Structural Change and Income Distribution in Developing Economies: Evidence from a Group of Asian and Latin American Countries

Ananya Ghosh Dastidar
Delhi School of Economics
Email: ananya@econdse.org

Working Paper No. 121

Centre for Development Economics
Department of Economics, Delhi School of Economics

Structural Change and Income Distribution in Developing Economies: Evidence from a Group of Asian and Latin American Countries

Ananya Ghosh Dastidar

Abstract

In this paper we address the broad question, how does the process of industrial transformation, affect personal income distribution within a developing economy ? The starting point of our analysis is Kuznets (1955). What clearly emerges from Kuznets's writings is that under certain circumstances, the process of industrialisation would have very clear-cut implications for changes in the distribution of income within the economy. In the first part of this paper we present our basic arguments regarding the relation between the process of structural change and the overall (personal) distribution of income within a developing economy. Thereafter we examine the evidence from a group of eighteen developing countries from Asia and Latin America as we try to ascertain the nature of empirical support for our hypothesis regarding the relation between structural change and income inequality. We find little support in the data for the Kuznetsian hypothesis of increasing inequality with the industrial transformation of a developing economy. Rather, an important point that emerges from our analysis is that the existence of an informal sector plays an important role in determining how inter-sectoral labour movements affect the overall distribution of income in the context of developing economies.

Acknowledgements

1. Introduction

In this paper we address the broad question, how does the process of industrial transformation affect the personal distribution of income within a developing economy? As in any research work on personal income distributions, the starting point of our analysis is also Kuznets (1955). There is an old literature which points out that as countries develop, it is expected there will be a change in the inter-sectoral composition of output, with a rise in the shares of industry and service and a fall in the share of agriculture in total output (see Johnston, 1970 for a survey of these issues). What clearly emerges from Kuznets's writings is that this change in the structure of production has very clear-cut implications for changes in the distribution of income within the economy. However in this paper we find that rather than the process of industrial transformation *per se,* certain structural characteristics of developing countries tend to affect the overall distribution of income in a significant way. In particular, an important point that emerges from our analysis is that the existence of an informal sector plays an important role in determining how inter-sectoral labour movements affect the overall distribution of income in the context of developing economies.

The plan of the paper is as follows. First we present our basic arguments regarding the relation between the process of structural change and the overall distribution of income within a developing economy[1]. This section draws heavily on the ideas developed in Kuznets (1955). Next we examine the evidence from a group of eighteen developing countries from Asia and Latin America as we try to ascertain the nature of empirical support for our hypothesis regarding the relation between structural change and income inequality (Section 2). The importance of the informal sector is then discussed in the context of the country experiences (Section 3). Thereafter we present the main results obtained from an econometric analysis using a panel data set on these eighteen countries, covering the thirty-five year period from 1960 to 1994 (Section 4). We conclude by presenting a summary of our main findings (Section 5).

---

[1] We would like to clarify at the outset that in this paper we are interested in the distribution of *incomes* (in particular, personal income distributions). Thus we will not be addressing the broader definitions of the standard of living, which incorporate the notion of "capabilities" (for a discussion of these issues and generally for a discussion of the broader dimensions of inequality see Sen, 1997 and 2000).

At this juncture we note that the impact of alternative growth strategies on poverty has been widely analysed (see for instance, Cornea et al., 1987 and Lipton and Ravallion, 1995). However, we are interested in studying changes in the distribution of income *per se*, which by itself (and apart from poverty) remains an economic variable of immense importance. A growing volume of political economy studies point out the importance of the distribution of income for determining political and economic outcomes at the aggregate level (see for instance, Alesina and Perotti, 1993; Alesina and Rodrik, 1994; Perotti, 1993 and Persson and Tabellini, 1994)[2].

In this paper insofar as we focus on structural change, in effect we are studying one *channel* via which economic growth may affect the distribution of income. There are other equally important ways in which growth may affect income distributions, such as the process of accumulation of savings and therefore the concentration of income earning assets among economic agents. However analysis of these issues lie beyond the scope of the present paper.

Section 1. The Kuznets Curve, Structural Change and the Distribution of Income

Kuznets (1955, 1963) recorded an inverted U-shaped relation between per-capita income and a measure of income inequality (the ratio of the share of income accruing to the richest 20% of the population, to the poorest 40%) on the basis of data on a set of developed and developing nations. This empirical inequality–development relation is widely referred to in the literature as the Kuznets Curve.

Kuznets observed that relative income shares of the richest and poorest population quintiles exhibited a tendency to move towards equality for developed countries like the UK, Germany and the USA[3] in the first half of the twentieth century. He speculated that income inequality in these countries had widened previously

---

[2]This literature identifies a number of channels via which the distribution of income may affect economic outcomes in general, and the rate of growth in particular. For instance, governments in highly unequal societies often adopt populist, re-distributive policies, resulting in high rates of taxation, which may adversely affect the incentive to invest and thus retard growth.

[3] " In the United States, …. the shares of the two lowest quintiles rise from $13\frac{1}{2}$ per cent in 1929 to 18 per cent in the years after the second world war ….; whereas the share of the top quintile declines from 55 to 44 per cent and that of the top 5 per cent from 31 to 20 per cent. In the United Kingdom, the share of the top 5 per cent of units declines from 46 per cent in 1889 to 43 per cent in 1910 or 1913, …. and to 24 per cent in 1947; the share of the lower 85 per cent remains fairly constant between 1880 and 1913, between 41 and 43 per cent , but then rises to …. 55 per cent in 1947." [Kuznets (1955), page 4]

during the nineteenth century. These were industrialised countries that experienced prolonged periods of high growth and attained high per capita income levels by the post war years and this process of rising per capita incomes was accompanied by a relative narrowing of the income gap between the richest and the poorest income groups in these economies. As for the developing countries of Asia, Africa and Latin America, these were largely agriculture-based, stagnant economies characterised by low per capita income levels. However, income inequality tended to be higher in these developing nations than in the developed Western countries[4]. From here the following considerations led to the formulation of a possible inequality-development relation : (a) income inequality tends to be high in developing countries with low per capita income levels; (b) income inequality was relatively higher (as compared to their current levels) in developed countries, when their per capita income levels were lower; and (c) currently income inequality in high per-capita income developed countries is lower, both as compared to their own past levels and to the levels of inequality in the developing countries. This led Kuznets to conjecture that, there is possibly a relation between countries' per capita income levels and the extent of inequality in their overall distribution of income and that, there is a turning point in this relation. That is, at relatively low levels of per capita incomes, there is a tendency for income inequality to increase as per capita income increases; thereafter, at relatively higher per capita income levels, there is a tendency for the extent of income inequality to actually narrow as per capita income increases. This reasoning forms the basis of the 'Kuznets Curve' or the inverted-U shaped relation between per capita income levels and the extent of inequality in the overall distribution of income.

1.1. The Literature on the Kuznets Curve

There is a large body of mainly empirical literature that attempts to establish and explain the existence of the Kuznets Curve on the basis of data on developed and developing countries (see for instance, Ahluwalia, 1976; Anand and Kanbur, 1993b; Bourguignon and Morrisson, 1990; Chenery et al., 1975; Deininger and Squire,

---

[4] "…compare the distributions for India and the United States. …the second quintile in India receives only 9 per cent (of total income), the third 11, and the fourth 16; whereas in the United States, the shares of these quintiles are 12, 16, and 22 respectively." "The shares of the top quintile are 55 per cent in India, … compared with 44 per cent in the United States …" [Kuznets , *op cit.*, pages 22 and

1996b; Jha, 1995; Ogwang, 1994; Papanek and Kyn, 1986; Paukert, 1973; Ram, 1995; and Sundrum, 1990)[5]. The most common empirical test for the existence of the Kuznets curve involves running a cross-country regression with some measure of income inequality as the dependent variable and with per-capita GDP (an index of development) and the square of per-capita GDP as independent variables. The studies differ mainly with respect to the functional form used to test the Kuznets curve relation, the measure of inequality used, the countries included in the data set and the determinants of inequality (other than per capita income) considered[6].

As for the theoretical framework underlying the empirical studies, several studies introduce additional determinants of income inequality in a somewhat ad hoc manner, without reference to any particular theoretical framework. For example, Chenery and Syrquin (1975) introduce three other variables as regressors apart from per capita income, viz., the share of agriculture in total output, the share of primary exports in total exports, and the percentage of school enrolment, as indicators of a country's level of development. Others focus on specific determinants of income inequality drawn from recent theories linking inequality and growth (e.g., Li et al., 1998) or develop an independent theoretical framework for analysing the determinants of inequality within the economy (Bourguignon and Morrisson, 1990). Essentially, with the exception of Anand and Kanbur (1993a, b), this class of studies does not directly analyse the change in the inter-sectoral composition of output and employment and its implications for changes in income inequality. Anand and Kanbur do focus on this issue[7], but in their empirical analysis they choose a functional form involving per-capita income and its inverse as the independent variables. That is, they do not directly incorporate variables relating to structural change in the empirical part of their analysis.

---

21 respectively] . The figures for India refer to 1950. For the USA, these are average figures for the post-war years of 1944, 1946, 1947 and 1950.
[5]See Bruno et al. (1998) and Kanbur (2000), for recent surveys of this literature.
[6] Regarding the data used in these empirical studies, the datasets compiled by Paukert (1973), Jain (1975), and later Fields (1989a, b) have been widely used in empirical studies of the Kuznets curve relation. However, earlier due to the lack of a sufficiently long time series on inequality measures, most empirical studies were based on cross-section data. For instance, Paukert (1973), Chenery et al. (1975), Ahluwalia, (1976) and Bourguignon and Morrisson (1990) all test for the existence of a Kuznets curve relation on the basis of cross section data. More recently since the compilation of the Deininger Squire (1996a) data set, authors have used panel data to investigate the existence of the Kuznets curve (see eg. Bruno et al., 1998; Deininger and Squire, 1996c; and Li et al., 1998).
[7] The relation between income distribution and the sectoral composition of aggregate output and employment is formally analysed by Anand and Kanbur (1993a). They show that the Lorenz class of

There is mixed evidence from these studies regarding the existence of the inequality-development relationship implied by the Kuznets curve. While some studies find an inverted U shaped relation between per capita income and inequality (e.g. Ahluwalia, 1976; Bourguignon and Morrisson, 1990; Chenery and Syrquin, 1975; and Ogwang, 1994), others, particularly those based on panel data (eg. Anand and Kanbur, 1993b; Bruno et al., 1998; and Deininger and Squire, 1996b) demonstrate that the Kuznets curve does not exist. In fact a number of studies find evidence of a U-shaped relation between income and inequality (Anand and Kanbur, 1993b; Deininger and Squire, 1996b and Fields and Jakubson, 1995).

