

World-Economic Trends in the Distribution of Income, 1965–1992¹

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This article assesses trends in world income inequality between 1965 and 1992. The study first decomposes Theil's T to show that between-country inequality is the most significant component of overall world income inequality, which facilitates further research, as between-country longitudinal data are more easily available than national income distribution data. Next, the study uses a larger set of nations and finds a significant increase in world income inequality as measured by both Gini and Theil coefficients, particularly during the 1980s. The findings are robust even after controlling for differential rates of population growth or using alternative sources of data. By identifying these trends, the article is able to explain past discrepancies and recent shifts in the relevant empirical and theoretical literature.

Empirical research on trends in the world distribution of income has attracted intermittent attention throughout the past two decades, particularly from the field of economics. But there are practically no such studies tracing the evolution of world income inequality during the 1980s, a decade of stagnant economic growth in many low- and middle-income nations. In particular, contributions from sociologists are virtually nonexistent. Despite the discipline's long-standing concern with identifying patterns of stratification and social inequality, studies of these trends on a global scale are rare (noteworthy exceptions are Rubinson [1976], Bredlove and Nolan [1988], and Peacock, Hoover, and Killian [1988]), and there has been practically no published research on this topic during the 1990s. This shortage of empirical research is surprising because the topic at hand addresses both issues of intense policy debates at national and international levels (in areas such as economic strategy) and key theo-

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retical debates in the social sciences (in areas such as social stratification and development).

This study seeks to identify trends in world income inequality between 1965 and 1992. The first section of the article reviews the pertinent literature, highlighting a recent shift from analytical dispute to theoretical convergence and linking this shift to the current paucity of empirical research on the topic at hand. The second section is designed to establish whether data on the distribution of income between countries can provide an accurate assessment of trends in world income inequality; for this purpose the study decomposes world income inequality to assess the relative contribution of between- and within-country components. From these findings, the third section of the article provides a more detailed assessment of trends in world income inequality between 1965 and 1990 and evaluates whether these trends are explained primarily by differential rates in economic or population growth. Finally, we use our empirical findings to provide an explanation of the trends noted within the pertinent theoretical and empirical literature.

THEORETICAL AND EMPIRICAL BACKGROUND

While contending theoretical approaches have advanced quite different speculations about trends in the global distribution of income, there are few systematic comparisons of these interpretations. To be sure, efforts to synthesize the relevant literature are complicated by the sheer number of pertinent debates and interpretations (as the topic is addressed either directly or indirectly by virtually all theories and empirical researchers dealing with world capitalist development). What is more important, empirical researchers have pursued separate paths of inquiry, following the boundaries enforced within different academic disciplines with few cross-references between the various studies. The resulting literature is thus characterized by considerable heterogeneity in methods of inquiry, analytical assumptions, and theoretical concerns.

Despite these difficulties, there are rather clear trends within the literature. Overall, there is a general theoretical and empirical consensus that, until the 1950s, the development of capitalism was characterized by growing disparities in the distribution of income between poor and rich nations (although with some disagreements as to whether a significant gap existed before the 19th century; see Kuznets 1965; Bairoch 1967, 1981, 1993; Maddison 1983; Zimmerman 1982). This consensus broke down, however, when considering trends between the 1950s and 1970s, with contentious debates as to whether the world distribution of income subsequently moved toward convergence or growing inequality. Since the 1980s, finally,

the literature has undergone a gradual but perceptible shift from analytical contention toward theoretical consensus.

The Argument for Convergence

A theoretical case for convergence has been made by authors across the social sciences. Some emphasize growing social similarities among all nations (Inkeles and Rossi 1956; Hoselitz 1960; Hoselitz and Moore 1963; Levy 1967; Inkeles 1969). Others, particularly within economics, argue that successful development itself generates institutional obstacles to continuing rapid growth among the wealthiest of nations, while "back ward[ness] in level of productivity carries a potential for rapid advance" among poorer nations (Abramovitz 1986, p. 386, emphasis in the original; see also Veblen 1915; Rostow 1960; Kindleberger 1961; Gerschenkron 1962). For many proponents of this perspective, world markets serve to circulate new technologies and innovations, so "international product and factor markets unobstructed by either cartelization or governmental intervention will bring irrepressible and rapid growth to any poor country" (Olson 1982, p. 176; see also Rostow 1960; Baumol 1980).

Exploring the institutional forces that lead to convergence, Olson (1982, p. 65; see also 1995) argues that the rise of collective organizations and coalitions in wealthy nations eventually inhibits innovation, leading to "reduced efficiency and aggregate income in the societies in which they operate." Likewise, for Abramovitz (1986, p. 401), the rate of economic growth is likely to diminish in wealthier nations because "the capital stock of a country consists of an intricate web of interlocking elements. They are built to fit together, and it is difficult to replace one part of the complex with more modern and efficient elements without a costly rebuilding of other components." Given this uneven distribution of institutional constraints and technological opportunities between more and less advanced nations, "poorer and technologically less advanced areas can grow faster, as they catch up, than richer and technologically more advanced areas" (Olson 1982, p. 114).

Although often lacking fully developed theoretical frameworks, the results of several empirical studies are compatible with such a convergence hypothesis (see table 1). Ram (1989, pp. 81-83) argues that, although income inequality increased for 1960-80 as a whole, "increased inequality seems to have slowed down and may even have stopped" toward the end of the period, so that the "time-profile of intercountry inequality is likely to be a U-curve and not one of monotonic increase." As indicated in table 1, other studies claim to have found little change in world income distribution after 1950 (Andic and Peacock 1961; Beckerman and Bacon 1970; Berry, Bourguignon, and Morrisson 1983; Summers, Kravis, and Heston

TABLE 1

SUMMARY OF EMPIRICAL RESEARCH

| Author | Year of Study | Time Frame | Sample Size and Composition | Measurement of Income | Measurement of Inequality |
|-------------------------------|---------------|------------|---|--|---|
| Convergence/no change: | | | | | |
| Andic and Pasovic | 1961 | 1946-57 | 63, no socialist countries | "National income", output minus NIP, GDP, and GNP for missing data | Gini, Lorenz curves, growth rates |
| Brockman and Baran | 1970 | 1934-63 | 74, China excluded | Consumption or "consumption" measure | Gini |
| Ram | 1986 | 1960-80 | 115, no socialist countries | GDPPC | Theil, regression analysis |
| Summers et al. | 1981 | 1950-75 | 106, no socialist countries* | GDPPC; CDDY, with PPPs | Gini |
| Berry et al. | 1980s | 1950-77 | 124, socialist countries, China, and India included | GNPPC with PPPs | Gini, Theil |
| Divergence: | | | | | |
| Braslavice and Nolin | 1988 | 1960-80 | 69, socialist countries, China, and India included | GDPPC with PPPs | Gini |
| Jankovic | 1982 | 1960-78 | 107, no socialist countries† | GNPPC | Regression analysis |
| Khoroog and Tevosiani | 1968 | 1951-66 | 44, no socialist countries | GNPPC | Spearman's Rank, other rank measures, Lorenz curves |
| Morgensztejn | 1977 | 1950-75 | 112, no socialist countries | GNPPC | Growth rates, gap analysis |
| Pasek-Smith | 1991 | 1967-90 | 115, China excluded | GNPPC | Growth rates, gap analysis |
| Petrock et al. | 1988 | 1950-80 | 53, no socialist countries | GDPPC with PPPs | Theil |
| Rack | 1993 | 1975-89 | Samples vary | GDPPC | Growth rates |
| Theil | 1967 | 1949-76 | 64, no socialist countries | "Income" with ITTs | Theil |

* We were unable to determine whether China or India were included.

† We were unable to determine whether India was included.

1931). A longitudinal study (Berry et al. 1983b) combines data on income distribution within and between countries and reports that, as measured by both Gini and Theil indexes, inequality increased between 1960 and 1970 but began to level off thereafter. Several authors argue that although disparities between rich and poor nations may be more pronounced over the postwar period, the share of middle-income countries has consistently increased (Arkinson 1983; Berry et al. 1983a; Summers et al. 1981). Firebaugh (1983, p. 268) reports finding evidence for convergence but warns that this evidence might reflect only short-term trends, as the world-economy might experience "cycles of scale economy and scale entropy, cycles occasioned by major technological change."

