

# Turkey

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## 1. The original input-output table

The source table for Turkey's Input-Output (I-O) table is "The Input-Output Structure of the Turkish Economy 2002," published by the Turkish Statistical Institute (TURKSTAT)<sup>1</sup> in March 2008. The 2002 I-O table has a 59x59 dimension presented as commodity by industry.<sup>2</sup> In the original I-O Table, all transactions are reported in billions of Turkish Lira (TL).<sup>3</sup> Several separate matrices are reported in the 2002 I-O tables. These include 1) The Supply Table (in terms of basic and consumers' prices), 2) The Use Table (consumers' prices), 3) Trade Margins Table, 4) Transportation Margins Table, 5) Net Tax Matrix, 6) The Use Table (basic prices), 7) Input-Output Table (basic prices), 8) Domestic Input-Output Matrix (basic prices), 9) Import Input-Output Table (basic prices), 10) Coefficient Matrix, 11) Leontief Inverse Coefficients Matrix.

The I-O matrix records total transactions, or the flows of goods and services among industries. The table is organized in such a way that the columns show the values of the inputs absorbed by the industries and payments to primary inputs, whereas the rows show the distribution of products into various industries and final demand categories.

In the 2002 I-O table GDP is given at basic prices. As far as the income approach is concerned this measure of GDP is the sum of all income payments accruing to the factors of production excluding net indirect taxes, i.e. taxes minus subsidies. Import tariffs are added to this value in order to obtain GDP at market prices.

The final uses of GDP have been classified into six categories: 1) private final consumption expenditures, 2) public final consumption expenditures, 3) private fixed capital formation (i.e. investment expenditures), 4) public fixed capital formation, 5) change in stocks, and 6) exports. Imports are reported at *cif* values and they are exclusive of import duties. Exports are given at ex-factory prices. Taxes are given in two forms: 1) net taxes -taxes less subsidies- on products [i.e. commodity taxes], 2) other taxes on production less subsidies.

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<sup>1</sup> The institution has been reorganized and named Turkish Statistical Institute (TURKSTAT) since 2005.

<sup>2</sup> Therefore in the I-O table rows show output disposition of a commodity, and columns show input composition of an industry.

<sup>3</sup> In an effort to achieve macroeconomic stability, Turkish government decided to remove 6 zeros from the currency in the beginning of 2005, so that 1 TL in the new currency equals 1 000 000 TL in the old currency. When submitting the I-O Table to Gtap, we converted the old figures from billion to million TL. Given the fact that 6-zeros are removed from the old currency, numbers in the submitted I-O Table can be read in both ways: million TL in terms of the old, just TL in terms of the new currency.

Gross and net value added (both at factor cost) are given as row vectors. The break-up of gross value added is divided into following categories: compensation of employees, other taxes and subsidies on production, consumption of fixed capital, net operating surplus.

## ***2. Turkish I-O table for GTAP***

In the first step, the 59x59 commodity by industry original Turkish I-O table was disaggregated into 78x66 based on additional data obtained from TURKSTAT.<sup>4</sup> In the second step, 78x66 commodity by industry table was aggregated up to 57x44 for partial concordance to GTAP sectoral classification. In the third step, 57x44 Table was disaggregated into 57x57 by using the TABLO Program (MKDIAG)<sup>5</sup> to transform commodity by industry table into commodity by commodity. Table 1 shows the mapping between the commodities from the original I-O table (59 commodities) to the disaggregated table (78 commodities). Table 2 shows the mapping between the 78 commodities into 57 GTAP commodities so that commodities in the Turkish I-O table exactly match the 57-GTAP commodities. But it was not that easy to do the same for all sectors, due to the lack of data. In order to complete the sectoral concordance, we conducted the following operations: based on data availability, first we could disaggregate 59 industries into 66 interim industries, and then we aggregated them into 44 GTAP-sectors. Table 3 shows the mapping between the sectors from the original table (59 sectors) to the disaggregated interim table (66 sectors). Table 4 shows the mapping between the 66 sectors into 44 GTAP sectors. Finally, 44 sectors were transformed to 57 GTAP sectors with the help of the Supply Table and MKDIAG program mentioned above. After these operations, we went through some modifications for taxes and the shares of primary factors of production with the help of supplementary data. Minor balance problems were solved by modifying “change in stocks” column.<sup>6</sup>

Twenty-seven matrices have been reported with GTAP sectoral classification: AI01-AI27 as specified in GTAP Technical Paper No. 1 (Huff, McDougall, and Walmsley, 2000), including intermediate usage of domestic products and imports, investment usage of domestic products and imports, household consumption of domestic products and imports, government consumption of domestic products and imports, change in stocks of domestic products and imports, exports, commodity tax on intermediate usage of domestic products and imports, commodity tax on household consumption of domestic products and imports, commodity tax on investment usage of domestic products and imports, commodity tax on government consumption of domestic products and imports, commodity tax on exports, commodity tax on change in stocks of domestic products and imports.

