

Kuwait

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1. Abstract

This paper describes the production of a 44 sector input-output table for Kuwait for 2005.

The Kuwait Central Statistics Office and Ministry of Planning have produced a detailed 54 sector I-O table for the year 2000. This was followed up with an abbreviated 29 sector I-O table for 2005.

The 44 sector I-O table for 2005 that is the subject of this paper is an expanded version of the 29 sector table, with the earlier 54 sector table being used to allocate shares between sectors. In addition, 2005 National Accounts and trade data has also been used to develop an I-O table in GTAP compatible format.

The completed I-O table is in thousand Kuwaiti dinars, producer prices.

2. Source data

Three key sources of data were used to produce the input-output table:

- A detailed I-O table for 2000 published by the Kuwait Central Statistical Office with 54 sectors.
- An unpublished abbreviated I-O table for 2005 provided by the Kuwait Ministry of Planning with 29 sectors.
- The National Accounts Statistics 2005 published by the Kuwait Central Statistical Office in 2008, which provides information on 43 separate sectors.

In additional, UN trade data (Comtrade) was used for imports and exports.

2.1 2000 I-O Table

The 2000 I-O table comprises a matrix of 54 input sectors (see Table 1), as well as aggregates by input sector of intermediate demand by government, private not-for-profit private institutions and households, and final demand detailed by:

- Final consumption expenditure:
 - Households
 - Private Non-For-Profit Institutions
 - Government
- Gross fixed capital formation:
 - Households
 - Private Non-For-Profit Institutions
 - Government
 - Changes in stocks

- Exports
- Imports, inclusive of duties
- Intermediate demand:
 - Households
 - Private Non-For-Profit Institutions
 - Government

Other inputs in the table include:

- Compensation to employees
- Operating surplus
- Consumption of fixed capital
- Indirect taxes
- Subsidies.

2.2 2005 I-O Table

The 2005 input-output table comprises a matrix of 29 input sectors, which are listed in Table 2. Other factors inputs (labour and capital) are not listed separately in the table but combined into gross value added.

In addition to total intermediate output for the 29 sectors, of components of output provided are:

- Private sector final consumption expenditure
- Government final consumption expenditure
- Gross fixed capital formation
- Changes in stocks
- Imports
- Exports.

2.3 Detailed National Accounts 2005

The Central Statistics Offices provide detailed national accounts with a three-year delay. The National Accounts are disaggregated into 43 sectors as listed in Table 3. These sectors, subject to one addition, were used as the basis for the 2005 I-O table.

The disaggregated National Accounts data includes the following statistics by sector:

- Intermediate demand
- Final output
- Changes in stocks
- Gross fixed capital formation
- Taxes, subsidies and net operating surplus
- Gross value added
- Compensation of employees by sector.

3. Process

The 2005 I-O table did not include all of the data required by GTAP. In addition, the sectoral breakdown was not sufficiently detailed for the ultimate application of the model.

To produce an I-O table of sufficient disaggregation, subject to data availability, a 44 sector breakdown was identified. These 44 sectors being based on the 43 sectors reported in the detailed National Accounts data for 2005, with the addition of “other mining and quarrying¹,” as this represents a significant sector in the economy.

Developing the 44 sector 2005 I/O table then comprised the following steps:

- Mapping the 54 sectors in the 2000 I/O table to the 43 sectors in the National Accounts
- Mapping the 29 sectors in the 2005 I/O table to the 43 sectors in the National Accounts
- Expanding the 29 sector I/O matrix to 43 sectors
- Adding the “other mining and quarrying” sector to the I/O matrix
- Addition of other factor inputs from National Accounts data
- Addition of other components of final demand
- Splitting the table between domestic and imported inputs.

3.1 Mapping 2000 I-O sectors to National Accounts

The concordance that maps the 54 sectors in the 2000 I-O to the 43 sectors in the National Accounts is detailed in Table 5.

In almost all instances discrete sectors could be mapped. The notable exceptions being:

- Transport equipment: this was split between the "manufacture of vehicles, trailers and semitrailers" and "other transport equipment" at a ratio of 30:7 based on separate internal estimates of domestic manufacturing
- Other manufacturing industries: this was split evenly between "medical, precision and optical instruments" and "manufactures not elsewhere classified."

