



Decomposing World Income distribution : Does The World Have A Middle Class?

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ABSTRACT

Using the national income/expenditure distribution data from 119 countries, the paper decomposes total income inequality between the individuals in the world, by continents and regions. We use Yitzhaki's Gini decomposition which allows for an exact breakdown (without a residual term) of the overall Gini by recipients. We find that Asia is by far the most heterogeneous continent; between-country inequality there is more important than inequality in incomes within-countries. Africa, Latin America, and Western Europe/North America are quite homogeneous continents with small differences between the countries (so that most of their inequality is explained by within-country inequality). If we divide the world into three groups: the rich G7 (and its equivalents), the less developed countries (all those with income per capita less than, or equal to, Brazil's), and the middle-income countries (all those with income level between Brazil and Italy), we find that there is very little overlap between such groupings, i.e. very few people from the LDCs have incomes which are in the range of the rich countries.

JEL Classification : D31, I3, O57.

Keywords : inequality, globalization, Gini coefficient.

1) INTRODUCTION

Recent heightened awareness of globalization is also reflected in the interest in issues of international and global inequality. This is, of course, expected since once we begin thinking

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* The material presented by the authors does not necessarily portray the viewpoint of the editors and the management of the Institute of Business and Technology (BIZTEK) and as well as the World Bank.

* Thanks to the Research & Policy Department, World Bank, Washington, DC.

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of the globe as a single unit, then the distribution of income (or welfare) among world citizens becomes a natural topic. Milanovic (1999) has derived world income distribution, the first time such a distribution was calculated from individual countries' household surveys-formally in the same way as one would calculate national income distribution from regional distributions. Similar computations were also recently performed by T. Paul Schultz (1998), Chotikapanich, Valenzuela and Rao (1997), Korzeniewick and Moran (1997), and Firebaugh (1999). They deal either with international inequality (inequality between mean countries' incomes where importance of each country is weighted by its population), or try to approximate world inequality assuming that each country displays a log-normal distribution of income.

Once we consider the world as unit of observation, we can immediately ask the following question: does world distribution also exhibit certain features familiar from our study of individual countries' distributions? Who are the world's rich, and poor? Is there world's middle class? Can we partition the world by countries and still obtain a reasonably good approximation of its "true" inequality obtained by treating all individuals equally regardless of where they live? Are continents good candidates for such partitioning since (e.g.) most of Africa is poor, most of Western Europe is rich etc.? These are the questions we address in this paper. In Section 2 we describe the data we use. In Section 3, we review the Gini decomposition methodology, due to Yitzhaki(1994), which dispenses with the problem of non-exact decomposition of the Gini byrecipients. Section 4 decomposes world inequality by continents. Section 5 does the same thing for continents themselves: it decomposes each continent's inequality by countries in an effort to establish how homogeneous or heterogeneous the continents are. Section 6 partitions the globe into three familiar "worlds": the first world of the rich OECD countries, the second world of the middle class which includes all countries with mean income levels between Brazil and Italy, and the Third world of the poor. Section 7 concludes the paper.

2) DESCRIPTION OF THE DATA

The data used in this paper are the same data used by Milanovic (1999) in the first derivation of world income distribution based on national households surveys alone. The sources, drawbacks and advantages of the database are explained in detail in Milanovic (1999; Annex 1). Here, we shall only briefly describe some of the key data characteristics.

We use here only the data for the year 1993 (Milanovic derives world income distribution for two years, 1988 and 1993). They cover 114 countries (see Table 1). For most of the countries, the distribution data are presented in the form of mean per capita income by deciles (10 data points). In a number of countries, however, since we had access to the individual-level data, we decided to use a finer disaggregation than decile, e.g. to use 12, 15 or 20 income groups. Individuals are always ranked by household per capita income. The preferred welfare concept is net (disposable) income, orexpenditures. However, in many cases, particularly for poorer countries where direct taxes are minimal, we use gross income. In these cases, there-is practically no difference between net and gross income.

The data for all countries come from nationally-representative household surveys. There are only three exceptions to this rule: the data from Argentina, El Salvador, and Uruguay are representative of the urban areas only, and thus in the calculation and decomposition of inequality, these countries' population includes only urban population. About $\frac{3}{4}$ of the country data used in the study are calculated from individual (unit record) data.

Table 1
Countries included in the study

Western Europe (23)

Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, New Zealand, Portugal, Sweden, Switzerland, U.K., USA, Turkey.

Latin America and Caribbean (19)

Argentina(urb), Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador(urb), Honduras, Jamaica, Mexico, Panama, Paraguay, Venezuela, Ecuador, Uruguay (urb), Peru, Guyana, Nicaragua.

Eastern Europe(23)

Armenia, Bulgaria, Czech Republic, East Germany, Georgia, Slovak Republic, Hungary, Poland, Romania, Belarus, Estonia, Kazakhstan, Kyrgyz Rep., Latvia, Lithuania, Moldova, Russia, Turkmenistan, Ukraine, Uzbekistan, FR Yugoslavia, Slovenia, Albania.

Asia (20)

Bangladesh, China, Hong Kong, India, Indonesia Japan, Jordan, Korea South, Malaysia, Pakistan, Philippines, Taiwan, Thailand, Laos, Mongolia, Nepal, Papua New Guinea, Singapore, Vietnam, Yemen Rep.

Africa (28)

Algeria, Egypt, Ghana, Ivory Coast, Lesotho, Madagascar, Morocco, Nigeria, Senegal, Tunisia, Uganda, Zambia, Bissau, Burkina, Djibouti, Ethiopia, Gambia, Guinea, Kenya, Mali, Mauritania, Namibia, Niger, RCA, South Africa, Swaziland, Tanzania.

Total: 114

	Total population (million)	Population included in the survey (million)	Coverage of population (in %)	Coverage of GDP (in %)
Africa	672	503	74.8	89.2
Asia	3206	2984	93.1	91.3
E. Europe/FSU	411	391	95.2	96.3
LAC	462	423	91.6	92.5
WENAO	755	716	94.8	96.4
World	5506	5017	91.1	94.7

WENAO and Eastern Europe/FSU are covered almost in full (95 percent of the population; 96 percent of GDP). Asia and LAC are covered slightly above 90 percent, both in terms of population and GDP. Finally, Africa's coverage is almost 90 percent in terms of GDP and 75 percent in terms of population.

What are the most important data problems? Other than the issue of differential reliability (quality) of individual country surveys which we lack information to correct for, the main problem is the mixing of income and expenditures. This was unavoidable- if we want to cover the entire world-because countries generally tend to collect either income or expenditures survey data. Most of the survey data in Africa and Asia are expenditure-based;on the other hand, in WENAO, Eastern Europe/FSU, and Latin American countries, almost all surveys are income-based (Table 3).

Table 3
Welfare indicators used in surveys: income or expenditures
(number of countries), 1993

	Income	Expenditure
Africa	2	26
Asia	8	10
Eastern Europe	19	3
LAC	16	3
WENAO	23	0
World	68	42

Another problem is the use of a single PPP exchange rate for the whole country even when regional price differences may be large. This is particularly a problem in the case of large and populous countries like China, India, Indonesia and Russia which are, economically-speaking, not well integrated into a single national market, and where prices may differ significantly between the regions. Since these countries, because of their large populations, strongly influence the shape of overall world distribution, small errors in the estimates of their PPPs may produce large effects on the calculated world inequality. There is no adjustment, however, that one can in an ad hoc fashion apply to the purchasing power exchange rates generated by the International comparison project. In principle, these rates are based on direct price comparisons in 1993, which is one of the reasons why we benchmarked the calculation of world income distribution precisely at 1993.