As far as the data on factors of production are concerned, no information was available in the original I-O table regarding the employment of land. The data available on employment of labor (“compensation of employees”) and operating surplus—which supposedly include payments to all other factors of production—were distributed among land, labor and capital based on the shares provided by GTAP Data Base version 7.0, Yeldan and Köse (1996) and Voyvoda and Yeldan (2001).

There was one composite sector to be split into two single sectors to meet the GTAP sectoral requirement: crude petroleum and natural gas. Table 5 shows this split into “oil” and “gas” by using the information provided by TURKSTAT.

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<sup>4</sup> One of the problems in the previous submissions was related to disaggregation of agricultural sectors. In this submission this was handled by using some additional information from internal sources.

<sup>5</sup> Created by Mark Horridge, <http://monash.edu.au/policy/oranig.htm>

<sup>6</sup> The table was later on aggregated into 42 sectors by GTAP Staff. 12 agricultural products were aggregated into one. Oil and gas were also aggregated. Cattle and Other meats were aggregated. Sugar and other food were aggregated. Finally, electricity and gas distribution were aggregated.

**Table 1. Mapping from 59-commodity original IO Table to 78-commodity interim IO table**

<b>Turkish (59-commodity)</b>		<b>Turkish/GTAP (78-commodity)</b>	
1	Products of agriculture, hunting and related services	1	Paddy rice
1		2	Wheat
1		3	Cereal grains nec
1		4	Vegetables, fruit, nuts
1		5	Oil seeds
1		6	Sugar cane, sugar beet
1		7	Plant-based fibers
1		8	Crops nec
1		9	Bovine cattle, sheep and goats, horses
1		10	Animal products nec
1		11	Raw milk
1		12	Wool, silk-worm cocoons
2	Products of forestry, logging and related services	13	Products of forestry, logging and related services
3	Fish and other fishing products; services incidental of fishing	14	Fish and other fishing products; services incidental of fishing
4	Coal and lignite; peat	15	Coal and lignite; peat
5	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying	16	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying
6	Uranium and thorium ores	17	Uranium and thorium ores
7	Metal ores	18	Metal ores
8	Other mining and quarrying products	19	Other mining and quarrying products
9	Food products and beverages	20	Bovine meat products
9		21	Meat products nec
9		22	Vegetable oils and fats
9		23	Dairy products
9		24	Processed rice
9		25	Sugar
9		26	Food products nec
10	Tobacco products	27	Beverages and tobacco products
11	Textiles	28	Textiles
12	Wearing apparel; furs	29	Wearing apparel; furs
13	Leather and leather products	30	Leather and leather products
14	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials	31	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials
15	Pulp, paper and paper products	32	Pulp, paper and paper products
16	Printed matter and recorded media	33	Printed matter and recorded media
17	Coke, refined petroleum products and nuclear fuels	34	Coke, refined petroleum products and nuclear fuels
18	Chemicals, chemical products and man-made fibers	35	Chemicals, chemical products and man-made fibers