3.2 Mapping 2005 I-O to National Accounts

The concordance that maps the 29 sectors in the 2005 I-O table to the 43 sectors in the National Accounts is detailed in Table 8. Around half of the sectors map directly between the two systems, leaving several sectors in the I-O table that needed to be split. The key divisions were as follows:

- Crude petroleum and natural gas: this was split between “extraction of crude petroleum and natural gas” and “service activities incidental to oil and gas...,” in the ratio of 91 to 9. This split is based on the relative value of total intermediate production in the two sectors in 2005.
- Textiles and wearing apparel: this was split between “manufacture of textiles,” “manufacture of wearing apparel...” and “tanning and dressing of leather...” in the same ratios as the 2000 I-O table.
- Paper products and printing and publishing: this was split between “manufacture of paper and paper products” and “publishing, printing ...” in the same ratios as the 2000 I-O table.

¹ Non-energy related mining and quarrying, which includes quarrying of gypsum, sand, marbles, ornamental stone, etc.

- Other chemical products: this was split between the “manufacture of chemicals and chemicals products” and the “manufacture of rubber and plastic products” in the same ratios as the 2000 I-O table.
- Other manufactures: this sector in the I-O table relates to eight separate sectors in the National Accounts (18 to 25 inclusive). The split across these sectors was based on a combination of the ratios in the 2000 I-O which covered five of the sectors, and the value added ratios in the 2005 National Accounts.
- Business service: this sector is missing from the I-O table. Values for this sector were taken from “financial institutions,” “real estate” and “insurance” in line with the 2000 I-O table. This was done in such a way that the ratio between business services and the sum of the other sectors was in the same proportion as in the 2000 table, and that the ratio between “financial institutions,” “real estate” and “insurance” remained unchanged (though the actual values were reduced).
- Social and community services: this sector is missing from the I-O table. Values for this sector were taken from “education” 5% and “medical and health services” 10%. These proportions were estimated from government expenditure data.

3.3 Expanding the 29 sector I-O

Using the mappings discussed above, the 2005 29 sector I-O matrix was expanded to 43 sectors. In performing this expansion the sum of values in the matrix was kept constant, as were row and column totals where the sectors mapped one-to-one.

3.4 Additional Sector

An additional sector, “other mining and quarrying” was then added to the matrix. The values for this sector were extracted from “manufacture of other non-metallic mineral products” by applying the ratio of the two sectors in the 2000 I-O table to the “manufacture of other non-metallic mineral products” in the 2005 I-O table. This resulted in 44.5% of “manufacture of other non-metallic mineral products” being allocated to “other mining and quarrying.”

3.5 Other Factor Inputs

Data on labour inputs (compensation to employees) and capital by sector was taken from the 2005 National Accounts, applying the mapping from 54 to 44 sectors outlined above.

No data was reported in the National Accounts for compensation to employees in the public administration and defence sector. Gross value added for the sector was then split 50:50 between labour and capital.

In the absence of any data, the value of land inputs and producer taxes was set to zero.

3.6 Other Components of Final Demand

For the following components of final demand, the data in the 29 sector 2005 I-O table was expanded to 44 sectors based on the mapping discussed above:

- Private sector final consumption expenditure
- Government final consumption expenditure
- Gross fixed capital formation
- Changes in stocks.

The official trade data for Kuwait for 2005 has yet to be published, though detailed trade data for all other years up to and including 2008 is available². As a result, an average of 2004 and 2006 data was used to represent 2005 (using a simple arithmetic average). For consistency, the trade data was collected from the Comtrade database (United Nations Commodity Trade Statistics Database). The data from Comtrade is reported in US dollars, and was converted in Kuwaiti dinars at the average annual exchange rate for each year (2006 \$1 = KD 0.299 and 2004 \$1 = KD 0.3066).

The trade data was reported in HS-2002 nomenclature. Mapping between HS-2002 and 57 GTAP sectors followed the “HS2002-CPC 1.1-ISC, Rev3-GTAP Concordance” by Thomas Hutcheson³. Mapping from the GTAP 57 to the I-O table 44 followed the concordance outlined in Table 6.

One trade category of significance was not covered by the HS-2002 to GTAP concordance, notably Chapter 99. Within this chapter, only one item was reported with significant trade; item 999 999 “commodities not specified to kind.” As this coding is generally used by reporting authorities to cover confidential items, it is assumed that this trade probably covered military equipment and it was allocated to GTAP sector 56 “public administration, defence, education, health.” GTAP sector 56 then maps to the IO table 44 “public administration and defence.”

Import data, net of re-exports was used. This resulted in one trade category (GTAP sectors 16 “oil”) returning a small negative number (around KD 51,000). For consistency this number was set to zero.