3) THE MAIN PROPERTIES OF THE DECOMPOSITION OF THE GINI INDEX

This section describes the main properties of the decomposition of Gini index according to sub-populations. The decomposition we follow is the one presented in Yitzhaki (1994).

Let y_i , $F_i(y)$, $f_i(y)$, μ_i , p_i represent the income, cumulative distribution, the density function, the expected value, and the share of group i in the overall population, respectively². The world population, is composed of groups, (i.e., regions, countries) so that the union of populations of all countries makes the world population, $Y_w = Y_1 \cup Y_2 \cup \dots \cup Y_n$, where subscript w denotes world and i group. Let $s_i = p_i \mu_i / \mu_w$ denote the share of group i in the overall income.

Note that

$$F_w(y) = \sum_i p_i F_i(y) \tag{1}$$

²In the sample, the cumulative distribution is estimated by the rank, normalized to be between zero and one, of the observation.

That is, the cumulative distribution of the world is the weighted average of the distributions of the groups, weighted by the relative size of the population in each group. The formula of the Gini used in this paper is (Lerman and Yitzhaki (1989)):

$$G = \frac{2 \operatorname{cov}(y, F(y))}{\mu} \quad (2)$$

which is twice the covariance between the income y and the rank $F(y)$ standardized by mean income μ . The Gini of the world, G_w , can be decomposed as:

$$G = \sum_{i=1}^n s_i G_i O_i + G_b \quad (3)$$

where O_i is the overlapping index of group i with the world's distribution (explained below), and G_b is between group inequality. The world Gini is thus exactly decomposed into two components: the between group inequality (G_b), and a term that is the sum of the products of income shares, Ginis and overlaps for all groups.

The between group inequality G_b is defined in Yitzhaki and Lerman (1991) as:

$$G = \frac{2 \operatorname{cov}(\mu_i, \bar{F}_{wi})}{\mu_w} \quad (4)$$

G_b is twice the covariance between the mean income of each group and its mean rank in the overall population of the world (\bar{F}_{wi}), divided by overall mean income. That is, each group is represented by its mean income, and the average of the ranks of its members in the world distribution. The term G_b equals zero if either average income or average rank, are equal in all countries. In extreme cases, G_b can be negative, when the mean income is negatively correlated with mean rank.

This definition of between group inequality differs from the one used by Pyatt (1976), Mookherjee and Shorrocks (1982), Shorrocks (1984) and Silber (1989). In their definition, the between-groups is based on the covariance between mean income and the rank of mean income. The difference in the two definitions is in the rank that is used to represent the group: under Pyatt's approach it is the rank of the mean income of the country, while under Yitzhaki-Lerman it is the mean of the ranks of all members (citizens of a country). These two approaches yield the same ranking if all the individuals have the same (average) income. Denote the Pyatt between-group as G_p . Then it can be shown that:

$$G_b \leq G_p \quad (5)$$

The upper limit is reached, and (5) holds as an equality, if the ranges of incomes that groups occupy do not overlap. We will return to this point, following the interpretation of the overlapping term.

Overlapping is interpreted as the inverse of stratification. Stratification is defined by Lasswell (1965, p.10) as:

"In its general meaning, a stratum is a horizontal layer, usually thought of as between, above or below other such layers or strata. Stratification is the process of forming observable layers, or the state of being comprised of layers. Social stratification suggest a model in which the mass of society is constructed of layer upon layer of congealed

population qualities.

According to Lasswell, perfect stratification occurs when the observations of each group (e. g. country) are confined to a specific range, and the ranges of groups do not overlap. Stratification plays an important role in the theory of relative deprivation (Runciman (1966)), which argues that stratified societies can tolerate greater inequalities than non-stratified ones (Yitzhaki (1982)).

Formally, overlapping of each group is defined as:

$$O_i = O_{wi} = \frac{\text{cov}_i(y, F_w(y))}{\text{cov}_i(y, F_w(y))} \quad (6)$$

where, for convenience, the index w is omitted and cov_i means that the covariance is according to distribution i , i.e.

$$\text{cov}_i(y, F_w(y)) = (y - \mu_i)(F_w(y) - F_{wi})f_i(y)dy, \quad (7)$$

where F_{wi} is the average rank in group i in the world (all people in group i are assigned their world income rank and F_{wi} represents the mean value). The overlapping (6) can be further decomposed to identify the contribution of each group that composes the world distribution. In other words, total overlapping of group i , O_i , is composed of overlapping of i with all other groups, including group i itself. This further decomposition of O_i is:³

$$O_i = \sum_j p_j O_{ji} = p_i O_{ii} + \sum_{j \neq i} p_j O_{ji} = p_i + \sum_{j \neq i} p_j O_{ji}$$

Where $O_{ji} = \frac{\text{cov}_i(y, F_j(y))}{\text{cov}_i(y, F_i(y))}$, is the overlapping of group j by group i .

The properties of the overlapping index O_{ji} are the following:

- (a) $O_{ji} > 0$. The index is equal to zero if no member of the j distribution is in the range of distribution i . (i.e., group i is a perfect stratum).⁴
- (b) O_{ji} is an increasing function of the fraction of group j that is located in the range of group i .
- (c) For a given fraction of distribution j that is in the range of distribution i , the closer the observations belonging to j to the mean of group i the higher O_{ji} .
- (d) If the distribution of group j is identical to the distribution of group i , then $O_{ji}=1$. Note that by definition $O_{ii}=1$. This result explains the second equality in (8). Using (8), it is easy to see that $O_i > p_i$, a result to be borne in mind when comparing different overlapping indices of groups with different size.
- (e) $O_{ji} < 2$. That is, O_{ji} is bounded from above by 2. This maximum value will be reached if all observations belonging to distribution j are concentrated at the mean of distribution i .

Note, however, that if distribution i is given then it may be that the upper limit is lower than 2 (see, Schechtman, 2000). That is, if we confine distribution i to be of a specific type, such as normal, then it may be that the upper bound will be lower than 2, depending on the assumption on the distribution.

(f) In general, the higher the overlapping index O_{ji} the lower will be O_{ji} . That is, the more group j is included in the range of distribution i , the less distribution j is expected to be included in the range of i .

³The proofs are in Yitzhaki (1994).

⁴If incomes of all individuals from group j are higher than incomes of all individuals belonging to group i , then $F_j(y)=1$ for all j , and thus $O_{ji}=0$.

Properties (a) to (f) show that O_{ji} is an index that measures the extent to which group j is included in the range of group i . Note that the indices O_{ji} and O_{ij} are not related to each other by a simple relationship. It is clear that the indices of overlapping are not independent. To see this, consider two countries with similar income levels but different inequalities. Let us take Mexico, i , and Czechoslovakia (under socialism), j . Mexico's Gini was around 50, Czechoslovakia slightly over 20. There are many rich and many poor people in Mexico, while the range of people's incomes in Czechoslovakia was very narrow. Consequently, almost (or maybe all) Czechoslovak citizens will be contained within the wide income range of Mexico, while relatively few Mexican citizens will be contained within the narrow income range of Czechoslovakia ($O_{ij} > O_{ji}$).