<b>Turkish (59-commodity)</b>		<b>Turkish/GTAP (78-commodity)</b>	
19	Rubber and plastic products	36	Rubber and plastic products
20	Other non-metallic mineral products	37	Other non-metallic mineral products
21	Basic metals	38	Ferrous metals
		39	Non-ferrous metals
22	Fabricated metal products, except machinery and equipment	40	Fabricated metal products, except machinery and equipment
23	Machinery and equipment nec.	41	Machinery and equipment nec.
24	Office machinery and computers	42	Office machinery and computers
25	Electrical machinery and apparatus nec.	43	Electrical machinery and apparatus nec.
26	Radio, television and communication equipment and apparatus	44	Radio, television and communication equipment and apparatus
27	Medical, precision and optical instruments, watches and clocks	45	Medical, precision and optical instruments, watches and clocks
28	Motor vehicles, trailers and semi-trailers	46	Motor vehicles, trailers and semi-trailers
29	Other transport equipment	47	Other transport equipment
30	Furniture; other manufactured goods n.e.c.	48	Furniture; other manufactured goods n.e.c.
31	Secondary raw materials	49	Secondary raw materials
32	Electrical energy, gas, steam and hot water	50	Electrical energy, gas, steam and hot water
32		51	Gas, steam and hot water
33	Collected and purified water, distribution services of water	52	Collected and purified water, distribution services of water
34	Construction work	53	Construction work
35	Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel	54	Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel
36	Wholesale trade and commission trade services, except of motor vehicles and motorcycles	55	Wholesale trade and commission trade services, except of motor vehicles and motorcycles
37	Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods	56	Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods
38	Hotel and restaurant services	57	Hotel and restaurant services
39	Land transport; transport via pipeline services	58	Land transport; transport via pipeline services
40	Water transport services	59	Water transport services
41	Air transport services	60	Air transport services
42	Supporting and auxiliary transport services; travel agency services	61	Supporting and auxiliary transport services; travel agency services
43	Post and telecommunication services	62	Post and telecommunication services
44	Financial intermediation services, except insurance and pension funding services	63	Financial intermediation services, except insurance and pension funding services
45	Insurance and pension funding services, except compulsory social security services	64	Insurance and pension funding services, except compulsory social security services
46	Services auxiliary to financial intermediation	65	Services auxiliary to financial intermediation
47	Real estate services	66	Real estate services

<b>Turkish (59-commodity)</b>		<b>Turkish/GTAP (78-commodity)</b>	
48	Renting services of machinery and equipment without operator and of personal and household goods	67	Renting services of machinery and equipment without operator and of personal and household goods
49	Computer and related services	68	Computer and related services
50	Research and development services	69	Research and development services
51	Other business services	70	Other business services
52	Public administration and defense services; compulsory social security services	71	Public administration and defense services; compulsory social security services
53	Education services	72	Education services
54	Health and social work services	73	Health and social work services
55	Sewage and refuse disposal services, sanitation and similar services	74	Sewage and refuse disposal services, sanitation and similar services
56	Membership organization services nec.	75	Membership organization services nec.
57	Recreational, cultural and sporting services	76	Recreational, cultural and sporting services
58	Other services	77	Other services
59	Private households with employed persons	78	Private households with employed persons

**Table 2. Mapping from 78-commodity interim IO Table to GTAP 57-commodity**

Turkish (78-commodity)		GTAP (57-commodity)	
1	Paddy rice	1	Paddy rice PDR
2	Wheat	2	Wheat WHT
3	Cereal grains nec	3	Cereal grains nec GRO
4	Vegetables, fruit, nuts	4	Vegetables, fruit, nuts V_F
5	Oil seeds	5	Oil seeds OSD
6	Sugar cane, sugar beet	6	Sugar cane, sugar beet C_B
7	Plant-based fibers	7	Plant-based fibers PFB
8	Crops nec	8	Crops nec OCR
9	Bovine cattle, sheep and goats, horses	9	Bovine cattle, sheep and goats, horses CTL
10	Animal products nec	10	Animal products nec OAP
11	Raw milk	11	Raw milk RMK
12	Wool, silk-worm cocoons	12	Wool, silk-worm cocoons WOL
13	Products of forestry, logging and related services	13	Forestry FRS
14	Fish and other fishing products; services incidental of fishing	14	Fishing FSH
15	Coal and lignite; peat	15	Coal COA
16	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying	16	Oil OIL
		17	Gas GAS
17	Uranium and thorium ores	18	Minerals nec OMN
18	Metal ores	18	Minerals nec OMN
19	Other mining and quarrying products	18	Minerals nec OMN
20	Bovine meat products	19	Bovine meat products CMT
21	Meat products nec	20	Meat products nec OMT
22	Vegetable oils and fats	21	Vegetable oils and fats VOL
23	Dairy products	22	Dairy products MIL
24	Processed rice	23	Processed rice PCR
25	Sugar	24	Sugar SGR
26	Food products nec	25	Food products nec OFD
27	Beverages and tobacco products	26	Beverages and tobacco products B_T
28	Textiles	27	Textiles TEX
29	Wearing apparel; furs	28	Wearing apparel WAP
30	Leather and leather products	29	Leather products LEA
31	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials	30	Wood products LUM
32	Pulp, paper and paper products	31	Paper products, publishing PPP
33	Printed matter and recorded media	31	Paper products, publishing PPP
34	Coke, refined petroleum products and nuclear fuels	32	Petroleum, coal products P_C
35	Chemicals, chemical products and man-	33	Chemical, rubber, plastic products CRP

