

AR Russia

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AR.1 Introduction

This document elaborates the organization of the I-O table of Russia for the year 2016 to serve as an input to the GTAP (Global Trade Analysis Project). The document has 4 sections – Section 2 describes the intricate details of the source data. Section 3 discusses the step-by-step process involved in mapping and processing of the raw data to meet the needs of the GTAP database. Section-4 describes the mapping between 98 sectors in the Russian I-O Table to 65 sectors of the GTAP.

AR.2 Data Sources

The primary source of input for the exercise is the 98-sector IO table published by Rosstat (Federal State Statistics Service, Russia) for the year 2016. The data is presented in millions of 2016 rubles. The raw table satisfies all the conditions and balance criteria required for conversion into the GTAP format. The data had following tables:

1. Symmetric Input-Output Table with details on the supply and use of 98 commodities at basic prices. On the supply side, it has details of the total output, imports, and taxes on domestic goods, by commodity. On the demand or use side, the table has details of the demand for commodities by commodities, private household, government consumption, investment or capital formation, exports and change in inventories.
2. Symmetric Input-Output Table of 98 domestic commodities by 98 commodities and by 5 users including private households, government, investment, exports and change in inventories.
3. Symmetric Input-Output Table of Imports has details of the usage of 98 imported commodities by 98 commodities and by 5 users including private households, government, investment, exports and change in inventories.
4. Details of the consumption of the value-added including labour and capital are provided in the first two tables.

AR.3 Strengths and Limitations

Before organizing the IO table, we ran multiple checks through the data including the balancing conditions and sign checks. We also checked the structure of industry sales and costs. The following describes the strengths and limitations of the data.

Strengths

The original table had data for supply and use of 98 commodities and activities. The provision of separate matrices for domestic inputs and outputs, and for imported inputs and outputs, is its core strength. The table also provides data on domestic taxes and production taxes.

Limitations

- The original data has an aggregated agricultural products sector. It provides no further disaggregation.
- For some services sector, change in inventories is non-zero. Ideally, this should be zero as it is impossible to store services.
- The original imported matrix has non-zero data in the export column for the agricultural sector revealing that the data accounts for re-exports in the agricultural sector. As GTAP does not account for re-exports we had to nullify the value.
- The original IO matrix from Rosstat does not have data for land rentals.
- There is no data for import taxes and tariffs.

AR.4 Converting the IO Table into GTAP format

Mapping between IO Sectors and GTAP Sectors

The original IO table has 98 sectors, and they are mapped to 48 sectors and 65 corresponding GTAP commodities. The mappings are as reported in table 8.88.

Table 8.88: Concordance table

48 Sectors	65 GTAP Sectors	98 Sectors
Agri	1 pdr, 2 wht, 3 gro, 4 v_f,	1 Agricultural Products
	5 osd, 6 c_b, 7 pfb, 8 ocr,	2 Services in the field of plant growing and animal husbandry, except for veterinary services, services in the field of ornamental horticulture
	9 ctl, 10 opa, 11 rmk, 12 wol	
fsh	14 fsh	3 Services related to hunting, trapping and breeding of wild animals
		5 Fish and other products of fishing and fish farming
frs	13 frs	4 Forestry products, logging and related services
coa	15 coa	6 Hard coal and brown coal (lignite); peat
oil	16 oil	7 Petroleum, including oil derived from bituminous minerals; oil shale (bituminous) and bituminous sandstones

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48 Sectors	65 GTAP Sectors	98 Sectors
gas	17 gas	8 Natural gas in a gaseous or liquefied state, including services for the liquefaction and regasification of natural gas for transportation
oxt	18 oxt	9 Services related to the extraction of oil and combustible natural gas, except for geological exploration
		10 Uranium and thorium ores
		11 Iron ores
		12 Ores of non-ferrous metals, except for uranium and thorium ores
		13 Other mining products
cmtomt	19 cmt, 20 omt	14 Meat, meat products and other products of animal processing
ofdsgrpcr	23 pcr, 24 sgr, 25 ofd	15 Fish and fish products, processed and canned
		16 Fruits, vegetables and potatoes, processed and canned
		19 Products of flour and cereal production, starches and starch products
		20 Feed prepared for animals
		21 Other food products
vol	21 vol	17 Oils and fats, animal and vegetable
mil	22 mil	18 Dairy products and ice cream
b_t	26 b_t	22 The drinks
		23 Tobacco products
tex	27 tex	24 Textile
wap	28 wap	25 Clothing and accessories
lea	29 lea	26 Leather and leather goods
lum	30 lum	27 Wood and articles of wood and cork (other than furniture), articles of straw and plaiting materials
ppp	31 ppp	28 Pulp, paper and cardboard
		29 Books, newspapers and other printed materials and recorded media
cmn	56 cmn	30 Printed services and printed products not included in other groups; services for copying sound and video recordings, as well as software tools
		82 Postal and telecommunication services
		88 Software products and services related to the use of computers and information technologies
p_c	32 p_c	31 Coke Oven Products
		32 Oil products
chm	33 chm	33 Basic chemical substances
		34 Pesticides and other agrochemical products
		35 Paint-and-lacquer and similar coating materials, printing paints and mastics
		37 Glycerol; soaps and detergents, cleaning and polishing products, perfumes and cosmetics
		38 Other chemical products
		39 Chemical fibers and threads
		41 Polymer products
bph	34 bph	36 Pharmaceutical preparations, medical chemical products and herbal medicinal products
rpp	35 rpp	40 Rubber products
nmm	36 nmm	42 Glass and glass products
		43 Ceramic products, slabs and tiles, bricks, tiles
		44 Cement, lime and gypsum