To see the impact of an increase in overlapping on the decomposition of Gini it is convenient to start with between-group inequality. As we have mentioned above (Eq. 5) G_b is the upper limit for G_b and it is reached if groups are perfectly stratified, i.e., $O_i = p_i$

Continent	Population share (pi)	Mean income in SPPP (ui)	Mean rank (F iw)	Gini (Gi)	Overlap component (Oi)
Africa	0.100	1310.0	0.407	0.521	0.921
Asia	0.595	1594.6	0.397	0.615	1.037
Eastern Europe and FSU	0.078	2780.9	0.609	0.465	0.721
Latin America and Carab.	0.084	3639.8	0.629	0.555	0.742
WENAO	0.143	10012.4	0.861	0.394	0.346
Total	1	3031.8	0.5	0.659	
Between group				0.309 (47%)	
Within group $\sum_i s_i G_i O_i$				0.350 (53%)	
Overall Gini				0.659	

Note: Percentage contributions to overall Gini given between brackets.

The first column presents the share of each group in the population of the world, the second column presents continent's mean income per capita, the third the average ranking of the people in the continent in the world (e.g. the mean rank of Africans is 40.7th percentile); the fourth column presents the Gini coefficient of the continent, and the fifth the overlapping coefficient between this group and the rest of the world. Value of P; for the overlap coefficient means it forms a perfect strata, 1 indicates that continent's distribution mimics the distribution function of the world, while an overlapping index which is approaching 2 means that the continent is heterogeneous with respect to the world. It breaks into two separate stratas, one richer and the other poorer than the world.

We focus on the last column. Asia is not a homogeneous group with respect to the world distribution. It has the highest inequality (which is almost equal to world inequality) and has an overlapping index slightly higher than one, which means that it is not a stratified group with respect to the world. Its distribution follows very closely world distribution. This result is not surprising if we consider having Japan and China in the same continent. African distribution is also close to that of the world. LAC and Eastern Europe/ FSU distributions show certain similarities: in both the mean ranks and the overlap components are very close although LAC is somewhat richer. Finally, WENAO, as we would expect, has a very low overlap component. It almost forms a stratum (for the sake of convenience, we shall consider each grouping to represent a stratum if its O_{ij} component is less than 0.3, provided of course, that the lower bound, (population share) is not close to this number).

Between-continent inequality Gini is 0.309, which is less than half of the inequality in the world. Had we used Pyatt's between-group component, we would have gotten a between-continent Gini of 0.398, which means that overlapping of incomes has decreased between-continent components by about 9 Gini points, and increased the intragroup component from 0.26 to 0.35.

Table 2 presents the decomposition according to equation 3 of the intra-group term $\sum_i s_i G_i O_i$. Column 4 shows the product of income share, overlap component, and

Gini coefficient for each continent. The sum of such products across all continents gives the within-group term in equation 3. (Note that the sum of column 4 here is equal to the total within component from Table 1.)

Table 2
Contribution of each continent to overall inequality

	(1) Income shae (s_i)	(2) Overlap component (O_i)	(3) Gini (G_i)	(4) $s_i O_i G_i$	(5) Share of total intra- group inequality	(6) =(5)/(1)
Africa	0.0433	0.921	0.521	0.0208	0.059	1.4
Asia	0.3128	1.037	0.6149	0.1994	0.570	1.8
Eastern Europe and FSU	0.0715	0.721	0.465	0.024	0.069	1.0
LAC	0.1013	0.742	0.5549	0.0417	0.119	1.2
WENAO	0.4711	0.346	0.3944	0.0642	0.183	0.4
Total	0	0.5	0.659	0.350	1	1

We note that Africa with 4 percent of the world income, and with high overlap and Gini components is responsible for 2.08 Gini points. This implies almost 6 percent of intra-group inequality (intra-group inequality is 0.35). Asia, on the other hand has 31 percent of world income, high overlap component, high Gini and therefore contributes very high 19.94 Gini points. It thus accounts for the lion's share of intra-group inequality-57 percent. LAC and the Eastern Europe/FSU represent more homogeneous groups, and their percentage

intra-group contributions are similar to their relative share in income (see column 6), while WENAO represents the most homogeneous group. Despite its total income accounting for almost 1/2 of world income, WENAO exhibits low inequality and low overlapping with the rest of the world so that its contribution to world inequality is only 6.4 Gini points. Looking at these numbers only, we can already see that Asia is the most important contributor to world inequality: it contributes some 20 Gini points which is almost 1/3 of total world inequality, and 57 percent of intra-continent inequality. At the other extreme are the rich WENAO countries whose contribution to world inequality falls short of their share in world income (see value of 0.4 in column 6 Table 2).

Overlapping between the continents

Table 3 presents the overlapping matrix between continents. The rows in Table 3 represent the continent whose distribution is used as the base distribution. When Africa is used as the base, then only WENAO forms a distinct group. When WENAO is used as a base, both Africa and Asia, with overlapping indexes of 0.186 and 0.182 respectively, are shown to have almost nothing in common with the advanced economies. The interpretation of the two overlapping indices is, that there are relatively more citizens of Europe, North America and Oceania in the range of Africa's distribution (i.e., poor), than there are Africans or Asians in the range of WENAO distribution. (We guess that it is not surprising.) This is even more in evidence when we compare Asia and WENAO. With Asia used as the base, the overlap index with WENAO is 0.97; but with WENAO region used as a base, there are only very few percents of Asians who fall in the income range characteristic for the developed countries (the overlap index is 0.182).

Table 3
Overlapping between continents

	Africa	Asia	Estern Europe and FSU	LAC	WENAO
Africa	1	0.995	0.998	0.974	0.485
Asia	1.030	1	1.251	1.22	0.970
Eastern Europe and FSU	0.749	0.668	1	0.948	0.634
LAC	0.672	0.599	1.042	1	1.069
WENAO	0.186	0.182	0.466	0.469	1

Table 4 presents the average ranking of members of one group in terms of the other. The diagonal presents each group in its own ranking which is 0.5 by definition. The average ranking, unlike mean income, is not sensitive to extreme observations. An average ranking above 0.5 means that, on average, people in a given region have higher ranks in the world than in their own distribution-they are a richer group. For example, a person who is relatively poor in America (and hence has a low income rank) will be relatively rich in a world ranking. The average ranking of an African individual in terms of a Europeans/North Americans is 0.05 which means that an average African is in the middle of the lowest European/North American decile. Since the rankings of Europeans/North Americans in terms of Africans and the Africans in terms of Europeans/North Americans add up to one, this implies that the average ranking of Europeans/North Americans in terms of the African distribution is 0.95. That is, on average, citizens of WENAO are in the middle of the top decile in Africa.

