

**The Service Sector in Indonesia's National Accounts,
1951-2000**

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1. Introduction

“National economies cannot be observed directly, but can only be observed via the national accounts. National accounts statistics make the size, development and composition of these national economies visible by translating them in monetary terms indicating their economic importance. The national accounts is therefore often referred to as the barometer of the national economy (Bos, 2003, p. 41).”

The first attempts to construct national accounts in Indonesia were already made during the colonial era. The oldest known estimate of national income was made in 1840 when Governor-General Merkus estimated the total value of production in Java and Madura at Fl. 200 million (CEI, 1979, p. 16). At the end of the 19th century and during the first half of the 20th century several other estimates were made. Despite this relatively long history of national accounting the reliability of the national income estimates has often been questioned. Moreover, estimates were not made on a regular base, and differed widely in methods used. Therefore, consistent times series of Indonesia's national accounts before 1950 are not available.

Nowadays, though, Indonesia's national statistics agency (*Badan Pusat Statistik*, BPS) is considered to be of quite a high standard, especially when compared to other developing countries. Since the 1960s, it has established a solid reputation for the high caliber of its technical and operational capabilities. According to Jammal (2003) ‘by the 1980s only few developing countries, if any, could match BPS's record in terms of the number of regular censuses (population, economic, agriculture, industry), large-scale surveys and complex statistical products such as input-output tables and social accounting matrices’ (p. 215).

Many scholars on Indonesia make extensive use of these BPS publications. But surprisingly, no time series of Indonesia's national accounts exist. The figures are scattered over numerous publications. Moreover, no detailed study has been done in which Indonesia's official national accounts after independence are thoroughly discussed, although understanding the method of compilation is an essential requirement when one is using data. As Schumpeter stated:

“We need statistics not only for explaining things, but also in order to know precisely what there is to explain. [...] It is impossible to understand statistical

figures without understanding how they have been compiled. It is equally impossible to extract information from them or to understand the information that specialists extract for the rest of us without understanding the methods by which this is done- and the epistemological backgrounds of these methods. Thus, an adequate command of modern statistical methods is a necessary (but not sufficient) condition for preventing the modern economist from producing nonsense (Schumpeter, 1954, p. 14).”

The aim of this paper is twofold. On the one hand it offers time series of Indonesia’s official national accounts between 1951 and 2000. Based on these series the structural change that took place in this period will be discussed. On the other hand the focus is on the service sector. Therefore it discusses the methods and sources used for estimation of this sector in the different publications. Hopefully the resulting database combined with the discussion of methods and sources used will be a starting point for future research on the role of the service sector in the economic development of Indonesia using the system of national accounts.

2. National accounting

The System of National Accounts (SNA) consists of a coherent, consistent and integrated set of macroeconomic accounts. It provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision-taking and policy-making (United Nations, 1993).

Work on national accounts and international comparisons of real income levels started in the 17th century. In 1696, Gregory King made a rough comparison of performance in France, the Netherlands and the UK. Individual scholars further developed his approach over a period of 250 years, with substantial clarification of what the scope of the accounts should be, and a larger accumulation of estimates for individual countries.

In the 1950s the first standardized system of national accounts was produced, which was the result of close consultation between statisticians in Western Europe and North America to ensure that the guidelines were implemented.

The system of national accounts measures the total volume of economic activities in a country by means of three complementary lines of approach.

1) *Output/Value added approach*

This approach sums up all the value added by every producer in the economy in the course of producing goods and services.

2) *Expenditure approach*

The expenditure approach sums up all final expenditures on goods and services in the economy and adjusts for contribution from exports and imports.

3) *Income approach*

The income approach sums up all income accruing from production in the economy. This comprises compensation of employees (wages, salaries, etc.), provision for consumption of fixed assets (depreciation, allowances), net operating surplus and indirect taxes.

The SNA has distinct advantages for historical research. The three lines of approach by definition have the same result. This enhances the possibility of (cross)checking the outcomes. One should keep in mind though that for developing countries income and expenditure are hard to measure in an economy which is largely non-monetized. Moreover, the results are comparable by other studies set up according to the same approach. According to Gerschenkron (1962) “the historical application of national accounts provides the best mean to chart the quantitative development of an economy without overestimating or undervaluing sectors or regions (p. 436-444).”

Naturally, the historical application of national accounts also has its drawbacks. The concept is geared towards 20th century industrial nations, highly integrated and market-oriented. The definitions relate only to transactions within the market mechanism. An exception is made for some goods and services. The contribution of these activities is usually measured by means of ‘shadow prices’ or imputed values on the assumption that the price for these goods and services was equal to that of market-oriented production.

However, the share of non-monetary transactions has decreased in the course of economic development, and the extent to which regions were involved in market-oriented production varied widely. Moreover, it is doubtful if ‘shadow prices’ accurately reflect productivity in this part of the economy (Horlings, 1995). The

provision of public services presents a special case. Government is essentially a non-market organization; its product cannot be measured in terms of output volume and market price. As a consequence it is very difficult to accurately assess the importance of this sector to economic development.

3. History of Indonesian national accounting

National accounting in Indonesia has its roots already in the 19th century when Governor-General Merkus made a first estimate of total income for 1840 of Indonesians in Java (CEI, 1979, p. 16). Before World War II a few other tentative estimates of national income of Indonesia were published of which Götzen's (1933) attempt was the most substantive (Van der Eng, 1992). Polak (1943) was the first to prepare estimates resembling the present day concept of national accounting. Combining the income and production approach he came up with estimates by industrial origin for the years 1921-1939. These estimates are still regarded as having a considerable degree of reliability (Arndt and Ross, 1970).

For the Republic of Indonesia Neumark (1954), who was the UN's national income advisor of the National Planning Bureau (*Biro Perancang Negara*), published estimates for 1951-1952. His estimates were criticized on methodological and conceptual points (Bakker, 1954; Hollinger and Tan, 1956/1957).

In 1958 the UN supported the establishment of special Bureau for Economics and Finance (*Biro Ekonomi dan Keuangan*) at the National Planning Bureau. Some attempts were made to compile national accounts, but estimating national income did not have priority. In one of these attempts Muljatno extended Neumark's work to the years 1953 and 1954, using the same methods and concepts as Neumark (Muljatno, 1960, p. 162). Later he estimated the national accounts for the whole period 1951-1959 (UN, 1963, p. 296). Muljatno was very well aware of the shortcomings of his estimates. But he argued:

“Salah satu alat untuk mendapatkan gambaran tentang keadaan (strukturil dan fungsional) ekonomi dari pada suatu Negara ialah perhitungan Pendapatan Nasional. Memang pada mulanya banjaklah kesukaran² untuk memperoleh angka² Pendapatan Nasional jang mendekati kebenarannya, tetapi kita harus mulai dengan perhitungan² ini untuk mengetahui kesukaran tsb. agar achirnja

dapatlah kita memperoleh angka¹ yang makin lebih baik¹.” (Muljatno, 1960, p. 163)

Only when in 1962 the work was taken over by the Central Bureau of Statistics (*Biro Pusat Statistik*, BPS), with the technical support from a team of UN sponsored-consultants, BPS started improving the estimation procedures. Annually conducted survey covering a wide field of socio-economic statistics were introduced and censuses of agriculture and manufacturing were prepared. After a period of political and economic turmoil in the early 1960s, Indonesia broke with the UN in 1965. This slowed down further statistical development, although BPS continued the work initiated by the UN to the best of its ability. It even published two sets of national income estimates, one in 1966 covering the years 1958-1962 (BPS, 1966), and another in 1967 for the years 1960-1964 (BPS, 1967). According to Arndt and Ross (1970) the standard of reliability attained left much to be desired. For example, because lack of funds, only a 1 percent sample of the questionnaires of the census of manufactures was processed, while only partial results of the census of agriculture became available.

When UN technical assistance was resumed at the end of 1967, BPS produced another series of gross domestic product since 1968, for which both the production and expenditure approach were used. The procedures used for its estimation are basically still employed today. In the meantime BPS has been able to improve the estimation procedures and methods on the basis of new information from the regular socio-economic household surveys (*Survei Sosial-Ekonomi Nasional*, Susenas), agricultural censuses of 1963, 1973, 1983, 1993, and 2003; the industrial censuses of 1964, 1974/75, 1985/86 and 1996; and the Input-Output (I-O) tables for the years 1969, 1971, 1975, and 1980, 1985, 1990, 1995, and 2000.

4. Services in the official national accounts: methods and sources

¹ “One instrument to obtain a picture about the (structural and functional) state of the economy in a country is the National Accounts. In the beginning it is indeed difficult to obtain reliable estimates for the National Accounts, but we need these calculations as a starting point in order to understand the difficulties. In the end knowing these difficulties will enable us to arrive at better estimates.”

This section will discuss the different methods and sources that are used for compiling the service sector in the national accounts. The sectors concerned are i) transport and communication, ii) trade, hotel and restaurant, iii) banking and other financial intermediaries, iv) ownership of dwelling, v) public administration and defence, and vi) services. Time series of the Indonesian national accounts from 1951 to 2000, in both current and constant prices, can be found in appendices a and b.

4.1 Transport and communication

Rail transport: In all years data from the annual reports of the State Railways was used to estimate gross value added. Over the years the name of the State Railways changed several times. In the 1950s the State Railways were called DKA (*Djawatan Kereta Api*), in the 1960s and 1970s PNKA (*Perusahaan Nasional Kereta Api*), in the 1980s PJKA (*Perusahaan Jawatan Kereta Api*), and in the 1990s Perumka (*Perusahaan Umum Kereta Api*). Gross value added at constant prices was obtained by extrapolation, using passenger and ton-kilometer weighted composite indices as extrapolator.