For the categories where one GTAP sector mapped to two or more I-O sectors, the trade data was split according to relative share of intermediate inputs. Specifically, this meant the following:

- GTAP sectors 15 “coal,” 16 “oil” and 17 “gas” were matched against sectors 3 “extraction of crude petroleum and natural gas” and 4 “service activities incidental to oil and gas extraction excluding surveying.” The split between the two sectors was according to relative shares of total intermediate inputs.
- GTAP sector 31 “paper products, publishing” was split between sector 11 “manufacture of paper and paper products” and sector 12 “publishing, printing and reproduction of recording media” according to relative shares of total intermediate inputs.
- GTAP sector 42 “manufactures, nec” was split between sectors 21 “manufacture of medical, precision and optical instruments, watches and clocks,” 24 “manufacture of furniture,” 25 “manufacture, n.e.c.” and 26 “recycling” according to relative shares of total intermediate inputs.
- GTAP sector 47 “trade” was split between sectors 30 “wholesale and retail trade” and 31 “restaurants and hotels” according to relative shares of total intermediate inputs.
- GTAP sector 55 “recreational and other services” was split between sectors 42 “recreational and cultural services” and 43 “personal and household services” according to relative shares of total intermediate inputs.
- GTAP sector 56 “public administration, defence, education, health” was split between sectors 38 “sanitary services,” 39 “educational services,” 40 “medical and health services,” 41 “social and community services” and 44 “public administration and defence” according to relative shares of total intermediate inputs.

² The reporting of trade data by the General Administration of Customs to the Central Statistical Office switched over to an electronic system for 2006 onwards. The CSO report that they have yet to receive data for 2005.

³ https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=1916

The other components of final demand, notably import taxes, import tariffs and consumption taxes were left blank, as no data was available.

3.7 Checks and Balancing

The I-O table was then subjected to the following checks

- Imports do not exceed domestic demand
- Exports do not exceed domestic production
- Sum of rows = sum of columns

In most instances to ensure a balance by sector, proportionate adjustments were made to the returns to labour and capital.

In addition, some adjustments were made to imports. There is evidence of significant re-exports in import data, even after removal of reported re-exports. This is probably due to estimating 2005 trade data from 2004 and 2006 reported data. This is exacerbated by there having been a significant change in some of the flows of trade data between 2004 and 2006. In addition, there may have been significant unreported re-exports with supplies to Iraq being transferred through Kuwait.

Significant balancing adjustments made to the table are as follows:

- Fishing: added fishing inputs into the sector as they were missing
- Other mining & quarrying: increased inputs from the sector into other mineral and construction to reflect development of sector since 2000
- Manufacture of textiles: adjusted the split for inputs across textiles, clothing and leather. Increased inputs into retail and reduced imports to take account of re-exports
- Manufacture of wood & products of wood & cork: reduced imports to account for re-exports
- Manufacture of paper and paper products: adjusted split on inputs with publishing and printing
- Publishing, printing and reproduction of recording media: adjusted final expenditures upwards as too low given level of imports and limited domestic capacity
- Manufacture of chemical and chemical products: increased investment and capital inputs in line with expansions in the sector
- Manufacture of basic metals: reduced imports to account for re-exports
- Manufacture of fabricated metal products, ex. mach. & equip.: adjusted estimate of imports to meet constraints
- Transport and storage: set GFCF at estimated KD 50 mn, initial figure was zero
- Communication: set GFCF at estimated KD 50 mn, initial figure was zero
- Social and community services: set government expenditure on this at one quarter of medical, initial figure zero

3.8 Disaggregating Imported Inputs

The input values used in the 29 sector 2005 I-O table represent total intermediate use. The matrix was split into domestic and imported in line with GTAP approach when a vector of import data is available. In this way total imports were pro-rated across the sectors in line with total inputs per sector.

Additional check was made to ensure that total of disaggregated imports by sector equalled initial total imports by sector.

4. *Concordance with GTAP Sectors*

The 44 sectors used for the I-O table match discretely the 57 GTAP sectors (see Table 6) and Table 7).

