QUARTERLY NATIONAL ACCOUNTS IN INDONESIA : CURRENT SOURCES AND METHODS (DRAFT)
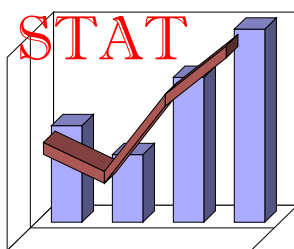
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ACKNOWLEDGMENT

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I.   INTRODUCTION

This report is an attempt to document the current methodologies used by BPS in compiling the country's quarterly national accounts. Many BPS staff members contributed substantially to the attempt. One should note that methodologies in national accounting evolve over time: as new data sources become available or old ones are eliminated, the computation methodology for a particular variable may change. What is documented here is the set of core methodologies which form the basis for the most current estimations. These methodologies have involved evaluating dozens of data sources, deciding which ones are most appropriate to use and forcing consistency when sources appear inconsistent. Adjustments in methodologies to take account of special statistical problems in a particular quarter –reporting problems or unusual compositional changes, for example– are not described here.

The report is aimed at educating users within as well as outside BPS. Within BPS, the overall description in the report should help the staff understand what is done outside the limited area in which each person works. Such broader understanding should promote interchange of ideas and better appreciation of the strengths, weaknesses and areas needing attention in Indonesia's national accounts.

For users outside BPS, more knowledge of how data are calculated should enable useful feedback which will in turn help improve the accuracy and usefulness of the data. In addition, the report should help users outside BPS recognize that national accounts estimation is beset by substantial sources of uncertainty. The large number of data sources tapped vary greatly in quality, coverage and frequency; and alternative data sources are sometimes contradictory. It is not practical to expect compilers of national accounts to wait until primary data sources on every sector of economic activity are available. Given limited resources and binding time constraints, compromises and judgments on the part of the compilers are inevitable. In short, users need to recognize that national accounts compilation inevitably involves some margin of error.

II.   COMPILATION OF PRODUCTION ACCOUNT

The nine-sector final published GDP tabulations are the result of estimations of fifty-eight sub-sectors which, in turn, are the outcome of estimations of about two hundred commodities and commodity groups. The majority involve the use of primary data collected quarterly or monthly by BPS, and some collected by the departments of Agriculture, Forestry, Finance, Mining & Energy, Transportation, as well as Bank Indonesia and PLN. Some involve estimations based on less frequently collected primary data and some are based on administrative data. Every figure used at the sub-sectoral level (and by extension, at the sectoral level) is subjected to a plausibility check by evaluating:

-          its implicit cumulative growth rate for the year,
-          its growth rate relative to the previous quarter,
-          its growth rate relative to the same quarter of the previous year,
-          its seasonally adjusted value (this applies only at the sectoral level
            and for total GDP).[1]

Plausibility checks are conducted for estimates at both constant and current prices. They are done in addition to various consistency checks, both of the internal structure of these accounts and with other reliable data sources.

The general approach guiding compilation of these accounts is to rely on the most complete data available at the time of release. When only partial data are available, compilers use any such information and supplement it with estimations. When no data are available, they rely on pure estimations. When estimations are necessary, the general guiding approach is to rely on simple methods as much as possible (e.g. averages, ratios, growth rates etc.); if results are implausible then more sophisticated econometric techniques (e.g. moving averages, regressions, ARIMA etc.) may be used.

Tables 1 and 2 summarize the basic methodologies used for compiling GDP by sector and sub-sector for constant and then for current price estimates. The section that follows describes these sectoral methodologies in more detail. The paper then turns to GDP by expenditure, again presenting summary tables and following with a more detailed description.

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[1]   This set of checks (which are applied to constant price estimates) started in 2000 with the quarter II data. The program used for seasonal adjustment is the US Census Bureau's X12 ARIMA. The version used currently is Release 0.2.7.

Table 1
Summary of Sources & Methods of Production Account at Constant Prices

Sector	Sub-Sector	Data Sources	Basic Methodology
Agriculture, Livestock, Forestry & Fishery	1. Farm Food Crops	BPS Agriculture Bureau	Quantities for 9 commodities obtained by multiplying average yield by area harvested. 1993 prices applied
	2. Non-Food Crops	DG Estate Crops, Dept. of Agr. & BPS monthly producer survey	Monthly quantities for 11 primary commodities obtained from survey, and trend applied to remaining 13 commodities. 1993 prices applied
	3. Livestock	GD Livestock, Dept. of Agr.	Quantities obtained for 9 commodities. 1993 prices applied
	4. Forestry	Dept. of Forestry	Quantities obtained for 7 commodities. 1993 prices applied
	5. Fishery	DG Fishery, Dept. of Agr.	Quantities obtained for 3 commodities. 1993 prices applied
Mining & Quarrying	1. Crude Petroleum & Natural Gas	Dept. of Mining	Quantities for 3 commodities obtained. 1993 prices applied
	2. Non-oil Gas & Mining	Dept. of Mining	Quantities for 21 commodities obtained. 1993 prices applied
	3. Quarrying	BPS Industry Bureau	Quarterly construction index is applied
Manufacturing	1. Petroleum Refining	DG Oil & Gas, Dept. Mining	Monthly quantities for 35 commodities obtained. 1993 prices applied
	2. LNG	DG Oil & Gas, Dept. Mining	Monthly quantities obtained. 1993 prices applied.
	3. Nine 2-digit ISIC	BPS Industry Bureau	Medium & Large establishments: quarterly manufacturing index applied by 3-digit ISIC Small & Cottage: average compound growth rate of employment in the 1998-99 SUSI surveys is applied by 3-digit ISIC
Electricity, Gas & Water	1. Electricity	PLN	Monthly production of PLN + non-PLN multiplied by 1993 price. VA to output ratio applied.
	2. City Gas	PGN	Monthly quantities are multiplied by 1993 prices. VA to output ratio applied.
	3. Water Supply	BPS survey of Water Supply Establishments	Annual quantities are multiplied by 1993 prices. Historical quarterly trend used. VA to output ratio applied.
Construction		Industry Bureau, DG forestry, DG Mining	Quantity indices of wood, bamboo, asphalt, cement and manufacturing building materials are obtained from various sources and applied to previous quarter
Trade, Hotels & Restaurants	1. Wholesale/Retail Trade	BPS I/O Surveys	Ratio of VA margin to supply is applied to supply of other sub-sectors
	2. Hotels	Dep. Tourism	VA regressed against number of foreign visitors
	3. Restaurants	Current price series, CPI	Price change in "prepared food" component of CPI is applied to current price series

Transport & Communications	1. Transport	Dep. Transport., relevant public enterprises	Annual quantities for 18 commodities. Quarterly trend of a sample of commodities or of historical series applied.
	2. Communications	PT Indosat, PT Pos, PT Telkom	Quantities for 13 commodities sold obtained. Quarterly trend of PT Telkom applied to others
Financial, Ownership & Business Services	1. Banks	Current price series, CPI	Price change in total CPI is applied to current price series
	2. Non-bank Financial Institutions	Current price series, WPI	Price change in total WPI is applied to current price series
	3. Services Related to Finance	Current price series, WPI	Same as above
	4. Building Rentals	Current price series, CPI	Price change in total CPI is applied to current price series
	5. Business Services	Current price series, CPI	Same as above
Services	1. General Government	Current price series, Dep. Finance	Current price series deflated by an employee compensation index for civil servants
	2. Social & Community	Dep. Education, Dep. Health	Education: quarterly expenditure per student in 1993 prices multiplied by number of students Health: quarterly expenditure per patient in 1993 prices multiplied by number of patients
	3. Amusement/Recreation	Dep. Tourism, Association of TV/radios, IO table	quarterly expenditure per unit for 3 activities in 1993 prices multiplied by number of units
	4. Personal & Household	Dep. Transport., Susenas, IO table	Vehicle repair: quarterly expenditure per vehicle in 1993 prices multiplied by number of vehicles Other repair: quarterly expenditure per worker in 1993 prices multiplied by number of workers Servants: quarterly expenditure per household in 1993 prices multiplied by number of households

Table 2
Summary of Sources & Methods of Production Account at Current Prices

Sector	Sub-Sector	Data Sources	Basic Methodology
Agriculture, Livestock, Forestry & Fishery	1. Farm Food Crops	Constant price series, WPI	Price changes in relevant component of WPI are applied to constant price series
	2. Non-Food Crops	Constant price series, WPI	Same as above
	3. Livestock	Constant price series, WPI	Same as above
	4. Forestry	Constant price series, WPI	Same as above
	5. Fishery	Constant price series, WPI	Same as above
Mining & Quarrying	1. Crude Petroleum & Natural Gas	Constant price series	Export unit value changes (in rupiah) are applied to constant price series
	2. Non-oil Gas & Mining	Constant price series, BPS Services Bureau	Current export prices (converted to rupiah) are applied to constant price series
	3. Quarrying	Constant price series, WPI	Price changes in "quarrying" component of WPI are applied to constant price series
Manufacturing	1. Petroleum Refining	DG Oil & Gas, Dept. Mining	Monthly quantities for 35 commodities obtained. Current prices applied
	2. LNG	DG Oil & Gas, Dept. Mining	Monthly quantities obtained. Current export prices converted to rupiah applied
	3. Nine 2-digit ISIC	Constant price series, WPI	Price changes in relevant component of WPI are applied to constant price series
Electricity, Gas & Water	1. Electricity	Constant price series, CPI	Price changes in relevant component of CPI are applied to constant price series
	2. City Gas	Constant price series, CPI	Same as above
	3. Water Supply	Constant price series, CPI	Same as above
Construction		Constant price series, WPI	Price changes in relevant component of WPI are applied to constant price series
Trade, Hotels & Restaurants	1. Wholesale/Retail Trade	BPS I/O Surveys	Ratio of VA margin to supply is applied to supply of other sub-sectors
	2. Hotels	Constant price series, CPI	Price changes in relevant component of CPI are applied to constant price series
	3. Restaurants	Susenas	Expenditure per household x number of households, divide equally by quarter
Transport & Communications	1. Transport	Constant price series, CPI	Price changes in relevant component of CPI are applied to constant price series
	2. Communications	PT Indosat, PT Pos, PT Telkom	Value of sales for 13 commodities obtained. Quarterly trend of PT Telkom applied to others
Financial, Ownership & Business Services	1. Banks	Bank Indonesia	Value added estimates obtained directly from Bank Indonesia