Table 4
The ranking of one distribution in terms of another

The yardstick distribution					
	Africa	Asia	Estern Europe and the FSU	LAC	WENAO
Africa	0.5	0.515	0.275	0.261	0.049
Asia	0.485	0.5	0.65	0.247	0.064
Eastern Europe and the FSU	0.725	0.735	0.5	0.483	0.136
LAC	0.739	0.753	0.517	0.5	0.172
WENAO	0.951	0.936	0.864	0.828	0.5

Africa continues to be ranked low if we compare it to transition economies or Latin America, making it only slightly above the 25th percentile, but it fares pretty well with respect to Asia. That is, using the average rank as the indicator of average well being, Africa's position is a bit higher than Asia's. This could have been observed from Table 1 where the average income in Africa is shown as lower than the average income in Asia but, on the other hand, the average ranking of Africans is a bit higher than the average ranking of Asians. This is the result of several Asian countries with high income that are making Asia's average income higher than Africa's average income, although (mostly rural) masses in India, China, Indonesia, Bangladesh have very low ranks in world income distribution.

5) DECOMPOSITION OF THE CONTINENTS' DISTRIBUTIONS BY COUNTRIES

In the previous section, we have looked at the decomposition of world inequality by continents. But exactly the same decomposition could be now carried a step further. In this section we decompose the inequality in each continent according to countries. We start with the poorest region: Africa.

Inequality in Africa

The average income in Africa is \$PPP 1310 per capita per year, which is the lowest among continents. Although the mean income is low, overall inequality is high, with the continent-wide Gini equal to 0.521. Between group inequality is 0.203, which implies that the difference in countries are mild relative to distributions in the countries, because between country inequality explains less than 40 percent of overall inequality. Pyatt's between group inequality is 0.333 which implies that between-country inequality has declined to about 60 percent of its maximum value due to overlapping.

Table 5 is identical to Table 1 in its structure. The poorest country in Africa is Zambia, and the richest is Swaziland. One interesting property of Africa is that inequality is relatively high in many countries, and that the overlapping indexes with respect to the whole distribution of the continent are also relatively high. The implication of the latter finding is that there is a fair amount of homogeneity among African countries.

Consider now the countries with high inequality (Gini above 0.5) and high overlapping (overlapping index above 1).⁵ They can potentially be prone to political instability-ignoring

⁵We choose overlapping index greater than unity because it indicates that the variance of countries ranks is greater when assessed in the all African context than within itself (the ranks are distributed uniformly from 0 to 1 in the latter case).

of course other potential sources of instability like ethnic or religious fractionalization.⁶ There are six such countries in Africa: Senegal, Central African Republic, Lesotho, Kenya, Guinea Bissau, and Namibia. Differently, if we concentrate only on the countries with a low overlapping index (less than 0.3), there is no such a country in Africa. In other words, Africa is a fairly homogeneous continent with no single country representing a stratum.

Table 5
Inequality in Africa According to Countries

	Population share (pi)	Mean Income (μi)	Mean rank (F_{iw})	Gini (Gi)	Overlapping index (Oi)
Zambia	0.018	316.30	0.165	513	0.829
Madagascar	0.028	361.50	0.192	0.445	0.82
Mali	0.020	452.70	0.226	0.488	0.986
Burkina	0.019	468.50	0.238	0.466	0.977
Senegal	0.016	509.70	0.253	0.519	1.051
Central Af. Rep.	0.006	512.10	0.237	0.595	1.165
Gambia	0.002	521.80	0.275	0.463	0.975
Niger	0.016	611.55	0.341	0.354	0.796
Uganda	0.040	622.30	0.34	0.38	0.861
Ethiopia	0.113	737.80	0.391	0.385	0.895
Nigeria	0.209	752.06	0.382	0.441	0.946
Ivory Coast	0.026	878.20	0.459	0.36	0.842
Lesotho	0.004	901.20	0.368	0.565	1.162
Tanzania	0.056	1036.90	0.511	0.363	0.363
Kenya	0.056	1146.90	0.42	0.572	0.572
Mauritania	0.004	1505.70	0.62	0.38	0.38
Guinea	0.013	1508.30	0.612	0.395	0.395
Guinea-Bissau	0.002	1531.00	0.526	0.545	0.545
Ghana	0.033	1663.60	0.682	0.33	0.33
Egypt	0.112	1896.84	0.751	0.265	0.265
Djibouti	0.001	1964.00	0.700	0.390	0.390
Tunisia	0.017	2176.70	0.759	0.325	0.325
Morocco	0.052	2276.08	0.747	0.362	0.362
Algeria	0.053	2454.60	0.780	0.346	0.346
South Africa	0.079	3035.60	0.670	0.577	0.577
Namibia	0.003	3254.20	0.542	0.707	0.707
Swaziland	0.002	3876.70	0.731	0.58	0.58
Africa	1	1310	0.5	0.521	--
Between country Gini				0.203 (39%)	
Within country Gini $\sum_i S_i G_i O_i$				0.318 (61%)	

⁶Instability is defined with respect to the distribution of the region, because we believe that this is the reference group people are most familiar with. The alternative view is to use the world as a reference group. This is done in the appendix. Relative deprivation theory (Runciman, 1966) predicts that instability is a function of inequality, prestige and power. We are only dealing with one component of the theory. Yitzhaki (1982) provides a connection between relative deprivation and the Gini coefficient.

Inequality in Asia

The average income is \$PPP1,595 per capita per year. The overall inequality (Gini) in Asia is 0.615, while between country inequality is 0.445 which is twice as high as the between country inequality in Africa. The Pyatt between-group component is 0.502 so that between group inequality is about 90 percent of its upper bound. The fact that the between-country inequality in Asia accounts for higher share of overall inequality than that in Africa implies that Asia is a more stratified continent, according to countries, than Africa (see Table 6). One possible technical explanation for this result is that two countries, China and India account for seventy percent of the population, so that one can be led to the conclusion that the rest of the countries do not have any significant effect on the distribution. But, those two countries have relatively low inequality and the difference in mean income of those two countries is relatively small, so that inequality in the combined population of these two countries cannot be very high.⁷ Therefore, the high inequality must originate from the incomes of other countries. Note that richest seven countries in Asia all have the overlapping index less than 0.3, a number that no country in Africa is even close to. Japan, Taiwan, and South Korea which have low inequality and high income clearly form distinct stratas in Asia (the overlap index for each of them is very low-under 0.1). Note also that the average rank of these countries' population in Asia exceeds the 95th percentile. It is also interesting to observe that Hong Kong, the "country" with the highest per capita income in Asia has, because of high inequality, a larger overlap component than Japan, Taiwan and South Korea. Overall, intra-country in Asia is much lower than intra-country inequality in Africa (28 percent of total inequality vs. 61 percent in Africa), so that the difference in Asia is more among countries while in Africa the differences are more inside the countries. The only country with overlapping greater than one is Nepal, which is the third most unequal country in Asia. There is no single country with a Gini coefficient above 0.5.

