# Updating the IndoTERM database

by

Mark Horridge and Louise Roos

(Centre of Policy Studies, Victoria University, Melbourne)

and

Arief Anshory Yusuf and Megananda Suryana

(Department of Economics, Padjadjaran University, Bandung)

## 1 Overview

IndoTERM is a large inter-regional CGE model of Indonesia distinguishing each province and many sectors. Successive versions have appeared since 2006, produced by the Center for Economics and Development Studies (CEDS) at Padjadjaran University, Bandung. Prior to 2021, the latest version was based on the 2010 Indonesian input-output table. As part of a project funded by USAID, a team from Melbourne and Bandung spent some months during 2021 revising the IndoTERM database. Their new version:

- is based on the 2016 Indonesian input-output table
- distinguishes all 34 provinces.
- distinguishes all 185 sectors of the 2016 IO table
- incorporates more regional data than in previous versions.

In section 2 below we list data sources used to create the new database. In section 3 we briefly describe a sample simulation performed with the new IndoTERM database.

## 2 Data sources for the construction of 2016 IndoTERM database

The first two items below are used to set up a national (ORANI-G) database without regional detail.

### *2.1 Supply Use Table*

Available online in BPS website

The official IO table publication is *Tabel Input Output Indonesia 2016*

Link to download:

Excel file:

https://www.bps.go.id/statictable/2021/04/14/2118/tabel-input-output-indonesia-transaksi-total-atas-dasar-harga-pembeli-185-produk-2016-juta-rupiah-.html

PDF format Publication:

https://www.bps.go.id/publication/2021/03/31/081f6b0af2c15c524d72b660/tabel-input---output-indonesia-2016.html

Note: the table consists of 185 sectors

### 2.2 *National Labor Force Survey*

Used to split industry labor bills according to skill type. The raw microdata of national labor force survey was obtained from BPS via CEDS UNPAD. The data is used to construct wagebill by 4 occupational classifications, 63 sector classifications, and 34 provinces. The wagebill is divided into 2 types: paid labor, and unpaid labor. In addition, number of labor employed as well as days worked in one month is also constructed.

Indonesian publication: *Survey Angkatan Kerja Nasional (SAKERNAS)*.

The remaining data items are used to split the national database into an inter-regional (34 province) database. Items 2.3 to 2.8 are used to estimate the shares R001(i,r): the share of region r in national output of sector i.

### *2.3 Production of agricultural commodities by provinces*

Volume of output for each commodity by provinces taken from ministry of agriculture (KEMENTERIAN PERTANIAN REPUBLIK INDONESIA) website.
link: https://aplikasi2.pertanian.go.id/bdsp/id/komoditas

Production of agricultural commodities by provinces is used to construct regional shares. The commodity classification is fairly detailed.

### *2.4 Prices of agricultural commodities by provinces*

Price commodities by provinces taken from BPS Publications :

- Agricultural Producer Price Statistics of Food Crop, Horticulture, and Smallholder Plantation Subsectors 2016
  link: https://www.bps.go.id/publication/2017/05/05/d950bc1c4044b15f46251a81/statistik-harga-produsen-pertanian-subsektor-tanaman-pangan--hortikultura-dan-tanaman-perkebunan-rakyat-2016.html
- Agricultural Producer Price Statistics of Animal Husbandry and Fishery Subsector 2016
  link: https://www.bps.go.id/publication/2017/05/05/eecec458ba7533d8d25bf3e8/statistik-harga-produsen-pertanian-subsektor-peternakan-dan-perikanan-2016.html

These prices are used to aggregate individual commodities into broader categories of the 185 sector IO table.

Note: above source does not contain the prices of all commodites that are needed. For those commodities we find the prices from other sources (i.e., internet search).

### *2.5 Production of mining commodities by provinces*

Volume of output for each commodity by provinces taken from GeoRIMA (*Geological Resource of Indonesia Multiplatform Application*), website aplication produce by Pusat Sumber Daya Mineral, Batubara dan Panas Bumi (PSDMBP), Badan Geologi, Ministry of Energy and Mineral.
Link:
https://georima.esdm.go.id/

Prices of mining commodities taken from other sources (i.e., internet search).