The Argument for Divergence

There is an extensive theoretical literature that challenges the hypothesis of convergence. A long-standing line of Marxist interpretation portrays inequality as a structural component of capitalist accumulation in a world-economy (Lenin 1939; Luxemburg 1951; Baran 1957; Magdoff 1963). On a different track, policymakers working for the Economic Commission for Latin America (ECLA) of the United Nations after World War II contended that a deterioration of terms of trade was leading to growing inequality between wealthy and poor nations (Prebisch 1950 and 1964; ECLA 1969; Furtado 1971). Parallel arguments were developed by Singer (1950) and Myrdal (1957). Later, and often evolving as a critique of the previous interpretations, dependency studies argued that the very existence of a capitalist international economy, as embodied in global trade or an international division of labor, entailed a continual transfer of surplus from poor (or satellite) to wealthy (or core) areas (e.g., Cardoso 1974, 1977; Cardoso and Faletto 1969; Dos Santos 1970; Frank 1966, 1967, and 1978).² A similar emphasis on the persistence of world inequality also prevails within the original world-systems literature (e.g., Portes and Walton 1981; Wallerstein 1974, 1979, 1980).

Within these different approaches, the explanation of the mechanisms generating the persistence of inequality has varied, but all would agree that world income inequality becomes more pronounced over time. For example, some authors emphasize the importance of profit remittances and labor surpluses in peripheral areas (Amin 1976), while others highlight the role of unequal exchange (Emmanuel 1972) or the uneven distribution of productivity gains between enterprises and labor in core and peripheral

² For useful reviews of this literature see FitzGerald (1981), Gerliff (1994), the essays in Osofski et al. (1975), Palma (1978), Portes (1979), Roxborough (1979), Valenzuela and Valenzuela (1978).

countries (ECLA 1969; Prebisch 1959, 1964). Myrdal (1957, p. 6) indicates that inequality results from high rates of population growth and little innovation in underdeveloped countries, combined with a firm "pattern of continuing economic development" in wealthy nations. Singer and Ansari (1982, p. 37) argue that "the real source of the maldistribution of the gains from trade and investment lies in the nature of modern technology and the process of its development" in wealthy nations (for similar arguments, see Griffin [1978] and Singer and Roy [1993]). Frank (e.g., 1966, 1967) indicates that networks linking metropolises to satellites serve to transfer economic surplus from poor to wealthy areas; he expects world inequality to become less pronounced when these linkages are weakened by economic recession and/or disruptions in international trade. Wallerstein's (1974) initial contributions emphasize the competitive and political advantages derived by core enterprises from both the uneven spatial distribution of accumulated capital (including human capital and technologies) and the uneven development of states and different modes of labor control.

Providing empirical support for such interpretations, several quantitative studies indicate that the gap between poor and rich nations is extensive and growing. Kirman and Tomasini (1969) indicate that, regardless of the specific techniques used to evaluate this gap, the distance between the two groups grew during the 1950s and 1960s. While acknowledging that the *relative* gap narrowed slightly for a few regions experiencing high rates of economic growth (China, East Asia, the Middle East), Morawetz (1977) analyzes gross national product per capita (GNPPC) data to indicate that the *absolute* gap continued to widen during the 1950-75 period, and that even the relative gap continued to grow in many regions (Latin America, Africa, South Asia).² Passé-Smith (1993a) performs a similar exercise, showing a widening gap over the 1975-90 period in absolute as well as relative terms (except for a few countries, such as Italy and Japan, and for the East Asia/Pacific region). These conclusions are compatible with Jackman (1982), who argues that the overall gap between poor and wealthy nations increased in the 1970s, although with some convergence between the wealthiest nations and the most developed peripheral countries.

Bredalove and Nufar (1988) measure international inequality by calculating Gini coefficients of real gross domestic product per capita (GDPPC) for five-year intervals between 1960 and 1980; they conclude that there

² Morawetz points out that the growth of the absolute gap "is the result of the simple algebra of gaps. In brief, a poor country growing faster than a rich one will not even begin to reduce the absolute gap between them until the ratio of their per capita incomes is equal to the inverse ratio of their growth rates" (Morawetz 1977, p. 27; see also Ruck 1993).

was a growing gap between the most and least developed countries, with different trends within each of these groups (convergence among the most developed countries, divergence among the least developed). Although the authors express reservations regarding the ability of world-systems theory to explain their findings, Peacock et al.'s (1988) estimates of Theil's *T* for between-group and within-group inequalities (calculated on the basis of GNP/C data) suggest a slight increase in world income inequality between 1960 and 1980 (but a decline in the 1980s). Chase-Dunn (1989, p. 269) reviews recent studies and provides rough data on changes in the distribution of GNP/C and other resources (such as energy consumption) to argue that "despite the undeniable industrialization of many peripheral and semiperipheral states, there is no evidence of a reduction in the magnitude of core/periphery inequalities." Arrighi (1991, p. 40) compares levels of GNP/C for different regions and countries and concludes that "after more than thirty years of developmental efforts of all kinds, the gaps that separate the incomes of the East and of the South from those of the West/North are today wider than ever."

The differences in the empirical findings within the convergence/divergence debate are striking. To what extent can these differences be explained as an outcome of the data or methodological procedures selected by these studies? A careful analysis of the studies in table 1 finds no clear pattern in either data sources or methodological procedures that might explain these differences, as the structure of these studies (i.e., data sources, measures of inequality, sample size, or time period) does not go far in explaining the direction of their findings. In fact, studies with very different conclusions use the exact same data set to provide their evidence (e.g., Broadlove and Nolan [1988] and Peacock et al. [1984] use the data of Summers and Heston [1984, 1988] to find evidence for divergence, but the same source is used by Ram [1989] to claim growing convergence). Further inquiry into these differences, however, has been hampered by subsequent developments in the literature during the 1980s and 1990s.

Toward Theoretical Convergence?

Regardless of methodological disagreements, theoretical shifts since the 1980s have altered the terms of the convergence/divergence debate. Moving away from the convergence hypothesis, influential authors in the field of economics are acknowledging that growth in poor nations can continue to be hindered by persistent institutional constraints, while wealthy countries can experience unexpected pressures (e.g., domestic competition among regions or political transformations) that serve to overcome institutional constraints and to promote renewed growth (e.g., Abramovitz 1986; Adelman and Morris 1980; Barro and Sala-i-Martin 1993; Baumol 1986;

Baumol and Wolff 1988, Clark 1987; De Long 1988; Easterlin 1981; Zind 1991; and some of the essays in Baumol, Nelson, and Wolff [1994].⁴

Similar reveals regarding the convergence hypothesis and emphasizing the importance of institutions in shaping both the rate and direction of economic growth have always been available elsewhere in the literature (e.g., Adelman and Morris 1967, 1980; Ames and Rosenberg 1963; Hirschman 1958; Horowitz 1966; Kuznets 1971; North 1981, 1989).⁵ The new economic literature, however, does not treat technology as an exogenous variable, but emphasizes the endogenous processes (e.g., investments in human capital or patterns of government spending) involved in economic growth (Barro 1990, 1991; Benhabib and Jovanovic 1991; Helpman 1992; King and Rebelo 1990; Lucas 1988; Romer 1986, 1990a, 1990b; Yim 1994). This line of interpretation moves away from short-term predictions regarding trends in the world distribution of income, to evaluate instead endogenous growth models that attribute differences in growth rates to variables such as the amount of resources allocated to research and development.⁶

At the very least, then, the economic literature on technology and economic growth has moved toward much greater skepticism regarding convergence for the world-economy as a whole. As indicated more broadly for the field of economics by Sabel (1991, p. 140), "Many of the most mainstream economists now doubt that markets work to equalize growth rates in all economies. More to the point, they suspect that strength can breed strength and the strong can continue to grow faster than the weak."⁷ Within the field of economics, this theoretical shift might be partly responsible for the relative decline in the number of quantitative studies focusing on trends in world income inequality.