	2. Non-bank Financial Institutions	Dep. Finance, BPS special survey	Operating revenue obtained for 5 activities, converted to quarterly using historical trend. VA/output ratio applied
	3. Services Related to Finance	Jakarta/Surabaya Stock Exchanges, Bank Indonesia	Operating revenue obtained for 3 activities, converted to quarterly using historical trend. VA/output ratio applied
	4. Building Rentals	Susenas, Population estimates, real estate association	Dwelling: per capita consumption on rentals multiplied by population Non-Dwelling: monthly output for major cities.
	5. Business Services	INKINDO, BPS special survey	VA per consultant for 5 activities multiplied by number of consultants
Services	1. General Government	Dep. Finance, BPS special survey	Quarterly personnel expenditure + 5% estimated consumption of fixed capital
	2. Social & Community	Dep. Education, Dep. Health	Education: quarterly expenditure per student multiplied by number of students Health: quarterly expenditure per patient multiplied by number of patients
	3. Amusement/Recreation	Dep. Tourism, Association of TV/radios, IO table	quarterly expenditure per unit for 3 activities multiplied by number of units
	4. Personal & Household	Dep. Transport., Susenas, IO table	Vehicle repair: quarterly expenditure per vehicle multiplied by number of vehicles Other repair: quarterly expenditure per worker multiplied by number of workers Servants: quarterly expenditure per household multiplied by number of households

A.   Agriculture, Livestock, Forestry & Fishery

This includes five sub-sectors:[2]

1.   Farm Food Crops

Constant Prices

Quantities for eleven commodities are computed, one ("sagu") based on data from BPS's Industry Bureau and the other ten based on data from BPS's Agriculture Bureau:

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[2]   Generally, initial quantity estimates are based on available quarterly or monthly commodity data. For commodities where data are not yet available, a quarterly growth equal to that of the same quarter in the previous year is projected and sometimes modified based on current relevant information obtained from mass media.

- paddy ("padi")
- corn ("jagung")
- cassava ("ketela pohon")
- yam ("ketela rambat")
- green beans ("kacang hijau")
- peanuts ("kacang tanah")
- soy beans ("kacang kedelai")
- vegetables ("sayuran")
- fruits ("buah-buahan")
- potatoes ("kentang")

Data collection of the first seven commodities provided by the Agriculture Bureau is done monthly for area harvested and in three sub-rounds (each covering a four-month period) every year for the average yield. Monthly production is calculated as the product of area harvested and the average yield of the relevant four-month period, and is then aggregated by quarter. Quantities for the last three categories of products (i.e. vegetables, fruits and potatoes) are obtained from the monthly/quarterly survey conducted by BPS jointly with the Directorate General of Horticulture of the Department of Agriculture. This survey, which aims at measuring production of these commodities, is conducted monthly for seasonal fruits and vegetables and quarterly for non-seasonal fruits and vegetables, and covers all regencies/municipalities in Indonesia.

Quantities are then multiplied by their relevant 1993 prices. Since these production figures are those used for computing subsequent annual figures for the relevant commodities, they are generally not revised. The only time a revision takes place is when a more complete production survey for the year, e.g. based on the household approach rather than on the crop-cutting approach, is conducted. But that does not take place on a regular basis.

For "sagu", only annual data are available after a relatively long lag. Quarterly growth in production is assumed to be the same as the average quarterly production growth of "sagu"-consuming sectors.[3] Growth is then applied to the previous quarter's output to arrive at the current quarter's estimate of production.

Figures are then summed-up and a value-added to output ratio (derived from the 1995 IO table) is then applied to produce a value added level at constant 1993 prices. A further 3.5% markup (derived from the 1995 IO table) of the aggregate level is added to take into consideration the contribution of other commodities in this category.

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[3]   These include the following 5-digit ISICs: 31112, 31134, 31171, 31212, 31219, 31241, 31249, 31251.

Current Prices

For all commodities except potatoes, vegetables, fruits and "sagu", the initial estimate of the value of production relies on the use of the Wholesale Price Index (WPI)[4]. Once monthly rupiah data are available, about six months after the end of the reference year, the actual rupiah prices for individual commodities are used.

Let Q_i^I represent the quantity of commodity i produced in quarter I
Q_i^{II} the quantity of commodity i produced in quarter II
P_i^I the average price of commodity i in quarter I
P_i^{II} the average price of commodity i in quarter II

The methodology for computing the initial estimate of the value of production of commodity i in quarter II can be described as:

$$Q_i^{II} P_i^{II} = (Q_i^{II} / Q_i^I) \ (P_i^{II} / P_i^I) \ (Q_i^I P_i^I) \tag{1}$$

The first term on the right hand side of the equation represents the change in real production in quarter II, the second term the change in the price index and the third term the value of production of quarter I. Once rupiah prices are available, P_i^{II} is simply multiplied by Q_i^{II}.

For potatoes, vegetables, fruits and "sagu", the Consumer Price Index (CPI)[5] is applied to quantity estimate for the quarter and the current value is calculated as in Equation (1). No revision to prices is done in this case since the only available data refer to index numbers.

Here again, a value-added to output ratio (derived from the 1995 IO table) is applied to convert the "value of output" estimate into a value-added estimate and a 5% markup (from the 1995 IO table) is applied.

2.   Non-Food Crops

Constant Prices

Annual quantities are obtained for 22 commodities (from the Directorate General of Estate Crops of the Department of Agriculture), which are grouped into two main categories:[6]

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[4]   Specifically, it uses the average index for the relevant commodity under "food crops" calculated for 14 provinces.

[5]   Specifically, the "vegetables" and "fruits" components of the composite CPI for 43 cities is applied to the relevant category.

[6]   Before such annual data are available, the quarterly growth rate for various commodities is estimated as the average growth rate for the relevant quarter (and commodity) over the previous four years.

a.   Major commodities: these make up 77% of the value of all commodities
      in this sub-sector in 1993. They include:
      -     cocoa ("cokelat")
      -     cloves ("cengkeh")
      -     rubber ("karet")
      -     cane sugar ("tebu")
      -     coconut ("kelapa")
      -     palm oil ("kelapa sawit")
      -     coffee ("kopi")
      -     tobacco ("tembakau")
      -     tea ("teh")

b.   Minor commodities: these make up 23% of the value of all commodities
      in this sub-sector in 1993. They include:
      -     vanilla ("panili")
      -     cotton ("kapas")
      -     pepper ("lada")
      -     nutmeg ("pala")
      -     cinnamon ("kayu manis")
      -     rosella ("rami")
      -     jute ("serat karung")
      -     ginger ("jahe")
      -     cashew ("jambu mete")
      -     "jarak"
      -     capok ("kapok")
      -     quinine ("kemiri")
      -     "kina"

A monthly survey of a sample of producers of major commodities is conducted for the purpose of estimating monthly production and its value. That monthly ratio of annual production is applied to the total annual production obtained from the Department of Agriculture to calculate quarterly production estimates.

For the thirteen minor commodities, the quarterly real quantity trend of the nine primary commodities is applied to the annual production figure obtained from the Department of Agriculture. Quantity data for commodities are multiplied by their corresponding prices in 1993. A value-added to output ratio (derived from the 1995 IO table) is then applied to produce a value added level at constant 1993 prices. These levels are then added up, a 4% markup of the aggregate level is added to take into consideration the contribution of the by-products ("produk ikutan") of the above commodities, and a further 5% for the contribution of other commodities in this category (both derived from the 1995 IO table)

Current Prices

The same valuation methodology used in food crops applies here. That is, an initial estimate of the value of production uses the "estates" component of WPI, as in Equation (1) above. Once monthly rupiah data are available, about six months after the end of the reference year, the actual rupiah prices for individual commodities are used.[7]

Here again, a value-added to output ratio is applied to convert the "value of output" estimate into a value-added estimate and the same 4% and 5% markups are applied as in the case of constant price figures.

3. Livestock

Constant Prices

Quarterly quantities are obtained for nine commodities from the Directorate General of Livestock of the Department of Agriculture Bureau:[8]

- cows
- buffalos
- goats
- pigs
- horses
- chickens
- ducks
- eggs
- milk

Numbers are changed subsequently only if different annual data become available.

Quantity data for commodities are multiplied by their corresponding prices in 1993. A value-added to output ratio (derived from the 1995 IO table) is then applied to produce a value added level at constant 1993 prices. These levels are then added up, a 0.5% markup of the aggregate level is added to take into consideration the contribution of the by-products ("produk ikutan") of the above commodities, and a further 1.8% for the contribution of other commodities in this category (both derived from the 1995 IO table).

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[7]   Ten secondary commodities are not included in the WPI and therefore require the use of proxies. Commodities and corresponding proxies (in parentheses) are: cocoa; ginger, "jarak", "kemiri" and "kina" ("kayu manis" and "rempah-rempah"); "jambu mete", "panili", "rami" and "serat karung" ("tanaman perdagangan").

[8]   Quantity produced for a particular type of animal, measured by the number of heads, is defined as the sum of: quarterly increase in population + number of heads slaughtered + (exports - imports). For slaughtered animals, the following conversion factors (from kg of meat to heads) are used: cows (156.4 kg/head), buffalo (160 kg/head), goats (10 kg/head), pigs (50 kg/head), horses (125 kg/head), chicken (0.75 kg/head) and ducks (0.75 kg/head).

Current Prices

The same valuation methodology used in food crops applies here. That is, an initial estimate of the value of production uses the "Livestock" component of WPI, as in Equation (1) above. Once monthly rupiah data are available, about six months after the end of the reference year, the actual rupiah prices for individual commodities are used.

Here again, a value-added to output ratio is applied to convert the "value of output" estimate into a value-added estimate and the same 0.5% and 1.8% markups are applied as in the case of constant price figures.

