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Research Memorandum GD-93

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July 2007

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Abstract:

For over three decades (1966-1998) socio-economic policies in Indonesia were founded on Soeharto's development trilogy “growth, stability and equity”. Literature agrees that the policy goals of growth and stability were met by and large, but remains inconclusive about equity. In this paper we estimate Theil indices of sector income distribution to evaluate the impact of structural change on the trend of Indonesian income inequality for the period 1961-2002. Where conventional Gini-coefficients based on household expenditure surveys suggest that Indonesian income equality is comparatively confined and reveals no long run tendency in either upward or downward direction, our results indicate that inter and intra-sector income inequality increased rapidly under Soeharto, as well as the share of the labour force engaged in informal sector activities.

JEL Classification Numbers:

Keywords: Indonesia, Income Distribution, Theil index

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1. Introduction

The high rates of economic growth and the profound economic transition that took place in Indonesia during Soeharto's New Order came along with rapid demographic growth and rural-urban migration.¹ The metamorphose of Jakarta's urban sprawl visualised this transition process. Futuristic skyscrapers arose aside extensive slums where shiny Japanese four-wheel drives alternate with ramshackle handcarts in its jammed alley-ways. For over three decades (1966-1998) economic and social policies in Indonesia were based on Soeharto's development trilogy "growth, stability and equity".² Literature agrees that the goals of growth and stability were met by and large, but what about equity?

The relation between transition growth and distributional change is widely discussed in the development literature. An important strand in development literature (Lewis 1954, Kuznets 1955, Fields 2001) stresses that inequality in the distribution of income is likely to rise during the initial stages of transition growth. Industrialisation enhances the profit potential of entrepreneurs and investors and raises the demand for (scarce) skilled labour driving up the skill-premium. In particular in a context of low initial levels of agricultural productivity (and agricultural income) and a surplus pool of agricultural labour the income levels of unskilled agricultural and urban informal sector workers will not keep up. Increasing levels of interpersonal inequality are then almost inevitable. Present day China is a good example of such distributive dynamics.³ For Indonesia, one would indeed expect a similar trend: increasing inequality since the start of rapid transition growth in the 1970's, perhaps followed by a gradual levelling off in the 1990's, but irrespective of this, a current level of income equality being significantly higher than in the 1960's.

Conventional inequality estimates do not confirm this hypothesis for Indonesia however. The expenditure Gini coefficients provided by the Indonesian Central Bureau of Statistics (BPS, *Badan Pusat Statistik*) since 1964 suggest that inequality has been relatively confined and very stable in a period of great economic transition. An international comparison of these Gini estimates further supports the idea that the Indonesian development trajectory is a formidable example of "growth with equity". Although literature widely acknowledges the drawbacks of the expenditure concept for comparative purposes and also questions the representativeness of the household expenditure survey data specifically, the scarcity of alternative data severely constrains the possibilities of further empirical assessments. Some detailed studies have used different sources and approaches, but never from a long run perspective. Consequently, literature remains inconclusive on the trend in post-war income distribution in Indonesia.

¹ In 1965 alleged involvement in a coup seriously weakened President Sukarno's powerbase. On 11 March 1966 he signed a decree giving full authority to General Soeharto. In 1967 Soeharto was appointed as Acting President, although only in 1968 he was officially installed as Indonesia's second president. When Soeharto rose to power in 1966-1968 the Indonesian economy was in chaos and nearly bankrupt (Hill 1996: p.1). Helped by a team of experts Soeharto confronted the economic problems and brought Indonesia on a remarkable growth path.

² This is an English translation of what Soeharto called his *Trilogi Pembangunan* of growth (*pertumbuhan*), stability (*stabilitas*) and equity (*pemerataan*).

³ The rise in inequality does not necessarily entail a rise in poverty rates. The recent growth experience of China shows that the incidence of poverty may fall rapidly in spite of rapidly increasing levels of income inequality. The long run effects of high inequality on poverty rates, the "subjective" perceptions of poverty and the sustainability of economic growth, may be a different story however. In this paper we exclusively focus on distributive trends.

Our aim is to accommodate some of the mentioned drawbacks adopting a sector income distribution approach for the period 1961-2002 using primarily national accounts data. Contrary to an expenditure approach, a sector income distribution approach reveals the direct relation between structural change and distributional change. A Theil framework is adopted to weigh and aggregate various underlying *trends* in the distribution of income, which also enables an assessment of the major driving forces of the overall trend in the income distribution.

The outline of the paper is as follows: in section 2 we discuss the literature on inequality in Indonesia. In section 3 the analytical details of the Theil framework are introduced. In section 4 to 7 we examine four components of inter and intra-sector income inequality: the relative sector income disparities between agriculture, industry and services (section 4), within agriculture (section 5), within industry (section 6) and within the service sector (section 7). In section 8 these partial Theil indices are weighted and aggregated to a total Theil index of sector income inequality. In section 9 we present our conclusions.

2. Literature on Indonesian inequality⁴

The study of Indonesian inequality can be traced back to the early 20th century when the Dutch colonial administration became aware that inequality in living standards between Europeans, Chinese and the indigenous population had important policy implications. These early studies primarily focused on the income position of the indigenous population and had a limited scope.⁵ Early post-war studies were also confined due to data scarcity. In 1981 Booth and Sundrum concluded that the picture of Indonesian income distribution up to then was “*blurred and confused*” (1981: pp. 214). Increasing activities in data collection started to solve some of the major problems and with the introduction of the National Socio-economic Survey (*Survei Sosial-Ekonomi Nasional, Susenas*) in 1963 and the National Labour Force Survey (*Survei Tenaga Kerja Nasional, Sakernas*) in 1976, richer datasets became available.⁶ Especially the consumer expenditure survey component of the *Susenas* has been extensively consulted to calculate Gini coefficients of inequality which are still predominant in the current debate. Indeed, virtually all studies discussing the economic development of Indonesia illustrate trends in inequality with the Gini coefficients presented in table 1 (below) derived from the BPS elaboration of *Susenas* data.⁷

⁴ For another survey of the literature on Indonesian inequality see Cameron (2002).

⁵ See, for example, Plas (1910), Huender (1921) and Wellenstein (1925).

⁶ *Susenas* was conducted for the first time in 1963, but prior to 1980 it was undertaken irregularly, i.e. in 1963, 1964/65, 1967, 1969/70, 1976, 1978 and 1979. Since 1980 *Susenas* has been conducted annually, except in 1983 and 1988. *Sakernas* began in 1976, but as the first labour force survey conducted by BPS, the results are considered to be of poor quality. Other labour force surveys were conducted in 1977 and 1978 and since 1986 annually. For the years 1979 and 1982 labour force statistics were sampled as part of the *Susenas* and in 1980 as part of the population census.

⁷ See for example Booth (1992: pp. 335), Hill (1996: pp. 197), Booth (2000: pp. 75) and Thee (2002: pp. 227).

Table 1: Trends in Gini Coefficient by per Capita Household Consumption Expenditure

	Urban	Rural	Total
1964-1965	0.34	0.35	0.35
1969-1970	0.33	0.34	0.35
1976	0.35	0.31	0.34
1978	0.38	0.34	0.38
1980	0.36	0.31	0.34
1981	0.33	0.29	0.33
1984	0.32	0.28	0.33
1987	0.32	0.26	0.32
1990	0.34	0.25	0.32
1993	0.33	0.26	0.34
1996	0.36	0.27	0.36
1999	0.33	0.28	0.32
2002	0.34	0.29	0.34

Source: BPS, *Statistical Yearbook of Indonesia*, various issues.