With reference to the GTAP sectors, it should be noted that the following sectors are either non-existent in Kuwait or where they do exist they are insignificant economically:

| | | |
|----|-----|------------------------|
| 5 | OSD | Oil seeds |
| 6 | CB | Sugar cane |
| 7 | PFB | Plant-based fibres |
| 12 | WOL | Wool, silkworm cocoons |
| 13 | FRS | Forestry |
| 15 | COA | Coal |

Appendix

Table 1

| Kuwait 2000 I/O Table Sector Classification | |
|---|---|
| No. Description | No. Description |
| 1 Agriculture & livestock | 28 Manufacture of electrical machinery apparatus, appliances & supplies |
| 2 Fishing | 29 Manufacture of transport equipment |
| 3 Crude petroleum & Natural gas production | 30 Other Manufacturing industries |
| 4 Quarrying & other mining | 31 Electricity, gas and steam |
| 5 Manufacture of food products | 32 Water works & supply |
| 6 Manufacture of food products N.E.C | 33 Construction |
| 7 Beverage industries | 34 Wholesale trade and Retail trade |
| 8 Manufacture of Textiles | 35 Restaurants, cafes & other eating & drinking places |
| 9 Manufacture of Wearing apparel, except footwear | 36 Hotels, rooming houses, camps & other lodging places |
| 10 Manufacture of Leather | 37 Land transport |
| 11 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear | 38 Water transport |
| 12 Manufacture of wood and cork products except furniture | 39 Air transport |
| 13 Manufacture of furniture and fixtures, except primarily of metal | 40 Services allied to transport |
| 14 Manufacture of paper and paper products | 41 Communication |
| 15 Printing, Publishing and allied industries | 42 Financial institutions |
| 16 Manufacture of industrial chemicals | 43 Insurance |
| 17 Manufacture of other chemicals products | 44 Real estate |
| 18 Petroleum refineries | 45 Business services except machinery & equipment rental & leasing |
| 19 Manufacture of miscellaneous products of petroleum and coal | 46 Machinery & equipment rental & leasing |
| 20 Manufacture of rubber products | 47 Sanitary & similar services |
| 21 Manufacture of plastic products not elsewhere classified | 48 Education services |
| 22 Manufacture of glass and glass products | 49 Medical, dental & other health services |
| 23 Manufacture of other non-metallic mineral products | 50 Motion picture & other entertainment services |
| 24 Iron and steel basic industries | 51 Repair services N.E.C |
| 25 Non-ferrous metal basic industries | 52 Laundries, laundry services, & cleaning & dyeing plants |
| 26 Manufacture of fabricated metal products, except machinery & equipment | 53 Domestic services |
| 27 Manufacture of machinery except electrical | 54 Miscellaneous personal services |

Table 2

| Kuwait 2005 I/O Table Sector Classification | |
|--|---------------------------------------|
| No. Description | No. Description |
| 1 Agriculture and livestock | 16 Construction |
| 2 Fishing | 17 Wholesale and retail trade |
| 3 Crude petroleum and natural gas | 18 Hotels and restaurants |
| 4 Food beverages and tobacco | 19 Transport and storage |
| 5 Textiles and wearing apparel | 20 Communication |
| 6 Wood and wood products | 21 Financial institutions |
| 7 Paper products and printing and publishing | 22 Insurance |
| 8 Petroleum refining | 23 Real estate |
| 9 Other chemical products | 24 Public administration |
| 10 Non-metallic products | 25 Sanitary services |
| 11 Basic metal products | 26 Education services |
| 12 Fabricated metal products | 27 Medical and health services |
| 13 Other manufacturers | 28 Recreational and cultural services |
| 14 Electricity and gas | 29 Personal and household services |
| 15 Water | |

Table 3

| Kuwait 2005 National Accounts: Value Added Sectors | |
|--|--------------------------------------|
| No. Description | No. Description |
| 1 Agriculture and livestock | 23 Manufacture of furniture |
| 2 Fishing | 24 Manufacture, N.E.C. |
| 3 Extraction of crude petroleum and natural gas | 25 Recycling |
| 4 Service activities incidental to oil and gas extraction excluding surveying | 26 Electricity and gas |
| 5 Manufacture of food products and beverages | 27 Water works and supply |
| 6 Manufacture of textiles | 28 Construction |
| 7 Manufacture of wearing apparel, dressing and dyeing of fur | 29 Wholesale and retail trade |
| 8 Tanning and dressing of leather, manufacture of luggage, hand bags, saddlery and harness | 30 Restaurants and hotels |
| 9 Manufacture of wood and cork products, except furniture manufacture of article of straw | 31 Transport and storage |
| 10 Manufacture of paper and paper products | 32 Communication |
| 11 Publishing, printing and reproduction of recording media | 33 Financial institutions |
| 12 Manufacture of coke, refined petroleum products and nuclear fuel | 34 Insurance |
| 13 Manufacture of chemical and chemical products | 35 Real estate |
| 14 Manufacture of rubber and plastic products | 36 Business services |
| 15 Manufacture of other non-metallic mineral products | 37 Sanitary services |
| 16 Manufacture of basic metals | 38 Educational services |
| 17 Manufacture of fabricated metal products, except machinery and equipment | 39 Medical and health services |
| 18 Manufacture of machinery and equipment | 40 Social and community services |
| 19 Manufacture of electric machinery and apparatus | 41 Recreational & cultural services |
| 20 Manufacture of medical, precision and optical instruments, watches and clocks | 42 Personal and household services |
| 21 Manufacture of motor vehicles, trailers and semitrailers | 43 Public administration and defense |
| 22 Manufacture of other transport equipment, N.E.C. | |

