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Poverty, Inequality and the Distribution of Income in the G20

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Abstract:

This paper follows Sala-i-Martin (2002) and estimates the distribution of income for the G20 countries for every year between 1970 and 1998. Two important aspects of the distribution are then analyzed: the poverty rates (the fraction of the G20 that earn incomes of less than 1 dollar and less than 2 dollars a day) and various measures of inequality. By all counts, the G20 have performed very well over the last three decades.

Keywords: Income Inequality, Poverty, Income Distribution, G20.

JEL Classification: D31, F0, I30, I32, O00.

(*) We thank Terry O'Brien for his useful comments.

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1. Introduction

Over recent years, the G-20 grouping of systemically important economies has examined, by case studies among its member economies and a workshop, how the trends of globalization may be affecting living standards, poverty and inequality. The objective has been to better understand the advantages, problems and policy challenges arising from globalization.

Sala-i-Martin (2002) has developed a methodology to combine the best quality information on income and distributional levels and trends for the widest number of countries. This approach yields clear pictures of how national income distributions have changed over the last 30 years, to produce changing patterns of intra-country distributions, inter-country distributions, and global distributions of income.

This paper uses that methodology and some approximate extensions of the available data, to explore these same trends among the G-20 economies as a group, and between the G-20 and the broader world. Such an approach may be helpful in illustrating the broad trends in income, poverty, and inequality among a small but diverse group of important economies, whose ranks include both rich and poor countries, and countries that have recently experienced economic crises as well as strong economic growth.

2. Methodology

We briefly describe the methodology developed by Sala-i-Martin (2002) and how we apply it to estimate the individual country distributions of the G20 group. We also construct an aggregate distribution for the entire group and use it to compute poverty rates and headcounts as well as various inequality indexes.

A.- Step 1: Estimating Yearly Income Shares between 1970 and 1998

We use the income shares estimated by Deininger and Squire (DS) which have been extended with the World Development Indicators (WDI) of the World Bank¹. These studies report income shares for five quintiles for a number of countries for selected years based on national-level income and expenditure surveys. Let $s(ikt)$ be the income share

¹ The data can be found in <http://www.undp.org/poverty/initiatives/wider/wiid.htm>

for quintile k , for country i during year t . Using these data we have three broad groups of countries (listed in Appendix Table 1):

Group A.- Those for which the income shares are reported for more than one year. The G20 countries this group are Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russian Federation, Turkey, United Kingdom, and the United States.

Group B.- Those for which we have only one observation between 1970 and 1998. The only G20 country in this group is South Africa.

Group C.- Those for which we have NO observations of income shares. The only G20 country that belongs to group C is Argentina.

For the countries in group A, we plot the income shares over time and we observe that they tend to follow very smooth trends (see the Appendix Figures for selected countries). In other words, although the income shares estimated by Deininger and Squire and the World Bank are not constant, they do not seem to experience large movements in short periods of time. Instead, they seem to have smooth time trends.² Using this information, we regress income shares on time to get a linear trend for each country. We use the projected income shares from these regressions to fill the holes for the missing years.

For the countries in group B, we take the single estimate of the shares for the year in which these are available. We then project back and forth for other years using the average slopes of the “neighboring countries” for which we have data. By define “neighboring countries” as those that belong to the same “region” as defined by the World Bank. In particular, since the only G20 that belongs to group B is South Africa, we use the single point estimate of the income shares for South Africa and we use the time slopes estimated for the rest of “African Countries”.

For the countries in group C (for which, remember, we have no data on income shares) we use the average income shares of the neighboring countries. Since the only

² Obviously, these trends can only be temporary since income shares are bounded between 0 and 1.

G20 country in this group is Argentina, this means that we use the average income shares for all Latin American countries as proxies for Argentina's.

B.- Step 2: Estimating Country Histograms

Once we have estimated the income shares, $s(ijk)$, we assign a preliminary level of income to each fifth of the population using Purchasing Power Parity (PPP)-adjusted per capita GDP from the Summers-Heston data (Summers and Heston (1999), and Heston, Summers and Aten (2001)).³ We divide each country's population in five groups and assign to them a different level of income. In this intermediate step, each individual is assumed to have the same level of income within each quintile. In other words, we construct country-specific histograms for each year and for each country.

C.- Step 3. Estimating Each Country's Income Distribution.

We next estimate a kernel density function for each country and each year using the five quintiles estimated in the previous section. The key parameter that needs to be specified or assumed is the bandwidth of the kernel. The convention in the literature suggests a bandwidth of $w=0.9*sd*(n^{-1/5})$, where sd is the standard deviation of (log) income and n is the number of observations. Obviously, each country has a different standard deviation so, if we use this formula for w , we would have to assume a different w for each country and year. Instead, we prefer to assume the same bandwidth w for all countries and periods. One reason is that, with a constant bandwidth it is very easy to visualize whether the variance of the distribution has increased or decreased over time. Given a bandwidth, the density function will have the regular hump (normal) shape when the variance of the distribution is small. As the variance increases, the kernel density function starts displaying peaks and valleys. Hence, a country with a distribution that looks 'normal' is a country with small inequalities, and a country with a weird distribution (with many peaks and valleys) is a country with large income inequalities.

³ Saudi Arabia, despite being important enough to be a member of the G20, is excluded from our analysis due to unavailability of both PPP-adjusted per capita GDP and data on income shares. Therefore, we have 18 of the 19 countries in the G20 in our sample.

The average sd for the United States between 1970 and 1998 is close to 0.9, the average Chinese sd is 0.6 (although it has increased substantially over time) and the average Indian sd is 0.5. For many European countries the average sd is close to 0.6. We settle on $sd=0.6$, which means that the bandwidth we use to estimate the gaussian kernel density function is 0.35. We evaluate the density function at 100 different points so that each country's distribution is decomposed into 100 centiles.

Once the kernel density function is estimated, we normalize it (so the total area under it equals to one) and we multiply by the population to get the number of people associated with each of the 100 income "categories" for each year. In a way, what we do is to estimate the incomes of a 100 centiles for each country and each year between 1970 and 1998.

Figure 1 displays the results for the 18 G20 countries (there are 19 countries in the G20 group, but the Summers-Heston data set does not report any GDP data for Saudi Arabia, so we exclude this country from our analysis). The figures also plot two vertical lines, which correspond to the World Bank's official poverty lines: the one-dollar-a-day (\$1/day) line and the two-dollar-a-day (\$2/day) line.⁴ Since the World Bank defines "absolute poverty" in 1985 values and the Summers and Heston data that we are using are reported in 1996 dollars, the annual incomes that define the \$1/day and \$2/day poverty in our data set are \$532 and \$1064 respectively.

As an example, let's us focus our attention to the Chinese distribution (reported in Figure 1v). The distribution for 1970 is hump-shaped with a mode \$898. About one-third of the function lies to the left of the \$1/day poverty line (which means that about one-third of the Chinese citizens in 1970 lived in absolute poverty) and close to three-quarters of the distribution lies to the left of the \$2/day line. We see that the whole density function "shifts" to the right over time, which reflects the fact that Chinese incomes are growing. The incomes of the richest Chinese increases substantially (the upper tail of the distribution shifts rightwards significantly). The incomes of the poor also experience significant improvements. By 1998, the distribution has a mode at \$2,000 and it appears

⁴ Ravallion et al. (1991) define poverty in terms of consumption rather than income. More on this later.

that a local maximum starts to arise at \$4,900. The fraction of the distribution below the one-dollar line is now less than 3% and the fraction below the two-dollar line is less than one-fifth. An interesting feature to notice is that the distribution seems to be more “dispersed” in 1998 than it was in 1970 or 1980. This reflects the well-documented increase in income inequality within China. In sum, over the last twenty years, the incomes of the Chinese have grown, poverty rates have been reduced dramatically and income inequalities within the most populous nation in the world have increased.

The rest of the panels in Figure 1 report display the evolution of the distribution functions for each of countries over time. It is interesting to point out that for countries like Australia, Canada, France, Germany, Japan, Mexico and Turkey, the bottom 20% of the population seems to lag behind in 1970. By 1998, this segment of the population seems to have caught up with the rest of the distribution. That is, for these countries, the “hole” between the bottom quintile and the rest of the population seems to have “filled up” over the last 30 years.

D.- Step 4. Integrating over Countries to Construct the G20 Income Distribution.

We have now assigned a level of income to each individual in a country for every year between 1970 and 1998. We can use these individual income numbers to estimate a gaussian kernel density function that proxies for the world distribution of individual income.

Previous researchers have used kernel densities to estimate world income distributions. For example, Quah (1996, 1997), Jones (1997), and Kremer, Onatski and Stock (2001) estimate it by assuming that each country is one data point (and the concept of income is per capita GDP). Instead, we use the individual incomes estimated in the previous section. Thus, our unit of analysis is not a country but a person.

Figure 2 reports the estimates of the density functions for 1970, 1980, 1990 and 1998.⁵ To see how the G20 distribution is constructed from the individual country functions, we also plot the distributions for the individual countries in the G20 in the

⁵ As mentioned earlier, the bandwidth used is 0.35.

same graph. Finally, the same figure reports the World Income Distribution as estimated by Sala-i-Martin (2002).

3. Analysis of the Distribution of Income for G20 Countries

We start our analysis with Figure 2.i, which displays our 1970 estimates. Since we have computed it so that the area under the distribution is proportional to the country's population, the "tallest" distribution corresponds to China, followed by India and the United States. These individual distributions correspond exactly to the ones reported in Figure 1. In the earlier figure, each panel reported a single country for various years whereas now we report all the countries together for a single year.

The world distribution of income is the aggregate of all the individual country density functions. The G20 distribution is the aggregate of all countries in the G20. We notice that the World Distribution and the G20 Distribution are quite similar. The reason is that the G20 account for 63 % of the world's population. The modes of both the G20 and the World distributions in 1970 occur at \$900, below the two-dollar poverty line. About one half of the area under the G20 distribution lies to the left of the two-dollar line and almost one fifth-lays below the one-dollar line. The fraction of the G20 and world population living in poverty in 1970 was, therefore, staggering!⁶ The distribution seems to have a local maximum at \$8,700, which mainly captures the larger levels of income of the United States, Japan, and Europe. Russia seems to be somewhere in between.

The picture for 1980 (Figure 2.ii) is very similar to that of 1970. The maximum is slightly higher at \$1,022, still very close to the two-dollar line, and the local maximum of the rich is now at \$10,100 which suggest that the world was slightly richer in 1980 than in 1970, but the picture looks basically identical.

Things start changing in the 1980s and 1990s (Figure 2.iii and 2.iv correspond to 1990 and 1998 respectively). The distributions for 1970 and 1980 look very similar, but the whole density function for 1990 have moved appreciably to the right, and more so by

⁶ While the poverty estimates for 1970 by are indeed staggering, they are of an order of magnitude consistent with other estimates, as demonstrated in Sala-i-Martin (2002).

1998.⁷ We notice that as China, India, Indonesia start growing (their individual distributions shift to the right), the lower part of the world distribution (which contains most of the people in the 1970s and 1980s) also shifts rightward. Within countries, we see that, while the Indian distribution retains the same shape, the Chinese density function becomes flatter and more dispersed. This reflects the fact that Indian inequality has not increased as dramatically over this period as China's. The fraction of the G-20 distribution of income to the left of the two poverty lines declines dramatically. By 1998, less than one-fifth lies below the two-dollar line (down from over 43% in 1970!!) and around 1 % lies below the one-dollar line (down from 16% in 1970). The G20, therefore, has had an unambiguous success in the war against poverty rates during the last three decades.⁸

Figure 3 puts the G20 distributions for the four years in the same graph. This allows us to see its evolution more easily. We see that the distribution is shifting to the right on average, which means that the average citizen of the G20 is richer or that the mean growth rates have been positive. We also see that the top of the distribution also shifts to the right, which means that the *"rich get richer"*. It is interesting to see that the bottom of the distribution shifts even more to the right. This means that the poor have benefited from the growth process more than the rich, so that *"the poor also get richer"*. The bottom of the G20 distribution appears to shift even more to the right, but whether the poor have in fact gained relatively more than the rich is a question to which we return with some summary quantitative measures in section 5.

