

Trends in the Income Gap Between

Developed Countries and Developing Countries, 1960-1995

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### Abstract

Using data from the Penn World Tables, we take a look at whether the income gap between developed countries and developing countries has been narrowing over the period 1960–1995. Evidence indicates that it has not.

### Keywords

Global inequality, global income distribution, international inequality

## I. Introduction

The persistently large income gap between rich countries – the North – and poor countries – the South – is one of the most notable characteristics of the international community. Casual observation alone suggests the presence of vast differences in living standards across countries. In particular, there is a sharp divide between industrialized countries – the West and Japan – and developing countries. The economic difference between the two groups of countries is not merely a difference of wealth. A number of common structural characteristics, such as underdeveloped financial markets, poor infrastructure and a more pervasive role of the government in the economy, distinguish the former from the latter. Furthermore, the rich country–poor country dichotomy extends into the social and political realms as well, with the rich countries generally enjoying greater political stability and social peace.

Just as inequality among the citizens of a country breeds tension and conflict, inequality among the countries of the world constitutes an obstacle to international harmony and understanding. On many international issues, developing countries and developed countries form antagonistic blocs. For example, in the negotiations preceding the birth of the World Trade Organization (WTO) in 1994, developing countries vehemently opposed efforts by developed countries to open discussions about labor standards. The two blocs also clash regularly over environmental issues, where developed countries tend to call for more strict controls, as well as human rights issues. While we should not exaggerate the seriousness of the conflict between the two groups of countries, there is an unmistakable global divide along wealth lines. The members of each bloc have much more in common with each other than with members of the other bloc. It is fair to say that there are two worlds rather than one.

In today's world of ever-increasing globalization, the poverty of the South is no

longer something the North can view aloofly. As boatloads of impoverished Cubans and Haitians desperately trying to reach the Florida coast vividly remind us, the rich countries are neither immune nor isolated from the problems of the poor countries. The popular if largely unproven notion that cheap imports from poor countries are largely responsible for the growing income inequality between skilled and unskilled workers within some rich countries serves as yet another reminder. On the other hand, there is considerable resentment within poor countries for what their citizens see as a grossly unequal distribution of global resources. Such resentment has its roots in a widely held belief, formalized in dependency theory, that the unequal economic relationship between the North and the South is responsible for the plight of the latter and has led to calls for a New International Economic Order.

While the large disparities in the international distribution of income are unpalatable on moral grounds alone, there are purely economic considerations that render them undesirable as well. Several studies have examined the relationship between income inequality and economic growth since the pioneering works of Simon Kuznets in the 1950s. Although many of those studies, including those of Kuznets, investigate the effect of growth on inequality, others look at the impact of inequality on growth instead. Recent papers by Perotti (1996) and Deininger and Squire (1996) find that countries with greater inequality generally experience slower growth. It is quite possible that reducing global inequality would also promote global growth. As Singer and Ansari (1988) point out, we can expect the economic, political and social tensions building up in the South to threaten the long-term prosperity of the North.

What we are interested in this paper is whether the North–South gap in living standards has been narrowing over the period 1960–1995. That is, have the poor countries been catching up with rich countries in recent times? This is of more than

passing interest because, as we have already noted, the polarization of the world into two disparate components does not bode well for international peace or prosperity, especially in the long run. Conversely, we can expect an increasingly more equitable distribution of resources among the community of nations to contribute substantially toward the formation of a more stable international order.

Although economic theory provides some predictions for why poor countries would grow faster than rich ones, the stylized evidence remains ambiguous. The phenomenon of the poor countries catching up with rich countries over time is called **convergence** in economic jargon. Some developing countries, particularly those in East Asia, have recorded impressive economic growth rates, despite their current economic crisis. Other developing countries, most notably those in sub-Saharan Africa, have hardly made any economic progress since their independence. Given such diverse economic performances, our over-riding goal then is to examine whether the South as a whole has been able to close the yawning income gap that separates it from the North.

## II. Empirical Literature

We now turn to a brief review of previous empirical studies examining the issue of economic convergence. Romer (1989), Barro (1991), Barro and Sala-i-Martin (1992) and Parente and Prescott (1993), among others, have recently addressed this question. They all find no empirical evidence for convergence. That is, on balance, the actual pattern of economic growth across countries does not indicate that poor countries have been experiencing more rapid economic growth than rich countries.

