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A POLARIZATION OF POLARIZATION?
THE DISTRIBUTION OF INEQUALITY 1970-1996

by Claudia Biancotti*

Abstract

This paper presents a panel of internationally comparable Gini coefficients, based on the United Nations University/World Institute for Development Economics Research (UNU/WIDER) World Income Inequality Database (WIID) version 1.0. The 221 data points that match minimum requirements of spatial and temporal homogeneity cover 67 developed and developing countries and span a twenty-six year period, from 1970 to 1996. Density functions for the Gini coefficients are estimated for selected points in time in order to evaluate how the distribution of inequality has evolved in the recent past: the aim is to offer a concise description of the evolution of polarization of societies in the world. The distribution of inequality appears to be slightly bimodal at the start of the period: alongside a sizable concentration of countries with average levels of distributional asymmetry, there is a smaller one of very unequal nations, mainly located in Latin America. In the following two decades polarization levels are more homogeneous, suggesting a convergence of class structure across states. In recent times, there has been a resurgence of bimodality; the rise in the number of highly polarized, strongly conflictual societies has been driven by transition frictions in the ex-USSR area.

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Contents

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1. Introduction[1]

Income distribution has received high attention in the literature in the last fifty years, with a number of shifts in emphasis. The early works, starting with Kuznets (1955) and Kaldor (1956), focused on within-country inequality and its links to growth, either describing how disparities influence development or explaining the pattern of polarization in any single economy as a consequence of progress. This strand of analysis went through a period of dormancy when the spotlight turned to focus on between-country inequality; Barro and Sala-i-Martin (1992) and Quah (1997) are significant examples of what became known as the convergence debate, an effort either to prove or to refute the hypothesis that rich and poor nations were ultimately bound to reach similar levels of per capita income. Second-generation studies of intranational correlations, especially from inequality to growth, were born shortly thereafter, and coexisted for some time with research on movements in international disparities. They reached conflicting conclusions as to whether inequality was beneficial for growth.[2] In recent years the question of how income has been distributed among the whole population of the world has come to the forefront in inequality research, motivated among other factors by the surge of interest around global perspectives; for example, Bourguignon and Morrisson (2002) describe the evolution of income inequality between world citizens from 1820 to 1992, finding that interpersonal disparities have been growing at a very slow pace in the last four decades after more than one hundred years of steady increase. Within-country inequality, which once accounted for the bulk of overall

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[2] For further detail, see the literature reviewed in Bertola (1999) and Banerjee and Duflo (2000). A number of authors, such as Murphy, Shleifer and Vishny (1989), Galor and Zeira (1993), Persson and Tabellini (1994), and Bénabou (1996) claim that inequality should be reduced in order to enhance development, and they do so based on a number of arguments ranging from critical size of domestic markets to demand for redistribution via the imperfection of capital markets and participation in secondary education. Other researchers, e. g. Li and Zou (1998a) and Forbes (2000), describe a growth-promoting role of asymmetry, on account of the higher propensity to invest found in the upper deciles of any income distribution. Perotti (1996), Galor and Moav (1999) and Barro (2000) find that the threshold nature of many phenomena, especially investment in human capital, renders income concentration positive for growth in poor economies and negative in developed countries.

asymmetry, is rising but it is overshadowed by diminishing differences in national per capita incomes. [3]

This paper adopts a middle-of-the-road descriptive approach. Its nature is mainly statistical: it aims to offer a concise description of how levels of internal disparity differ across countries and some intuition of the reasons behind their distribution. [4] The focus is on domestic measures only, forgoing the international dimension, since the former alone are useful to the national or international policymakers seeking to design growth-promoting strategies. Athough it is not clear yet if low inequality is beneficial or detrimental to development, there is a widespread consensus about the fact that it does play a role. It is a conductor more than a cause, [5] a collateral variable that has to be kept in mind when devising development plans; different distributional situations might require different handling of incentives to growth, such as the introduction of technological change or new legislation. Analyzing whether asymmetrical distributions are specifically positive or negative for development requires a sizable modeling effort, and it is not one of the objectives of this work; we only aim to point which clusters of countries might require similar approaches [6] in view of their similar inequality features.

The paper presents a panel of internationally comparable Gini coefficients, evaluated between 1970 and 1996 for 67 countries. Data is drawn from the United Nations University/World Institute for Development Economics Research (UNU/WIDER) World Income Inequality Database (WIID), version 1.0. A number of density functions for Gini coefficients are then estimated from the panel; densities for different moments in time are compared to see how the distribution of inequality has evolved in the past thirty years. A

[3] Sala-i-Martin (2002b) presents a reduction in global income inequality in the period 1970-1998, explained on similar grounds, and highlights the strong positive impact on poverty. Milanovic (2002a) estimates different dynamics; he shows an increase in world income disparities between 1988 and 1993, mainly caused by widening inter-country distances in the developing world and in the ex-USSR area. Heterogeneity in conclusions is possibly driven by dataset choice.

[4] Several comparative studies, carried out in a spirit similar to ours, already exist for selected areas and selected periods, drawing on a variety of datasets; for example, see Milanovic (1998a) for transition countries, and Londoño and Székely (2000) for Latin America.

[5] A recent paper by Quah (2002) suggests that the mechanism connecting domestic distribution and development may exist, but it is quantitatively irrelevant when compared to the forces that drive progress in highly populated economies, thus inducing the equalization of personal living standards.

[6] The nature of such approaches will not be outlined here. For different possibilities on the subject, see the literature reviewed in Aghion et al. (1999).

tentative interpretation of the results is then given, based mainly on country history and the structure of property rights, with special attention paid to the differences that seem to emerge between the developed and the developing world insofar as inequality is concerned.

The paper is organized as follows. Section 2 introduces the panel of internationally comparable inequality measures, Section 3 discusses the estimation methodology, Section 4 presents the results, and Section 5 concludes. The Appendix describes data sources.

2. The dataset

The selection of a dataset for cross-country comparisons of inequality indexes poses a number of problems besides the usual lack of information affecting many poor nations. A very lucid discussion of data issues for income dispersion measures can be found in Atkinson and Brandolini (2001) and Milanovic (2002b), foreshadowed by Berry et al. (1983), Grosh and Nafziger (1986), and Schultz (1998). Our observations are restricted to the most widely calculated indicator, the Gini coefficient.[7] Even with a single index, we still have to face differences in population coverage, geographic coverage, income definition and reference unit. For example, a nation that might appear highly polarized if the measure is only calculated on the basis of monetary incomes of taxpayers may show far greater equality if the whole population is covered and non-cash forms of income are taken into account. Another major disturbance is introduced by the fact that income data are not gathered every year in each nation, particularly in the developing world and in past decades.

The ideal information base would only include Gini coefficients that are simultaneously observed in different countries and homogeneous across both space and time as far as underlying data are concerned. Such a panel would comprise just over 10 countries, for a period of about fifteen years, and would either exclude most developed nations, basing their inequality estimates on income, or most developing nations, depending on expenditure for welfare disparity evaluations.

[7] While we are aware that the robustness of the analysis that follows would benefit from the use of many possible inequality indicators, such as the Theil and Atkinson indexes, severe limitations on microdata accessibility prevent us from calculating a variety of measures without having to reduce the sample radically.

Any inequality dataset pretending to being sufficiently comprehensive must therefore suffer from a degree of imprecision. In building the one described below, we followed a number of criteria suited to minimize distortion while maximizing representation of world population and aggregate income.

Our dataset is a subsample of the WIID v. 1.0. This collection of Gini coefficients is assembled and organized by the United Nations University, drawing on a variety of sources, including the work by Deininger and Squire (1996), the Luxemburg Income Study publications, and databases assembled by central banks and national statistical offices. Each coefficient is supplemented by information about population and geographic coverage, income definition and reference unit; in many cases, indicators from different sources are offered for a given country in a given year. The household, family or personal income data on which the coefficients are calculated are not presented in the WIID database (and often they are not published in the sources either), mainly owing to non-disclosure policies of the national data producers. Almost every country in the world is covered, but there is a wide difference in the number of data points per nation; while there are nearly complete fifty-year series for the United States, the United Kingdom and several Scandinavian countries, some developing countries only have one or two observations. The database is mainly meant for time-series study, not cross-sectional analysis, because of heterogeneity in the microdata from which Ginis are calculated. This is why 221 observations were selected as fit for our panel analysis, out of a total of 5067; given the goal of this paper, we exclusively considered data above a certain level of comparability. Only Gini coefficients evaluated with respect to the whole population and all geographic areas were included, with some exceptions detailed at the end of this section. Acceptable income definitions are, in order of preference: gross income, net income, undefined income, expenditure and net expenditure.[8] Although systematic differences exist between definition-specific Ginis, all of these indicators, unlike factor income, monetary income or monetary expenditure, somehow reflect real welfare. Moreover, assigning exclusive validity status to any of the above descriptions would drastically cut down the number of countries in the sample. Gross income is preferred to the rest because it is the most frequently used measure and supposedly a proxy for social status,

[8] Income and expenditure are in real terms, unless otherwise stated.

another component of inequality: high gross incomes normally go together with connections and privileges unavailable to those who earn low gross wages, even if the fiscal system is strongly redistributive. Other varieties of income are preferred to expenditure, where the choice is available, on account of next-to-best arguments. Finally, expenditure is chosen over net expenditure since most developing countries really survey gross expenditure but label it without adjectives, and we maintain a preference for indicators upstream of taxation and its consequences. No constraints are posed on the reference unit, since many sources do not even indicate whether it is household, family or person, and a number of statistical offices tend to change this variable repeatedly.