Turkish (78-commodity)		GTAP (57-commodity)	
	made fibers		
36	Rubber and plastic products	33	Chemical, rubber, plastic products CRP
37	Other non-metallic mineral products	34	Mineral products nec NMM
38	Ferrous metals	35	Ferrous metals I_S
39	Metals nec	36	Metals nec NFM
40	Fabricated metal products, except machinery and equipment	37	Metal products FMP
41	Machinery and equipment n.e.c.	41	Machinery and equipment nec OME
42	Office machinery and computers	40	Electronic equipment ELE
43	Electrical machinery and apparatus n.e.c.	40	Electronic equipment ELE
44	Radio, television and communication equipment and apparatus	40	Electronic equipment ELE
45	Medical, precision and optical instruments, watches and clocks	40	Electronic equipment ELE
46	Motor vehicles, trailers and semi-trailers	38	Motor vehicles and parts MVH
47	Other transport equipment	39	Transport equipment nec OTN
48	Furniture; other manufactured goods n.e.c.	42	Manufactures nec OMF
49	Secondary raw materials	42	Manufactures nec OMF
50	Electrical energy, steam and hot water	43	Electricity ELY
51	Gas manufacture distribution	44	Gas manufacture, distribution GDT
52	Collected and purified water, distribution services of water	45	Water WTR
53	Construction work	46	Construction CNS
54	Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel	47	Trade TRD
55	Wholesale trade and commission trade services, except of motor vehicles and motorcycles	47	Trade TRD
56	Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods	47	Trade TRD
57	Hotel and restaurant services	55	Recreational and other services ROS
58	Land transport; transport via pipeline services	48	Transport nec OTP
59	Water transport services	50	Air transport ATP
60	Air transport services	51	Communication CMN
61	Supporting and auxiliary transport services; travel agency services	48	Transport nec OTP
62	Post and telecommunication services	51	Communication CMN
63	Financial intermediation services, except insurance and pension funding services	52	Financial services nec OFI
64	Insurance and pension funding services, except compulsory social security services	53	Insurance ISR

Turkish (78-commodity)		GTAP (57-commodity)	
65	Services auxiliary to financial intermediation	52	Financial services nec OFI
66	Real estate services	52	Financial services nec OFI
67	Renting services of machinery and equipment without operator and of personal and household goods	52	Financial services nec OFI
68	Computer and related services	54	Business services nec OBS
69	Research and development services	54	Business services nec OBS
70	Other business services	54	Business services nec OBS
71	Public administration and defense services; compulsory social security services	56	Public Administration, Defense, Education, Health OSG
72	Education services	56	Public Administration, Defense, Education, Health OSG
73	Health and social work services	56	Public Administration, Defense, Education, Health OSG
74	Sewage and refuse disposal services, sanitation and similar services	56	Public Administration, Defense, Education, Health OSG
75	Membership organization services nec.	55	Recreational and other services ROS
76	Recreational, cultural and sporting services	55	Recreational and other services ROS
77	Other services	55	Recreational and other services ROS
78	Private households with employed persons	57	Dwellings DWE