4.   Forestry

Constant Prices

Monthly quantities are obtained for seven commodities from the Department of Forestry:
-     teak ("kayu jati")
-     "kayu rimba"
-     "kayu rakyat"
-     firewood ("kayu bakar")
-     charcoal ("arang")
-     bamboo ("bambu")
-     rattan ("rotan")

Production data for the first two commodities are used as reported. However, monthly data for the other five commodities show implausible discontinuities. For these commodities, annual data obtained from the same source are used, monthly trends from the previous year are applied and used to calculate quarterly figures.

Quantity data for commodities are multiplied by their corresponding prices in 1993. A value-added to output ratio (derived from the 1995 IO table) is then applied to produce a value added level at constant 1993 prices. These levels are then added up and a markup of 1.6% (derived from the 1995 IO table) is applied.

Current Prices

The same valuation methodology used in food crops applies here. That is, an initial estimate of the value of production uses the "forestry" component of WPI, as in Equation (1) above. Once monthly rupiah data are available, about six months after the end of the reference year, the actual rupiah prices for individual commodities are used.

Here again, a value-added to output ratio is applied to convert the "value of output" estimate into a value-added estimate and a 1.6% markup is applied.

5.   Fishery

Constant Prices

Annual quantities are obtained for three commodities from the Directorate General of Fishery of the Department of Agriculture):

-        fresh water fish ("ikan darat")
-        salt water fish ("ikan laut")
-        shrimp ("udang")

Quarterly estimates before the annual data are available are computed by applying the average growth rate of the reference quarter over the past four years.

Quantity data for commodities are multiplied by their corresponding prices in 1993. A value-added to output ratio (derived from the 1995 IO table) is then applied to produce a value added level at constant 1993 prices. These levels are then added up, and a further 2.5% markup of the aggregate level is added to take into consideration the contribution of other commodities in this category (derived from the 1995 IO table).

Current Prices

The same valuation methodology used in food crops applies here. That is, an initial estimate of the value of production uses the "fishery" component of WPI, as in Equation (1) above. Once monthly rupiah data are available, about six months after the end of the reference year, the actual rupiah prices for individual commodities are used. A value-added to output ratio is applied to produce a value added level at current prices. These levels are then added up, and a further 2.5% markup is applied.

B.   Mining & Quarrying

This includes three sub-sectors:

1.   Crude Petroleum & Natural Gas

Constant Prices

Monthly quantity growth rates are obtained for four commodities from EKUIN reports (which are based on data provided by the Directorate General of Oil & Gas of the Department of Mining and Energy):

-        crude oil (in barrels)
-        condensate (in barrels)
-        natural gas (LNG, in MSCF)
-        geothermal steam (in tons)

These rates are applied to the previous quarter's levels to arrive at the current quarter's preliminary estimates. A revision is made when official monthly quantities are obtained from the Directorate General of Oil & Gas. These are then multiplied by their relevant 1993 prices.

When annual quantity data for the four commodities are produced by the Department of Mining & Energy, which is normally done with a lag of about six months, they are multiplied by their relevant 1993 prices to arrive at a constant price estimate of production. This estimate is then multiplied by the relevant value-added to output ratio computed for 1993, which was based on that year's BPS survey of Petroleum and Natural Gas Mining Companies.[9] Any difference in annual figures between the initial estimates (based on monthly official quantities) and final figures (based on annual quantities) is then attributed to the December figures.

Current Prices

Monthly quantities for every commodity are multiplied by a rupiah price computed as a weighted average of the domestic price and the export unit value (converted at the average monthly exchange rate), with weights obtained from the latest annual survey of petroleum and natural gas mining companies. A value-added to output ratio (from that survey) is then applied to arrive at total value added at current prices.

2.   Non-Oil & Gas Mining

Constant Prices

Monthly total quantities are obtained for nine major (and seven minor) commodities from EKUIN reports (which contain the latest data from the Department of Mining):

- coal ("batubara")
- copper ("tembaga")
- bauxite
- tin ("timah")
- "ferro nickel"
- "bijih nickel"
- "nickel mattes"
- gold ("bijih emas")
- silver ("bijih perak")
- asphalt ("aspal alam")
- manganese ("bijih mangan")
- sulfur ("belerang")
- iodine ("yodium")
- phosphate
- iron sand ("pasir besi")
- other minor commodities

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[9]   This is an annual survey conducted by the division of Mining, Energy and Construction covering input and output structure of establishments in this sector.

Monthly exports of each commodity are then compared with total production, and the difference is defined as production for domestic consumption. Relevant 1993 prices (distinguishing between exported and domestic consumption) are applied to calculate production at constant prices. Finally, a value-added to output ratio is applied, obtained from the BPS annual survey of Non-Petroleum and Natural Gas Mining.[10] Revisions to monthly figures are only made when official figures obtained from EKUIN reports are changed.

Current Prices

Since the largest share of these commodities is exported, the principal source of valuation is export unit values. Monthly exported quantities of the above commodities are valued using the relevant unit price converted into rupiah at the average monthly exchange rate. For domestic commodities, a ratio of domestic/export price for the particular commodity is used based on historical behavior.

3.   Quarrying

Constant Prices

Quarterly changes are estimated by applying the quarterly index of construction to the previous quarter's levels. These figures are revised when the quarterly construction index is, but no annual revision takes place since no other more complete data exist.

Current Prices

Constant price value-added estimates are inflated by using the "quarrying" component of the Wholesale Price Index.

C.   Manufacturing

This includes eleven sub-sectors:

1.   Petroleum Refining

Constant Prices

Three sets of data are obtained from the Directorate General of Oil and Gas of the Department of Mining and Energy: monthly, quarterly and annual. Data refer to quantity of refined products during the relevant period. Refined products include:
- 11 types of fuels
- 22 types of non-fuels
- 4 types of refining fuels.

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[10]   This is a survey conducted by the division of Mining, Energy and Construction covering input and output structure of establishments in these sectors.

Preliminary estimates rely on monthly figures. Revisions, when necessary, are made subsequently based on quarterly and annual reports. Quarterly quantities (in barrels) are multiplied by their corresponding 1993 prices, then summed up. A value-added to output ratio (from the annual Survey of Petroleum Mining and Natural Gas conducted by BPS) is then applied.

Current Prices

Quarterly quantities (in barrels) are multiplied by their corresponding domestic prices,[11] then summed up. A value-added to output ratio (from the annual Survey of Petroleum Mining and Natural Gas conducted by BPS) is then applied.

2.   Liquefied Natural Gas

Constant Prices

Three sets of data are obtained from the Directorate General of Oil and Gas of the Department of Mining and Energy: monthly, quarterly and annual. Data refer to quantity of LNG produced by the two refineries in Arun and Badak. Preliminary estimates rely on monthly figures. Revisions, when necessary, are made subsequently based on quarterly and annual reports. Quarterly quantities (in cubic meters) are multiplied by their corresponding 1993 prices, then summed up. A value-added to output ratio (from the annual Survey of Petroleum Mining and Natural Gas conducted by BPS) is then applied.

Current Prices

As LNG is primarily destined for exports, quarterly quantities (in cubic meters) are multiplied by a corresponding average quarterly unit value converted to rupiah at the average quarterly exchange rate, then summed up. A value-added to output ratio (from the annual Survey of Petroleum Mining and Natural Gas conducted by BPS) is then applied.

3.   Food, Beverages & Tobacco

Constant Prices

For every 3-digit ISIC component two quarterly indices are computed:

- first is the contribution of Medium & Large establishments. Data are obtained from the Industry Bureau's Quarterly Manufacturing

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[11]   Prices for various refined products are set by the government and are produced in the quarterly reports of the Directorate General of Oil and Gas..

Survey.[12]

-       the second is the contribution of small and cottage industries.
        Since no quarterly primary data sources are available, a constant
        growth rate is estimated as the average quarterly compound
        growth rate of employment in the SUSI surveys of 1998 and
        1999.[13]

Let Q_i^{I} and Q_i^{II} represent the quantities of 3-digit ISIC sub-sector
                                 i produced in quarters I and II respectively

        II_i^{I} and II_i^{II} the quantities of intermediate inputs used by sub-
                                 sector i in quarters I and II respectively

        PO_i^{93} the price of output produced by sub-sector i in
                                 1993, the numeraire year

        PI_i^{93} the price of intermediate inputs used by sub-sector
                                 i in 1993

The estimate of the value added of sub-sector i in quarter II is identically equal to:

$$(Q_i^{II} PO_i^{93} - II_i^{II} PI_i^{93}) = (Q_i^{I} PO_i^{93} - II_i^{I} PI_i^{93}) [(Q_i^{II} PO_i^{93} - II_i^{II} PI_i^{93}) / (Q_i^{I} PO_i^{93} - II_i^{I} PI_i^{93})] \quad (2)$$

The first term on the right hand side of the equation is the value added in quarter I, and the second
term represents the change in value added between quarters I and II. Assuming that the value
added to output ratio is constant in the short term, then Equation (2) becomes:

$$(Q_i^{II} PO_i^{93} - II_i^{II} PI_i^{93}) = (Q_i^{I} PO_i^{93} - II_i^{I} PI_i^{93}) (Q_i^{II} PO_i^{93} / (Q_i^{I} PO_i^{93})) \quad (3)$$

which can be simplified as:

$$(Q_i^{II} PO_i^{93} - II_i^{II} PI_i^{93}) = (Q_i^{I} PO_i^{93} - II_i^{I} PI_i^{93}) (Q_i^{II} / Q_i^{I}) \quad (4)$$

The second term of this equation is nothing but the growth in the quarterly production index for
ISIC i in quarter II for medium and large establishments obtained from the Industry Bureau. For
small and cottage industries, the same relationship in Equation (4) is used, except that the ratio
Q_i^{II} / Q_i^{I} is constant from quarter to quarter.

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[12]   If relevant indices from that survey are not available, the average growth rate for the
            reference quarter between 1993 and the latest available year is used.

[13]   SUSI (Survei Usaha Terintegrasi) is an area-based annual survey of non-agricultural small
            and cottage industries started in 1998.