What does *not* emerge clearly from these studies is that the inequality-development relation posited by Kuznets is driven by a particular kind of structural change. To our mind it is important to examine the nature of structural change in an economy when one is studying changes in the overall distribution of income. As such our approach to analysing this issue brings the "Kuznets process" into clear focus, where this term essentially refers to the process of structural change underlying the inequality-development relation embodied in the Kuznets curve.

1.2. Structural Change and the Distribution of Income

The process of development is supposed to be accompanied by a rise in the shares of the non-agricultural sectors and a corresponding fall in the share of the agricultural sector in total output. The distributional implications of this process would depend on a number of factors. For instance, we can imagine a hypothetical situation where a rise in output of the industrial sector, is caused entirely by an expansion of employment. If the expansion of industrial employment is accompanied by a transfer of labour from the agricultural to the industrial sector, following Kuznets (1955), it would appear that this process has extremely clear cut implications regarding the nature of change in overall income inequality in the economy, viz., inequality would tend to increase. This follows from certain assumptions regarding *inter*-sectoral and *intra*-sectoral income distributions.

Kuznets (1955, p.12) constructs a numerical example to illustrate the relation between changes in sectoral employment shares and income inequality. He assumes that in a two-sector economy " … the per capita income of sector B (non-

---

indices of income inequality are aggregable, in the sense that overall income inequality can be expressed as a function of sectoral-per capita incomes, -income inequalities and -population shares.

agricultural) is always higher than that of sector A (agricultural); that the proportion of sector A in the total number declines; and that the inequality of the income distribution within sector A may be as wide as that within sector B but not wider"[8]. Therefore, as the relative share of the industrial sector in output and employment rises, overall inequality tends to increase as labour moves from a low-income, low-inequality agricultural sector to a higher-income, higher-inequality industrial sector.

We incorporate this idea in a simple formulation which we estimate using data on a group of developing economies. Following the basic idea developed in Kuznets (1955), we express economy-wide inequality (measured by the Gini coefficient, say), as a function of sectoral output shares[9]. That is, $G = f(x_a, x_b)$, where x_a and x_b represent the shares of output of the agricultural and the non-agricultural sectors and G denotes a measure of income inequality (e.g., the Gini coefficient).

We assume there are three sectors in the economy - agriculture, industry and services. That is, the non-agricultural sector is a composite sector, with industry and services as its two main components. Thus we can express,

$$G = f(x_a, x_b) = f(x_a, x_i, x_s),$$

where, x_a, x_i, x_s are the shares of the agricultural, industrial and service sectors in total output.

Now expressed in percentage terms,

$$x_a + x_i + x_s = 100.$$

Therefore,

$$G = f(x_a, x_i, (100 - x_a - x_i)).$$

Assuming a linear relation between the variables we can write,

$$G = \alpha + \beta. x_a + \delta. x_i \quad \text{-----------} \quad (1)$$

This is the relation we estimate (estimation results are reported in Section 4 below). The coefficient 'β' indicates how income inequality changes with an "agriculture-service" transition. That is, a change in the share of agriculture in total output, when

---

[8] There is indirect evidence which suggests in general this is true for most developing countries. Given that urbanisation is a natural concomitant of industrialisation, urban inequalities can be regarded as a rough approximation of inequality 'within' the industrial sector. The data in Table 1A (see Appendix Tables) shows that with few exceptions, urban inequality tends to be higher than rural inequality (as measured by Gini coefficients) for most countries and at most points of time.

[9] Here we would like to reiterate that standard empirical estimation of the Kuznets curve relation typically regress income inequality on *per capita income levels.* We argue that this approach fails to bring out clearly the underlying relation between income inequality and changes in the inter-sectoral output structure. In contrast our approach clearly brings out the relation between income inequality and the process of structural change.

the share of industry is held constant and there is an offsetting change in the share of services (such that the shares of the three sectors always add up to 100). Analogously, 'δ' measures the impact of an "industry-service" transition. That is, it represents the partial effect of a change in the share of industry on income inequality, holding the share of agriculture constant and with an offsetting change in the share of services. Therefore, when we estimate this equation, we are essentially treating services as the residual sector, which adjusts passively to changes in the shares of the other two sectors[10]. The constant term 'α' represents the level of income inequality in the economy in the hypothetical case where both the shares of agriculture and industry are zero and the entire economy is based on services activity.

We report our estimation results in Section 4 below. But before that we outline certain aspects of the inequality-structural change relation that emerge from a preliminary data analysis. An important point that emerges from this discussion is that a certain structural characteristic of developing economies (viz. existence of an informal sector) is likely to have an important influence on changes in the overall distribution of income within such economies.

Section 2. Evidence on Structural Change and Income Inequality from a Group of Developing Countries

We work with data on eighteen developing countries – ten from Asia (Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Sri Lanka, Philippines, Thailand and Korea) and eight from Latin America (Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Peru and Venezuela), covering the period 1960 to 1994[11]. The data on income inequality is taken from the Deininger and Squire (1996a) dataset and from UNDP (1999)[12], while data on the structural change variables is from World Bank (2000). We use the Gini coefficient, which is the only available measure of income distribution, comparable across a fairly large number of countries for which

---

[10] We also estimate two other equations, where, in turn, industry and agriculture are treated as residual sectors. For details see Part B of the Appendix below.
[11] For description of the final dataset and data related problems see Part A of the Appendix below.
[12] We use only the 'high-quality' observations on Gini coefficients from the dataset compiled by Deininger and Squire (1996a) and we include only comparable observations from the UNDP (1999) database (see Part A of theAppendix below for more details).

we have observations over a reasonably long period of time[13]. We choose sectoral output shares as our measure of structural change as comparable data on sectoral employment shares is not available for all countries over our entire period of analysis. However we also analyse the limited empirical evidence on sectoral employment shares before drawing conclusions from this analysis.

A preliminary data analysis reveals that both Asian and Latin American countries faced a more or less similar pattern of structural change, yet their experience with regard to changes in the distribution of income differed. We focus on data on sectoral output shares for the period 1960 to 1994, since we do not have data on sectoral employment shares covering the entire period. However for the relatively recent period, from 1980 to 1990, we do analyse the available evidence on sectoral employment shares.

2.1. Structural Change and Income Distribution in the Asian Countries

Analysis of the data on income distribution and structural change over the period 1960 to 1994 reveals the following picture. We find that over this fairly long time span of 35 years, income inequality remained more or less unchanged in almost all the Asian countries in our sample (Table 1).

Table 1. Distribution of Income in the Asian Countries

Years	Gini Coefficient
1960-64	39.49 (9)
1965-69	39.05 (8)
1990-94	39.03 (9)

Source : Deininger and Squire (1996a) and UNDP (1999)

Note:
- The Gini coefficients reported are average (unweighted) values for each country group, over the 5- year periods reported. However continuous data over the 5 years is not available for each country, therefore even for each country the average figure calculated does not often represent actual inequality over the full five years.

---

[13] Data on income shares of population quintiles are also available in the Deininger and Squire dataset but there are fewer observations per country for this variable than for Gini coefficients. This is the primary reason we use the Gini coefficient despite its many limitations as a measure of income inequality. However in our empirical exercise we get similar results using the Gini coefficient and an alternate measure of inequality based on quintile shares, viz., the ratio of the income share of the richest 20% to the poorest 40% of the population (See Section 4 below for details).

- The numbers in parentheses below each variable value represents the number of countries on which these averages are based. Names of the countries and details regarding the years for which observations are available are listed in Table 2A in the Appendix Tables at the end of this paper.

In most Asian countries, except for China and Thailand (where inequality rose over the 1980s decade), the Gini coefficient changed very little and fluctuations in the Gini coefficient stayed within a narrow band[14]. Yet these countries experienced a considerable degree of structural change over this period. There was a significant fall in the share of the agricultural sector, with corresponding increases in the shares of the industrial and service sectors, in total output (Table 2).

Table 2: Sectoral Composition of Total Output in the Asian Countries (% GDP)

Sectors	Years	
	1965-69	**1990-94**
Agriculture	35.76	21.52
Industry	22.85	33.97
Services	41.39	44.51

Note:
- The values of the variables are 5-yearly averages (unweighted) for each country-group.
- Average values are taken to ensure comparability with the data on Gini coefficients for which we have to consider average values, as continuous time series data are not available for all countries in the sample.
- We consider the data for the latter half of the sixties decade as we do not have averages based on all 10 countries for the period 1960-1964.

---

[14] Comparing the figures for 1960-64 and 1990-94, in some cases eg. Bangladesh, Philippines and Sri Lanka the Gini shows a slight decline. For Bangladesh and Sri Lanka this decline is probably due to a change in the underlying method of calculating the Gini. For instance, for the last two years for which income distribution data is available for Bangladesh (1989 and 1992) and for the latest year for which data is available for Sri Lanka (1990) the Gini coefficient represents *expenditure,* rather than income, inequality. We adjust for this change in definition by increasing the expenditure based coefficients by 6.6 (as suggested by Deininger and Squire, 1996a and Li et al., 1998). However we recognise that this adjustment would help reduce the bias and not eliminate it completely.

Table 3: Inter-Sectoral Composition of Output and Employment in the Asian Countries   (%)

Sectors	Output Shares		Employment Shares	
	1980	**1990**	**1980**	**1990**
Agriculture	27.18	21.08	55.91	48.65
Industry	33.59	34.06	17.09	20.08
Services	39.23	44.86	26.15	30.63

Source: World Bank (2000) and ILO (1999).

Note:
- The output shares represent shares of value added in each sector as percentage of GDP.
- The employment shares represent shares of employment in each sector as percentage of total employment.
- For each period, the figures represent average values (unweighted) for ten countries, Bangladesh, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand, China and Korea.