⁷ The policy interest in this is, of course, what happened around the late 70s or early 80s to make things change? One partial answer is Chinese reforms, first agricultural and then trade (see for example David Dollar, p 12 in the RBA/Treasury Conference Volume <http://www.rba.gov.au/PublicationsAndResearch/Conferences/2002/index.html>) Another more general answer is that many populous developing countries (not just China and then India) started to take advantage of the rapid growth in global trade in manufactures:

http://publications.worldbank.org/ecommerce/catalog/product?item_id=370788

⁸ Progress against poverty in the G-20 actually accelerated through the 1980s and 1990s. It is interesting to note that the upsurge in "anti-globalization" protests in recent years actually coincided with faster progress against poverty and an accelerating decline in inter-country and global inequality.

Finally, the middle of the distribution experiences substantial improvement: what used to be an “empty area” around \$9,000 is now filled up by the top of the Chinese, Indian and Russian distributions. In fact, the G20 distribution for 1998 exhibits three local modes: one at \$1,950, one at \$5,400 and the last one at \$19,000.

4. Poverty Rates and Headcounts

Once the income distributions have been estimated, we can compute the fraction of the overall population that earns incomes below particular levels. In particular, one can estimate the fraction of G20 population that earns incomes below the \$1/day that is defined to be the “absolute poverty line” or the \$2/day line, which is usually called the “poverty line”. Figure 4.i reports the estimates of these two poverty rates for the G20. We see that the fraction of the G20 population with income below \$1/day has fallen from 15% to 1%. The fraction below 2\$/day has fallen from 43% to 12%.

The total amount of people with income levels below the poverty lines have also declined dramatically: the number of G20 citizens living with incomes below \$2/day has declined from 1.1 billion in 1970 to 450 million in 1998. As far as the number of people with less than one dollar a day has decreased from 380 million to 40 million in 1998.⁹

Our estimates of the poverty rates are substantially lower than those reported by the World Bank (see for example, Ravallion and Chen (1997).) There are two reasons for these discrepancies. First, we compute the fraction of the population that earn INCOMES below \$1/day whereas the World Bank tends to report consumption. To the extent that consumption tends to be a fraction of income, the total amount of people that earn less than one dollar is smaller than the fraction that consumes less than one dollar a day. Although it is not clear that consumption estimates are better (for example, consumption does not take into account the public spending that substitutes for private consumption expenditures such as schooling, hospitals, roads or other public services), Sala-i-Martin

⁹ The fall in poverty numbers from 1970 to 1998 were notwithstanding a growth in G-20 population of 1,277 million over that period, mostly in the poorer countries (China, India and Indonesia together contributed 939 million, or 74 %, of the total increase).

(2002) checks the potential size of this bias. He uses the methodology used in the present paper to estimate “consumption” poverty rates and he shows that the rates would triple. Thus, the consumption poverty adjustment for G20 for change the 1990 rates from 4% to 12% and the 1998 rates would increase from 1% to 3% (and the overall number of poor would increase from 40 million to 120 million).

A second important difference between our estimates and those of the World Bank is that we scale individual income shares by GDP or Consumption as reported by the National Accounts whereas the World Bank adjusts by the average consumption reported by the surveys. It is well known that surveys tend to underestimate true consumption since people tend to underreport their consumption (or income). Bhalla (2002) estimates that the ratio of the mean consumption of the surveys to National Account consumption is as low as 0.73. If we divide our estimated poverty rates by 0.73 we would get that our consumption poverty rates for \$1/day would be 4.11% or 164 million people. With the adjustments, the \$2/day poverty rate in 1998 would be 49% or 1.8 billion.

For those readers who want to chose their favorite poverty lines, Figure 4.iii reports the Cumulative Distributive Functions (CDF) corresponding to the distributions in Figure 3.i. The CDF is useful because the image tells us the fraction of the distribution that lies below any given point. Thus, the reader can pick and choose his or her favorite poverty line and the image of that line on the CDF tells the fraction of the population living below that particular line. Notice that, no matter what poverty line one chooses to pick, the poverty rates in G20 have been falling dramatically.

5. Income Inequality Among Individuals in the G20 Group

The next step is to use the distributions estimated in Section 3 to analyze the evolution of various inequality measures (see Cowell, 1995, or Sala-i-Martin, 2002, for the exact formulae used in computing the indexes). The inequality indexes provide a quantitative measure of the dispersion of individual incomes in the G20 countries.

Figure 5.i. displays the estimate of the popular Gini coefficient for the G20 countries. We find that the income inequality measured by the Gini coefficient has declined by around 8 % in 1970-98. The across-country Gini, which assumes that all

individuals in a country have the same per capita income and therefore does not take into account within-country differences in incomes, follows a very similar pattern to the overall Gini, though the decline in the across-country Gini is distinctly larger during the 1990s.

Three other “non-decomposable” measures of income inequality are shown in Figures 5.ii – 5.iv.¹⁰ The variance of logarithmic incomes (or varlog) in the G20 shows a small increase during the 1970s, but decreases substantially in the next two decades by over 22%. A similar but more marked downward trend is observed for the across-country component in the 1980s and 1990s. The two Atkinson indices $A(0.5)$ and $A(1)$, with a coefficient of inequality aversion of 0.5 and 1 respectively, also confirm the declines in overall dispersion and across-country dispersion of individual incomes during the last two decades.

The G20 “global” inequality measures demonstrate that large gains have been made in reducing income disparities *across people* in the G20 group of countries, particularly in the 1980s and 1990s. When we compare the G20 “global” and across country inequality measures, the reductions in across-country dispersion seem to follow a very similar trend to the G20 global, but the decline is greater in magnitude during the 1980s and 1990s. This has been largely due to the high growth rates achieved by the two most populous members of the G20, China and India, relative to the other G20 member countries following economic reforms and financial liberalization measures. While PPP-adjusted per capita income grew at an annual average of 6 % in China and by 3.9% in India in 1980-98, the mean annual income in the rest 16 G20 member countries (excluding Saudi Arabia) grew at only 1.7% per annum.

In order to precisely measure the relative contribution of across-country and within-country components in the decline in income dispersion across individuals the G20 countries, we use “decomposable” inequality indices. Inequality indices belonging to the Generalized Entropy Index (GEI) class are decomposable into across-country and within-country components.

¹⁰ Non-decomposable means that the overall inequality cannot be decomposed as a sum of across-country and within-country components. The Gini coefficient, variance of log incomes (VarLog) and the Atkinson class of indices belong to this class of measures.

Three popular GEI inequality indices are shown in Figures 6.i – 6. iii. In addition to the “global” and across-country dispersion of individual incomes, there is now a third curve representing the within-country component of the aggregate dispersion (The sum of the within and across components adds up to the overall dispersion). The three decomposable measures are the Mean Logarithmic Deviation (or GEI(0)), the Theil Index (or GEI(1)) and the Coefficient of Variation (CV) Square (or GEI(2)). All three measures appear to follow very similar trends during 1970-98.

Our first finding on examining the within and across country components of the three decomposable indices is that the within-country component is a relatively small fraction of the total dispersion. For the Mean Logarithmic Deviation (MLD), only 19% of the G20 differences in incomes could be explained by within country inequalities in 1970. The share of within country component rose over time, but was still only 35% in 1998. The corresponding fractions for the Theil Index were 24% and 32 %. The bulk of the dispersion of individual incomes in the G20 group is therefore explained by the across-country component.

The second finding is that the pattern of evolution of the overall dispersion and the across-country component look very similar, though there has been a larger decline in the across-country component in the 1990s. While the overall MLD decreased by over 14% in the 1990s, the across-country component of G20 inequality declined by 25% in the same period.

The third interesting finding is that the slight increase in the within country component during this period was not large enough to offset the effect of a reduction in the across-country component. All three GEI indices declined during the sample period – the MLD by 21%, the Theil Index by 15% and the CV Square by 8%. The reduction in the overall dispersion of individual incomes in the G20 group in the last two decades was therefore achieved primarily due to across-country convergence in aggregate per capita incomes among the G20 countries.

It is worth noting that the slight increase in the within country component is 'on average'. Some G-20 members appeared to have experienced narrowing intra-country inequality. While there is considerable variation in the evolution of the income distribution across the G20 member countries, it appears that Indonesia and Korea (from

the developing countries in the G20), and Germany and France (among the developed members of the G20), have had narrowing inequality from 1970 to 1998.

The important lesson we draw from the analysis of the inequality indices is that income disparities across the citizens of the G20 group have declined primarily due to increase in aggregate growth rates in the populous countries of the G20 group. This decline in income disparities among the G20 member countries has taken place during a period where several important and populous developing countries in the G20 have implemented economic and financial liberalization measures, welcomed trade and foreign investment, and have integrated further into the global economy.

6. Conclusions

The G20 members have enjoyed enormous progress against poverty, especially over the last 20 years. That is true even though some members have experienced setbacks from economic crises over that time.

The income distribution diagrams show how it is possible to have much less poverty with some widening (on average) in intra-country inequality, and while overall inequality in the G-20 (and the world) has come down: on average, narrowing inter-country inequality has dominated slightly widening intra-country inequality to produce narrower inequality in the G-20 as a group. But that is on average, not all members have experienced widening intra-country inequality, and some that have, had started from unusually narrow distributions (for example, China and Russia under central planning and state ownership of the means of production). This suggests that starting points, national circumstances and national policies are still powerful influences on inequality.

These complex patterns of changes show us that we should think twice about simplistic characterizations of global economic change 'making the rich, richer, and the poor, poorer'. In fact, the poor in the G-20 (and the broader world) have been getting richer in unprecedented numbers, and beginning slowly to reduce the relative gap with the rich. We need to think more carefully about absolute poverty, relative poverty, inter-country inequality and intra-country inequality. What do we really care about most, and why? What can we change, and how?

The success of the G20 has been remarkable, but success does not mean victory. The number of poor is still embarrassingly large: in 1998, about 450 million people still had an income of less than two dollars a day. And even if the G20 is succeeding, the world at large is losing an important battle: the battle of Africa. In the 1970s, poverty was essentially an Asian phenomenon. It is now mainly an African problem. And, while the most powerful nations of the world can be happy about their performance and their success, they cannot be entirely happy with the state of the planet. The lessons learned in the G20 countries need to be applied to Africa. And they need to be applied fast.