Value added measures for 3-digit ISIC's are then added up to obtain the total value added at constant prices for the "Food, Beverages & Tobacco" sub-sector.[14]

Current Prices

Current price value-added figures are computed at the 3-digit ISIC in three stages:

- First, commodity output in constant prices ($Q_i^{II} PO_i^{93}$) is multiplied by the relevant monthly commodity (output) price indices[15] in the WPI to produce commodity output in current prices ($Q_i^{II} PO_i^{II}$),

- these figures are added up to produce a 3-digit ISIC output in current prices,

- this is then multiplied by the annual value added to output ratio derived from the latest annual survey of medium and large manufacturing establishments.[16]

4.   Textiles, Leather Products & Footwear

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

5.   Wood Products

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

6.   Paper & Printing

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

7.   Fertilizers, Chemicals & Rubber Products

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

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[14]   Output in constant prices ($Q_i^{II} PO_i^{93}$) is also computed (it is the product of the value-added ratio between the two quarters and the constant price output of the previous quarter), and is used primarily as a component of total supply for the compilation of the constant price value added of the Wholesale & Retail Trade sub-sector (see Section II.F.1).

[15]   Appendix A provides the correspondence between various WPI commodities and 3-digit ISIC.

[16]   A plan is underway for using the 3-digit implicit unit value indices produced by the Industry Bureau on a quarterly basis. These indices are more appropriate deflators of the quarterly production indices than the currently used components of the WPI for two main reasons: a) they cover far more commodities than the WPI; b) they rely on exactly the same data reported by establishments and used in computing the corresponding production index.

8.   Cement & Non-Metallic Mineral Products

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

9.   Basic Iron & Steel

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

10.   Transportation Equipment & Machinery

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

11.   Other Manufacturing Products

The same methodology used in "Food, Beverages & Tobacco" is applied to this sub-sector.

D.   Electricity, Gas & Water
This includes three sub-sectors:

1.   Electricity
Constant Prices

Monthly quantity of electricity produced (by both PLN and other producers) are obtained from PLN. These are then multiplied by their corresponding price in 1993. A 1993 value-added to output ratio (derived from that year's BPS survey of PLN[17]) is then applied to produce a value added level at constant 1993 prices. These levels are then added up, and a further 4% markup of the aggregate level is added to estimate the value added of self-generation by households (derived from the 1990 IO table).

Current Prices

Growth in the "Fuel, electricity, water" component of the Consumer Price Index is applied to the previous quarter's rupiah prices and multiplied by the quantities above. A value-added to output ratio derived from the current year's survey of PLN is then applied as well as the same 4% markup used in estimating constant price figures.

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[17]   The survey is conducted annually by the division of Mining, Energy and Construction covering input and output structure of all 22 units of PLN.

2.   City Gas

Constant Prices

Monthly quantity data are obtained from the monthly EKUIN report (which contain the latest available data from the state gas company Perusahaan Gas Negara, PGN) and multiplied by their corresponding 1993 price. This estimate is then multiplied by the 1993 value-added to output ratio obtained from the BPS annual survey of PGN.

Current Prices

Growth in the "Fuel, electricity, water" component of the CPI is applied to the previous quarter's rupiah prices and multiplied by the quantities above. A value-added to output ratio obtained from the current year's survey of PGN is then applied.

3.   Water Supply

Constant Prices

For lack of primary data sources on production of drinking water, initial quarterly growth rates for a particular year are assumed to be the same as those of the previous year. Once results of the annual BPS survey of Water Supply Establishments[18] are available, estimates are revised: quantities of water produced is multiplied by their corresponding 1993 price and the same quarterly trend is kept. This estimate is then multiplied by a value-added to output ratio obtained from the 1993 survey.

Current Prices

Quarterly current price estimates are computed as the product of the constant price quarterly estimate and the level of the "Fuel, electricity, water" component of the CPI.

E.   Construction

Constant Prices

Quarterly quantities are calculated using the following four-step procedure:

1)   First, quarterly quantity indices are calculated for five categories of commodities:

- "kayu pertukangan" (obtained from the Directorate General of Forestry)
- bamboo (obtained from the Directorate General of Forestry)
- asphalt (obtained from the Directorate General of Mining)

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[18]   The survey is conducted by the division of Mining, Energy and Construction covering input and output structure of about 500 establishments.

- cement input (obtained from various bureaus of BPS and computed as production (of ISIC 36310) + imports - exports[19]
- production of building materials (obtained from the Quarterly Manufacturing Survey) defined as ISICs: 33111, 33113, 35210, 36112, 362, 36310, 36320, 364, 371, 38131, 38139. Indices are aggregated using ISIC shares in industry output in 1990 Input-Output Table.
- imported building materials: dollar values are converted into rupiah and deflated using the "general" index of imported commodities of the WPI.

2)   Changes in the indices are multiplied by the previous quarter's constant price series then summed up to obtain an estimate for intermediate inputs for the construction sector from the above sub-sectors.

3)   A 3.9% markup is added to allow for other intermediate inputs not accounted for above (that was obtained from the 1990 Input-Output Table). The total then represents total intermediate inputs used by the construction sector.

4)   Finally, a ratio of intermediate inputs to output (obtained from the 1990 IO table) is used to estimate quarterly output at constant prices. Value added is then computed as the difference between estimates of output and intermediate inputs.

Current Prices

The constant price components above are inflated using various relevant components of the WPI:

- the "kayu gelondongan" component for "kayu pertukangan",
- the "bamboo" component for bamboo,
- the "asphalt" component for asphalt, and
- the "general index" of manufacturing commodities is used for cement and other domestic building materials.

As with the constant price series, these values are summed up then inflated by 3.9% to estimate total intermediate inputs of the construction sector. A ratio of intermediate inputs to output (obtained from the current year's BPS survey of construction establishments) is used to estimate

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[19]   Calculations for cement are a bit more complicated given the multiplicity of sources. First, the production index is multiplied by the previous quarter's level. Then imported and exported dollar values are converted to rupiah and divided by the "other non-metallic mineral products" component of the WPI.

quarterly output. Value added is then computed as the difference between estimates of output and intermediate inputs.

F.   Trade, Hotels & Restaurants
This includes three sub-sectors.

1.   Wholesale & Retail Trade

During Input-Output years (and occasionally in between), BPS conducts a special survey for the Trade & Services sector involving about 1000 producers and 750 traders, and referred to as SKSPJ ("Survei Khusus Sektor Perdagangan Dan Jasa"). The latest survey includes separate questionnaires tailored to five sub-sectors: trade, restaurants, services related to communications, services supporting transportation, vehicle repairs and consulting activities. The purpose of the survey is to compute the structure of inputs and outputs of various sub-sectors. The main purpose of the survey of traders is to compute a trade margin to assign to various sectors in the Input-Output table. A value-added margin (defined as the trade margin less intermediate consumption) is then computed and aggregated by 5-digit ISIC, then to various sub-sectors in the production accounts. A ratio of the value-added margin to the value of production in that year is then computed.

Constant Prices

The ratio of value-added margin to total supply (defined as the sum of output and imports) from the 1995 survey is applied to total supply figures in constant prices of various sub-sectors of the production accounts computed above. Results are then summed up to produce the value added at constant prices of the Wholesale & Retail Trade sub-sector.

Current Prices

The ratio of value-added margin to the value of production from the 1995 survey is applied to the current prices supply of various sub-sectors of the production accounts computed above. Results are then summed up to produce the value added at current prices of the Wholesale & Retail Trade sub-sector.

2.   Hotels
Constant Prices

No direct measure of the value added of this sector was available until 2000, when BPS started surveying this sub-sector to measure directly its output and value added. This survey will be run annually. Until data from the first survey are fully processed and results are evaluated, the indirect estimation method which had been used in the past will continue to be used. This method

estimates only the contribution of hotels with a "star" ranking.[20] Monthly data on the number of foreign visitors to Indonesia are obtained from the Department of Tourism. These in turn are aggregated by quarter and a linear regression is estimated with value added as the dependent variable and the number of foreign tourists as the independent variable.

Current Prices

The constant price quarterly estimate is inflated using the "Recreational Services" component of the CPI.

3.   Restaurants

Constant Prices

The current price quarterly estimate is deflated using the "Prepared Food" component of the CPI.

Current Prices

For 2000, as in previous years in which an Input-Output table was constructed, value added will be measured based on the special Trade & Services survey (SKSPJ). Until these results are available, and for lack of any source of primary data on the number and the output of restaurants, value added for this sub-sector is based on indirect estimates. The only available source of data on the output of this sub-sector is Susenas, and the closest variable in Susenas to the output of this sub-sector is household expenditure on prepared food ("makanan jadi"). Thus an annual measure of household expenditure on prepared food is calculated as the product of:

a.   expenditure per household based on the detailed Susenas conducted once every three years. This is then inflated to current year values using the "Prepared Food" component of the CPI.

b.   the number of households based on the core Susenas conducted annually.

Annual figures are then divided by four to obtain quarterly figures. A 5% markup is applied.

G.   Transport & Communications

This includes two sub-sectors:

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[20]   About 800 such hotels exist in addition to about 8800 hotels with no "star" ranking.

1.   Transport

This sub-sector includes six activities:

Railway Transportation

Quarterly data on the number of passengers and total freight are obtained from PT Kereta Api Indonesia, the public enterprise managing this activity. Quarterly growth for each category is then calculated and applied to the relevant levels of the previous quarter. Current price estimates are obtained by inflating these figures by the "Transportation" component of the CPI.

Road Transportation

Annual data are obtained from the Department of Transportation for three commodities:
-          passenger cars (number of passengers)
-          buses (number of passengers)
-          trucks (volume of freight)

Since the only quarterly data for any of the above commodities refer to data from two bus companies (PPD and Damri), the quarterly trend of passenger from these companies is applied to all other categories of road transportation.

Current price estimates are obtained by inflating these figures by the "Transportation" component of the CPI.