Road transport: This sub-sector covers passenger and cargo transportation by motorized and non-motorized vehicles such as buses, trucks, *bemos*, taxis, *becaks*, and others. In the 1950s very detailed information is available on the methods of estimation. Information used to estimate the contribution to national income from trucks and buses was obtained from Traffic Agencies (*Djawatan Lalu Lintas*) and Tax Offices (*Kantor Pajak*).

- Truck: 1) Gross income was around Rp. 120.000 per year.
2) Profit was 10 %, including repair and service costs, which was estimated at Rp. 1800 per truck per year. According to the Tax Agency, net profit from a truck was between Rp. 9.000 and Rp. 12.000 per year.
3) Salary for drivers was estimated to cover 17,5 %
- Bus: 1) Gross income was around Rp. 150.000 per bus per year.
2) Profit, including repair and service cost, was 12,5 %.
3) Salary of drivers and other workers was estimated to be 20 %.

The total number of trucks and buses was obtained from the Indonesian Motor Union (*Ikatan Motor Indonesia*).

- Other transport (*Becak, Grobak-dorong, Delman, Grobak Hewan*): The income of a *becak* owner was Rp. 10,- per day, for a *grobak-dorong* Rp. 7,50, for a *delman* Rp. 15,- , and for a *grobak-hewan* Rp. 12,20. These estimates and estimates of number of vehicles were based on information from different *kabupaten*² in Indonesia.

For 1960 through 1965 estimates of bus transport were based on average cost and revenue data from PN Damri, the most important state owned bus enterprise, and on information on the bus fleet in operation supplied by the Directorate of Road Transport (*Badan Lalu Lintas Darat, BLLD*). Gross revenue since 1966 has been calculated using statistics on total number of buses in operation, annual average mileage per bus, average number of passengers per bus, and average tariff per passenger kilometer. This information was obtained from the Police Department, the Private Road Transport Association (*Organisasi Pengusaha Angkutan Darat, Organda*), and Damri respectively. Average cost percentages were estimated by Organda. Gross value added at constant prices was obtained by extrapolation by an index of the number of buses in operation.

From 1960 through 1965, truck transport at constant prices was calculated as the product of the total number of trucks in operation according to BLLD and average costs per truck in 1960 derived from a survey conducted in West Java. From this series current prices were derived using as an inflator Damri's index of average wages and salaries per employee. From 1966, a similar method to that for bus transport was used, i.e. calculating gross revenue as product of ton kilometers and average tariff based on the same sources as for buses. Cost percentages were estimated by Organda. Constant prices were obtained using an index of the vehicle fleet in operation.

In the 1960s *becak* transport was calculated as follows. The total number of *becaks* in Indonesia was estimated on the basis of the number of *becaks* registered in Jakarta in 1966 through 1968, and the ratio of urban population in Indonesia to Jakarta population. These estimates were extrapolated back to 1960 by the growth of urban

² A *kabupaten* is an administrative area in Indonesia.

population. Average revenue, intermediate consumption, and gross value added in 1968 per *becak* were derived from a case study conducted in Jakarta by the National Income Division.

Assuming that the average revenue per *becak* has followed the development of the cost of living index throughout the period, average revenue in 1968 was extrapolated by this index, and the current price average so obtained multiplied by the number of *becaks* operated in respective years. Unchanged cost structure in this period had also to be assumed. Constant price estimates were prepared using for extrapolation an index of the total number of *becaks*.

Starting in the 1980s all road transport has been estimated based on the number of commercial cargoes and passenger vehicles liable for inspection, gathered from the Road Transport Office (*Dinas Lalu Lintas dan Angkutan Jalan Raya*, DLLAJR) annual report, and collected by the Transport and Communication Statistics Division of BPS. Average output and intermediate input ratios by vehicle type are made available through a survey conducted by BPS.

Air transport: In the 1950s air transport was calculated based on data directly obtained from firms for air transport. For 1960 through 1965 the estimates referred to Garuda Indonesia Airways only. From 1966 until the 1980s they also included Merpati Nusantara and Kemayoran airport. Current price estimates were derived from profit and loss accounts. A weighted average index of passenger kilometers, freight ton kilometers and mail ton kilometers was used to obtain constant price estimates by extrapolation.

From 1980 onwards the scope of this sub-sector has been broadened. Since then it has covered all activities involving domestic and international cargo and passenger transportation, including other activities related to air transport, using national airlines. Gross value added has been estimated by production approach, based on output and cost structure data that is obtained through airline enterprises survey by BPS. Gross value added at constant prices has been computed by using weighted composite production indices of ton-kilometer passenger and cargo transported.

Sea transport: For the 1950s data was directly obtained from firms for water transport. In the 1960s and 1970s estimates were based on Bank Indonesia's statistics on Indonesian owned and chartered tonnage in inter-insular and ocean trade, complemented by information from the Private Shipowners Association (*Pelayaran*

Nasional, Pelnas) on their tonnage engaged in coastal trade. Also the profit and loss accounts of the State Interinsular Shipping Enterprise (*Pelayaran Nasional Indonesia*, Pelni) and the State Ocean Shipping Enterprise (PT Jakarta Lloyd) were used, together with information of freight carried by Pelni and Jakarta Lloyd, and Pelnas statistics of revenue, cost, tonnage and freight carried. This information was derived from the few returns to a questionnaire sent to members of Pelnas. Gross value added at constant prices was obtained by deflating current price estimates by the cost of living index.

In the 1980s output and current prices were estimated by multiplying the number of cargoes and passengers transported by tariff per unit of cargo and passenger, respectively. Average output data was derived from shipping enterprise reports, while data on cost structure was based on Input-Output tables. Cargo and passenger data was provided by the National Shipowner Association (INSA), BPS and other sources. Gross value added at constant prices was calculated by extrapolation using weighted composite indices of cargoes and passengers transported.

Basically, the method of estimation of value added for 1990s series was the same as for 1980s. The only difference is that the 1980s ratios were built up from a combination of transported goods and passengers, while for 1990s separate ratios were used for goods and for passengers.

Inlandwater transport: Inlandwater transport has only been a separate sector since the 1980s. This sector covers all activities involving passenger and cargo transportation by commercial inlandwater vessels, whether motorized or not. Output is estimated by multiplying the number of vessels by average output. Data on the number of vessels operating was provided by the Office of River, Lake, and Ferry Transport (DLLADSDP), while per vessel average output is calculated from the results of a BPS survey. Cost structure was on Input-Output tables. Extrapolation was utilized for the calculation of gross value added at constant prices.

Other transport: In the 1960s and 1970s this was a residual sector. Here was included all other transport by air, sea and road, and services incidental to transport where statistics in a proper sense are not available. The number of persons engaged in this sector had been derived residually from the population census of 1961, and assumed to have moved along with total population. Constant price estimated were obtained by multiplying average earnings per employed person in the base year (estimated by BPS)

by the total member engaged in this period. From this series current price estimates were derived using as inflator an index of average wages of estate workers prepared by BPS.

From the 1980s onwards this sector covers all activities to support and smooth transportation by sea, air, river, and land such as terminals and parking, loading and unloading, agencies, expeditions, toll roads and other services allied to transport. The method of estimation was the production approach. Output and value added at current prices for monopoly activities were gathered from the financial report of BUMN (*Badan Usaha Milik Negara*, Agency of State Properties). Other activities are estimated by multiplying production and price indicators. Also value added and mark up ratios are used.

Communication: Data on communication in the 1950s was directly taken from PTT. Current price estimates were based on profit and loss accounts. In 1960 through 1965 the accounts of telecommunications, and of Post and Postgiro were integrated. From 1966 onwards separate accounts had been supplied by the Directorates General of Telecommunications, and of Post and Giro. Postgiro transactions, appropriate to the banking sector, were included with post communications. Gross value added at constant prices had been calculated by extrapolation using as indicators an index of letters handled in the case of post communications, and for telecommunications a weighted index of the number of words cabled the number of telephone connections, the number of minutes of interlocal calls, and the number of minutes of radio telephone calls.

4.2 Trade, Hotel & Restaurant

Trade:

For the 1950s a very detailed description of the estimation method is available.

- Export trade: According to information from A.L.S. (Algemene Landbouw Syndicaat) a commission of 3 % was obtained on the yield of exported estate crops and 15 % on farm crops. Profit on exported animal husbandry was estimated to be 20 %, forestry 10 %, and other food crops 15 %.
- Import trade: According to information obtained from JUBM (*Jajasan Urusan Bahan Makanan*), the profit from selling imported rice was 10 %. Consumer goods could earn 30 %, raw and auxiliary materials 20 %, and capital and durable goods

27,5 %. The profit obtained from raw earth oil was directly taken from firms that import these goods.

▪ Domestic trade:

1) Food: For food the estimates were taken from Neumark that the profit from trade food was about 10 %, while the part of the production that was traded was: rice 20%, corn 10 %, peanuts 5 %, soya beans 2,5 %, and vegetables and fruit 5 %. The remaining was used for own consumption.

2) Fishing: According to information from Ocean Fishing Agency (Djawatan Perikanan Laut), the profit obtained from trading fish covered 20 to 50 %. Therefore 30 % was taken as approximation.