Figures

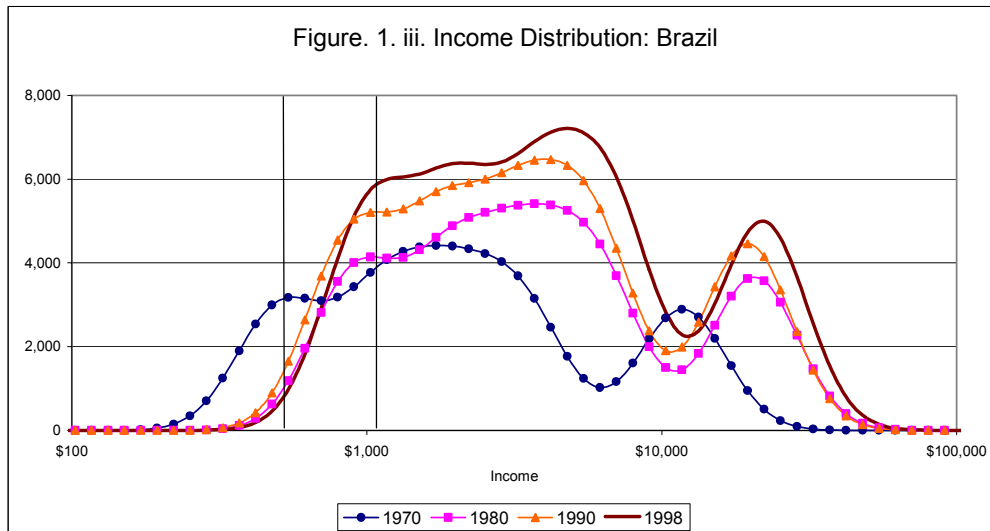
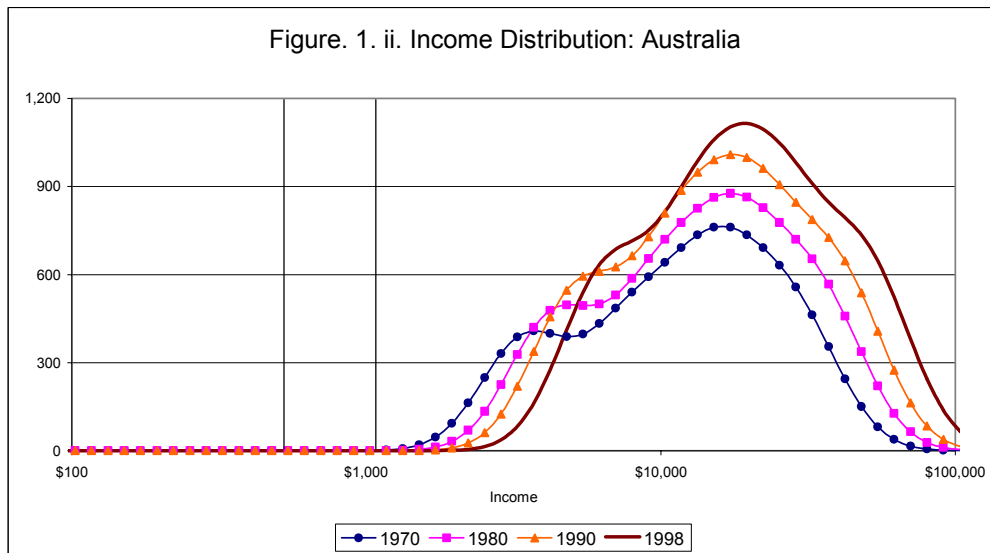
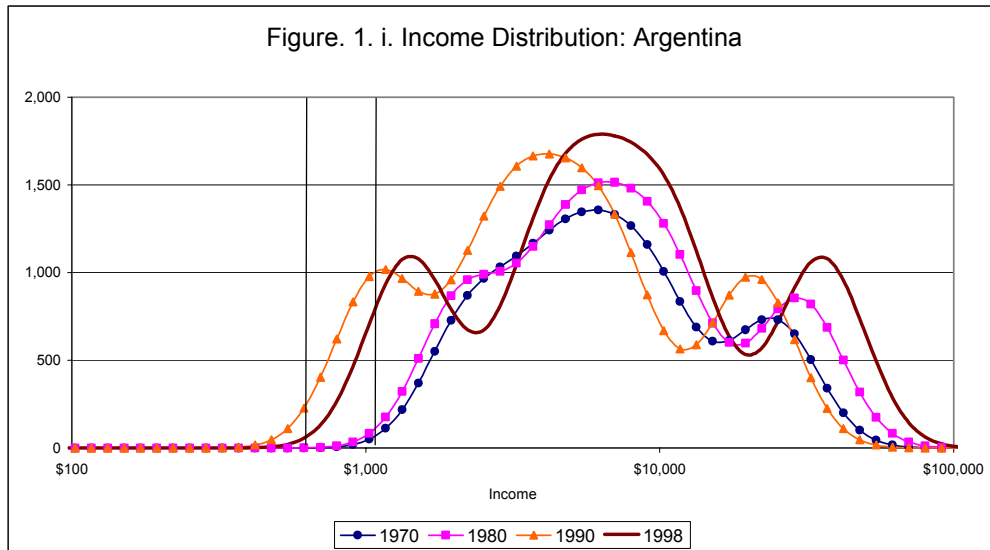


Figure. 1. iv. Income Distribution: Canada

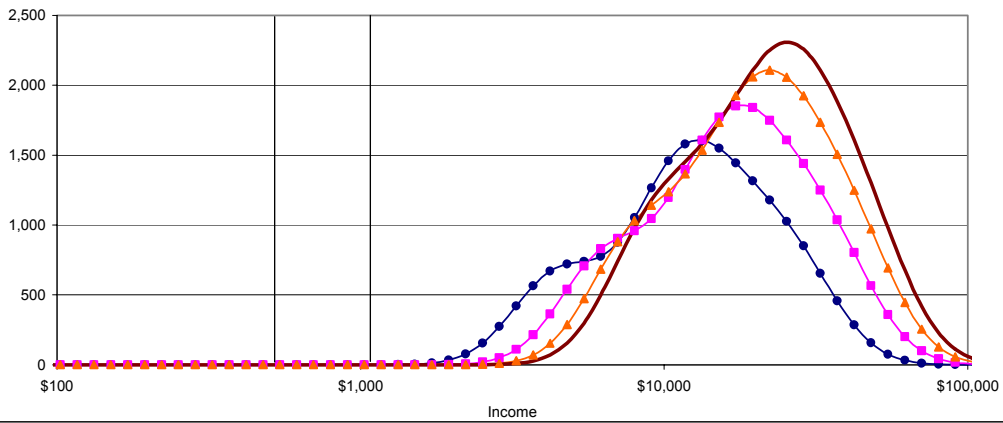


Figure. 1. v. Income Distribution: China

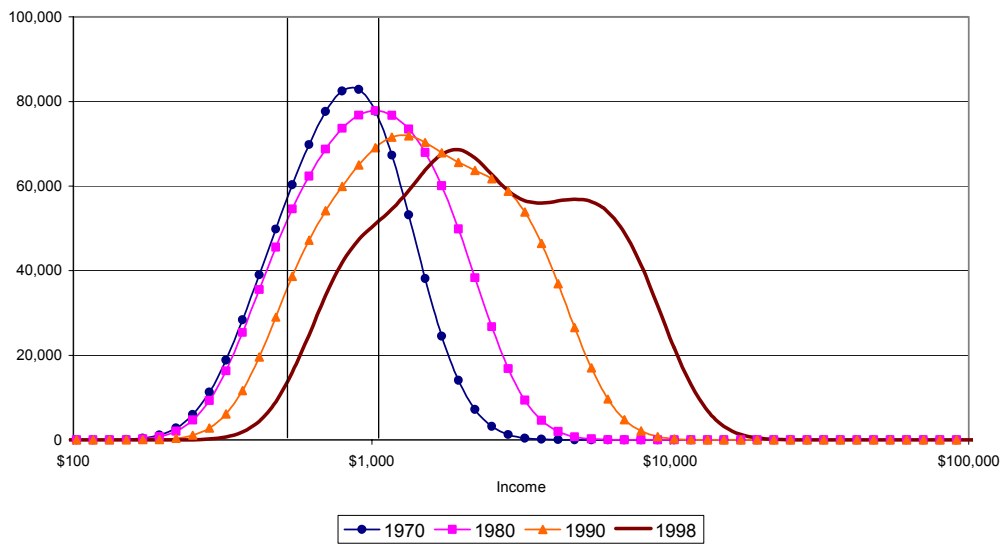
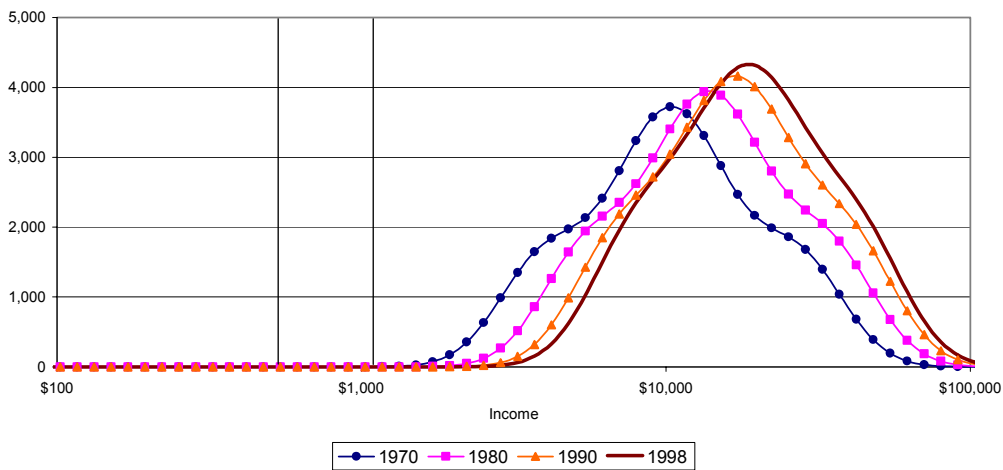