**Table 3. Mapping from 59-sectors original IO Table to 66-sectors interim IO table**

Turkish (59-sectors)		Turkish (66-sectors)	
1	Products of agriculture, hunting and related services	1	Products of agriculture, hunting and related services
1		2	Products of agriculture, hunting and related services
2	Products of forestry, logging and related services	3	Products of forestry, logging and related services
3	Fish and other fishing products; services incidental of fishing	4	Fish and other fishing products; services incidental of fishing
4	Coal and lignite; peat	5	Coal and lignite; peat
5	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying	6	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying
6	Uranium and thorium ores	7	Uranium and thorium ores
7	Metal ores	8	Metal ores
8	Other mining and quarrying products	9	Other mining and quarrying products
9	Food products and beverages	10	Bovine meat products
9		11	Vegetable oils and fats
9		12	Dairy products
9		13	Processed rice
9		14	Sugar
9		15	Food products nec
10	Tobacco products	16	Beverages and tobacco products
11	Textiles	17	Textiles
12	Wearing apparel; furs	18	Wearing apparel; furs
13	Leather and leather products	19	Leather and leather products
14	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials	20	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials
15	Pulp, paper and paper products	21	Pulp, paper and paper products
16	Printed matter and recorded media	22	Printed matter and recorded media
17	Coke, refined petroleum products and nuclear fuels	23	Coke, refined petroleum products and nuclear fuels
18	Chemicals, chemical products and man-made fibres	24	Chemicals, chemical products and man-made fibres
19	Rubber and plastic products	25	Rubber and plastic products
20	Other non-metallic mineral products	26	Other non-metallic mineral products
21	Basic metals	27	Basic metals
22	Fabricated metal products, except machinery and equipment	28	Fabricated metal products, except machinery and equipment
23	Machinery and equipment nec.	29	Machinery and equipment nec.
24	Office machinery and computers	30	Office machinery and computers
25	Electrical machinery and apparatus nec.	31	Electrical machinery and apparatus nec.
26	Radio, television and communication equipment and apparatus	32	Radio, television and communication equipment and apparatus

Turkish (59-sectors)		Turkish (66-sectors)	
27	Medical, precision and optical instruments, watches and clocks	33	Medical, precision and optical instruments, watches and clocks
28	Motor vehicles, trailers and semi-trailers	34	Motor vehicles, trailers and semi-trailers
29	Other transport equipment	35	Other transport equipment
30	Furniture; other manufactured goods nec.	36	Furniture; other manufactured goods nec.
31	Secondary raw materials	37	Secondary raw materials
32	Electrical energy, gas, steam and hot water	38	Electrical energy, steam and hot water
32		39	Gas manufacture
33	Collected and purified water, distribution services of water	40	Collected and purified water, distribution services of water
34	Construction work	41	Construction work
35	Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel	42	Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel
36	Wholesale trade and commission trade services, except of motor vehicles and motorcycles	43	Wholesale trade and commission trade services, except of motor vehicles and motorcycles
37	Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods	44	Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods
38	Hotel and restaurant services	45	Hotel and restaurant services
39	Land transport; transport via pipeline services	46	Land transport; transport via pipeline services
40	Water transport services	47	Water transport services
41	Air transport services	48	Air transport services
42	Supporting and auxiliary transport services; travel agency services	49	Supporting and auxiliary transport services; travel agency services
43	Post and telecommunication services	50	Post and telecommunication services
44	Financial intermediation services, except insurance and pension funding services	51	Financial intermediation services, except insurance and pension funding services
45	Insurance and pension funding services, except compulsory social security services	52	Insurance and pension funding services, except compulsory social security services
46	Services auxiliary to financial intermediation	53	Services auxiliary to financial intermediation
47	Real estate services	54	Real estate services
48	Renting services of machinery and equipment without operator and of personal and household goods	55	Renting services of machinery and equipment without operator and of personal and household goods
49	Computer and related services	56	Computer and related services
50	Research and development services	57	Research and development services
51	Other business services	58	Other business services
52	Public administration and defense services; compulsory social security services	59	Public administration and defense services; compulsory social security services
53	Education services	60	Education services
54	Health and social work services	61	Health and social work services
55	Sewage and refuse disposal services, sanitation and similar services	62	Sewage and refuse disposal services, sanitation and similar services
56	Membership organization services nec.	63	Membership organization services nec.

Turkish (59-sectors)		Turkish (66-sectors)	
57	Recreational, cultural and sporting services	64	Recreational, cultural and sporting services
58	Other services	65	Other services
59	Private households with employed persons	66	Private households with employed persons