3) Animal husbandry: Of all animal husbandry the following amounts were not traded: cattle 20 %, sheep and goats 50 %, pigs 50 %, chicken 65 % and eggs 65 %. Profit was calculated not from number of animals, but from kilograms of meat, except for chicken and eggs. This means: cattle are about 120 kg meat, a sheep or goat 8 kg and a pig 40 kg. Prices were taken from BPS. Profit on trading a chicken was Rp. 3,- in 1953 and Rp. 4,- in 1954, and 15 % on eggs.

4) Forestry: Domestic use of wood per year was estimated to be 36 million m³ with a price between Rp. 23,- and Rp. 24,- per m³ in 1953 and 1954. Only ¼ of this was traded and probably only people in cities actually bought wood. Of this part ¾ was traded through wholesale trade and the remaining ¼ through retail trade. The profit made from wholesale trade was 20 % and from retail trade 50 %. For trade bamboo the profit was only 2 %.

5) Manufactures: Value of manufactures was Rp. 16.678.000 in 1953 and Rp. 17.329.000 in 1954. 15 % from this was traded between industries, while the profit was 40 %.

6) Domestically used sugar: Based on the difference between industry prices and retail prices the profit made from trading sugar was 6 %.

For the 1960s and 1970s the estimates had been derived from the value of the marketed surplus of the production in agriculture, fishing, forestry, mining, manufacturing, and the marketing of exports and imports of merchandise. The marketed proportions had been estimated on the basis of information supplied by the Departments of Agriculture and Trade and by other agencies. The proportions used are: for farm food crops 30 %; farm non-foods 75 %; estate crops 100 %; livestock 50 %; fishing 75 %;

forestry 50 %; mining 100 %; large and medium manufacturing 100 %; household industry 50 %; and import/export 100 %. Throughout the period fixed percentages had been used. Fixed trade margins had been applied to these marketed surpluses estimated by the Department of Trade. These margins were 20 % for exports, 50 % for imports and 20 % for domestically produced goods. These estimates were derived from the National Sample Survey of 1963. Constant price estimates had been derived in a similar way from production and import/export data at constant prices.

This method is continued in the 1980s and 1990s, but now the ratios of traded merchandise, trade margin and value added are derived from Input-Output tables. Unfortunately, those ratios are not given anymore in the explanation of methods and sources. Gross value added at constant prices is still computed by multiplying the output of agriculture, mining and quarrying, manufacturing and imports at constant prices by their corresponding ratios.

Hotel & Restaurant: In the 1950s estimation of this sector was based on the amount of tax paid by hotels or restaurants. In 1953 and 1954 this amounted to Rp. 21,5 million and Rp. 22,1 million (*Statistik Konjunktur*). According to the Tax Office only about 50% of the hotels, and only 40 % of the restaurants paid tax. The profit made by a hotel was about 40 % and of a restaurant 60 %.

In the 1960s and 1970s hotel & restaurant is included under other services, and therefore no disaggregated figures are available for this period. As with all sectors included here the value added in a base year was calculated as the product of the number of persons employed derived from a Population Census, and the average earnings per person based on a special survey conducted by BPS in several regions. Assuming unchanged proportion of persons employed in this sector to total population, constant prices were obtained by extrapolation by the growth of population. From these series current prices were derived using as inflator an index of average wages of estate workers.

From 1982 to 1988 the output of hotel was computed by multiplying the number of guest nights by the average guest night output. After 1988 the output was calculated as the number of room nights multiplied by the tariff of a room night. Data on room nights and its tariff was gathered by BPS, while the value added ratio was calculated from the results of a BPS hotel survey and Input-Output tables. Gross value added at

current prices as well as at constant prices was computed by multiplying the value added ratio by its output.

For restaurant from 1982 to 1988 gross value added was estimated by multiplying the number of workers employed by per worker average output and by the value added ratio. The estimation of the number of workers employed was based on the Population Census, while per worker average output and the value added ratio were gathered from a restaurant survey conducted by BPS. Gross value added at constant prices was computed by extrapolation using the number of workers employed as indicator. After 1988 gross value added of this sub-sector was estimated using an indicator on household consumption of prepared meals. Gross value added at constant prices was computed by using a consumer price index of prepared meals and beverages as the deflator.

4.3 Banking and other financial intermediaries

In the 1950s data on profit and wages for banks and insurance companies was directly taken from the firms. From banks scattered over Indonesia input from 70 banks was obtained, while from insurance companies only a few provided information. But based on information from the tax agency estimates could be made about the income of these insurance companies.

Banking: In the 1960s and 1970s income and expenditure statistics covering all state banks and the majority of private banks were collected and compiled by Bank Indonesia. On the basis of this information production accounts were compiled imputing a service charge defined as interest received minus interest paid. Constant price estimates had been prepared by Bank Indonesia for 1960 through 1965. From 1966 through the 1980s the consumer price index had been chained on the implicit price index and used for deflation.

In the 1980s and 1990s data on output and gross value added at current prices was collected directly from Bank Indonesia (BI). From 1989 onwards interest paid for or received from BI Certificates and foreign loan commitment fees were not regarded as earnings or costs for private bank activities, but as part of activities of the Central Bank in its capacity as monetary authority. The gross value added at constant prices was derived by deflation. Wages and salaries were deflated by the consumer price index, while the wholesale price index was used for deflating operating surplus.

Insurance:

Since the 1960s estimation of output and gross value added of insurance at current market prices has been based on data from the annual reports of insurance companies obtained from the Financial Institution Directorate, Ministry of Finance. Gross value added of life insurance at constant prices has been calculated by extrapolating it with total number of policies. The extrapolation of output of social insurance is done by using number of participants and casualty insurance and the general wholesale price index.

Other financial services: In the 1960s and 1970s value added of village banks and village paddy banks had been estimated at 50 % of interest received on the basis of norms observed in private banks, and of rough estimates of the wages and salaries bill. Constant and current price series had been prepared using indices of number of debtors of village banks, and of prices of agricultural products respectively based on statistics compiled by BPS.

In the 1980s output and gross value added of other financial activities were calculated as a fixed percentage (5 %) of banks' output and gross value added at current as well as constant prices.

Since the 1990s other financial services has been estimated using annual financial reports from different firms, such as pension funds, pawnshops, exchange traders, etc.

4.4 Ownership of dwelling

For 1951 and 1952 Neumark estimated the size of this sector to be 8 %, but this was criticized by, among others, Bakker (1954) to be too high. For 1953 through 1960 the profit of rental was assumed to be 5 % for houses, and 2.5 % for government buildings. The price of a house was estimated between Rp. 4,800 and Rp. 5,200. There were 80 million inhabitants in Indonesia and every family consisted on average of 5 people. This means a total of 16 million houses. Based on the price of a house and the number of houses the value of ownership of dwelling was obtained.

In the 1960s and 1970s this method was abandoned. In the absence of any proper statistics gross value added had been assumed to correspond to 2 % of the gross value of all other activities at both current and constant prices.

Since the 1980s gross value added has been estimated based on household consumption expenditure, particularly expenditure on housing, for a base year. Gross value at constant prices is obtained by using number of housing units as the extrapolator, while gross value added at current prices is estimated by inflating the gross value added at constant prices using the housing component of the consumer price index as the inflator.

4.5 Public administration and defence

In the 1950s figures about wages and salaries were directly taken from the different ministries. Information about local government was obtained from different *kabupaten*.

In the 1960s and 1970s central government production accounts were derived from actual routine budget expenditure statements of the Budget Directorate of the Department of Finance. From current expenditure according to these estimates were excluded subsidies and transfer payments. Fixed capital consumption was calculated as 5% of net value added, i.e. compensation of employees. Gross value added at constant prices was obtained by deflating consumption of fixed capital by the implicit price index of gross fixed capital formation, and by extrapolation of compensation of employees in 1960 by an employment index. Employment statistics were derived from material supplied by the Treasury, and from the Census of Civil Servants.

For local government compensation of employees was calculated as the product of average annual income per employee and employment. Employment estimates were based on information from the Department of Interior, and on the Census of Civil Servants. Average incomes were assumed to be identical to those of non-military central government employees, the latter derived from information supplied by Bappenas on the relation between the number of armed forces and other central government employees, and on the relation of the armed forces average income to other employees average income. Intermediate consumption and fixed capital consumption were calculated as fixed percentages of compensation of employees, the former based on a survey of regency administration expenditure in 1967. It must be noted that about 13 % of the regencies responded. Constant price estimates of gross value added were prepared in a similar way to those of the central government using employment for extrapolation.

Since the 1980s the contribution of this sector to gross domestic product has consisted of routine wages and salaries of central and local government employees, wage component of development budget, and 5 % depreciation. The estimation is based

on realized government expenditure gathered from the Ministry of Finance and BPS. Gross value added at constant market prices is estimated by extrapolation using weighted composite indices of the number of servants.

4.6 Services

In the 1950s this sector covered recreation only. Sources used were owners of cinemas and information from different *kabupaten*, the Indonesian National Cinema Union (*Persatuan Bioskop di Seluruh Indonesia*), and tax offices.

In the 1960s and 1970s this sector had been broadened. Among others, hotel and restaurant is included under this sector. In these years the value added in a base year had been calculated as the product of the number of persons employed in service industries derived from the Population Census, and the average earnings per person based on a special survey conducted by BPS in several regions. Assuming an unchanged proportions of persons employed in this sector to total population, constant prices were obtained by extrapolation by the growth of population. From this series current prices were derived using as inflator an index of average wages of estate workers.

Since the 1980s this sector has significantly been broadened, although hotel and restaurant is no longer included under this sub-sector. The methods of estimation are the following.

