

Pakistan

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1. Abstract

This paper presents the Pakistan Input-Output table (IOT) for 2011. It is Pakistan's first IOT that is based on the 2008 SNA (System of National Accounts, 2008). Disaggregation of various sectors in the original IOT follows the relative shares of total intermediate inputs in the GTAP database version 9. This IOT is in PKR (Pakistan Rupee) million, at producer prices.

2. Source Data

The Pakistan IOT (2011) was developed by Zeshan and Nasir (2018). The reference year of Pakistan IOT is 2011 and the unit of accounts is PKR million. It is Pakistan's first IOT table that follows the 2008 SNA. It utilizes the supply and use tables created by the Pakistan Bureau of Statistics with the support of the Asian Development Bank (2017). Pakistan IOT (2011) is grouped industry by industry and comprises 42 sectors (Table 1).

The Pakistan IOT (2011) is generated from a detailed supply and use table with 54 products and 42 sectors. The final IOT table comprises 42 input sectors along with depreciation of capital, compensation of employees and net operating surplus. The final demand comprises household consumption expenditure, collective consumption expenditure of government, individual consumption expenditure of government, gross fixed capital formation, changes in inventories, exports of goods, and exports of services.

Table 1: Sectors of Pakistan IOT (2011)

| No. | Detailed Sector Description | No. | Detailed Sector Description |
|-----|---|-----|--|
| 1 | Crop and Animal Production, Hunting, and Related Service Activities | 22 | Manufacture of Electronics |
| 2 | Forestry and Logging | 23 | Manufacture of Machinery |
| 3 | Fishing and Aquaculture | 24 | Manufacture of Motor Vehicles |
| 4 | Mining and Quarrying | 25 | Manufacture of Other Transport Equipment |
| 5 | Manufacture of Food Products | 26 | Manufacture of Furniture |
| 6 | Manufacture of Beverages | 27 | Other Manufacturing |
| 7 | Manufacture of Tobacco Products | 28 | Electricity, Gas, Steam, and Air-Conditioning Supply |
| 8 | Manufacture of Textiles | 29 | Construction of Buildings |
| 9 | Manufacture of Wearing Apparel | 30 | Wholesale and Retail Trade, and Repair of Motor Vehicles and Motorcycles |

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| No. | Detailed Sector Description | No. | Detailed Sector Description |
|-----|--|-----|--|
| 10 | Manufacture of Leather and Related Products | 31 | Land Transport and Transport via Pipelines |
| 11 | Manufacture of Wood Products | 32 | Air Transport |
| 12 | Manufacture of Paper and Paper Products | 33 | Warehousing and Support Activities for Transportation |
| 13 | Manufacture of Printing | 34 | Postal and Courier Activities |
| 14 | Manufacture of Coke and Refined Petroleum Products | 35 | Accommodations |
| 15 | Manufacture of Chemicals and Chemical Products | 36 | Telecommunications |
| 16 | Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations | 37 | Financial Service Activities, except Insurance and Pension Funding |
| 17 | Manufacture of Rubber and Plastics Products | 38 | Insurance, Reinsurance, and Pension Funding, except Compulsory Social Security |
| 18 | Manufacture of Other Nonmetallic Mineral Products | 39 | Public Administration and Defense; and Compulsory Social Security |
| 19 | Manufacture of Basic Metals | 40 | Education |
| 20 | Manufacture of Fabricated Metal Products, except Machinery and Equipment | 41 | Human Health Activities |
| 21 | Manufacture of Computer, Electronic, and Optical Products | 42 | Other Personal Service Activities |

3. Treatment of Final Demand and Value-added Components

A few components of the final demand are aggregated to make them consistent with the GTAP format, such that:

- Collective consumption expenditure of government and individual consumption expenditure of government are aggregated to total government consumption.
- Exports of goods and exports of services are aggregated to total exports.

Zero values are assigned to the other components of the final demand where data are not available, such as:

- Import taxes
- Import tariffs

Zero values are assigned to the factors inputs where data are not available, such as:

- Land
- Production taxes

The depreciation of fixed capital is combined with net operating surplus resulting in vector of capital.

