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**LINK BETWEEN FINAL DEMAND AND VALUE ADDED:
TWO-BLOCKS INPUT-OUTPUT MODEL
WITH SEPARATION OF GOODS AND SERVICES**

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Abstract

As a result of transition to the market economy for the last few years in Russia is observed the trend to increase of services share in GDP: from 32.6% in 1990 to 50.5% in 1997.

The first detailed Input-Output tables of Russia corresponded with the System of National Accounts 1993 were constructed for 1995. Classification of services has been considerable enlarged – from 6 material services (IOT MPS of Russia for 1987) to 21 services (IOT SNA of Russia for 1995), both the including of non-material services and separation of material services which had not importance before. That has made possible to study activity of services and theirs interrelationship with goods in detail.

In the paper as database was used the 1995 Input-Output tables for Russia. On its base is revealed influence of inputs of goods and services on the formation of total requirements of intermediate inputs and total requirements of value added. Links between gross value added of goods and services and the final demand of goods and services are estimated with use of two-blocks input-output model with separation of goods and services.

1. Introduction

Work carried out of State Committee of the Russian Federation on Statistics by construction of Input-Output tables (IOT) of Russia for 1995 was presented on XII International Conference on Input-Output Techniques in New York 1998. [2]

The recommendations of SNA'93 UN [3] were used as methodological principles of Russian Input-Output tables. Methodical features of some indexes estimations are interpreted in [1].

The Input-Output System of Russia includes two symmetric Input-Output tables (product-by-product, at basic and purchasers' prices), Supply table and the whole complex of matrixes, used for transition from purchasers' prices to basic prices. "Working level of aggregation" of the Input-Output System for 1995 has 205 products, including 22 market services and 8 non-market services.

In this paper the empirical estimations are based on aggregated IOT at purchasers' prices, which include 22 sectors, seven final demand categories and six elements of value added. Sectors classification, classification of final demand categories and elements of value added of aggregated IOT are shown in Appendix A, B and C.

2. Two-blocks input-output model with separation of goods and services

Standard Leontief model, direct input coefficients (direct requirements), indirect and total requirements (definitions and formulas of calculations) are well known.

There is the feature of direct requirements estimations in the input-output analysis practice of Russia. The direct input requirements are calculating by IOT at purchasers' prices, moreover in this case purchasers' prices includes double account of margins: besides margins, included in inputs of goods, are added the realization margins on corresponding domestic products by transport and trade rows, it means that intermediate inputs and outputs includes trade and transport margins consumed in amount of inputs on production and margins related with realization of goods to consumers.

Remove to modified input-output model, which was used in following estimations of relationships between production of goods and services.

Total combination of sectors is divided into two blocks: the *1st block* – sectors by production of goods and the *2nd block* – sectors by production of services. Of course, this is several conventionally because standard sector classification is not supposed such division.

Accordingly, all vectors (output (X) and final demand (Y)) are divided on the two parts: X_1 – vector of goods output, X_2 - vector of services output, Y_1 – vector of final demand of goods, Y_2 - vector of final demand of services.

Matrix of direct input requirements (A) $n \times n$ (in our case 22×22) calculated as $A = Z\hat{X}^{-1}$, where Z is the intermediate inputs matrix and \hat{X} - the diagonal matrix with the outputs on its main diagonal and all other entries equal to zero. Matrix A is divided into four submatrixes, as well as A_{11} – matrix (16×16) of direct inputs requirements of goods on production of goods, A_{21} – matrix (6×16) of direct inputs requirements of services on production of goods, A_{12} – matrix (16×6) of direct inputs requirements of goods on production of services, A_{22} – matrix (6×6) of direct inputs requirements of services on production of services.

By the same formula is calculated matrix of direct value added requirements (A_V) as $A_V = V\hat{X}^{-1}$, where V – matrix of value added, after that A_V is subdivided upon A_{V1} – matrix of direct value added requirements on production of goods and A_{V2} – matrix of direct value added requirements on production of services.