Business services: It covers all business services such as those provided by lawyers, accountants, architectural bureaus, data processing centers, advertising agencies, etc. Output and gross value added were estimated by using the Population Census employment figure, per worker output, and the value added ratio derived from a special survey. Gross value added at constant prices was calculated by using the number of employed workers index as extrapolator.

Social and community services:

- a) Educational services: The value added of this sector was estimated by using data on the number of students attending different levels of private schools, gathered from the Ministry of Education. Also used was data on per student output and the value added ratio derived from a special survey, and the education cost component of the consumer price index. In order to cover informal education a mark-up was added to

the above estimate. Gross value added at constant prices was derived by extrapolation using the number of students index as extrapolator.

- b) Medical services: This sector covers services provided by hospitals, medical doctors and other private medical agents. Gross value added of each activity was estimated by multiplying per hospital bed output by the number of hospital beds, per medical doctor output by the number of private medical doctors and a mark-up to cover other private medical services. Gross value added at current prices was based on the value added to output ratio. Data was gathered from Social Welfare Statistics, BPS, and the Input-Output tables. Gross value added at constant prices was derived through extrapolation by using a weighted composite index of total number of beds and doctors.
- c) Other social and community services: Average output per orphan and per aged individual cared, and cost structures were obtained from a special survey. Multiplication of average output by the number of persons cared and value added ratio resulted in output and gross value added at current prices. Data on the number of persons cared was obtained from the Ministry of Social Affairs. Value added at constant prices was calculated by extrapolation.

Susenas provided data on per capita expenditure for retributions, donations, etc. Based on the assumption that these expenditures were the output of cleaning services, religious services and the like, then by using cost structures made available through a special survey, the value added of such services can be estimated. Estimation of gross value added at constant prices was done by using a mid-year population index as extrapolator. The output and gross value added of Red Cross Services were gathered from the central office of PMI, while constant price value added was calculated by using the general consumer price index as deflator.

Output and cost structure of research services were obtained from a special survey. Gross value added at constant prices was estimated by using the general consumer price index as deflator.

Entertainment and cultural services: This sector covers the services provided by movies, theatres, radio broadcasting, parks, nightclubs, movie production and distribution.

Output of movies at current prices was calculated by multiplication of total number of spectators and its tariff. Cost structure was obtained from Input-Output

tables. Gross value added at constant prices was calculated by using total number of spectators as extrapolator.

Data on entertainment tax and cost structure provided by a special survey was used to estimate output and gross value added of theatres. Gross value added at constant prices of theatres was obtained by using the expenditure on recreation and sport components of the consumer price index as deflator.

The average output and cost structure of production and distribution of movies were gathered from a special BPS survey, while data on the number of movies produced was obtained from the Ministry of Information. Gross value added at constant market prices was calculated by using the number of movies produced index as the extrapolator.

For a base year the gross value added of private radio broadcasting, parks, and nightclubs were estimated by using number of workers employed, per worker output and cost structure gathered through a special survey. Gross value added at current and constant prices for other years were obtained by using the growth rate of workers employed and the expenditure on recreation and sport components of the consumer price index.

Personal and household services: This sub-sector covers repair services, personal services and housekeeping services. A special BPS survey provided data on per worker output and cost structure.

Gross value added was estimated by multiplying the number of workers, gathered from the Population Census, by per worker output and value added ratio. Gross value added at constant prices was obtained by extrapolation, using the growth rate of workers employed as the extrapolator. From 1988 onwards it was added that for workshop services, the gross value added was calculated based on the number of motorized vehicles as the production indicator.

5. Indonesia's official National Accounts, 1951-2000: Economic Structure

Figure 1 shows how, according to the official national accounts, the economic structure of Indonesia developed. This figure is derived from the various publications of the

official national accounts since 1951³. Comparison of nominal current price estimates is not very informative because of inflation and deflation. On the other hand, constant price estimates cannot be compared over different years because different base years are used (see also appendix b). But by presenting the data as percentage of total gross domestic product it is possible to draw conclusion about the development of the economic structure.

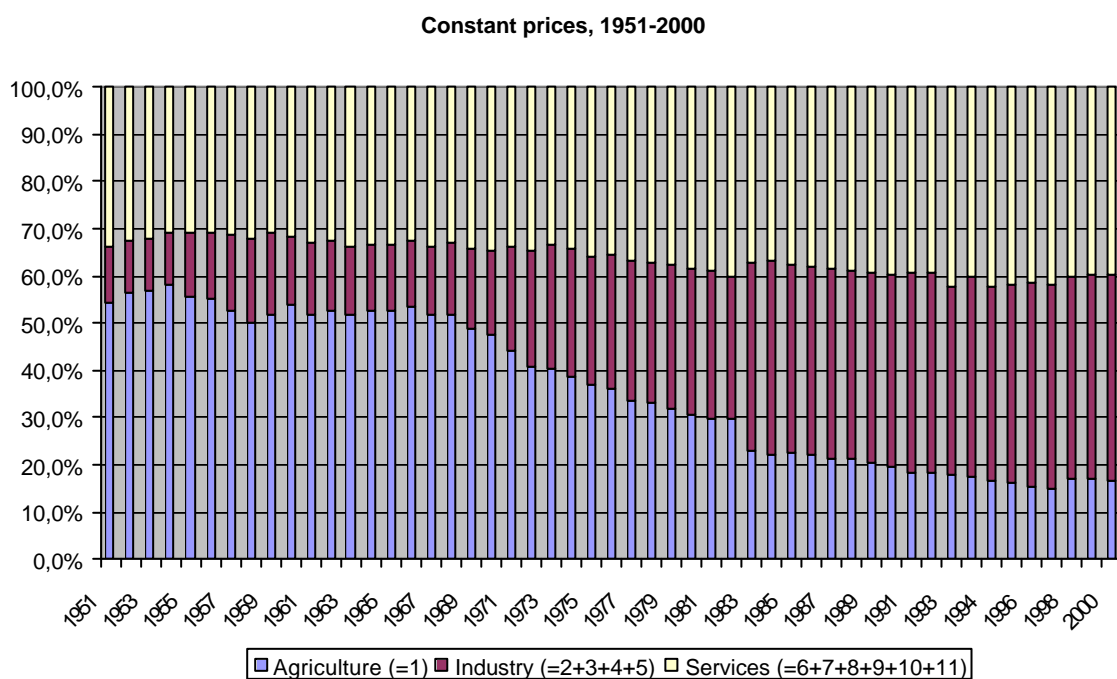
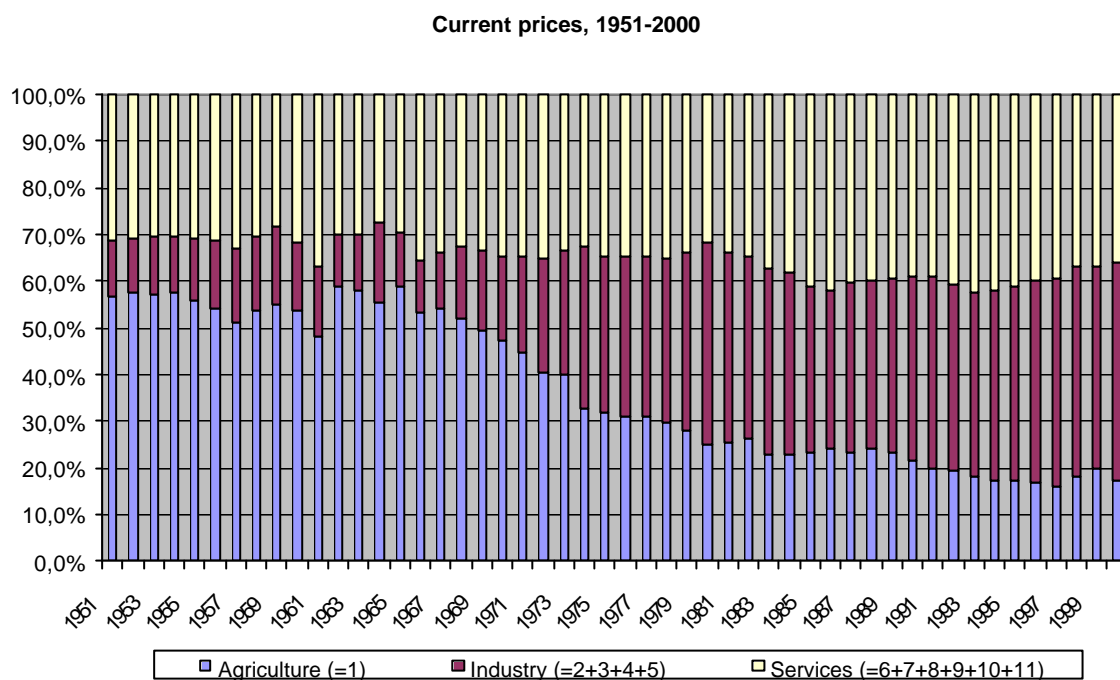
In the years after Indonesia gained independence in 1949 the country can be characterized as an agricultural economy with a significant service sector. In these years the agricultural sector contributed more than 55 % to gross domestic product, while industry at the most 15 %. This is not surprising since economic policy making was not high on the agenda of president Soekarno. Nation building and keeping the country united had his priority. Policy was therefore aimed towards achieving economic sovereignty or *Indonesiasi* ('Indonesianisation'). This process, in which state enterprises were set up and others taken over from the Dutch, meant that a lot of knowledge disappeared and industrialization was actually halted.