Table 6
The Decomposition of Inequality in Asia, according to countries

	Population share (pi)	Mean Income (μi)	Mean rank (F _{iv})	Gini (Gi)	Overlapping index (Oi)
India	0.302	523.68	0.295	0.328	0.911
Mongolia	0.001	610.39	0.368	0.312	0.829
Nepal	0.006	643.40	0.321	0.438	1.077
Bangladesh	0.039	705.91	0.44	0.281	0.767
Pakistan	0.041	798.20	0.485	0.299	0.764
Vietnam	0.024	805.50	0.473	0.328	0.819
Indonesia	0.063	884.08	0.508	0.319	0.770
Laos	0.002	945.10	0.552	0.295	0.692
China	0.401	1121.86	0.563	0.381	0.811
Philippines	0.022	1236.35	0.572	0.426	0.814
Papua New	0.001	1743.00	0.737	0.326	0.512
Thailand	0.02	2000.80	0.709	0.456	0.583
Yemen Repub.	0.004	2360.51	0.787	0.355	0.456
Jordan	0.002	3221.55	0.854	0.352	0.280
Malaysia	0.007	5583.30	0.887	0.463	0.252
Singapore	0.001	7431.20	0.929	0.417	0.157
Taiwan	0.007	8866.70	0.954	0.293	0.083
South Korea	0.015	9665.90	0.956	0.31	0.093
Japan	0.042	11667.82	0.969	0.243	0.066
Hong Kong	0.002	12934.80	0.95	0.497	0.119
Asia	1	1595	0.5	0.615	---
Between country Gini				0.445 (72%)	
Within country Gini, SiGiOi				0.170 (28%)	

⁷The Gini index for India and China (combined) is 0.4128, with between group inequality being 0.09.

Inequality in transition economies

The mean income in the transition countries of Eastern Europe and the former Soviet Union countries is \$PPP 2,781. Overall inequality is 0.465, which is relatively high, and between-group inequality is 0.180 which is around 40 percent of overall inequality. Thus the region seems to display about the same degree of homogeneity as Africa where between group Gini is 0.20 and its contribution to total inequality is also around 40 percent. Pyatt's between-country inequality is 0.266 so that between-group inequality is about 68 percent of its upper bound.

Similar to Asia, however, is the fact that the overlapping index of all countries is less than one, with only five countries with relatively high overlapping (above 0.8): Ukraine, Yugoslavia (Serbia and Montenegro), Estonia, Lithuania and Russia. Also, no country displays a Gini in excess of 0.5-again a feature similar to Asia. The two poorest countries, Georgia and Uzbekistan have low inequality and form the strata (overlapping index less than 0.3).

Table 7
The decomposition of inequality in transition countries, according to countries

	Population share (π_i)	Mean Income (μ_i)	Mean rank (F_{iv})	Gini (G_i)	Overlapping index (O_i)
Georgia	0.014	264	0.05	0.243	0.18
Uzbekistan	0.056	344	0.07	0.331	0.25
Armenia	0.009	367	0.08	0.431	0.36
Kyrgyz Rep.	0.012	397	0.09	0.428	0.35
Kazakhstan	0.042	637	0.16	0.318	0.43
Turkmenistan.	0.011	1095	0.27	0.351	0.65
Albania	0.009	1293	0.32	0.286	0.55
Moldova	0.011	1333	0.32	0.372	0.74
Romania	0.058	1641	0.38	0.321	0.72
Belarus	0.027	2045	0.47	0.282	0.69
Ukraine	0.133	2053	0.42	0.428	0.93
Latvia	0.007	2312	0.51	0.279	0.67
Poland	0.098	2378	0.52	0.282	0.69
FR Yugoslavia	0.027	2634	0.48	0.438	0.94
Estonia	0.004	2634	0.51	0.383	0.87
Lithuania	0.010	2818	0.55	0.369	0.84
Hungary	0.026	2971	0.62	0.225	0.55
Bulgaria	0.022	3161	0.60	0.334	0.77
Slovak Rep.	0.014	3712	0.73	0.178	0.38
Russia	0.379	4114	0.66	0.393	0.82
Slovenia	0.005	4616	0.77	0.239	0.47
Czech Rep.	0.026	4678	0.785	0.216	0.38
Transition countries	1	2781	0.5	0.465	--
Between country Gini				0.180 (39%)	
Within country Gini $\sum_i \pi_i G_i O_i$				0.285 (61%)	

Inequality in Latin American countries

Average income is \$PPP 3,640 per person per year. As shown in Table 8, overall inequality in Latin America is high (Gini=0.555), with between-country group inequality making less than 10 percent of this number (0.041). So, more than 90 percent of Latin American inequality is explained by inequality within countries. Pyatt's between-country Gini is 0.136 so that even when correcting for the size of the countries, between-group inequality is relatively low. The low between-country income inequality is a hint that in LAC the countries are relatively similar to each other. Latin America forms a very homogeneous region, only slightly less so than the WENAO countries (see below). The great similarity between the countries is shown by the fact that the lowest overlap index still has a relatively high value of 0.73 (Uruguay). Even the richest country's (Chile) overlap index is 0.77 and the mean rank of a Chilean is equal to the 65th Latin American percentile. Compare this with the fact that the mean rank of a Japanese, South Korean or Taiwanese citizen is above the 95th percentile in Asia.

However, because of very high inequality within the countries (no fewer than 10 countries have Ginis above 0.5), we can identify several potentially unstable countries (Gini>0.5 and overlap index>1). They are Honduras, Bolivia, Brazil, Panama and Paraguay.

Table 8

The decomposition of inequality in Latin America and the Caribbean, according to countries

	Population share (pi)	Mean Income (μ_i)	Mean rank (F_{iw})	Gini (Gi)	Overlapping index (Oi)
El Salvador	0.006	1294.40	0.262	0.504	0.97
Honduras	0.013	1366.10	0.258	0.546	1.09
Peru	0.053	1617.80	0.33	0.483	0.99
Jamaica	0.006	1674.40	0.368	0.372	0.81
Bolivia	0.019	183.10	0.383	0.502	1.03
Venezuela	0.049	2501.80	0.468	0.418	0.90
Guyana	0.002	2888.50	0.463	0.49	0.96
Ecuador	0.026	3256.30	0.554	0.407	0.79
Costa Rica	0.007	3306.10	0.528	0.444	0.87
Dominican Rep	0.018	3334.90	0.523	0.468	0.89
Brazil	0.370	3472.56	0.454	0.59	1.08
Argentina(Urb)	0.069	3568.00	0.536	0.496	0.94
Panama	0.006	3668.50	0.491	0.559	1.03
Paraguay	0.011	3886.30	0.504	0.569	1.04
Mexico	0.215	4207.60	0.564	0.519	0.93
Nicaragua	0.010	4338.20	0.584	0.501	0.90
Uruguay(urb)	0.007	4504.70	0.635	0.425	0.73
Colombia	0.080	4910.55	0.629	0.488	0.80
Chile	0.033	6475.75	0.651	0.564	0.77
Latin America	1	3640	0.5	0.555	---
Between country Gini				0.041 (7%)	
Within country Gini $\sum_i S_i G_i O_i$				0.514 (93%)	

Inequality in West Europe, North America and Oceania

This is, of course, the richest region with the mean income of \$PPP 10,012 which is three times the mean income in Latin America, the second richest region. Overall inequality is relatively low, 0.394, while between-country inequality is also low 0.069. Pyatt between-group is 0.142 so that between-group inequality is less than 50% from its maximal value. Clearly, we deal with a rich and homogeneous region, in which, more than 80 percent of total inequality is explained by inequality within countries. This last point makes WENAO similar to Latin America with one important difference though: the overall level of inequality is much lower in WENAO than in Latin America.