The figures in table 1 suggests that levels of inequality in Indonesia have remained fairly constant during the New Order. On the basis of these data Boediono (1990) concludes that high growth rates in Indonesia have been associated with a decline in relative income inequality, affirming the success of Soeharto's *Trilogi Pembangunan*. Asra more recently consents to this notion stating that,

“Assuming that the Susenas data are reliable and representative, during the two decades from 1976 and 1996 Indonesia experienced a significant increase in real average consumption, a consistent decline in poverty incidence and a relatively insignificant change in inequality of consumption.” (2000: pp. 104)

Other authors are more sceptic about the representativeness of the data and find this conclusion difficult to reconcile with daily-life experiences. Thee states in his economic survey of the New Order that,

“Despite statistical evidence, the view was generally held that economic growth during the New Order era had widened economic disparities between the rich elite and the poor masses as well as between urban and rural areas and between western Indonesia and the much poorer eastern part of the archipelago.” (2002: pp. 227)

Hughes and Islam (1981) used *Susenas* per capita expenditure data to construct a variety of inequality measures for the two benchmark years 1970 and 1976.⁸ They conclude that in the period 1970-1976 urban inequality in Indonesia increased, while rural inequality decreased, with Java having

⁸ The inequality measures they construct are an Atkinson index, a Theil index, a L index and a Log-Variance.

significantly higher urban inequality indices than the Outer Islands. These results are in line with table 1. However, Hughes and Islam also point out some of the problems of the consumer expenditure data. Different groups of consumers face different price changes which influences their expenditure patterns. Whereas their results suggest that adjusting for this variation does not alter the main conclusion, Asra (1989) concludes the opposite: calculating Gini coefficients for the years 1969/1970, 1976 and 1981 on the basis of identical data and also adjusting for the differential impact of inflation on expenditure patterns of different consumer groups, he reports that inequality did not increase between 1969/1970 and 1981 as previously believed, but increased between 1969/1970 and 1976, yet declined between 1976 and 1981.

Akita and Lukman (1995) added two new insights to the inequality debate. They shifted attention to interregional inequality in Indonesia and approached the problem from an income perspective. Applying Williamson's weighted coefficient of variation to measure inequality between regions in Indonesia for the period 1975-1992, using provincial GDP per capita as a proxy of provincial average income, they find that inter-provincial income inequality has remained fairly stable, while there has been a significant change in the sector income distribution. The contribution of the tertiary sector to inequality gradually declined, while the contribution of the secondary sector has risen substantially.

Another important finding of Akita and Lukman is that the disparities in consumption expenditure are much more confined than in GDP. The choice between an income or expenditure approach clearly matters. Levels of expenditure inequality may underestimate levels of income inequality as a result of underreporting or different saving preferences among various income groups in response to the volatility of household income. Consequently, it remains problematic to compare levels of inequality across countries if they are based on an income concept in the one and an expenditure concept in the other.⁹

Sudjana and Mishra (2004: pp. 5) moreover raise serious doubts about the quality of the *Susenas* data, claiming that the survey tends to exclude the very wealthy since they are the least likely to be reached by the enumerators and if they are, often excluded from the data as outliers. The World Bank (2003, endnote 5, pp. 52) also acknowledged that the "*BPS indicated that often their interviewers were not received at the houses of the very wealthy, resulting in a selective non-response*". Moreover van der Eng (2001) shows that estimates of private consumption based on the *Susenas* data are significantly lower than those in the national accounts, differing on average significantly more than fifty percent. He attributes this underestimation to the exclusion of non-food expenditure, particularly on consumer durables such as televisions and cars.¹⁰

Akita et al. (1999) nevertheless re-adopt the expenditure approach, using *Susenas* household expenditure data for 1987, 1990 and 1993 to conduct a Theil decomposition of expenditure distribution. This study reports that inter-provincial inequality has not been a major factor in overall inequality, but that rural-urban income disparities and increasing urban inequality are the key determinants in the overall levels of Indonesian inequality. Most recently Alatas and Bourguignon

⁹ For a more extensive discussion on the advantages and disadvantages of the income and expenditure approach see, for example, Deininger and Squire (1996) and François and Rojas-Romagosa (2005).

¹⁰ This point is also emphasized by Sudjana and Mishra (2004). They state that the list of consumption items of the survey is too confined to accurately capture the consumption bundle of the very rich consisting of high quality products and luxury goods. Nyberg (1976) addresses another weakness of the *Susenas* data, namely the timing of the survey. In some years the Islamic feast, called *Lebaran*, at the end of the fasting period is included, while in others not. This makes these *Susenas* data difficult to compare between years.

(2005) carried out an in-depth analysis of the *Susenas* survey for 1980 and 1996, complemented by the savings and income survey for 1996. Their aim is to identify the factors that have influenced changes in the distribution of household income in this period. Concentrating on changes in the structure of earnings, occupational choice and the socio-demographic structure of the population, they report a moderate increase of inequality in per capita household income, which is especially attributed to shifts from wage labour to non-agricultural self-employment under influence of rural-urban migration.

In sum, the suggestion of conventional inequality estimates, based on the *Susenas* household consumption expenditure data, that inequality in Indonesia has been fairly stable and relatively low during the New Order, stands in sharp contrast to daily-life experience, to an important strand of development theory stressing the inequality effects of an infinitely elastic labour supply (Lewis 1954) and some empirical studies that have adopted an income approach to study inequality. These studies emphasize the role of rural-urban inequality and income disparities within the urban sector, particularly within the industrial sector, rather than intra-regional or rural inequality. The drawback of these studies is that they have a short run focus based on a few benchmark years. A coherent analysis from a long run perspective, which is crucial to assess the outcome of Soeharto's socio-economic policy, is still missing.

3. A Theil framework of sector income distribution

Economic development during the Soeharto regime has been characterised by profound changes in the sector structure of the Indonesian economy. The most important of these changes was the relative (not absolute!) decline of the agricultural sector in the total economy and the consequent increase in manufacturing and service industries. This process came along with demographic growth, rural-urban migration and an expansion of the urban informal sector as a result of the release of so-called "surplus labour" from the rural economy (Lewis 1954). The timing of this profound process of resource reallocation from agriculture to industry and urban services corresponded quite well with developments in neighbouring East and South East Asian economies (Van Ark and Timmer 2003). The consequences of structural change for the distribution of income between and within various sectors of the economy can be analysed and aggregated in a Theil framework. This framework provides an internally coherent method to weigh the various components of sector income inequality (Theil 1967). The Theil index can be formally written as,

$$T = \sum_i w_y^i ((\log w_y^i) - (\log w_e^i)) \quad \text{or} \quad T = \sum_i w_y^i \log(w_y^i / w_e^i) \quad [3.1]$$

Where the Theil index T sums up over the log percentage share of income w_y , minus the log percentage share of employment or labour force w_e of i number of sectors, weighted for the percentage share of income of each sector i in total income.

A numerical example of a three-sector economy using the Theil formula [3.1] is presented in table 3. The bold number in the lower right-hand part of the table refers to the between sector Theil coefficient. Note that in this case $i = 3$.

Table 3: Example of a three sector Theil index, Indonesia, 2002

	Income share (non-oil and gas) (w_y)	employment share (w_e)	Theil index
Agricultural sector	0.20	0.44	-0.069
Industrial sector	0.34	0.14	0.134 +
Service sector	0.46	0.42	0.015 +
Between sector Theil	1.00	1.00	0.0796

Sources: authors own calculations based on employment figures from ILO, LABORSTA (originally from BPS) and GDP figures from BPS .

If the employment share w_e is larger than the income share w_y , the sector generates less income than “expected” on the basis of its employment share. In this case the sector contribution to the Theil index becomes negative, as can be seen for agriculture in the last column of the table. If the income share exceeds the employment share, as in the industrial and service sectors, the contribution to inequality becomes positive. If a sector earns exactly the share of total income as expected on the basis of its employment share, the sector contribution to inequality becomes zero. The logarithmic specification of the Theil index ensures that the sum of the sector contributions to inequality is a positive number between zero and one, where zero indicates perfect equality and higher numbers indicate greater inequality.¹¹ It has to be noted that the Theil attaches exponential weight to higher “levels” of inequality and should not be linearly interpreted.