### *2.6 Value added of manufacturing sectors of large and medium size (LM) and Value added of manufacturing sectors of micro and small size (SM)*

IndoTerm 2010 used two survey databases to create regional output shares of manufacturing sectors: a survey of large and medium industry (LM) and a survey of small and micro industry (SM). Apparently for the year 2016, the SM data only has 2 digit ISIC sectoral detail: too coarse for this project.

To obtain value added of LM and SM we use economic census data of 2016; BPS does this census every 10 years (the last one was in 2006). This large dataset (recording all economic business units in Indonesia) has employment data as well as the scale of the firm (being large, medium, small or micro). The approach is as follows.

1) From the Economic Census, we create 2 matrix of employment numbers by province and IO-manufacturing sector: first for large and medium firms (LM), and second for small and micro firms (SM).
2) From the numbers generated by step 1, combined with output of the large and medium firms (from the survey of LM), we create the average labor productivity (Output/labor) of LM.
3) Assuming labor productivity is the same between LM and SM, we then multiply employment number of small and medium firm (from step 1) with the productivity calculated in step 2.
4) Refinement. There will be sectors in some provinces where LM firms do not exist, but SM firms exist. For this case, their output is calculated using average national labor productivity of the same sector.
5) The output of LM (as calculated from LM survey) and the output of SM (using the above proxy) is added up to create the regional output share of manufacturing sectors.

### *2.7 Gross Domestic Regional Product by Province*

The data contains provincial gross regional domestic products by 52 sectors. This data is used to construct regional shares for services sectors.

Indonesian publication: Gross Regional Domestic Product of Provinces in Indonesia by Industry 2016-2020.

Downloadable link:
https://www.bps.go.id/publication/2021/04/05/25490b92b3c257c016886b6b/produk-domestik-regional-bruto-provinsi-provinsi-di-indonesia-menurut-lapangan-usaha-2016-2020.html

### *2.8 Inter-regional Input-Output Table*

The Inter-regional Input-Output 2016 table is taken from BPS publication:

Link:

https://www.bps.go.id/statictable/2021/04/30/2128/tabel-inter-regional-input-output-indonesia-transaksi-domestik-atas-dasar-harga-produsen-menurut-34-provinsi-dan-52-industri-2016-juta-rupiah-.html

The table consists of 52 sectors and 34 provinces. The IRIO table was used to help construct regional industry shares.

### 2.9 *Export and Import by provincial ports*

The 2016 export price data (fob) by port in US$ available by 8 digit HS code was obtained from Bappenas, while 2016 import price data (cif) available by 6 digit HS code was obtained from Ministry of Trade. Both data are BPS publications.

It was then aggregated to the 185 IO sector classification to produce the value of export boarded (as well as import landed) in all of 34 provinces in Indonesia by 185 sector classification. The data used is 2016 data.

Indonesian publication: *Kompilasi Data Statistik Ekspor 2016 and Kompilasi Data Statistik Impor 2016.*

### 2.10 *Elasticities*

These were mainly drawn from the GTAP database.

### *2.11 Downloadable programs to generate IndoTERM database*

A sequence of programs was used to generate the IndoTERM database. You can download these from: https://www.copsmodels.com/archivep.htm#tpmh01
and run them to produce the IndoTERM database.

## 3 Example simulation: Effects of a coal export price rise on the Indonesian economy

As the world starts to reopen after the Covid-19 pandemic, demand for Chinese goods is surging and Chinese factories need more energy. China relies on coal for most of its energy needs. Unfortunately, a series of bungles have led to critical coal shortages, causing factory closures and interruptions to electricity supply. To reduce pollution and CO2 emissions, some Chinese coalmines were ordered to close. Then, to punish Australia, China ceased imports of Australian coal, turning to other suppliers. The result has been a surge in prices for Indonesian coal exports. Increased demand from India, Japan, South Korea and Taiwan has also contributed to this rise.


**Figure 1: Recent rise in coal prices**

We used the IndoTERM computable general equilibrium (CGE) model to simulate the effects of a coal price rise on the Indonesian economy.

### *3.1 Overview of INDOTERM: A Indonesian implementation of the TERM model*

IndoTERM is an application of the TERM framework to the Indonesian economy. We provide below an overview of the TERM framework, while referring readers interested in the detailed structure of the model to Horridge, et al. (2005) [1].