⁴ For Abramovitz (1986, p. 289), "social capability . . . depends on more than the content of education and the organization of firms. Other aspects of economic systems count as well—their openness to competition, to the establishment and operation of new firms, and to the sale and purchase of new goods and services. Viewed from the other side, it is a question of the obstacles to change raised by vested interests, established positions, and customary relations among firms and between employers and employees."

⁵ Bryan Raimol (1986, p. 1081) notes that much of the literature on the slowdown in the rates of growth among wealthy nations was produced in the midst of the economic changes experienced during the 1970s and early 1980s in the United States, a country that experienced a dramatic fall in the growth rate of labor productivity from a post-war peak: "But it is the peak which looks like the aberration, and the decline from it may well prove to be a return to historical growth rates in labor productivity."

⁶ Endogenous growth models have been challenged by recent empirical studies suggesting that long-run rates of economic growth are "invariant to conventional government policies" (Jones 1995, p. 407), but no alternative accounting explanation of differences in rates of economic growth has yet emerged from the economics literature.

But a parallel theoretical shift has characterized what can be referred to as the "new" critical literature on the political economy of development (e.g., Evans 1995; Haggard 1990; Shafer 1994; Wade 1992). To a considerable extent, much of this literature emphasizes that different patterns of state policies have led to a growing heterogeneity in the relative economic performance of peripheral and semiperipheral countries after the 1970s. For example, many of these studies contrast the Latin American and East Asian patterns of growth, arguing that prevailing patterns of industrialization and state regulation led to economic stagnation in the former region, but to rapid economic growth in the latter. Drawing on such experiences, Shafer (1994, p. 1) introduces his recent study of state developmental strategies by noting that "for decades we focused on North-South issues; Today we must explain differentiation within the third world."

Likewise, while retaining an emphasis on the persistence of world inequality, the latest contributions to the world-systems perspective portray world-economic status as contingent upon an uneven ability of states and enterprises in rich and poor nations to engage in innovation (Arrighi and Drangiel 1986; Arrighi 1990, 1991, 1994; Cummings 1984; Gereffi and Korzeniewicz 1994; Gereffi and Wyman 1990; Wallerstein 1983). Of course, this orientation is linked to Schumpeter (1934, 16-12), for whom innovative processes were at the root of the creative destruction that characterizes capitalism as a system. From this perspective, the very implementation of innovative practices initiates their diffusion, their eventual routinization, and the creation of new technological, organizational, and institutional rigidities, all manifested in the relative intensity of competitive pressures.³

Combined, the shifts reviewed in these pages have produced a noteworthy theoretical convergence. As studies have moved to focus on the impact of technological change and institutional innovation on global patterns of competition and economic growth, considerable overlap has emerged both between disciplines (e.g., sociology and economics) and between theoretical perspectives (e.g., world-systems theory and the new institutional economics). In this sense, a theoretical convergence in the 1990s has displaced to a considerable degree the contentious debates of the 1970s and 1980s on the future of world income inequalities.

³ Hence, there is nothing inherent about the character of certain production processes or commodities (e.g., iron vs. apples) that determines their yield of relative wealth. Instead, production processes and commodities "have had 'production cycles,' starting off as core products and eventually becoming peripheral products" (Wallerstein 1983, p. 36). Insofar as innovation constitutes the principal mechanism through which world income inequality has been reproduced, no specific or single strategy can be expected to provide a fully reliable *habeas corpus* of development.

With the advance of this theoretical convergence, however, empirical research on world income inequality has lagged behind. Replacing such inquiries, the social sciences in general have come to be guided in the 1990s by a series of general assumptions drawn from apparent patterns of growth in the contemporary world-economy. For example, the economic success of East Asia is often presumed to entail a substantial redistribution of world income from wealthy to poor nations. To be sure, the paucity of research on these trends suggests that such assumptions have gained ground through a selective assimilation of partial observations rather than through systematic empirical verification. These untested assumptions are legitimated primarily by their commonsense appeal, yet they have come to prevail in establishing the boundaries of reasonable empirical inquiry in fields such as economic development.

The main concern of this study is to address the current lack of empirical research by evaluating recent trends in world income inequality. Such an effort is designed to begin addressing the lag between theoretical development and empirical inquiry discussed above. As always, such empirical inquiries often facilitate the task of evaluating which of the existing theoretical approaches (e.g., among those reviewed in this section) provides the best fit to observed trends. As indicated in the concluding section of this article, however, an evaluation of trends in world income inequality can also prove to be useful in explaining the very patterns of *theoretical* development addressed in this section.

DISAGGREGATING THE WORLD DISTRIBUTION OF INCOME

Here, we assess the relative contribution of between- and within-country inequalities to overall trends in the world distribution of income between 1965 and 1992 to determine whether between-country income distribution data on their own provide a sufficiently close approximation to trends in the overall distribution of income. After coming to terms with this methodological issue, we examine, in greater detail, the evolution of trends in the global distribution of income over the 1965–90 period.

The most comprehensive procedure for evaluating changes in the global distribution of income would estimate the relative shares accruing to individuals or households by combining national income data within countries with an indicator of the relative distribution of income between nations, then to estimate longitudinal changes by calculating an appropriate coefficient that measures inequality for the income distribution (Berry et al. 1983; Crush and Natziger 1986). Several problems, however, affect national data on income distribution, as most studies restrict their measurement of income to money income or wages and are often affected by incomplete measurements and infrequent observations, statistically inad-

quate samples, or a failure to properly control for change in the composition of family units (for further discussion of the problem, see Ahluwalia [1976, 1993], Berry [1983, 1987], Berry et al. [1983b], and Rao [1983]). The variety of procedures used to collect the data, particularly in less developed countries (LDCs), challenges the reliability of strict comparisons (Allmir 1987). Most important, there is generally an insufficient number of observations to carry out meaningful comparisons over time. As a result, most studies must either make the assumption that "national income distribution is fairly constant over time, at least for the short to medium terms" (Goshi and Nafziger 1989, p. 349; see also Berry et al. 1983a), or they must rely on the restricted data available in the 1960s (e.g., Nolan [1983] and even Robinson [1976]).

The recent appearance of new data on income distribution within low-income and middle-income nations provides an opportunity to establish whether data on between-country inequality can alone provide a sensible representation of overall trends in world income inequality. If so, such a finding would have important methodological consequences, as it would indicate that the scarcity of data on within-country income inequality does not represent an insurmountable obstacle to the study of trends in the global distribution of income. Our study hence evaluates changes in the global distribution of income by combining national income data within countries with an indicator of the relative distribution of income between nations. This information is then used to evaluate longitudinal changes by calculating and decomposing the appropriate coefficient measures of inequality for the income distribution.

Data and Methods

The relevant longitudinal data include three variables: national income, population, and within-country income distribution. Until recently—or at least following the 1950s—data were easily available on national income and population, but not on income distribution within nations. However, new data on income distribution makes it possible to track changes between 1965 and 1992 in 46 countries (accounting for 68.0% of the world's population in 1992).²

² The study relies primarily on the income distribution data available from the World Bank (1994). This source was used for all our information ca. 1992, with the sole exception of Mauritius (for which we used the estimates in Jaksir, Alangir, and Panuccio [1992]). For ca. 1995, most of the income distribution data was derived from Paukert (1973; 31 countries), with some use of Jaksir et al. (1992; 7 countries) and World Bank (1994; 9 countries). Our last choice for ca. 1995 was to use the information in World Bank (1992). In this case, the income shares of the third and fourth quintiles were collapsed together, as we were forced to divide the income share equally among