The major advantage of the Theil index, compared to, for instance, the Gini coefficient is that the former is decomposable, allowing an analysis of the underlying components of the total distribution. In this study we decompose the Theil index of Indonesia in year t into four components,

$$T^{TOT} = T^{A,I,S} + w_y^A T^A + w_y^I T^I + w_y^S T^S \quad [3.2]$$

Where the total Theil T^{TOT} is the sum of 1) the between-sector distribution of the agricultural, industrial and service sector, 2) the distribution of income within the rural sector, 3) the distribution of income within the industrial sector, and, 4) the distribution of income within the service sector. The latter three components are weighted for their respective shares (w_y) in national income. The between-sector Theil, $T^{A,I,S}$, has a weight w of 1 since this index covers total national income and the total labour force. The Theil indices of the within-sector distributions are decomposed into various numbers of sectors which will be discussed one by one in the next sections.

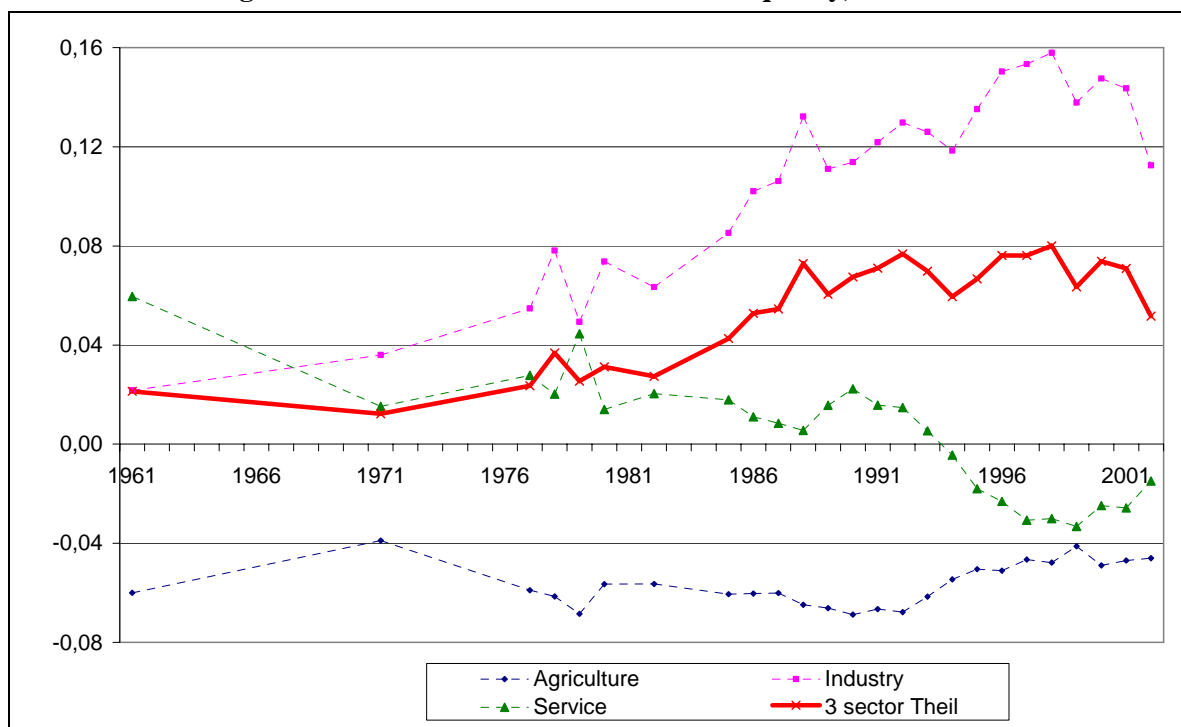
¹¹ Conceição and Ferreira (2000) present an insightful introduction into the technical details of the Theil index.

4. The distribution of income between sectors, 1961-2002

The analysis of the between-sector income distribution requires two basic ingredients: the sector distribution of GDP and the sector distribution of employment. The GDP estimates used in this study are based on the BPS data that are discussed in Marks (2006). The employment figures are derived from the Indonesian Population Censuses of 1961, 1971, 1980, 1990 and 2000, the National Labour Force Surveys (*Sakernas*) in 1977, 1978 and 1986-2002, the National Socio-economic Surveys (*Susenans*) in 1979 and 1982, and the Inter-census Population Surveys for 1985 and 1995.

Since a large number of agricultural households and agricultural labourers are involved in non-agricultural activities for a considerable proportion of their working time, agricultural labour productivity is often underestimated in comparison to non-agricultural labour productivity. Therefore we carried out a substantial revision of these employment figures to account for the overstatement of the agricultural employment share. For the correction we used estimates of the percentage share of agricultural households earning their main income in non-agricultural sectors. In the year 1984 it was estimated that 3.1% of agricultural households derived their principle income from industrial activities and 13.5% from services (predominantly trade activities). In 1993 these figures were 4.1% and 16.0% respectively (Booth 2002: p. 184). Using a linear interpolation and extrapolation of these benchmarks the employment figures were, by proxy, corrected for this bias. The results for the between sector Theil are shown in figure 1.

Figure 1: Theil index of sectoral income inequality, 1961-2002



Sources: authors own calculations based on employment figures from ILO, LABORSTA (originally from BPS) and GDP figures from BPS (for a discussion on BPS data see Marks 2006). The figures are interpolated for the years 1962-1970, 1972-1975, 1981 and 1983-1984.

The thick line in the graph of Figure 1 pictures the trend of the between-sector Theil for Indonesia between 1961 and 2002. The graph also shows how the three sectors move over time in relation to each other and the Theil index. The graph suggests a trend of income convergence between 1961 and 1971 (it should be noted that this part of the graph is based on interpolation), a tendency of income divergence from 1971 until 1992, and a more or less horizontal movement between 1993 and 2002.¹² Especially the periods 1971-1978 and 1982-1989 reveal rapid increases in between-sector income inequality. During the final years in the 1990's the level of between-sector inequality was considerably higher than it was at the start of the New Order.

Figure 1 further reveals three important stylized facts of Indonesian structural change in the Soeharto era. First, the contribution of the agricultural sector to the Theil index is consistently negative, implying that the share of agricultural employment exceeds the share of agricultural GDP in the entire period of 1961-2002. This is not very surprising. In almost all developing countries labour productivity in agriculture stays behind labour productivity in industry and services. A more interesting observation, however, concerns the relative gap between the agricultural and the non-agricultural sector. Table 4 shows the relative labour productivity rates of agriculture versus non-agriculture, revealing a wave-like pattern: from 1961 to 1971 the ratio rose from 0.49 to 0.58, followed by a decline between 1971 and 1990. The gap did not further widen in the 1990's however. The widening of the gap is undoubtedly due to the rapid industrialisation taking place in the 1970's and 1980's (see figure 1). However, the special attention paid by Soeharto's regime to agricultural development in general, and the rice economy in particular, did result in a stable path of agricultural productivity growth which kept up fairly well with the urban sectors in the long run (Booth 1988; van der Eng 1996).¹³

Table 4: Relative labour productivity of agriculture vs non-agricultural sectors

	1961	1971	1980	1990	2000
Labour productivity agriculture/non-agriculture	0.49	0.58	0.35	0.29	0.38

Source: sector GDP from BPS, sectoral employment from BPS.