TERM is a bottom-up multi-regional CGE model. A defining feature of TERM is its compact data structure, which allows it to deal with the detailed behaviour of many economic agents within many regions while still being sufficiently compact to solve on a PC. The compact data structure is made possible by a number of simplifying assumptions. For example, TERM assumes that all users in a particular region of a particular commodity source their purchases of that commodity from other regions according to common proportions[2]. The data structure is the key to TERM's strengths. It has allowed more regions to be distinguished without sacrificing sectoral detail.

TERM explicitly captures the behaviour of industries, households, investors, government and exporters at the regional level. In the Indonesian version of the model, economic activity in each province (or group of provinces) is modelled. Up to 185 sectors are distinguished.

The theoretical structure of TERM follows the familiar neoclassical pattern common to many applied general equilibrium models. Producers in each region are assumed to maximize profits subject to a production technology that allows substitution between primary factors (labour, capital and land) and between geographical sources of supply for intermediate inputs. A representative household in each region purchases goods in order to obtain the optimal bundle in accordance with its preferences and disposable income. Investors seek to maximize their rate of return, while demand by foreigners is modelled via export demand functions that capture the responsiveness of foreigners to changes in export supply prices.

In TERM, economic agents decide on the geographical source of their purchases according to relative prices and a nested structure of substitution possibilities. The first choice facing the purchaser of a unit of a particular commodity is whether to buy one that has been imported from abroad or one that has been produced in Indonesia. If an Indonesian product is purchased, a second decision must be made as to the particular region the commodity originates from. For instance, in the purchase of an Indonesian-made garment a purchaser will need to choose, say, between a shirt manufactured in Yogyakarta and a shirt made in Banten. It is assumed that Indonesian-made brands are considerably more substitutable, than is an Indonesian brand with a foreign brand.

In order for goods to reach a customer located in a particular region, certain margins must also be purchased. Thus the price to the regional purchaser will include a margin to the retailer and wholesaler of the good (i.e. the trade margin) and the transporter(s) of the good. TERM keeps track of the associated margin payments and the geographical location of the suppliers of those margins. TERM also keeps track of the taxes payable on each purchase.

Some versions of IndoTERM are recursive-dynamic – they track economic changes year-by-year.

### *3.2 A new IndoTERM database*

During 2021 a new IndoTERM database has been constructed, representing a data year of 2016. The chief data sources were the latest Indonesian national input-output table and inter-regional input-

[1] Horridge, J.M., Madden J.R. and Wittwer, G. (2005). Impact of the 2002-03 Drought on Australia, *Journal of Policy Modeling*, 27(3): 285-308.

[2] Thus, for instance, both households and food-products manufacturers in region *r* are assumed to purchase the same proportion of their vegetables from region *t*.

output table, both for 2016. Other data were also used, as described above. The IndoTERM database represents up to 34 provinces and 185 sectors.

# 4 The simulation

The full IndoTERM database is fairly large. To speed computation and to simplify presentation of results, we simulated using an aggregation of the full database while preserving sectoral detail for coal and coal-related sectors, and for coal-producing provinces. The aggregation scheme is shown in the Appendix of this document.

## *4.1 The closure and shock*

Our simulation is intended to represent the short- or medium-run effects of the coal price rise.

The simulation is comparative-static – it compares two alternate states of the Indonesian economy 2-4 years hence (with versus without the coal price rise). We therefore have used a *short-run closure*, with the assumptions below:

- The following variables are assumed to be exogenous or unaffected by the coal price rise:
  - ❖ government demands in each region,
  - ❖ the capital stock in each region and sector, and
  - ❖ real (CPI-adjusted) wages in each region and sector.
- Nationally, nominal household consumption follows national GDP. Regional shares of national household consumption follow regional wage income.
- Investment in each sector and region is positively related to the rate of return in that sector/region.

Figure 1 above suggests that the export price of coal has more than doubled during 2021. These very high prices may perhaps not persist for 2-4 years. We chose to apply a smaller shock: a 50% percent rise in export prices for Indonesian coal.

Most Indonesian coal mining is concentrated in several provinces of Kalimantan and Sumatra. East Kalimantan (KalTim) accounts for more than half. These are the regions most directly affected by the coal price rise.