To evaluate changes in the distribution of income between countries, this study uses the GNP/PC and population data available through the World Bank (1988 and various years). Many studies acknowledge GNP/PC as the most acceptable relative indicator of income (e.g., Berry et al. 1983a; Kravis, Heston, and Summers 1973; Morawetz 1977; Whalley 1979). As a measure of relative command over world income, GNP/PC is preferable to GTP/PC (or similar indicators of output), because the latter indicator fails to capture changes in terms of trade or net receipts from abroad (both of which are relevant components of this study's variables).⁹ Some object to the use of national incomes converted to U.S. dollars at official exchange rates (arguing that these are distorted indicators of income levels; see Berry et al. 1983a, p. 331) and propose instead that GNP/PC be converted into an indicator of relative welfare (using, e.g., the purchasing power parities, or PPPs, reported by Summers, Kravis, and Heston [1980] and Summers and Heston [1984, 1988]).¹⁰ While these efforts may provide a better approximation to *welfare conditions* by taking into account relative price differences in goods and services, GNP/PC at market prices itself provides a better relational indicator of *command over income*, or the relative command that inhabitants of different countries have "over the human and natural resources" of each other (Arrighi 1991, p. 106).¹¹

To combine the within- and between-country data, the study disaggregates each individual country into five population quintiles. Each of these quintiles is given as its income the proportion of the country's total gross national product (GNP) that is attributed to that particular quintile by the national income distribution. Hence, as opposed to the world income distribution patterns described by the between-country data (providing

both quintiles (providing a rather conservative estimate of the degree of inequality). This last source was used for only two cases in 1955.

⁹ Others have used measures of industrial production and/or exports, but Rau and Rotock (1987) persuasively argue that these might not be good indicators of command over wealth.

¹⁰ The assumption is that wage and productivity differentials in high- and low-income countries result in distinct price structures, wherein the real GDP levels of low-income countries tend to be higher than their nominal levels (and vice versa for high-income nations; see Kravis et al. 1978). By weighting price structures independent of industrial exchange rates, so as to compensate for price distortions and informal economic activities, a better approximation can be reached of relative wealth levels among nations. (Overal, the use of such measures as GDP adjusted by PPPs tend to lower the gap between rich and poor nations (see, e.g., Levy and Choudhury 1984).

¹¹ To use an analogy, the analysis of changes over time in income distribution in the United States has a legitimacy of its own, and does not depend on whether observers and different degrees of monetarization of productive activities among rich and poor sectors of the population.

information for the relative income accruing to the population of 45 countries), this procedure allows us to further disaggregate the world population into the five population quintiles of each country in the sample (thereby producing observations for 230 country quintiles). The relative position of each of these country quintiles in 1985 and 1992 is listed in appendix table A1.

Summary Measures of Inequality

This study relies on two of the most commonly used indicators of income distribution, the Gini coefficient and Theil's *T*. These measures have appropriate characteristics for the subject of this study (see Allison 1975), as they both include the property of scale invariance (so in this study, neither the units of measurement nor proportionate increases in the income of countries and/or quintiles affects the summary measure of inequality), and meet Dalton's principle of transfers (so transfers of income from poorer to richer countries and/or quintiles result in a higher measure of inequality, while transfers from richer to poorer countries and/or quintiles have the opposite effect). However, each of the measures differ in their sensitivity to transfers. While the Gini index is particularly sensitive to transfers in the middle range of the income distribution, Theil's *T* is more sensitive to transfers affecting low-income earners (a characteristic that is particularly useful under the assumption that income has a diminishing marginal utility). The popularity of the two measures also allows for a more systematic comparison of findings across studies.

The Gini coefficient (*G*), attributable to Corrado Gini (1912), is the oldest and most widely used index, due largely to its strong intuitive appeal. Based on the logic of the Lorenz (1905) curve, the Gini coefficient is the ratio of the area between the lines of absolute equality (the diagonal) and observed inequality in a Lorenz curve to the entire triangular region underneath the diagonal (Sen 1973). The coefficient can vary between zero (total equality) and one (total inequality). Larger Gini coefficients hence represent greater discrepancies between a given distribution and absolute equality. As a result, the Gini coefficient can be compared over time—distributions with larger Gini coefficients are more unequal, and this is true regardless of whether the Lorenz curves intersect.

After arraying the countries in ascending order with respect to CNPPC, the Gini coefficient for the given distribution was calculated using the following formula:

$$\frac{\sum_{i=1}^i \bar{Y}_i p_i(q_i - r_i)}{\bar{X}}$$

"where q_i is the proportion that are in groups with means less than X_i , and r_i is the proportion in groups with means greater than X_i . Hence $p_i = q_i + r_i = 1$ for all i " (Allison 1978, p. 876).

Theil (1967, 1972) developed his measure of inequality from information theory and the concept of entropy. Interpretation of this measure is less intuitive than in the case of the Gini coefficient, but one of the advantages of Theil's T is that the measure can be easily decomposed into between- and within-group components.¹¹ Theil's T varies between zero (when each country's population share equals its income share) and $\log n$ (complete inequality). With the appropriate changes, the study follows here the usual procedure used to decompose Theil's T into the between-group and within-group components (Theil 1972; similar procedures are reported in Allison [1978], Bourguignon [1979], Coulter [1989], and Peacock et al. [1988]). This two-level aggregation procedure follows the following equation:

$$T = \sum_{c=1}^C K_c \ln \frac{Y_c}{X_c} + \sum_{c=1}^C K_c \left(\sum_{q=1}^Q \frac{Y_q}{X_c} \ln \frac{Y_q/Y_c}{X_q/X_c} \right),$$

where X_c is the proportion of the total world population in each country c , and X_q is the proportion of world population represented by quintile q . Likewise, Y_c is the proportion of total world GNP accruing to country c , Y_q is the proportion of total world GNP accruing to quintile q , and \ln is the natural log.

This equation yields two relevant terms, each moving closer to zero when a country's (or quintile's) proportion of world GNP is equivalent to its share of world population. The left-most term on the right-hand side of the equation provides a measure of the relative contribution of between-country inequality to overall world income inequality. The right-most term on the right hand-side of the equation provides a measure of the relative contribution of within country inequality to overall world income inequality. Thus, this procedure identifies the relative contribution of between- and within-country inequalities to overall inequality. The sum of these two components, then, measures the total world income inequality.

The Contribution of Between- and Within-Country Components

Figures 1 and 2 below show the Lorenz curves for the world income distribution in 1965 and 1992. The curves indicate that inequality became more

¹¹ For a debate over the most appropriate procedures for decomposing measures of inequality, see Adelman and Levy (1981, 1985), Bourguignon (1979), Cowell (1985, 1988), Das and Percht (1982), Pyatt (1976), and Silber (1988).