Figure. 1. vi. Income Distribution: France



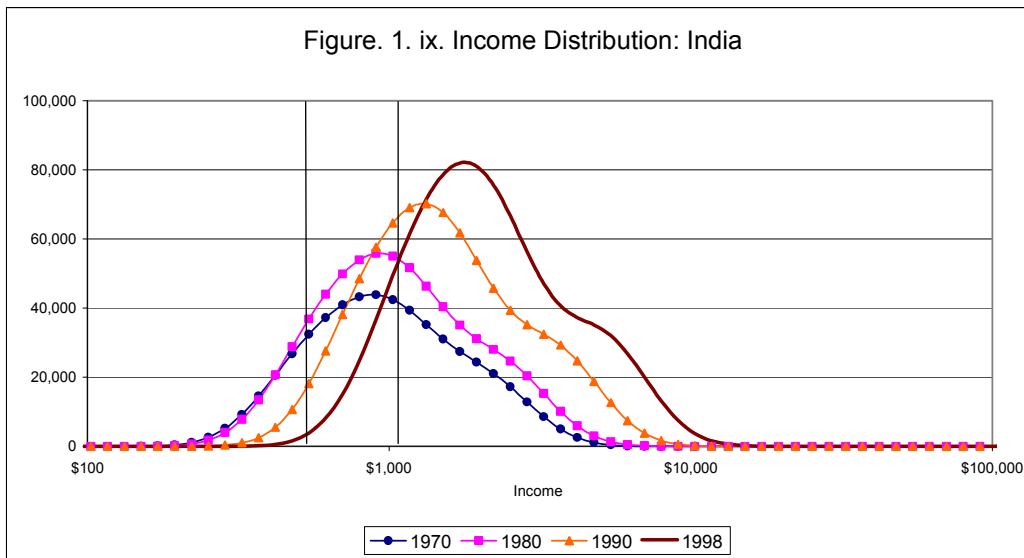
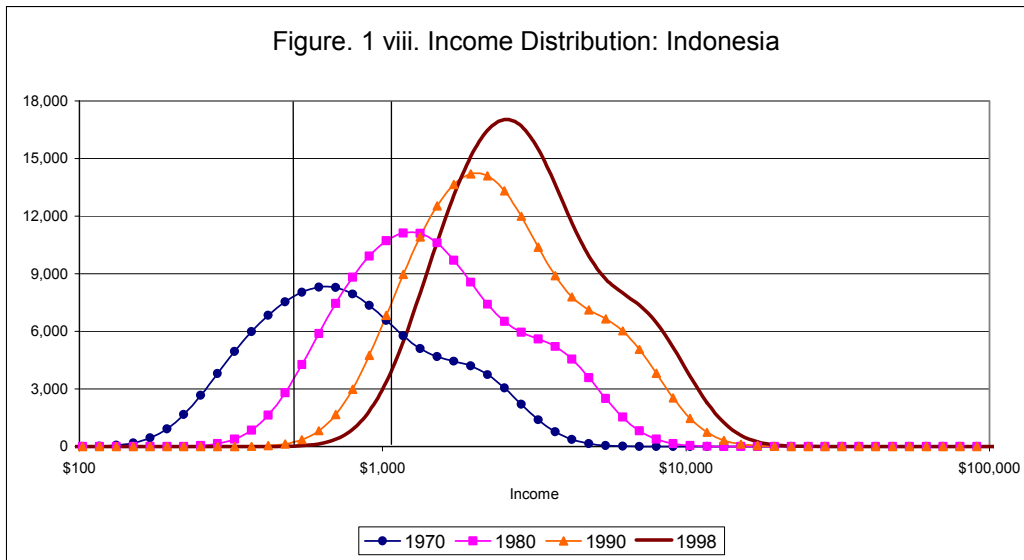
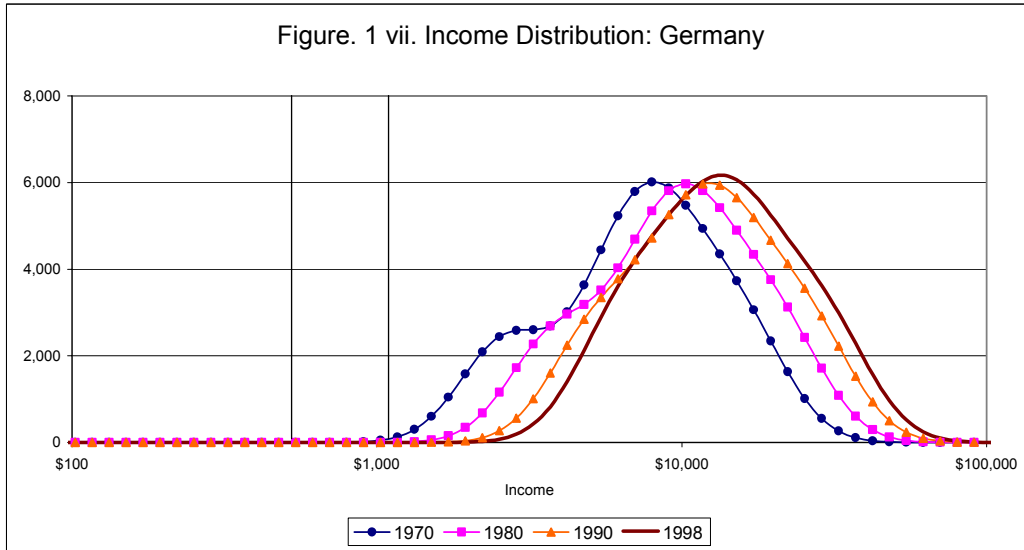


Figure 1. x. Income Distribution: Italy

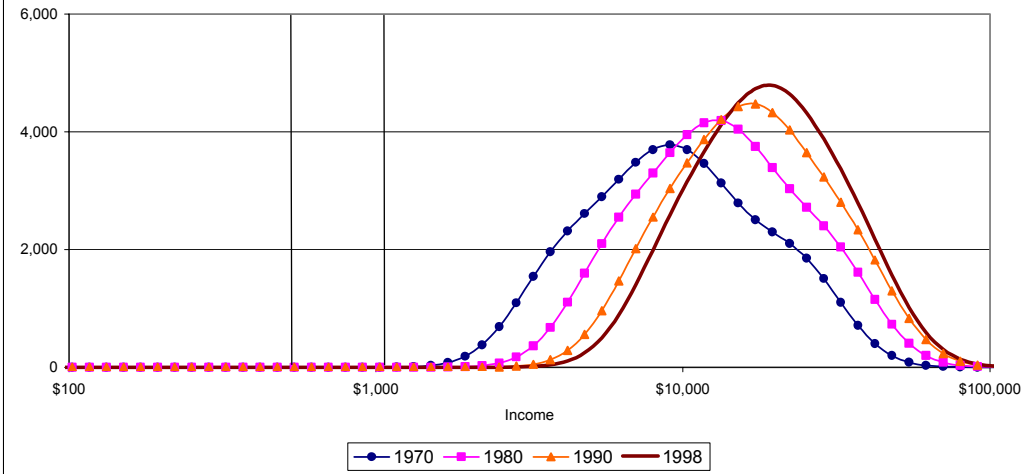


Figure 1. xi. Income Distribution: Japan

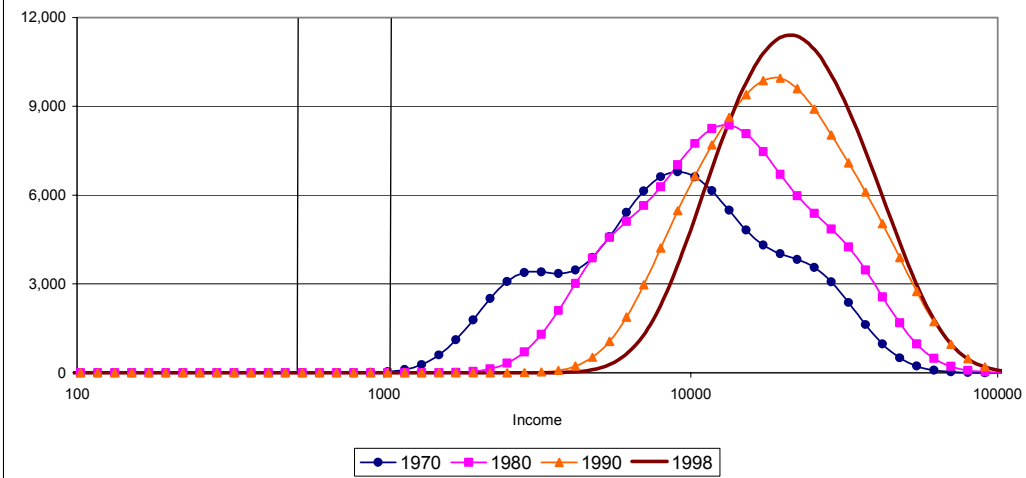
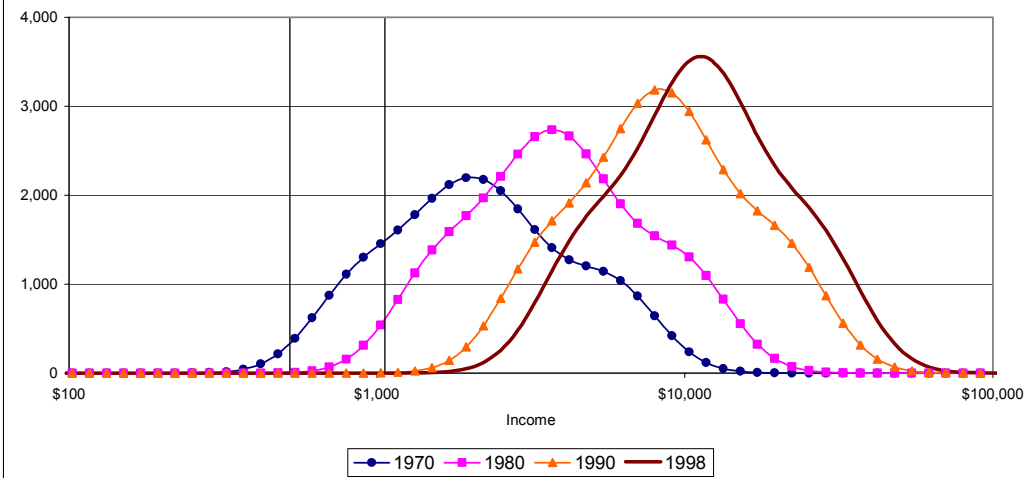


Figure 1. xii. Income Distribution: Korea, Rep.



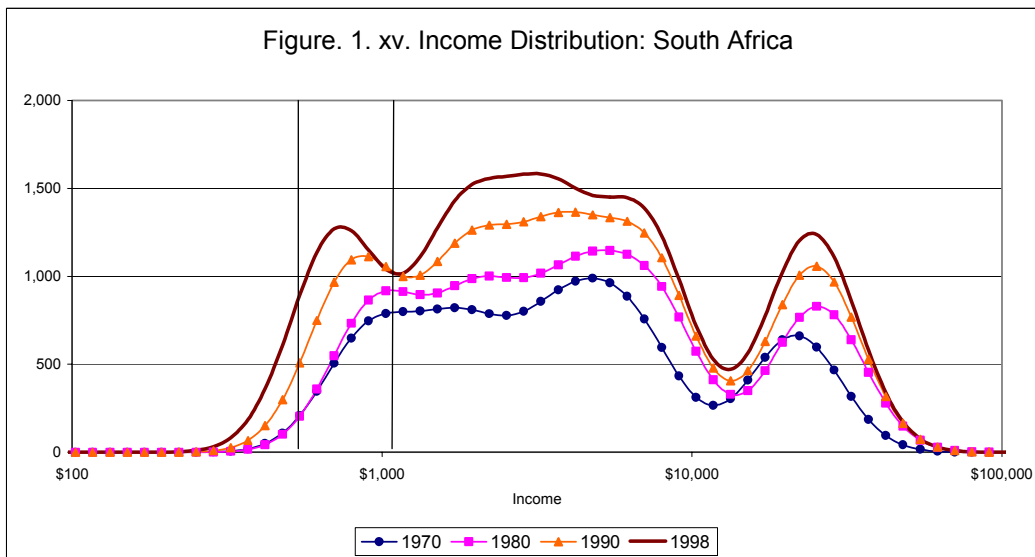
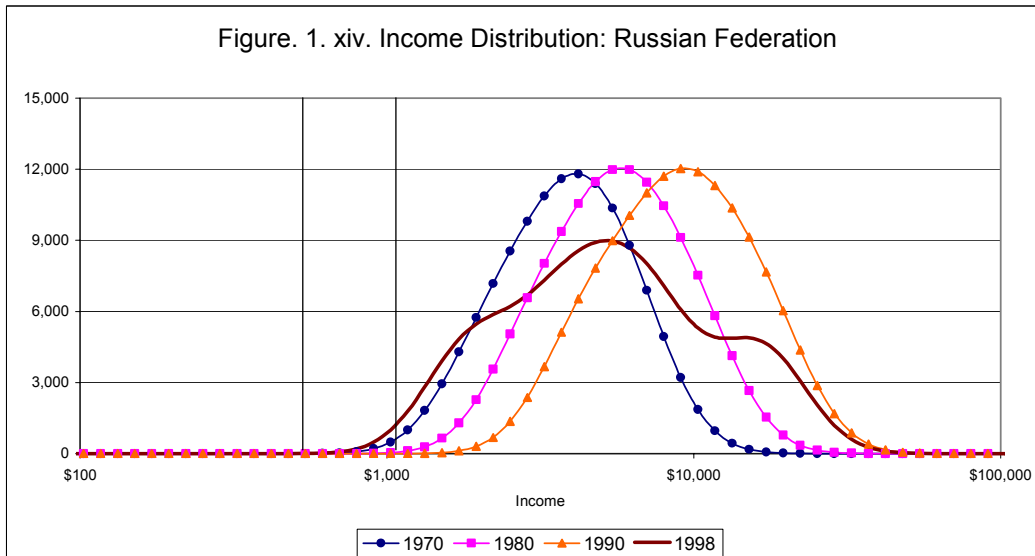
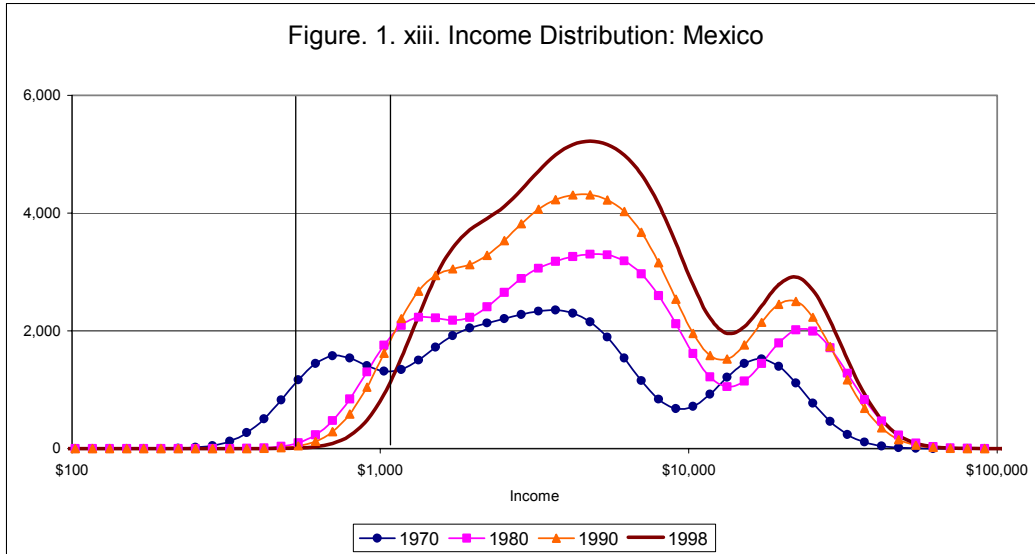