We do not have data on employment shares from 1960 onwards. However we do have limited data available on sectoral employment shares covering mainly the 1980s decade[15]. Between 1980 and 1990 on average, the share of agriculture declined and correspondingly the share of services rose, while the share of industry in total output increased slightly (Table 3). The basic change in the occupational distribution of the workforce over the 1980s decade in the Asian economies involved a fall in the share of agriculture, a small rise in the share of industry and a relatively larger rise in the share of services in total employment. Yet for the ten Asian countries we find that between 1980 and 1990, income inequality remained unchanged in all the economies with the exception of China and Thailand.

Relating changes in the occupational distribution with the changing composition of aggregate output reveals an interesting feature of the process of structural change in the Asian economies. Between 1980 and 1990, there was very little change in the share of the industrial sector in total value added, while the share of the sector in total employment increased. These figures seem to indicate that over the eighties decade, on average employment opportunities opened up mainly in the low value-added, low-wage segment of the industrial sector in a number of Asian economies.

---

[15] The employment data are from ILO (1999) and the starting point of this data set is 1980. As such, we are only able to focus on a period of ten years in this part of our analysis, covering the period from 1980 to the beginning of the 1990s decade.

Arguably jobs were created mainly for low-skilled workers who are absorbed either from the pool of the unemployed or from even lower paid jobs in the agricultural and service sectors.

Ultimately what needs to be explained is the actual facts we observe for the Asian economies. All these countries experienced the kind of structural change that Kuznets describes. However income inequality in the bulk of these countries seems to have remained virtually unchanged over a span of almost thirty-five years. Do we conclude from here that the process of structural change does not affect the distribution of income in the economy in the way that Kuznets outlined? We argue below that the explanation for this phenomenon may be closely linked with a structural characteristic peculiar to developing countries, viz., existence of an informal sector. This was absent in the developed economies whose experience forms the basis of Kuznets's arguments regarding structural change and income distribution, which is why he ignores this issue completely. However it is surprising that subsequent work in the Kuznetsian tradition has also chosen not to incorporate the role of the informal sector in the context of developing economies. For, there is ample evidence that bears out the growing importance of this sector in developing economies across the world. In fact according to some estimates as much as sixty percent of the workforce in developing countries operate in the informal sector (Ihrig and Moe, 2000).

2.2. Structural Change and Income Distribution in the Latin American Countries

In contrast to the Asian countries, between 1960 and 1990 income inequality increased in the Latin American countries[16] (Table 4).

---

[16] The number of countries in the Latin American sample in the 1960s is too small to draw a firm conclusion, at least in the aggregate, regarding change in inequality between 1960 and 1994. However, we check that, (a) in 3 of the 4 countries (Brazil, Chile and Mexico) for which data on inequality is available in the 1960s decade, income inequality increased between 1960 and 1994; and (b) for six of the eight Latin American nations in our sample (Costa Rica and Peru being the two exceptions), comparing the earliest and the latest year for which data is available, we find that income inequality worsened in each case.

Table 4. Distribution of Income in the Latin American Countries

Years	Gini Coefficient
1960-64	52.83 (3)
1965-69	51.67 (2)
1990-94	54.23 (7)

Source: Deininger and Squire (1996a) and UNDP (1999)

Note:
- The Gini coefficients reported are average values (unweighted) for each country group, over the 5- year periods reported. However continuous data over the 5 years is not available for each country, therefore even for each country the average figure calculated does not often represent actual inequality over the full five years.
- The numbers in parentheses below each variable value represents the number of countries on which these averages are based. Names of the countries and details regarding the years for which observations are available are listed in Table 2A in the Appendix Tables at the end of this paper.

Over this period the pattern of structural change was similar to the Asian case[17], the decline in the share of agriculture being accompanied by a significant rise in the share of industry and a relatively smaller increase in the share of services in total output (Table 5).

Table 5. Sectoral Composition of Total Output in the Latin American Countries   (% GDP)

Sectors	Years	
	1965-69	*1990-94*
Agriculture	17.22	10.58
Industry	29.69	33.67
Services	53.08	55.74

Note:
- The values of the variables are 5-yearly averages (unweighted) for each country-group.
- Average values are taken to ensure comparability with the data on Gini coefficients for which we have to consider average values, as continuous time series data are not available for all countries in the sample.
- We consider the data for the latter half of the sixties decade as we do not have averages based on all 8 countries for the period 1960-1964.

---

[17] However the Asian and Latin American countries differ in an important respect. Viz., in the former countries, on average, the agricultural sector is largest in terms of share in employment, whereas in the latter, it is the service sector, which employs the largest share of the total workforce.

Table 6. Inter-Sectoral Composition of Output and Employment in the Latin American Countries (%)

Sectors	Output Shares		Employment Shares	
	1980	*1990*	*1980*	*1990*
Agriculture	11.51	9.63	24.42	20.33[#]
Industry	35.63	33.71	24.07	24.17
Services	52.87	56.67	46.57	55.3

Source: World Bank (2000) and ILO (1999).

Note:
- The output shares represent shares of value added in each sector as percentage of GDP.
- The employment shares represent shares of employment in each sector as percentage of total employment.
- For each year, the figures represent average values (unweighted) for six countries, Brazil, Chile, Costa Rica, Dominican Republic, Mexico and Venezuela.
- Data on Colombia and Peru are excluded for the following reasons. For Colombia, the sectoral employment data refer only to the urban areas, while for Peru, the data for the 1990s refer only to Lima and as such is not comparable with the figures for 1980.
- # For 1990, the agricultural employment data for Brazil excludes the rural population of Rondonia, Acre, Amazonas, Roraima, Para and Amapa. As such this figure tends to overestimate the fall in the share of agricultural employment in Latin America.

However focussing on the sub-period 1980 to 1990 reveals a different picture (Table 6). In particular, the experience of the six Latin American countries[18], with respect to change in the structure of output over the 1980s decade, differs starkly from the Asian countries' experience in an important respect. In the bulk of the Latin American countries included in our sample (Brazil, Chile, Costa Rica and Mexico), the share of industry in aggregate output actually declined, and this shows up in the average figures for the region as a whole (Table 4). The eighties saw a falling share of agriculture in total employment, with a corresponding rise in the share of services and a stagnant share of industry. As we discuss below, in all likelihood this phenomenon is closely linked with these countries' experience with the debt crisis and the subsequent stabilisation and structural adjustment programs adopted by the governments.

Regarding income distribution, between 1980 and 1990, income inequality increased sharply in the Latin American countries. On average, the Gini coefficient increased by almost 4 percentage points which is a very sharp increase indeed given

---

[18] In this part of the analysis we are compelled to exclude two Latin American countries (Colombia and Peru), as there is an urban bias in the data on sectoral employment shares for these countries.

the relatively short span of time that is considered. For each of the Latin American countries considered (except Costa Rica), the distribution of income became more uneven over the eighties decade.

In what follows we argue that the debt crisis had a significant impact on change in income inequality in the Latin American countries. But before that we go on to discuss how the existence of an informal sector is likely to influence the overall distribution of income in the context of these developing countries of Asia and Latin America.

Section 3. The Role of the Informal Sector

For the developing countries in our sample we observed a tendency for income inequality to either increase slightly or remain more or less unchanged over a span of more than three decades. The tendency for inequality to increase along with an agriculture-industry transition can be explained in terms of Kuznets's analysis in terms of a movement of labour from a low per-capita income, low-inequality sector to a relatively high per-capita income, high-inequality sector. However this theory cannot explain why inequality remained more or less unchanged over a span of nearly three decades as in most of the Asian economies. To understand the nature of change in income inequality in the developing economies, we must first understand clearly the exact nature of structural change experienced by these economies. In particular one aspect of structural change in these countries, viz., growth of the 'informal' sector has received little attention in the literature on the Kuznets curve, where the focus is on the nature of changes in per-capita incomes and overall income inequality.

The main distinctions between the formal and informal sectors are the following: (a) the formal sector is characterised by capitalist production modes and the informal by traditional modes of production; (b) employment contracts in the formal sector are legally binding (or are formulated within the framework of the existing legal structure), whereas informal sector contracts are generally not backed by courts of law; and (c) wages are lower in the informal than in the formal sector. Typically official sources do not have accurate records of informal transactions; as such official statistics tend to underreport the level of economic activities in this sector. In particular, in available official statistics it is often not possible to find data classified according to whether it pertains to the informal or the formal sector.

14

In most developing countries informal sector activities tend to bypass government regulations, especially regarding minimum wage laws and other labour standards. Further this acts as a kind of a residual sector as it tends to absorb, in large part, the bulk of 'unemployment' in the formal sector. In developing countries owing to the pressures of a burgeoning population, the number of job seekers tends to exceed the number of job opportunities available in the formal sector. Typically this residual who fail to get employment in the formal sector tend to get absorbed in the informal sector, albeit at much lower wage rates. Further owing to (b) above, and because the bargaining power of workers is weaker than that of employers, the quality of jobs in the informal sector, in terms of security of tenure, hours of work, non-pecuniary benefits etc., is distinctly 'lower' than that of jobs in the formal sector. An important characteristic of the development process in developing economies has been the increasing importance of the informal sector in terms of its growing share in both total employment and output. In particular there is ample evidence (mainly based on individual case studies) that supports the growing importance of the informal service sector in developing countries (see for instance, Agenor, 1996; Fields, 1990; Ihrig and Moe, 2000; ILO, 1995 and 1998). Further, the actual experience of developing countries indicates that the service sector is quite sizeable, in terms of contribution to aggregate output [19], while the industrial sector is relatively much smaller in size. Also available evidence indicates that a large segment of the labour force in developing nations moved directly from the agricultural to the service sector, particularly informal services, without contact with the industrial sector (see UNCTAD, 1988; Nayyar, 1994).

Another point worth noting is that in developing countries the non-agricultural sector itself has a dualistic structure, with a formal and an informal sub-sector. We argued above that average wages in the informal sector lie well below that in the formal sector. Thus as workers move from the informal to the formal sector, they get a hike in wages, much like the workers migrating from rural to the urban sector in the Harris-Todaro framework.

In what follows we discuss how the existence of an informal sector is likely to have influenced the overall distribution of income in the Asian and Latin American economies.

---

[19] On average, over half of total output of the Latin American economies and more than two-fifth of total output in the Asian economies is accounted for by service output; see Tables 1 and 2 in the text.