On the next step is calculated the Leontief inverse by the formulas:

$$B_{11} = (I + B_{12}A_{21})(I - A_{11})^{-1}, \quad (1)$$

$$B_{12} = (I - A_{11})^{-1} A_{12} B_{22}, \quad (2)$$

$$B_{21} = B_{22} A_{21} (I - A_{11})^{-1}, \quad (3)$$

$$B_{22} = [(I - A_{22}) - A_{21} (I - A_{11})^{-1} A_{12}]^{-1}, \quad (4)$$

where I – identity matrix;

B_{11} – matrix of total input requirements of goods on production of goods;

B_{12} - matrix of total input requirements of goods on production of services;

B_{21} - matrix of total input requirements of services on production of goods;

B_{22} - matrix of total input requirements of services on production of services.

By the theory of input-output matrixes $B_{11} \geq (I - A_{11})^{-1} \geq I + A_{11}$, $B_{12} \geq A_{12}$, $B_{21} \geq A_{21}$, $B_{22} \geq I + A_{22}$.

Matrixes of total value added requirements are denoted as:

$$B_{V1} = A_{V1}B_{11} + A_{V2}B_{21}, \quad (5)$$

$$B_{V2} = A_{V1}B_{12} + A_{V2}B_{22}, \quad (6)$$

where B_{V1} - matrixes of total value added requirements on production of goods,

B_{V2} - matrixes of total value added requirements on production of services.

Link between value added and final demand is defined by equation:

$$V = A_{V1}B_{11}Y_1 + A_{V2}B_{21}Y_1 + A_{V1}B_{12}Y_2 + A_{V2}B_{22}Y_2 = B_{V1}Y_1 + B_{V2}Y_2, \quad (7)$$

where $A_{V1}B_{11}Y_1$ – value added of the goods sectors supplying of final demand of goods;
 $A_{V2}B_{21}Y_1$ - value added of the services sectors supplying of final demand of goods;
 $A_{V1}B_{12}Y_2$ - value added of the goods sectors supplying of final demand of services;
 $A_{V2}B_{22}Y_2$ - value added of the services sectors supplying of final demand of services;
 $B_{V1}Y_1$ - value added supplying of final demand of goods;
 $B_{V2}Y_2$ - value added supplying of final demand of services.

If vector of final demand Y is divided into the categories of final demand (see Appendix B) and all subvectors also are subdivided on goods and services, when can be estimated links between value added of goods and services and the categories of final demand of goods and services.

Modified Input-Output model (with separation of goods and services) can provide possibility to define influence of shifts in the structure of final demand (redistribution of final demand between goods and services) upon the structure of value added and amount of value added of the goods sectors and value added of the services sectors.

3. Analysis of total requirements blocks

3.1. Total inputs requirements of goods and services

Matrix B_{11} . The matrix $(I - A_{11})^{-1}$ (matrix of total requirements calculated by block of the goods sectors only) plays decisive role in formation of total inputs requirements of matrix B_{11} . The addition to this complex the services sectors (bordering matrix A_{11} by matrixes A_{12} , A_{21} , A_{22}) basically increases the coefficients insignificant. This addition in more high extent influences upon total inputs requirements, specially upon sums of inputs requirements – increase in sectors “fuel”, “coal”, “other fuel industries” and “building and construction materials” is equal from 10% to 20%. Moreover, practically in all the goods sectors more high increase total inputs of fuel, electricity, machinery building and metalworking. Maximum increase has total input requirement of fuel in the coal sector – 0.08257 rub. of total outputs on unit of final demand. Addition of the services sectors is not influence on the total inputs requirements in the agriculture sector and the construction sector – sum of goods inputs requirements increase approximately only 0.09 rub. (growth rates - 5.07% and 5.40% respectively).

Matrix B_{22} . Total inputs requirements of services on production of the services sectors (matrix B_{22}) in the most part depends from matrix $(I - A_{22})^{-1}$ (see table 1). However bordering matrix A_{22} by matrixes A_{11} , A_{12} and A_{21} influence upon B_{22} more than addition of matrixes A_{12} , A_{21} and A_{22} for calculation of matrix B_{11} . Thus growth rates in 11 of 36 coefficients are more than 100%.

Particularly, growth rates of sum requirements in all the services sectors (except “trade, intermediation and restaurant”) compose more than 13%. In “housing, communal and households services” it equal 27%, moreover most increases in this sector such as in all block observe in input

requirements of “transport and communication” and “trade, intermediation and restaurant” – 0.12202 and 0.14796 rub. of output on unit of final demand respectively.