Figure. 1. xvi. Income Distribution: Turkey

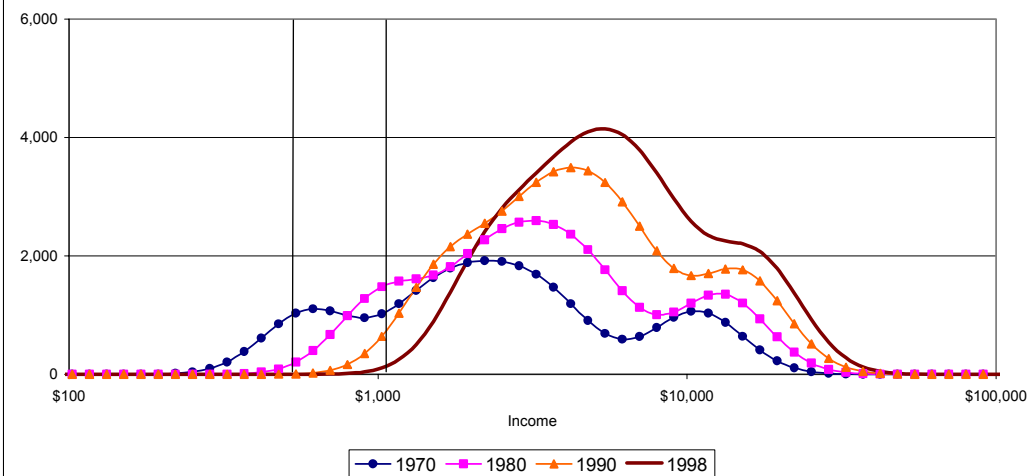


Figure. 1. xvii. Income Distribution: UK

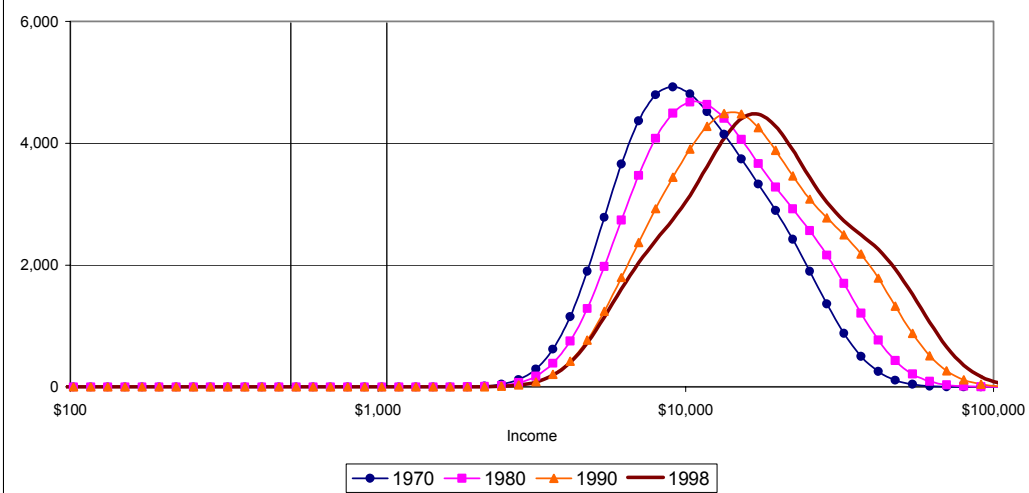


Figure. 1. xviii. Income Distribution: USA

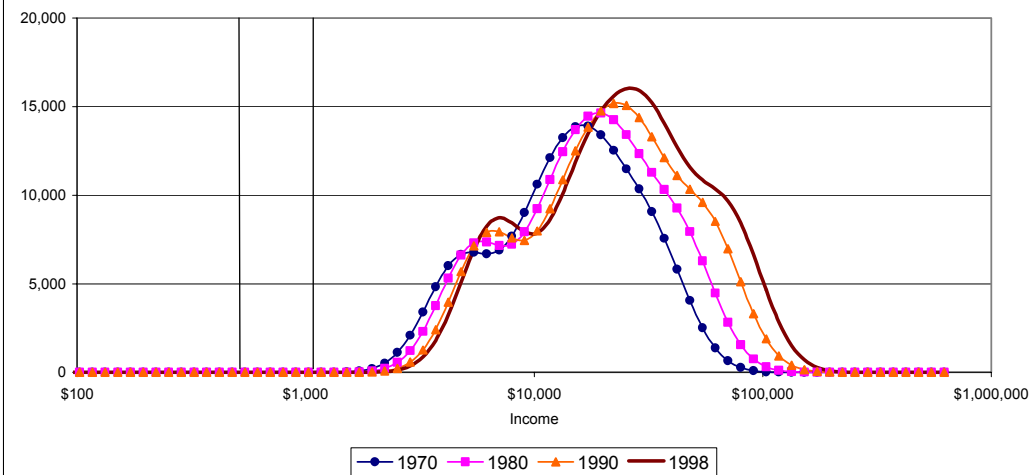


Figure 2. i. G20 and Global Distributions: 1970

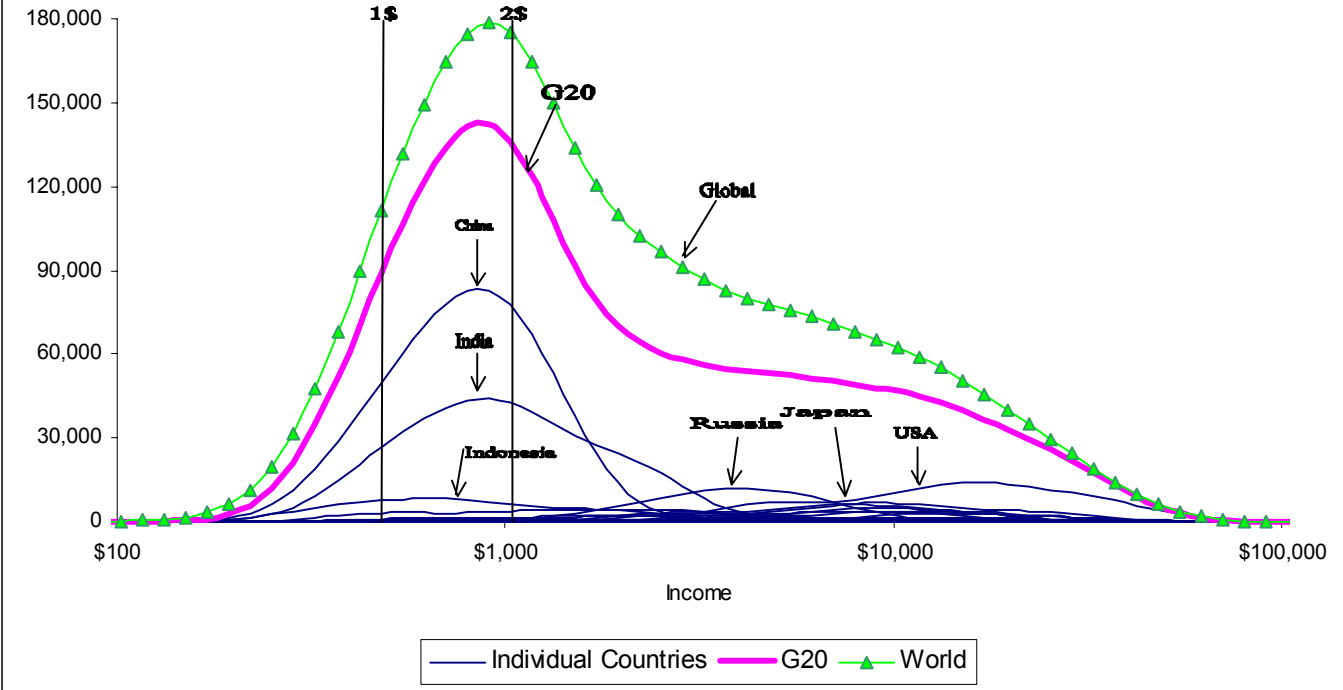