3.1. The Asian Economies

In view of the discussion above, consider the impact, on the distribution of income, of the following kind of transition from an agriculture-based economy. Suppose the fall in the share of agriculture in total output is accompanied by an expansion of output primarily in the informal segment of the non-agricultural sector. Given that wages in the informal sector are low, often those moving from agriculture (where wages are also low) to the non-agricultural sector would not experience any significant rise in incomes, even though they are moving to a sector where average wages (especially in the formal sector) are higher than in the agricultural sector of the economy. In this case, even with structural change, overall inequality in the economy would be relatively unaffected owing to the particular nature of this change. At the very basic level, income inequality is essentially about the *distance* between the incomes earned by the richest and the poorest income earners in the economy. Now with the above kind of structural change, there is a flow of labour between sectors that does not involve the poor getting significantly richer. That is, this movement of labour is essentially confined *within* the lower income groups and it does not change the position of the poor classes vis a vis the richer classes in a significant way. That is why this particular kind of labour mobility tends to leave the overall distribution of income fairly unaffected.

However, the informal sector is at best a minor residual in a few Asian countries in our sample, particularly, Korea, Malaysia and China (until the 1990s). These countries, particularly Korea and China, had put in place radical agrarian reforms, which undoubtedly accounts for the relatively lower inequality in these countries as compared to the others included in our study. Government policies geared to directly tackle inequality in the distribution of assets (particularly land) in general, and agrarian reforms in particular, have no doubt contributed to keeping income inequality from increasing very much in these countries.

3.2. The Latin American Economies

We now argue that the presence of an informal sector may also have influenced changes in income inequality in the Latin American nations, particularly in the decade of the 1980s. We noted earlier that income inequality increased in all Latin American nations over the eighties decade. Now the 1980s have been referred to as

the 'lost decade' in the history of these nations (see for instance, Cardoso and Helwege, 1995; Edwards and Larrain, 1989; Eichengreen and Lindert, 1991; and Sachs, 1988). It seems plausible to argue that the structural adjustment programs put in place over this period affected the structure of output and employment and therefore the process of income generation and distribution. There is an extensive literature that deals with the experience of Latin American countries since the debt crisis (for an extensive bibliography see Corbo and Fischer, 1995). The basic points that emerge from it can be summarised as follows.

For the Latin American nations, in general, the decade of the 1970s was characterised by mounting internal and external imbalances. Fiscal excesses spilled over to the external accounts and most of these nations built up huge external debt obligations in order to finance deficits. Funds were easily available in the 1970s decade, particularly in the wake of the oil price rise. Oil exporting countries invested oil revenues primarily with commercial banks that, in turn, lent to these countries. However the situation changed in the early 1980s when, in 1982, the US Federal Reserve raised interest rates in a bid to control inflation. Higher interest rates made the USA a more attractive alternative for lenders. As a result, credit availability dropped sharply for Latin America. Alongside there was also a rise in the cost of credit. With mounting interest payments on debt, the burden of debt service increased, while indicators like debt-GDP and debt-export ratios rose steadily for the Latin American countries. The situation worsened further, when consequent upon the interest rate hike in the USA, followed by Europe, economic activity slowed down across these nations. For, this reduced the demand for Latin American exports, and commodity prices crashed, making debt repayment appear increasingly difficult. Matters came to a head, with Mexico declaring a moratorium on debt obligations. This spread like contagion in the region and finally most of these nations had to adopt stabilisation and structural adjustment packages administered by international institutions like the International Monetary Fund. Fiscal restraint was an essential part of these policies, and typically, the reduction in deficits came about at the cost of spending on infrastructure, investment on human capital and other social sector spending. On the other hand, with bleak prospects for export growth[20], drastic import compression was necessary in the short run to manage the external

---

[20] Not much could be done to increase exports, as the major export markets in the US and Europe were in the midst of a recession.

payments crisis. The result of these policies was economic recession which, in effect, slowed down the process of industrialisation across the region[21].

In an atmosphere of economic recession, income inequality is likely to increase, as the demand for labour tends to fall and consequently, the rate of employment creation slows down, and many lose jobs. All this tends to create downward pressure on wages. Further, with cuts in government spending on social sectors, invariably the position of the poorer groups in society become worse. In fact, typically, during an economic slowdown, the poorer income classes lack the ability to protect their real incomes, unlike the relatively richer groups in society and this tends to make the overall distribution of income more uneven. This is especially true in the Latin American countries, where the poor have little 'social security', unlike in many European countries. Further, during an economic downturn the rich often fall back on asset incomes (either from sale of assets or from their yield); whereas, typically the poor lack income earning assets, and tend to suffer a greater fall in real incomes.

We argue that in such a situation, the informal sector acts as a residual, absorbing the bulk of those losing employment in the formal industrial sector and also those unable to find 'good' jobs in an environment of economic slowdown. In fact there is evidence that in the eighties decade the size of the informal sector grew in the Latin American economies. According to Turnham (1993), the share of the informal sector in Latin America rose from 40% in 1980, to 47% in 1985 and 55% in 1993. During 1983-89 employment in Latin America increased at an annual rate of about 3% (in line with economic growth) but a large proportion (almost 80%) of the new jobs were in the informal sector (own account workers, domestic service, micro-enterprises etc.). At the same time the share of the modern sector (medium and large private enterprises and the public sector) in total employment fell from about 60% in the early 1980s, to around 45% in 1993. We argue, but for this residual role of the informal sector, income inequality would probably have increased even more than it actually did in the Latin American nations. By absorbing a large section of the population, even at minimal wages, it kept the bottom end of the income distribution from worsening further.

Against the backdrop of this discussion, we report below the results from an econometric analysis.

---

[21] There was a dramatic decrease in investment rates across Latin American nations, particularly in the period 1982-87 (Agarwal et al, 1999).

Section 4. Results from an Econometric Analysis

We estimate the following model based on the simple formulation relating income inequality and structural change, which was developed in Section 1.2 above :

$$G = \alpha_L + \beta_L . A + \delta_L . I + (\alpha_A - \alpha_L).D + (\beta_A - \beta_L).(D*A) + (\delta_A - \delta_L).(D * I) + \varepsilon,$$

where, G stands for Gini Coefficient; A and I represent the shares of the agricultural and industrial sectors in total value added; the subscripts L and A represent coefficient values for the Asian and Latin American countries respectively; and D is a dummy variable that takes the value one for the Asian countries and zero for the Latin American nations.

The equations are estimated using the pooled OLS (ordinary least squares) estimation procedure[22]. Details regarding the final dataset, data sources, problems related to the data, especially relating to missing data etc. are discussed in Part A of the Appendix.

The estimated equation is :

$$G = 52.33^* + 0.09. A + 0.00. I + 11.53. D - 0.34^* (D*A) - 0.38^* (D*I),$$
$$\quad (6.39) \quad (0.14) \quad (0.15) \quad (8.34) \quad (0.17) \quad (0.18) \ [Adj. \ R^2 = 0.55]$$

[Note * represents coefficients that are statistically significant at the 5% level or lower; figures in parentheses below each coefficient is its White heteroscedasticity-consistent robust standard error]

The rest of the regression results are discussed in detail in Part B of the Appendix below.

---

[22] For the reason we use the pooled ols rather than the fixed effects estimator, see the discussion in Part C of the Appendix below.

The main results from our regression exercise can be summarised as follows[23] :

(a) An agriculture-industry transition does not affect income distribution in the Asian economies. However a transition involving the service sector may lead to a worsening of income distribution. For inequality tends to increase with either an agriculture-service transition or an industry-service transition for the Asian economies.

(b) Structural transformation *per se* does not seem to affect income inequality within the Latin American countries in our sample. For neither an agriculture-industry transition nor a service-industry transition, or an agriculture-service transition has any affect on income distribution for these countries.

(c) The constant term in the regression with the shares of agriculture and industry as independent variables, indicates what inequality would be in a scenario where both these output shares were zero, and the entire economy was based on service sector activity. This term is interpreted as being indicative of inequality within the services sector in this counterfactual scenario. Analogously we obtain estimates that are indicative of inequality within the agriculture and industrial sectors as well (from regressions of the Gini coefficient (i) on the shares of service and industry and (ii) on the shares of agriculture and service, respectively). The main result we get from here is that in both country groups inequality is lowest within the agricultural sector. This result is in line with the Kuznetsian assumption underlying the relation between structural change and income distribution[24]. Our estimates also indicate that for the Asian countries,

---

[23] Using an alternate measure of inequality, Ineq (ratio of share of the top 20% to the bottom 40% of income earners) as the dependent variable we get similar results :
(a) with shares of Agriculture and Industry as dependent variables

$$Ineq = 3.25^* + 0.02.\, A + 0.04.\, I + 2.69.\, D - 0.09^* (D^*A) - 0.08^* (D^*I), \;.....(1)$$
$$\quad\quad (0.17)\quad (0.04)\quad\quad (0.04)\quad (1.11)\quad (0.03)\quad\quad (0.04)$$
[Adj. R^2 = 0.47; Nob = 85]
(b) with shares of Agriculture and Service as dependent variables
$$Ineq = 7.33^* - 0.02 .\, A - 0.04 .\, S - 5.56^* .\, D + 0.11.\, (D^*A) + 0.08^* .\, (D^*S)........(2)$$
$$\quad\quad (2.86)\quad (0.03)\quad\quad (0.04)\quad (2.25)\quad\quad (0.34)\quad\quad (0.03)$$
[Adj. R^2 = 0.47; Nob = 85]

[24] Kuznets (1955), assumes that inequality within the agricultural sector is lower than (or no higher than) that within the non-agricultural sector.

inequality is highest within the services sector, whereas for the Latin American economies, it is more or less similar within the industrial and services sectors.

(d) Introducing the growth rate of GDP (annual average rate of growth) as an additional explanatory variable does not change any of our results on the relation between income inequality and structural change[25]. However we find that given structural characteristics of the economy, a higher rate of growth is associated with greater income inequality in the Latin American economies and with a reduction (although the magnitude of this effect is very small) of income inequality in the Asian economies. This is an interesting result but analysis of the relation between economic growth and income inequality lies beyond the scope of the present paper[26]. What's important for our purpose here is that our results regarding inequality and structural change go through even after controlling for differential growth rates across economies and over time.