Ocean Transportation

Annual data are obtained for two commodities:
-          passengers (number of passengers): obtained from PT PELNI, the public enterprise managing this activity
-          freight (volume of freight): obtained from the Department of Transportation.

To produce quarterly estimates, the quarterly trend in the "Volume of Inter-Island Cargo Loaded at 4 Main Seaports" (produced by BPS) is used. Growth in volume for all four ports is used.

Current price estimates are obtained by inflating these figures by the "Transportation" component of the CPI.

River, Lake and Ferry Transportation

Annual data are obtained from the Department of Transportation for three commodities:
-          number of passengers
-          volume of freight
-          number of vehicles carried by ferry

To produce quarterly estimates, historical trends for each one of the commodities are used.

Current price estimates are obtained by inflating these figures by the "Transportation" component of the CPI.

Air Transportation

Annual data are obtained from the Department of Transportation for four commodities:
- number of passengers on domestic flights
- number of passengers on international flights
- freight carried on domestic flights (volume of freight)
- freight carried on international flights (volume of freight)

To produce quarterly estimates, the following quarterly trends are used (all published monthly in BPS's "Indikator Ekonomi"):
- for the number of passengers on domestic flights: "Domestic Aircraft Passenger Traffic at 5 Main Airports"
- for the number of passengers on international flights: "International Aircraft Passenger Traffic at 4 Main Airports"
- for the volume of freight carried on domestic flights: "Volume of Domestic Aircraft Cargo Loaded/Unloaded at 5 Main Airports"
- for the volume of freight carried on international flights: "Volume of International Aircraft Cargo Loaded/Unloaded at 4 Main Airports"

Current price estimates are obtained by inflating these figures by the "Transportation" component of the CPI.

Services Supporting Transportation

For lack of data measuring directly this activity, the quarterly trend in freight activity is applied based on the following indicators (all published monthly in BPS's "Indikator Ekonomi"):
- "Volume of Inter-Island Cargo Loaded/Unloaded at 4 Main Sea Ports"
- "Volume of International Cargo Loaded/Unloaded at 4 Main Sea Ports"
- "Volume of Domestic Aircraft Cargo Loaded/Unloaded at 5 Main Airports"
- "Volume of International Aircraft Cargo Loaded/Unloaded at 4 Main Airports"

Current price estimates are obtained by inflating these figures by the "Transportation" component of the CPI.

2.   Communications

This sub-sector includes three giant public enterprises: PT Indosat, PT Pos Indonesia and PT Telkom. The first two report only annually while the third one reports quarterly. All provide data on their value and volume of sales. Output of Indosat is computed using five commodities:

- telephone calls (number of minutes)
- telex (number of minutes)
- telegrams (number of words)
- direct telegraph transmission lines (meter usage measured in "sirkit")
- direct data transmission lines (meter usage measured in "sirkit")

For PT Pos Indonesia, output is computed using four commodities:

- number of letters
- number of packages
- money transfers (number of forms filled)
- checking/savings accounts "cek & giro"(number of transactions)

For PT Telkom, output is computed using four commodities:

- domestic telephone calls (meter usage)
- manual long-distance calls (minutes)
- telex (meter usage)
- telegrams (words)

A further estimate is made for "services related to communications" using the number of establishments involved in the "wartel/warpostel/warparpostel" activity obtained from PT Telkom. Quarterly trend in output for PT Telkom and PT Pos is applied to the annual output data of Indosat and for "services related to communications", since the share of these companies in the sub-sector exceeds two-thirds. Both current and constant price data are then multiplied by the sub-sector's value-added to output ratio (from the 1995 IO table) to obtain a value added figure and a further 5% markup is added (based on the 1995 IO table) for the contribution of other activities.

H.   Financial, Ownership & Business Services

This includes five sub-sectors:

1.   Banks

This sub-sector includes activities of three types of banking institutions: the central bank, commercial banks and small credit banks ("bank perkreditan rakyat").

Constant Prices

Quarterly current price figures are deflated as follows:

a.   Central bank: the "wages and salaries" component is deflated using the "General" component of the CPI. The other three components are deflated using the implicit total GDP deflator (excluding the banking sector) obtained from the production accounts.

b.   Commercial banks: the "wages and salaries" component is deflated using the "General" component of the CPI. The other three components of the income accounts are deflated using the implicit total GDP deflator (excluding the banking sector) obtained from the production accounts.

c.   Small credit banks: as is the case with current price figures, the average quarterly growth rate of value added of commercial banks is applied to these institutions.

Current Prices

Quarterly value added figures are computed as the sum of the following components:

a.   Central bank: value added figures computed using the production and the income (cost) approaches are obtained from Bank Indonesia. The income approach figures are divided into the four main components, namely employee compensation, depreciation, indirect taxes and operating surplus.

b.   Commercial banks: value added figures computed using the production and the income approaches are obtained from Bank Indonesia.[21] Here again, the income approach figures are divided into the four main components as above.

c.   Small credit banks: for lack of any reliable quarterly (or annual) data allowing computation of value added for these institutions, the average quarterly growth rate of value added of commercial banks is applied to these institutions.[22]

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[21]   These are computed by Bank Indonesia based on Form 02 (profit and loss statement) which banks are required to report monthly.

[22]   In the benchmark annual accounts of 1993, the share of these institutions in value added of this sub-sector was about 1.5%.

2.   Non-Bank Financial Institutions

This sub-sector includes activities of five types of institutions, each with its own computation methodology: insurance companies, pension funds, leasing companies, pawn shops and savings cooperatives.

Constant Prices

Current price figures are deflated as follows:

a.   Insurance companies: the "General" component of the WPI is used.

b.   Pension funds: the "General" component of the CPI is used.

c.   Leasing companies: the "General" component of the WPI is used.

d.   Pawn shops: the "General" component of the WPI is used.

e.   Savings cooperatives: the "General" component of the WPI is used.

Current Prices

Quarterly value added figures at computed as the sum of the following components:

a.   Insurance companies: annual output is computed from financial statements obtained from the Department of Finance.[23] A value-added to output ratio (from the 1995 IO table) is then applied. Quarterly figures are then derived using the average quarterly trend for the sub-sector in the past three years.[24]

b.   Pension funds: annual value added is obtained from the annual survey of non-banking financial institutions (Survei Lembaga Keuangan Bukan Bank, LKBB) conducted by BPS for the purpose of computing the national flow of funds accounts. Quarterly figures are then derived using the average quarterly trend for the sub-sector in the past three years. Since data from the survey are only available with a relatively long lag, preliminary growth rate of a particular quarter is estimated as the average real growth rate (in that activity) for that quarter in the past three years inflated by growth in the "General" component of the CPI.

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[23]   "Laporan Kegiatan Perasuransian di Indonesia".

[24]   These estimates are crossed-checked against results from the annual survey of non-banking financial institutions (LKBB), results of which are available with a relatively long lag.

c.   Leasing companies: annual output is computed from financial statements obtained from the Department of Finance. A value-added to output ratio (from the 1995 IO table) is then applied. Quarterly figures are then calculated using the average quarterly trend for the sub-sector in the past three years.

d.   Pawn shops: annual value added is computed from financial statements obtained from PT Perum Pegadaian, a public enterprise under the Department of Finance. Quarterly figures are then derived using the average quarterly trend for the sub-sector in the past three years.[25]

e.   Savings cooperatives: value added of these institutions is assumed to be 1.5% that of the non-banking financial institutions, which was the share in the 1995 IO table. No special computation is made for this category. Rather, once value added of all above four categories is computed, a 1.5% markup is added to produce the value added of the non-banking financial institutions as a whole.

3.   Services Related to Finance

This includes activities of three categories of institutions: capital markets, institutions related to capital markets and foreign exchange dealers.

Constant Prices

Current prices for each category of institution are deflated using the "general" component of the WPI.

Current Prices

Quarterly value-added figures are computed as the sum of the following components:

a.   Capital markets: annual output (or operating revenue) is computed from financial statements of the two institutions in this category: the Jakarta and the Surabaya Stock Exchanges. A value-added to output ratio (from the 1995 IO table) is then applied. Quarterly figures are then derived using the average quarterly trend for the sub-sector in the past three years.

b.   Institutions related to capital markets: quarterly value added trend of capital market institutions is applied here.

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[25]   These estimates are crossed-checked against results from the annual survey of non-banking financial institutions (LKBB), results of which are available with a relatively long lag.

c.   Foreign Exchange Dealers: monthly data are obtained from Bank Indonesia for the volume as well as value of foreign exchange transactions. This is used as a proxy for output of these establishments. A value-added to output ratio (from the 1995 IO table) is then applied, and data are aggregated quarterly.

4.   Building Rentals

This includes two types of rentals: dwelling and non-dwelling. For lack of any source of primary data on the number and the output of establishments undertaking these activities, value added for this sub-sector is based on indirect estimates

Constant Prices

Quarterly estimates at current prices are deflated using the "cost of housing" component of the CPI.

Current Prices

Quarterly value added is computed in the following steps:

a.   Dwelling:
-        monthly per capita expenditure on housing rent (both direct and imputed) is derived from the latest Susenas survey.
-        this value is converted into a current year value by applying the "cost of housing" component of the CPI.
-        a quarterly value is then calculated from the monthly values.
-        the quarterly per capita consumption is then multiplied by a quarterly estimate of the population (derived from the published BPS annual population estimates and subjected to a quarterly compound growth rate) to produce an estimate of output for this activity.
-        a value-added to output ratio (from the 1995 IO table) is then applied.

b.   Non-Dwelling:
-        quarterly bulletins are obtained from the real estate association of the Jabotabek and Surabaya property markets. These include data on office and

shop rentals (both area and value).[26]
-        a value-added to output ratio (from the 1995 IO
         table) is then applied.

<u>**5.   Business Services**</u>

          This includes six types of consulting services: legal, accounting, architectural, research, data processing and machinery rental. Annual data are obtained from an annual directory published by the associations of Indonesian Consultants (INKINDO), Accountants (IAI), Advertisers (Perum Perusahaan Periklanan Indonesia) and from the 1996 Economic Census.

Constant Prices

          Quarterly estimates at current prices are deflated using the "general" component of the CPI.