Figure 2. ii. G20 and Global Distributions: 1980

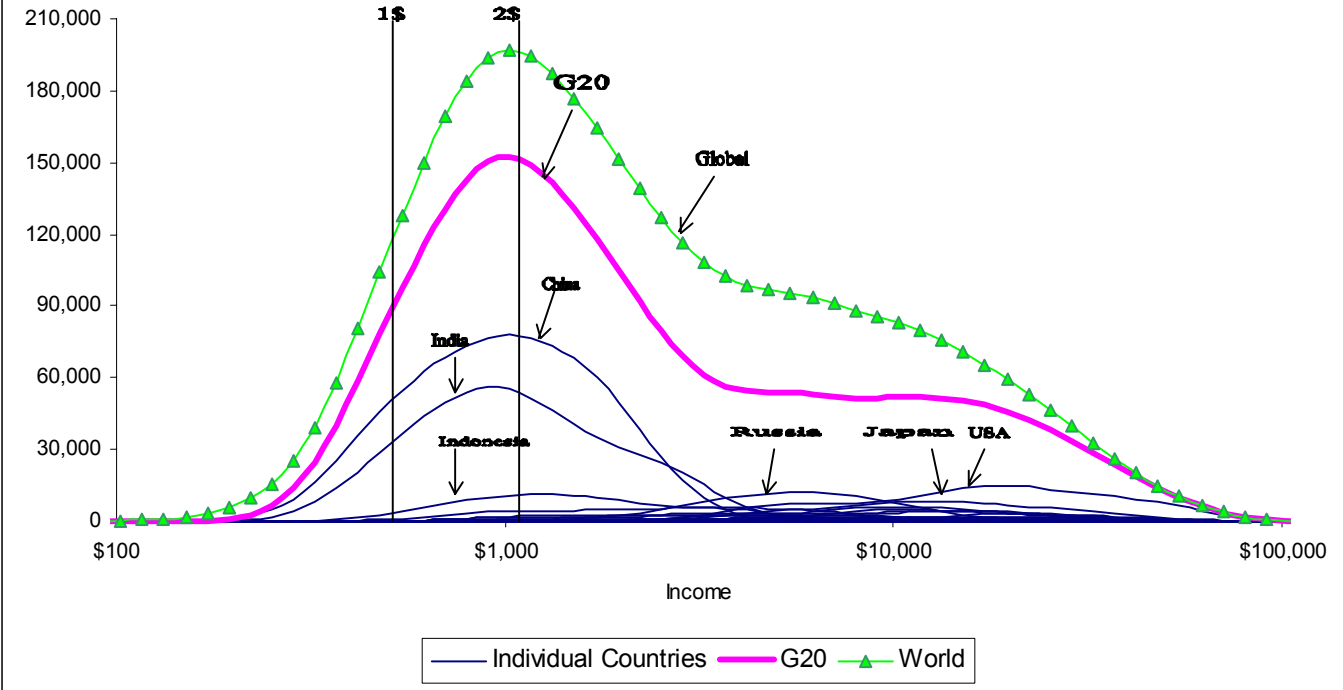


Figure 2. iii. G20 and Global Distributions: 1990

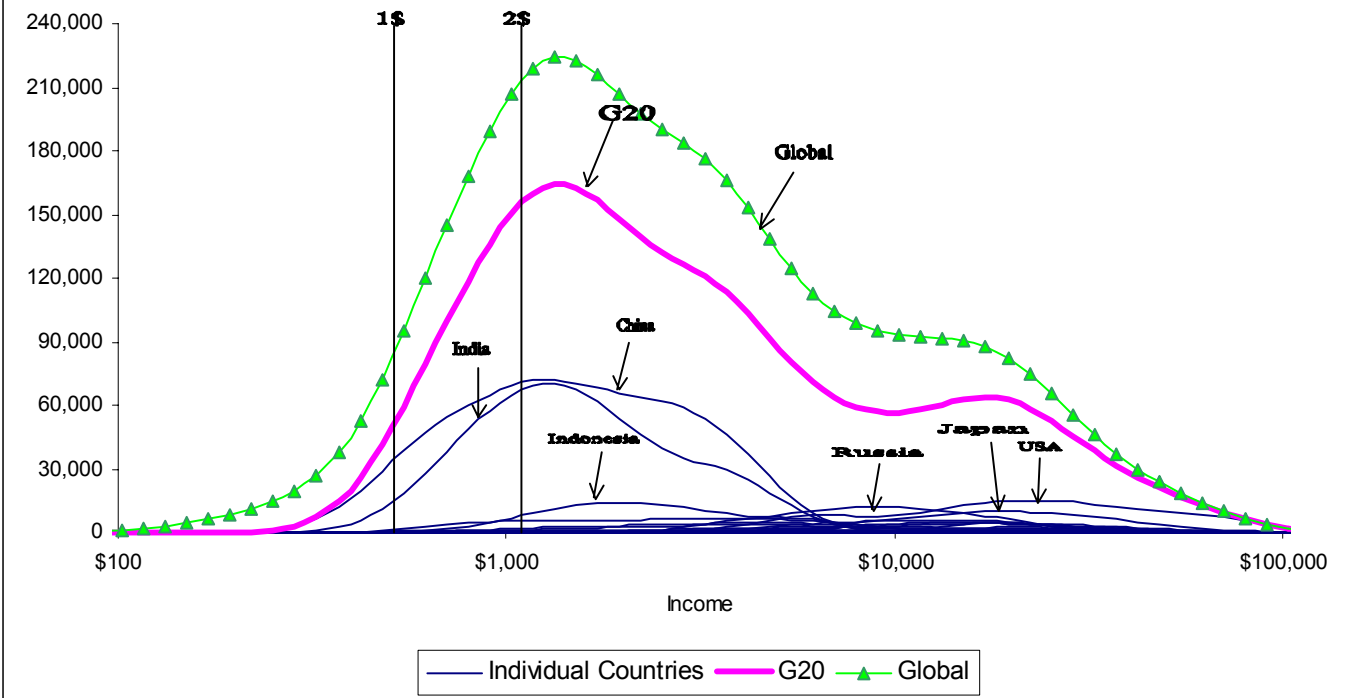
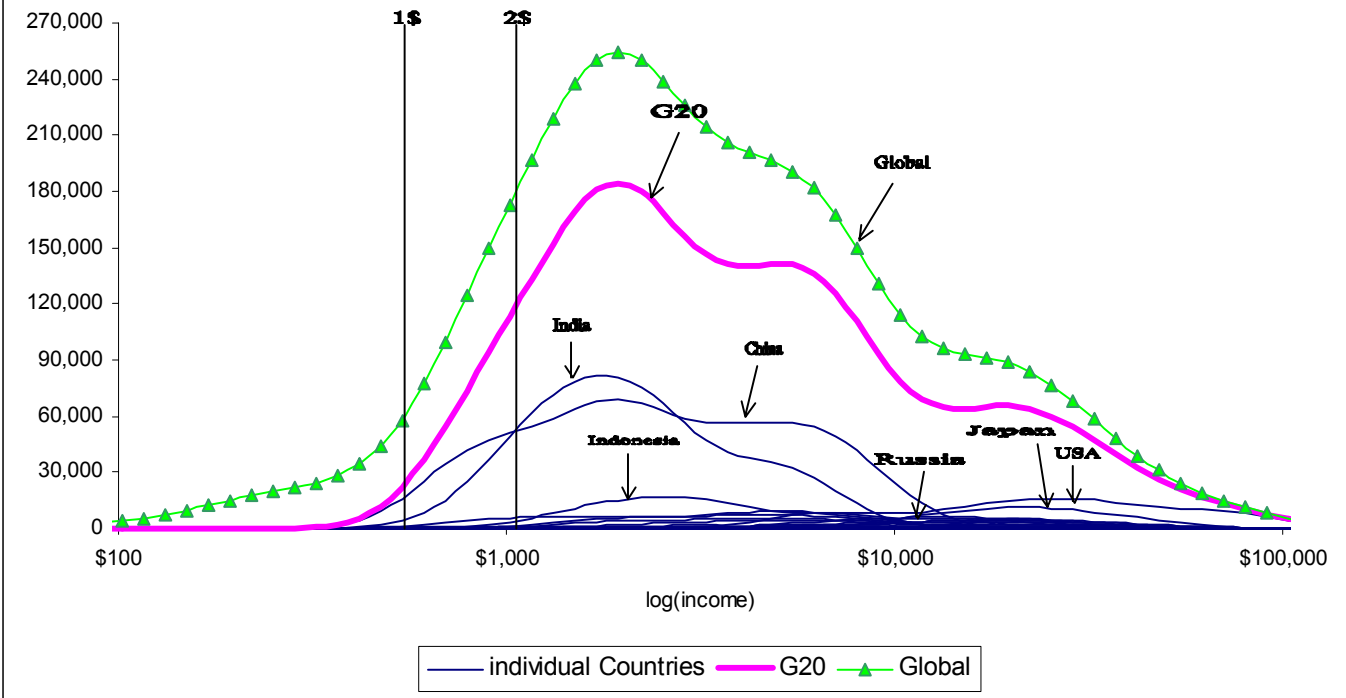


Figure 2. iv. G20 and Global Distributions: 1998



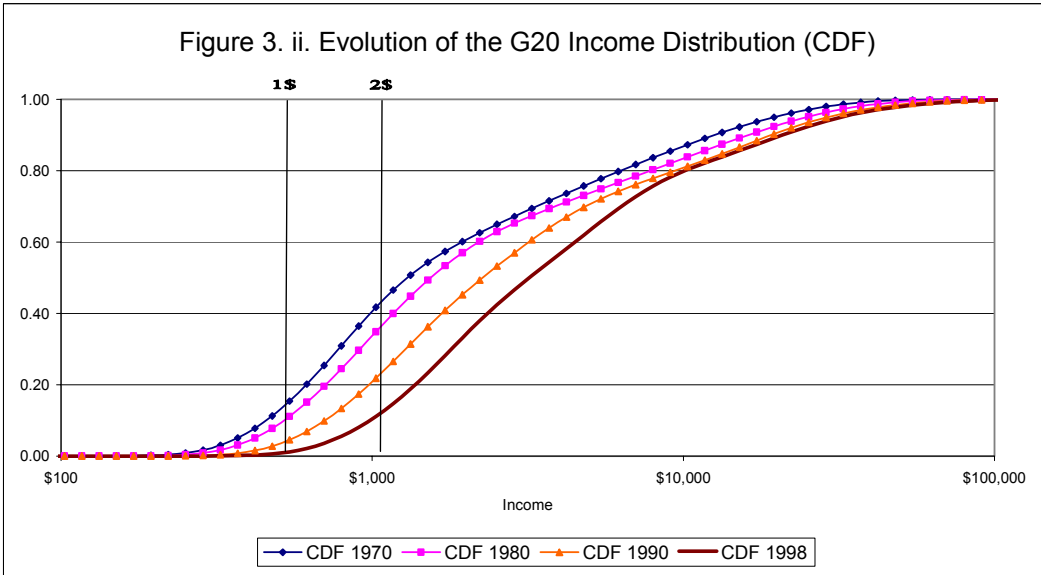
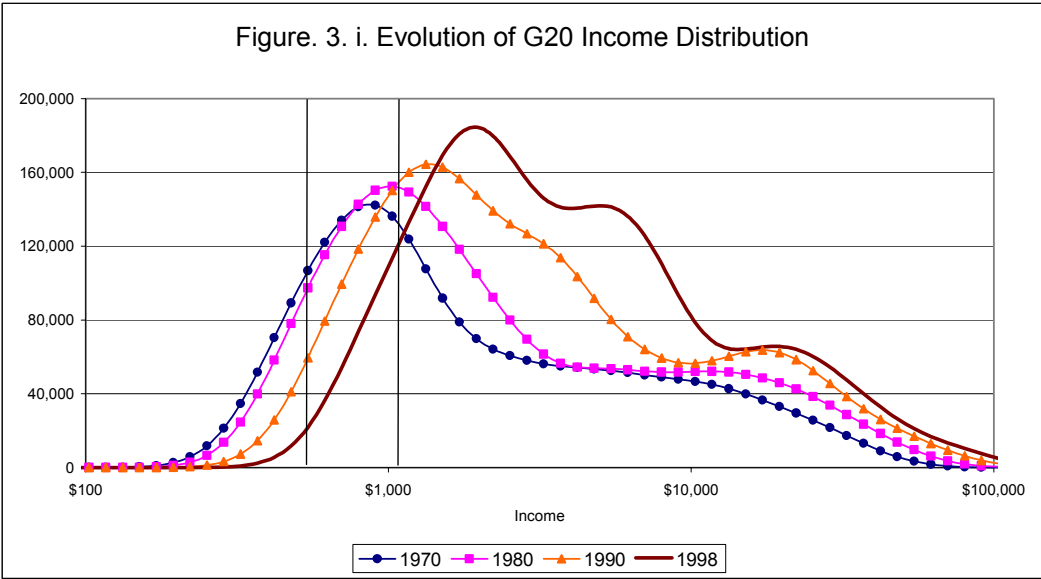