Table 1

Matrixes $(I-A_{22})^{-1}$ and B_{22}
(the first row – elements of $(I-A_{22})^{-1}$, the second row – elements of B_{22})

	17. TrCom	18. Trade	19. Hous	20. Edu	21. Sci	22. Adm
17. Transport and communication	1.0325	0.0673	0.0168	0.0300	0.0440	0.0921
	1.1016	0.0964	0.1389	0.0855	0.1045	0.1564
18. Trade, intermediation and restaurant	0.0127	1.0296	0.0018	0.0122	0.0086	0.0330
	0.1029	1.0728	0.1498	0.1057	0.0953	0.1339
19. Housing, communal and households Services	0.0150	0.0142	1.0168	0.0918	0.0640	0.0455
	0.0179	0.0157	1.0217	0.0949	0.0669	0.0489
20. Education, healthcare, culture, art	0.0002	0.0004	0.0001	1.0196	0.0009	0.0025
	0.0004	0.0005	0.0003	1.0197	0.0011	0.0026
21. Science and scientific services	0.0011	0.0044	0.0005	0.0050	1.1325	0.0077
	0.0021	0.0049	0.0021	0.0059	1.1337	0.0088
22. Administration, finances, credits, insurance, services of membership organization	0.0038	0.0079	0.0088	0.0026	0.0054	1.1211
	0.0074	0.0096	0.0147	0.0064	0.0092	1.1253
Total $(I-A_{22})^{-1}$	1.0654	1.1238	1.0449	1.1611	1.2554	1.3018
Total B_{22}	1.2323	1.2000	1.3274	1.3181	1.4106	1.4760

Matrixes B_{12} and B_{21} characterize amount of total requirements of the products of one group of sectors on another group of sectors.

Matrix B_{12} . In the total inputs requirements of goods on production of the services sectors basically predominate indirect inputs requirements. So share of indirect inputs requirements in total inputs requirements exceed 50% in 67 coefficients of 96. In a considerable extent indirect inputs requirements influence upon formation of total inputs requirements in “coal”, “other fuel industries”, “ferrous metallurgy”, “non-ferrous metallurgy”, “agriculture and forestry”.

The main part in the structure of indirect inputs requirements (total inputs requirements minus direct inputs requirements) of the services sectors (approximately 60% of sum indirect inputs requirements of goods on the production of services) consist from the indirect inputs of fuel, electricity, machinery building and metalworking, agriculture and forestry.

Matrix B_{21} . The greatest weight in the summed direct inputs of services requirements in the goods sectors have direct inputs requirements of "transport and communication" plus "trade, intermediation and restaurant" – from 90% to nearly 100%. Shares of these sectors in similar summed total inputs requirements in most cases less than in direct requirements. “Construction”, “other activities of goods and services productions” and “electricity” are the exceptions, where the share of "transport and communication" plus "trade, intermediation and restaurant" are increasing upon 4.52, 2.97 and 2.30 per cent points respectively.

The analysis of total inputs requirements shows that the coefficients of matrixes B_{11} and B_{22} are formed almost completely for account of matrixes $(I - A_{11})^{-1}$ and $(I - A_{22})^{-1}$ respectively. Matrixes B_{12} and B_{21} basically are defined the indirect inputs.

3.2. Total value added requirements of goods and services

The compensation of employees and gross operating surplus form much more than half of value added in all sectors of economy, and in some sectors which have got in the structure of purchasers' price a large part of subsidies on product (especially in “housing, communal and households services”), besides elements of value added listed above, the net taxes on product have high level of importance (see table 2). Another significant element of value added is the gross mixed income (“agriculture and forestry”, “trade, intermediation and restaurant services” и “housing, communal and households services”). Total value added requirements form more than 80% for account of compensation of employees and gross operating surplus in all sectors also.