Current Prices

          Quarterly value added is computed in three steps:

a.   A quarterly number of consultants in each category is computed
         by applying the previous year's quarterly trend to the current
         year's annual level.

b.   A value-added per consultant is obtained from the special survey
         conducted for input-output tables (SKSPJ) and converted to a
         current year value by using the "general" component of the CPI.

c.   Value added per consultant (for each category) is then multiplied
         by the corresponding number of consultants in that category to
         produce the total value added for this sub-sector.

I.   Services

This includes four sub-sectors:

<u>**1.   General Government**</u>

          This involves two activities: government administration and defense and other government services.

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[26]   These numbers are crossed-checked against data published by some of the largest real estate
          service companies (e.g. Jones Lang LaSalle) for plausibility.

Constant Prices

Quarterly estimates are calculated as follows:[27]

a. An annual Laspeyres-type quantity index for employees is computed, aggregating the number of civil servants over the four major ranks ("golongan") and using 1993 compensation levels as numeraire.

b. An increase in the index over the previous year is then derived and interpolated among the four quarters of the current year.

c. This quarterly increase is then multiplied by the previous quarter's level.

Current Prices

Quarterly value-added figures are computed for the central, provincial, regency and village governments in three steps:

a. Total value added for this sub-sector is calculated using the income (cost) approach as the sum of two components:[28]

- employee compensation: this includes wages and salaries as well as fringes (e.g. various allowances paid and contributions made for insurance, pension, social security etc.) provided to civil servants. The source of data for the central government figures is a quarterly report received from the Department of Finance on realized expenditures. For the other three levels of government, data are obtained annually and divided equally among the quarters.

- consumption of fixed capital: this item technically covers appropriately amortized expenditure on buildings, vehicles, equipment, machinery,

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[27] The current methodology is used for lack of reliable and consistent detailed current data on employee compensation and number of employees. A more common methodology would involve deflating current price estimates by an index for compensation per employee (aggregating compensation over the four major ranks in the civil service and using 1993 levels as a numeraire). An attempt to obtain such data regularly from both the Department of Finance and the Civil Service Agency (BKN) is underway, and results using this methodology will be evaluated.

[28] Conceptually, indirect taxes should also be added. However, they are omitted in this case because the three levels of government in Indonesia pay no indirect taxes.

furniture and fixtures and the like. The level of these expenditures is estimated at 5% that of employee compensation.[29]

b.   Other government services: this activity includes educational, health, social, cultural and recreational services provided by various government institutions. Quarterly value added for these services is computed as follows:

-   A special survey is conducted annually by BPS to determine the number of employees hired by institutions providing each of the above services as well as their compensation.[30] The 2000 survey covered about 300 offices at the central, provincial ("kanwil"), kabupaten ("kandep") and local ("dinas") levels as well as non-departmental institutions ("lembaga non-departemen").[31]

-   The ratio of employee compensation for the above services to total employee compensation is then derived from the special survey, averaged out over these institutions, then applied to the total employee compensation figure in a above. This is then augmented by a 5% estimate for consumption of fixed capital for this activity.

c.   Administration and defense: value added for this activity is then computed as the difference between total value added of the sub-sector (from a.) and that of other government services (from b).

2.   Social & Community Services

This involves two major activities: education and health.

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[29]   This was based on an analysis of annual realized expenditures (covering the 1994/95 - 1997-98 period) which found a more or less stable relationship between the two variables. Specific budget line items included in consumption of fixed capital are: land (budget code: 5910), machinery & equipment including vehicles (budget code: 5920, depreciated over 20 years), buildings (budget code: 5930, depreciated over 30 years), roads, bridges & the like (budget code: 5940, depreciated over 40 years) and other physical capital goods (budget code: 5950, depreciated over 20 years).

[30]   "Survei Khusus Jasa Pemerintah" (SKJP).

[31]   Starting in 2001, and following the decentralized structure of government in Indonesia, the geographic breakdown of government institutions will change. Coverage of the 2001 survey will, therefore, differ from that of previous years.

Constant Prices

Quarterly value added is computed using the following steps:

a. Education:
    -   Annual data are obtained from the Department of Education on private school enrolment at six levels of education (kindergarten, "special school", primary, junior and senior high school as well as for higher education).
    -   This is then converted to a quarterly figure by applying an estimated quarterly population trend (derived from the published BPS annual population estimates and subjected to a quarterly compound growth rate).
    -   The average quarterly expenditure (as a proxy for output) per student in 1993 prices is multiplied by the estimated number of students by level of education.
    -   A value-added to output ratio (from the 1995 IO table) is then applied.

b. Health:
    -   Annual data are obtained from the Department of Health on three variables: the number of beds in hospitals, the number of doctors and the number of midwives in major urban areas.
    -   This is then converted to a quarterly figure by applying an estimated quarterly population trend (derived from the published BPS annual population estimates and subjected to a quarterly compound growth rate).
    -   The average quarterly expenditure (as a proxy for output) per bed/doctor/midwife in 1993 prices is multiplied by the estimated number of beds/doctors/midwives.
    -   A value-added to output ratio (from the 1995 IO table) is then applied.

c. The totals for the above two activities are then summed up and a further markup of 5% is applied to arrive at the total value added for the sub-sector.

Current Prices

Quarterly value added is computed using the following steps:

a.   Education:
-    An average annual output per student is obtained
     from supporting tables used in compiling the 1995
     IO table, and converted to a current year value by
     using the "education" component of the CPI. This
     is then divided by four to reflect a quarterly figure.
-    Quarterly output per student is multiplied by the
     estimated number of students (from the constant
     price computations above).
-    A value-added to output ratio (from the 1995 IO
     table) is then applied.

b.   Health:
-    An average annual output per bed/doctor/midwife
     is obtained from supporting tables used in
     compiling the 1995 IO table, and converted to a
     current year value by using the "health services
     and medicines" component of the CPI. This is then
     divided by four to reflect a quarterly figure.
-    Quarterly output per bed/doctor/midwife is then
     multiplied by the estimated number of
     beds/doctors/midwives (from the constant price
     computations above).
-    A value-added to output ratio (from the 1995 IO
     table) is then applied.

c.   The totals for the above two activities are then summed up and a
      further markup of 5% is applied to arrive at the total value added
      for the sub-sector.

3.   Amusement & Recreation

This involves three activities: movie theater operation, TV and radio broadcasting
and movie production.

Constant Prices

Quarterly value added is computed using the following steps:

a.   Movie theater operation:
-    A quarterly number of movie goers is projected as
     the product of the previous quarter's figure and the
     average growth (in that activity) for that quarter in
     the past three years.
-    The average quarterly output per movie goer in
     1993 prices is multiplied by the estimated number

of movie goers.
- A value-added to output ratio (from the 1995 IO table) is then applied.

b. TV and radio broadcasting:
- Quarterly data are obtained from the association of radio/TV broadcasters on the number of TV and radio stations.
- The average quarterly output per station in 1993 prices is multiplied by the number of stations.
- A value-added to output ratio (from the 1995 IO table) is then applied.

c. Movie production:
- Annual data are obtained from the Department of Tourism on the number of movies produced.
- This is then converted to a quarterly figure by using the quarterly trend in the past three years.
- The average quarterly cost of production per movie in 1993 prices is multiplied by the estimated number of movies.
- A value-added to output ratio (from the 1995 IO table) is then applied

d. The totals for the above three activities are then summed up and a further markup of 5% is applied to produce the total value added for the sub-sector.

Current Prices

Quarterly value added is computed using the following steps:

a. Movie theater operation:
- An average annual output per movie goer is obtained from supporting tables used in compiling the 1995 IO table, and converted to a current year value by using the "recreation and sports" component of the CPI. This is then divided by four to reflect a quarterly figure.
- Quarterly output per movie goer is multiplied by the estimated number of movie goers (from the constant price computations above).
- A value-added to output ratio (from the 1995 IO table) is then applied.

b.   TV and radio broadcasting:
-    A quarterly average output per station is obtained from the association of radio/TV broadcasters, which is multiplied by the estimated number of stations.
-    A value-added to output ratio (from the 1995 IO table) is then applied.

c.   Movie production:
-    An annual average cost of production per movie is obtained from supporting tables used in compiling the 1995 IO table, and converted to a current year value by using the "recreation and sports" component of the CPI. This is used as a proxy for output per movie, it is then divided by four to reflect a quarterly figure.
-    The quarterly output per movie is then multiplied by the estimated number of movies produced.
-    A value-added to output ratio (from the 1995 IO table) is then applied.

d.   The totals for the above three activities are then summed up and a further markup of 5% is applied to arrive at the total value added for the sub-sector.

4.   Personal & Household Services

This involves three major activities: vehicle repair, other repairs and domestic servants.

Constant Prices

Quarterly value added is computed using the following steps:

a.   Vehicle repair:
-    Annual data are obtained from the Department of Transportation on the number of vehicles on the road. This is multiplied by a fraction based on supporting tables used in computing the 1995 IO table representing the percentage of vehicles on the road subjected to repair.
-    This is then converted to a quarterly figure by using the quarterly trend in the past three years.
-    The quarterly average output per vehicle in 1993 prices is multiplied by the estimated number of vehicles in repair.

- A value-added to output ratio (from the 1995 IO table) is then applied.

b. Other repairs:
- Annual data are obtained from Susenas on the number of workers performing this activity.
- This is then converted to a quarterly figure by using the quarterly trend in the past three years.
- The quarterly average output per worker in 1993 prices is multiplied by the estimated number of workers.
- A value-added to output ratio (from the 1995 IO table) is then applied.

c. Domestic servants:
- Annual data are computed by BPS on the number of households, which are then converted to a quarterly figure by applying a compound growth rate.
- The quarterly average household expenditure per servant in 1993 prices is multiplied by the estimated number of households.
- A value-added to output ratio (from the 1995 IO table) is then applied.

d. The totals for the above three activities are then summed up and a further markup of 5% is applied to produce the total value added for the sub-sector.