As far as the time series dimension of the panel goes, our aim is to cover the longest possible period, selecting years as evenly spaced as possible and not too close to each other in order to give an idea of medium-term transition behaviour in different moments of recent history. Given the limits on data frequency, it is impossible to find a single representative year with abundant observations for each decade from the Second World War to the end of the century. We therefore follow a strategy aimed at maximizing coverage, looking for years with data for the world's two most populous countries, China and India. Observations on both are available for a very limited number of years, and we select one per decade, the closest possible to its start: 1970, 1983, and 1991. We also find that other countries with large populations, such as Bangladesh, Brazil, Japan, Indonesia, Nigeria, Pakistan, the USSR/Russian Federation and the United States have data either for these years, or for the immediately preceding or following ones. We therefore select three periods of three years, respectively 1969-1970-1971, 1982-1983-1984, and 1990-1991-1992. For the sake of convenience, these are called the "early seventies", "early eighties" and "early nineties". Each nation is assigned a Gini for each period. Where the coefficient for the central year is available, we use it. Otherwise, the one for the preceding or the following year is reported. Should the latter two both exist, a simple average is taken. We still have the problem of the last years of the twentieth century; China and India have not been surveyed together since 1991, but we want to study very recent trends in the distributions of Ginis too. The Chinese data for 1995 and the Indian data for 1997 are recovered by creating a fourth period, the "late nineties"; it is centred on 1996, the last available year with satisfactory coverage. There are

over sixty countries with a reliable late nineties Gini, and most of them have observations for the previous periods also. They are listed in Table 1. Table 2 describes the periods.

Data sources for inequality, population and income are fully cited in the Appendix. The few exceptions to the general criteria are motivated by lack of data consistent with them, unless otherwise stated.

3. Estimation methodology

Once the panel is compiled, countries are allocated to six groups according to data quality. Table 3 lists the group members, divided between more developed countries (MDCs) and less developed countries (LDCs). Details of this classification are given in the Appendix.

Group 1 comprises the countries with high-quality data. This means that Ginis are observed in one of the three years defining each of the four periods; moreover, the entire population is covered, and the whole territory. Seven MDCs and eight LDCs fulfill these requirements.

Group 2 includes the nations that present a maximum of two irregularities, involving any issue but population coverage. The observations in this set fail to satisfy one or more of the conditions posed for Group 1, but they are strongly representative in the sense that they are not restricted to a particular type of individual. Most units appear in Group 2, because in one of the four periods the Gini is not available for any of the three bracketed years: we use the first possible adjacent observation. The Czech Republic, Germany, the Slovak Republic and the Former Republic of Yugoslavia also belong to Group 2, because they only existed during the early nineties and/or late nineties. Recent information is merged in a single vector with data for different political entities: Czechoslovakia, West Germany and Yugoslavia. This is the most numerous group, with eight MDCs and eight LDCs.

Group 3 hosts the states that did calculate Ginis on a special section of the population in a single case out of the four. For example, Denmark only surveyed the economically active population in 1971 and Nigeria limited the calculation to taxpayers in 1970, but they had complete surveys for the following periods. The Ginis in Group 3 are of dubious quality for our purposes, since they may introduce a systematic distorsion that is hard to estimate

and correct, whereas the errors in Group 2 can be read as random noise. The share of our sample affected by this problem is limited: five MDCs and three LDCs.

The republics belonging to the Former Soviet Union (FSU) pose multiple difficulties. Since most of them were founded in 1989 or later, there is no data for the early seventies and the early eighties. The problem is solved by replacing the missing observations with USSR Ginis, but these raise two further obstacles: first, they only concern the employed population and, second, they are unreliable since it was in the Soviet Union's political interest to bias the estimates downwards. Since data points with more than two sources of trouble are generally banned from the three previous groups, we should do the same with the FSU nations. We do not, however, on account of the strong importance of the transition process in redesigning the world's inequality map, and instead we confine them to a particular group, including six MDCs and three LDCs.

The R (recent) Group consists of ten LDCs that only have data for the early nineties and late nineties. The observations are of diverse quality.

Finally, the VR (very recent) Group is made of nine LDCs observed exclusively in the last period. The same rule applies.

Group statistics concerning population and income can be found in Table 4. We do not dwell on them here, since the six groups are only meant to be intermediate aggregations to be used for constructing the five panel subsamples detailed in Tables 5 and 6. These are created because, given the limitations on data reliability, we want to represent the evolution of domestic inequality for different combinations of available information in order to rule out idiosyncratic conclusions.

Subsample I (see Table 5) is the widest collection of four-observation vectors that can be assembled. Countries from Groups 1, 2, 3, and the FSU are included, i.e. all those that have data for each period. Some Ginis of suboptimal quality are tolerated, in exchange for a sizable advantage: this panel is highly representative in a number of ways. The 48 countries included, 26 of which are MDCs, account for 75.4 per cent of the world population.[9] In

[9] This figure and the ones that follow concern the situation in 1996, but they can be extended with minor corrections to the previous periods as well.

particular, 91.5 per cent of the MDC population and 71.4 per cent of LDC population are surveyed. The share of world income in the sample countries is 82.2 per cent, almost 95 per cent of MDC income and 65 per cent of LDC income. The ratio of sample population living in MDCs to sample population living in LDCs is 0.32, against a world ratio of 0.25. The ratio of sample income present in MDCs to sample income present in LDCs is 1.95, compared with a world ratio of 1.34.

Subsample II is limited to countries that offer data of the highest and second highest quality, those in Group 1 and Group 2. Subsample III also includes the FSU countries. Both are extended over the four periods. The two different articulations exist because we want to isolate data behaviour that could depend on transition (III versus II), but we also want to evaluate the effects that could possibly depend on the inclusion of less reliable Group 3 data (III versus I). These two subsamples are the most representative in terms of allocation of population and income between MDCs and LDCs; they both show ratios that are especially close to the world ones. In particular, the population ratios are respectively 0.21 and 0.27, the income ratios 1.41 and 1.49. This happens because Group 3, excluded from both aggregations, has a peculiar structure, exerting a distortionary effect on some statistics of the subsamples of which it is a part. It includes a large number of rich nations, such as France, Sweden and the very crowded, very affluent Japan, and only three poor countries, one of which is small Jamaica. Even the inclusion of Nigeria, the only African state with more than 100 million inhabitants, does not prevent misrepresentation of how income and population are distributed in the world.

Subsample IV has a wide spatial extension and a narrow time span. It is designed to study the changes between the early nineties and the late nineties, with a gain in precision made possible by the presence of additional data. It is a collection of two-observation (early nineties and late nineties) vectors for countries belonging to the groups 1, 2, 3, FSU, and R. This is an extended version of Subsample I; since the new nations are all from the developing world, a larger share of LDC population and income is represented, respectively 75.1 per cent and 67.5 per cent, while the MDC figures are unchanged. This results in ratios that are closer to the worldwide ratios.

Subsample V only comprises Ginis from the late nineties, observed over a total of 67 units. Its purpose is to give the most comprehensive picture possible for recent years,

including those countries from group VR that did not offer data for previous periods. About 80 per cent of world population and 84 per cent of world income are represented.

Once those panel subsamples are built, we want to see how the distribution of Gini indexes changes over time for each of them; we also want to determine intuitively which part of the emerging dynamics comes from MDCs and which from LDCs. This yields an amount of density estimates per subsample that equals three times the number of periods included in it. For example, Subsample I requires twelve estimates: one for early seventies including all 48 countries, two for the same period focusing respectively on MDCs and LDCs only, one for the early eighties including all 48 countries, and so on. On the other hand, Subsample V only requires three estimates.

Estimation is performed using Epanechnikov kernel functions, each of which has the optimal Silverman (1986) bandwidth for the specific subsample and period. This choice entails serious limitations on the possible uses of our estimates. Each of them attains desirable statistical properties, although always within the boundary of slow convergence imposed by the limited number of available datapoints. Still, they cannot be reliably used together for the computation of conditional probabilities since they are derived from differently parametrized estimators; even comparison between them yields results that are quite imprecise, because each has a different confidence band.[10] As a consequence, world Gini distribution can not be represented as an exact sum of MDC and LDC distributions. We accept these drawbacks and prefer to work with subjective bandwidths for two reasons. First, our goal is to give an intuitive representation of the polarization, or lack thereof, of inequality indexes: we need estimators that capture the macroscopic features such as unimodality or bimodality, unblurred by the occasional emergence of small concentrations specific to one period or subsample. The panel-wide or even subsample-wide optimal bandwidths, calculated à la Sala-i-Martin (2002a), impose too low a level of smoothing for this purpose, given that the data are not normalized and the distributions tend to move to the right through time. Second, while it is evident that transition probabilities in the vein of

[10] This is also the reason why density graphs cannot be superimposed, even though this could be desirable as a means of graphic interpretation of distribution dynamics

Quah (1993) cannot be properly derived from these estimates, it is also true that the main use of such representations lies in forecasting future distribution dynamics.

Our findings suggest that sizable variations in the shape of distribution are determined at least in part by unique events, such as the failure of centrally planned economic systems or the introduction of economic and monetary unions. This makes prediction difficult and unreliable even in the presence of estimates fit to the task.