Table 2

Direct and total value added requirements on production of services

	17. TrCom		18. Trade		19. Hous		20. Edu		21. Sci		22. Adm	
	direct	total	direct	total	direct	total	direct	total	direct	total	direct	total
CEM	0.2353	0.3369	0.0980	0.1761	0.2456	0.4066	0.3852	0.5359	0.3317	0.5079	0.3570	0.5608
GOS	0.3362	0.5046	0.3949	0.5049	0.3657	0.6332	0.1582	0.3611	0.1662	0.3825	0.1276	0.3657
GMI	0.0179	0.0440	0.1864	0.2109	0.1386	0.1780	0.0110	0.0644	0.0000	0.0331	0.0356	0.0882
NTPn	0.0398	0.0621	0.0206	0.0331	0.0161	0.0526	0.0036	0.0242	0.0122	0.0362	0.0125	0.0397
NTPt	0.0172	0.0530	0.0587	0.0757	-0.3280	-0.2693	0.0033	0.0149	0.0185	0.0411	0.0035	0.0353
IFI	0.0000	-0.0006	0.0000	-0.0008	0.0000	-0.0012	0.0000	-0.0005	0.0000	-0.0007	-0.0798	-0.0898
Income multipliers	0.6465	1.0000	0.7587	1.0000	0.4381	1.0000	0.5614	1.0000	0.5286	1.0000	0.4565	1.0000

Total value added requirements include direct and indirect requirements.

The services sectors have high share of direct requirements in the summed total value added requirements (from 44% to 76%), maximum weight is observed in “trade, intermediation and restaurant services” (75,87%). Total value added requirements of industrial sectors form by influence of indirect requirements.

Total value added requirements of the goods sectors (matrix B_{V1}), in conformity with formula (5), may be divided into total value added requirements of the goods sectors by production of goods (matrix $A_{V1}B_{11}$) and total value added requirements of the services sectors by production of goods (matrix $A_{V2}B_{21}$). Total value added requirements of the services sectors (matrix B_{V2}) by formula (6) – upon total value added requirements of the goods sectors by production of services (matrix $A_{V1}B_{12}$) and upon total value added requirements of the services sectors by production of services (matrix $A_{V2}B_{22}$).

Most part of matrix B_{V1} elements consist from coefficients of matrix $A_{V1}B_{11}$. But total gross mixed income requirements of the industrial sectors on 90% and more, and the total indirect measured services of financial intermediates requirements of the goods sectors on 100% for account of matrix $A_{V2}B_{21}$. Participation of the elements of matrix $A_{V1}B_{12}$ in formation of matrix B_{V2} are insignificant.

Analysis shows that services sectors influence upon total value added requirements of the goods sectors much more than the goods sectors on the total value added requirements of the services sectors.

4. Link between final demand and value added

Needs in the inputs of elements of value added on supply of final demand are calculated by formula (7).

We have distribution of the goods sectors value added and the services sectors value added between final demand of goods and final demand of services in table 3. So, if value added as a whole is consumed on Y_1 and Y_2 in the proportion 59,3% to 40,7%, then by two most significant elements of value added – compensation of employees and gross operating surplus - this proportion displace to side of increase of value added supplying Y_2 .

Table 3

Distribution structure of value added elements of two blocks
supplying two parts of final demand
(in % of corresponding elements of value added)

	$B_{V1}Y_1$	including:		$B_{V2}Y_2$	including:	
		$A_{V1}B_{11}Y_1$	$A_{V2}B_{21}Y_1$		$A_{V1}B_{12}Y_2$	$A_{V2}B_{22}Y_2$
Compensation of employees	51.1	40.0	11.1	48.9	8.7	40.2
Operating surplus, gross	57.2	35.5	21.7	42.8	8.5	34.4
Mixed income, gross	62.5	38.6	23.9	37.5	3.6	33.9
Net taxes on production	65.2	49.7	15.4	34.8	13.1	21.7
Net taxes on product	94.3	82.7	11.6	5.7	18.2	-12.5
Indirect measured services of financial intermediates (-)	4.4	0.0	4.4	95.6	0.0	95.6
Total	59.3	41.9	17.4	40.7	9.0	31.7

The most departure from average distribution is observed in the elements of value added “net taxes on production”, “net taxes on product” and “indirect measured services of financial intermediates”. Moreover the first listed element basically supplying Y_1 but the second and third - on Y_2 .

Conducted calculations clarify that value added of services sectors ($A_{22}B_{21}Y_1$) in supply of final demand of goods much more important than value added of goods sectors ($A_{21}B_{12}Y_2$) in supply of final demand of services. Also the interesting fact is equality of shares of compensation of employees and gross operating surplus of the goods sectors ($A_{21}B_{11}Y_1$) supplying Y_1 and shares of

compensation of employees and gross operating surplus of the services sectors ($A_{Z2}B_{22}Y_2$) supplying Y_2 .