**Table 1: 2016 coal output by province, billion rupiah.**

| Province | Output |
|---|---|
| KalTim | 242585 |
| KalSel | 68612 |
| SumSel | 31373 |
| KalUt | 17647 |
| KalTeng | 11892 |
| Jambi | 7052 |
| SouthSumatra | 2094 |
| CentrSumatra | 602 |
| Other provinces | negligible |
| Total | 382653 |

## 5 Results

Table 2 below shows results for regional and national macro (non-sectoral) variables. Table 3 below shows national results for some sectoral variables.

The increase in export coal prices causes strong positive results in the main coal-producing provinces (shaded yellow in Table 2). But perhaps surprisingly, employment and real GDP in other provinces tend to fall, and both measures show small national decreases. On the other hand, real household consumption and real GNE (=C+I+G) increase in all regions. What explains these results?

The immediate effect of the coal price rise is that Indonesia receives 50% more for its coal exports. Since the simulation holds government demand fixed, the extra income must be spent on household consumption and investment – which rise in real terms by 1.1% and 0.9% respectively.

With industry capital stocks fixed, industry supply curves are upward-sloping; more steeply for capital-intensive industries. Hence, increased household and investment demand tends to increase prices. The higher prices for Indonesian products encourage use of their imported equivalents. With fairly elastic export demands, less non-coal Indonesian products are exported.

These results are characteristic of "Dutch Disease" – a term coined to describe the decline of the manufacturing sector in the Netherlands after the discovery there of a large natural gas field in 1959. The new gas revenue raised local demand and so also local prices – at the expense of import-competing and exporting industries.