“In the years since independence, Indonesian development activity [...] has been effective in raising output mainly in the labor-intensive sector of the economy. In the capital-intensive sector the Indonesian government's primary concern has been transferring ownership of enterprise from foreign to Indonesian nationals. On balance, the result of this policy has probably been a net reduction of capital facilities in this sector, at least outside the petroleum industry” (Paauw, 1960, p. 209.)

Moreover, because the agricultural sector was considered very important to become an autarkic nation, growth in agriculture was stimulated in order to make Indonesia self-sufficient in this sector. Because of this pattern in which the share of the labor-intensive or traditional sectors in total output increased while that of the modern, capital-intensive sectors declined, Booth (1998, p. 70-72) calls this a period of retrogression.

³ Unfortunately I have not yet been able to find data for 1969 and 1970. These should be available at the BPS library in Jakarta.

Figure 1: Economic structure in Indonesia, 1951-2000



Source: appendix a and b

Things changed when Soekarno was forced to step down and Suharto took over the presidency in 1966. Suharto put economic development at the top of his agenda. He therefore appointed a 'Team of Experts in the Field of Economics and Finance'⁴, which had the task to draw up a Program for Stabilization and Rehabilitation (Thee Kian Wie, 2002, p. 196). Suharto's policy resulted in annual growth rates of around 7 percent on average between 1967 and 1998.

This emphasis on industrialization is reflected in the economic structure. Under Suharto the contribution of industry to total GDP increased from around 13 % in 1967 to more than 45 % in 1997. This change in economic structure took place at the cost of agriculture. This did not mean, however, that output in agriculture was not growing. The industry sector was just growing faster. The contribution of the service sector to total GDP increased a little, both in current as well as in constant prices, from 34 % in 1967 to around 40 % in 1997, although no clear trend in the share of services can be seen.

A large part of the increase of industry was clearly due to the oil-boom. The oil price increases magnified the rising share of industry and accelerated the decline of agriculture. But after 1981, when oil-revenues began to decline the share of the industry sector was still growing, although slowly. In this period the share of industry rose fluctuating with high and low oil prices (around 1980 and the mid-1980s, respectively) and rising in the late 1980s in response to the strong growth on non-oil manufacturing⁵ (Hill, 1996, p.19).

The changes in the economic structure as derived from the official national accounts could be due to statistical practices. Improving methods in accounting for the services might partly explain the growth of the share of the service sector. But as we saw in section 4 for the largest service sectors, such as transport & communication, government & defence, and trade, methods remained more or less the same over the years. Only the sub-sectors ownership of dwelling and other services show considerable change in the methods of estimation. It is therefore likely that the changes in economic structure as derived from figure 1 indeed took place. But which sectors mainly drove this structural change?

The rapid growth of any sector will not have much effect on the overall growth rate, if that sector contributes only a small share to GDP. Another way of analyzing

⁴ This team is often referred to as the 'Berkeley Mafia' since several of these economists had pursued their postgraduate study at the University of California in Berkeley.

⁵ Especially in the current price series these changes in oil prices translate directly into the sectoral shares.

economic development using the national accounts is therefore by looking at the sectoral contribution to GDP growth (Table 2). The incremental contributions reflect both the size of a sector and its rate of growth. This contribution is estimated by multiplying the growth rate of each sector by its share in GDP. The first period in table 2 starts in 1960, because national account estimates before 1960 are rather unreliable. Besides, they are not disaggregated in different sub-sectors.

Table 2: Sectoral Contribution to GDP Growth, 1958-2000
(% of increment to real GDP)

Sector	Sukarno, 1960- 1967	Recovery, 1968- 1973 ^a	Oil boom, 1973- 1981	Recession, 1982-1986	Export growth, 1987- 1996	Crisis, 1997- 2000	Entire period 1960- 2000
Agriculture	47.36	31.07	18.05	22.98	8.20	17.88	21.93
Mining	6.65	18.72	6.53	-23.12	5.74	-2.84	2.80
Manufacturing	6.77	12.47	21.55	35.06	31.18	59.90	25.81
Utilities	1.32	0.41	1.08	2.28	1.56	6.09	1.78
Construction	3.06	6.82	8.52	4.42	10.20	4.91	7.15
Trade	13.38	16.85	16.86	20.00	15.16	8.27	15.40
Transport	1.64	2.90	7.40	6.72	7.61	5.05	5.79
Finance	0.34	0.98	2.61	9.34	6.42	-9.69	2.96
Housing	1.69	3.50	4.23	3.01	1.91	-4.49	2.13
Public administration	10.42	4.86	12.04	12.54	4.22	5.63	8.54
Other services	7.37	1.42	1.13	6.77	7.81	9.29	5.71
Total	100	100	100	100	100	100	100
(Annual average GDP growth, %)	2.02	9.20	7.94	4.37	6.69	-2.48	5.15

^a: based on 1968, and 1971-1973

Sources: own calculation from appendices a and b

This sectoral contribution to GDP growth further illuminates the pattern of economic growth since 1960. Agriculture's contribution to growth has declined during the period as a whole, while manufacturing apparently has become the leading sector.

In the early years agriculture and trade made the largest contributions to growth. During the recovery phase, those sectors dependent on the growth of government expenditure, such as transport and construction, made only a relatively modest contribution. During the oil boom period major changes in these sectoral shares occur.

Rapid manufacturing growth, behind rising import barriers, became the largest source of expansion, while the government sector and the transport sector also rose significantly. During the recession of the 1980s manufacturing became more and more important for economic growth. Agriculture's contribution also slightly increased in this period, due to both slower GDP growth in aggregate and strong food crop performance over part of this period (Hill, 1996, p. 21). Mining output contracted in absolute terms.

The period of export growth illustrates the structural change that was taking place during the late 1980s and first half of the 1990s. Manufacturing was still the major contributor, but less so compared to the previous period. A contracting government share is also clearly evident.

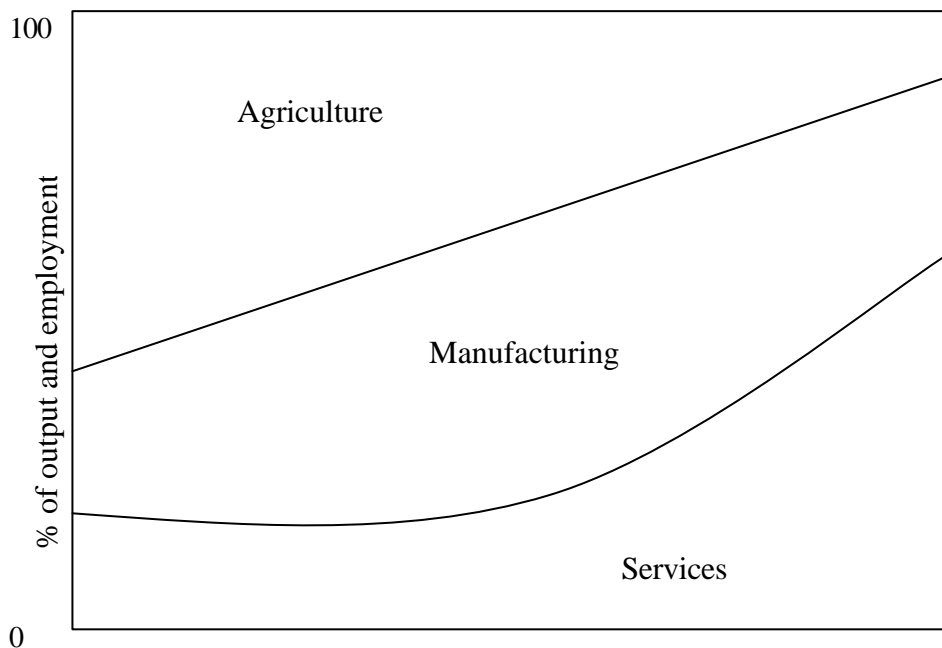
With the benefit of hindsight we can already see the causes of the subsequent crisis evolving. In the 1980s and 1990s financial liberalization boosted the role of the financial sector, its incremental share being almost twice as large as that of the government. On the other hand a strong recovery from construction had a significant impact on growth, becoming even larger than agriculture's share. In 1997, triggered by the collapse of the Thai baht, this large unregulated financial sector, combined with an inflated construction sector in which many projects were financed with short-term loans, were the main causes of a crisis that threw the Indonesian economy several years back in time.

6. Economic development and the service sector in Indonesia: a macro view

The conventional view, first independently of each other introduced by Fisher (1935) and Clark (1940), is that various sectors of economies develop according to a natural sequence. At the beginning of the process of economic development, agriculture is the most important sector. Initially, with low levels of productivity, there is little if any surplus above the subsistence requirements, so that the economic activity of most members of the society falls into the primary sector. As agricultural techniques improve, productivity rises and the size of the surplus grows, enabling the development of a manufacturing or secondary sector, producing both equipment and also consumer goods, which satisfy some less basic needs over and above subsistence levels. As the wealth and productive potential of the society grows further, even more sophisticated

needs are provided for by the service or tertiary sector. This evolution is illustrated in figure 2.1.

Figure 2.1
The three-sector model



Source: Gershuny and Miles (1983, p. 250)

Fisher (1939), who proposed the conceptual breakdown of the economy in three sectors – primary, secondary, tertiary –, noted that economies could be classified structurally in terms of wealth, according to the proportions of population employed in agriculture. In his view the share of population employed in this sector was inversely proportional to wealth.