Even the lowest overlap index (in Luxembourg) is relatively high: almost 0.6. Therefore, no country forms a stratum. There is also no country with a Gini index over 0.5; Turkey is the most unequal country with the Gini of 0.45. Several countries, however, have relatively high overlap indexes, above 0.95: Portugal, Australia, UK and the US. For a rich country like the US, an indication that there are many relatively poor Americans;⁸ and for a relatively poor country like Portugal, the indication that there are relatively many rich Portuguese.

Table 9
The decomposition of inequality in WENAO countries, according to countries

	Population share (pi)	Mean Income (μi)	Mean rank (F _{ni})	Gini (Gi)	Overlapping index (Oi)
Turkey	0.083	2578.2	0.123	0.448	0.701
Ireland	0.005	5661.62	0.312	0.284	0.746
Austria	0.011	6313.90	0.334	0.472	---
Israel	0.007	438.10	0.344	0.347	0.914
Portugal	0.014	7469.50	0.395	0.348	0.968
Greece	0.015	7837.40	0.425	0.32	0.880
Italy	0.080	8019.00	0.443	0.306	0.851
Belgium	0.014	8401.30	0.479	0.246	0.753
Australia	0.025	9086.50	0.481	0.345	0.959
U. K.	0.081	9440.00	0.485	0.354	0.957
Sweden	0.012	9451.00	0.532	0.249	0.760
Netherlands	0.021	9625.00	0.517	0.311	0.859
Finland	0.007	10074.90	0.565	0.226	0.679
Cyprus	0.001	10287.60	0.546	0.297	0.846
Germany	0.113	10340.20	0.554	0.294	0.830
France	0.080	10348.50	0.54	0.326	0.863
Norway	0.006	10650.80	0.586	0.247	0.727
Canada	0.040	11674.00	0.588	0.31	0.849
U. S. A.	0.361	12321.40	0.574	0.394	0.980
Denmark	0.007	12371.10	0.661	0.246	0.679
New Zealand	0.005	12648.00	0.569	0.43	---
Switzerland	0.010	14068.00	0.666	0.324	0.823
Luxembourg	0.001	15262.10	0.730	0.264	0.597
WENAO	1	0.394	0.5	0.394	--
Between country Gini				0.069 (18%)	
Within country Gini <i>SiGiOi</i>				0.325 (82%)	

Note: for Austria and New Zealand, the bottom decile's incomes were recorded as zero, and thus the overlap component, probably spuriously, exceeded 1.

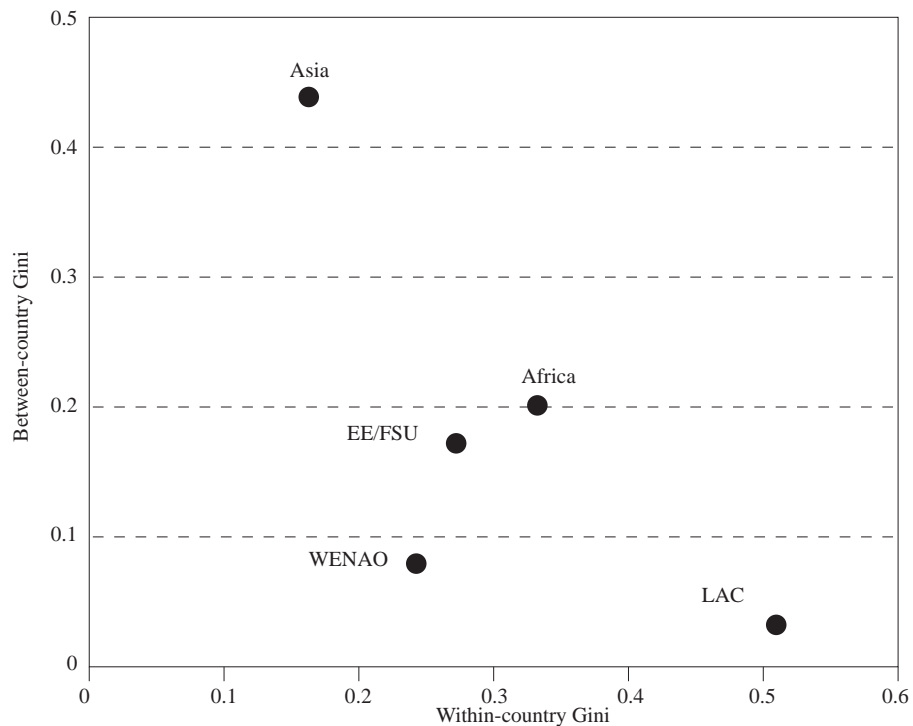
⁸Note that the US and Denmark have almost the same mean income, but the average income rank of Danish population is almost 9 percentage points higher than the average rank of Americans (66th percentile vs. the 57th). This is explained by high inequality in the United States.

Table 10
Summary of results: between and within inequality by continents

Continent	(1) Gini	(2) Between Country Gini	(3) Within- country Gini	(4) Pyatt between country Gini	(5) WENAO
					0.61
Africa	0.531	0.203	0.328	0.333	0.89
Asia	0.615	0.445	0.170	0.502	0.68
Eastern Europe /FSU	0.465	0.180	0.285	0.266	
LAC	0.555	0.041	0.514	0.136	0.30
WENAO	0.325	0.069	0.256	0.142	0.49

Table 10 presents summary statistics concerning the between group component. As can be seen, the importance of between group inequality in Asia is high both in absolute amounts (Gini of 0.45) and also with respect to its potential share (89 percent of the between-country component according to the Pyatt decomposition). On the other hand, the between-country inequality in Latin America in both aspects: its extremely low value (Gini of 0.04) and also with respect to its potential share (30 percent; see column 5). Thus Asia and Latin America represents the two antipodes (see Figure 1). Asian continents consists of countries with widely different per capita income levels and moderate withincountry inequalities. Latin America is a continent composed of countries with similar per capita incomes but with large within-country inequalities.

Figure 1
Between and within inequality by continents (in Gini points)



6) THE "OLD FASHIONED" DISTRIBUTION OF THE WORLD: FIRST, SECOND AND THIRD WORLDS

In this section, we abandon the division of the world into continents and divide it instead in five groups: (1) the G-7 group (US, Germany, UK, Japan, France, Canada and Italy); (2) the G-7 income-equivalent which implies an income at least as high as the income of the poorest G-7 country (Italy: \$PPP 8000 per capita); (3) China and India as Poor Giants; (4) poor countries, that is those with per capita income less than, or equal to, Brazil (\$PPP 3470 per capita), and (5) the world "middle class" composed of countries with income levels between Brazil and Italy.

Table 11
The decomposition of inequality in the world
(new groupings)

	Population share (π_i)	Mean Income (μ_i)	Mean rank (F_{π_i})	Gini (G_i)	Overlapping index (O_i)
G7	0.133	11137.7	0.892	0.347	0.25
G7 equivalents	0.03	9940.991	0.884	0.323	0.247
China and India	0.418	864.8181	0.345	0.413	0.799
LDCs	0.335	1403.646	0.445	0.488	0.841
Middle income countries	0.084	5072.251	0.735	0.478	0.544
World	1	3031.8	0.5	0.659	---
Between country Gini				0.469 (71%)	
Within country Gini $\sum_i \pi_i G_i$				0.190 (29%)	

The rich world (G7 and G7 equivalents) covers about 16 percent of world population (see Table 11). (The definition of rich is based, of course, on mean country per capita income, not on actual income of the people in a country.) The world middle class is very small: a little over 8 percent of world population. All the rest of the world lives in poor countries: a third of world population in LDCs, and additional 40 percent in the two poor giants, India and China. With this decomposition of the world, more than 70 percent of inequality is explained by between-group differences, only 29 percent by within-group inequalities. This shows first, that with a relatively crude decomposition (based on countries per capita incomes and only five groups), we can account for more than 70 percent of world inequality, and second, that world middle class is very small.