It must be also noted that a serious caveat stems from the nature of the data. As happens with all the panels concerning both LDCs and MDCs, a systematic measurement error is bound to enter the calculations. The Gini coefficient is an estimator based on personal or household incomes. Since the estimates of such measures are more likely to include large errors in LDCs than in MDCs, if only for the difficulties connected with the evaluation of self-employment, home consumption and personal services performed for free by family members, the data-generating process for Ginis will include an error term with higher variance in LDCs than in MDCs. In turn, the variance of any individual Gini estimator will depend on the average welfare level of the country in question. Even with the strong assumption of equal measurement error variance within each group of countries, when estimating the world distribution of inequality indicators we cannot suppose they are identically distributed. If we allow for interaction between growth and inequality, the independence assumption must be dropped too, and the estimator for the densities turns out to be inconsistent. Since the literature, to our knowledge, does not currently offer correction methods for this predicament, in the following analysis we consider the Ginis as non stochastic.

Alternatively, we could try to portray the real densities with a three-step process: estimation of theoretical income dispersion coefficients via a model of determinants of inequality in the spirit of Li et al. (1998), estimation of measurement error variance via comparison of theoretical measures with reported measures, and finally estimation of densities on the basis of such theoretical measures if the previous two steps were to yield reliable results. This would require a large modelling effort and it is beyond the scope of this paper; further research appears to be needed in order for artificially reducing the data quality gap between LDCs ans MDCs.

4. Results

We now proceed to present some facts about the evolution of within-country inequality in the examined periods and to discuss the density estimates for individual subsamples.

Ginis for the whole sample are shown in Table 7, while Tables 8 and 9 report some summary statistics.

Average national asymmetry in income distribution, calculated over the complete panel, starts with a relatively low value of 35.29 in the early seventies and falls to 34.82 in the following decade. It then rises steadily, reaching 36.39 in the early nineties and peaking at 39.05 in the late nineties.

Data for the earlier periods is of somewhat difficult interpretation. Why did inequality drop slightly in the seventies and at the beginning of the eighties? Group 1, 2, and 3 countries on average registered very small movements. A detailed analysis reveals some instances of churning and some of stasis; it is almost impossible to find a common interpretation. Latin American societies, typically very unequal since they are characterized by high concentration in land ownership and a large share of income coming from agriculture, remained so on average; to cite some specific cases, Chile worsened, Peru improved, and Brazil did not change significantly. The scenario was similar in South Asia, Europe and North America, traditionally more balanced. Most of the fall in the mean Gini comes from a 6 per cent reduction in USSR inequality.

Observations from the early nineties and the late nineties offer a clearer path for discussion. Since the beginning of the nineties societies have been becoming, on average, more polarized as far as income distribution is concerned. This is well-established in inequality literature.

This tendency stems from the failure of centralized economies, whose sudden or gradual transformation into capitalistic systems has led to the abandoning of heavily

redistributive policies.[11] Sharp rises in Ginis during the nineties can be seen for the FSU Group, but also for other Warsaw Pact states, such as Poland, and, with great intensity, for China; for an explanation, see Atkinson and Micklewright (1992) and Milanovic (1998a). The same behaviour is shown, either in the early nineties and/or the late nineties, by nations of recent and ongoing development, e.g. Hong Kong, Indonesia and Taiwan, maybe as a consequence of the transition from relatively homogeneous rural communities to industrial, urbanized, socially conflictual ones. Part of the increase in average inequality is also due to the fact that most countries that only appear in recent periods, namely those from the R and VR groups, are more polarized than the average country of previous periods.

Rich Western nations have moved in the opposite direction: a majority of EU countries, Japan and the United States are becoming more equal, possibly because of the constant emergence of new sources of income related to information technology and accruing to different sectors of the population, but the phenomenon is not large enough to offset the general trend.

The standard deviation of Ginis for the complete panel decreases continuously, from 10.58 in the early seventies to 9.06 in the late nineties. One should be careful in interpreting this number: the fall of average dispersion of a variable in itself does not say anything about the shape of its distribution, especially in cases, like this, where the distribution is originally very skewed. It could mean that the area around the mode has become more crowded, but also that other small intervals not located too far from the mean are attracting density, and forming secondary peaks: both phenomena diminish the weight on the tails and reduce the total variance.

[11] Several papers have established the link between distribution, sociopolitical unrest and development; see for example Perotti (1993), Alesina and Perotti (1996), Alesina et al. (1996) and Rodrik (1999), all of which demonstrate, among other facts, that disruption brought by destitute citizens worsens a country's economic situation because investments are "rioted out". More recent works, like Keefer and Knack (2000), offer greater detail: income inequality gives rise to political polarization, thus reducing the possibilities of cooperation between different social groups. These theories could explain a part of the economic slowdown and increase in poverty experienced by some FSU countries, whose societies have been suddenly rendered extremely unequal by transition-induced frictions.

Figure 1 shows the twelve density estimates for Subsample I: for each period, the world density of Gini coefficients is represented as derived from the observations included in the panel, followed by the MDC and LDC densities.

Since the trends of developed and developing nations give clearly distinct contributions to the general dynamics, we start by discussing them and then comment on the aggregate behavior. The MDC densities have one common trait: they are all largely to the left of the subsample mean. Less developed countries, on the other hand, normally present Ginis that are higher than the general average; this indicates that poor nations tend to be less equal than rich ones. As far as the shape of the distribution is concerned, MDCs follow a path of diminishing heterogeneity, while LDCs are quite differentiated both at the start and at the end of the observed period.

In the early seventies, there are roughly four types of MDCs. The socialist states, whether independent administrative units or Soviet European republics that we consider as individual data points for reasons already stated, appear extremely balanced, with Ginis in the 20s. Most Scandinavian countries, market economies with strong redistributive inclinations, also show low inequality, ranging from Denmark's 22 to Finland's 31. Those two groups originate the peak in the mid 20s in the early seventies - MDC density estimate. The bulk of continental Europe scores in the lower 30s; this is the abundant "middle class" in the diagram. Finally, a sparsely populated set of MDCs presents asymmetries that are above the mean and generate a second, smaller concentration. Italy, Japan and Germany, possibly still discounting the negative effects of reconstruction and reindustrialization after their defeat in the Second World War, are of this last kind.

In the early eighties the distribution appears to be more polarized. This is a consequence of two events. The Soviet Union achieves a lower level of disparity; and a new, and subsequently persistent, high-inequality coalition emerges, comprising the United States, Australia and New Zealand. The fact that some specific situations, both on the low and high ends of the density, approach the mean is not enough to counterbalance the centrifugal movement.

This push towards a double standard is only temporary. In the early nineties, it is possible to see the first signs of the clear unimodality that would hold sway in the late

nineties. At the beginning of the nineties FSU republics show very low Ginis, because the transition process has just begun. But the Eastern European economies are already on the road to capitalism and therefore they lack the previous equalizing interventions of the public hand; disparity indicators register that by approaching the mean. Most other countries do not register significant changes. This results in a shift to the right of the main mode and the disappearance of any hint of a dual regime. The right tail is made slightly more evident by some specific episodes of high asymmetry in Europe.

The last few years are marked by convergence in Ginis, as shown by the late-nineties density diagram. The main driving force comes from the FSU nations, now fully involved in the process of aligning themselves, in production and class structure, with Western states. The Russian Federation in particular registers a Gini in the upper 30s, closely followed by the Baltic states. The process also receives a contribution of the opposite sign; countries with a history of highly uneven allocation of income, such as Japan or the United States, grow more equal.

The evolution of LDCs follows another direction. Poor countries can also initially be divided in four classes. Again, the planned economies, namely the three FSU states classified as developing and China, show early seventies Ginis in the 20s. Inequality indicators in the lower 30s mark the Indian subcontinent: India, Pakistan, and the newly founded Bangladesh. Indonesia offers similar values; by contrast, the majority of South East Asian nations exhibit high polarization, on average around the mid 40s. Finally, most countries of Central America, Latin America and the small observed section of Africa lie between 50 and 60. The density diagram shows a balanced bimodality: the first concentration, slightly below the mean, is centred around South Asia, supported by the communist states, and the second, around 50, pivots on South America, flanked by Africa. The Indochinese area contributes to the distribution's middle class.

In the early eighties the left peak fades, a fall of inequality in the USSR and lack of change in China notwithstanding. The countries with low-to-medium Ginis worsen, and so do the high-inequality ones; the distribution becomes skewed to the right, unimodal, and its dispersion rises.

The early nineties see a reversal of this trend: the graph shows a dominant interval again, but this time it is around the average, indicating a majority of nations with coefficients in the mid 30s. This happens because, as seen for the MDC segment, some units are starting to resent the transition: China, in particular, leaps from a Gini of 27 to one of 36. Contrary to what happens in the developed world, the FSU republics begin very early to resent the distributional effects of change, possibly because in the previous decades they were not as enmeshed in the Soviet fabric as their MDC counterparts. Moreover, the increase of polarization in Pakistan, Bangladesh and some other countries proves to have been temporary; the area of average inequality is further populated, also at the expense of the high dispersion group. A number of instances of radical disparity persist, originating the second and smaller concentration around 55.

The late nineties introduce another shift, one that is especially significant because of its influence on the global dynamics. The distribution acquires a twin-peaked shape, similar to the one of the early seventies, but this time the prevailing concentration is on very high disparity levels. Former socialist countries in the developing world suffer worse consequences from the transition than their European equivalents. China's Gini rises to 43; Armenia and Georgia do considerably worse, both ending up around 60. This goes together with ongoing high asymmetry in Central and South America, South East Asia and Africa; most LDCs have disparity and conflict problems that are far more intense than those of the industrial countries, and there are no signs of improvement. The only zone that is relatively safe from income allocation tensions is the Indian subcontinent, forming the smaller peak to the left in the density diagram; the picture elsewhere is, if anything, getting worse.