Perhaps the most obvious way to test for convergence is to plot rates of economic growth against initial levels of per capita income and check for any discernible pattern. The lower the initial level of per capita, the higher must the economic growth

rate be if convergence were to occur. Romer (1989) and Barro (1991) do this but do not find any systematic pattern. More formally, Sala-i-Martin (1990a, 1990b) estimate an equation based on the economy moving along its optimal path towards its steady-state per capita growth rate and find that the initial level of income is statistically insignificant as a determinant of the rate of economic growth.

An alternative way to empirically investigate convergence is to observe the evidence on international capital flows. In particular, economic theory suggests that capital will flow from rich countries to poor countries. This is because poor countries are relatively poorly endowed with capital and capital is subject to diminishing marginal productivity, which means that the returns to capital will be higher in the latter. In economic theory, those capital flows are the driving force behind economic convergence. Lucas (1990) finds that empirical evidence fails to support rich country-to-poor country capital flows of the magnitude implied by economic theory.

### III. Data

Our source of data is the Penn World Tables (henceforth PWT), version 5.6. For a comprehensive explanation of this data set, please refer to Summers and Heston (1991). As is well known, PWT's great advantage is that all the economic variables are expressed in a common set of prices and in a common currency. The development of this database has allowed for more meaningful comparisons of variables across countries and has, in fact, served as a catalyst in empirical research on analysis of the international pattern of economic growth.

Our sample consists of 133 countries and territories. The sole criterion for sample selection is availability of data in PWT. Our sample includes well over 97% of the world's population and the most populous countries to be excluded are Vietnam, North Korea and Cuba. Although ideally we would like a more comprehensive

sample, the omission of some countries is less problematic once we realize that the focus of our study is changes in the rich country–poor country gap over time rather than the size of this gap at any single point in time.

There is a fairly widely accepted consensus among economists as to which countries are considered “developed” and which are not. Most significantly, economists usually classify countries with a high level of per capita income but also many structural characteristics of a developing country as developing rather than developed. Kuwait and Libya provide classic examples. We define developed countries to be the 23 members of OECD other than Mexico, Turkey, South Korea, Poland, Hungary and the Czech Republic. I define the remaining countries in my sample, including the six members of OECD mentioned above, to be developing countries.

Year	Population (in millions)	Total Income (in billion US\$)	Per Capita Income (in US\$)
1960	2,956	6,634	2,212
1965	3,246	8,561	2,637
1970	3,588	11,020	3,071
1975	3,944	13,372	3,391
1980	4,301	16,313	3,793
1985	4,685	18,731	3,998
1990	5,105	21,884	4,287
1995	5,527	24,628	4,456

Table 1: Trends in Global Population, Income and Per Capita Income

Table 1 shows the trends in the global population, global income and global per capita income implied by our data set. We obtain global population and global income by summing up the populations and national incomes of all countries in our data set. We derive per capita income by dividing global income by global population.

#### IV. Empirical Evidence

In this section, we report the trends in income inequality between developed countries and developing countries for the period 1960–1995.

##### i) Shares of global population and global income

The second and third columns in Table 2 below shows trends in the shares of the

global population living in developed countries and developing countries respectively. Since developing countries generally have higher rates of population growth than developed countries, we expect the proportion of the global population living in developing countries to steadily rise although there is some migration from developing to developed countries. Table 2 confirms this conjecture. The share of developing countries rises from around 79% in 1960 to over 85% in 1995 while the share of developed countries falls accordingly.

Year	South Population	North Population	South Income	North Income
1960	0.7925	0.2075	0.3981	0.6019
1961	0.7926	0.2074	0.3946	0.6054
1962	0.7935	0.2065	0.3890	0.6110
1963	0.7955	0.2045	0.3896	0.6104
1964	0.7974	0.2027	0.3918	0.6082
1965	0.7969	0.2031	0.3858	0.6142
1966	0.8018	0.1982	0.3910	0.6090
1967	0.8039	0.1961	0.3917	0.6083
1968	0.8064	0.1936	0.3927	0.6073
1969	0.8084	0.1916	0.3957	0.6043
1970	0.8105	0.1895	0.4062	0.5938
1971	0.8118	0.1882	0.4108	0.5893
1972	0.8139	0.1861	0.4094	0.5906
1973	0.8160	0.1840	0.4118	0.5882
1974	0.8179	0.1821	0.4255	0.5746
1975	0.8198	0.1802	0.4393	0.5607
1976	0.8218	0.1782	0.4393	0.5607
1977	0.8225	0.1775	0.4435	0.5565
1978	0.8255	0.1745	0.4463	0.5537
1979	0.8273	0.1727	0.4484	0.5517
1980	0.8290	0.1710	0.4573	0.5427
1981	0.8311	0.1689	0.4609	0.5391
1982	0.8326	0.1674	0.4668	0.5332
1983	0.8345	0.1655	0.4680	0.5321
1984	0.8364	0.1636	0.4676	0.5324
1985	0.8382	0.1618	0.4707	0.5293
1986	0.8401	0.1599	0.4712	0.5288
1987	0.8419	0.1581	0.4709	0.5291
1988	0.8437	0.1563	0.4716	0.5284
1989	0.8455	0.1545	0.4711	0.5289
1990	0.8470	0.1530	0.4686	0.5314
1991	0.8484	0.1516	0.4717	0.5283
1992	0.8501	0.1499	0.4756	0.5244
1993	0.8513	0.1487	0.4771	0.5229
1994	0.8526	0.1474	0.4793	0.5207
1995	0.8539	0.1461	0.4821	0.5179