Table 4**Kuwait 2005 I/O Table: Final Sector Classification**

| No. Description | No. Description |
|---|---|
| 1 Agriculture and livestock | 23 Manufacture of other transport equipment N.E.C. |
| 2 Fishing | 24 Manufacture of furniture |
| 3 Extraction of crude petroleum and natural gas | 25 Manufacture, N.E.C. |
| 4 Service activities incidental to oil and gas extraction excluding surveying | 26 Recycling |
| 5 Other mining & quarrying | 27 Electricity and gas |
| 6 Manufacture of food products and beverages | 28 Water works and supply |
| 7 Manufacture of textiles | 29 Construction |
| 8 Manufacture of wearing apparel, dressing and dyeing of fur | 30 Wholesale and retail trade |
| 9 Tanning and dressing of leather, manufacture of luggage, hand bags, saddlery and harness | 31 Restaurants and hotels |
| 10 Manufacture of wood and cork products, except furniture manufacture of article of straw | 32 Transport and storage |
| 11 Manufacture of paper and paper products | 33 Communication |
| 12 Publishing, printing and reproduction of recording media | 34 Financial institutions |
| 13 Manufacture of coke, refined petroleum products and nuclear fuel | 35 Insurance |
| 14 Manufacture of chemical and chemical products | 36 Real estate |
| 15 Manufacture of rubber and plastic products | 37 Business services |
| 16 Manufacture of other non-metallic mineral products | 38 Sanitary services |
| 17 Manufacture of basic metals | 39 Educational services |
| 18 Manufacture of fabricated metal products, except machinery and equipment | 40 Medical and health services |
| 19 Manufacture of machinery and equipment | 41 Social and community services |
| 20 Manufacture of electric machinery and apparatus | 42 Recreational & cultural services |
| 21 Manufacture of medical, precision and optical instruments, watches and clocks | 43 Personal and household services |
| 22 Manufacture of motor vehicles, trailers and semitrailers | 44 Public administration and defense |

Table 5

| Concordance: 54-sector 2000 I/O TO 43-sector NA | |
|---|---|
| 54 Sectors of 2000 I/O | 43 Sectors of 2005 National Accounts |
| No. Description | No. Description |
| 1 Agriculture & livestock | 1 Agriculture and livestock |
| 2 Fishing | 2 Fishing |
| 3 Crude petroleum & Natural gas production | 3 Extraction of crude petroleum and natural gas |
| 4 Quarring & other mining | 4 Service activities incidental to oil and gas extraction excluding surveying |
| 5 Manufacture of food products | 6 Manufacture of food products and beverages |
| 6 Manufacture of food products N.E.C | |
| 7 Beverage industries | |
| 8 Manufacture of Textiles | 7 Manufacture of textiles |
| 9 Manufacture of Wearing apparel, except footwear | 8 Manufacture of wearing apparel, dressing and dyeing of fur |
| 10 Manufacture of Leather | 9 Tanning and dressing of leather, manufacture of luggage, hand bags, saddlery and harness |
| 11 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear | |
| 12 Manufacture of wood & cork products except furniture | 10 Manufacture of wood & of products of wood and cork, except furniture manufacture of article of straw |
| 13 Manufacture of furniture & fixtures, except primarily of metal | 24 Manufacture of furniture |
| 14 Manufacture of paper & paper products | 11 Manufacture of paper and paper products |
| 15 Printing, Publishing & allied industries | 12 Publishing, printing and reproduction of recording media |
| 16 Manufacture of industrial chemicals | 14 Manufacture of chemical and chemical products |
| 17 Manufacture of other chemicals products | |
| 23 Manufacture of other non-metallic mineral products | 16 Manufacture of other non-metallic mineral products |
| 22 Manufacture of glass & glass products | |
| 18 Petroleum refineries | 13 Manufacture of coke, refined petroleum products and nuclear fuel |
| 19 Manufacture of miscellaneous products of petroleum & coal | |
| 20 Manufacture of rubber products | 15 Manufacture of rubber and plastic products |
| 21 Manufacture of plastic products not elsewhere classified | |
| 24 Iron & steel basic industries | 17 Manufacture of basic metals |
| 25 Non-ferrous metal basic industries | |
| 26 Manufacture of fabricated metal products, except machinery & equipment | 18 Manufacture of fabricated metal products, except machinery and equipment |
| 27 Manufacture of machinery except electrical | 19 Manufacture of machinery and equipment |
| 28 Manufacture of electrical machinery apparatus, appliances & supplies | 20 Manufacture of electric machinery and apparatus |
| 29 Manufacture of transport equipment | 22 Manufacture of motor vehicles, trailers and semitrailers |
| | 23 Manufacture of other transport equipment, n.e.c. |
| 30 Other Manufacturing industries | 21 Manufacture of medical, precision and optical instruments, watches and clocks |
| | 25 Manufacture, n.e.c. |