Figure. 4. i. Poverty Rates: G20 Countries

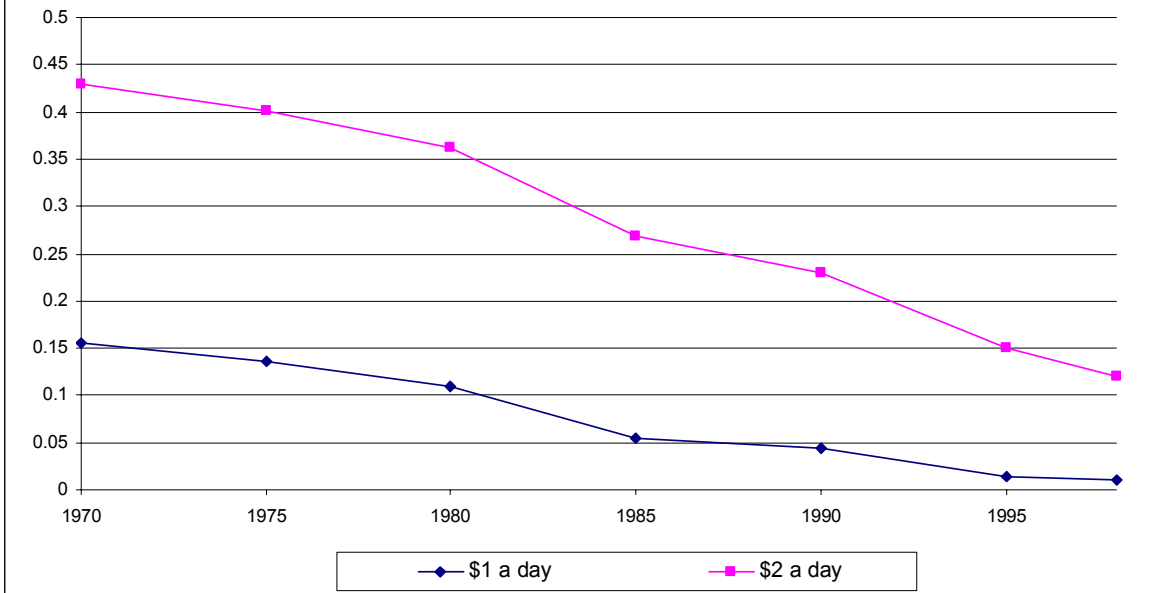


Figure. 4. ii. Poverty Headcounts: G20 Countries

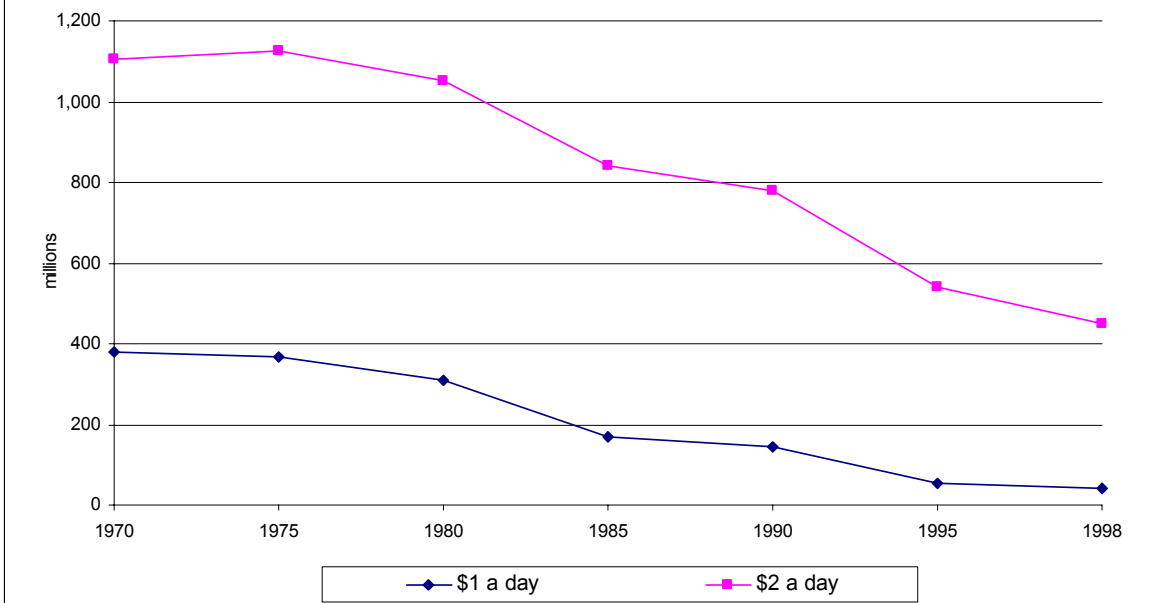


Figure 5. i. G20 Income Inequality : Gini Coefficient

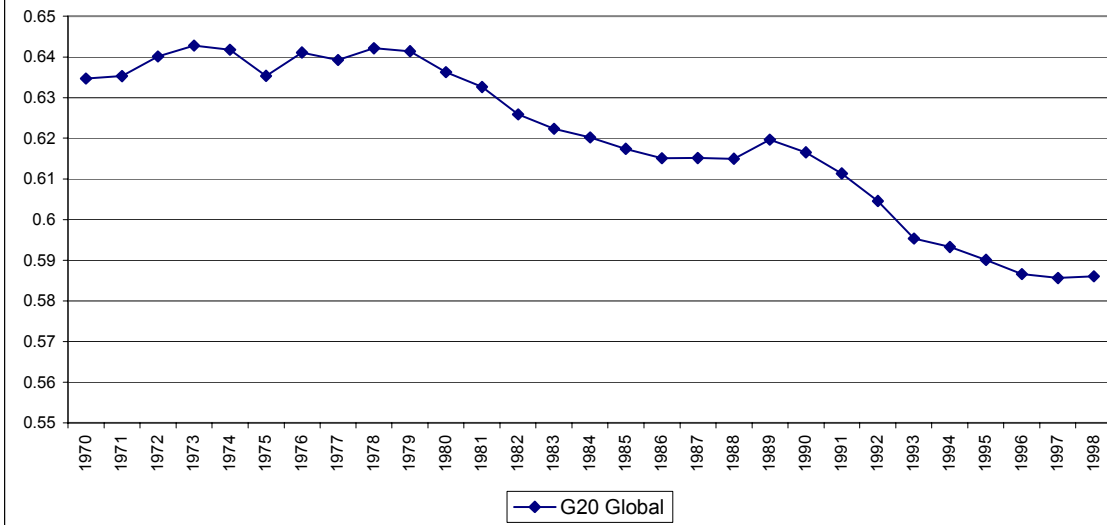


Figure 5.ii. Variance of Log Income for G20

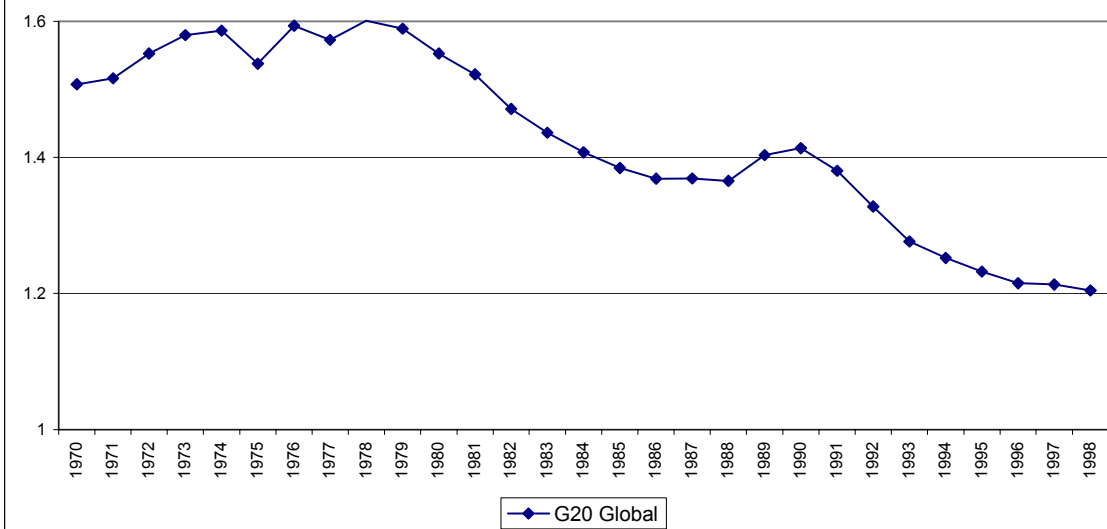


Figure 5. iii. G20 Income Inequality : Atkinson (0.5)

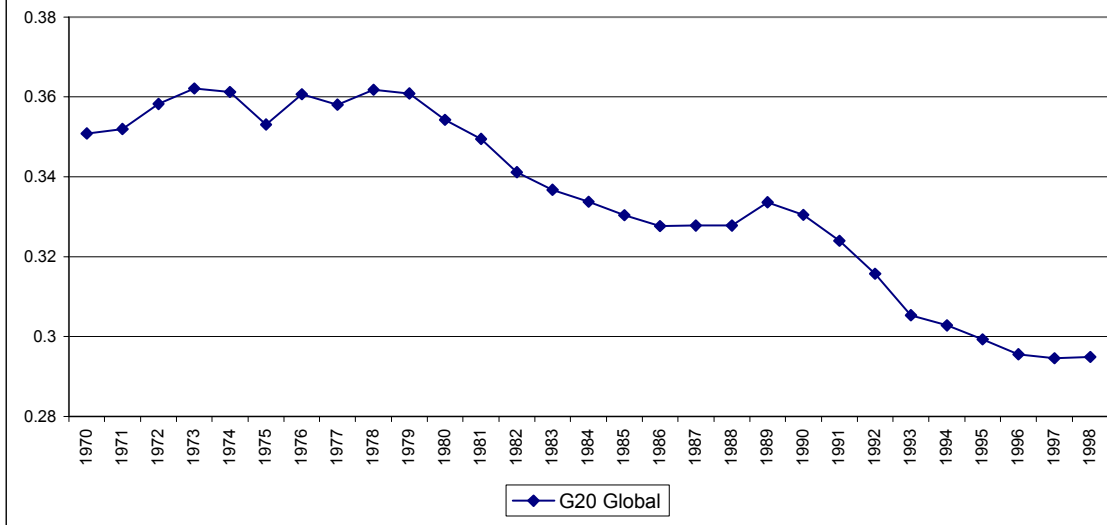


Figure 5. iv. G20 Income Inequality : Atkinson (1)

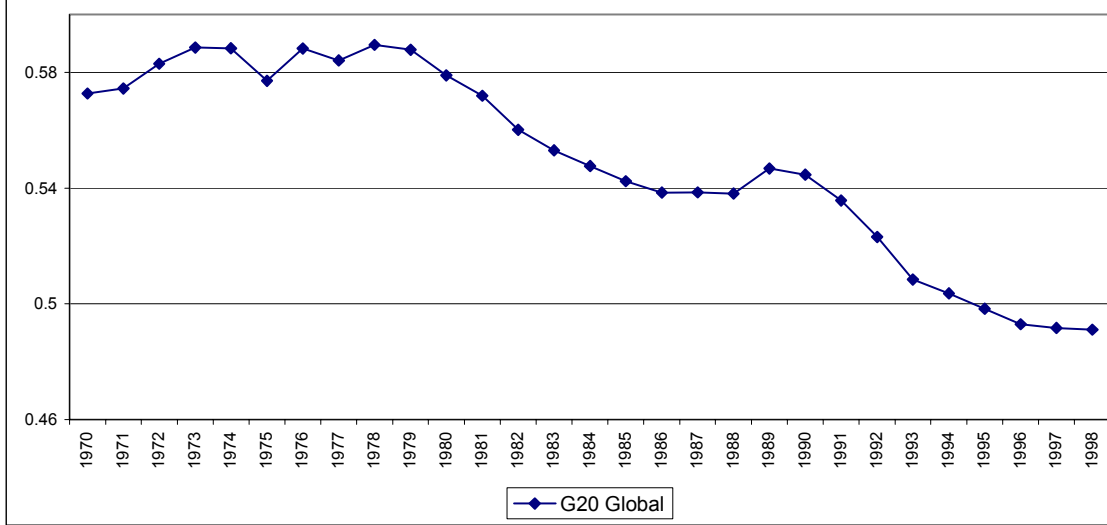


Figure 6. i. Inequality Decomposition for G20: MLD (or GEI(0))