Table 2: Shares of Global Population and Global Income

The fourth and fifth columns in Table 2 show the trends in the shares of the global

income accruing to developed countries and developing countries respectively. The share of the North falls steadily, from around 60% in 1960 to a little under 52% in 1992 while the share of the South rises accordingly. While it is tempting to interpret this trend as devolution of economic power from the North to the South, we should remember that the South's share of global population has also risen. What is relevant for our purposes is per capita income rather than total income.

ii) Average per capita income of South countries versus North countries (in US\$)

Year	South	North	Difference	Ratio
1960	1448	5839	4391	4.032
1961	1511	6058	4547	4.010
1962	1549	6281	4732	4.055
1963	1591	6482	4891	4.074
1964	1654	6815	5161	4.120
1965	1691	7079	5388	4.186
1966	1760	7286	5526	4.140
1967	1800	7422	5622	4.123
1968	1895	7686	5791	4.056
1969	1988	8106	6118	4.077
1970	2061	8469	6408	4.109
1971	2152	8730	6578	4.057
1972	2234	9085	6851	4.067
1973	2307	9546	7239	4.138
1974	2400	9701	7301	4.042
1975	2435	9543	7108	3.919
1976	2554	9870	7316	3.865
1977	2638	10051	7413	3.810
1978	2703	10319	7616	3.818
1979	2780	10643	7863	3.828
1980	2800	10830	8030	3.868
1981	2823	10869	8046	3.850
1982	2775	10854	8079	3.911
1983	2742	11021	8279	4.019
1984	2745	11387	8642	4.148
1985	2770	11681	8911	4.217
1986	2805	11984	9179	4.272
1987	2842	12301	9459	4.328
1988	2896	12689	9793	4.382
1989	2922	13069	10147	4.473
1990	2955	13274	10319	4.492
1991	2965	13214	10249	4.457
1992	3031	13241	10210	4.369
1993	3077	13444	10367	4.369
1994	3127	13653	10526	4.366
1995	3182	13865	10683	4.357

Table 3: Average per capita income of South countries versus North countries

The second and third columns in Table 3 show the average per capita income of

developing countries and developed countries respectively. We sum up the per capita incomes of all the countries in each bloc and divide the sum by the number of countries in each bloc. The absolute gap between the North and South rises from 4,391 dollars in 1960 to 10,683 dollars in 1995 while the ratio of the Northern average to the Southern average rises from 4.032 in 1960 to 4.357 in 1995. It is clear that the North–South gap shows no evidence of narrowing during the period under study.

iii) Average per capita income of North versus South (in US\$)

Year	South	North	Difference	Ratio
1960	1128	6509	5381	5.770
1961	1143	6704	5561	5.865
1962	1161	7006	5845	6.034
1963	1193	7272	6079	6.096
1964	1253	7653	6400	6.108
1965	1277	7974	6697	6.244
1966	1321	8318	6997	6.297
1967	1343	8545	7202	6.363
1968	1387	8937	7550	6.443
1969	1449	9339	7890	6.445
1970	1539	9624	8085	6.253
1971	1592	9853	8261	6.189
1972	1626	10260	8634	6.310
1973	1705	10802	9097	6.335
1974	1771	10743	8972	6.066
1975	1817	10553	8736	5.808
1976	1868	10995	9127	5.886
1977	1947	11325	9378	5.817
1978	1995	11710	9715	5.870
1979	2040	12024	9984	5.894
1980	2092	12035	9943	5.753
1981	2107	12125	10018	5.755
1982	2108	11978	9870	5.682
1983	2134	12235	10101	5.733
1984	2190	12752	10562	5.823
1985	2245	13082	10837	5.827
1986	2269	13377	11108	5.896
1987	2296	13736	11440	5.983
1988	2360	14279	11919	6.050
1989	2391	14686	12295	6.142
1990	2372	14886	12514	6.276
1991	2366	14822	12456	6.265
1992	2396	14980	12584	6.252
1993	2429	15246	12817	6.277
1994	2469	15517	13048	6.285
1995	2516	15792	13276	6.277