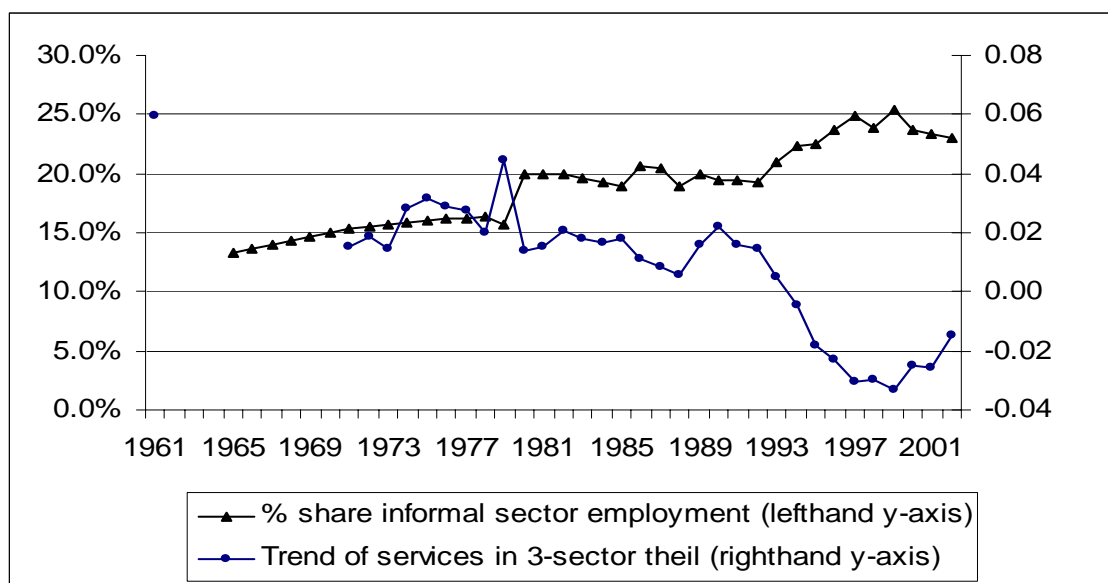
The second stylized fact concerns the higher rate of labour productivity growth in the industrial sector (non-oil and non-gas!) compared to the rest of the economy (see also Timmer 1999). Industrialization has been the engine of economic growth during the New Order. The contribution of industrial development to inter-sector income inequality shows a structural breakpoint around 1982. Before 1982 the increase of industrial labour productivity is relatively confined compared to the other sectors, and highly volatile in the economically turbulent years between 1977-1981. This period is followed by a phase of growth acceleration between 1983 and 1988, which was gradually levelling off until it came to an abrupt halt with the financial crises in 1998. The rapid industrial expansion between 1983 and 1997 is the principal determinant of distributive change in Indonesia.

¹² Given the lack of employment figures it is, unfortunately, impossible to provide accurate estimates for the intermediate years between 1961 and 1971. However, the overall trend is persuasive.

¹³ One of the underlying goals of the development trilogy was to generate self-sufficiency in Indonesian food supplies. In the late 1970's Indonesia was still one of the world's largest purchasers of rice. By 1984 the country had managed to become self sufficient in rice production.

The service sector reveals a third stylized fact. Traditionally, service industries were embedded in relatively highly developed commercial and financial institutions of the colonial economy. A considerable share of service sector activities generated high rates of value added. In the course of the second half of the 20th century a shift took place towards typical low value added service industries in commerce, transport and personal services directed at the domestic economy. Rural-urban migration led to a growth of urban underemployment and an explosion of informal service sector activities. For those people who were unable to find employment in the formal urban industries and had no fall back options in the country side, the service sector indeed functions as the ultimate “safety-net”.

Figure 2: Share of urban informal sector workers in the labour force compared with the service sector contribution to the between sector Theil, Indonesia, 1961-2002



Source: see figure 1; ILO, *Yearbook of Labour Statistics*, various issues; BPS, *Statistik Indonesia*, various issues.

In Figure 2 we present estimates of the extent of urban informal sector activities as a percentage share of total employment, together with the service sector Theil contribution from Figure 1. The size of the informal sector labour force is calculated from the share of non-agricultural own account workers in the total labour force. The data are provided in various issues of the ILO, *Yearbook of Labour Statistics* and the BPS, *Statistik Indonesia*. To single out the group of skilled own account worker the share of employers and self-employed technical and professional workers (such as lawyers, notaries etc.) was subtracted. This deductive procedure may tend to overstate the size of the urban informal sector, since the heterogeneous category of own account workers also includes workers in micro-enterprises in the formal urban economy, such as one-man retail businesses. But this overestimation is counterbalanced by a large category of employed workers who do not dispose of a full-time job in the formal sector and are therefore involved in informal sector activities as well. Since

this method offers a time consistent approach to proxy the size of urban informal sector employment, we take the measurement errors for granted, and focus exclusively on the long run trend.¹⁴

The negative correlation between the service sector trend and the estimates of the urban informal sector share in total employment in figure 2 support the “safety-net” argument. A simple correlation-coefficient (r) of the two series gives -0.89 . Especially the drop in the service sector trend around 1992 and the corresponding surge of the urban informal sector share is worth considering. In figure 1 we have seen how the distributive dynamics of the Indonesian economy in the 1990’s took place. Agricultural labour productivity increased relative to service sector labour productivity, whereas the rates of labour productivity growth in the industrial sector still outpaced the rest. Yet, the rapid growth of the informal sector is the real key to understand the trend in between sector inequality.

A clear explanation for the timing of this process is not easy to give, but we should consider at least two reasons. The first is related to the implementation of minimum wage policies restricting access to formal sector activities. Although already introduced in the early 1970’s, it was only in the late 1980’s that the government undertook serious measures to enforce the payment of minimum wages. In the first half of the 1990s minimum wages tripled in nominal terms and more than doubled in real terms (Manning 1998; Suryahadi et al. 2003). The effectuation of minimum wage policies in the 1990’s may have lead to wage convergence in the formal sector (as we will see in section 6), but it is also likely that it restricted the absorptive capacity of the formal sector at the same time.

The second reason relates to the acceleration in the pace of rural-urban migration in the early 1990’s. Indeed, from 1992 onwards the agricultural labour force did not only decline in relative, but also in absolute terms. The share of agricultural sector employment decreased from ca. 72% in 1961 to 45% in 2000. The largest decline took place between 1992 and 1997, when the share dropped from 55% to 41%. Apparently, the agricultural sector reached the limits of its labour absorptive capacity in the early 1990’s (Butzer et al. 2003). It seems that the burden of a Lewis-type rural labour surplus has eventually shifted to the urban informal service sector in the 1990’s.

5. The distribution of income within the agricultural sector, 1963-2003

One of the key problems in empirical literature on inequality and long run economic growth is that agricultural income is so difficult to observe. A substantial share of agricultural income consists of non-monetary remittances. The topic of rural and agricultural income distribution is extensively discussed in Indonesian economic literature, but it has not generated much conclusive evidence on both, the level and the trend of income inequality within agriculture. The blurred distinction between the concept of “rural” and “agricultural” income and the problematic distinction between agricultural and non-agricultural rural activities, does not help to draw clear inferences either.

We do know a few things with relative certainty however. The Indonesian agricultural sector is composed of a large group of smallholders, primarily engaged in rice cultivation, and a more confined group of medium and large scale farmers involved in the production of tropical cash crops such as

¹⁴ In fact, it is a mere illusion to present an “exact” estimate of the size of the informal sector anyway, since the term “informality” can be interpreted in many different ways and the heterogeneity of economic activity does not allow the development of a clear and comprehensive definition.

rubber, palm oil, coffee and tea. From a global comparative perspective the distribution of land in Indonesia is moderate, with land Gini's ranging around 0.52 to 0.45 (Frankema 2007). In table 5 the available land inequality figures are presented as a Theil index for the period 1963-2003. The estimates are based on decennial agricultural censuses carried out since 1963.

Table 5: A Theil index of land distribution among agricultural households, 1963-2003

	1963	1973	1983	1993	2003
Theil Land Distribution	0.290	0.278	0.230	0.228	0.256

Sources: BPS, Agricultural censuses.

Note: Large estates not included.

Table 5 shows that levels of land inequality have declined until 1993, and increased up to the year 2003, yet the changes remained confined. According to the census data, the size of land holdings declined from an average of 1.2 hectare in 1963 to 0.81 hectare in 2003, which indicates that the intensification of land use has continued throughout the period under consideration. In the meantime, total output and, consequently, output per hectare increased considerably. The distribution of land gives us a first indication of trends in agricultural income inequality, but there is no linear relation between land and income distribution. In fact, several studies show that land productivity is consistently inversely related to land size (see for instance Booth 2002). Decreasing marginal returns to scale reflect the fact that smallholdings generally dispose of plots of higher quality that are used more intensively. In other words, the Theil index of land distribution will definitely overestimate the agricultural income Theil.