The global Gini density, derived by aggregating MDC and LDC data, is shown in the four WORLD graphs of Figure 1. It starts off in the early seventies with the main concentration on a group of values slightly below average, and with a hint of a second, smaller concentration around the 50s. During the two following decades it becomes more clearly unimodal and skewed to the left, with a general homogeneization of income structure across countries, and a decreasing incidence of situations of very high inequality. In the last period, the initial character reappears: the main mode, again to the left of the mean, is complemented by significant density around the top disparity levels.

The phenomenon can be interpreted as follows.

The LDC segment carries an inherent binary subdivision throughout the twenty-six years. Some countries are fairly balanced, with Ginis somewhat below the general average; others are extremely uneven, with indicators that can be twice those of the former. The middle ground is less crowded. At the beginning, the first group consists mainly of the socialist regimes and the Indian area, while the second comprises South America and Africa. At the end, after two decades of a relative blurring of distinctions, the picture is clear again: the formerly planned economies have become market systems and, as a consequence, have moved to the second group, making it more populated than the first one. Some specific events in other nations contribute to the emergence of two such concentrations. In turn, the MDC area has a polarized distribution at the start; that distribution grows progressively more compact, but its support is decidedly different. Very equal societies can have Ginis in the low 20s, while low polarization for LDCs is in the mid 20s or lower 30s; and, more important, a value of 40 is uncharacteristically high for a MDC, whereas it is below the segment mean for LDCs. The events that involve rich states affect the left sections of the WORLD diagrams only.

The area around the early-seventies main mode in the global Gini density graph represents most MDCs and the less unequal LDCs. The elements of bipolarity present in the MDC density wash out in the process of aggregating the two distributions. The countries of continental Europe are no longer the only ones forming a block around the 30s; they are joined by Bangladesh, India, Pakistan and China, and merge in a single midsection. The second density attracting interval to the right corresponds to the high-inequality zone of the LDC distribution.

In the early eighties, MDCs accentuate their differences, while LDCs generally move to higher dispersion values, with the exception of already overpolarized nations. The middle range of the global density, the upper 30s to upper 40s, becomes populated at the expenses of the modal values, and there is no isolated minor concentration.

During the early nineties, transition pressure in both MDCs and LDCs trims the left tail, and the end of unusual distributional tensions in South Asia renders the peak even more important; the data points in the right tail are so scattered that no other concentration occurs.

Finally, during the late nineties transition MDCs have attained inequality levels that are medium to high for their segment's standard. They join the MDCs and LDCs with Ginis that are traditionally in the 30s to form a strong first mode. On the other hand, transition LDCs have abandoned their originally low numbers, and some of them have gone to the upper 50s. The LDC main peak is now to the right. This produces a sizable concentration in the world diagram. When it was to the left, and close to the steadily more crowded MDC mode, the global distribution was more skewed and smoother.

The developing world's evolution, namely the shift in weight from the low peak to the high peak, is responsible for the macroscopic features of the general estimates; developed states are currenlty less important in shaping the crucial coordinates, but they might soon reinforce the prevailing trends.

If the transition MDCs were to experience a pattern similar to their LDC counterparts, a definite bimodality could emerge in a short span of time. The need for growth-promoting policies that take into account the uncertainty of property rights characteristic of unequal, conflictual societies should be felt more strongly today than in the past, and possibly with even more intensity a few years from now.

Figure 2 shows the twelve density estimates for Subsample II.

As far as MDCs are concerned, it is easy to see that the exclusion of the FSU Group greatly reduces the number of noteworthy events in the observed time span. The distribution is initially skewed to the right because of the higher relative weight of high-inequality economies, and it ends up skewed to the left because the excluded countries, very balanced in the early seventies, are among the most asymmetric in the late nineties. The removal of Group 3 nations adds regularity to the densities because, predictably, a series that includes Ginis calculated on the basis of varying coverage tends to be more fluctuating than the rest. In particular, the removal of Sweden allows us to describe Scandinavian countries as a coherent whole moving in a very similar fashion, and the exclusion of France renders the continental Europe group more homogeneous.

The distribution for LDCs also appears quite different from the one presented for Subsample I, because one of the main shaping factors has been removed. By not including the group of former Soviet economies, the main peak during the early seventies is to the

right, and there is no definite prevalence of the high inequality type in the late nineties. The inversion of emphasis previously described as being responsible for clearer polarization in recent years disappears almost completely. The final emerging stratification is still visible, but it is now largely determined by a scarcity of data points in the distribution's midsection if compared to Subsample I in the late nineties: most Group 3 nations have Ginis ranging from values in the mid 30s to the mid 40s. Therefore, the peculiarly high Ginis of some developing areas stick out as a separate group.

Figure 3 shows the twelve density estimates for Subsample III.

For MDCs, the dynamics are very similar to those of Subsample I and have the same interpretation; the gain in readability due to the exclusion of Group 3 vectors is maintained. The same note applies for LDCs, even more strongly because Nigeria's Ginis present many problematic aspects.

The six density estimates for Subsample IV, shown in Figure 4, and the three density estimates for Subsample V, shown in Figure 5, confirm the main traits outlined.[12]

5. Conclusions

We presented a panel of Gini coefficients for 67 countries, observed between 1970 and 1996. The panel was organized in five different subsamples, according to data quality, and density estimates for the distribution of Ginis were discussed for each subsample and four different periods: early seventies, early eighties, early nineties, and late nineties.

[12] There is no difference in MDC results between Subsamples IV-V and Subsample I, since the additional observations represent LDCs only. For Subsample IV, in the early nineties the new countries are mostly located around 40, making the distribution decidedly smooth. It is worth noticing that most countries from the R group are located in North Africa and the Middle East: they appear to be, on average, less polarized than the societies of Central and South Africa. Information for the late nineties traces an image already seen in the other subsamples: Niger, Paraguay and Senegal are in the right tail, while the other nations are located around the general mean. The WORLD diagram is close to the one obtained for subsamples I and III; the ten additional data points add precision, but do not change the general outlook of the situation.

As far as Subsample V is concerned, there is a slight improvement for LDCs. The only additional Latin American states, Ecuador and El Salvador, score predictable high Ginis, the new Asian countries are in line with the non-Indian peninsula ones already discussed, but Africa appears to be faring better, with three nations in the upper 30s to low 40s. The world distribution is affected in the sense that the middle range is more populated, indicating a number of countries with inequality values only slighlty above average, but the extremely conflictual societies still appear as a relevant and distinct family forming a concentration next to the right tail.

Although some differences emerged in the distribution dynamics depending on the choice of countries included in the subsamples, one crucial feature was found to characterize all shown combinations: inequality is to some extent polarizing, especially in less developed countries; precisely, it is repolarizing. It is shown that the estimated distribution of inequality is slightly bimodal at the start of the twenty-six year period: a sizable concentration of countries with average levels of distributional asymmetry is accompanied by a smaller one of very unequal nations, mainly located in Latin America. The following two decades are characterized by disparity levels that are more homogeneous, suggesting a convergence of class structure across nations. In recent times bimodality is emerging again, and more strongly: the number of heavily polarized, strongly conflictual societies increases, driven by transition frictions in the ex-USSR area and lack of improvement in historically unequal societies.

This phenomenon does not correspond to a rise in absolute dispersion of the distribution. Inequality levels are, as a rule, less distant now than in the past, but they tend to aggregate in two distinct groups instead of being evenly distributed. Average within-country inequality appears to be increasing.

Tables and Figures

Table 1

COUNTRIES IN SAMPLE

Algeria	Germany	Panama
Armenia	Ghana	Papua New Guinea
Australia	Guinea	Paraguay
Bangladesh	Hong Kong	Peru
Belarus	India	Philippines
Brazil	Indonesia	Poland
Bulgaria	Italy	Russian Federation
Burkina Faso	Jamaica	Senegal
Cambodia	Japan	Slovak Republik
Canada	Jordan	South Africa
Chile	Kazahkstan	Spain
China	Latvia	Sri Lanka
Cote d'Ivoire	Lithuania	Sweden
Czech Republic	Mauritania	Taiwan
Denmark	Mexico	Thailand
Djibouti	Mongolia	Ukraine
Ecuador	Nepal	United Kingdom
El Salvador	Netherlands	United States
Estonia	New Zealand	Viet Nam
Ethiopia	Niger	Yugoslavia, FR
Finland	Nigeria	Zambia
France	Norway	
Georgia	Pakistan	

Table 2

PERIODS

Shorthand	Year of observation*
Early 70s	1970 where available; otherwise, average of 1969 and 1971; otherwise, 1969 or 1971
Early 80s	1983 where available; otherwise, average of 1982 and 1984; otherwise, 1982 or 1984
Early 90s	1991 where available; otherwise, average of 1990 and 1992; otherwise, 1990 or 1992
Late 90s	1996 where available ; otherwise, average of 1995 and 1997 ; otherwise, 1995 or 1997
*	For the cases where data are not available for any of the indicated years, see Appendix.