4. *Mapping to GTAP (GSEC 3) Sectoral Aggregation*

The initial 42 sectors are aggregated and supplemented to facilitate the concordance against the GTAP Sectoral Classification (GSEC3) of GTAP 10. The 43 original sectors (OSEC, including a null dwelling sector) are aggregated into 38 sectors (SEC in Table 2) that will then be mapped to the 65 GTAP sectors (Table 3).

Table 2: Initial aggregation of original sectors

| No. Detailed Sector Description | OSEC | SEC |
|--|---------|---------|
| 1 Crop and Animal Production, Hunting, and Related Service Activities | Agri | Agri |
| 2 Forestry and Logging | for | for |
| 3 Fishing and Aquaculture | fsh | fsh |
| 4 Mining and Quarrying | Mining | Mining |
| 5 Manufacture of Food Products | Food | Food |
| 6 Manufacture of Beverages | b_t1 | b_t |
| 7 Manufacture of Tobacco Products | b_t2 | b_t |
| 8 Manufacture of Textiles | tex | tex |
| 9 Manufacture of Wearing Apparel | wap | wap |
| 10 Manufacture of Leather and Related Products | lea | lea |
| 11 Manufacture of Wood Products | lum | lum |
| 12 Manufacture of Paper and Paper Products | ppp1 | ppp |
| 13 Manufacture of Printing | ppp2 | ppp |
| 14 Manufacture of Coke and Refined Petroleum Products | p_c | p_c |
| 15 Manufacture of Chemicals and Chemical Products | chm | chm |
| 16 Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations | bph | bph |
| 17 Manufacture of Rubber and Plastics Products | rpp | rpp |
| 18 Manufacture of Other Nonmetallic Mineral Products | nmm | nmm |
| 19 Manufacture of Basic Metals | i_s | i_s |
| 20 Manufacture of Fabricated Metal Products, except Machinery and Equipment | nfm_fmp | nfm_fmp |
| 21 Manufacture of Computer, Electronic, and Optical Products | ele1 | ele |
| 22 Manufacture of Electronics | ele2 | ele |
| 23 Manufacture of Machinery | ome | ome |
| 24 Manufacture of Motor Vehicles | mvh | mvh |
| 25 Manufacture of Other Transport Equipment | otn | otn |
| 26 Manufacture of Furniture | omf1 | omf |
| 27 Other Manufacturing | omf2 | omf |
| 28 Electricity, Gas, Steam, and Air-Conditioning Supply | ely | ely |
| 29 Construction of Buildings | cns | cns |

| No. | Detailed Sector Description | OSEC | SEC |
|-----|--|----------|---------|
| 30 | Wholesale and Retail Trade, and Repair of Motor Vehicles and Motorcycles | trd1 | trd |
| 31 | Land Transport and Transport via Pipelines | otp_wtp1 | otp_wtp |
| 32 | Air Transport | atp | atp |
| 33 | Warehousing and Support Activities for Transportation | whs | whs |
| 34 | Postal and Courier Activities | cmn1 | cmn |
| 35 | Accommodations | afs | afs |
| 36 | Telecommunications | cmn2 | cmn |
| 37 | Financial Service Activities, except Insurance and Pension Funding | obs_ofi | obs_ofi |
| 38 | Insurance, Reinsurance, and Pension Funding, except Compulsory Social Security | ins | ins |
| 39 | Public Administration and Defense; and Compulsory Social Security | osg | osg |
| 40 | Education | edu | edu |
| 41 | Human Health Activities | hht | hht |
| 42 | Other Personal Service Activities | ros | ros |
| 43 | Dwellings sector (new, non-existent in original data) | dwe | dwe |