Clark (1940) stated that economic progress in the sense of a rise of the average real national income per head of the working population may take place (a) as a result of improvement in real output per head in all or any of the three fields (agriculture, industry, services) or (b) as a result of transference of labor from the less productive to the more productive fields. His argument is that labor will be reallocated from manufacturing industries, which experience high rates of productivity growth, but stagnating demand, to services, which experience lower rates of productivity growth but rising demand. Clark's findings are based on detailed empirical data for a large number of countries.

But not everyone was convinced by this line of reasoning. Kuznets (1966), in studying the changing composition of output and employment during the growth of the advanced economies, came, for example, to the following conclusions. Regarding employment, there has been an unambiguous secular tendency for the share of total agricultural employment to fall, the share of manufacturing employment to rise, and the share of service employment to rise substantially, generally more than manufacturing.

Table 3: Employment by sector, 1961-1990

	Shares (%)				Increment (%)		
	1961	1971	1980	1990	1961-71	1971-80	1980-90
<i>I. Indonesia</i>							
Agriculture	73.0	65.8	56.1	50.1	28.2	24.4	34.1
Industry	8.1	10.1	13.3	17.0	20.6	23.7	26.7
Manufacturing	5.9	7.8	9.2	11.6	18.2	13.6	18.1
Construction	1.8	1.9	3.2	4.1	2.6	7.5	6.5
Services	18.9	24.1	30.6	32.9	51.2	51.8	39.2
Trade	6.9	11.0	13.1	15.0	32.4	20.1	20.0
Transport	2.2	2.4	2.9	3.7	3.8	4.4	5.9
Finance and other	9.8	10.7	14.6	14.2	15.0	27.4	13.2
Total ('000)	32,911	39,163	51,196	70,608	6,252	6,810	19,412
<i>II. Java</i>							
Agriculture	68.8	60.9	50.6	42.5	19.4	13.9	17.8
Industry	9.4	11.6	15.2	20.3	23.0	28.2	35.8
Manufacturing	7.1	9.3	10.9	14.3	20.9	16.7	24.9
Construction	2.0	2.0	3.6	4.8	2.1	9.0	8.6
Services	21.8	27.5	34.2	37.2	57.6	58.0	46.4
Trade	8.0	13.3	15.3	17.6	41.2	22.5	24.7
Transport	2.3	2.6	3.1	4.2	3.8	5.0	7.6
Finance and other	11.5	11.7	15.8	15.4	12.6	30.4	14.1
Total ('000)	21,658	25,757	33,026	43,798	4,099	7,269	10,772

Source: Hill (1996, p. 23)

However, regarding output, there has been a secular tendency for the share of agriculture in total output to fall, for the share of manufacturing to rise, and for the share of services to have had no systematic relationship with the growth of output.

Regarding productivity, the productivity of agriculture has generally been below national average, while those of manufacturing and services have been above it. When the productivities of manufacturing and services are compared, however, the data is more difficult to interpret. So Kuznets' conclusion is that employment in the service sector indeed rises, but whether this leads to a rise in the share of services in total output is not straightforward.

Baumol (1967) also questioned the so-called three-sector hypothesis. He argues that the share of services in real output is constant over time. According to Baumol's model, the share of service sector employment is larger in high-income countries, and grows with rising income, because of the low productivity level of the service sector.

Indonesia's case seems to support Kuznets and Baumol's hypothesis. If we look at employment figures, we indeed see a significant rise in people working in the service sector from almost 18.9 % to 32.9 % of the total (Table 3). This occurs at the costs of employment in agriculture, although in 1990 still more than 50 % of the working population is employed in the agricultural sector. The share of industry in total employment rises from slightly above 8 % in 1961 to 17 % in 1990.

Despite this growing importance of the service sector for employment, we saw in section 5 that the share of this sector in total output does not show a clear pattern, and seems to remain more or less constant over time. This is consistent with economic literature. According to the literature in the course of economic development five processes can determine the share of the services sector in total output.

First there is the common view that services are characterized by relatively high-income elasticities. This is based on the idea that commodities fill one set of human wants (the basic necessities) and services another (the desire for luxuries) (Fisher, 1935, p. 31). This hierarchy of needs which states that as income grows a higher share of income will be used for the purchase of luxuries (in our case services) is known as Engel's Law.

The fact is, however, that changing times bring different forms through which wants are satisfied, and it is easy to go astray by identifying luxuries with services. Kravis et al. (1983) point out that the income elasticity of demand is only one factor that influences the changes over time in the division of consumers' expenditures over time

between services and commodities. Some generalizations can probably be legitimately made about income elasticities for broad categories of wants –for example, that the demand for recreation tends to be highly elastic with respect to income- but such generalizations do not lead to a clear conclusion about shifts in the relative importance of services and commodities in consumer expenditures. Even a broad category of wants can be satisfied in a variety of ways, some involving a service and others involving a commodity. Higher incomes, for example, may lead to the substitution of a commodity for a commodity (meat for bread), or of a service for a service (an expensive restaurant meal for a cheap one), or of a service for a commodity (restaurant food for home-cooked food), or of a commodity for a service (ready-to-serve food for household help).

Another set of factors that determine whether the expansion path goes toward services or toward commodities are technological. Consider, for example, the possible ways for an individual to satisfy an income-elastic desire for entertainment in the form of a musical experience. The most direct physical sensation associated with the musical experience is going to a concert. Until a century ago this was the only option to have such an experience. Nowadays, various disembodied sources of music are available (cd, dvd, radio, television, internet, etc.), but access to these sources requires the purchase of commodities (cd-players, dvd-players, computers, cd, dvd, etc.) instead of the purchase of a service in the form of a concert ticket. So there can be a substitution effect between services and goods. These changes are called social innovations or the emerging of a self-service economy (Gershuny, 1978; Gershuny and Miles, 1983).

A third factor, with which the income elasticities and the technological factors interact, sometimes in a causative way, is relative prices. The existing structure of relative prices at a given moment may influence the relative size of income elasticities for different means of satisfying a broad want. For example, whether a high income elasticity of demand for recreation in case of an increase of income leads to a relative expansion of spending on services or on commodities is likely to depend on which ways of providing the desired form of recreation are the cheapest.

The influence that price may exercise on the income elasticities of close substitutes may vary with the level of income. Relative prices will in turn be influenced by technological changes and productivity gaps. If the cost-reducing aspects of technological change affect commodities more often than services, commodity prices will tend to fall relative to services prices. This behavior of relative prices is made more

likely by the facts that services tend to be produced in a more labor-intensive, less productive way than commodities and that wage rates rise relative to the rent of capital with development. The explanation for this is the following.

With similar prices for traded goods in all countries, wages in the industries producing traded goods will differ from country to country according to differences in productivity –a standard conclusion from Ricardian trade theory. But in each country the wage level established in the traded-goods industries will also determine wages in the industries producing non-traded goods, which are (mainly services). Because international productivity differences are smaller for such industries, the low wages established in poor countries in the traded-goods industries will also apply to the non-traded-goods industries. The consequence will be low prices in low-income countries for services and other non-traded goods, and at the same time high prices in high-income countries for both services and other non-traded goods.

So both technological and productivity differences cause a rise in service prices relative to commodity prices. Their influence in tilting the balance in favor of shifts from the satisfaction of wants through services to the satisfaction through commodities may help explain the limited expansion of real share of services in final expenditures despite the fact that services often seem to contribute to income-elastic wants. But evidently, it is not only income elasticity that is important, but also the price elasticity of demand for services. It seems clear, then, that there are no strong a priori grounds for expecting demands of final products classified as services to increase as income rises.

A possible fourth cause of a growth in service activity relative to total output is intermediate subcontracting. Because of the increasing demand for ‘intermediate’ or ‘producer’ services from elsewhere in the economy the service sector will grow. Instead of employing particular sorts of specialized service labor, firms sub-contract or outsource work to specialists. One can think of catering, security and cleaning. Elfring (1989), for example, found for seven OECD countries that employment growth in producer services was about twice as high as the average for the entire service sector. This finding is partly a result of measurement problems. In the system of national accounts firms are classified according to their main product. Therefore the performance of identical tasks will be classified as manufacturing employment when carried out by a manufacturing firm, and as a service when carried out by a specialized service firm. For example, book printing by a publisher will be classified as manufacturing, while book printing by a university will be classified as service.

Fifthly, an increase in the share of services can be explained by the phenomenon of ‘occupational tertiarization’. As just mentioned, there is more to service employment than just service industries. And while most attention has concentrated on the industrial dimension, much of the explanation for the growth of tertiary jobs comes from change in occupational structure within industries. Gershuny and Miles (1983) find, for example, that the ratio of white-collar workers to manual workers increases over time. The proportion of manual workers in the workforce is thus reduced even in industries classified as manufacturing.

Summarizing, in the existing literature we find five economic factors that affect the share of services in an economy:

- 1) Engel’s Law, whereby increasing wealth leads to the development of demand for increasingly sophisticated service functions;
- 2) social innovation changes, meaning changes in the mode of provision of particular service functions;
- 3) productivity gap, which is the consequence of the relative low productivity growth (and consequently the relatively fast increase in prices) in some final service industries. This is called the cost-disease;
- 4) intermediate subcontracting in which activities which were part of the production process within one industry are subcontracted to an intermediate producer service industry; and
- 5) occupational tertiarization whereby the employment structure within industries is changed, normally reducing the proportion of manual workers in the workforce.