Table 3

COUNTRIES IN SAMPLE, GROUPED BY DATA QUALITY

Group	MDC	LDC
1	Australia Bulgaria Finland Italy Norway United Kingdom United States	Bangladesh Brazil Chile China India Indonesia Mexico Taiwan
2	Canada Czech Republic Germany New Zealand Poland Slovak Republic Spain Yugoslavia, FR	Hong Kong Pakistan Panama Peru Philippines South Africa Sri Lanka Thailand
3	Denmark France Japan Netherlands Sweden	Jamaica Nigeria Zambia
FSU	Belarus Estonia Latvia Lithuania Russian Federation Ukraine	Armenia Georgia Kazakhstan
R		Algeria Cote d'Ivoire Ghana Guinea Jordan Mauritania Niger Paraguay Senegal Viet Nam
VR		Burkina Faso Cambodia Djibouti Ecuador El Salvador Ethiopia Mongolia Nepal Papua New Guinea

Table 4

STATISTICAL SUMMARY FOR COUNTRY GROUPS AND COMPLETE SAMPLE: POPULATION AND INCOME

a	1	2	3	FSU	R	VR	Sample
b	15	16	8	9	10	9	67
c	7	8	5	6	0	0	26
d	8	8	3	3	10	9	41
e	3204766	578483	329036	242643	173290	125365	4653583
f	418746	222096	213371	217044	0	0	1071257
g	2786020	356387	115665	25599	173290	125365	3582326
h	0.15	0.62	1.8	8.49	0	0	0.3
i	55.52	10.02	5.7	4.2	3	2.17	80.61
j	35.76	18.97	18.22	18.54	0	0	91.49
k	60.55	7.75	2.51	0.56	3.77	2.72	77.86
l	18645.16	4973.27	4905.1	883.27	380.53	153.84	29941.17
m	10370.75	3474.4	4797.87	811.7	0	0	19454.72
n	8274.41	1498.87	107.23	71.57	380.53	153.84	10486.45
o	1.25	2.3	44.74	11.34	0	0	1.85
p	52.1	13.9	13.71	2.47	1.06	0.43	83.67
q	50.62	16.96	23.42	3.96	0	0	94.96
r	54.08	9.8	0.7	0.47	2.49	1.01	68.55

Reference values:	
World population in 1996 (thousands)	5772351
in LDC	4601379
in MDC	1170981
MDC/LDC population ratio	0.25
World gross income (billions of 1996 international dollars)	35788.58
in LDC	15301.1
in MDC	20487.1
MDC/LDC income ratio	1.34

Table 5

COMPOSITION OF SUBSAMPLES, BY GROUPS AND PERIODS

Subsample	Groups	Periods
I	1, 2, 3, FSU	Early 70s, Early 80s, Early 90s, Late 90s
II	1, 2	Early 70s, Early 80s, Early 90s, Late 90s
III	1, 2, FSU	Early 70s, Early 80s, Early 90s, Late 90s
IV	1, 2, 3, FSU, R	Early 90s, Late 90s
V	1, 2, 3, FSU, R, VR	Late 90s

Table 6

STATISTICAL SUMMARY FOR SUBSAMPLES: POPULATION AND INCOME

a	I	II	III	IV	V
b	48	31	40	58	67
c	26	15	21	26	26
d	22	16	19	32	41
e	4354928	3783249	4025892	4528218	4653583
f	1071257	640842	857886	1071257	1071257
g	3283671	3142407	3168006	3456961	3582326
h	0.32	0.21	0.27	0.31	0.3
i	75.44	65.54	69.74	78.44	80.61
j	91.49	54.73	73.27	91.49	91.49
k	71.37	68.3	68.86	75.14	77.86
l	29406.8	23618.43	24501.7	29787.33	29941.17
m	19454.72	13845.15	14656.85	19454.72	19454.72
n	9952.08	9773.28	9844.85	10332.61	10486.45
o	1.95	1.41	1.49	1.88	1.85
p	82.18	66	68.47	83.24	83.67
q	94.96	67.58	71.54	94.96	94.96
r	65.05	63.88	64.35	67.54	68.55

Legend for tables 4 and 6

a – Group or subsample
b – Number of Countries
c – Number of MDCs
d – Number of LDCs
e – Population in 1996 (thousands)
f – Population in 1996, MDCs
g – Population in 1996, LDCs
h – Group or subsample MDC/LDC population ratio in 1996
i – Group or subsample share of world population in 1996
j – Group or subsample population in 1996, MDCs as share of MDC population in 1996
k – Group or subsample population in 1996, LDCs as share of LDC population in 1996
l – Group or subsample gross income in 1996 (billions of 1996 international dollars)
m – Group or subsample gross income in 1996, MDCs
n – Group or subsample gross income in 1996, LDCs
o – Group or subsample MDC/LDC income ratio in 1996
p – Group or subsample share of world gross income in 1996
q – Group or subsample gross income in 1996, MDCs as share of MDC gross income in 1996
r – Group or subsample gross income in 1996, LDCs as share of LDC gross income in 1996

Table 7

GINI COEFFICIENTS FOR COUNTRIES IN SAMPLE

	Early 70s	Early 80s	Early 90s	Late 90s
Algeria	-	-	38.7	35.3
Armenia	26.5	24.9	26.9	59.7
Australia	32	40	41.7	41
Bangladesh	29	35	28.3	33.6
Belarus	26.5	24.9	23.3	24.2
Brazil	57.6	58.4	63.7	58.1
Bulgaria	21.5	25	24.9	26.7
Burkina Faso	-	-	-	39
Cambodia	-	-	-	40.4
Canada	32.3	32.8	35	28.6
Chile	46	54.5	55.4	56.4
China	27.9	27.2	36.2	43.2
Cote d'Ivoire	-	-	36.9	38
Czech Republic	22.5	23.9	22.2	28.1
Denmark	22.5	21.6	39	36
Djibouti	-	-	-	38.1
Ecuador	-	-	-	43.7
El Salvador	-	-	-	50
Estonia	26.5	24.9	24	34
Ethiopia	-	-	-	44.2
Finland	31	31	25.1	28.2
France	44	34.9	46.1	29
Georgia	26.5	24.9	29.1	58.7
Germany	39.2	31.4	26.3	32.6
Ghana	-	-	34	32.7
Guinea	-	-	46.8	40.4
Hong Kong	43	45.2	45	52
India	30.4	31.5	32.5	37.8
Indonesia	30.7	39.6	32	36.5
Italy	38	32.9	28.7	36.2
Jamaica	41.3	65.5	41.1	36.4
Jordan	-	-	43.4	36.4
Kazahkstan	26.5	24.9	29.7	35.4
Latvia	26.5	24.9	24	32.2
Lithuania	26.5	24.9	24.8	33.4
Mauritania	-	-	42.4	38.9
Mexico	45.6	42.9	47.5	52.8
Mongolia	-	-	-	33.2
Nepal	-	-	-	36.7
Netherlands	34.4	33.4	30.6	32
New Zealand	30.1	34.1	40.2	37
Niger	-	-	36.1	50.5
Nigeria	60.3	36.1	45	50.6
Norway	30.5	27.8	31.9	32.4

Table 7 (continued)

	Early 70s	Early 80s	Early 90s	Late 90s
Pakistan	33	35.1	31.2	31.2
Panama	57	47.5	56.5	48.5
Papua New Guinea	-	-	-	50.9
Paraguay	-	-	39.8	59
Peru	55	49.3	46.4	50.6
Philippines	49	45.2	47.7	49.6
Poland	24	24.5	31.4	33.1
Russian Federation	26.5	24.9	25.9	37.8
Senegal	-	-	53.8	41.3
Slovak Republik	22.5	23.9	23.3	24.8
South Africa	53	50	59	40.5
Spain	37.1	34.2	33	24.9
Sri Lanka	37.8	45	30.1	34.4
Sweden	38.7	35.2	31.1	34.2
Taiwan	29.3	28.9	32	31.7
Thailand	49.9	43.1	50.2	45.3
Ukraine	26.5	24.9	21.8	31.3
United Kingdom	33.9	26.4	33.7	40.5
United States	34.1	36.7	39.1	37.5
Viet Nam	-	-	35.7	36.1
Yugoslavia. FR	25	31.9	31.8	31.3
Zambia	51	51	43.5	51.4

- = Missing value

Table 8

STATISTICAL SUMMARY FOR COUNTRY GROUPS AND COMPLETE SAMPLE: INEQUALITY

a	1	2	3	FSU	R	VR	Sample
b	34,5	38,15	40,96	26,5	-	-	35,29
c	9,01	11,91	11,36	0	-	-	10,58
d	35,85	37,32	39,06	24,9	-	-	34,82
e	9,95	9,16	13,3	0	-	-	10,34
f	36,84	38,08	38,9	25,5	41,5	-	36,39
g	11,11	11,48	6,09	2,65	6,61	-	10,01
h	39,5	37,03	37,5	38,5	41,91	41,8	39,05
i	9,59	9,42	8,7	12,3	8,67	5,94	9,06
j	0,17	-0,03	-0,12	0,33	**0,08	-	-
k	0,05	0,03	0,02	0,32	-	-	-
l	3,36	-1,02	-5,11	1,02	-	-	-

** Only two available observations

Table 9

STATISTICAL SUMMARY FOR SUBSAMPLES: INEQUALITY

a	I	II	III	IV	V
b	35,29	36,38	34,16	35,29	35,29
c	10,58	10,6	10,2	10,58	10,58
d	34,82	36,61	33,97	34,82	34,82
e	10,34	9,42	9,63	10,34	10,34
f	35,48	37,48	34,79	36,39	36,39
g	10,47	11,13	11,07	10,01	10,01
h	38,16	38,23	38,29	38,63	39,05
i	9,7	9,43	9,97	9,42	9,06
j	0,08	0,07	0,13	0,11	0,13
k	0,07	0,02	0,08	0,06	0,07
l	1,23	3,27	1,47	1,69	1,65

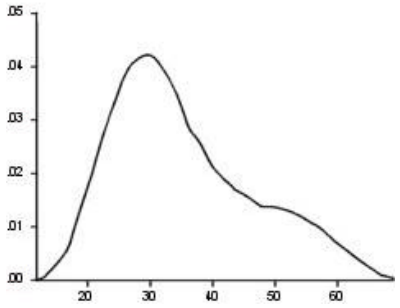
Legend for Tables 8 and 9

a – Group or subsample
b – Average early 70s Gini
c – Standard deviation of early 70s Gini
d – Average early 80s Gini
e – Standard deviation of early 80s Gini
f – Average early 90s Gini
g – Standard deviation of early 90s Gini
h – Average late 90s Gini
i – Standard deviation of late 90s Gini
j – OLS estimate of a linear time trend in average Gini***
k – Standard error of j
l – t ratio for j

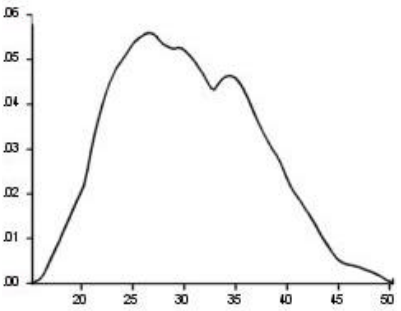
***Computed assuming the observations on average Gini correspond respectively to 1970, 1983, 1991 and 1996.