For one benchmark year, i.e. 1983/1984, it is possible to establish a direct link between the distribution of land and agricultural income. The figures are shown in table 6. The data presented in the table are based on the agricultural household survey of 1984 discussed in Booth (2002; pp. 185) and the agricultural census of the year 1983. Table 6 shows that the size of the land holding is positively related to the average monthly income of agricultural households, but that the extent of land inequality (0.230) is much larger than the extent of income inequality (0.042).¹⁵ Table 6 also distinguishes between income exclusively drawn from agriculture and income drawn from all activities. Households with smaller holdings earn a greater share of their income outside agriculture (see also Booth 1992: pp. 341; Booth 2002: pp.185; Rietveld 1986).

Table 6: The distribution of land and income among agricultural households, 1983/1984

Size of land holdings (ha)	No. of agricultural households*	Total size of land holdings (ha)	Average holding size (ha)	Theil	Average monthly income all activities**	Theil	Average monthly income agriculture only	Theil
				land distribution	Rp ' 000	income all activities	Rp ' 000	agricultural income
<0,10	179,974	14,967	0.08	-0.0010	45,900	-0.0009	28,917	-0.0015
0,10-0,29	3,787,459	737,110	0.19	-0.0323	39,600	-0.0261	27,720	-0.0330

¹⁵ It should be noted once again that the Theil index, because of its log-linear specification, does not allow a direct linear comparison between two estimates. That is, the land Theil of 0.23 can not be interpreted as reflecting a level of inequality 5.5 times higher than the agricultural income Theil of 0.042.

0,30-0,49	2,527,632	958,273	0.38	-0.0254	43,500	-0.0142	34,800	-0.0164
0,50-0,74	2,614,275	1,513,236	0.58	-0.0234	50,900	-0.0072	43,774	-0.0066
0,75-0,99	1,372,601	1,133,577	0.83	-0.0070	54,200	-0.0018	48,780	0.0002
1,00-1,99	3,166,465	4070805	1.29	0.0217	63,300	0.0101	56,970	0.0164
2,00-2,99	1,202,733	2,689,204	2.24	0.0530	79,900	0.0155	73,508	0.0207
3,00-3,99	467,247	1,510,596	3.23	0.0443	95,400	0.0110	86,814	0.0133
4,00-4,99	225,926	953,156	4.22	0.0345	111,600	0.0081	102,672	0.0098
5,00>	383,128	3,108,529	8.11	0.1656	171,900	0.0348	156,429	0.0395
	15,927,440	16,689,452	1.05	0.230	56,999	0.029	48,473	0.042

Source: Booth, A. (2002; pp. 185), table 6 and the agricultural census of 1983.

Notes: * Agricultural households without fisherman and livestock farmers. ** Average income from Booth table 6 (2002; pp. 185) standardized to land size categorization of 1983 agricultural census.

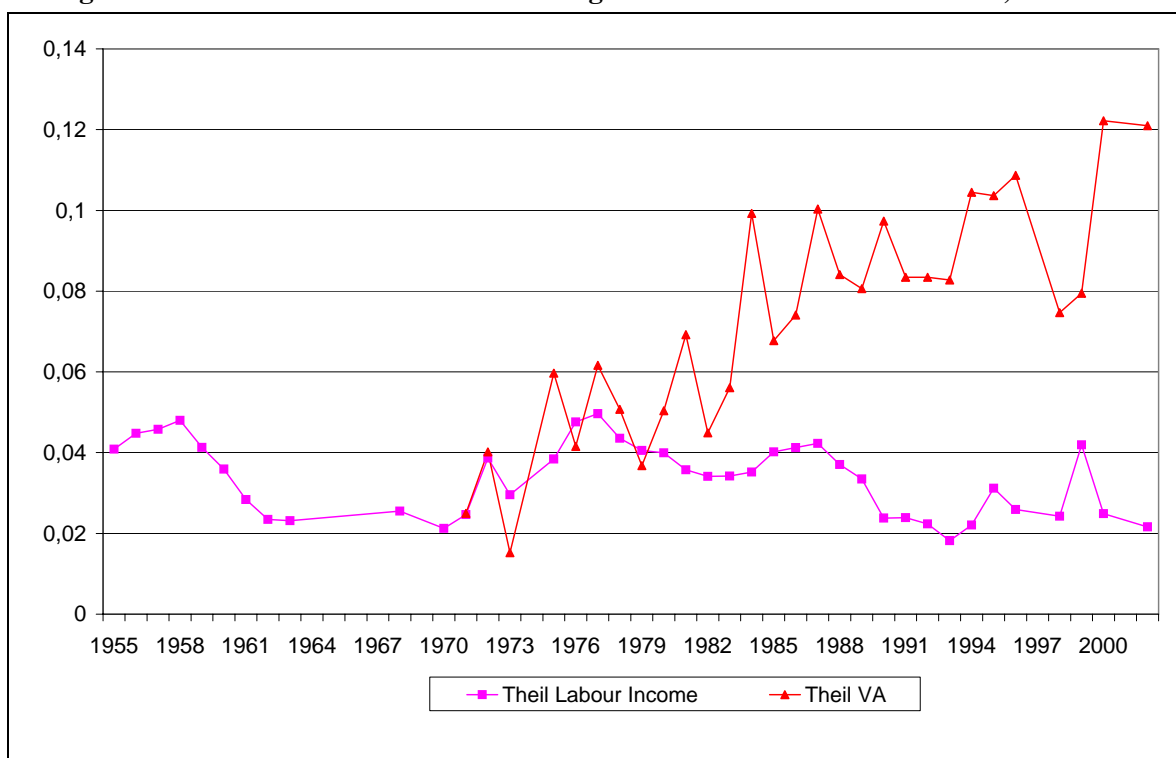
This observation seems to confirm the studies arguing that the contribution of rural income inequality to overall income inequality in Indonesia is relatively modest (Akita et.al. 1999, Alatas and Bourguignon 2005). On the basis of the trend in land inequality it is possible to make some informed guesses of the trend of agricultural income inequality since the early 1960's. Although the estimation of agricultural income inequality is an undeniable weak spot in our analysis, it should be noted that the rapidly declining weight (w_i) of agriculture in total GDP implies that the contribution of within agricultural income inequality to the total Theil declines consequently. It will not really change the big picture.

6. The distribution of income within the industrial sector, 1955-2002

Under Soeharto the industrial sector expanded from ca. 13% of total GDP in 1966 to ca. 45% in 1998 (Marks 2006: pp. 385). Consequently, industrial sector income differentials nowadays have a major impact on the overall distribution of income in Indonesia. In this section we will concentrate our discussion on the trend in wage differentials and the trend in relative labour productivity (value added) within the manufacturing sector. The manufacturing sector contains the bulk of industrial output and the data are relatively easy to obtain. Industrial statistics in Indonesia go back in time as far as 1955 (with some scattered sources for the colonial period) on an annual basis. For value added reliable data are available since 1971. The International Standard of Industrial Classification (ISIC 1) provides a systematic link between wages and employment in 20 manufacturing sectors (see appendix for an example).

The Theil indices of manufacturing labour income and value added in Indonesia for the period 1955-2002 are presented in Figure 3 (value added 1971-2003). The most striking feature of this graph is the rapid and sustained divergence between the levels of labour income inequality and labour productivity inequality within manufacturing since the early 1980's. During Soeharto's New Order wage differentials in manufacturing have fluctuated a little, but over the entire period there has been no significant change: with the exception of the crisis year 1998, labour income inequality in the late 1990's was comparable to the mid 1960's. The steep surge in labour productivity differentials contrasts sharply with this trend and shows that the economic surplus (capital income and profits) that has been generated in the most successful sectors has not been translated in increasing labour income differentials. What has driven these trends?