| Continued..... | |
|--|---|
| 54 Sectors of 2000 I/O | 43 Sectors of 2005 National Accounts |
| No. Description | No. Description |
| 31 Electricity, gas & steam | 27 Electricity and gas |
| 32 Water works & supply | 28 Water works and supply |
| 33 Construction | 29 Construction |
| 34 Wholesale trade & Retail trade | 30 Wholesale and retail trade |
| 35 Restaurants, cafes & other eating & drinking places | 31 Restaurants and hotels |
| 36 Hotels, rooming houses, camps & other loding places | |
| 37 Land transport | 32 Transport and storage |
| 38 Water transport | |
| 39 Air transport | |
| 40 Services allied to transport | |
| 41 Communication | 33 Communication |
| 42 Financial institutions | 34 Financial institutions |
| 43 Insurance | 35 Insurance |
| 44 Real estate | 36 Real estate |
| 45 Business services except machinery & equipment rental & leasing | 37 Business services |
| 46 Machinery & equipment rental & leasing | |
| 47 Sanitary & similer services | 38 Sanitary services |
| 48 Education services | 39 Educational services |
| 49 Medical, dental & other health services | 40 Medical and health services |
| | 41 Social and community services |
| 50 Motion picture & other entertainment services | 42 Recreational & cultural services |
| 52 Laundries, laudry services, & cleaning & dyeing plants | 43 Personal and household services |
| 51 Repair services N.E.C | |
| 53 Domestic services | |
| 54 Miscellaneous personal services | |
| | 44 Public administration and defence |
| | 26 Recycling |

Table 6

| Concordance: 57 GTAP Sectors to 44 Kuwait I/O Sectors | | | |
|---|--|-----------------------|---|
| 57 GTAP Sectors | | 44 Kuwait I/O Sectors | |
| No. Code | Description | No. | Description |
| 1 PDR | Paddy rice | 1 | Agriculture and livestock |
| 2 WHT | Wheat | | |
| 3 GRO | Cereal grains nec | | |
| 4 V_F | Vegetables, fruit, nuts | | |
| 5 OSD | Oil seeds | | |
| 6 C_B | Sugar cane, sugar beet | | |
| 7 PFB | Plant-based fibers | | |
| 8 OCR | Crops nec | | |
| 9 CTL | Bovine cattle, sheep and goats, horses | | |
| 10 OAP | Animal products nec | | |
| 11 RMK | Raw milk | | |
| 12 WOL | Wool, silk-worm cocoons | | |
| 13 FRS | Forestry | | |
| 14 FSH | Fishing | 2 | Fishing |
| 15 COA | Coal | | |
| 16 OIL | Oil | 3 | Extraction of crude petroleum and natural gas |
| 17 GAS | Gas | 4 | Service activities incidental to oil and gas extraction excluding surveying |
| 18 OMN | Minerals nec | 5 | Other mining & quarrying |
| 19 CMT | Bovine meat products | 6 | Manufacture of food products and beverages |
| 20 OMT | Meat products nec | | |
| 21 VOL | Vegetable oils and fats | | |
| 22 MIL | Dairy products | | |
| 23 PCR | Processed rice | | |
| 24 SGR | Sugar | | |
| 25 OFD | Food products nec | | |
| 26 B_T | Beverages and tobacco products | | |
| 27 TEX | Textiles | 7 | Manufacture of textiles |
| 28 WAP | Wearing apparel | 8 | Manufacture of wearing apparel, dressing and dyeing of fur |
| 29 LEA | Leather products | 9 | Tanning and dressing of leather, manufacture of luggage, hand bags, saddlery and harness |
| 30 LUM | Wood products | 10 | Manufacture of wood & of products of wood crosk, except furniture manufacture of article of straw |
| 31 PPP | Paper products, publishing | 11 | Manufacture of paper and paper products |
| | | 12 | Publishing, printing and reproduction of recording media |
| 32 P_C | Petroleum, coal products | 13 | Manufacture of coke, refined petroleum products and nuclear fuel |
| 33 CRP | Chemical, rubber, plastic products | 14 | Manufacture of chemical and chemical products |
| | | 15 | Manufacture of rubber and plastic products |
| 34 NMM | Mineral products nec | 16 | Manufacture of other non-metallic mineral products |
| 35 I_S | Ferrous metals | 17 | Manufacture of basic metals |
| 36 NFM | Metals nec | 18 | Manufacture of fabricated metal products, except machinery and equipment |
| 37 FMP | Metal products | | |