The **most important** result that emerges from our regression analysis is that a transition from agriculture to industry does not affect income inequality in either country group. We discuss the implications of this result in turn for each country group.

Our results seem to fit the **Asian experience** rather well. For the data indicates that even as these economies underwent substantial agriculture-industry transition, income inequality remained more or less unchanged. This can happen, for instance, when the movement of labour from agriculture to industry is primarily confined within the informal segment of the sectors. Such movement of labour within the low-wage

---

[25] Introducing the annual average rate of growth of GDP (in constant US dollars) as an additional explanatory variable we get the following results,

$G = 50..35^{*} - 0.18. A + 0.01 . I + 0.72^{*}. GR + 13.82. D - 0.27^{*} (D*A) - 0..38^{*} (D*I) - 0.77^{*} (D*GR)$
$\quad$ (6.35) $\quad$ (0.14) $\quad$ (0.15) $\quad$ (0.20) $\quad\quad$ (8.58) $\quad\quad$ (0.11) $\quad\quad$ (0.15) $\quad\quad$ (0.25)
[Adj. R2 = 0.57 ;   Nob = 102]

GR represents annual average growth rate of GDP and as before figures in parentheses below each coefficient represents the White heteroscedasticity consistent standard errors and coefficients marked with a * represent statistical significance at 5% level or lower.

[26] We conjecture that this result shows that for countries with high levels of inequality (such as the Latin American countries in our sample), growth exacerbates existing inequities and leads to widening inequality. For countries where inequality is relatively lower (the Asian economies in our sample), growth creates more equal opportunities and rather than exacerbating disparities may even reduce income inequality. However this remains only a conjecture for a fuller explanation of this result would require more rigorous analysis of the interrelations between inequality and growth, which lies beyond the scope of the present paper.

segment of sectors would not significantly alter the gap between top and bottom incomes and therefore, overall inequality within the economy.

In the Asian case, our results also indicate that either an agriculture-service transition or an industry-service transition would lead to a rise in inequality. Now for the Asian economies, income inequality is likely to be quite high within the service sector for the following reasons. It is a well-established fact that informal services account for a large proportion of the informal sector in most developing countries and that informal sector wages are among the lowest in the economy (ILO, 1995 ; 1998). Thus on the one hand the service sector comprises of a segment of income earners who earn some of the lowest wages in the entire economy. On the other hand, considering the service incomes of top doctors, lawyers, financiers and bankers, it is apparent that some of the highest wages in the economy are also earned in this sector[27]. This stark contrast between top and bottom incomes would tend to make the distribution of income within the service sector extremely skewed. In all probability, our results involving the service sector reflect this fact.

For the **Latin American countries**, it is not simply an agriculture-industry transition, but the process of structural transformation per se does not seem to affect the overall distribution of income. We have already noted that there are many gaps in the data on income distribution for the 1960s and 1970s, pertaining to these economies. As such the regression results primarily reflect changes that occurred in these countries over the 1980s decade onwards. Therefore the eighties debt crisis (and the policy response to it) is likely to have a lot to do with the results we have obtained. We have already discussed that the policy regime in the Latin American countries in the aftermath of the debt crisis, with its emphasis on fiscal restraint and import compression, reinforced recessionary conditions. We argued that such conditions are likely to make the overall distribution of income more uneven. In this context we interpret the regression results as indicating that rather than the process of structural change, other factors such as exogenous shocks and government policies causing economic slowdown, are likely to have affected income inequality in the Latin American countries.

---

[27] In particular, with greater openness in the developing countries, multinational capital has increasingly sought to relocate activities to the developed world and hire the services of labour that is much cheaper in comparison with their developed country counterpart (see for instance, Oxfam, 2002).

Section 5. Conclusion

The basic question we finally address is to what extent does structural transformation explain the actual pattern of change in income inequality observed in the Asian and Latin American economies. We saw that income inequality remained more or less unchanged over our period of analysis for the Asian countries, while it increased in the Latin American countries. To what extent, on the basis of our regression exercise, can we claim that the pattern of structural change essentially explains the nature of change in income inequality in these economies?

Our main result, that an agriculture-industry transition does *not* affect overall inequality, seems to fit the Asian experience rather well. These countries underwent an agriculture-industry transition and yet did not experience much change in overall income inequality. These results provide some support for our argument regarding the importance of the informal sector in affecting the overall distribution of income.

However even in the Asian context, we realise that the informal sector explanation applies only to a subset of economies and that even then it cannot explain all of the change in inequality that occurred (or did not occur) in this subset. Clearly forces other than structural change are at work and in particular, the role of government policies is clearly indicated. For, in countries like China, we see a fairly sharp rise in inequality from the eighties, coinciding with a major change in the Chinese government's policy stance, which especially served to dilute its redistributive role in a major way. The importance of government policies is also borne out by the low and steadily falling inequality in the Korean case, which no doubt is attributable, in large part to the Korean government's success with land reform policies.

Regarding the Latin American economies, our results indicate the importance of factors other than structural change as being primarily responsible for changes in the overall distribution of income. In particular, they point to the importance of government policies in shaping the overall economic parameters, which in turn affect incomes at the top and bottom ends of the distribution. The sharp rise in inequality over the eighties decade in each of the Latin American countries in our sample, seems to be directly related to the debt crisis and the government's policy response to it. We argued that in an atmosphere of economic recession, income inequality is most likely to increase, as the poor and unskilled are likely to suffer greater fall in incomes than the rich, who may fall back on asset incomes as a form of insurance.

In this situation, the informal sector may serve as a residual sector and absorb those who lose jobs, albeit at some of the lowest wages in the economy. There is evidence that shows that in Latin America the service sector, especially informal services played just such a role. Thus we argue that had it not been for the informal sector, income inequality would have worsened further in the Latin American economies.

In conclusion, regarding the relation between structural change and the distribution of income, we find only weak links between the two. In particular there is little support in the data for the Kuznetsian hypothesis of increasing inequality with the industrial transformation of a developing economy. However a particular structural characteristic of developing economies seems to have had an important bearing upon changes in the overall distribution of income. This relates to the role of the informal sector, which we have stressed time and again in our analyses above. In addition the importance of a number of other factors, in affecting the overall income distribution is also brought out. These relate to the role of exogenous shocks, such as the Latin American debt crisis and also to the importance of government policies - both long run (e.g. policies involving institutional changes, like land reforms) and short run (e.g. stabilisation policies aimed at restoring internal and external balance in the short- to medium-term).

Part A. Description of the Data

For our empirical analysis we focus on a set of four economic variables. These are, the degree of income inequality (as measured by the Gini coefficient) and the sectoral output structure represented by the shares of agriculture, industry and service in total value added (for each country for any given year, the three output shares add up to 100).

a) **Sources of Data** The data on the shares of agriculture, industry and service in total value added (as % of GDP) are taken from World Bank (2000). The data on the Gini coefficient are mainly taken from Deininger and Squire (DS from now) (1996a). The DS data set has time series data on Gini coefficients and income shares of population quintiles for 136 developed and developing countries[28]. The 'high-quality' data satisfy the following criteria[29] :

(i)   the unit of observation has to be either the household or the individual;

(ii)   the coverage of the population has to be comprehensive. For example, if only the urban household distribution of income is available, it is not permissible to translate this directly into the national distribution. The same rule applies if available data is restricted only to the economically active, to wage earners alone etc.; and

(iii)   the measurement of income (or expenditure) has to be comprehensive. That is, income from self-employment and production for self-consumption should be included.

There are many missing data points in the DS dataset. As such we do not have continuous time series data on Gini coefficients for most countries in our sample. We fill in the gaps in our dataset, using comparable data on Gini coefficients from the

---

[28] The data we use are an updated version of the data-base described in Deininger and Squire (1996a), available at the World Bank web site. A number of African countries have been added in this version. As a consequence the number of countries in this version is 136 and not 105 as reported in Deininger and Squire (1996a).

[29] These criteria are similar to those used by Fields (1989a, b) to construct a usable dataset on income inequality.

UNDP (1999) database whenever this is feasible. However even then there are a number of missing observations on the income distribution variable (see Table 2A below for details regarding missing data).

b) **The Final Dataset**   We now set out in detail our criteria for selecting countries for the empirical part of the analysis. Since availability of data on income distribution posed the biggest constraint, we first selected those countries for which distribution data were available. The DS dataset brings together data on 136 developed and developing countries from across the world. Of these, there are 93 developing countries with "high-quality" observations on Gini coefficients for at least one year[30]. Given that income inequality changes slowly over time within a country, we wanted to select all those developing countries for which high quality data was available over a fairly long period of time[31]. Essentially we wanted to study change in distribution for as many countries and as long a period of time as possible, given the availability of data.

Relatively few countries had data for the 1960s decades, which is why we did not make this a criterion for selecting a country[32]. Initially we chose all those countries which had at least one data point corresponding to each of the 1970s *and,* either the 1980s or the 1990s decades. This yielded a set of thirty-two countries – Bangladesh, Brazil, Chile, China[33], Colombia, Costa Rica, Dominican Republic,

---

[30] Data on percentile income shares is also available, however this data is available for a fewer number of countries and for most countries, for a fewer number of years as compared to data on Gini coefficients. As such we do not use an inequality measure based on this data in our main empirical analysis. However we also run regressions using an alternate measure of income inequality (based on the ratio of the income share of the top 20%, to the bottom 40% of the population) as the dependent variable. This does not change any of our results. The same set of results go through with these regressions which are based on a smaller number of observations as compared to the Gini-regressions.

[31] In order to achieve this objective, data from the DS dataset is at times supplemented with (strictly comparable) data from another recent compilation of data on income distribution, UNDP (1999). The details regarding this are provided in Footnote 31.

[32] Data on sectoral output shares from World Bank (2000) was available only from 1960 onwards. Naturally therefore the starting point of our period of analysis is 1960.