Figure 3: Theil coefficient of manufacturing labour income and value added, 1955-2002

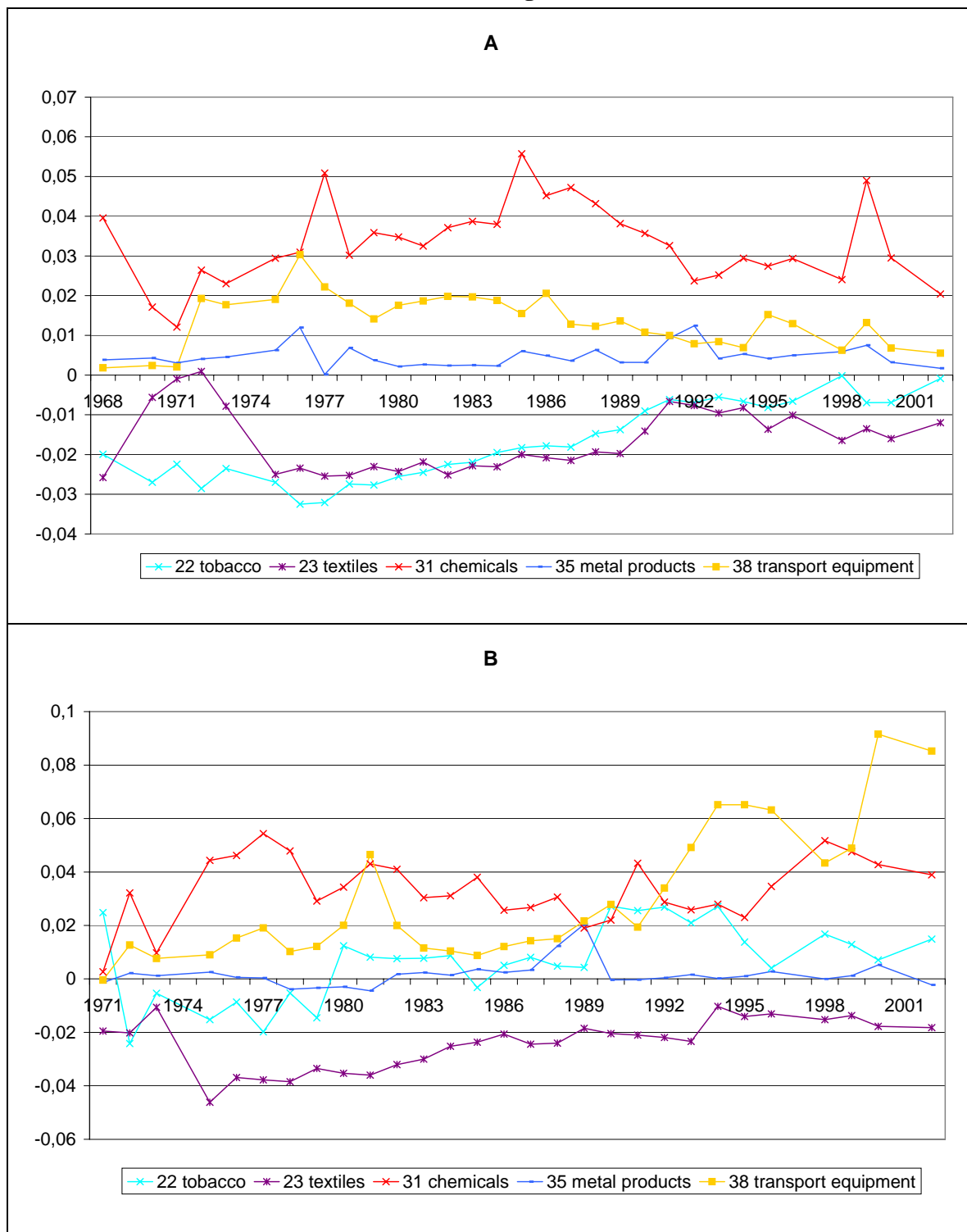


Notes and sources: authors calculations from: 1955-1962: *Statistical pocketbook of Indonesia*, various issues; 1963: *Sensus Industri 1964*; and 1968-2002, UNIDO *Yearbook of Industrial Statistics*, various issues. Interpolated for the years 1964-1967, 1969, 1974, 1997 and 2001.

In the late 1950's president Sukarno proclaimed the Guided Democracy and the Guided Economy, which marked the start of a period of state-intervention in industry and an increasing supervision of private enterprises by publicly controlled industry associations (Thee 2003: pp. 9). Sukarno's idea of '*Socialism à la Indonesia*' naturally entailed a policy of wage convergence, which is very well picked up by the trend line in the graph of figure 3. Soeharto's rise to power clearly meant a break with Sukarno's economic policy. During the 1970's the labour income and value added differentials increased with a peak in 1977. Under influence of the oil-boom in 1973, some sectors, most notably the chemical sector, transferred part of the increasing profits to its employees, while the real appreciation of the Rupiah caused by the oil-boom harmed the competitiveness of the non-oil trade-able sectors.¹⁶ This trend is clearly shown in figure 4A showing the underlying contributions to the labour income Theil of five large sectors in Indonesian manufacturing.

¹⁶ This phenomenon is also known as the Dutch Disease. According to some authors, including Booth (1998) and Hill (1996), the 'Dutch disease' was quite mild in Indonesia compared to, for instance, Nigeria.

Figure 4: Sector decomposition of wage differentials (A) and value added distribution (B) in five manufacturing industries



Source: Authors own calculations on the basis of sources mentioned in Figure 3

The divergence of labour income inequality and labour productivity differentials becomes clear from the early 1980's onwards. Since 1982 the Indonesian economy was muddling through a

phase of disappointing oil revenues urging for a decisive reorientation of economic policy to diminish Indonesia's dependence on oil revenues. In 1986 measures were taken to stimulate the export industries. Firms exporting at least 85% of their output were exempted from all import duties and regulations on importing their inputs (Thee 2002: pp. 212). In addition, the government pursued an exchange rate policy improving the international competitiveness of non-oil exports.¹⁷ During the years following the reforms Indonesia became a significant industrial exporter (Hill 1996: pp. 17). Impressive growth rates went along with declining wage inequality in manufacturing but a continuous rise in labour productivity disparities.

Resource-intensive industries, and especially the chemical sector, strengthened its position, at the upper end of the value added distribution. Between 1988 and 1995 a privatisation programme was conducted where a number of large State Owned Enterprises were sold off to large Chinese conglomerates and a few *pribumi* families (Brown, 2006, p. 966). Large corporations, such as Bimantara Citra, Humpuss and CMNP, expanded their stakes in the chemical and transport equipment industries. This privatisation program is widely considered as the start of increasing 'crony capitalism' in the second stage of Soeharto's reign. Although we can not present any hard data on the changes in the ownership structure of capital invested in the Indonesian manufacturing industry, there is little doubt that this privatisation program confined the flow of the economic surplus arising from rapid industrial growth into the hands of the mighty and wealthy few residing in the inner circle of Soeharto's patronage.¹⁸

Figure 4B shows that from the mid-1980s until the mid-1990s there was a general tendency of all sectors towards the average (i.e. the zero-line), showing that industrial labour productivity growth was a widely shared phenomenon. The chemical and transport equipment sector outpaced the rest. Manufacturing sector workers shared in the benefits of industrial growth: their average wages increased relative to the workers in agriculture and services (see figure 1) and under the implementation of minimum wage policies in the late 1980's the wage differentials within manufacturing decreased (see figure 4A). Yet, while the position of manufacturing workers improved compared to the rest of the Indonesian labour force, the lion share of the economic benefits were creamed off by a confined group of manufacturing shareholders. This process, indeed, constitutes a double tendency of increasing inequality.

7. The distribution of income within the service sector

What happened meanwhile in the service sector? The service sector is arguably the most heterogeneous sector under consideration. Service activities include high-skilled ICT workers, lawyers, truck drivers, street peddlers and porters. The total weight of the service sector in Indonesian GDP has not changed much in the second half of the 20th century, but the distribution of output within the service sector has changed dramatically. In 1961 services were responsible for 37% of total GDP, increasing to 42,4% in 1993 and declining to 38,7% in 2002. This remarkable recent decline is directly related to an explosion of low-value added service activity in the urban informal sector.

