russia

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Introduction

This note provides an introduction to the organization of the database with Social Accounting Matrices for the Regions of Russia. The database is used in Rutherford and Tarr (2006) in an analysis of the regional impacts of Russia's Accession to the WTO. Rutherford and Tarr (2006) also describe the construction of the database.

The Social Accounting Matrices for the Regions of Russia

A Social Accounting Matrix (SAM) describes the economic transaction of a given economy within a given period of time. The matrix is square and consists of row and column accounts that represent production activities, markets, policy instruments and institutions.

Rows represent receipts of income, and columns represent payments. A balanced SAM is a SAM where the row sums for all rows equal the column sums for the corresponding accounts.²

The database includes social accounting matrices for 88 "Oblasts" (the term "Oblasts" is used not only for Oblasts but also for Republics, Territories, Federal Cities, Autonomous Regions, and Autonomous Districts). For each Oblast, there is a matrix with data for production, consumption and intermediate use of commodities and services, and for bilateral trade with other regions and the rest of the world. The economy in each oblast is represented by 30 industrial sectors producing commodities and services.

All matrices have the same structure (illustrated in Table 1). The first six sets of accounts represent production activities (abbreviated by "Act"). Markets comprise the next set of accounts in the SAMs. The first six sets of market accounts represent trade in commodities and services (abbreviated by "Com"). The following three sets of market accounts represent factor markets for labor and capital (abbreviated by "Fac"). There are three accounts for institutions, which are the next set of accounts in the SAMs: one for households (abbreviated by "Hou"); one for the rest of the world (abbreviated by "Row"); and one for the government (abbreviated by "Gov"). Two sets of accounts represent taxes (abbreviated by "Tax"). Finally, two sets of accounts represent the production activities for trade and transport margins, and an additional two sets of accounts represents the corresponding market accounts.

All SAMs are balanced. Hence, they satisfy the accounting identities of listed in Table 2. The raw data are collected from various sources and require balancing techniques to satisfy the accounting identities of SAMs. The choices made to achieve the accounting identities are described in Rutherford and Tarr (2006). Given the generally less reliable nature of the regional export and import data, we generally allowed these data to change the most in the balancing process. Thus,

¹ The views expressed are those of the authors and do not necessarily reflect those of the World Bank or its Executive Directors.

² See Pyatt and Round (1985) for a detailed introduction to SAMs.

in some cases, export and import data differ significantly from the original Rosstat data, and these data should not be assumed to be reflective of Rosstat regional export and import data..

Table 2. The accounting identities of the SAMs for the Regions of Russia

Number	Account	Receipt	Payment
1-29	Act.Production	$x_0+y_0+y_d_0$	$= id_0+ld_0+kd_0+ssk+tcy+tsy+mdy_0+mdy_0$
30-58	Act.Exports	e_0	$= x_0+tsx+mx_0+mdx_0+mdx_0$
59-87	Act.Armington	a_0	$= r_0+y_d_0+tsa+m_0$
88	Act.Consumption	c_0	$= ac_0+tcc+mdc_0+mdc_0$
89	Act.Government	g_0	$= ag_0+tcg+mdg_0+mdg_0$
90	Act.Investment	i_0	$= ai_0+tc_i+md_i_0+md_i_0$
91-119	Com.Exports	x_0	$= x_0$
120-148	Com.Regional trade	r_0	$= yr_0+lbd$
149-177	Com.Domestic	y_d_0	$= y_d_0$
178-206	Com.Armington	$id_0+ac_0+ag_0+ai_0+rtmd_0+rtmd_0$	$= a_0+s_0$
207	Com.Consumption	c_0	$= c_0$
208	Com.Government	g_0	$= g_0$
209	Com.Investment	i_0	$= i_0$
210-211	Fac.Labor	ld_0	$= ls_0$
212	Fac.Mobile capital	kd_0	$= ks_0$
213-241	Fac.Immobile capital	ssk	$= ssk$
242	Hou.Households	$s_0+ls_0+ks_0+ssk+bpd$	$= c_0+i_0+gx_0$
243-271	Row.Rest of the world	$mx_0+m_0+lbd+gx_0$	$= e_0+bpd+lgd$
272	Gov.Government	$lgd+rtc+rts$	$= g_0$
273	Tax.Commodity taxes	$tcy+tcc+tcg+tc_i$	$= rtc$
274	Tax.Sectoral taxes	$tsy+tsx+tsa$	$= rts$
275-303	Act.Trade margins	rtm_0	$= rtm_d_0$
304-332	Act.Transport margins	rtm_0	$= rtm_d_0$
333-361	Com.Trade margins	$mdy_0+mdx_0+mdc_0+mdg_0+md_i_0$	$= rtm_0$
362-390	Com.Transport margins	$mdy_0+mdx_0+mdc_0+mdg_0+md_i_0$	$= rtm_0$

The database is stored in two workbooks with spreadsheet files. Both workbooks are in the format Microsoft Excel. The files are called “SAMs for the Regions of Russia” and are numbered according the way data is presented. File number 1 uses the standard format where all rows and columns are displayed. File number 2 uses the pivot table format where only the rows and columns selected by the user are displayed.

The number of accounts in the SAMs exceeds the number of columns allowed in a Microsoft Excel spreadsheet. The SAMs in the standard format (file number 1) are therefore displayed in two sheets, where the first sheet (labeled “io”) contains all row accounts except for trade margins and transport margins, and where the second sheet (labeled (“mrg”)) contains the row accounts for trade margins and transport margins. Finally, file number 1 contains a spreadsheet (labeled (“sum”)) with a summary of the SAM. This sheet contains key indicators, such as GDP, trade statistics, the composition of value-added and sectoral characteristics.

File number 1 does not show the corresponding market for interregional trade. That is, export and import trade with a given commodity is shown as the aggregate across all regional markets.

The SAMs in the pivot table format (file number 2) contain a sheet for interregional trade by commodity and regional market. There is also a sheet which displays the matrices of Table 1 individually.

References

Pyatt, G. and J. I. Round, eds., (1985), *Social Accounting Matrices: A Basis for Planning*, World Bank, Washington.

Rutherford, Thomas F. and David G. Tarr (2006), “Regional Impacts of Russia’s Accession to the World Trade Organization”, World Bank Policy Research Working Paper 4015, September..