**Table 4. Mapping from 66-sectors interim IO Table to GTAP 44-sectors**

Turkish (66-sectors)		GTAP (44-sectors)	
1	Products of agriculture, hunting and related services	1	Agriculture, livestock PDR-WOL
2	Livestock	1	Agriculture, livestock PDR-WOL
3	Products of forestry, logging and related services	2	Forestry FRS
4	Fish and other fishing products; services incidental of fishing	3	Fishing FSH
5	Coal and lignite; peat	4	Coal COA
6	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying	5	Oil OIL
		6	Gas manufacture, distribution GAS
7	Uranium and thorium ores	7	Minerals nec OMN
8	Metal ores	7	Minerals nec OMN
9	Other mining and quarrying products	7	Minerals nec OMN
10	Bovine meat products	8	Bovine meat products CMT
11	Vegetable oils and fats	9	Vegetable oils and fats VOL
12	Dairy products	10	Dairy products MIL
13	Processed rice	11	Processed rice PCR
14	Sugar	12	Sugar SGR
15	Food products nec	13	Food products nec OFD
16	Beverages and tobacco products	14	Beverages and tobacco products B_T
17	Textiles	15	Textiles TEX
18	Wearing apparel; furs	16	Wearing apparel WAP
19	Leather and leather products	17	Leather products LEA
20	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials	18	Wood products LUM
21	Pulp, paper and paper products	19	Paper products, publishing PPP
22	Printed matter and recorded media	19	Paper products, publishing PPP
23	Coke, refined petroleum products and nuclear fuels	20	Petroleum, coal products P_C
24	Chemicals, chemical products and man-made fibres	21	Chemical, rubber, plastic products CRP
25	Rubber and plastic products	21	Chemical, rubber, plastic products CRP
26	Other non-metallic mineral products	22	Mineral products nec NMM
27	Basic metals	23	Ferrous metals I_S
28	Fabricated metal products, except machinery and equipment	24	Metal products FMP
29	Machinery and equipment n.e.c.	28	Machinery and equipment nec OME
30	Office machinery and computers	27	Electronic equipment ELE
31	Electrical machinery and apparatus n.e.c.	27	Electronic equipment ELE

32	Radio, television and communication equipment and apparatus	27	Electronic equipment	ELE
33	Medical, precision and optical instruments, watches and clocks	27	Electronic equipment	ELE
34	Motor vehicles, trailers and semi-trailers	25	Motor vehicles and parts	MVH
35	Other transport equipment	26	Transport equipment nec	OTN
36	Furniture; other manufactured goods n.e.c.	29	Manufactures nec	OMF
37	Secondary raw materials	29	Manufactures nec	OMF
38	Electrical energy, steam and hot water	30	Electricity	ELY
39	Gas manufacture	31	Gas manufacture, distribution	GDT
40	Collected and purified water, distribution services of water	32	Water	WTR
41	Construction work	33	Construction	CNS
42	Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel	34	Trade	TRD
43	Wholesale trade and commission trade services, except of motor vehicles and motorcycles	34	Trade	TRD
44	Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods	34	Trade	TRD
45	Hotel and restaurant services	42	Recreational and other services	ROS
46	Land transport; transport via pipeline services	35	Transport nec	OTP
47	Water transport services	37	Air transport	ATP
48	Air transport services	38	Communication	CMN
49	Supporting and auxiliary transport services; travel agency services	35	Transport nec	OTP
50	Post and telecommunication services	38	Communication	CMN
51	Financial intermediation services, except insurance and pension funding services	39	Financial services nec	OFI
52	Insurance and pension funding services, except compulsory social security services	40	Insurance	ISR
53	Services auxiliary to financial intermediation	39	Financial services nec	OFI
54	Real estate services	39	Financial services nec	OFI
55	Renting services of machinery and equipment without operator and of personal and household goods	39	Financial services nec	OFI
56	Computer and related services	41	Business services nec	OBS
57	Research and development services	41	Business services nec	OBS
58	Other business services	41	Business services nec	OBS
59	Public administration and defense services; compulsory social security services	43	Public Administration, Defense, Education, Health	OSG
60	Education services	43	Public Administration, Defense, Education, Health	OSG
61	Health and social work services	43	Public Administration, Defense, Education, Health	OSG

62	Sewage and refuse disposal services, sanitation and similar services	43	Public Administration, Defense, Education, Health	OSG
63	Membership organization services n.e.c.	42	Recreational and other services	ROS
64	Recreational, cultural and sporting services	42	Recreational and other services	ROS
65	Other services	42	Recreational and other services	ROS
66	Private households with employed persons	44	Dwellings	DWE

**Table 5. Disaggregating oil and natural gas sectors**

GTAP sectors	Turkish sectors
<b>16 Oil</b>	.93 * TUR 9: crude petroleum and natural gas
<b>17 Gas</b>	.07 * TUR 9: crude petroleum and natural gas

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