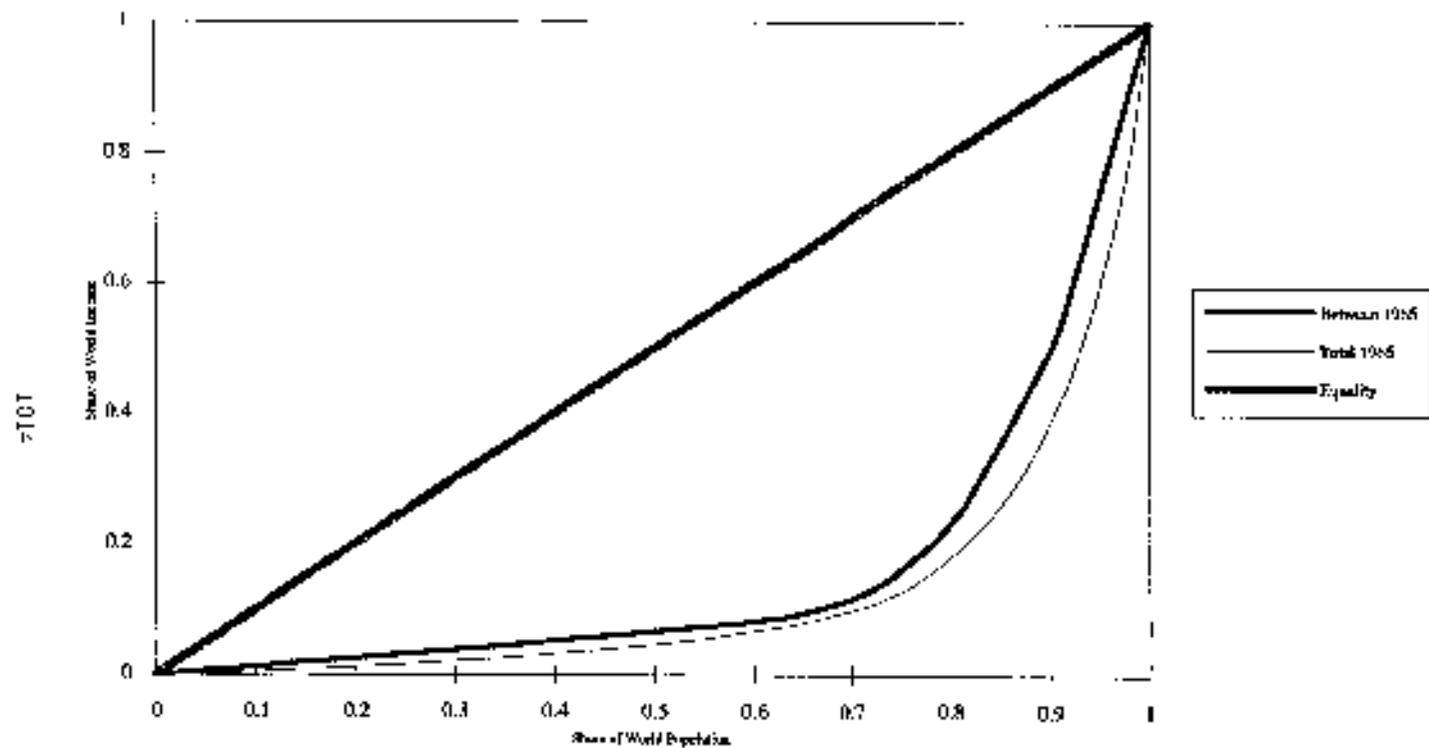


FIG. 1.— World distribution of income, 1965

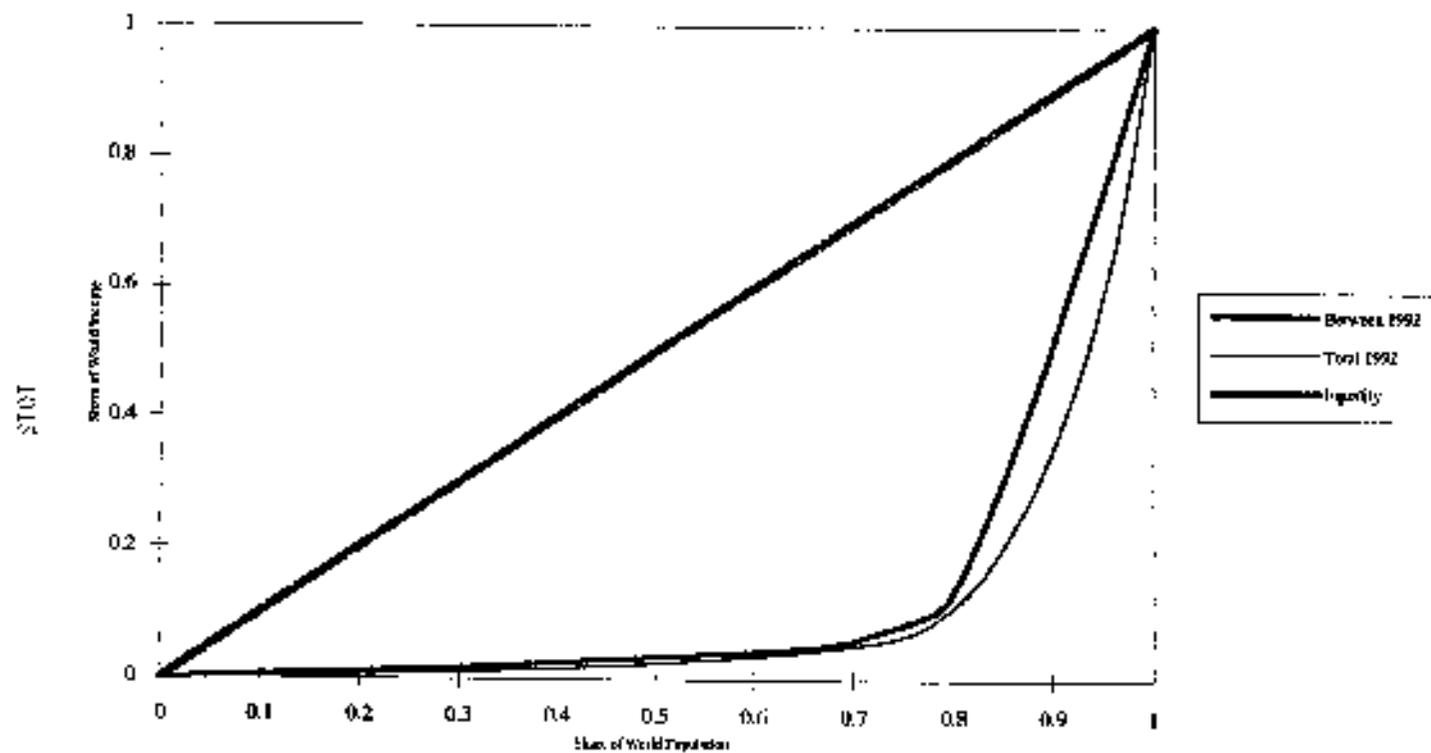


FIG. 2.—World distribution of income, 1992

TABLE 2
SOMEWHAT MEASURES OF WORLD INCOME INEQUALITY

| Measure | 1965 | 1992 | % Change |
|--|--------|--------|----------|
| <i>Gini coefficient</i> | | | |
| Between-country 1 within-country inequality | .749 | .796 | 6.38 |
| Between-country inequality | .682 | .738 | 8.21 |
| Proportion of inequality accounted for by between-country inequality | .91 | .94 | |
| <i>Theil's T</i> | | | |
| Between-country inequalities | 1.45 | 1.631 | 15.37 |
| | (73.8) | (83.6) | |
| Within-country inequalities | .243 | .290 | 19.81 |
| | (21.2) | (11.4) | |
| <i>Assumption A*</i> | | | |
| Gini coefficient | .749 | .804 | 7.34 |
| Theil's T | 1.145 | 1.321 | 15.43 |
| Between-country inequalities | .602 | 1.151 | 25.39 |
| | (78.8) | (87.7) | |
| Within-country inequalities | .243 | .237 | 2.47 |
| | (21.2) | (7.3) | |

Note: Nos. in parentheses are % of the total inequality of each T.

* Assumption A = no changes in income distribution within nations.

pronounced between 1965 and 1992. The level of inequality depicted here for 1992 is so high that no individual nation in the contemporary world reaches similar levels of inequality in the distribution of income within their borders.¹⁵

Confirming what the Lorenz curves suggest, the calculated Gini coefficients indeed show a considerable increase between 1965 and 1992. As indicated in table 2, the Gini coefficient for between-country inequality stood at .682 in 1965 and grew to reach .738 (for an overall increase of 8.2%) by 1992. Following a similar trend, the Gini coefficient combining between- and within-country inequalities stood at .749 in 1965 and reached .796 (for an overall increase of 6.3%) by 1992. An even larger increase results from the calculation of Theil's T, as the latter rose from 1.145 in 1965 to 1.321 by 1992, for an overall increase of 15.4%. In short, the data suggest quite unequivocally that world income inequality became increasingly pronounced over the 1965-92 period as a whole.

¹⁵ The country with the greatest reported income inequality in the 1990s was Brazil, with a Gini coefficient of .570 (World Bank 1994). This figure is considerably lower than the Gini coefficients derived from between-country inequalities (.738), or the combination of between- and within-country (.796) distributions, for our 1992 world data.