[33] In the DS dataset, Gini coefficients on China are available only from the 1980s decade onwards. However we are still able to include China in our sample because distribution data on China for the 1960s and 1970s was available in UNDP (1999), which puts together data on various measures of income inequality from the DS dataset as well as from other sources. In choosing data from UNDP (1999) we ensure that the data are strictly comparable to the DS data, in terms of unit of measurement (i.e. whether household or individuals), category of measurement (i.e. whether income or expenditure), whether calculations are based on net or gross incomes, coverage of the population (i.e. whether national or regional) and so on. In the final dataset we include data for the following countries and for the following years also from UNDP (1999) : Brazil (1990, 1991); China (1964, 1970,

Egypt, Guatemala, Hong Kong, India, Indonesia, Iran, Jamaica, Korean Republic, Malaysia, Mexico, Pakistan, Panama, Peru, Philippines, Puerto Rico, Singapore, Seychelles, Sri Lanka, Taiwan, Tanzania, Thailand, Trinidad, Tunisia, Venezuela and Zambia.

The problem we encountered then was that we had an unequal number of observations (over time) per country. For example, for India there were thirty observations on Gini coefficients covering the period 1952 to 1992 (with a few missing data in the middle), while for Seychelles there were only two Gini coefficients for the years 1978 and 1984. Our objective was to generate a balanced panel dataset with an equal number of observations over time for each country, spanning the period 1960 to 1994. With this view, we divided our entire period of analysis into seven sub-periods of five years each - 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94 and take five-yearly averages of the Ginis[34] and each of the other variables. Now if we chose only those countries which had seven observations (corresponding to each of the seven sub-periods), very few countries (only six) would be selected in the final dataset. To include a larger number of countries therefore, we had to allow for the inclusion of countries with missing observations[35].

In the final dataset only those countries were included for which we had *at least 4 observations*. This ruled out the inclusion of a number of small Latin American and Caribbean nations, as well as a number of African and Middle-Eastern countries in our final dataset. For instance, for each of Guatemala, Egypt, Puerto Rico and Trinidad, only three observations (per country) were available; Panama, Seychelles and Zambia had 2 observations each; while only one observation was available for Tanzania.

1978); Colombia (1993, 1994); Mexico (1994); Pakistan (1963); Philippines (1975); Sri Lanka (1969); and Thailand (1971).

[34] However due to the lack of continuous time series data on income distribution, the average values for Gini coefficients do not always cover the entire five year time period. For instance, for Malaysia, the values of each of the dependent and independent variables for the period 1970-74 are actually an average for the two years 1970 and 1973 for which data on income distribution is available. Also for the income distribution variable, when an observation is missing for a country for a particular year, we replace it by an observation from the closest year available in the preceding five years. Since the distribution of income within an economy tends to be relatively stable over short periods of time, this should not affect our results significantly. For example no data is available for Malaysia for any of the years corresponding to the period 1990-94. However data is available for 1989. So we use the data for 1989 to represent the Gini coefficient for Malaysia for the period 1990-94. Note a number of scholars using the DS dataset have applied this method (see for instance, Forbes, 1997).

[35] For instance, Venezuela, which is included in the final dataset had 2 missing observations, corresponding to 1960-64 and 1965-69.

Next we checked the availability of data on sectoral output shares from World Bank (2000). This ruled out the inclusion of Iran because no data was available on sectoral output shares, for the years for which data on Ginis was available for this country. This also ruled out the inclusion of Taiwan as no data was available on this country from this source[36].

Finally, three countries were excluded from the final dataset even though they satisfied our selection criterion (of at least 4 observations per country). These were Hong Kong, Singapore and Tunisia. Regarding Tunisia, we did not want to include only one African country as it did not seem reasonable to consider one country as being representative of the African region in any sense. Regarding Hong Kong and Singapore, these were not included because they are essentially city-states with very little agricultural resources. As such it does not make much sense to talk about an agriculture-industry transition in the context of these economies.

Ultimately we selected eighteen countries, ten from Asia (Bangladesh, China, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Sri Lanka and Thailand) and eight from Latin America (Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Peru and Venezuela), which met our selection criteria and yielded a reasonably balanced dataset for the empirical analysis. We had a panel data set with eighteen countries and 7 observations per country, corresponding to average values over the following time periods: 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94. This should have generated a total number of 126 observations, however due to missing observations (particularly on Gini coefficients), there are large gaps in the data set. In fact we have only 103 observations on Gini coefficients (see Table 1A below for details of missing observations for particular countries) and in the final data set we have 102 observations for which data are available for each of the variables in focus.

c) **Data Related Problems**   There are several problems related to the income distribution data we use. We include only the 'high quality' estimates of the Gini coefficient reported by DS. These estimates have been compiled so as to ensure intertemporal and international comparability. Specifically they are based on national

---

[36]For all the other countries in the sample our source of data for the output shares and trade openness variables is World Bank (2000). Hence we did try to include data on Taiwan from any other source as it might not have been comparable with the data for the rest of the countries in our sample.

household surveys and comprehensive coverage of the population and sources of income and uses of expenditure. In the DS dataset, for a number of countries the Gini coefficients represent inequality in the distribution of consumption expenditures (as for India) rather than income. To make the data comparable across countries in this case DS suggest that the expenditure based Gini coefficients be increased by 6.6 points as this is the average difference between income and expenditure based Gini coefficients in the sample. Another problem is that some Gini coefficients are calculated on the basis of gross income and others on the basis of net income. Further, for some countries the basic income recipient unit is the individual, while for others it is the household. In some cases for the same country the definition of the Gini coefficient is different in different years (e.g. for Bangladesh the Gini in 1989 and 1992 represent consumption inequality while the other observations all represent income inequality). Li et al. (1998) study the DS dataset in detail and in their regressions they introduce dummy variables to control for these differences in definition. They find only the difference arising due to income- and expenditure-based Gini coefficients is statistically significant. Thus following Li et al. we also adjust the expenditure based coefficients by increasing them systematically by 6.6 points as suggested by DS. All the results reported are based on the adjusted Gini coefficients.

Another problem might have arisen due to the nature of the underlying source of data used for calculation of the Gini coefficients. A recent paper by Milanovich (2002) shows clearly that income estimates based on National Accounts data can diverge (often widely) from estimates based on Household Survey data[37]. In a panel dataset this can lead to bias arising from two sources. First, there can be inter-temporal bias for a single country arising from combining observations based on household data with those based on national accounts statistics. Second, there can be inter-country bias arising from the fact that for some countries income estimates are based on household surveys and for others on national accounts data. However this problem does not arise in our data set, for DS ensure that only Gini coefficients

---

[37]Typically household surveys underreport (i) undisbursed corporate profits, (ii) income from property, (iii) personal taxes and (iv) government transfers in kind. (i) and (ii) could be classified as capital income , which is the most underreported income category in household surveys. Milanovic (2002) provides further details in this regard.

based on household surveys are included in their high quality database[38]. For instance for India, the data are taken from Datt (1995) and all the (expenditure based) Gini calculations are based on NSS (household survey) data.

Part B. Details of the Regression (Pooled OLS) Exercise[39]

The linear equation we estimate is as follows :

$$G = \alpha_L + \beta_L. A + \delta_L.I + (\alpha_A - \alpha_L).D + (\beta_A - \beta_L).(D*A) + (\delta_A - \delta_L).(D * I) + \varepsilon$$

where, G = Gini Index measuring income inequality within the economy, A = Value added in the agricultural sector expressed as a percentage of GDP, I = Value added in the industrial sector expressed as a percentage of GDP and ε = Random error term. We introduce a dummy variable to control for the structural differences between the Latin American and Asian country groups. The subscript 'L' represents the coefficients for the Latin American countries and 'A' for the Asian countries; and D is a dummy variable that takes the value 1 for all Asian countries and 0 for Latin American countries.

The estimated equation is:

(1a) $G = 52.33^* + 0.09. A + 0.00. I + 11.53. D - 0.34^* (D*A) - 0.38^* (D*I)$, [Adj. R^2 = 0.55]
        (6.39)   (0.14)   (0.15)   (8.34)   (0.17)   (0.18)
[Note * represents coefficients that are statistically significant at the 5% level or lower; figures in parentheses below each coefficient is its White heteroscedasticity-consistent robust standard error.]

The explanatory power of the regression is quite good as indicated by the fairly high value of the adjusted correlation coefficient. The intercept dummy being insignificant indicates that the constant term of the regression is essentially similar for both sets of countries. That is, according to our interpretation of the regression constant, inequality within the service sector is similar within the Asian and Latin American group of countries. However what differs between the two sets of countries is the impact of structural change upon the distribution of income. For Latin American countries both coefficients of A and I are statistically insignificant. This indicates,

---

[38] Deininger and Squire (1996a) "…require that data on inequality be based on actual observation of individual units drawn from household surveys;". In particular the authors "…do not use data based on information from national accounts and some assumption regarding a general functional form according to which different types of income are distributed." [Deininger and Squire (1996a), page 568].
[39] See the next section for a comparison of the pooled ols, with the fixed effects estimator.

neither an agriculture-service transition (i.e. a fall in the share of agriculture and a corresponding rise in the share of service in total output, holding the share of industry constant), nor an industry-service transition would have much impact upon overall inequality for the Latin American economies. While for the Asian countries we find that, both an agriculture-service transition and an industry-service transition would tend to increase the level of inequality in the economy.

In reality however we observe not only an agriculture-service transition for these two groups of countries but also essentially an agriculture-industries transition. We now re-estimate the above equation, with the shares of agriculture and service as regressors. This gives an idea as to how income inequality would change if the share of industry were to rise with a decline, especially in the share of agriculture in total output. The estimated equation is :

(1b) $G = 52.61^* - 0.10.A - 0.00.S - 26.26^*.D + 0.03.(D*A) + 0.38^*.(D*S)$, [Adj. R^2=0.55]
         (9.5)   (0.14)   (0.15)   (10.98)   (0.16)   (0.18)
[Note * represents coefficients that are statistically significant at the 5% level or lower; figures in parentheses below each coefficient is its White heteroscedasticity-consistent robust standard error]

This equation suggests that neither an agriculture-industry, nor a service-industry transition has any effect of income distribution in the Latin American countries. Regarding the Asian countries it appears that an agriculture-industry transition does not affect inequality, but a service-industry transition (i.e. a fall in the share of service and a corresponding rise in the share of industry, holding the share of agriculture constant), tends to reduce overall income inequality in these economies. The constant term and the intercept dummy are both significant, which indicates that the estimates of inequality *within* the industrial sector[40] are significantly different for the two country groups. In particular the distribution of income within the industrial sector is more egalitarian for the Asian than for the Latin American countries as indicated by the values of the constant terms for each country group (26.35 for Asian countries as compared to 52.61 for the Latin American countries).