Notice also that only LDCs and the middle class countries have relatively high within-group Ginis (0.48); for the other three groups, Ginis are much less. Finally, the overlap index shows that G7 and G7 equivalents represent a stratum. The overlapping matrix between the five regions (Table 12) tells a more problematic story. If we use G7 and G7-equivalents as the base, almost no people from LDCs, China and India fall in the income range of the rich countries. G7 and G7-equivalents, however, are very similar. If we use LDCs, or India and China as the base, we see that they are very similar among themselves (overlap indexes over 0.9), and, of course, quite different from the rich countries. This, in turn, implies that an even more meaningful and parsimonious grouping could be a tripartite one: the poor countries (LDCs, China and India; called in the past "The Third World"), the middle-income group, and the rich ("The First World").

Table 12
Overlapping matrix between the regions

	LDCs	China and India	Middle class	G7 equiv.	G7
LDCs	1	0.905	0.854	0.354	0.337
China and India	0.975	1	0.495	0.067	0.081
Middle class	0.478	0.301	1	1.125	1.06
G7 equivalents	0.099	0.036	0.492	1	0.966
G7	0.097	0.029	0.502	1.021	1

The results of the tripartite grouping are shown in Table 13. The first column shows that the Third World accounts for 76 percent of the population but only 29 percent of income, the middle class accounts for 8 percent of population and 12 percent of income, while the developed world accounts for 16 percent of population and 58 percent of income. Simple partition of the world in these three groups would explain 68 percent of world inequality. Now, this is only marginally less than if divided world into countries: as

Appendix 1 shows, with such a decomposition, between-country inequality accounts for 75.6 of world inequality. This illustrated the meaningfulness of the tripartite oldfashioned partition of the world. By moving from 110 countries to only 3 country groups, we "lose" explanation for less than 8 percent of world Gini.

The Gini coefficients of inequality is negatively correlated with income, while the overlapping indices are low, particularly the one for the Rich World. Note that the overlapping index for the Third World cannot be lower than 0.76 and the one for the Rich World cannot be less than 0.16 (their respective population shares). Pyatt's between group inequality is 0.491, which means that this very crude decomposition into three groups does not suffer from much overlapping because more than 90 percent of between group inequality (0.449 divided by 0.491) is captured by this grouping. In other words, this means that if the world was perfectly stratified into those three groups, than the Gini of the world would have been 0.61 which is not much less than the actual world inequality.

Table 13
World divided into three groups: the First World, the middle class, and the Third World

	Population share (pi)	Mean Income (μi)	Mean rank (iw F)	Gini (Gi)	Overlapping index (Oi)
Third World (poorer than, or equal to, Brazil)	0.76	1171	0.392	0.494	0.89
Middle class	0.08	4609	0.725	0.462	0.54
First World (equal or richer than Italy)	0.16	10919	0.891	0.344	0.25
World	1	3031.8	0.5	0.659	---
Between group Gini				0.449 (68%)	
Within group Gini $\sum_i p_i G_i O_i$				0.210 (32%)	

The fact that we do not lose much information by dividing the world in the "oldfashioned" way is illustrated also if we divide all the people in the world into three groups using the same income per capita thresholds as for the allocation of countries, namely, that poor people in the world are all those (regardless of where they live) with income level equal or less than Brazil's mean per capita income (\$PPP 3470),⁹ the world middle class are all those with income levels higher than Brazil's and lower than Italy's (\$PPP 8,000) mean income, and the rich are all those with annual income above \$PPP 8,000. Then it turns out that 78 percent of the world is poor, 11 percent belongs to the middle class, and 11 percent are rich. Any way we slice it, world middle class is very small.

One possible explanation to this result is the one offered by Kopczuk, Slemrod and Yitzhaki (2000), who compared the optimal income tax from a point of view of a world planner, and compared it to an optimal income tax from a decentralized (countrylevel) point of view. They argue that countries tend to attach extremely higher welfare weights to their own citizen, relative to citizens of other countries. Those weights can be 1 to 1000. This policy implies that rich countries care much more about their own poor, and by this way they shrink the "middle class" of the world.

7) CONCLUSIONS

When we partition the world into five continents (Africa; Asia; Western Europe, North America and Oceania; Eastern Europe/FSU; and Latin America and the Caribbean), we find that less than one-half of world inequality is explained by differences in incomes between the continents. Therefore, if we look for a more meaningful ⁹ This is about \$PPP 9½ per person per day, or about equal to the official poverty line in Western Europe partition-defined as being fairly parsimonious (that is, involving only a few units) and yet being able to explain most of world inequality-we find that the "old fashioned" division of the Earth into three world (first, middle class, and third) "works" much better. The between-group inequality between the "three worlds" explains almost 70 percent of total world inequality. According to this "old fashioned" partition, 76 percent of world population lives in poor countries, 8 lives in middle income countries (defined as countries with per capita income levels between Brazil and Italy), and 16 percent lives in rich countries. Now, if we keep the same income thresholds as implied in the previous division, and look at "true" distribution of people according to their income (regardless of where they live), we find a very similar result: 78 percent of the world population is poor, 11 percent belongs to the middle class, and 11 percent are rich Thus, world seems-any way we consider it-to lack middle class. It looks like a proverbial hourglass: thick on the bottom, and very thin in the middle. Why the world does not have a middle class? First-an obvious answer-is that it is because world inequality is extremely high. When the Gini coefficient is 66, higher than the Gini coefficient of South Africa and Brazil, it is simply numerically impossible to have a middle class.¹⁰ But what may be a substantive cause for the absence of the middle class?

We conjecture that this is because national authorities care about their own first and foremost. They heavily discount, or do not care, about the poverty of others, perhaps because foreigners are not their voters, or because of both psychological and physical distance between people in different countries. Poor Dutch are unlikely to be poor at the world level; their government will make sure that they remain relatively well-off; rich and the US.

Indians may reach the level of world middle class but climbing further will be difficult: both because of high national taxes, and potential political instability that such ostentatious wealth in the middle of poverty might bring about. Thus people can explain,

⁹This is about \$PPP 9½ per person per day, or about equal to the official poverty line in Western Europe

¹⁰Note that the Gini of 66 is the value that would obtain if two-thirds of the world population had zero income, and one-third divided the entire income of the world equally.

a little bit, the curse or the blessing of their countries' mean income, but significant income mobility-independent of the country's growth record-is unlikely. Migration might, in many cases, represent a better option for many people from the poor countries.

Their incomes would, almost in a flash, increase. But that's where impediments to migration come into the play. As it was pointed out (e.g. by Tullock), the today's definition of citizenship is to have access to a number of welfare benefits that keep even the bottom of income distribution in the rich countries well off. Thus the poor people from the poor countries will either have to be absorbed and their incomes increased, or they have to be kept out.