The decomposition of Theil's T allows an evaluation of the relative contribution of between- and within-country inequalities to overall inequality. As indicated in table 2, in 1965 inequality between countries already accounted for a much larger share of total world inequality (78.8%) than within-country inequality (21.2%). This is also illustrated in a different manner by figure 1 above, as it suggests that the Lorenz curve of the world distribution of income produced by using between-country data is similar to the curve produced by taking into account both between- and within-country data. The decomposition of Theil's T suggests that by 1992, between-country inequality acquired even greater weight (increasing from 78.8% to 85.6%, as compared to a decline from 21.2% to 14.4% for within-country inequality) in explaining overall inequality. Finally, assumption A in table 2, indicates that even with no change in within-country inequality over the period, similar overall trends would be experienced between 1965 and 1992.

These findings suggest that data on the between-country distribution of world income can indeed be used as appropriate indicators of inequality. Since data on the between-country distribution of income are more forthcoming, such a finding opens the door to more detailed (e.g., over time) and complete (e.g., including large countries such as China) evaluations of trends in world income inequality. More complex measures of the world distribution of income that include both between- and within-country distributions may be more accurate, but they are not likely to alter trends, nor are they likely to significantly affect the magnitude of inequality. This finding is consistent with similar decomposition analyses carried in the past (e.g., Berry et al. 1993b), and in fact is the conclusion reached by Theil (1967) himself in the initial study that developed his summary measure of inequality.

THE WORLD DISTRIBUTION OF INCOME, 1965-92

The findings discussed above simplify the task of probing deeper into longitudinal changes in the world distribution of income, as series of between-country data are far more readily available than within-country data. This allows us to expand both the share of the world population included in the sample and the number of years for which the trends at hand can be observed.

Data Sources

We rely on the GNPPC and population data available through the World Bank (1988 and various years). Since our study is no longer constrained by the spotty availability of data on within-country income distributions,

the sample now includes the population of 121 countries for which observations were available in 1965 and the subsequent years presented in this article (a sample that accounts for 93.6% of the world population in 1990).²⁴

Summary Measures of Inequality

We use the same procedure to calculate the Gini coefficient as the one reported in the previous section. However, the characteristics of the new data require some modifications in the formula used to calculate Theil. Following Theil (1967), T is calculated using the following formula:

$$T = \sum_{i=1}^n V_i \ln \frac{Y_i}{X_i}$$

where n is the number of countries, where X_i is the population share of country i , and V_i is its income share. Theil's coefficient, calculated in this manner, weights the pertinent distribution by income.

For the population of the 121 countries that had data available for the entire 1965–90 period, Gini and Theil coefficients were calculated at every five-year interval.²⁵ To further assess trends in the world distribution of income, we assessed population quintiles by separating the arrayed countries into five groups, each representing 20% of the combined population of the 121 nations in the data set. When a country rested on the border of a quintile (e.g., the cumulative population at that country equaled .234 and the cumulative frequency preceding the country was .198), a simple interpolation was conducted whereby the bordering country's population was divided. Cumulative GNP at these quintile borders could then be calculated. For any given year, dividing the absolute GNP of each quintile by the total GNP gave us the percentage of world GNP controlled by that quintile.

Trends

Figure 3 shows the Lorenz curves for world income distribution in 1965 and 1990. As in the previous section, both curves indicate a prevalence

²⁴ The figure for world population in 1990 is from Jansky et al. (1993, p. 77). As opposed to most of the studies presented earlier in table 1, our data include China and the countries constituting the former Soviet Union. For the latter, we relied on the estimates used in Kaznenisov and Murin (1964).

²⁵ We also calculated Gini coefficients for subsequent years in which more countries had data available. Although the total sample was considerably larger (up to 150 countries in 1985), the Gini coefficients were all within .00% of each other and showed the same trends as those later reported in this article.

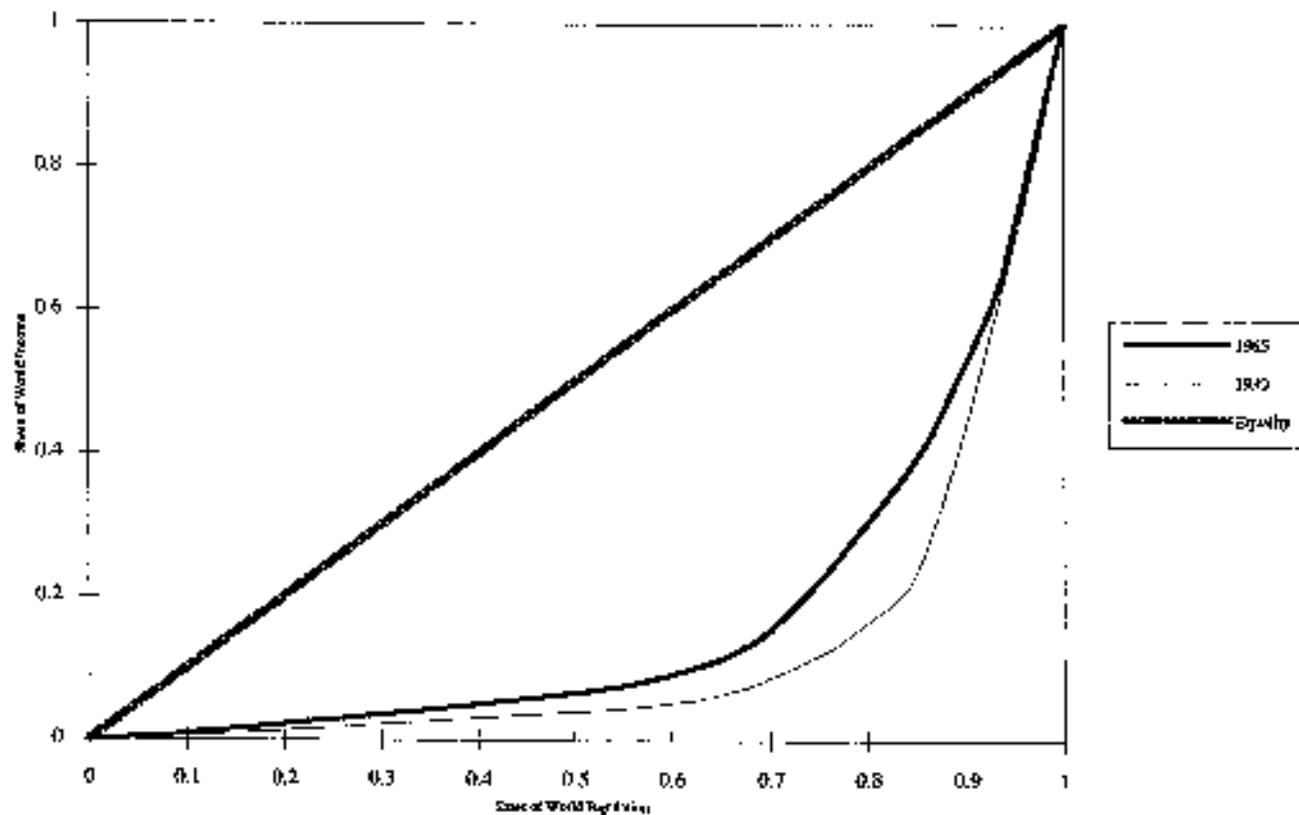


FIG. 3.—World distribution of income, 1965 and 1990

of profound inequality. Indeed, the summary measures show a constant increase throughout the period considered in this article, with the most pronounced increase taking place in the 1980s. As indicated in table 3 and figure 4 below, the Gini coefficient stood at .658 in 1965, and thereafter grew over every five-year period to reach .739 by 1990 (for an overall increase of 12.3%). Theil, with its greater sensitivity to transfers affecting low income earners, indicates an even larger increase, rising from .802 in 1965 to 1.107 by 1990 (for an overall increase of 38.0%).

There were significant differences in trends among each of the five-year intervals. Most important, income inequality changed relatively less over the 1965-70 and 1975-80 subperiods but became greatly accentuated between 1980 and 1990. For example, whereas the Gini coefficient increased by 3.5% in the 15 years between 1965 and 1980, the coefficient rose by 5.7% in the 10-year period between 1980 and 1990. Likewise, Theil increased by 8.5% between 1965 and 1980, but rose 27.2% in the subsequent decade. To make the same point in a different manner, the rise of inequality in the 1980s accounted for roughly three-quarters of the overall rise in global income inequality during the 1965-90 period (or 71.9% in the case of Gini; 77.7% in the case of Theil).