| Continued... | | | |
|-----------------|---|-----------------------|---|
| 57 GTAP Sectors | | 44 Kuwait I/O Sectors | |
| No. Code | Description | No. | Description |
| 38 MVH | Motor vehicles and parts | 22 | Manufacture of motor vehicles, trailers and semitrailers |
| 39 OTN | Transport equipment nec | 23 | Manufacture of other transport equipment, n.e.c. |
| 40 ELE | Electronic equipment | 20 | Manufacture of electric machinery and apparatus |
| 41 OME | Machinery and equipment nec | 19 | Manufacture of machinery and equipment |
| 42 OMF | Manufactures nec | 21 | Manufacture of medical, precision and optical instruments, watches and clocks |
| | | 24 | Manufacture of furniture |
| | | 25 | Manufacture, n.e.c. |
| | | 26 | Recycling |
| 43 ELY | Electricity | 27 | Electricity and gas |
| 44 GDT | Gas manufacture, distribution | | |
| 45 WTR | Water | 28 | Water works and supply |
| 46 CNS | Construction | 29 | Construction |
| 47 TRD | Trade | 30 | Wholesale and retail trade |
| | | 31 | Restaurants and hotels |
| 48 OTP | Transport nec | 32 | Transport and storage |
| 49 WTP | Water transport | | |
| 50 ATP | Air transport | | |
| 51 CMN | Communication | 33 | Communication |
| 52 OFI | Financial services nec | 34 | Financial institutions |
| 53 ISR | Insurance | 35 | Insurance |
| 54 OBS | Business services nec | 37 | Business services |
| 55 ROS | Recreational and other services | 42 | Recreational & cultural services |
| | | 43 | Personal and household services |
| 56 OSG | Public Administration, Defense, Education, Health | 44 | Public administration and defence |
| | | 38 | Sanitary services |
| | | 39 | Educational services |
| | | 40 | Medical and health services |
| | | 41 | Social and community services |
| 57 DWE | Dwellings | 36 | Real estate |