As described in this section, some factors increase the share of services in total output, while others have the opposite effect. Since we do not know which are the dominating factors it is impossible to predict the exact development of the service sector in different countries. In the Indonesian case it seems that the different factors are in balance and consequently the share of services has not changed much.

This does not alter the fact, though, that the service sector plays a decisive role in economic development. Maybe not as the main contributor to GDP, but as a driving force, which facilitates the needs of the other sectors to grow. It is therefore important to study the various sub-sectors, which together comprise the service sector, on a more

micro level. In this way I hope to be able to answer questions such as: Did government policy stimulate sustainable economic growth? And, what barriers existed to obtain loans? And, did developments in the transport sector keep pace with the growing needs of other sectors? And, how did trade barriers halt back further economic development? Hopefully during the remainder of my PhD research I will be able to answer a few of these questions for Indonesia.

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Appendix A: Gross Domestic Product at current prices, 1951-2000 (in billions of Rupiah)

1951	1.	2.	3.		4.	5.	6.	7.	8.	9.	10.	11.	12.
	Agriculture, Livestock, Forestry & Fishery	Mining & Quarrying	Manufacturing Industry #		Electricity, Gas & Water Supply	Construction	Trade	Transport & Communication	Banking and other financial institutions	Rent	Government and defence	Services	Gross Domestic Product
			a. Oil and Gas Manufacturing	b. Non Oil-gas Manufacturing									
	40.4	1.5	6.1			0.9	10.5	2.0	0.2	4.6	3.9	1.2	71.5
1952	47.6	1.8	6.7			0.9	10.7	2.5	0.3	5.3	5.3	1.4	82.6
1953	48.1	1.9	7.2			1.5	10.5	3.5	0.3	3.9	5.9	1.7	84.4
1954	52.6	2.0	7.6			1.6	10.7	3.8	0.3	4.2	7.1	1.8	91.7
1955	67.6	2.8	13.7						37.4 +				121.5
1956	76.1	5.6	14.9						44.4 +				141.0
1957	84.7	8.3	18.3						54.3 +				165.6
1958	118.9	2.1	27.9		0.2	4.5	23.6	8.6	1.6	4.3	15.1	14.0	220.8
1959	165.2	7.8	35.7		0.2	5.8	33.1	10.6	2.3	5.8	15.1	17.8	299.4
1960	210.4	14.4	32.6		1.1	7.9	55.8	14.5	3.9	7.7	17.6	24.3	390.2
1961	225.3	14.0	46.7		1.2	10.6	81.6	17.2	6.1	9.2	26.4	31.8	470.1
1962	788.0	21.7	107.2		1.3	18.0	204.1	34.7	10.4	26.2	33.8	89.7	1,335.1
1963	1,856.3	113.0	216.9		3.7	57.3	479.2	65.8	22.6	62.9	120.5	210.6	3,208.8
1964	3,950.2	542.9	540.9		4.8	141.5	978.7	120.0	53.4	139.9	195.6	465.6	7,133.5
1965	13,928.7	582.8	1,796.5		5.4	437.2	2,935.6	518.7	195.9	464.9	845.5	1,998.8	23,710.0
1966	168.4	5.1	26.5		0.1	3.5	60.1	5.6	1.6	6.2	16.2	22.6	315.9
1967	457.3	22.9	62.0		3.5	14.1	148.9	18.5	4.0	16.6	40.6	59.4	847.8
1968	1,037.7	75.2	178.6		9.0	41.0	345.0	45.0	9.9	39.1	88.0	125.4	1,993.9
1969													
1970													
1971	1,646.0	294.0	307.0		18.0	128.0	592.0	162.0	45.0	85.0	214.0	181.0	3,672.0
1972	1,837.0	491.0	448.0		20.0	174.0	769.0	182.0	53.0	103.0	290.0	197.0	4,564.0
1973	2,710.0	831.0	650.0		30.4	262.0	1,118.0	257.0	83.0	143.0	405.0	264.0	6,753.4
1974	3,497.0	2,374.0	890.0		52.0	406.0	1,775.0	442.0	113.0	194.0	585.0	380.0	10,708.0
1975	4,003.4	2,484.8	1,123.7		69.8	589.6	2,103.7	521.2	151.4	257.8	864.3	472.8	12,642.5
1976	4,812.0	2,930.0	1,453.3		98.1	812.6	2,551.9	662.6	206.5	318.9	1,074.3	546.5	15,466.7
1977	5,905.7	3,599.7	1,816.9		105.6	1,023.3	2,959.0	820.6	236.4	542.2	1,394.2	607.1	19,010.7

	1.	2.	3.		4.	5.	6.	7.	8.	9.	10.	11.	12.
	Agriculture, Livestock, Forestry & Fishery	Mining & Quarrying	Manufacturing Industry		Electricity, Gas & Water Supply	Constructio n	Trade	Transport & Commicati on	Banking and other financial institutions	Rent	Governm ent and defence	Services	Gross Domestic Product
			a. Oil and Gas Manufacturi ng	b. Non Oil- gas Manufacturi ng									
1978	6,706.0	4,357.6	2,184.7		118.3	1,242.1	3,450.2	979.6	395.6	670.6	1,685.4	668.2	22,458.3
1979	8,995.7	6,979.8	3,310.6		148.8	1,789.7	4,775.1	1,421.5	655.1	914.2	2,199.6	835.3	32,025.4
1980	11,290.3	11,672.5	5,287.9		225.1	2,523.8	6,390.9	1,965.3	752.3	1,199.5	3,142.3	995.8	45,445.7
1981	13,642.5	12,970.6	5,821.7		288.2	3,117.8	7,965.7	2,353.2	1,404.2	1,439.4	3,904.7	1,119.0	54,027.0
1982	15,668.3	11,707.8	7,680.7		380.3	3,507.2	8,865.1	2,795.2	1,603.9	1,702.6	4,428.7	1,292.8	59,632.6
1983	17,696.2	16,107.4	2,230.1	7,666.3	313.9	4,597.2	9,932.5	4,098.1	2,358.6	2,355.5	5,711.5	4,609.0	77,676.3
1984	20,419.7	16,937.6	3,719.4	9,393.5	354.2	4,756.8	11,371.4	5,050.8	3,058.2	2,572.6	6,469.9	5,781.0	89,885.1
1985	22,512.9	13,570.8	4,287.4	11,216.0	395.9	5,301.8	12,962.2	6,100.3	3,496.2	2,775.0	7,925.1	6,453.2	96,996.8
1986	24,870.9	11,502.8	3,883.9	13,300.8	647.1	5,313.8	14,235.3	6,406.9	4,036.7	2,976.0	8,307.3	7,201.1	102,682.6
1987	29,115.9	17,266.8	3,917.0	17,233.4	746.9	6,087.4	17,561.2	7,442.6	4,795.1	3,349.1	8,911.8	8,389.6	124,816.8
1988	34,277.9	17,161.8	4,974.1	21,278.3	869.0	7,169.2	20,388.5	8,139.7	5,322.4	3,736.0	9,446.2	9,341.7	142,104.8
1989	39,163.9	21,822.5	5,447.0	24,876.3	1,008.3	8,884.2	24,441.0	9,305.5	6,666.7	4,151.1	11,174.2	10,244.0	167,184.7
1990	42,148.7	26,119.0	7,289.6	31,620.6	1,258.1	10,748.5	27,711.7	10,999.6	8,287.1	4,890.8	12,801.4	11,722.1	195,597.2
1991	44,720.8	31,402.6	8,520.9	39,144.6	1,750.2	12,902.1	30,769.8	13,908.0	10,157.6	5,924.7	14,621.6	13,627.3	227,450.2
1992	50,733.1	29,907.2	8,705.2	47,836.4	2,147.7	15,305.2	35,645.3	17,099.3	12,499.7	6,595.9	17,309.4	16,100.1	259,884.5
1993	58,963.4	31,497.3	9,793.8	63,762.5	3,290.2	22,512.9	44,604.8	23,248.9	14,005.3	9,695.1	22,458.0	25,943.6	329,775.8
1994	66,071.5	33,507.1	10,439.1	78,801.6	4,577.1	28,016.9	51,133.8	27,352.6	17,817.5	11,239.0	22,754.9	30,508.5	382,219.6
1995	77,896.2	40,194.7	11,398.6	98,290.1	5,655.4	34,451.9	60,378.8	30,795.1	20,852.3	11,899.2	26,555.2	36,146.6	454,514.1
1996	88,791.8	46,088.1	14,194.3	122,231.6	6,892.6	42,024.8	69,375.4	34,926.2	21,853.6	13,648.6	29,752.9	42,788.1	532,568.0
1997	101,009.5	55,561.7	15,621.9	152,556.1	7,832.4	46,678.8	77,543.3	38,530.9	25,205.2	17,715.4	32,127.9	57,312.4	627,695.5
1998	172,827.6	120,328.5	33,172.4	205,724.6	11,283.1	61,761.6	116,688.5	51,937.2	31,710.2	23,140.3	40,641.0	86,538.6	955,753.6
1999	215,686.8	109,925.3	35,127.6	250,746.3	13,429.1	67,616.2	140,588.7	55,189.6	31,088.6	24,396.9	56,745.0	99,191.7	1,099,731.8
2000	218,301.3	176,639.8	53,167.5	282,171.8	15,072.4	76,090.8	155,184.4	64,550.0	35,404.8	26,873.2	69,460.2	109,101.3	1,282,017.5

#: includes electricity, gas, and water for years 1951-1955

+: includes construction, transportation and communication, and electricity, gas and water for 1955-1957