We estimate a final equation to get an idea regarding the extent of inequality within the agricultural sector for each country group. The estimated equation is :

---

[40]The constant term in this case indicates the extent of inequality in the economy in the hypothetical case when the entire economy is based on industrial activity and the shares of agriculture and service

(1c) $G = 42.34^* + 0.10.I + 0.09.S - 22.97^*.D - 0.03 (D*I) + 0.34^* (D*S)$, [Adj. $R^2 = 0.55$]
        (10.26) (0.14) (0.14) (11.47) (0.16) (0.17)
 [Note * represents coefficients that are statistically significant at the 5% level or lower; figures in parentheses below each coefficient is its White heteroscedasticity-consistent robust standard error]

The values of the estimated coefficients in this equation suggest that income inequality *within* the agricultural sector is significantly lower in the Asian countries than in the Latin American countries, as indicated by the values of the constant terms (19.37 for the Asian countries and 42.34 for the Latin American countries)

Part C. Comparison of the Pooled OLS and the Fixed Effects Estimators

When we use the fixed effects estimator to estimate the relation between income inequality and structural change, we get the following result[41] :

$$\text{Gini} = 50.65 - 0.14 \text{ Agr} - 0.11 \text{ Ind}$$
$$(9.05) \quad (-1.52) \quad\quad (-0.91)$$

where figures in parentheses are t-statistics.

The main difference of these with the pooled ols results is that in this case (i.e. with fixed effects estimation) the coefficients of both independent variables (Shares of Agriculture and Industry) are statistically insignificant. However the signs of the coefficients in both cases remain the same.

A possible reason for this could be as follows. The fixed effects estimator is also called the within estimator as it uses only the variation in the data *within* each country group. This estimator of the slope coefficients simply discards *all* of the between-country variation in the data. In contrast, the pooled ols estimator gives equal weight to the within and between country information. For a discussion and proofs of these propositions see Baltagi (1995) and Hsiao (1986) .

We argue that in all probability, in our dataset, between-country variation in the variables is more prominent than within-country variation. Possibly the former is a more dominant factor than the latter and this is the most likely reason we get statistically significant coefficients with pooled ols estimation (and insignificant coefficients with fixed effects estimation) . There is support for this argument at two levels.

---

are zero. We refer to this as inequality *within* industry as in some sense it seems to represent the extent of inequality in industrial incomes.
[41] The reason we do not use the random effects estimator is, the choice of the random effects model is ruled out by the Hausman specification test.

First, the economic variables we are dealing with, viz. income inequality and measures of structural change, are both known to change quite slowly over time within a country. This could be one reason why *a priori* within country variation in our dataset would tend to be low. In fact the results discussed by Li et al. (1998) highlight one aspect of precisely this issue. These authors study closely the Deininger and Squire (1996a) dataset on income inequality and find that while inequality tends to change relatively slowly over time within a country, it tends to be quite different across country groups. According to them this is because, income inequality is affected by political economy factors and structural characteristics of individual economies[42] and these are quite slow to change over time. Even though we have only developing countries in our sample yet structural characteristics are often quite different between these countries and at times this difference can be quite substantial. For instance, the Latin American countries differ in several respects from the Asian countries ; in fact, we incorporate a slope and an intercept dummy to control for these differences between the two country groups in our pooled ols regressions. Given these factors, it seems justified to expect between-country variation to dominate the within country variation in our sample. In fact, given there are differences between individual countries, possibly this would be true for any cross-country dataset.

Second, results from cross-section regressions also seem to support our argument that there is substantial between-country variation in the data. As described in Part A of the Appendix, we have seven observations per country, each corresponding to averages over a 5-year period. We now report a few results from cross-section regressions, each run with average variable values for a 5-year period.

For each equation below we report, the t-statistics based on robust standard errors, adjusted R^2 and the number of observations in the dataset.

(i) For the period 1960-64 we get,
Gini = 75.44 - 0.72. Agr - 0.33. Ind ,
      (-6.29)   (-3.06)   (-1.23)
Adjusted R^2 = 0.58 ;   Nob:11

(ii) For the period 1970-74,
Gini = 72.49 - 0.64. Agr - 0.40.Ind ,
      (4.92)   (-3.17)   (-1.12)

---

[42] However changes in the sectoral composition of output and employment are not explicitly included by these authors among their list of structural factors.

Adjusted R^2 = 0.36 ;   Nob:16

(iii)   For the period 1980-84,
        Gini = 68.73 - 0.64. Agr - 0.36. Ind ,
            (10.88) (5.58)   (-1.99)
        Adjusted R^2 = 0.52 ;   Nob:15

The cross-section results reported above seem to provide some support to our argument regarding the existence of between-country variation in the data. At this juncture we would like to point out that there are pitfalls in drawing conclusions regarding the relation between income inequality and structural change purely on the basis of cross-country comparisons. However, our estimates are based on the pooled ols coefficients, which make use of within country variation in the data as well.

Further, to check whether or not the results we obtain from our pooled regressions, apply to change in the variables *within* a country over time, we run the same regression using data from individual countries as well. It was not possible to estimate this relation for each one of the countries in our sample, mainly because of insufficient number of observations on Gini coefficients for most of them. We were able to estimate the relation for 3 of the countries (India, Pakistan and Indonesia), and the estimated equations in these 3 cases seem to reflect the results (particularly the signs of the coefficients) we get by pooling the data on all 18 countries. These equations are,

Indonesia:
$$Gini = 47.08 - 0.23 Agr - 0.51.Ind ,$$
                (7.29)   (-1.78)   (-2.11)
Adjusted R^2 = 0.25;   Nob : 9

Pakistan:
$$Gini = 50.07 - 0.16 Agr - 0.84 .Ind ,$$
                (6.62)   (-2.67)   (-2.07)
Adjusted R^2 = 0.47;   Nob : 8

India:
$$Gini = 59.94 - 0.27 Agr - 1.11 Ind ,$$
                (4.18)   (-2.25)   (-1.86)
Adjusted R^2 = 0.24; Nob : 12

In view of these results it might seem surprising that the slope coefficients using the fixed effects estimation procedure were statistically insignificant. The most likely reason

for this is that for most countries in the sample we have very few observations over time. As such, estimates based on simply the within-variation in the data use very little of the total information available in the dataset and are statistically insignificant.

Table 1A: Urban and Rural Gini Coefficients for Selected Developing Countries

Country	Year	Gini Coefficients	
		Rural	Urban
Bangladesh	1963	33.0	41.0
	1967	33.39	39.9
Brazil	1960	42.29	60.01
	1970	44.8	59.9
Chile	1968	39.45	44.0
China	1981*	23.9	16.1
	1982*	23.2	12.1
	1983*	24.6	15.8
	1984*	25.8	16.8
	1985*	26.4	15.8
	1990*	29.4	18.0
Colombia	1970	47.57	54.73
	1971	41.0	48.0
	1972	39.0	57.0
	1978*	52.6	51.6
Costa Rica	1961*	53.1	47.24
	1963*	42.36	37.06
	1971	37.0	44.0
	1982	39.78	41.52
	1984	40.55	48.37
India	1951	33.72	40.0
	1952	34.37	40.98
	1953	33.75	37.53
	1954	36.52	48.77
	1955	34.13	39.56
	1956	34.8	37.3
	1957	33.58	40.14
	1958	33.74	36.4
	1959	34.29	35.57
	1960	31.65	35.57
	1961	31.61	36.28
	1963	28.94	36.54
	1964	32.82	49.33
	1965*	39.71	35.57
	1966	30.13	34.51
	1967	29.69	34.69
	1968	29.08	34.5
	1969	30.97	34.25
	1970	28.76	34.69
	1972	30.67	34.7
	1978	30.92	34.71
	1983	30.10	34.08
	1987	30.22	36.75
	1988	30.14	35.57
	1989	29.51	34.8
	1990	28.23	35.59
	1991	29.91	37.98

Note: * indicates rural Gini coefficients exceed the urban Gini coefficients.

(cont'd)

Table 1 A (cont'd)

Country	Year	Gini Coefficients	
		Rural	Urban
Indonesia	1976	31.0	35.0
	1978	34.0	38.0
	1980	31.0	36.0
	1981	29.0	33.0
	1984	28.0	32.0
	1987	26.0	32.0
	1990	25.0	34.0
Malaysia	1958	34.84	35.1
	1968	42.36	52.09
	1969	42.03	51.33
	1970	47.29	51.2
	1971	41.94	49.69
	1972	43.41	49.22
	1973	43.58	48.44
	1974	43.19	48.85
	1975	45.78	49.10
	1976	47.58	49.65
Mexico	1963	48.23	52.38
Pakistan	1963	35.0	38.10
	1967	31.8	38.00
	1969	30.16	38.48
	1970	30.30	35.7
	1971	30.7	36.3
	1979	32.4	41.4
Peru	1971*	56.0	43
	1991*	37.1	35.3
	1994*	36.7	35
Philippines	1961	41.23	52.59
	1965	42.58	53.03
	1971*	46.59	45.80
Sri Lanka	1963	46.75	54.10
	1970	35.17	41.0
	1973	37.32	39.94
Thailand	1962	44.0	46.61
	1969	38.4	42.9
	1970*	44.8	38.52
	1971	42.0	44.0
	1976	40.6	41.2
Venezuela	1962*	45.2	43.85
Korean Republic	1965	28.52	41.67
	1966	30.56	32.29
	1970	29.45	34.55
	1971	31.0	33.81
	1976	32.73	41.18
	1982	30.61	37.05
	1985	29.69	36.94
	1988	28.95	34.96

Source: Deininger and Squire (1996a).

Note: indicates rural Gini coefficients exceed the urban Gini coefficients.