Table 7

| Concordance GTAP 57 to Kuwait 44 Sectors | | | | | |
|---|-------------|------------|------------|-------------|------------|
| No. | GSEC | SEC | No. | GSEC | SEC |
| 1 | PDR | A_L | 36 | NFM | NFM |
| 2 | WHT | A_L | 37 | FMP | NFM |
| 3 | GRO | A_L | 38 | MVH | MVH |
| 4 | V_F | A_L | 39 | OTN | OTN |
| 5 | OSD | OSD | 40 | ELE | ELE |
| 6 | C_B | C_B | 41 | OME | OME |
| 7 | PFB | PFB | 42 | OMF | OMF |
| 8 | OCR | A_L | 43 | ELY | E_G |
| 9 | CTL | A_L | 44 | GDT | E_G |
| 10 | OAP | A_L | 45 | WTR | WTR |
| 11 | RMK | A_L | 46 | CNS | CNS |
| 12 | WOL | WOL | 47 | TRD | TRD |
| 13 | FRS | FRS | 48 | OTP | T_S |
| 14 | FSH | FSH | 49 | WTP | T_S |
| 15 | COA | COA | 50 | ATP | T_S |
| 16 | OIL | O_G | 51 | CMN | CMN |
| 17 | GAS | O_G | 52 | OFI | OFI |
| 18 | OMN | OMN | 53 | ISR | ISR |
| 19 | CMT | F_B | 54 | OBS | OBS |
| 20 | OMT | F_B | 55 | ROS | ROS |
| 21 | VOL | F_B | 56 | OSG | OSG |
| 22 | MIL | F_B | 57 | DWE | OBS |
| 23 | PCR | F_B | 46 | CNS | CNS |
| 24 | SGR | F_B | 47 | TRD | TRD |
| 25 | OFD | F_B | 48 | OTP | T_S |
| 26 | B_T | F_B | 49 | WTP | T_S |
| 27 | TEX | TEX | 50 | ATP | T_S |
| 28 | WAP | WAP | 51 | CMN | CMN |
| 29 | LEA | LEA | 52 | OFI | OFI |
| 30 | LUM | LUM | 53 | ISR | ISR |
| 31 | PPP | PPP | 54 | OBS | OBS |
| 32 | P_C | P_C | 55 | ROS | ROS |
| 33 | CRP | CRP | 56 | OSG | OSG |
| 34 | NMM | NMM | 57 | DWE | OBS |
| 35 | I_S | I_S | | | |

Table 8

| Concordance: 29-sector 2005 I/O TO 43-sector NA | |
|--|--|
| 29 Sectors of 2005 I/O | 43 Sectors of 2005 National Accounts |
| No. Description | No. Description |
| 1 Agriculture and livestock | 1 Agriculture and livestock |
| 2 Fishing | 2 Fishing |
| 3 Crude petroleum and natural gas | 3 Extraction of crude petroleum and natural gas |
| | 4 Service activities incidental to oil and gas extraction excluding surveying |
| 4 Food beverages and tobacco | 5 Manufacture of food products and beverages |
| 5 Textiles and wearing apparel | 6 Manufacture of textiles |
| | 7 Manufacture of wearing apparel, dressing and dyeing of fur |
| | 8 Tanning and dressing of leather, manufacture of luggage, hand bags, saddlery and harness |
| 6 Wood and wood products | 9 Manufacture of wood and cork products, except furniture manufacture of article of straw |
| 7 Paper products and printing and publishing | 10 Manufacture of paper and paper products |
| | 11 Publishing, printing and reproduction of recording media |
| 8 Petroleum refining | 12 Manufacture of coke, refined petroleum products and nuclear fuel |
| 9 Other chemical products | 13 Manufacture of chemical and chemical products |
| | 14 Manufacture of rubber and plastic products |
| 10 Non-metallic products | 15 Manufacture of other non-metallic mineral products |
| 11 Basic metal products | 16 Manufacture of basic metals |
| 12 Fabricated metal products | 17 Manufacture of fabricated metal products, except machinery and equipment |
| 13 Other manufacturers | 18 Manufacture of machinery and equipment |
| | 19 Manufacture of electric machinery and apparatus |
| | 20 Manufacture of medical, precision and optical instruments, watches and clocks |
| | 21 Manufacture of motor vehicles, trailers and semitrailers |
| | 22 Manufacture of other transport equipment, N.E.C. |
| | 23 Manufacture of furniture |
| | 24 Manufacture, N.E.C. |
| | 25 Recycling |
| 14 Electricity and gas | 26 Electricity and gas |
| 15 Water | 27 Water works and supply |
| 16 Construction | 28 Construction |
| 17 Wholesale and retail trade | 29 Wholesale and retail trade |
| 18 Hotels and restaurants | 30 Restaurants and hotels |
| 19 Transport and storage | 31 Transport and storage |
| 20 Communication | 32 Communication |
| 21 Financial institutions | 33 Financial institutions (less business services) |
| 22 Insurance | 34 Insurance (less business services) |
| 23 Real estate | 35 Real estate (less business services) |
| <i>Financial institutions, Insurance, Real estate</i> | 36 Business services |
| 25 Sanitary services | 37 Sanitary services |
| 26 Education services | 38 Educational services (less social and community services) |
| 27 Medical and health services | 39 Medical and health services (less social and community services) |
| <i>Education services, Medical and health services</i> | 40 Social and community services |
| 28 Recreational and cultural services | 41 Recreational & cultural services |