Table 4: Average per capita income of North versus South

The second and third columns in Table 4 show the average per capita income of the

South as a whole and the North as a whole respectively. We sum up the total incomes of all the countries in each bloc and divide the sum by the total population in each bloc. The absolute gap between the North and South rises from 5,381 dollars in 1960 to 13,276 dollars in 1995 while the ratio of the Northern average to the Southern average rises from 5.770 in 1960 to 6.277 in 1995. Again, there is no indication that the South is catching up with the North.

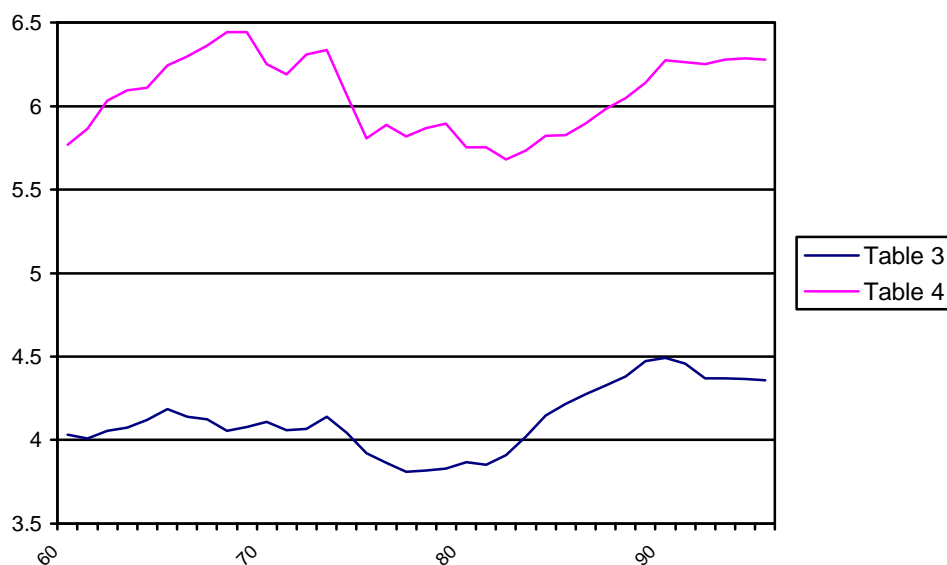


Figure 1: Trends in the ratio of average per capita income of the North versus the South

Figure 1 reproduces the trends in the North-South ratios of Tables 3 and 4.

iv) Growth rates in the per capita income of the North versus the South

Period	South	North
1960 – 1970	0.0316	0.0399
1970 – 1980	0.0312	0.0226
1980 – 1990	0.0054	0.0206
1990 – 1995	0.0149	0.0088
1960 – 1995	0.0228	0.0250

Table 5: Annual growth rates of the per capita income of the North versus the South

The average annual growth rates of per capita income in the North and the South reported in Table 5 above and Figure 2 below are based on Table 4. That is, the

growth rates pertain to the North as a whole and the South as a whole rather than the average of North countries and the average of Southern countries. Over the entire period under study, per capita income has grown faster in the North than in the South. However, the South did grow faster during 1970–1980 and 1990–1995.