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48 Sectors	65 GTAP Sectors	98 Sectors
		45 Products made of concrete, gypsum and cement, decorative and building stone cut, processed and finished and products from it; other non-metallic mineral products
IsNfm	37 i_s	46 Iron, cast iron, steel and ferroalloys, pipes and pipeline connecting elements, other products of primary processing of ferrous metals
	38 nfm	47 Other basic precious and non-ferrous metals
ome	42 ome	48 Foundry services
		52 Mechanical equipment, machine tools and other equipment for general or special purposes
fmp	39 fmp	49 Construction metal structures (metal structures), reservoirs, cisterns and similar containers made of metals; radiators, steam and steam generating boilers
		50 Services for forging, pressing, stamping and profiling of sheet metal, production of products by powder metallurgy; metal processing and coating; processing of metal products using the main technological processes of mechanical engineering
		51 Tool, cutlery and universal hardware; other finished metal products
eeq	41 eeq	53 Household appliances n.e.c.
		56 Electrical machines and electrical equipment
ele	40 ele	54 Office equipment and parts
		55 Computers and other information processing equipment
		57 Electronic components; equipment for radio, television and communication
		59 Devices and tools for measurement, control, testing, navigation, control, regulation; optical instruments, photo and film equipment; clock
omf	45 omf	58 Medical products, including surgical equipment, orthopedic appliances
		62 Furniture
		63 Jewellery and articles of a similar type
		64 Miscellaneous industrial products, not included in other groups
mvh	43 mvh	60 Motor vehicles, trailers and semi-trailers
otn	44 otn	61 Ships, aircraft and spacecraft, other vehicles and equipment
wtr	48 wtr	65 Secondary raw materials
		69 Collected and treated water, water distribution services
		94 Sewage and Waste Disposal, Sanitation and Similar Services
ely	46 ely	66 Electricity generation, transmission and distribution services
		68 Steam and hot water (thermal energy), services for the transmission and distribution of steam and hot water (thermal energy)
gdt	47 gdt	67 Combustible artificial gases and services for the distribution of gaseous fuels through pipelines
cns	49 cns	70 Construction works
trd	50 trd	71 Trade, maintenance and repair services for motor vehicles and motorcycles
		72 Wholesale trade services, including trade through agents, except motor vehicle and motorcycle trade services
		73 Retail trade services, except for motor vehicle and motorcycle trade services; repair services for household and personal items; motor fuel retail services
afs	51 afs	74 Services of hotels, campsites and other places for temporary accommodation

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48 Sectors	65 GTAP Sectors	98 Sectors
		75 Catering services
OtpWhs	52 otp 55 whs	76 Rail transport services
		77 Other land transport services
		78 Pipeline transportation services
wtp	53 wtp	79 Water transport services
atp	54 atp	80 Air and space transport services
obs	60 obs	81 Transport auxiliary and additional services; travel agency services
		87 Rental services of machinery and equipment (without operator), household and personal items
		89 Services related to scientific research and experimental development
		90 Other services related to entrepreneurial activity
		95 Services of public organizations not included in other groups
ofi	57 ofi	83 Financial intermediation services
		85 Ancillary services in the field of financial intermediation
ins	58 ins	84 Insurance and non-state pension provision services, except for compulsory social insurance services
RsaDwe	59 rsa 65 dwe	86 Services related to real estate
osg	62 osg	91 Services in the field of public administration, military security and social security
edu	63 edu	92 Educational Services
hht	64 hht	93 Health and social services
ros	61 ros	96 Services for the organization of recreation, entertainment, culture and sports
		97 Other personal services
		98 Services of households with employees

AR.5 Checking Sectoral Balance and Non-negativity Conditions

After converting the I-O table of Russia to the format required by the GTAP database, the table passes the balance and sign conditions.