Current Prices

Quarterly value added is computed using the following steps:

a. Vehicle repair:
- An average output per vehicle (measured by the cost of repair) is obtained from the special survey conducted for the Trade and Services sectors (SKSPJ), and converted to a current year value by using the "transportation" component of the CPI, then divided by four to reflect a quarterly figure.
- Output per vehicle is then multiplied by the estimated number of vehicles in repair.
- A value-added to output ratio (from the 1995 IO table) is then applied.

b.   Other repair:
- An average output per worker is obtained from supporting tables used in compiling the 1995 IO table, and converted to a current year value by using the "household equipment" component of the CPI, then divided by four to reflect a quarterly figure.
- Output per worker is then multiplied by the estimated number of workers.
- A value-added to output ratio (from the 1995 IO table) is then applied.

c.   Domestic servants:
- An average household expenditure on servants is obtained from Susenas and converted to a current year value by using the "household operation" component of the CPI. This is then divided by four to reflect a quarterly figure.
- Expenditure per household is then multiplied by the estimated number of households.
- A value-added to output ratio (from the 1995 IO table) is then applied.

d.   The totals for the above three activities are then summed up and a further markup of 5% is applied to produce the total value added for the sub-sector.

III.   COMPILATION OF EXPENDITURE ACCOUNT

The expenditure account takes the GDP computed from the production account as the benchmark and then attempts to reconcile estimations of various components with that benchmark. Tables 3 and 4 summarize the basic methodologies used for compiling various sectors for constant and current price estimates respectively, and the sections that follow describe sectoral methodologies in more detail.

Table 3
Summary of Sources & Methods of Expenditure Account at Constant Prices

Sector	Data Sources	Basic Methodology
Private Consumption Expenditure	Susenas, Production Accounts, CPI	Use consumption elasticity with respect to GDP, apply to quarterly GDP. Incorporate adjustment in current price estimate by deflating by relevant component of CPI.
Government Consumption Expenditure	Current price series, quantity index of civil service employees, WPI	Personnel Expenditure & Depreciation: use growth in quantity index. Material expenditure: apply WPI to current price series
Gross Domestic Fixed Capital Formation	Prod. Accounts, imports, Industry Survey	Construction: obtained from quarterly production accounts. Machinery: monthly imports multiplied by rupiah at 1993 prices. Domestic production multiplied by growth in the production index. Transportation: monthly imports multiplied by rupiah at 1993 prices. Domestic production multiplied by growth in the production index. Other: apply markup
Change in Stocks	Current price series, WPI	Apply WPI to current price series
Exports of Goods & Services	Current price series, $ value index	Apply price changes in index to current price series
Imports of Goods & Services	Current price series, $ value index	Apply price changes in index to current price series

Table 4
Summary of Sources & Methods of Expenditure Account at Current Prices

Sector	Data Sources	Basic Methodology
Private Consumption Expenditure	constant price series, CPI	Apply relevant CPI component to constant price series. Apply iterative adjustments to reconcile supply and demand
Government Consumption Expenditure	budgets of central, level I, level II & village gov.	Relevant budget allocations + depreciation
Gross Domestic Fixed Capital Formation	constant price series, WPI	Construction: obtained from quarterly production accounts Machinery: monthly imports converted to rupiah. Domestic production in constant prices inflated by relevant WPI component. Transportation: monthly imports converted to rupiah. Domestic production in constant prices inflated by relevant WPI component. Other: apply markup
Change in Stocks	IO table	Start with same share in supply from IO table. Apply iterative adjustment to reconcile supply and demand.
Exports of Goods & Services	Services/Trade Bureau	Goods: get export value for 7 commodity groups; services: use trend in goods
Imports of Goods & Services	Services/Trade Bureau	Goods: get import value for 7 commodity groups; services: use trend in goods

A.   Private Consumption Expenditure

Constant Prices

Estimates of private consumption are computed iteratively using to the following steps:[32]

a. First, annual consumption elasticities with respect to GDP are computed from the Susenas survey (conducted once every 3 years) for the following 13 commodities and commodity groups:

-   "Food, Beverages and Tobacco": rice, roots, fish, meats, dairy products, vegetables, beans, fruits, other foods, prepared foods, alcoholic drinks, tobacco. For each commodity, data are available for both quantity and value.

-   Non- "Food, Beverages and Tobacco": no breakdown is attempted for this group since only

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[32] Another approach for measuring private consumption expenditure relies on the commodity flow method. The Bureau is currently evaluating a methodology which would provide a direct measurement of the changes in stock, to allow measurement of private consumption as a residual at the sectoral level, which is what the commodity flow technique does.

data on values are available.

Algebraically, this is calculated as:

$$\bar{a} = \frac{\dfrac{\Delta C_i}{C_i}}{\dfrac{\Delta GDP}{GDP}}$$

where $_i$ is the elasticity computed for item i
       C_i/C_i the percentage change in consumption of item i
       GDP/GDP   the percentage change in GDP computed in
                             the production accounts.

For the first category of commodities, C_i refers to the quantity consumed whereas for the second category it refers to the value of consumption deflated by the "general" component of the CPI.

b.   These elasticities are then multiplied by the change in GDP in the production accounts during the quarter to arrive at an estimated relative change in consumption for various items during the quarter, which is in turn multiplied by the consumption level of the previous quarter to obtain the preliminary estimate of consumption for the current quarter. That is,

$$C_i^{II} = C_i^{I}\left(1 + \bar{a}\,\frac{\Delta GDP^{II}}{GDP^{I}}\right)$$

where superscripts refer to relevant quarters.

c.   Following a reconciliation of the current price estimates within the context of a Supply and Use table, adjustments to the estimated consumption levels are made and the new numbers are deflated using the relevant components of the CPI.

Current Prices

The preliminary constant price consumption expenditures are inflated using the CPI:

a.   For "Food Beverages & Tobacco" items: the corresponding component of the CPI is used

b.   For Non- "Food, Beverages & Tobacco", the "general" CPI index is used.

The derived consumption levels are then subjected to a reconciliation using a quarterly Supply and Use table (a simplified format is provided in Table 5). Such a table allows reconciliation of supply and demand using the following accounting identity:

$$SS + M = INT + C_p + C_g + GDFI + \Delta S + X \qquad (6)$$

Where SS   is domestic supply
                 C_p private consumption expenditure
                 C_g government consumption expenditure
             GDFI gross domestic fixed investment
                  S   change in stocks
                 X   exports of goods and services
                M   imports of goods and services
              INT   intermediates

Table 5
Content of Supply & Use Table for Reconciling Expenditure Account

Sector	Supply[1]	Use				
		Intermediates[2]	Private Consumption[3]	Government Consumption[4]	Fixed Investment[5]	Exports
Farm Food Crops						
Non-Food Crops						
Livestock						
Forestry						
Fishery						
Crude Petrol. & Nat. Gas						
Non-Oil & Gas Mining						
Quarrying						
Petroleum Refining & LNG						
Food, Bev. & Tobacco						
Textiles, Leather, Footwear						
Wood Products						
Paper & Printing						
Fertilizers, Chemicals						
Cement Products						
Basic Iron & Steel						
Transportation Equipment						
Other Manufacturing						
Electricity, Gas & Water						
Construction						
Trade						
Hotels & Restaurants						
Railway Transportation						
Road Transportation						
Sea Transportation						
Air Transportation						
Other Transportation						
Communications						
Financial Services						
Rentals & Housing Services						
Public Administration						
Social Services						
Other Services						
Total						

Notes:
1) Supply has two components: domestic production (obtained from the production accounts) and imports (obtained from the Trade & Services Bureau). Imports are divided into three categories: consumption goods, raw materials and capital goods.
2) Value of intermediate inputs is obtained from the production accounts.
3) Private Consumption is computed using consumption elasticities of income applied to domestic production
4) Government consumption expenditure is obtained from the government budget documents.
5) Fixed investment is divided into: gross domestic fixed capital formation and changes in stocks.

The initial estimate of consumption is used as well as an initial estimate of stock changes (using the same shares in total supply in the 1995 IO table). A judgmental allocation of the residual (between consumption and stock changes) is then made for each item taking three constraints into consideration:

- supply and demand should balance
- the ratio of stock changes to total supply should not deviate substantially from that of the 1995 IO table
- the derived elasticity of consumption with respect to GDP should remain plausible, and not deviate substantially from that estimated in the previous quarter.

B.   Government Consumption Expenditure

Constant Prices

Quarterly estimates are calculated as follows:

- "Personnel Expenditure" and Depreciation: growth in the quantity index of government employees (computed for measuring value added of government services at constant prices) is applied to the levels of the previous quarter.[33]
- "Material Expenditure:" current price estimates are deflated using the "general" component of the WPI.

Current Prices

Estimates of government consumption expenditure rely primarily on central government budget data, which are produced quarterly. Three sources are used for local government expenditure (all published annually by BPS): *Financial Statistics of the First Level Local Government*, *Financial Statistics of the Second Level Local Government* and *Financial Statistics of Village Government*. Quarterly estimates are then derived by dividing annual expenditure equally.

Computations for each type of government use the following relationships:

	Allocation for "Personnel Expenditures" in the budget
+	Allocation for "Material Expenditures" in the budget
+	<u>Depreciation (in the budget)</u>
=	Total revenues available in the budget for government's own current use
-	Non-budget revenue from services
-	<u>Non-budget revenue from material sales</u>
=	Government consumption expenditure

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[33]   A more common methodology is to deflate current price estimates by an index of average compensation per employee, which will be evaluated by the bureau.

C.   Export of Goods & Services

Constant Prices

The total level of exports in current prices is deflated using a quarterly aggregate export index of dollar values converted into rupiah at an average quarterly exchange rate, with the average quarterly 1993 values used as a numeraire.[34]

Current prices

Dollar (fob) values of goods exported are obtained monthly from the Trade & Services Bureau by 2-digit HS code. These are then assigned to the following commodity groups:

- crude oil
- oil products
- gas
- agricultural products
- manufacturing products
- mining products
- all others

These values are then summed up by quarter and converted to rupiah at the average quarterly exchange rate.