Figure 1

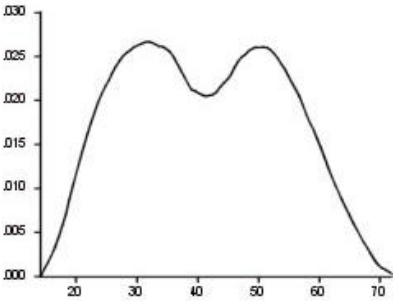
DISTRIBUTION OF GINI COEFFICIENTS, SUBSAMPLE I



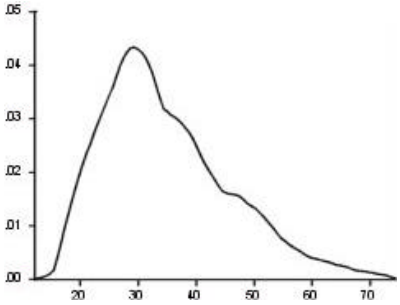
Early 70s – WORLD



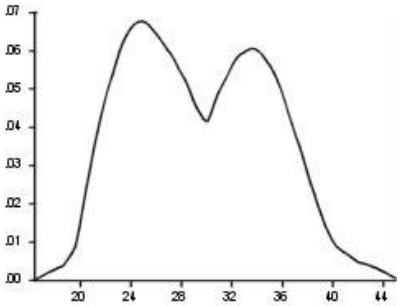
Early 70s - MDC



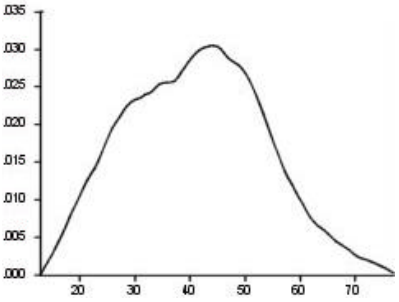
Early 70s – LDC



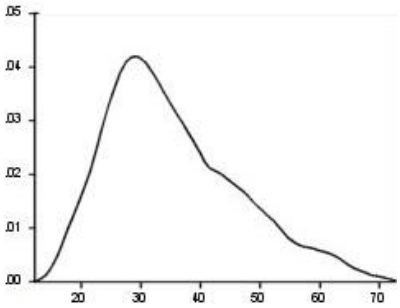
Early 80s – WORLD



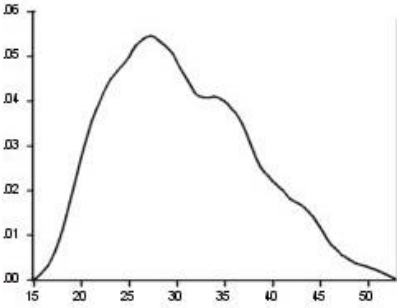
Early 80s - MDC



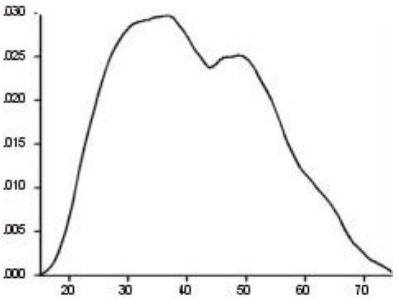
Early 80s – LDC



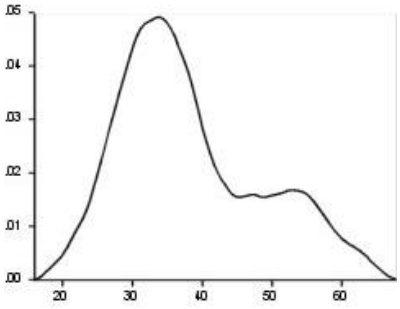
Early 90s - WORLD



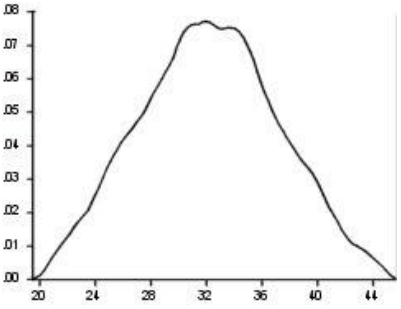
Early 90s - MDC



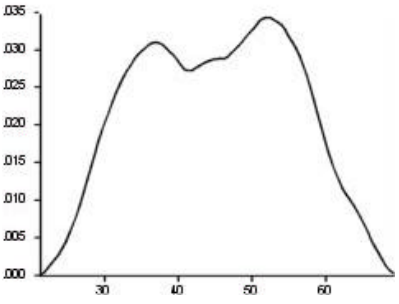
Early 90s – LDC



Late 90s - WORLD



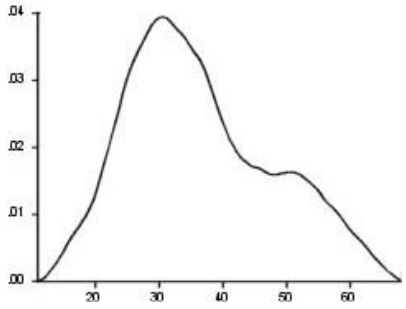
Late 90s - MDC



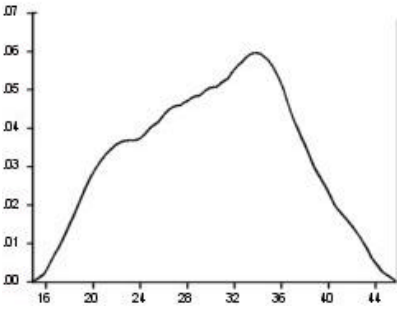
Late 90s - LDC

Figure 2

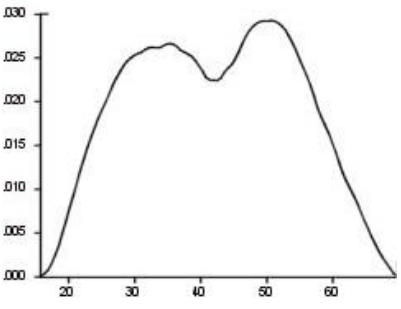
DISTRIBUTION OF GINI COEFFICIENTS, SUBSAMPLE II



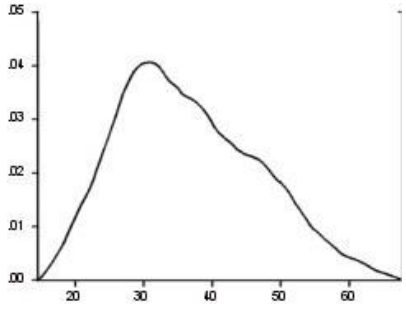
Early 70s - WORLD



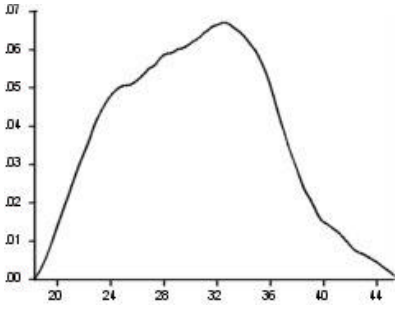
Early 70s – MDC



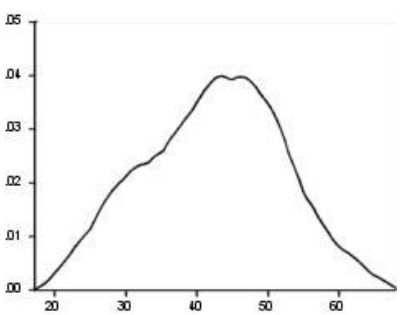
Early 70s – LDC



Early 80s - WORLD



Early 80s – MDC



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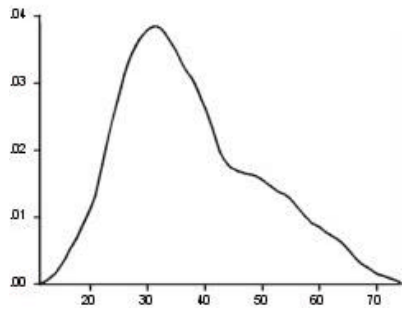
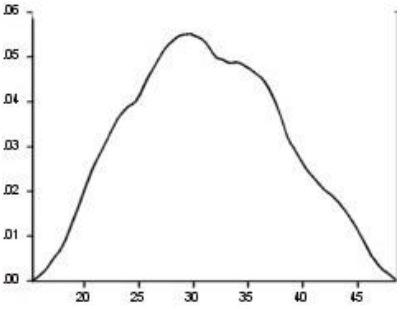
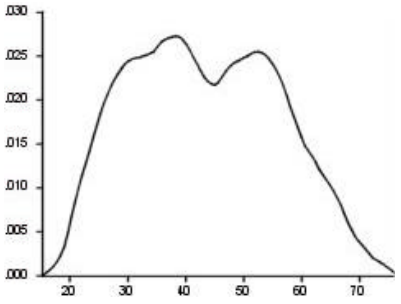