Table 4

Value added structure of two blocks of sectors supplying two parts final demand (per cent)

	$B_{V1}Y_1$	including:		$B_{V2}Y_2$	including:		V
		$A_{V1}B_{11}Y_1$	$A_{V2}B_{21}Y_1$		$A_{V1}B_{12}Y_2$	$A_{V2}B_{22}Y_2$	
Compensation of employees	30,4	33,7	22,5	42,4	34,2	44,7	35,3
Operating surplus, gross	40,2	35,3	52,0	43,9	39,5	45,1	41,7
Mixed income, gross	13,0	11,4	17,0	11,4	5,0	13,2	12,4
Net taxes on production	4,8	5,2	3,9	3,7	6,4	3,0	4,3
Net taxes on product	11,7	14,4	4,9	1,0	14,9	-2,9	7,3
Indirect measured services of financial intermediates (-)	-0,1	0,0	-0,3	-2,4	0,0	-3,1	-1,0
Total	100	100	100	100	100	100	100

Share of main elements of value added (compensation of employees and gross operating surplus) forms approximately 70% in the structure of value added supplying final demand (see table 4) independently from blocks of sectors and part of final demand. Exclusion consists the structure of value added of the services sectors supplying final demand of services: share of two main components is equal approximately 90%.

Share of net taxes on product and production in the structure of value added very vary by blocks. So, it consists more than 20% of value added of the goods sectors supplying final demand of services in $A_{Z1}B_{12}Y_2$, while in $A_{Z2}B_{22}Y_2$ - 0,09% only. Sharply distinguishes of weighs are related with shares of net taxes on products. Net taxes on products have the negative sign, it means that the taxes on products less than the subsidies.

The analysis by separate categories of final demand is much more interesting.

Ratios of total value added supplying on one unit of *final demand of the goods sectors* (see table 5) show that the most share of compensation of employees has gross fixed capital formation – 0.3968 rub. and the smallest – export of goods – 0.2576 rub. Vice versa export supplies more gross operating surplus (0.4749 rub.) than other elements of value added in other categories of final demand of the goods sectors. The most increase of gross mixed income makes “final consumption expenditure of general government and NPISHs” – 0.3840 rub. on every 1 rub. of this category of final demand and the smallest - gross fixed capital formation - only 0.0358 rub.

It is necessary to mention, that if compensation of employees in $A_{V1}B_{11}Y_1$ in all categories of final demand (except export) more than gross operating surplus, then in $A_{V2}B_{21}Y_1$ vice versa the gross operating surplus more than compensation of employees in about 2.5 times.

Table 5

Ratio induced value added to final demand

	FCH	FCGG	GFCF	GI	ADV	EXP	IMP	Final demand
ratio $A_{V1}B_{11}Y_1$ to Y_1								
CEM	0.2352	0.2375	0.3486	0.2684	0.2716	0.1689	0.2584	0.2379
GOS	0.1958	0.1446	0.2978	0.2093	0.2664	0.2746	0.2280	0.2495
GMI	0.1371	0.3467	0.0071	0.1585	0.0417	0.0108	0.0575	0.0804
NTPn	0.0240	0.0152	0.0398	0.0234	0.0358	0.0490	0.0309	0.0366
NTPt	0.0921	0.0457	0.1152	0.0802	0.1034	0.1110	0.1017	0.1023
IFI	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
total	0.6843	0.7896	0.8087	0.7397	0.7189	0.6144	0.6765	0.7066
ratio $A_{V2}B_{21}Y_1$ to Y_1								
CEM	0.0636	0.0459	0.0482	0.0539	0.0576	0.0887	0.0673	0.0661
GOS	0.1640	0.1096	0.0993	0.1351	0.1458	0.2003	0.1678	0.1524
GMI	0.0608	0.0373	0.0287	0.0492	0.0534	0.0633	0.0605	0.0499
NTPn	0.0111	0.0079	0.0080	0.0093	0.0100	0.0153	0.0116	0.0114
NTPt	0.0172	0.0102	0.0079	0.0137	0.0152	0.0190	0.0172	0.0144
IFI	-0.0009	-0.0005	-0.0007	-0.0008	-0.0009	-0.0009	-0.0010	-0.0008
total	0.3157	0.2104	0.1913	0.2603	0.2811	0.3857	0.3235	0.2934
ratio $A_{V1}B_{12}Y_2$ to Y_2								
CEM	0.0782	0.0894	0.0778	0.0000	0.0000	0.0598	0.0367	0.0753
GOS	0.1031	0.0986	0.0955	0.0000	0.0000	0.0823	0.0369	0.0869
GMI	0.0075	0.0148	0.0038	0.0000	0.0000	0.0033	0.0066	0.0110
NTPn	0.0179	0.0154	0.0151	0.0000	0.0000	0.0148	0.0061	0.0141
NTPt	0.0386	0.0370	0.0346	0.0000	0.0000	0.0321	0.0146	0.0328
IFI	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
total	0.2453	0.2553	0.2268	0.0000	0.0000	0.1923	0.1009	0.2201
ratio $A_{V2}B_{22}Y_2$ to Y_2								
CEM	0.3193	0.4474	0.4300	0.0000	0.0000	0.2776	0.1204	0.3482
GOS	0.4021	0.2838	0.2870	0.0000	0.0000	0.4112	0.4719	0.3519
GMI	0.1032	0.0662	0.0293	0.0000	0.0000	0.0601	0.2166	0.1029
NTPn	0.0300	0.0181	0.0212	0.0000	0.0000	0.0417	0.0257	0.0233
NTPt	-0.0878	-0.0311	0.0065	0.0000	0.0000	0.0196	0.0644	-0.0226
IFI	-0.0120	-0.0397	-0.0007	0.0000	0.0000	-0.0025	0.0002	-0.0239
total	0.7547	0.7447	0.7732	0.0000	0.0000	0.8077	0.8991	0.7799