¹⁷ In September 1986 the government substantially devaluated the Rupiah.

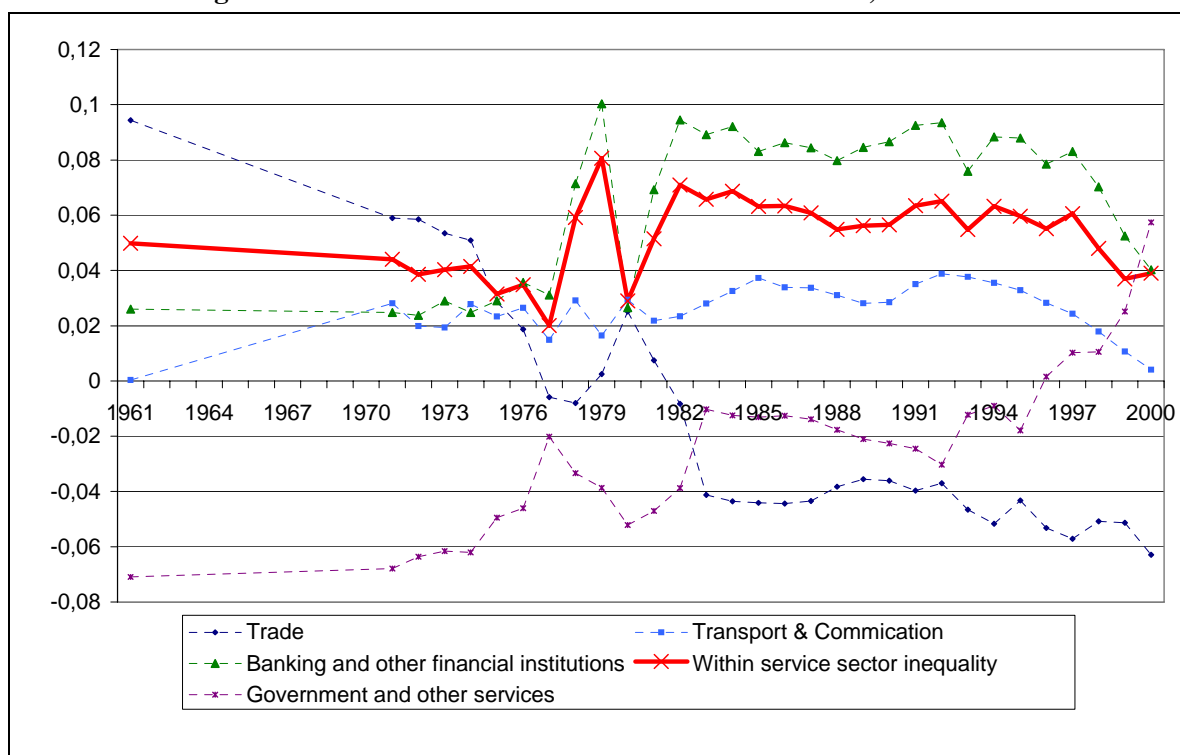
¹⁸ This view is supported by Thee who notes that '*the blatant preferential treatment accorded to well-connected businessmen (...) reinforced the view about the 'widening social gap' between rich and poor, thereby undermining the social cohesion required for political stability and national development*' (2002: pp. 213-214).

In this section the trend of within service sector inequality over four sectors will be analysed. These sectors are 1) trade, 2) transport and communication, 3) finance and 4) government and other service sector activities. Figure 5 shows the graph of the sector income distribution within services from 1961 to 2000.

The graph in figure 5 reveals two important trends in the development of the service sector during the New Order. To begin with, the overall level of within service sector inequality is modest and, apart from the sharp fluctuations in the late 1970s,¹⁹ rather constant over time. More interesting is the second observation however. The relative trend in the trade and the government sector from 1961 onwards. Trade services constitute the bulk of informal sector activities. The relative labour productivity in the trade sector continuously declined with the expansion of the informal sector. The rapidly growing numbers of Indonesians earning a living hardly above subsistence as street peddlers, cooks or porters is well reflected in figure 5. Whereas in 1961 labour productivity in trade was the highest of all four sectors, in the year 2000 labour productivity lay far below. Meanwhile, the relative labour productivity in the public sector (including personal services) has gone through a reverse path. The government sector expanded rapidly during the New Order and as it appears, Soeharto's administration was a well-paying employer.

¹⁹These sharp fluctuations are probably driven by a real world phenomenon and a statistical discrepancy. We already referred to the destabilizing effects of the second oil crises on the Indonesian economy and observe that the trend in the service sector Theil is driven by the volatility of labour productivity in the financial sector. The statistical misnomer has to do with the employment figures revealing a sudden decrease in employment in the financial sector from 85 thousand in 1977 to 23 thousand in 1979, followed by an increase to 304 thousand in 1980. The magnitude of the volatility is therefore highly improbable and the results should therefore be taken with some caution. We chose not to correct these numbers since we do not have a proper alternative to derive new estimates. The impact on the big picture presented in section 8 is sufficiently confined, to justify the use of these "suspect" employment figures.

Figure 5: Income distribution within the service sector, 1961-2000



Source: Authors own calculations. GDP estimates and employment figures from BPS

Stagnating profits in the financial sector, in the wake of the Asian crisis in 1997, have contributed markedly to the recent decline in sector income inequality within services. Public sector employees have suffered much less from the recent hardship than the large number that were convicted to pour out a meagre existence in trade services. So far, it is too early to judge whether this trend has continued in the recent years, but it is crystal clear that this will primarily depend on the expansion or contraction of the informal service sector.

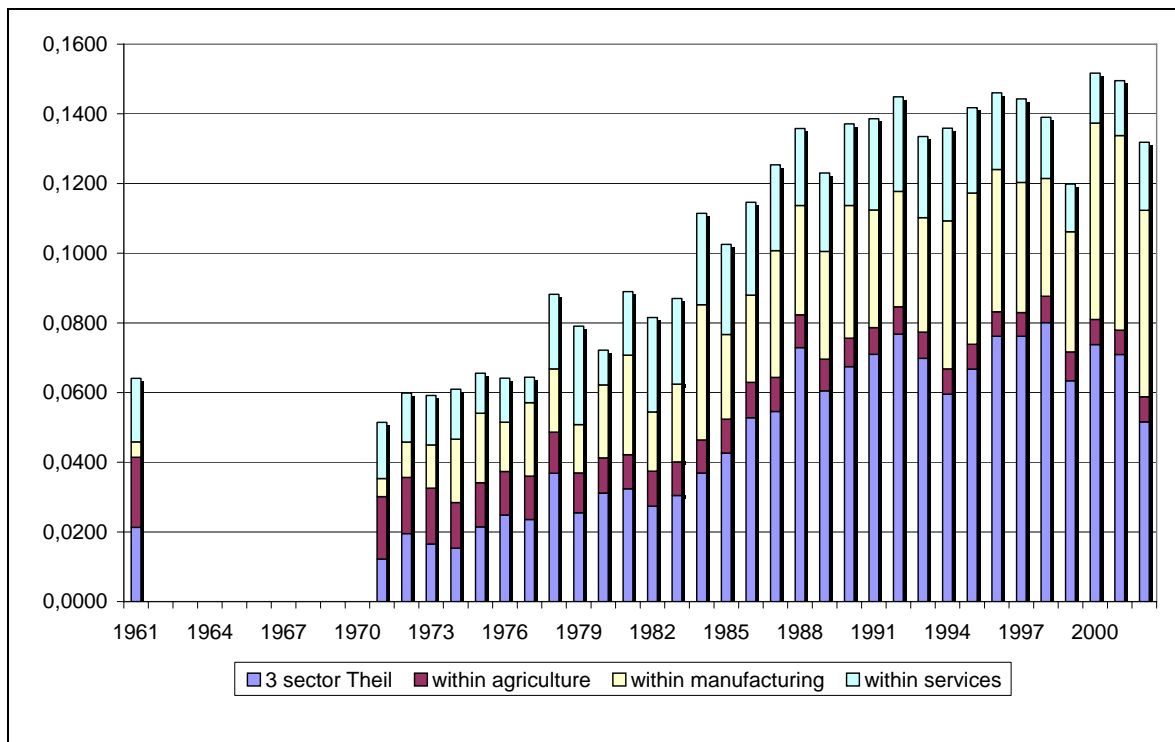
8. The big picture: was it really growth with equity under Soeharto?