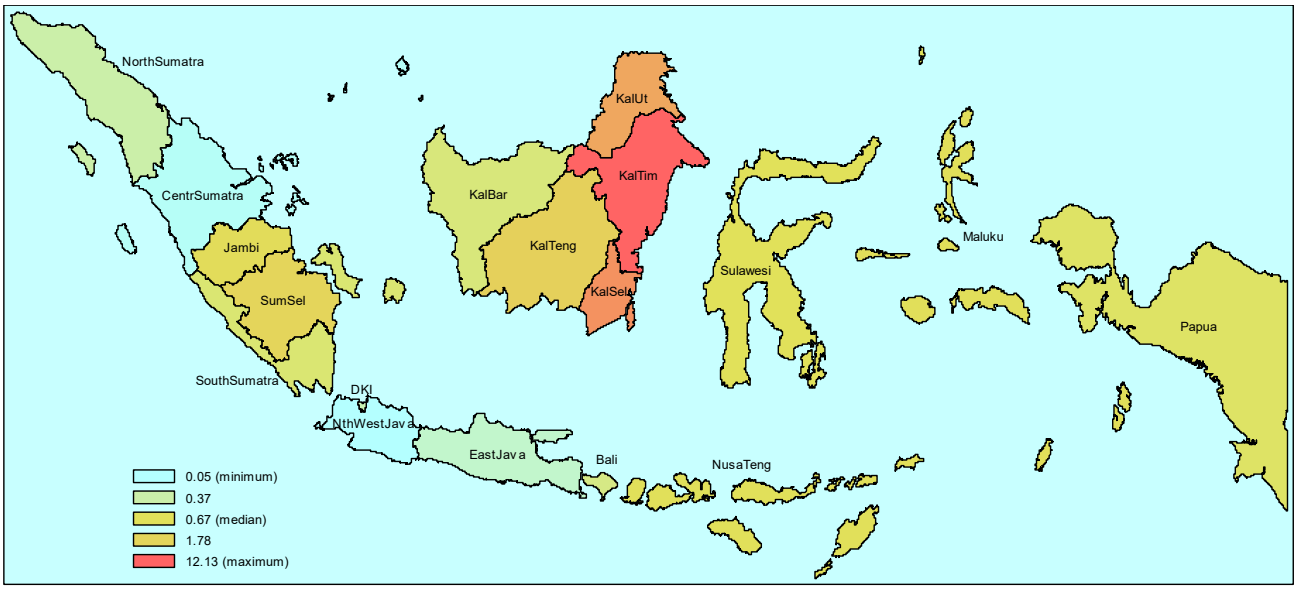


**Figure 2: Percent change in real GNE by region**

**Table 2: Regional and national macro variables; % changes due to coal price rise**

| Region | 1 Real HousCon | 2 Real Invest | 3 Export volume | 4 Import volume | 5 Real GNE | 6 Real GDP | 7 Employ-ment | 8 CPI |
|---|---|---|---|---|---|---|---|---|
| 1 NorthSumatra | 0.84 | -0.39 | -4.74 | 1.89 | 0.37 | -0.23 | -0.51 | 1.37 |
| 2 CentrSumatra | 0.46 | -0.63 | -4.58 | 1.21 | 0.08 | -0.40 | -0.89 | 1.19 |
| 3 Jambi | 1.32 | 1.13 | -2.26 | 2.88 | 1.12 | 0.03 | -0.05 | 1.63 |
| 4 SumSel | 1.81 | 2.24 | -0.34 | 3.10 | 1.78 | 0.26 | 0.44 | 1.86 |
| 5 SouthSumatra | 1.03 | -0.14 | -1.27 | 2.11 | 0.57 | -0.14 | -0.33 | 1.48 |
| 6 DKI | 0.70 | -0.17 | -5.68 | 1.48 | 0.34 | -0.30 | -0.65 | 1.33 |
| 7 NthWestJava | 0.33 | -0.53 | -4.87 | 0.82 | 0.05 | -0.50 | -1.02 | 1.19 |
| 8 EastJava | 0.61 | -0.44 | -5.72 | 1.41 | 0.24 | -0.35 | -0.75 | 1.30 |
| 9 KalBar | 1.00 | -0.23 | -7.05 | 2.61 | 0.54 | -0.16 | -0.35 | 1.71 |
| 10 KalTeng | 2.21 | 3.30 | -1.08 | 4.65 | 2.22 | 0.51 | 0.83 | 2.31 |
| 11 KalSel | 6.07 | 15.32 | 5.91 | 10.90 | 7.90 | 2.29 | 4.65 | 3.84 |
| 12 KalTim | 9.17 | 19.29 | 4.56 | 13.36 | 12.13 | 3.02 | 7.71 | 4.98 |
| 13 KalUt | 4.80 | 10.69 | 2.65 | 8.53 | 5.97 | 1.69 | 3.40 | 3.21 |
| 14 Sulawesi | 1.21 | 0.01 | -6.59 | 3.04 | 0.71 | -0.03 | -0.15 | 1.73 |
| 15 Bali | 0.96 | -0.11 | -5.59 | 2.32 | 0.51 | -0.16 | -0.40 | 1.54 |
| 16 NusaTeng | 1.34 | 0.05 | -4.06 | 2.85 | 0.75 | 0.04 | -0.02 | 1.75 |
| 17 Maluku | 1.42 | 0.22 | -5.98 | 2.87 | 0.82 | 0.08 | 0.06 | 1.76 |
| 18 Papua | 1.23 | -0.21 | -2.83 | 2.50 | 0.62 | -0.02 | -0.13 | 1.63 |
| **19 National** | **1.10** | **0.90** | **-3.41** | **2.00** | **0.90** | **-0.09** | **-0.27** | **1.54** |