Table 2A: Details of Missing Observations on Gini Coefficients in the Final Data Set

Country	Description of Data on Gini Coefficients
BANGLADESH	There are 7 observations in all corresponding to each of the time periods 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94.
BRAZIL	There are 6 observations in all. We have no data on Gini coefficients corresponding to the period, 1965-69.
CHILE	There are 5 observations in all. We have no data on Gini coefficients corresponding to the periods, 1960-64 and 1975-79.
CHINA	There are 6 observations in all. We have no data on Gini coefficients for the period 1965-69.
COLOMBIA	There are 4 observations in all. We have no data on Gini coefficients for the periods, 1960-64, 1965-69 and 1980-84.
COSTA RICA	There are 5 observations in all. We have no data on Gini coefficients for the periods, 1965-69 and 1990-94.
DOMINICAN REPUBLIC	There are 4 observations in all. We have no data on Gini coefficients for the periods, 1960-64, 1965-69 and 1970-74.
INDIA	There are 7 observations in all corresponding to each of the time periods 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94.
INDONESIA	There are 7 observations in all corresponding to each of the time periods 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94.
KOREA REPUBLIC	There are 7 observations in all corresponding to each of the time periods 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94.
MALAYSIA	There are 4 observations in all. We have no data on Gini coefficients for the periods, 1960-64, 1965-69 and 1990-94.
MEXICO	There are 6 observations in all. We have no data on Gini coefficients for the period, 1970-74.
PAKISTAN	There are 6 observations in all. We have no data on Gini coefficients for the period, 1960-64.
PERU	There are 4 observations in all. We have no data on Gini coefficients for the periods, 1960-64, 1965-69 and 1975-79.
PHILIPPINES	There are 4 observations in all. We have no data on Gini coefficients for the period, 1980-84.
SRI LANKA	There are 7 observations in all corresponding to each of the time periods 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94.
THAILAND	There are 7 observations in all corresponding to each of the time periods 1960-64, 1965-69, 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94.
VENEZUELA	There are 5 observations in all. We have no data on Gini coefficients for the periods, 1960-64 and 1965-69.

Notes:
- The data on Gini coefficients are taken from the high quality data points in the Deininger and Squire (1996a) dataset. Whenever there are gaps in this dataset we refer to the more recent compilation of data on income inequality (UNDP, 1999) and select datapoints from there which are strictly comparable with and satisfy the same criteria as, the high quality data from Deininger and Squire (1996a). However as evident from the above table, there still remain a large number of missing observations in our final dataset. We list below the details regarding observations chosen from the UNDP (1999).
- The observations pertaining to the following countries and to the following years are taken from UNDP (1999) : Brazil (1990, 1991); China (1964, 1970, 1978); Colombia (1993, 1994); Mexico (1994); Pakistan(1963); Philippines (1975); Sri Lanka (1969); and Thailand (1971).

References

Agenor, P. (1996) : "The labour Market and Economic Adjustment", *IMF Staff Papers* 32 : 261-335.

Alesina, A. and R. Perotti (1993) : "Income Distribution, Political Instability and Investment", Working Paper no. 4486, National Bureau of Economic Research : Cambridge, Massachusetts .

Alesina, A. and D.Rodrik (1994) : "Distributive Politics and Economic Growth", *Quarterly Journal of Economics* 109 : 465-490.

Agarwal, M. and D. Sengupta (1999) : "Structural Adjustment in Latin America : Policies and Performance", *Economic and Political Weekly* XXXIV : 3129-3136.

Ahluwalia , M.S. (1976) : "Inequality, Poverty and Development", *Journal of Development Economics* 6 : 307-342.

Anand, S., and R. Kanbur (1993a) : "The Kuznets Process and the Inequality-Development Relationship", *Journal of Development Economics* 40 : 25-52.

Anand, S. and R. Kanbur (1993b) : "Inequality and Development : A Critique", *Journal of Development Economics* 41 : 19-43.

Baltagi, B.H. (1995) : "Econometric Analysis of Panel Data", John Wiley & Sons: Chichester.

Bourguignon, F. and C. Morrisson (1990) : "Income Distribution, Development and Foreign Trade", *European Economic Review* 34 : 1113-11132.

Bruno, M., M.Ravaillon and L.Squire (1998) : "Equity and Growth in Developing Countries : Old and New Perspectives on the Policy Issues", in V. Tanzi and K.Chu (Eds.), 'Income Distribution and High-Quality Growth', MIT Press : Cambridge, 117-146.

Cardoso, E. and A.Helwege (1995) : "Latin America's Economy : Diversity, Trends and Conflicts", MIT Press : Cambridge.

Chenery, H. and M. Syrquin (1975) : "Patterns of Development, 1950-1970", Oxford University Press : London.

Corbo, V. and S. Fischer (1995) : "Structural Adjustment, Stabilisation and Policy Reform", in Handbook of Development Economics, Vol. 3B, North-Holland : Amsterdam, pp. 2846 – 2924.

Cornea, G. A., R. Jolly and F. Stewart, Eds. (1987) : "Adjustment with a Human Face", 2 Vols., Oxford University Press : New York.

Datt, G. (1995) : "Income Inequality in India", *mimeo*, The World Bank : Washington D.C.

Deininger,K. and L.Squire (1996a) : "A New Data Set Measuring Income Inequality", *World Bank Economic Review* 10 : 565-591.

Deininger, K. and L. Squire (1996b) : "New Ways of Looking at Old Issues : Inequality and Growth", *mimeo*, The World Bank : Washington D.C.

Edwards, S. and P. Larrain (Eds.) (1989) : "Debt Adjustment Recovery", Blackwell : London.

Eichengreen, B. and P. Lindert (1991) : "The International Debt Crisis in Historical Perspective", MIT Press : Cambridge.

Fields, G. (1989a) : "Changes in Poverty and Inequality in Developing Countries", *World Bank Research Observer* 4 : 167-185.

Fields, G. (1989b) : "A compendium of Data on Inequality and Poverty for the Developing World", *mimeo*, Cornell University : Ithaca.

Fields, G. (1990) : "Labour Market Modeling and the Urban Informal Sector : Theory and Evidence", in D.Turnham (Ed.), 'The Informal Sector and Evidence Revisited', OECD: Paris.

Fields, G. and G. Jakubson (1994) : "New Evidence on the Kuznets Curve", *mimeo,* Cornell University : Ithaca.

Forbes, K.J. (1997) : "A Reassessment of the Relationship Between Inequality and Growth", *mimeo*, Massachusetts Institute of Technology : Cambridge.

Hsiao, C. (1986) : "Analysis of Panel Data", Econometric Society Monographs No. 11, Cambridge University Press : Cambridge.

Ihrig and Moe (2000) : "The Dynamics of Informal Employment", Federal Reserve Board : International Finance Discussion Paper No. 664.

ILO (1995) : "World Employment Report", ILO : Geneva .

ILO (1998) : "World Employment Report 1998-99", ILO : Geneva .

ILO (1999) : "1999 Key Indicators of the Labour Market" – CD ROM, ILO: Geneva.

Jain, S. (1975) : "Size Distribution of Income : A Compilation of Data", The World Bank : Washington D.C.

Jha, S. (1996) : "The Kuznets Curve : A Reassessment", *World Development* 24 : 773-780.

Johnston, B. F. (1970) : "Agriculture and Structural Transformation in Developing Countries : A Survey of Research", *Journal of Economic Literature* : 369-404.

Kanbur, R. (2000) : "Income Distribution and Development", in A.B.Atkinson and F.Bourguignon (Eds.), 'Handbook of Income Distribution', Vol. 1, North Holland : Amsterdam, pp. 791–841.

Kuznets, S. (1955) : "Economic Growth and Income Inequality", *American Economic Review* 45 : 1-28.

Kuznets, S. (1963) : "Quantitative Aspects of the Economic Growth of Nations : VIII. Distribution of Income by Size", *Economic Development and Cultural Change* 12 : 1-80.

Li, H., L. Squire and H.Zou (1998) : "Explaining International and Intertemporal Variations in Income Inequality", *The Economic Journal* 108, 26-43.

Lipton, M. and M.Ravallion (1995) : "Poverty and Policy", in J. Behrman and T.N. Srinivasan Eds., 'Handbook of Development Economics, Vol. 3, North-Holland : Amsterdam.

Milanovich (2002) : "True World Income Distribution, 1988 and 1993 : First Calculation Based on Household Surveys Alone", *The Economic Journal* 112 : 51-92.

Nayyar, D. (1994): "International Labor Movements, Trade Flows and Migration Transitions: A Theoretical Perspective", *Asian and Pacific Migration Journal* 3: 31-47.

Oswang, T. (1994) : "Economic Development and Income Inequality : A Nonparametric Investigation of Kuznets' U-Curve Hypothesis", *Journal of Quantitative Economics* 10 : 139-153.

Oxfam (2002) : "Rigged Rules and Double Standards", Oxfam International (available at the internet site : www.maketradefair.com)

Papanek, G.F. and O. Kyn (1986) : "The Effect on Income Distribution of Development, the Growth Rate and Economic Strategy", *Journal of Development Economics* 23 : 55-65.

Paukert, F. (1973) : "Income Distribution at Different Levels of Development : A Survey of Evidence", *International Labor Review* 108 : 97-125.

Perotti, R. (1993) : "Political Equilibrium, Income Distribution and Growth", *Review of Economic Studies* 60 : 755-776.

Persson, T. and G. Tabellini (1994) : "Is Inequality Harmful for Growth ?", *American Economic Review* 84 : 600-621.

Ram, R. (1995) : "Economic Development and Income Inequality : An Overlooked Regression Constraint", *Economic Development and Cultural Change* 43 : 425-434.

Sachs, J., Ed. (1988) : "Developing Country Debt and Economic Performance", University of Chicago Press : Chicago.

Sen, A.K. (1997) : "On Economic Inequality", 2nd edn., Clarendon Press : Oxford.

Sen, A.K. (2000) : "Social Justice and Distribution of Income", in A.B. Atkinson and F. Bourguignon, Eds., 'Handbook of Income Distribution', Vol. 1, North-Holland : Amsterdam, pp.59-86.

Sundrum, R.M. (1990) : "Income Distribution in Less Developed Countries", Routledge : New York.

Turnham, D. (1993) : "Employment and Development : A New Review of Evidence" , Development Center of the Organization for Economic Co-operation and Development : Paris.

UNCTAD (1988) : "Trade and Development Report", UNCTAD : Geneva.

UNDP (1999) : "World Income Inequality Database" - CD ROM, The United Nations University, WIDER.

World Bank (2000) : "World Development Indicators" – CD ROM, World Bank : Washington D.C.