Table 3. Concordance between GSEC 3 and Aggregate sectors

| No. | 65 GSEC3 | Sector Description | Concordance between SEC and GSEC3 |
|-----|----------|--|-----------------------------------|
| 1 | pdr | Paddy rice | Agri |
| 2 | wht | Wheat | Agri |
| 3 | gro | Cereal grains nec | Agri |
| 4 | v f | Vegetables, fruit, nuts | Agri |
| 5 | osd | Oil seeds | Agri |
| 6 | c_b | Sugar cane, sugar beet | Agri |
| 7 | pfb | Plant-based fibers | Agri |
| 8 | ocr | Crops nec | Agri |
| 9 | ctl | Bovine cattle, sheep and goats, horses | Agri |
| 10 | oap | Animal products nec | Agri |
| 11 | rmk | Raw milk | Agri |
| 12 | wol | Wool, silk-worm cocoons | Agri |
| 13 | frs | Forestry | for |
| 14 | fsh | Fishing | fsh |
| 15 | coa | Coal | Mining |
| 16 | oil | Oil | Mining |
| 17 | gas | Gas | Mining |
| 18 | oxt | Other Extraction (formerly omn Minerals nec) | Mining |
| 19 | cmt | Bovine meat products | Food |
| 20 | omt | Meat products nec | Food |
| 21 | vol | Vegetable oils and fats | Food |
| 22 | mil | Dairy products | Food |
| 23 | pcr | Processed rice | Food |
| 24 | sgr | Sugar | Food |
| 25 | ofd | Food products nec | Food |

| No. | 65 GSEC3 | Sector Description | Concordance between SEC and GSEC3 |
|-----|----------|--------------------|-----------------------------------|
|-----|----------|--------------------|-----------------------------------|

| | | | |
|----|-----|--|---------|
| 26 | b_t | Beverages and tobacco products | b_t |
| 27 | tex | Textiles | tex |
| 28 | wap | Wearing apparel | wap |
| 29 | lea | Leather products | lea |
| 30 | lum | Wood products | lum |
| 31 | ppp | Paper products, publishing | ppp |
| 32 | p_c | Petroleum, coal products | p_c |
| 33 | chm | Chemical products | chm |
| 34 | bph | Basic pharmaceutical products | bph |
| 35 | rpp | Rubber and plastic products | rpp |
| 36 | nmm | Mineral products nec | nmm |
| 37 | i_s | Ferrous metals | i_s |
| 38 | nfm | Metals nec | nfm_fmp |
| 39 | fmp | Metal products | nfm_fmp |
| 40 | ele | Computer, electronic and optical products | ele |
| 41 | eeq | Electrical equipment | ome |
| 42 | ome | Machinery and equipment nec | ome |
| 43 | mvh | Motor vehicles and parts | mvh |
| 44 | otn | Transport equipment nec | otn |
| 45 | omf | Manufactures nec | omf |
| 46 | ely | Electricity | ely |
| 47 | gdt | Gas manufacture, distribution | ely |
| 48 | wtr | Water | ely |
| 49 | cns | Construction | cns |
| 50 | trd | Trade | trd |
| 51 | afs | Accommodation, Food and service activities | afs |
| 52 | otp | Transport nec | otp_wtp |
| 53 | wtp | Water transport | otp_wtp |
| 54 | atp | Air transport | atp |
| 55 | whs | Warehousing and support activities | whs |
| 56 | cmn | Communication | cmn |
| 57 | ofi | Financial services nec | obs_ofi |
| 58 | ins | Insurance (formerly isr) | ins |
| 59 | rsa | Real estate activities | obs_ofi |
| 60 | obs | Business services nec | obs_ofi |
| 61 | ros | Recreational and other services | ros |
| 62 | osg | Public Administration and defense | osg |
| 63 | edu | Education | edu |
| 64 | hht | Human health and social work activities | hht |
| 65 | dwe | Dwellings | dwe |

References

Asian Development Bank (2017), 'Compendium of Supply and Use Tables for Selected Economies in Asia and the Pacific', Manila, Philippines.

Zeshan, M and Nasir, M (2018), 'Pakistan Input-Output Table 2011', Pakistan Institute of Development Economics, *Forthcoming*.