**Table 3: National sectoral variables; % changes due to coal price rise**

| | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| | | Output | Employment | Price | Imports | Exports |
| 1 | Agriculture | -0.62 | -0.84 | 0.86 | 1.05 | |
| 2 | OthServices | 0.16 | 0.31 | 1.69 | 3.54 | |
| 3 | Forestry | -0.41 | -0.72 | 0.33 | | |
| 4 | Fishing | 0.19 | 0.35 | 2.37 | | |
| 5 | Coal | 2.21 | 14.99 | 51.90 | | 9.22 |
| 6 | OilGas | -0.13 | -0.64 | -0.02 | -0.24 | 0.13 |
| 7 | OtherMining | -0.11 | -0.27 | 0.97 | | -1.42 |
| 8 | PetrolLNG | -0.18 | -1.02 | 0.72 | 1.58 | -3.76 |
| 9 | FoodProds | -0.55 | -1.30 | 0.88 | 1.99 | -5.04 |
| 10 | TCF | -2.28 | -3.87 | 0.66 | 0.54 | -5.78 |
| 11 | WoodPrd | -1.08 | -1.90 | 1.00 | 2.27 | -7.53 |
| 12 | PaperPulp | -4.68 | -8.33 | 1.48 | -0.40 | -8.08 |
| 13 | OthNMmetlPrd | -1.10 | -1.23 | 5.06 | 10.25 | |
| 14 | BasChemicals | -0.81 | -7.89 | -0.03 | -0.88 | -0.75 |
| 15 | Fertilizer | -1.49 | -5.30 | 0.65 | 0.80 | -6.67 |
| 16 | ChemRubrPlas | -1.08 | -2.76 | 0.64 | 0.94 | -4.98 |
| 17 | OthManufact | -2.10 | -2.66 | 1.29 | 3.37 | -8.77 |
| 18 | Cement | -0.72 | -1.32 | 10.29 | | |
| 19 | BasIronSteel | -5.92 | -11.36 | 1.92 | 1.37 | -9.97 |
| 20 | MetalProds | -1.91 | -4.75 | 0.73 | 1.34 | -6.66 |
| 21 | VehicEquip | -1.02 | -1.84 | 0.70 | 1.86 | -6.06 |
| 22 | Electricity | -1.85 | -7.58 | 9.95 | | |
| 23 | Construction | 0.79 | 1.53 | 1.89 | | |
| 24 | Trade | -0.17 | -0.23 | 1.47 | 3.49 | |
| 25 | Transport | 0.56 | 1.69 | 1.72 | | |
| 26 | RealEstate | 0.18 | 2.71 | 3.27 | | |
| 27 | GeneralGov | -0.07 | -0.10 | 1.62 | | |
| 28 | GovEducSvc | 0.05 | 0.05 | 1.56 | | |
| 29 | GovHealthSvc | 0.13 | 0.16 | 1.48 | | |
| 30 | OthGovSvc | -0.10 | -0.11 | 1.71 | | |

*Note: Above, where imports or exports are very small, percent changes are not shown.*

Table 3 shows that prices rose for nearly all Indonesian-produced goods, imports rose for all goods, and exports fell for all sectors but coal.

The rise in coal prices increases Indonesia's terms of trade: the ratio of export prices to import prices. The improved terms of trade allows Indonesia to consume more (GNE) while producing slightly less. The trade balance also improves, by a sum equivalent to 0.2% of GDP.

IndoTERM assumes that labour income is mainly spent in the province where it is earned, while each province spends a constant share of the nation's capital income. It is the second, capital income, route that allows household consumption to increase in the provinces with no coal.

Employment and real GDP tend to fall most in the (non-coal) provinces which are most trade-exposed – ie, produce goods for export or goods which compete with imports (eg, NthWestJava). Provinces where most activity is either government or aimed purely at the local market increase GDP slightly (NusaTeng and Maluku)

Regional GNE follows a similar (but more positive) pattern (see Figure 2 above). The coal-producing provinces do best, and the other trade-exposed regions gain least. In between are regions which are not trade-exposed or for which government activity is a larger share of GDP.

In this simulation, a rise in the export price of coal causes a similar rise in the local price of coal. Hence, industries, which depend heavily on coal (Cement, Electricity), face steep rises in production costs. The increased price of Electricity affects all parts of the economy and is an important reason for the rise in the CPI seen in all regions (last column, Table 2)[3].

[3] An alternate assumption might be that the government increased subsidies to the Electricity sector to keep prices constant. Somebody would have to pay for this, however, so it is unlikely that such a strategy would increase national income.

# 6 Appendix

## *6.1 Mappings used to aggregate database*

With 185 sectors and 34 regions, the IndoTERM database is fairly large. To speed computation and to simplify presentation of results, it is usual to run simulations with an aggregation of the full database. The aggregation scheme is chosen to suit a particular simulation. For this simulation we aimed to preserve sectoral detail for coal and coal-related sectors, and for coal producing provinces. The aggregation scheme is shown in the two tables below.