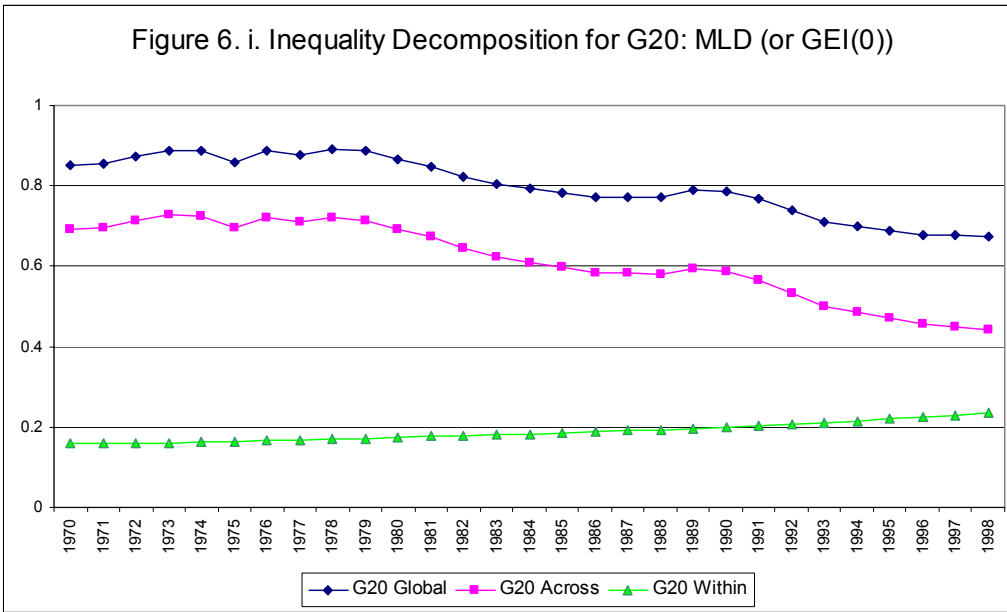


Figure 6. ii. Inequality Decomposition for G20 : Theil Index (or GEI(1))

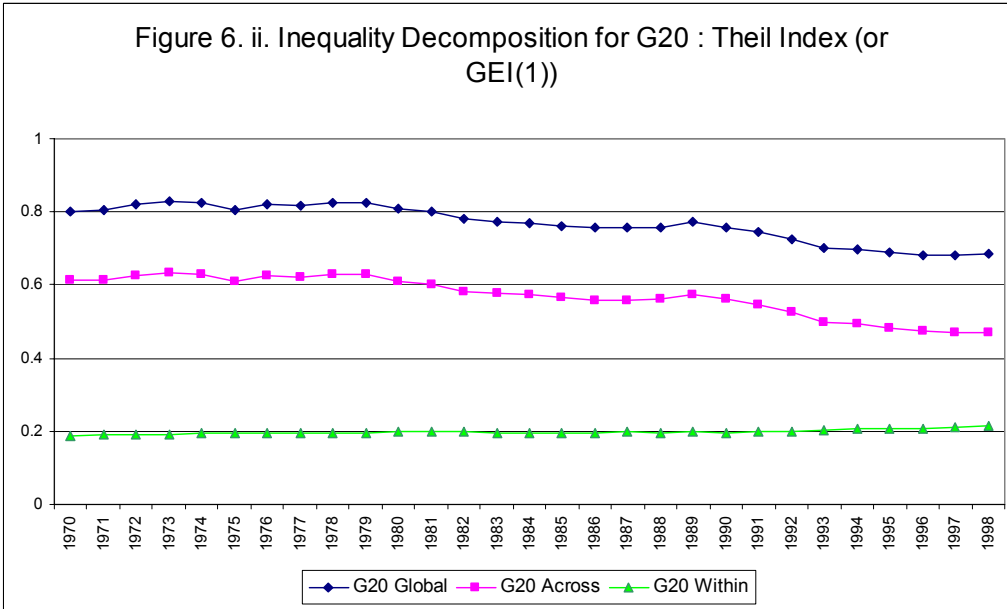
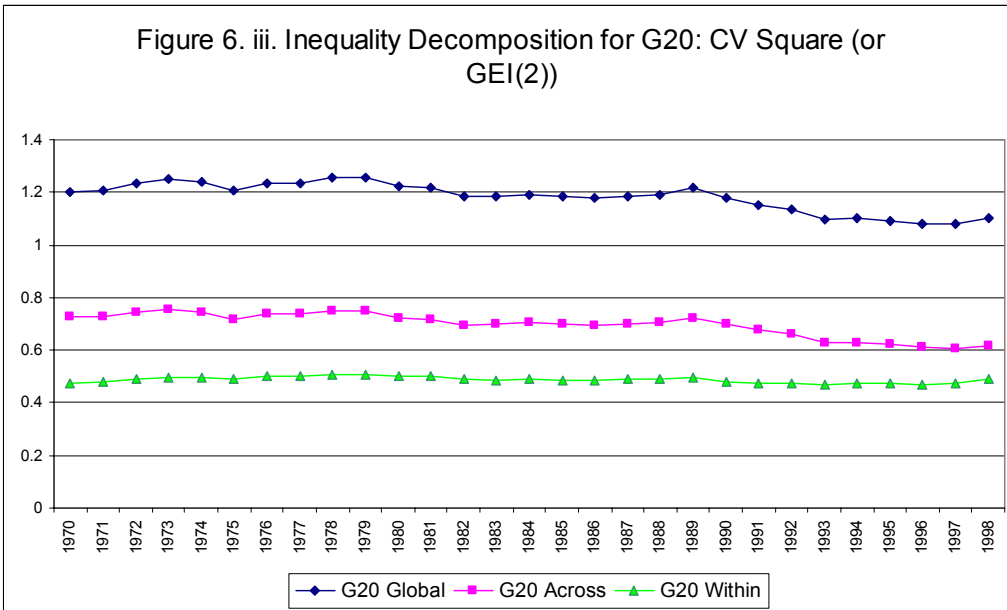


Figure 6. iii. Inequality Decomposition for G20: CV Square (or GEI(2))



Tables

TABLE 1: Poverty in the G20

G20 Poverty Rates		
	\$1 a day	\$2 a day
1970	0.16	0.43
1975	0.14	0.40
1980	0.11	0.36
1985	0.06	0.27
1990	0.04	0.23
1995	0.01	0.15
1998	0.01	0.12

G20 Poverty Counts (mil)		
	\$1 a day	\$2 a day
1970	380	1104
1975	366	1125
1980	308	1053
1985	170	842
1990	144	779
1995	53	538
1998	40	449

TABLE 2: Non-Decomposable Inequality Indexes

YEAR	Gini Coef	Variance of log income	Atkinson A(0.5)	Atkinson A(1)
1970	0.6347	0.4028	0.3508	0.5727
1971	0.6353	0.4036	0.3520	0.5744
1972	0.6401	0.4097	0.3582	0.5830
1973	0.6428	0.4132	0.3621	0.5886
1974	0.6417	0.4118	0.3613	0.5883
1975	0.6354	0.4037	0.3531	0.5770
1976	0.6411	0.4110	0.3607	0.5882
1977	0.6393	0.4086	0.3580	0.5841
1978	0.6422	0.4124	0.3618	0.5896
1979	0.6414	0.4114	0.3609	0.5878
1980	0.6363	0.4049	0.3543	0.5790
1981	0.6326	0.4002	0.3495	0.5720
1982	0.6259	0.3917	0.3412	0.5602
1983	0.6224	0.3873	0.3368	0.5530
1984	0.6202	0.3847	0.3338	0.5477
1985	0.6174	0.3812	0.3304	0.5424
1986	0.6151	0.3783	0.3277	0.5384
1987	0.6152	0.3784	0.3278	0.5385
1988	0.6150	0.3782	0.3278	0.5381
1989	0.6197	0.3840	0.3337	0.5468
1990	0.6165	0.3801	0.3305	0.5447
1991	0.6113	0.3737	0.3240	0.5357
1992	0.6046	0.3655	0.3157	0.5231
1993	0.5954	0.3545	0.3054	0.5084
1994	0.5933	0.3520	0.3028	0.5036
1995	0.5901	0.3482	0.2993	0.4983
1996	0.5866	0.3441	0.2956	0.4930
1997	0.5857	0.3430	0.2946	0.4917
1998	0.5861	0.3435	0.2949	0.4911
Percent Change Since 1978	-0.087	-0.174	-0.194	-0.173

TABLE 3: Decomposable Inequality Indexes

YEAR	MLD or GEI(0)			Theil or GEI(1)			Squared CV or GEI(2)		
	Global	Across	Within	Global	Across	Within	Global	Across	Within
1970	0.850	0.693	0.158	0.801	0.612	0.189	1.203	0.727	0.476
1971	0.854	0.696	0.159	0.804	0.613	0.190	1.208	0.728	0.480
1972	0.875	0.715	0.160	0.819	0.627	0.191	1.236	0.747	0.490
1973	0.888	0.727	0.161	0.827	0.635	0.192	1.250	0.755	0.495
1974	0.888	0.725	0.162	0.824	0.629	0.194	1.239	0.742	0.497
1975	0.860	0.696	0.164	0.805	0.610	0.195	1.208	0.717	0.491
1976	0.887	0.722	0.166	0.822	0.625	0.196	1.236	0.737	0.499
1977	0.877	0.710	0.168	0.817	0.621	0.196	1.236	0.737	0.499
1978	0.891	0.721	0.169	0.826	0.630	0.196	1.257	0.752	0.505
1979	0.886	0.715	0.172	0.825	0.628	0.197	1.256	0.749	0.507
1980	0.865	0.691	0.174	0.809	0.610	0.199	1.226	0.722	0.504
1981	0.849	0.673	0.176	0.799	0.601	0.199	1.217	0.717	0.501
1982	0.821	0.643	0.178	0.780	0.582	0.197	1.184	0.695	0.489
1983	0.805	0.625	0.180	0.772	0.576	0.196	1.183	0.698	0.485
1984	0.793	0.610	0.183	0.768	0.572	0.196	1.192	0.703	0.489
1985	0.782	0.596	0.185	0.761	0.565	0.196	1.187	0.699	0.488
1986	0.773	0.585	0.188	0.756	0.558	0.197	1.181	0.694	0.487
1987	0.773	0.583	0.191	0.757	0.559	0.198	1.187	0.698	0.489
1988	0.772	0.579	0.193	0.757	0.561	0.197	1.193	0.705	0.488
1989	0.791	0.595	0.196	0.771	0.574	0.197	1.219	0.723	0.496
1990	0.787	0.587	0.199	0.759	0.563	0.196	1.182	0.701	0.480
1991	0.767	0.564	0.203	0.743	0.546	0.197	1.152	0.679	0.473
1992	0.740	0.533	0.207	0.726	0.526	0.199	1.135	0.663	0.472
1993	0.710	0.499	0.211	0.702	0.499	0.203	1.097	0.630	0.467
1994	0.700	0.485	0.215	0.698	0.493	0.205	1.102	0.629	0.473
1995	0.690	0.470	0.220	0.691	0.484	0.207	1.093	0.622	0.471
1996	0.679	0.455	0.224	0.682	0.473	0.209	1.081	0.611	0.470
1997	0.677	0.448	0.229	0.680	0.468	0.212	1.082	0.607	0.475
1998	0.675	0.442	0.234	0.683	0.468	0.215	1.103	0.615	0.488
Percent Change Since 1978	-0.262	-0.474	0.333	-0.179	-0.282	0.093	-0.114	-0.180	-0.023

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Appendix Figures: Income Shares for Selected Countries