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**Appendix 1. All the countries included in the sample
(ranked by \$PPP income level)**

	Population	Mean Income/exp enditures	Mean rank	Gini	Overlap
Georgia	0.001	264	0.08	0.243	0.37
Zambia	0.002	316	0.12	0.513	0.73
Uzbekistan	0.004	344	0.13	0.331	0.53
Madagascar	0.003	362	0.13	0.445	0.74
Armenia	0.001	367	0.13	0.431	0.72
Kyrgyz Republic	0.001	397	0.16	0.428	0.70
Mali	0.002	453	0.17	0.488	0.87
Burkina	0.002	469	0.17	0.466	0.88
Senegal	0.002	510	0.19	0.519	0.91
Central African Republic	0.001	512	0.18	0.595	1.00
Gambia	0.000	522	0.20	0.463	0.84
India	0.180	524	0.23	0.328	0.69
Mongolia	0.000	610	0.28	0.312	0.63
Niger	0.002	612	0.27	0.354	0.73
Uganda	0.004	622	0.26	0.380	0.76
Kazakhstan	0.003	637	0.29	0.318	0.66
Nepal	0.004	643	0.25	0.438	0.87
Bangladesh	0.023	706	0.33	0.281	0.61
Ethiopia	0.011	738	0.30	0.385	0.79
Nigeria	0.021	752	0.30	0.441	0.84
Pakistan	0.024	798	0.37	0.299	0.62
Vietnam	0.014	806	0.36	0.328	0.67
Ivory Coast	0.003	878	0.37	0.360	0.71
Indonesia	0.037	884	0.39	0.319	0.64
Lesotho	0.000	901	0.29	0.565	1.03
Laos	0.001	945	0.42	0.295	0.59
Tanzania	0.006	1037	0.42	0.363	0.71
Turkmenistan	0.001	1095	0.45	0.351	0.65
China	0.238	1122	0.44	0.381	0.71
Kenya	0.006	1147	0.34	0.572	1.03
Philippines	0.013	1236	0.44	0.426	0.75
Albania	0.001	1293	0.52	0.286	0.51
El Salvador	0.000	1294	0.41	0.504	0.89
Moldova	0.001	1333	0.49	0.372	0.67
Honduras	0.001	1366	0.40	0.546	0.96
Mauritania	0.000	1506	0.51	0.380	0.66
Guinea	0.001	1508	0.51	0.395	0.66
Guinea-Bissau	0.000	1531	0.42	0.545	0.95
Peru	0.005	1618	0.48	0.483	0.84
Romania	0.005	1641	0.57	0.321	0.53
Ghana	0.003	1664	0.57	0.330	0.52
Jamaica	0.000	1674	0.55	0.372	0.60
Papua New Guinea	0.001	1743	0.58	0.326	0.52
Egypt	0.011	1897	0.63	0.265	0.37
Djibouti	0.000	1964	0.58	0.390	0.60
Thailand	0.012	2001	0.56	0.456	0.67
Belarus	0.002	2045	0.64	0.282	0.40
Ukraine	0.010	2053	0.57	0.428	0.66

Decomposing World Incomedistribution :DoesThe World Have A Middle Class?

	Population	Mean Income/exp enditures	Mean rank	Gini	Overlap
Tunisia	0.002	2177	0.64	0.325	0.45
Bolivia	0.002	2183	0.55	0.502	0.77
Morocco	0.005	2276	0.63	0.362	0.52
Latvia	0.001	2312	0.67	0.279	0.38
Yemen	0.002	2361	0.64	0.355	0.51
Poland	0.008	2378	0.67	0.282	0.40
Algeria	0.005	2455	0.66	0.346	0.46
Venezuela	0.004	2502	0.63	0.418	0.57
Turkey	0.012	2578	0.62	0.448	0.63
FRYugoslavia	0.002	2634	0.63	0.438	0.61
Estonia	0.000	2634	0.66	0.383	0.49
Lithuania	0.001	2818	0.68	0.369	0.47
Guyana	0.000	2889	0.63	0.490	0.67
Hungary	0.002	2971	0.73	0.225	0.25
South Africa	0.008	3036	0.57	0.577	0.84
Bulgaria	0.002	3161	0.71	0.334	0.40
Jordan	0.001	3222	0.71	0.352	0.40
Namibia	0.000	3254	0.45	0.707	1.15
Ecuador	0.002	3256	0.69	0.407	0.48
Costa Rica	0.001	3306	0.67	0.444	0.60
Dominican	0.002	3335	0.66	0.468	0.61
Brazil	0.031	3473	0.59	0.590	0.84
Argentina	0.006	3568	0.64	0.496	0.74
Panama	0.000	3669	0.61	0.559	0.83
Slovak Rep.	0.001	3712	0.78	0.178	0.16
Swaziland	0.000	3877	0.63	0.580	0.77
Paraguay	0.001	3886	0.62	0.569	0.80
Russia	0.030	4114	0.73	0.393	0.48
Mexico	0.018	4208	0.69	0.519	0.63
Nicaragua	0.001	4338	0.71	0.501	0.56
Uruguay (urban)	0.001	4505	0.74	0.425	0.48
Slovenia	0.000	4616	0.80	0.239	0.22
Czech Rep.	0.002	4678	0.81	0.216	0.20
Colombia	0.007	4911	0.73	0.488	0.56
Malaysia	0.004	5583	0.77	0.463	0.46
Ireland	0.001	5662	0.81	0.284	0.31
Austria	0.002	6314	0.75	0.472	0.62
Israel	0.001	6438	0.83	0.347	0.30
Chile	0.003	6476	0.75	0.564	0.53
Singapore	0.001	7431	0.83	0.417	0.34
Portugal	0.002	7470	0.85	0.348	0.28
Greece	0.002	7837	0.86	0.320	0.26
Italy	0.011	8019	0.86	0.306	0.25
Belgium	0.002	8401	0.88	0.246	0.20
Taiwan	0.004	8867	0.88	0.293	0.22
Australia	0.004	9087	0.86	0.345	0.32
U. K.	0.012	9440	0.87	0.354	0.27
Sweden	0.002	9451	0.89	0.249	0.20
Netherlands	0.003	9625	0.88	0.311	0.24
South Korea	0.009	9666	0.89	0.310	0.23
Finland	0.001	10075	0.90	0.226	0.17
Cyprus	0.000	10288	0.90	0.297	0.22
Germany	0.016	10340	0.90	0.294	0.21

	Population	Mean Income/exp enditures	Mean rank	Gini	Overlap
France	0.011	10349	0.89	0.326	0.23
Norway	0.001	10651	0.91	0.247	0.17
Japan	0.025	11668	0.92	0.243	0.16
Canada	0.006	11674	0.91	0.310	0.21
U. S. A.	0.051	12321	0.89	0.394	0.29
Denmark	0.001	12371	0.92	0.246	0.17
New Zealand	0.001	12648	0.83	0.430	0.60
Hong Kong	0.001	12935	0.88	0.497	0.29
Switzerland	0.001	14068	0.92	0.324	0.21
Between-country Gini			0.498 (75.6%)		
Within-country Gini			0.161 (24.4%)		
World Gini			0.659		
Mean World Income			3030.805		