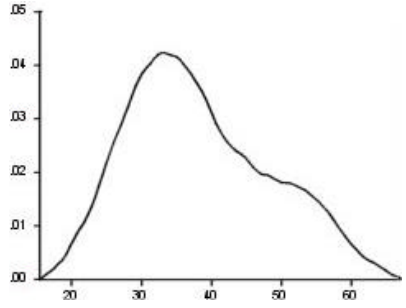
Early 90s - WORLD



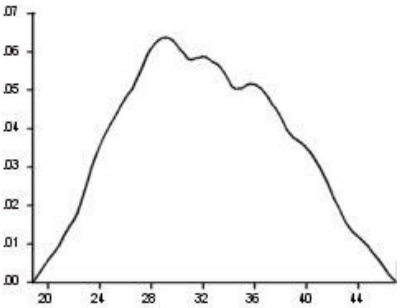
Early 90s – MDC



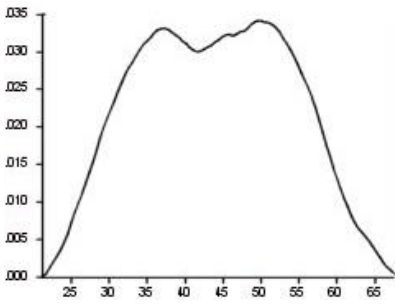
Early 90s - LDC



Late 90s - WORLD



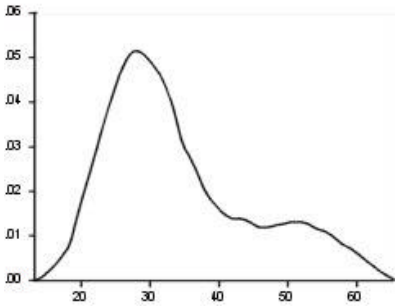
Late 90s – MDC



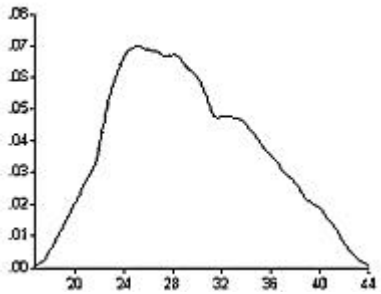
Late 90s - LDC

Figure 3

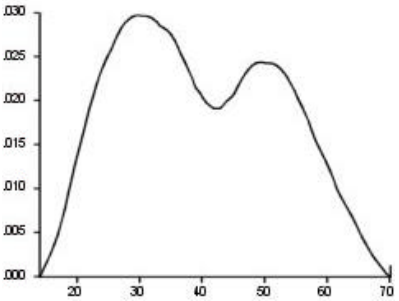
DISTRIBUTION OF GINI COEFFICIENTS, SUBSAMPLE III



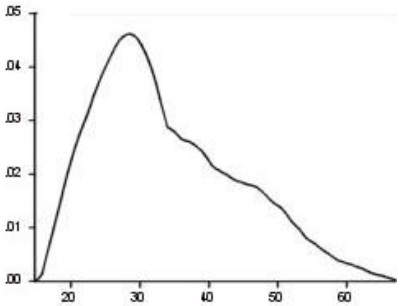
Early 70s – WORLD



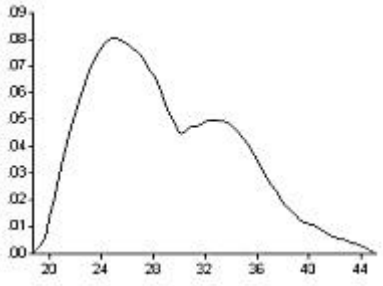
Early 70s – MDC



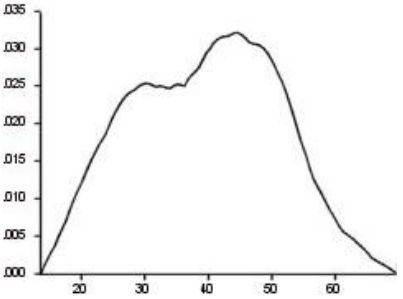
Early 70s – LDC



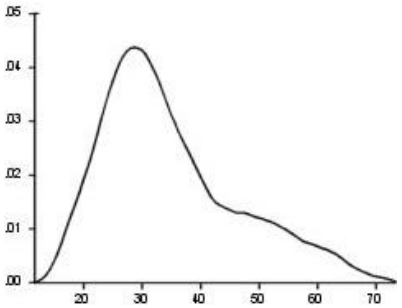
Early 80s – WORLD



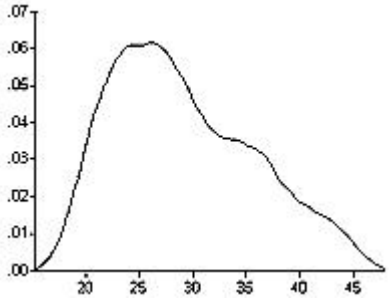
Early 80s – MDC



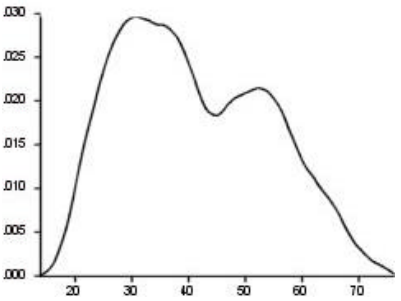
Early 80s – LDC



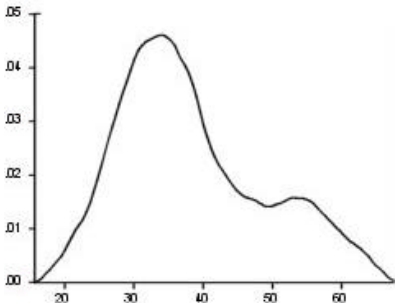
Early 90s – WORLD



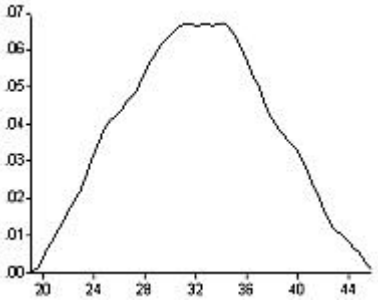
Early 90s – MDC



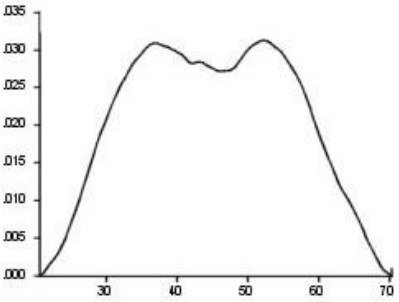
Early 90s – LDC



Late 90s - WORLD



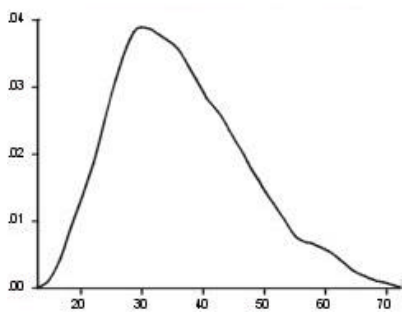
Late 90s – MDC



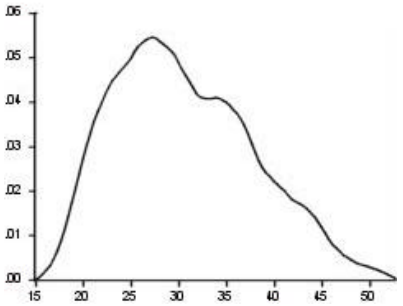
Late 90s – LDC

Figure 4

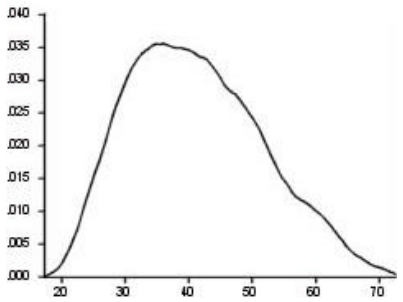
DISTRIBUTION OF GINI COEFFICIENTS, SUBSAMPLE IV



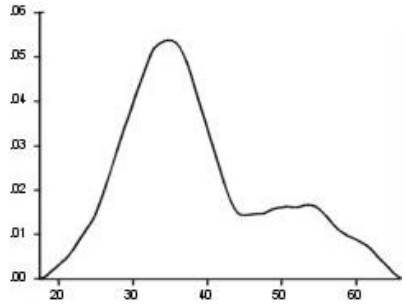
Early 90s - WORLD



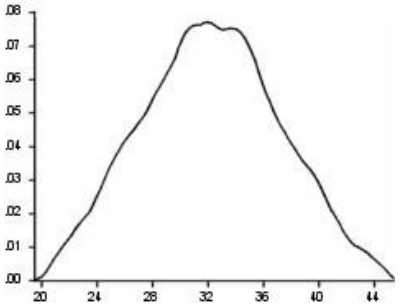
Early 90s – MDC



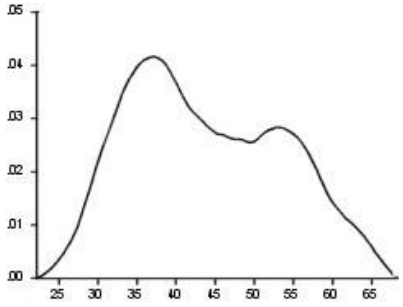
Early 90s - LDC



Late 90s – WORLD



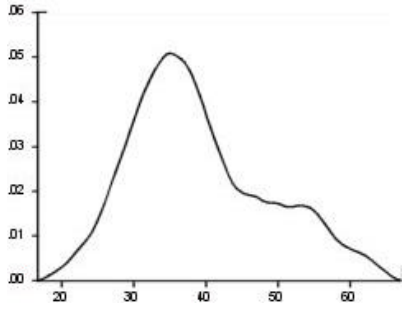
Late 90s – MDC



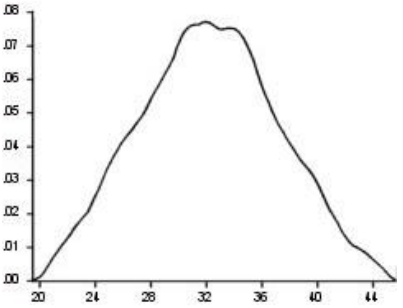
Late 90s - LDC

Figure 5

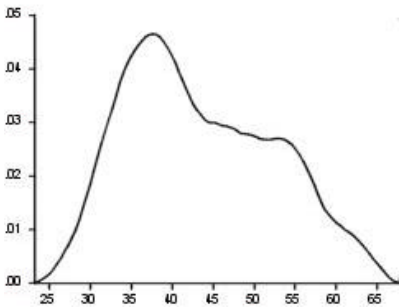
DISTRIBUTION OF GINI COEFFICIENTS, SUBSAMPLE V



Late 90s - WORLD



Late 90s – MDC



Late 90s - LDC

Appendix
Data sources

Inequality

Gini coefficients are from the UNU/WIDER World Income Inequality Database, version 1.0, 12 September 2000; their specific sources are detailed in the following table. Unless otherwise stated, they cover all population and all geographic areas of the named country.

Country	Early 70s	Early 80s
Algeria	-	-
Armenia	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Australia	1969, Gross Income	1982, Gross Income
Bangladesh	1969, Gross Income	1983, Gross Income
Belarus	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Brazil	1970, Gross Income	1983, Gross Income
Bulgaria	1970, Gross Income	1983, Gross Income
Burkina Faso	-	-
Cambodia	-	-
Canada	1969, Gross Income; 1971, Gross Income	1983, Gross Income
Chile	1971, Gross Income	1983, Gross Income
China	1970, Gross Income	1983, Gross Income
Cote d'Ivoire	-	-
Czech Republic	Czechoslovakia 1970, Net Income	Czechoslovakia 1981, Net Income
Denmark	1971, Economically active, Gross Income	1983, Net Income
Djibouti	-	-
Ecuador	-	-
El Salvador	-	-
Estonia	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Ethiopia	-	-
Finland	1971, Gross Income	1983, Net Income
France	1970, Gross Income	1983, Gross Income
Georgia	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Germany	West Germany 1970, Net Income	West Germany 1983, Gross Income
Ghana	-	-
Guinea	-	-
Hong Kong	1970, Gross Income	1981, Gross Income
India	1970, Net Expenditure	1983, Net Expenditure
Indonesia	1970, Expenditure	1982, Expenditure; 1984, Expenditure
Italy	1970, Net Income	1983, Net Income
Jamaica	1971, Expenditure	1980, Income Recipients, Gross Income
Japan	1970, Gross Income	1982, Gross Income
Jordan	-	-
Kazahkstan	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Latvia	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Lithuania	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Mauritania	-	-
Mexico	1970, Income	1984, Gross Income
Mongolia	-	-

Country	Early 70s	Early 80s
Nepal	-	-
Netherlands	1973, Taxpayers, Gross Income	1983, Gross Income
New Zealand	1973, Gross Income	1983, Gross Income
Niger	-	-
Nigeria	1970, Taxpayers, Gross Income	1982, Gross Income
Norway	1970, Net Income	1982, Net Income; 1984, Net Income
Pakistan	1970, Gross Income	1985, Gross Income
Panama	1970, Gross Income	1980, Gross Income
Papua N. G.	-	-
Paraguay	-	-
Peru	1971, Gross Income	1981, Gross Income
Philippines	1971, Gross Income	1985, Gross Income
Poland	1973, Income	1983, Gross Income
Russian Fed.	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
Senegal	-	-
Slovak Republik	Czechoslovakia 1970, Net Income	Czechoslovakia 1981, Net Income
South Africa	1970, Income	1980, Income
Spain	1973, Gross Income	1981, Gross Income