The character of these trends can be further specified by disaggregating the between-country income data into population quintiles (see table 3). The share of world income accruing to the poorest 40% of the world's population diminished over the 1965-90 period from 5.1% to 3.2%, for an overall decline of 37.3% (after increasing slightly between 1965 and 1985, the relative income of these two quintiles fell precipitously between 1985 and 1990). For the third quintile of the world's population, the share of world income diminished in every five-year period, for an overall decline of 49.2% between 1965 and 1990, with much of this decline taking place after 1985. Over the 1965-90 period as a whole, the three bottom quintiles of the world population experienced a noticeable convergence in their relative share of income (e.g., whereas the ratio of the average GNPPC of the third quintile to the poorest quintile was 1.8 in 1965, by 1990 it had declined slightly to 1.5).

The trends during the 1965-90 period as a whole were more unstable for the fourth population quintile. This quintile was characterized by considerable fluctuations, with its relative share of world income increasing during the 1965-70 and 1975-80 subperiods and declining over the other five-year periods (particularly during the 1980s). For the period as a whole, this quintile experienced a decline of 36.8% in its share of world income.

The richest 20% of the world's population was the only quintile to experience a sustained increase in its share of world income. Between 1965

TABLE 3

WORLD INCOME DISTRIBUTION, 1965-90 (N = 121)

| | | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 |
|--------------------------|------------------|-------------|-------------|-------------|--------------|--------------|--------------|
| Poorest 20% | | | | | | | |
| Quintile 5 | GNPPC boundaries | 30-98 | 50-110 | 90-170 | 120-240 | 110-250 | 80-350 |
| | % world GNPPC | 2.33 | 2.37 | 2.11 | 1.55 | 1.63 | 1.36 |
| | GNPPC | 74 | 98 | 154 | 219 | 243 | 283 |
| Quintile 4 | GNPPC boundaries | 90-100 | 110-130 | 170-180 | 240-300 | 290-320 | 350-370 |
| | % world GNPPC | 2.87 | 2.77 | 2.45 | 2.21 | 2.20 | 1.76 |
| | GNPPC | 97 | 125 | 176 | 293 | 317 | 363 |
| Quintile 3 | GNPPC boundaries | 100-270 | 130-230 | 180-500 | 300-1,050 | 320-810 | 370-730 |
| | % world GNPPC | 4.15 | 3.81 | 3.68 | 3.53 | 3.25 | 2.11 |
| | GNPPC | 136 | 172 | 268 | 467 | 551 | 652 |
| Quintile 2 | GNPPC boundaries | 270-1,110 | 290-1,790 | 500-1,550 | 1,030-4,440 | 810-4,125 | 760-4,060 |
| | % world GNPPC | 21.23 | 21.29 | 16.42 | 18.28 | 15.39 | 11.39 |
| | GNPPC | 697 | 965 | 1,196 | 2,420 | 3,136 | 3,358 |
| Richest 20% | | | | | | | |
| Quintile 1 | GNPPC boundaries | 1,110-3,650 | 1,790-5,080 | 1,550-5,050 | 4,440-17,500 | 4,125-16,770 | 4,060-31,790 |
| | % world GNPPC | 69.50 | 69.07 | 75.35 | 73.34 | 77.22 | 85.44 |
| | GNPPC | 4,281 | 3,169 | 3,854 | 10,066 | 10,723 | 17,356 |
| Richest 10% | | | | | | | |
| Decile 1 | % world GNPPC | 47.26 | 46.26 | 48.73 | 46.27 | 52.19 | 56.00 |
| Gini coefficient | | | | | | | |
| | | .658 | .667 | .677 | .682 | .703 | .740 |
| | | (.638) | (.633) | (.627) | (.667) | (.683) | (.712) |
| Theil coefficient | | | | | | | |
| | | .802 | .814 | .862 | .878 | .945 | 1.308 |
| | | (.502) | (.791) | (.823) | (.813) | (.898) | (.950) |

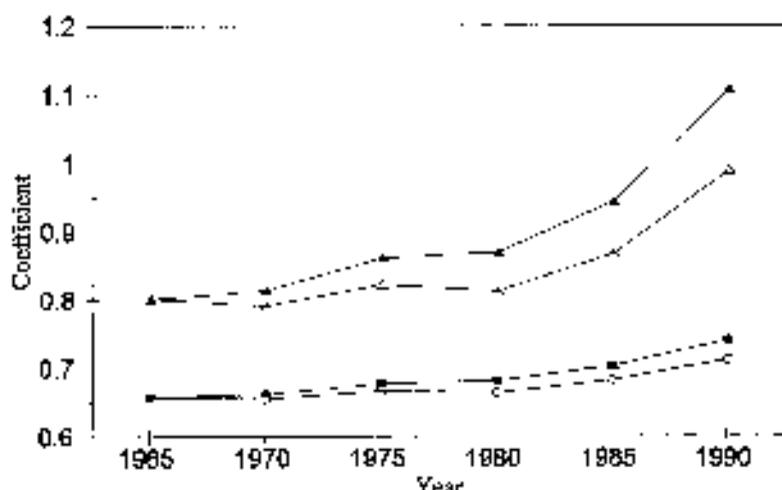


FIG. 4.—Summary measures of inequality, 1964–90, dark triangle = Total; open triangle = Theilpop; dark circle = Gini; open circle = Giniipop.

and 1990, this quintile's relative share of world income increased from 69.5% to 83.4%, a change of 20.1%. The increase in its share of income rose more rapidly during the 1970–75 and 1980–90 subperiods. Given these trends, the overall distance between the poorest four quintiles and the richest quintile increased significantly over the 1965–90 period as a whole. Thus, whereas the ratio of the average GNPPC of the first quintile to the poorest quintile was 30.9 in 1965, by 1990 it had increased to 60.5. All quintiles lost relative ground to the wealthiest quintile between 1965 and 1990.

The trends that characterized the wealthiest quintile of the population, however, were not evenly distributed within the quintile. As suggested by the data in table 3, while both top deciles increased their relative share of world income over the 1965–90 period, each of the two deciles was characterized by some fluctuations. For the period as a whole, the second decile experienced a relatively greater increase in income (23.0%) than the first decile (18.7%). By 1990, however, the top decile had reached its highest relative share of world income (56.1%) for the period as a whole, and all the increase in its relative income accrued during the 1980s (when its income rose by 21.2%). The second decile, on the other hand, experienced most of the growth in its relative share of world income prior to the 1980s (as its share rose 30.9% between 1965 and 1980), and then underwent an initial decline between 1980 and 1985 before slightly recovering by 1990.

TABLE 4
 World Income Distribution, 1965 and 1992 (3 = 46)

| Decile | | 1965 | 1992 | % Change |
|---------------------|------------------------|-------------|---------------|----------|
| Poorest 30%: | | | | |
| 1 | GNPPC boundaries | 8-39 | 73-150 | |
| | % world GNPPC | .51 | .24 | -51.9% |
| | Weighted average GNPPC | 35.40 | 134.00 | |
| 2 | GNPPC boundaries | 39-79 | 150-239 | |
| | % world GNPPC | .76 | .33 | -51.8% |
| | Weighted average GNPPC | 48.48 | 182.21 | |
| 3 | GNPPC boundaries | 39-77 | 239-379 | |
| | % world GNPPC | .93 | .16 | 50.0% |
| | Weighted average GNPPC | 65.61 | 254.20 | |
| 4 | GNPPC boundaries | 77-91 | 379-385 | |
| | % world GNPPC | 1.16 | .58 | 17.27 |
| | Weighted average GNPPC | 75.35 | 315.36 | |
| 5 | GNPPC boundaries | 91-100 | 385-573 | |
| | % world GNPPC | 1.13 | .80 | 14.6% |
| | Weighted average GNPPC | 99.02 | 427.39 | |
| 6 | GNPPC boundaries | 100-176 | 573-642 | |
| | % world GNPPC | 2.13 | 1.30 | 38.3% |
| | Weighted average GNPPC | 147.64 | 605.15 | |
| 7 | GNPPC boundaries | 176-216 | 642-968 | |
| | % world GNPPC | 3.12 | 1.65 | -47.1% |
| | Weighted average GNPPC | 216.31 | 903.37 | |
| 8 | GNPPC boundaries | 216-379 | 968-5,956 | |
| | % world GNPPC | 3.14 | 5.51 | -43.1% |
| | Weighted average GNPPC | 354.79 | 3,248.61 | |
| 9 | GNPPC boundaries | 379-2,245 | 5,956-21,515 | |
| | % world GNPPC | 23.74 | 24.13 | 16.4% |
| | Weighted average GNPPC | 1,437.83 | 2,714.30 | |
| Richest 10%: | | | | |
| 10 | GNPPC boundaries | 2,245-7,501 | 21,515-54,073 | |
| | % world GNPPC | 61.73 | 64.57 | 3.7% |
| | Weighted average GNPPC | 1,246.10 | 35,481.06 | |