**Table 4: Regional aggregation scheme**

| | Aggreg Region | Comprising |
|---|---|---|
| 1 | NorthSumatra | NAD SumUt |
| 2 | CentrSumatra | SumBar RiauProv KepRi |
| 3 | Jambi | Jambi |
| 4 | SumSel | SumSel |
| 5 | SouthSumatra | BaBel Bengkulu Lampung |
| 6 | DKI | DKI |
| 7 | NthWestJava | JaBar Banten |
| 8 | EastJava | JaTeng DIY JaTim |
| 9 | KalBar | KalBar |
| 10 | KalTeng | KalTeng |
| 11 | KalSel | KalSel |
| 12 | KalTim | KalTim |
| 13 | KalUt | KalUt |
| 14 | Sulawesi | SulUt Gorontalo SulTeng SulaSel SulBar SulTra |
| 15 | Bali | Bali |
| 16 | NusaTeng | NTB NTT |
| 17 | Maluku | Maluku MalUt |
| 18 | Papua | PapuaBar PapuaProv |

**Table 5: Sectoral aggregation scheme**

| | Aggreg. sector | Comprising original sectors |
|---|---|---|
| 1 | Agriculture | Rice Corn SweetPotato Cassava OthTubers Peanuts Soy OthNuts OthGrains Vegetables DecorPlants Cane Tobacco PlantFiber OthPlantaton Fruits PlantBiophrm Rubber Coconut PalmOil Coffee Tea Cocoa Clove Cashew Livestock FreshMilk PoultryEggs OthAnimalPrd |
| 2 | OthServices | AgricSvc GasDist WaterSupply WasteManage Postal Publishing Broadcasting Telecommunic InformatTech FinancialSvc InsuranceSvc PensionSvc OthFinancSvc ProfSciTech RentalSvc PrvEducation PrvHealth ArtsEntrtain HholdRepairs OthSvc |
| 3 | Forestry | Wood OthForestPrd |
| 4 | Fishing | Fish Shrimps OthAquatic Seaweed |
| 5 | Coal | CoalLignite |
| 6 | OilGas | CrudeOil NaturalGas |
| 7 | OtherMining | IronOre TinOre BauxiteOre CopperOre NickelOre OthMetalMine GoldOre SilverOre GalianPrd NonMetlMinrl CoarseSalt OthMiningQry |
| 8 | PetrolLNG | PetrolNatGas OilAndGasRef |
| 9 | FoodProds | Abattoir MeatProcessg DriedFish FishProcess VegFruitProc EdibleOils Copra DairyPrd OthFlour WheatFlour RiceMilling BreadBiscuit Sugar Confectionry PastaNoodle CoffeeProc TeaProc SoyProcessed OthFood AnimalFeed AlcoBeverage NonAlcoBev Cigarettes TobaccoPrd |
| 10 | TCF | Yarn Textile RopesCarpets OthTextilPrd KnittedPrd Apparel Tanning LeatherPrd Footwear |
| 11 | WoodPrd | SawMill Plywood WoodBuildMat OthWoodPrdn PaperPrd PrintedPrd Furniture |
| 12 | PaperPulp | PaperPulp Paper |
| 13 | OthNMmetlPrd | OthNMmetlPrd |
| 14 | BasChemicals | BasChemicals |
| 15 | Fertilizer | Fertilizer |
| 16 | ChemRubrPlas | Plastics Pesticide Paints Varnish Soaps Cosmetics OthChemPrd Pharmaceutcl TradMedicine Tire SmokedRubber OthRubberPrd PlasticPrd |
| 17 | OthManufact | Glass ClayCermcPrd Jewelry MusicInstrum SportsEquip GamesAndToys MedicalDvces OthIndustPrd |
| 18 | Cement | Cement |
| 19 | BasIronSteel | BasIronSteel |
| 20 | MetalProds | NonFerrMetal FoundryPrd FabMetalPrd WeaponsAmmo DomMetalPrd OthMetalPrd OfficeMachin |
| 21 | VehicEquip | ElectroncPrd Instruments ElecMotorGen ElectEqp Batteries OthElecEqp DomElectEqp PrimaryMover OthMachinEqp MotorVehicle Ships RailwayEqp Aircraft OthTrnsEqp Motorcycle ManMtlRepair |
| 22 | Electricity | Electricity |
| 23 | Construction | ResidBuildng EleGasInfstr AgricInfstrc RoadsBridges OthBuildings |
| 24 | Trade | CarTrading CarRepair OthTrade Hotels Restaurants |
| 25 | Transport | RailTransprt LandTransprt SeaTransport RiverTrnsprt AirTransport TransportSvc |
| 26 | RealEstate | RealEstatSvc |
| 27 | GeneralGov | GenGovernmet |
| 28 | GovEducSvc | GovEducation |
| 29 | GovHealthSvc | GovHealth |
| 30 | OthGovSvc | OthGovSvc |