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Branko Milanovic: Worlds Apart

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The Three Concepts of Inequality Defined

THERE are three concepts of world inequality that need to be sharply distinguished. Yet, they are often confounded; even the terminology is unclear. So, we shall now first define them and give them their proper names.

The first (Concept 1) is unweighted international inequality. This concept takes country as the unit of observation, uses its income (or GDP) per capita, disregards its population, and thus compares, as it were, representative individuals from all the countries in the world. It is a kind of UN General Assembly where each country, small or large, counts the same. Imagine a world populated with ambassadors from some 200 countries, each of whom carries a sign on which is written the GDP per capita of his/her country. These ambassadors are then ranked from the poorest to the richest, and a measure of inequality is calculated across such ranking of nations (ambassadors). Note that this is properly a measure of *international* inequality, since it compares countries. It is “unweighted” because each country counts the same. Concept 1 is not a measure of inequality among citizens of the world.

Since it is reasonable to hold that if China becomes richer, this event should have more impact on the world than if Mauritania were to become so, we come to the second type of inequality (Concept 2): population-weighted international inequality, where we still assume that everyone in a country receives the same income but the number of representative individuals from each country reflects its population size.² Note that this is still *international* inequality because we compare mean incomes among nations, but it is now weighted by the population of each country. The difference when compared to Concept 1 is that the number of ambassadors from each country in our fictional assembly is proportional to the country’s population. Otherwise, everything else is the same: each ambassador carries a sign with the GDP per capita of his/her country, and income ranks—a concept crucial in the calculation of every inequality measure—are the same. Concept 2 assumes that “within-country” distribution is perfectly equal: all Chinese have the same mean income of China, all Americans, the mean income of the United States, etc. This is the distribution that is often billed as “world” income distribution (e.g., Melchior et al. 2000), but, as we have just seen it is not.

Concept 2 is only a halfway house to the calculation of a true world income distribution (Concept 3), where inequality is calculated across all individuals in the world. Concept 3 treats, in principle, everybody the same. We no longer have ambassadors from the countries: we line up all individuals, regardless of the country, from the poorest to the richest. Now, Chinese individuals will no longer be crowded together: the poor Chinese will mix with poor Africans, the rich Chinese with the middle-class or rich Americans, and a few rich Africans may even mix with the U.S. “top dogs.” If one thinks that this is impractical because we cannot array all 6 billion individuals, one is right. But what we can do, as we would in any household survey, is interview individuals or households selected in a worldwide random sample (such that the Chinese will have a chance to be selected proportionally to their population size), and rank all such individuals from the poorest to the richest. World distribution (Concept 3) goes back to the individual as the unit of analysis, ignoring country boundaries.

In terms of Jan Pen’s (1971) parade, which is similar to the idea of our fictional assembly but where in addition the height of each individual is proportional to his income, in Concept 1, only countries’ ambassadors parade, each having the height of that country’s GDP per capita. The number of participants in such a parade is small: at most 180–200, as many persons as there are countries in the world. In Concept 2, each country has a number of participants proportional to its population. Thus if the entire parade consists of 1000 people, China would have some 200 participants, and Luxembourg 1/150 of a participant, but all participants from a given country have the same height—equal to that country’s GDP per capita. In Concept 3, the number of participants from each country remains as in Concept 2, but the participants’ height now reflects their true income: there are tall and short Chinese just as there are tall and short Americans.

The idea of the parade is illustrated in figure 1.1, where we suppose that there are three countries with different average incomes given by the height of each individual in the top row. Concept 1 inequality is calculated across them. In the second row, we let each country be represented by all of its population. The poorest country has five people (men with briefcases), the middle-income country has two (women), and the richest country three (men with hardhats). Concept 2 inequality is calculated across these ten persons, each assigned the average income of their country. In the bottom row, finally, we let each individual come into the parade with his or her true income. Concept 3 inequality is calculated across the ten people in the bottom row. Not all people from the poorest country are poor; in effect, the poorest person is from a middle-income country. Note that the total height of people from each country

TABLE 1.2.

The Three Concepts Applied to the U.S. Data: Gini Coefficients, 1959–89

	<i>Concept 1</i>	<i>Concept 2</i>	<i>Concept 3</i>
	<i>Unweighted Interstate Inequality</i>	<i>Population-Weighted Interstate Inequality</i>	<i>Interhousehold Inequality</i>
1959	11.4	10.7	36.1
1969	9.1	8.1	34.9
1979	7.6	5.8	36.5
1989	9.8	8.3	40.1

Note: Calculated from the 1960–1990 Censuses of the population; state per capita incomes given at www.census.gov/hhes/income/histinc/state/state3.html, interhousehold inequality from www.census.gov/hhes/income/histinc/f04.html.

states' populations. Concept 3 is our usual U.S. inequality that we obtain from the Bureau of the Census's *Current Population Survey*. Why is it, then, that neither researchers nor ordinary people ever speak of Concept 2 (or even Concept 1) inequality when they discuss income distribution in the United States? Simply because we have a reasonably good estimate of "true" income distribution (Concept 3) thanks to the Bureau of the Census surveys.³ The reader has already seen my point: once we have such an estimate of Concept 3 inequality for the world, hardly anyone would bother about Concept 2 inequality. (We might still find it interesting to look at Concept 1 inequality to know whether mean incomes of the countries are converging.) And, of course, the three concepts can move in very different directions.

Table 1.2 shows the three concepts calculated for the United States and the fifty states over the period 1959–89 (per capita incomes by state are available at decennial intervals only). First, note the huge difference in Gini values between Concept 3 inequality and the other two. For sure, we do not expect to find such a big difference in results for the world as a whole because mean per capita incomes among countries are much more diverse than mean incomes of U.S. states, and thus both Concept 1 and Concept 2 inequality will be closer to Concept 3 inequality. We note, though, that in the United States, Concepts 1 and 2 do not even display the same trend as "true" inequality (Concept 3). While "true" inequality increased between 1969 and 1979, the other two concepts show a decline. Notice, too, that if one were to make conclusions about "true" U.S. inequality based on the first two concepts, one would be led to believe that inequality in 1989 was less than in 1959. The reverse is true: in 1989, inequality was four Gini points (or 11 percent) higher than thirty years ago.