Appendix B: Gross Domestic Product at current prices, 1951-2000 (in billions of Rupiah)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	
	Agriculture, Livestock, Forestry & Fishery	Mining & Quarrying	Manufacturing Industry #	Electricity, Gas & Water Supply	Construction	Trade	Transport & Commicatio n	Banking and other financial institutions	Rent	Governme nt and defence	Services	Gross Domestic Product	
			a. Oil and Gas Manufacturi ng	b. Non Oil- gas Manufacturi ng									
1951	<i>1955 prices</i>	54.0	2.3	9.4								33.4 + 99.1	
1952	<i>1955 prices</i>	57.8	2.4	8.5								33.4 + 102.1	
1953	<i>1955 prices</i>	62.0	2.5	9.3								35.2 + 109.0	
1954	<i>1955 prices</i>	67.7	2.7	10.2								36.2 + 116.8	
1955	<i>1955 prices</i>	67.6	2.8	13.7								37.4 + 121.5	
1956	<i>1955 prices</i>	68.5	4.9	12.5								38.6 + 124.5	
1957	<i>1955 prices</i>	70.7	5.8	16.1								41.9 + 134.5	
1958	<i>1960 prices</i>	196.0	9.7	51.3	0.8	6.8	57.9	11.5	2.8	7.2	25.6	21.2	390.8
1959	<i>1960 prices</i>	203.2	10.8	48.8	0.9	7.1	56.6	12.4	2.9	7.3	20.7	21.9	392.6
1960	<i>1960 prices</i>	210.4	14.4	32.6	1.1	7.9	55.8	14.5	3.9	7.7	17.6	24.3	390.2
1961	<i>1960 prices</i>	213.9	14.6	36.6	1.2	10.2	64.7	14.5	4.9	8.1	19.2	24.7	412.6
1962	<i>1960 prices</i>	220.9	15.4	37.1	1.3	8.6	64.4	14.9	4.2	8.2	19.6	25.6	420.2
1963	<i>1960 prices</i>	212.7	14.9	36.4	1.5	6.5	66.2	15.3	3.5	8.1	19.8	25.9	410.8
1964	<i>1960 prices</i>	223.6	15.6	35.9	1.7	6.5	68.1	14.8	4.3	8.3	19.9	26.6	425.3
1965	<i>1960 prices</i>	225.3	16.0	35.6	1.7	7.4	67.4	15.1	4.3	8.4	21.3	27.4	429.9
1966	<i>1960 prices</i>	236.1	15.4	36.3	1.7	8.4	64.5	15.2	3.4	8.7	24.3	27.9	441.9
1967	<i>1960 prices</i>	232.1	16.7	37.5	2.2	7.3	70.8	15.6	3.5	8.8	24.7	28.8	448.0
1968	<i>1960 prices</i>	248.2	19.7	40.8	2.3	8.8	76.2	15.9	3.4	9.4	24.7	29.4	478.8
1969													
1970													
1971	<i>1973 prices</i>	2,441.0	551.0	490	24.7	171.0	924.0	210.0	64.0	93.0	326.0	250.0	5,544.7
1972	<i>1973 prices</i>	2,479.0	674.0	564	26.2	222.0	1,028.0	229.0	75.0	121.0	393.0	256.0	6,067.2
1973	<i>1973 prices</i>	2,710.0	831.0	650	30.4	262.0	1,118.0	257.0	83.0	143.0	405.0	264.0	6,753.4
1974	<i>1973 prices</i>	2,811.0	859.0	755	37.0	320.0	1,224.0	288.0	88.0	174.0	443.0	270.0	7,269.0
1975	<i>1973 prices</i>	2,811.2	828.1	847.9	41.2	364.8	1,293.8	302.7	101.6	198.4	564.1	277.0	7,630.8
1976	<i>1973 prices</i>	2,943.7	952.3	930	46.3	384.5	1,350.7	342.6	117.4	209.1	595.5	284.2	8,156.3
1977	<i>1973 prices</i>	2,981.3	1,070.0	1057.7	49.0	463.8	1,438.2	427.6	151.2	252.2	689.8	290.1	8,870.9

		1.	2.	3.		4.	5.	6.	7.	8.	9.	10.	11.	12.
		Agriculture, Livestock, Forestry & Fishery	Mining & Quarrying	Manufacturing Industry		Electricity, Gas & Water Supply	Construction	Trade	Transport & Communica tion	Banking and other financial institutions	Rent	Governme nt and defence	Services	Gross Domestic Product
				a. Oil and Gas Manufacturi ng	b. Non Oil- gas Manufacturi ng									
1978	1973 prices	3,134.8	1,048.8	1176.5		56.9	528.9	1,530.3	490.1	164.6	287.6	767.9	296.9	9,483.3
1979	1973 prices	3,255.6	1,046.9	1395.3		68.6	562.8	1,681.1	559.8	179.6	306.1	805.1	304.0	10,164.9
1980	1973 prices	3,424.9	1,034.6	1704.6		77.9	639.3	1,851.9	609.4	207.8	335.8	971.7	311.3	11,169.2
1981	1973 prices	3,593.5	1,069.1	1877.8		89.9	720.2	2,042.6	676.9	231.4	358.7	1,075.8	318.7	12,054.6
1982	1973 prices	3,669.8	939.8	1900.7		105.5	757.8	2,158.8	716.6	258.4	377.4	1,114.5	326.1	12,325.4
1983	1983 prices	17,696.2	16,107.4	2,230.1	7,666.3	313.9	4,597.2	9,932.5	4,098.1	2,358.6	2,355.5	5,711.5	4,609.0	77,676.3
1984	1983 prices	18,512.6	17,120.1	3,415.8	8,663.0	324.0	4,393.8	10,028.0	4,443.1	2,829.0	2,411.5	5,996.7	4,899.8	83,037.4
1985	1983 prices	19,300.0	15,480.4	3,685.1	9,745.4	360.9	4,508.0	10,412.0	4,487.0	3,020.3	2,460.9	6,455.1	5,166.8	85,081.9
1986	1983 prices	19,799.0	16,308.6	3,850.0	10,828.1	429.8	4,609.0	11,238.1	4,668.4	3,483.1	2,545.1	6,862.1	5,459.1	90,080.4
1987	1983 prices	20,223.5	16,365.5	4,170.9	12,064.4	494.6	4,802.9	12,004.9	4,938.5	3,659.3	2,653.9	7,366.1	5,773.4	94,517.9
1988	1983 prices	21,213.7	15,892.9	4,575.7	13,606.6	548.9	5,259.1	13,035.4	5,211.5	3,752.2	2,762.2	7,932.0	6,191.2	99,981.4
1989	1983 prices	21,917.8	16,663.8	4,675.1	15,180.6	615.6	5,878.0	14,446.8	5,811.5	4,290.7	2,877.7	8,396.9	6,682.1	107,436.6
1990	1983 prices	22,356.9	17,531.7	5,187.3	17,149.6	725.7	6,672.9	15,425.3	6,367.9	4,893.8	2,998.8	8,783.3	7,124.1	115,217.3
1991	1983 prices	22,714.8	19,317.0	5,569.8	19,015.2	842.8	7,423.7	16,213.5	6,869.4	5,535.1	3,119.7	9,052.1	7,552.1	123,225.2
1992	1983 prices	24,225.5	18,957.7	5,865.0	21,098.6	928.2	8,223.6	17,405.8	7,554.9	6,255.7	3,249.3	9,320.0	8,100.5	131,184.8
1993	1993 prices	58,963.4	31,497.3	9,793.8	63,762.5	3,290.2	22,512.9	44,604.8	23,248.9	14,005.3	9,695.1	22,458.0	25,943.6	329,775.8
1993**	1983 prices	24,569.3	19,370.3	5,940.1	23,544.3	1,022.3	9,222.5	18,968.8	8,302.2	7,069.6	3,411.1	9,508.8	8,777.8	139,707.1
1994	1993 prices	59,291.2	33,261.6	10,268.8	72,380.2	3,702.7	25,857.5	47,619.5	25,188.6	15,944.6	10,086.8	22,752.0	28,287.3	354,640.8
1995	1993 prices	61,885.2	35,502.2	9,782.4	81,854.7	4,291.9	29,197.8	51,396.6	27,328.6	18,108.5	10,643.0	23,045.9	30,755.5	383,792.3
1996	1993 prices	63,827.8	37,739.3	10,863.9	91,396.0	4,876.8	32,923.7	55,513.5	29,701.1	18,886.9	11,265.6	23,338.4	33,465.0	413,798.0
1997	1993 prices	64,468.0	38,538.2	10,650.3	96,979.4	5,479.9	35,346.4	58,842.3	31,782.4	19,956.0	11,825.6	23,616.5	35,760.9	433,245.9
1998	1993 prices	63,609.5	37,474.0	11,042.3	84,278.4	5,646.0	22,465.3	47,845.9	26,975.1	13,173.0	9,475.7	21,887.5	32,502.3	376,375.0
1999	1993 prices	64,985.2	36,865.7	11,797.2	87,261.3	6,112.9	22,035.6	47,574.5	26,772.1	11,861.7	8,906.2	22,250.7	32,929.2	379,352.3
2000	1993 prices	66,088.3	38,730.2	11,600.0	93,502.6	6,649.5	23,246.9	50,284.3	29,283.9	12,429.5	9,187.8	22,555.1	34,376.2	397,934.3

#: includes electricity, gas, and water for years 1951-1955

+: includes construction, transportation and communication, and electricity, gas and water for 1955-1957