Sri Lanka	1970, Gross Income	1981, Gross Income
Sweden	1970, Income Recipients, Income	1983, Gross Income
Taiwan	1970, Gross Income	1983, Net Income
Thailand	1971, Gross Income	1981, Gross Income
Ukraine	USSR 1972, Employed full-time, Gross Earnings	USSR 1984, Employed, Gross Earnings
United Kingdom	1970, Gross Income	1983, Net Income
United States	1970, Gross Income	1983, Gross Income
Viet Nam	-	-
Yugoslavia, FR	Yugoslavia 1970, Inc. Recipients, Gross Income	Yugoslavia 1983, Gross Income
Zambia	1971, Income	1976, Income

Country	Early 90s	Late 90s
Algeria	1988, Net Expenditure	1995, Expenditure
Armenia	1990, Gross Income	1996, Net Income
Australia	1990, Gross Income	1996, Gross Income
Bangladesh	1992, Income	1996, Income
Belarus	1990, Gross Income	1996, Net Income
Brazil	1991, Gross Income	1996, Gross Income
Bulgaria	1991, Gross Income	1996, Gross Income
Burkina Faso	-	1995, Net Expenditure
Cambodia	-	1997, Expenditure
Canada	1991, Gross Income	1994, Net Income
Chile	1991, Gross Income	1996, Gross Income
China	1991, Gross Income	1995, Net Income
Cote d'Ivoire	1988, Net Expenditure	1995, Net Expenditure
Czech Republic	1991, Net Income	1996, Net Income
Denmark	1991, Gross Income	1995, Gross Income
Djibouti	-	1996, Net Expenditure
Ecuador	-	1995, Expenditure
El Salvador	-	1995, Gross Income
Estonia	1990, Gross Income	1996, Gross Income
Ethiopia	-	1996, Net Expenditure
Finland	1991, Gross Income	1996, Gross Income
France	1990, Taxpayers, Net Income	1994, Net Income
Georgia	1990, Gross Income	1996, Net Income
Germany	West Germany 1991, Net Income	1997, Net Income
Ghana	1991, Net Expenditure	1997, Expenditure
Guinea	1991, Expenditure	1995, Net Expenditure
Hong Kong	1991, Gross Income	1996, Gross Income
India	1991, Expenditure	1997, Net Expenditure
Indonesia	1990, Expenditure	1996, Expenditure
Italy	1991, Gross Income	1995, Net Income
Jamaica	1991, Expenditure	1996, Expenditure
Japan	1990, Gross Income	1997, All Excl. Singles, Gross Income
Jordan	1991, Expenditure	1997, Expenditure
Kazahkstan	1990, Gross Income	1996, Expenditure
Latvia	1990, Gross Income	1996, Net Income
Lithuania	1990, Gross Income	1996, Expenditure
Mauritania	1988, Expenditure	1995, Expenditure
Mexico	1992, Gross Income	1996, Gross Income
Mongolia	-	1995, Expenditure
Nepal	-	1996, Expenditure
Netherlands	1991, Gross Income	1996, Gross Income
New Zealand	1990, Gross Income	1997, Gross Income
Niger	1992, Expenditure	1995, Expenditure
Nigeria	1991, Net Expenditure	1996, Expenditure
Norway	1991, Gross Income	1996, Net Income
Pakistan	1991, Expenditure	1996, Expenditure
Panama	1989, Gross Income	1997, Gross Income
Papua N. G.	-	1996, Expenditure

Country	Early 90s	Late 90s
Paraguay	1990, Metropolitan Areas, Gross Income	1995, Gross Income
Peru	1991, Gross Income	1997, Gross Income
Philippines	1991, Gross Income	1997, Gross Income
Poland	1991, Gross Income	1996, Net Income
Russian Fed.	1990, Gross Income	1996, Gross Income
Senegal	1991, Expenditure	1995, Expenditure
Slovak Republik	1991, Gross Income	1996, Net Income
South Africa	1990, Gross Income	1995, Gross Income
Spain	1991, Gross Income	1996, Expenditure
Sri Lanka	1990, Expenditure	1995, Expenditure
Sweden	1992, Gross Income	1996, Net Income
Taiwan	1991, Gross Income	1996, Net Income
Thailand	1990, Gross Income; 1992, Gross Income	1996, Gross Income
Ukraine	1991, Gross Income	1997, Gross Income
United Kingdom	1991, Net Income	1995, Gross Income
United States	1991, Gross Income	1997, Net Income
Viet Nam	1992, Net Expenditure	1998, Expenditure
Yugoslavia, FR	1991, Net Income	1997, Gross Income
Zambia	1991, Net Expenditure	1996, Net Expenditure

Population

Population data are from the World Population Profile: 1996, U.S. Bureau of Census.

Income

PPP-adjusted per capita income data are from the World Development Indicators CD-ROM, World Bank. Aggregate income data are obtained multiplying per capita income and population.

More Developed Countries/Less Developed Countries Classification

The division of nations in sample between More Developed Countries (MDC) and Less Developed Countries (LDC) follows the UN Statistics Division classification. The group of MDC comprises all of North America, all of Europe including the four FSU European republics, the Baltic States, Japan, Australia and New Zealand. The group of LDC comprises all the remaining countries.

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