For services, initial estimates use the same quarterly trend of goods. However, BPS has recently begun receiving detailed monthly data on services from Bank Indonesia (as part of the Balance of Payments). Direct measurement of services exports will, therefore, be possible.

D.   Imports of Goods & Services

Constant Prices

The total level of total imports in current prices is deflated using a quarterly aggregate export index of dollar values converted into rupiah at an average quarterly exchange rate, with the average quarterly 1993 values used as a numeraire.[35]

Current Prices

Dollar (cif) values of goods imported are obtained monthly from the Trade & Services Bureau by 2-digit HS code. These are then assigned to the following commodity groups:

- Consumption goods
- Raw materials
- Capital goods

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[34]   The Trade & Services Bureau is currently devising new unit price deflators for exported goods to provide a more appropriate measure of these flows at constant prices.

[35]   The Trade & Services Bureau is currently devising new unit price deflators for imported goods to provide a more appropriate measure of these flows at constant prices.

These values are then summed up by quarter and converted to rupiah at the average quarterly exchange rate.

For services, initial estimates use the same quarterly trend of goods. However, BPS has recently begun receiving detailed monthly data on services from Bank Indonesia (as part of the Balance of Payments). Direct measurement of services exports will, therefore, be possible.

E.   Gross Domestic Fixed Capital Formation
Constant Prices

GDFCF is calculated using four components:

a.   Construction: this is the gross value obtained from the quarterly production accounts (at constant prices)

b.   Machinery: this includes both imported and domestic components. Current price estimates for imported capital goods are deflated using the relevant component of the WPI.
For domestic production of machines, quarterly indices are obtained from the production accounts, and are applied to the constant price series.

c.   Transportation Equipment: this includes both imported and domestic components. Current price estimates for imported equipment are deflated using the relevant component of the WPI. For domestic production of transportation equipment, quarterly indices are obtained from the production accounts, and are applied to the constant price series.

d.   Other: this includes cattle, seeds, land preparation and the like. To allow for these capital goods, a markup of about 10% is added to the sum of the other three components.

Current Prices

GDFCF is calculated using four components:

a.   Construction: this is the value obtained from the quarterly production accounts (at current prices)

b.   Machinery: this includes both imported and domestic components. Data on imported machinery are obtained monthly from the Trade & Services Bureau. Dollar values are converted to rupiah at the average monthly exchange rate. A quarterly figure is then computed.

For domestic production of machines, constant price figures are inflated using the relevant WPI component.

c.   Transportation Equipment: this includes both imported and domestic components. Data on imported transportation equipment are obtained monthly from the Trade & Services Bureau. Dollar values are converted to rupiah at the average monthly exchange rate. A quarterly figure is then computed.
For domestic production of transportation equipment, constant price figures are inflated using the relevant WPI component.

d.   Other: a markup of about 10% is added to the sum of the other three components.

F.   Changes in Stocks
Constant Prices

The total level of stock changes at current prices is deflated using the "general" index of the WPI.

Current Prices

Due to a lack of data on this flow, it is computed iteratively (together with private consumption).[36] An initial estimate using the same share in total supply in the 1995 IO table is used in the reconciliation of the Supply and Use table. A judgmental allocation of the residual (between consumption and stock changes) is then made for each item taking three constraints into consideration:

-    supply and demand should balance
-    the ratio of stock changes to total supply should not deviate substantially from that of the 1995 IO table
-    the derived elasticity of consumption with respect to GDP should remain plausible, and not deviate substantially from that estimated in the previous quarter.

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[36]   The Bureau is currently evaluating a methodology which would provide a direct measurement of this flow, and consequently allow measurement of private consumption as a residual. That method would conform with the commodity flow technique.

APPENDIX A

COMMODITIES USED IN MANUFACTURING PRICE INDICES

In computing non-oil manufacturing value added, commodity output in constant prices is inflated by using relevant components of the WPI (see Section II.C.3). Table A.1 provides a mapping of commodities in the WPI and their corresponding 3-digit ISIC.

Table A.1
Mapping of Commodities in the WPI and Corresponding ISIC

ISIC	Commodities in the WPI which are included in price indices applied to medium and large establishments	Commodities in the WPI which are included in price indices applied to small and cottage establishments
311	Daging Sapi	Daging Sapi
	Daging Kerbau	Daging Kerbau
	Daging Babi	Daging Babi
	Daging Kambing & Domba	Daging Kambing & Domba
	Daging Ayam	Daging Ayam
	Susu Kental Manis	
	Susu Bubuk Kaleng	
	Susu Tepung & Susu Bubuk	
	Pengolahan/Pengawetan Ikan	
	Ikan Dalam Kaleng	
	Ikan Pindang Asin	Ikan Pindang Asin
	Sayur-sayuran & Buah-buahan	
	Minyak Kelapa	Minyak Kelapa
	Minyak Goreng	Minyak Goreng
	Mentega/Margarine	
	Beras	Beras
	Tepung Terigu	
	Tepung Tapioka	Tepung Tapioka
	Biskuit	
	Roti	Roti
	Mie & Sejenisnya	Mie & Sejenisnya
	Gula Pasir	
	Kebang Gula	Kembang Gula
	Sirop	
312	Kopi Bubuk	Kopi Bubuk
	Teh	Teh
	Kecap	Kecap
	Tahu & Tempe	Tahu & Tempe
	Bumbu Masak/Penyedap Makanan	Bumbu Masak/Penyedap Makanan
	Kerupuk	Kerupuk
	Coklat Bubuk	Coklat Bubuk
	Garam	Garam
	Makanan Ternak/Hewan	Makanan Ternak
313	Minuman Keras	Minuman Keras
	Minuman Ringan	Minuman Ringan
314	Tembakau	Tembakau
	Rokok Putih	
	Rokok Kretek	Rokok Kretek
321	Benang Tenun	Benang Tenun
	Benang Sintetis	

	Kain Tenun	
	Kain Sintetis	
	Batik	Batik
	Handuk/Selimut & Seprai	
	Karpet/Permadani	
322	Pakaian dari Kaos	Pakain dari Kaos
	Pakain Pria	Pakaian Pria
	Pakain Wanita	Pakaian Wanita
	Pakaian Anak-anak	Pakaian Anak-anak
323	Kulit Sapi/Kerbau & Kambing	Kulit Sapi/Kerbau & Kambing
324	Sepatu Pria Dewasa	Sepatu Pria Dewasa
	Sepatu Wanita Dewasa	Sepatu Wanita Dewasa
	Sepatu Anak-anak	Sepatu Anak-anak
	Sepatu Olah Raga	Sepatu Olah Raga
331	Kayu Jati Gergajian	Kayu Jati Gergajian
	Kayu Rimba Gergajian	Kayu Rimba Gergajian
	Plywood, Teakwood & Triplek	
	Kusen Jadi, Daun Pintu, dll	Kusen Jadi, Daun Pintu, dll
332	Keranjang Bambu/Rotan	Keranjang Bambu/Rotan
	Meja Kursi, Meja Tulis, sll	Meja Kursi, Meja Tulis, dll
341	Kertas Tulis dan sejenisnya	
	Buku Tulis dan sejenisnya	Buku Tulis dan sejenisnya
	Kertas Tisue	
	Kertas Karton	
342	Barang Cetakan	Barang Cetakan
351	Pupuk Urea	
	Pupuk Lainnya	Pupuk Lainnya
	Pembasmi Hama	
	Pembasmi Nyamuk	Pembasmi Nyamuk
	Barang-barang Kimia	
352	Cat Kayu/Besi	
	Cat Tembok	
	Barang Cat Lainnya	
	Macam-macam Obat	
	Jamu Segala Jenis	Jamu segala jenis
	Sabun Cuci, Detergen, dll	Sabun cuci, detergen, dll
	Sabun Mandi	
	Tapal Gigi	
	Kosmetik lainnya	Kosmetik Lainnya
	Film/Kertas Photo	
	Minyak Atsiri	Minyak Atsiri
353,	Avigas	
	Avtur	
	Super 98	
	Premium	
	Minyak Tanah	
	Solar	
	Minyak Diesel	
	Minyak Bakar	
	Aspal	
	Gas Minyak Cair	
	Minyak Pelumas Segala Jenis	
355	Ban Kendaraan	
	Ban Sepeda Motor	
	Ban Sepeda	
	Karet RSS1, RSS11, dsb	Karet RSSI, RSS11, dsb
	Sepatu Karet	Sepatu Karet

356	Pipa PVC	Pipa PVC
361	Tegel, Porselin, Kloset, dll	Tegel, Porselin, Kloset, dll
362	Kaca Lembaran	
	Gelas, Piring dan Sejenisnya	Gelas, Piring, dan sejenisnya
363	Semen	Batako, Eternit, Asbes, dll
		Ubin Teraso dan sejenisnya
364	Batu bata, Genteng dan lainnya	Batu Bata, Genteng dan lainnya
369	Batako, Eternit, Asbes, dll	Batako, Eternit, Asbes, dll
	Ubin Teraso dan sejenisnya	Ubin Teraso dan sejenisnya
371	Besi Beton	
	Besi Propil	
	Besi Plat	
	Kawat Beton (bindrad)	
372	Emas	
	Perak	
	Logan Timah	
381	Cangkul	Cangkul
	Tempat Tidur, Kursi dari Besi	
	Seng	
	paku, Kawat, dan lainnya	Paku, kawat, dan lainnya
382	Alat-alat Berat	
	Mesin-mesin Industri	Mesin-mesin Industri
383	Televisi	
	Radio	
	Tape Recorder	
	Casset	
	Kipas Angin	
	Mesin Jahit	
	Air Condition	
	Lemari Es	
	Generator Set	
	Transformator dan sejenisnya	
	Batu Baterei	
	Aki (Accu)	
	Lampu	Lampu
	Kabel Listrik	Kabel Listrik
384	Mobil	Alat-alat Angkutan
	Sepeda Motor	
	Sepeda	
	kapal Laut	
385	Alat Photo/Optik	
	Arloji, Jam Dinding, dll	
390	Alat-alat Olah Raga	Alat-alat Olah Raga
	Alat Musik	Alat Musik