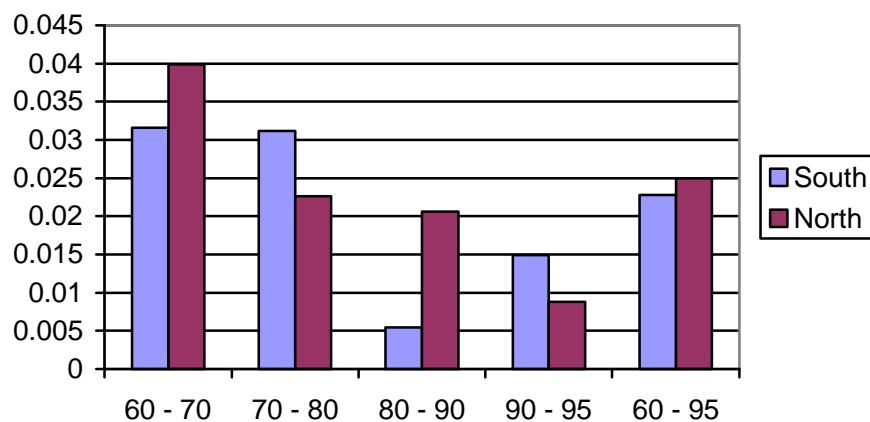


Figure 2: Growth rates of the per capita income of the North versus the South

#### v) Percentile shares of global income

We divide the global population – or more precisely, the total population of the countries and territories in our sample – into fifths. Our first step is to rank all political entities by their per capita income. Thus, in 1960, Ethiopia is one end and the U.S. at the other. We divide the global population by five. For example, if there are four billion people in the world, each fifth would consist of 800 million. In constructing the poorest fifth, we would include all Ethiopians as well as the populations of the next poorest countries until 800 million people living in the poorest countries are included. Conversely, the richest fifth would consist of all Americans as well as the populations of the next richest countries until 800 million people living in the richest countries are included. We repeat the exercise for the middle three fifths. Countries at the cut-off points will have a part of their population included in one fifth and another included in another fifth. We simply divide the total income accruing to

each twenty percentile by a fifth of the global population to obtain the average per capita income of each twenty percentile. Almost all Northerners are in the top twenty percentile while virtually all Southerners are in the next four twenty percentiles.

	q1	q2	q3	q4	q5
1960	4.74 (531)	5.75 (645)	8.80 (987)	20.7 (2320)	60.0 (6737)
1965	4.16 (549)	4.98 (657)	7.65 (1008)	21.4 (2819)	61.8 (8153)
1970	4.24 (651)	4.86 (746)	7.04 (1082)	22.0 (3372)	61.9 (9505)
1975	4.19 (710)	4.69 (795)	6.56 (1113)	24.3 (4118)	60.3 (10218)
1980	4.21 (797)	5.09 (965)	6.78 (1286)	23.8 (4521)	60.1 (11393)
1985	4.46 (892)	5.95 (1189)	7.17 (1434)	22.1 (4411)	60.4 (12065)
1990	4.63 (992)	6.08 (1303)	7.09 (1520)	20.4 (4377)	61.8 (13241)
1995	4.60 (1024)	7.15 (1594)	8.69 (1936)	18.1 (4025)	61.5 (13702)

Table 6: Shares of Global Income by Twenty Percentiles (%)

In Table 6, q1 and q5 represent the percentage share of global income accruing to the fifth of humanity living in the world's poorest and richest countries respectively, with q1, q2 and q3 representing successively richer percentiles. The number inside the parenthesis indicates the average per capita income of each percentile.

Year	q1	q2	q3	q4
1960	12.25	10.09	6.6	2.81
1965	14.52	12.14	7.91	2.83
1970	14.78	12.9	8.89	2.85
1975	14.86	13.27	9.48	2.56
1980	15.1	12.47	9.36	2.66
1985	14.67	11.0	9.12	2.97
1990	15.01	11.42	9.79	3.40
1995	13.54	8.70	7.16	3.44

Table 7: The ratio of the average per capita income of twenty percentiles and the average per capita income of the North

Table 7 above shows the ratios of the average per capita income in the bottom four twenty percentiles to the average per capita income of the North. For example, the

second column in Table 7 shows the ratio of the per capita income of the poorest twenty percentile and the per capita income of the North. We do not estimate the ratio between q5 and the North since, as we noted earlier, the two are virtually identical. The ratio rose for q3 and q4 as well as q1. In other words, it appears that even developing countries which are middle-income and upper middle-income have failed to catch up with the developed countries. The well-publicized successes of countries such as South Korea and Taiwan have not been sufficient to compensate for the less impressive performances of other countries. Thus, the failure of the South to catch up with the North is a general across-the-board phenomenon rather than one due to severely poor economic performances of a group of laggards.

#### VI. Concluding Remarks

Our examination of data from the Penn World Tables indicates that the large income gap between the North and the South has not narrowed during 1960–1995. If anything, the gap has risen slightly. While the remarkable, well-publicized success of a few developing economies, concentrated in East Asia, during the period may have produced an illusion of narrowing, such success has been the exception rather than the rule in the South. Our result suggests that the highly unequal global distribution of income is likely to persist for some time, along with the international tension and polarization it entails. Financial instability in developing countries, as evidenced recently in East Asia, Russia and Brazil, provides further grounds for pessimism.

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