According to the methodology exposed in section 3, the weighted estimates of the four components of sector income distribution discussed in section 4 to 7 are presented in figure 6 below. Since the Theil estimates of the years 1962-1970 were largely based on interpolation we removed these figures from the big picture. For the years 1972-1976, 1981 and 1983-1984 we did allow a linear interpolation of various underlying employment figures. As noted above, the Theil index can not be interpreted as a linear function, but this does not restrict any conclusions regarding the up-or downward tendencies in the Theil index.

The big picture in figure 6 demonstrates our main conclusion. When Soeharto came to power in 1966 levels of income inequality were considerably lower than in the year of his resignation, 1998. Especially during the 1980's income disparities rose fast, reaching a peak in the mid 1990's. Since the middle of the 1990's the upward trend has levelled off. A decisive downward trend can not be

observed yet and we have our doubts whether a sustained decline in sector income inequality levels has occurred in the last years or will occur in the near future. There are no signs that the unbalanced nature of economic growth in Indonesia is changing fundamentally.

Figure 6: A Theil of sector income inequality in Indonesia, 1961-2002



The imbalance in Indonesian growth has resided in two main features of structural change. First, labour productivity growth in the industrial sector outpaced the rest of the economy. Although agricultural productivity has lost less ground than could be envisaged, the relative labour productivity in the service sector has declined dramatically, showing that positive spill-over effects from industrial growth in terms of increasing employment opportunities and increasing incomes for the low income classes have remained limited. The rapid expansion of the urban informal sector has been marked by a degradation of value added in the trade sector, contrasting sharply to increasing wage bills in the public service sector. The staggering growth of the urban informal sector is the ultimate sign of an unbalanced growth trajectory during the New Order.

The second main driver of inequality relates to the rapid divergence of labour productivity within the manufacturing sector itself. Although growth in manufacturing output and productivity was broad based, some resource and capital intensive sectors clearly outpaced the rest. This labour productivity divergence did not translate into widening wage gaps. If labour did not benefit proportionally, then where has the economic surplus gone in stead? In this paper we have only implicitly dealt with this question. We have deliberately refrained from the analysis of the distribution of capital income. It would have required a different type of analysis, a different type of data and a different approach to long run structural change. We do not find any evidence in literature however, that increasing capital income has contributed to a more egalitarian distribution of income under Soeharto, on the contrary. The ownership of large corporations was and still is highly concentrated.

The privatisation program that was carried out between 1988 and 1995 has only further supported the monopolization of industrial profits and capital income flows by the confined elite of “Soeharto trustees” (Thee 2002: pp. 213-214; Brown 2006).

The observed trends in sector income inequality tell a lot about the probable trend in personal income inequality. It is extremely unlikely that despite the trends outlined above, personal incomes would, on aggregate, have converged. On the contrary, all signs indicate that the benefits of growth have widened the income gap between the top income classes and the expanding group of urban underemployed. Perhaps the most convincing argument for the relation correlation between the observed sector income inequality trend and the unobserved personal income inequality trend is, indeed, that the big picture in figure 6 is much easier to reconcile with daily-life experiences in Jakarta and the intuition of some notable scholars working on Indonesia (Thee 2002: p. 227), than the expenditure based Gini-coefficients which suggest that Soeharto’s administration has succeeded in realising “growth with equity”. Intuition is no scientific evidence, but it has motivated this study. The adoption of an income approach, in stead of an expenditure approach, and the use of new and alternative data sources, sheds a completely different light on Soeharto’s *Trilogi Pembangunan*.

9. Conclusion

When Soeharto became president of the Republic of Indonesia in 1966 the country suffered from a severe economic recession, hyperinflation and structural macro-economic weaknesses. Soeharto managed to change Indonesia’s economic fortune bringing it on an impressive growth path since the 1970’s. These accomplishments have been widely acknowledged. Growth, however, was just one of the so-called *Trilogi Pembangunan*. An equal distribution of the fruits of growth among the Indonesian population was another. The widely adopted expenditure Gini’s of the BPS suggest that the equity goal has been met: expenditure inequality remains confined and very stable. But this statistical evidence is rather difficult to reconcile with the picture that emerges from daily-life experiences and is therefore seriously questioned in the literature, but not challenged (Thee 2002).

Adopting a Theil decomposition of sector income distribution we have tried to shed a new light on the long run distributive implications of economic development during the New Order. We focused on four components of distributional change which are directly related to changes in the sector structure of the economy: 1) income disparities between the agricultural, the industrial and the service sector, and, 2) income disparities within the agricultural sector, 3) the industrial sector and, 4) the service sector. Our main findings are that there has been a long run tendency of increasing inter and intra-sector income inequality during the Soeharto era, especially between the late 1970’s and the early 1990’s. Soeharto’s policy objective to combine “growth with equity” has failed in the latter respect. Inequality has also been more volatile than suggested by the conventional estimates of household expenditure inequality.

As far as can be judged on the basis of our time-series, the Asian crisis of 1997/98 appears as a temporary disruption of this trend, rather than a structural break point. The fact that growth rates are finally picking up and the first democratically elected president of Indonesia, Susilo Bambang Yudhoyono, indicated poverty reduction as one of his priorities feeds the hope of a sustained decline of Indonesian income inequality in the future. But for a large part this will depend on the capacity of

the Indonesian economy to provide more productive and better paid employment to the mounting numbers of informal sector workers.

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Appendix

Table A1: A 20-sector Theil decomposition of Indonesian manufacturing labour income, 2002

ISIC 1	employment	labour income	employment	lab. income	THEIL
	x 000	billion Rps.	% of total	% of total	
20 Food	534.6	3894.5	0.135	0.096	-0.0142849
21 Beverages	23.5	190.9	0.006	0.005	-0.0004777
22 Tobacco	264.7	2637.5	0.067	0.065	-0.0008374
23 Textiles	565	4526.8	0.143	0.112	-0.0119966
24 clothing & footwear	704.2	6465.8	0.178	0.159	-0.007709
25 Wood & cork	375.9	3584.5	0.095	0.088	-0.002823
26 Furniture	168.1	1184.6	0.043	0.029	-0.0047658
27 Paper	94.9	1026.9	0.024	0.025	0.0005801
28 Printing	52.8	840.2	0.013	0.021	0.003941
29 Leather	25.5	180.9	0.006	0.004	-0.0007149
30 Rubber	344.1	3642.7	0.087	0.090	0.0012034
31 Chemicals	172.9	3213.2	0.044	0.079	0.0204061
32 petroleum & coal products	1.4	5.5	0.000	0.000	-0.000056
33 non-metallic mineral products	4.7	24.9	0.001	0.001	-0.0001762
34 Basic metals	47.7	1197.9	0.012	0.030	0.0114659
35 metal products	118.5	1367.2	0.030	0.034	0.0017104
36 non-electrical machinery	103.1	1771.7	0.026	0.044	0.0097672
37 electrical machinery	141.6	2352.5	0.036	0.058	0.0121193
38 transport equipment	108.1	1547.5	0.027	0.038	0.0055074
39 Other manufacturing	103.8	940.5	0.026	0.023	-0.0012549
Total	3955.1	40596.2	1.000	1.000	0.0216041

Sources: Authors calculations from *UNIDO Yearbook of Industrial Statistics*.

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