The most wage-intensive among categories of *final demand of the services sectors* is “final consumption expenditure of general government and NPISHs” – 0.5368 rub. induced compensation of employees per unit of final demand of the services sectors and smallest – import of services 0.1571 rub.

The most share of gross operating surplus has final consumption expenditure of households – 0.5053 rub. of Y_2 and the smallest (0.3824 rub.) in “final consumption expenditure of general government and NPISHs”.

Conclusion

As a result of conducted analysis may be made conclusion, that the influence the services sectors upon formation of total inputs and value added requirements of the goods sectors and vice versa the goods sectors on the services sectors is insignificant as yet. While shifts of final demand proportions between goods and services must initiate considerable changes in the element structure of value added.

References

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Appendix A: Sector Classification

Production of goods (Block 1)

- | | | |
|-----|--------|------------------------------------------------------------|
| 1. | Elec | Electricity |
| 2. | Fuel | Fuel |
| 3. | Coal | Coal |
| 4. | OFI | Other fuel industries |
| 5. | FM | Ferrous metallurgy |
| 6. | NFM | Non-ferrous metallurgy |
| 7. | Chem | Chemical and petrochemical industry |
| 8. | Mach | Machine building and metalworking industry (incl. repairs) |
| 9. | Timb | Timber, woodworking, pulp and paper industry |
| 10. | BuildM | Building and construction materials |
| 11. | Light | Light industry |
| 12. | Food | Food industry |
| 13. | OtherI | Other industries |
| 14. | Const | Construction |
| 15. | Agti | Agriculture and forestry |
| 16. | OtherA | Other activity of goods and services productions |

Production of services (Block 2)

- | | | |
|-----|-------|-----------------------------------------------------------------------------------|
| 17. | TrCom | Transport and communication services |
| 18. | Trade | Trade, intermediation and restaurant services |
| 19. | Hous | Housing, communal and households services |
| 20. | Edu | Education, healthcare, culture, art |
| 21. | Sci | Science and scientific services |
| 22. | Adm | Administration, finances, credits, insurance, services of membership organization |

Appendix B. Classification of final demand categories

FCH	Final consumption expenditure of households
FCGG	Final consumption expenditure of general government and non-profit institutes servicing households (NPISHs)
GFCF	Gross fixed capital formation
GI	Changes in inventories
ADV	Acquisition less disposal of valuables
EXP	Export
IMP	Import

Appendix C. Classification of value added elements

CEM	Compensation of employees
GOS	Operating surplus, gross
GMI	Mixed income, gross
NTPn	Taxes less subsidies on production
NTPt	Taxes less subsidies on product
IFI	Indirect measured services of financial intermediates