These trends become even more stark if the disaggregation of income data by population shares is carried out with data that include both between- and within-country distributions of income. As can be observed in table 4, between 1965 and 1992, the eight poorest world population deciles lost income shares relative to the top two population deciles. The decline was most pronounced for the poorest deciles: the world income share of the poorest 30% of the world population declined from 2.1% to 1.0%, for an overall decline of 51.6% during the 1965-92 period.

For the four intermediate deciles (deciles 4–7 in table 4), the world income share declined from 7.8% to -1.1%, for an overall decline of 46.9% during the same period. The decline was less pronounced in decile 8, but only the top 20% of the world population experienced an increase during the period under consideration, increasing their overall share of world income from 82.0% in 1965 to 88.9% by 1992. In either case, if these population deciles were represented as 10 runners in the midst of a race, with the lead runner already considerably ahead of the slower nine in 1965, by 1992 runner 9 (decile 9) has broken away from the pack and is the only one to gain ground relative to the leader of the race. Meanwhile, the other eight runners (deciles 1–8) have dropped further and further behind.

Some may argue that this striking growth in income inequality could be primarily an outcome of differential rates of population growth in low- and high-income nations. To evaluate this possibility, the study calculated F^* , which measures inequality in the case of unchanged population shares (Theil 1967, p. 110). Considering 1965 the fixed base year in which the population shares are X_1, \dots, X_n , new income shares can be calculated for each country in current year t as follows:

$$F_{it}^* = \frac{X_i Z_t}{\sum_{j=1}^n X_j Z_{jt}}, \quad i = 1, \dots, n.$$

where Z equals the per capita income of country i and F_{it}^* , then, represents the income share in any current year t if the population shares in t were held constant at 1965 levels and if the per capita incomes were actually observed in the current year. Hence,

$$F^* = \sum_{i=1}^n F_{it}^* \ln \frac{F_{it}^*}{X_i}$$

is the level of inequality that exists when controlling for population.

As indicated by table 3, even if population shares are held constant to their 1965 dimensions, world income inequality as measured by Gini would still have grown by 3.3% between 1965 and 1992 (as compared to the actual growth of 12.5% reported earlier in this section). Likewise, under the same assumption, Theil still shows an increase of 23.4% (as compared to the actual growth of 38.0% previously reported). Furthermore, the overall direction of the trends in world income inequality for every five-year period are essentially similar (with 1965–70 and 1975–80 showing an attenuation of these inequalities, and the 1980s dramatically erasing

all gains made in previous years). In short, if population growth rates were identical among all areas of the world, income inequality would have increased slightly less, but the overall direction of the trends would not be significantly different.

We also evaluated whether the observed trends would be altered by the use of GDPPC rather than GNPPC data, and no significant differences were found. Using available World Bank (1995) data on GDPPC at market prices in current U.S. dollars for the 1965-90 period ($N = 112$ countries, including China and India), the respective Gini coefficient rose from .671 in 1965, to .701 in 1980 and .738 by 1990. The Gini coefficient obtained for 1990 with the GDPPC data is virtually identical to the Gini coefficient reported for the GNPPC data (.739). The overall increase in inequality obtained through the GDPPC data (10.0%) was slightly less pronounced than observed in the GNPPC data (12.3%), but the direction of trends in each set of data coincided both for each five-year subperiod, and for the 1965-90 period as a whole.

Mobility

Given rising inequality, to what extent were the populations of particular nations able to challenge the general tendencies and increase their relative control over income? As indicated earlier in the first section, such an evaluation is of considerable importance, as common sense in the field has come to represent the economic success of East Asia as involving a substantial redistribution of world income from wealthy to poor nations.

Focusing on the between-country data ($N = 121$), there was considerable stability over time in the distribution of world population among the income quintiles (see table 5). A chi-square test was applied to the relationship between each country's quintile location in 1965 and in 1990, and this relationship was found to be statistically significant (overall, $\chi^2 [16; N = 121] = 132.23, P < .0001$; as indexed by Cramer's statistic, the strength of the relationship was 0.52). The population of 60.5% of the countries in our sample fell into the same quintile in both 1965 and 1990, and there were only 15 countries that were not classified in the same or adjacent quintiles in both years (upward mobility was most strongly featured in the cases of Botswana, Central African Republic, the Comoros, Indonesia, Lesotho, Oman, South Korea, and Taiwan; downward mobility was most evident for Niger, Nigeria, Madagascar, Mozambique, and Zaïre). There were no cases of countries rising from the two poorest quintiles to the wealthiest quintile.

Similar results are suggested by the data that combine between- and within-country information on income distribution. The appendix table at the end of this article shows the 1965 and 1992 ranking and decile

TABLE 5
 POSITION OF NATIONS IN WORLD INCOME DISTRIBUTION, 1965 AND 1990

| 1970 | 1990 | | | | |
|-----------------|--|---|---|--|-----------------|
| | Quintile 5 (10) | Quintile 4 (20) | Quintile 3 (30) | Quintile 2 (40) | Quintile 1 (50) |
| Quintile 5 (10) | Algeria Bangladesh Burundi Chad Cuba Malawi | Morocco Niger Rwanda Tanzania Upper Volta | Gambia Guinea | Madagascar Mozambique Niger Nigeria Zaire | |
| Quintile 4 (20) | China | Togo | India | | |
| Quintile 3 (30) | Central African Republic Cote d'Ivoire Togo Lesotho | Benin Chad | Angola Belize Cote d'Ivoire Egypt Ghana Liberia Senegal Sierra Leone | Pakistan Senegal Sierra Leone Sudan Togo Zambia | Nicaragua |

Q. 10.11.3 Botswana
(43)

Algeria
Cuba
Congo
Dominica
Dominican
Rep.
Morocco
Papua New
Guinea
Paraguay

Oman
South Korea
Taiwan

Polynesia
St. Lucia
St. Vincent
and
Grenadines
Syria
Thailand
Tunisia

Belize
Brazil
Chile
Colombia
Costa Rica
El Salvador
Ghana

India
Guatemala
Jamaica
Malaysia

Antigua and
Barbuda
Bahrain
China
Hong Kong
Malta

Montserrat
Mexico
Panama
Peru
Rwanda
South Africa
Spain

United
Arab
Emirates
Suriname
Turkey
Uganda

Paraguay
Saudi Arabia
Seychelles
Singapore

Argentina
Poland
Trinidad and
Tobago
Venezuela
Yugoslavia

Australia
Austria
Bahamas
Belgium
Canada
Cuba
Finland
France
Great Britain
Ireland
Israel
Italy
Japan
Korea

Thailand
Lybia
Netherlands
New Zealand
Norway
Oman
Spain
Sweden
Switzerland
USA
W. G.
Germany

location of the country population quintiles in the sample.¹⁶ For descriptive purposes, "high upward mobility" involved those country quintiles that moved up either two or three deciles. For the period under consideration, 6.4% of the world population was characterized by such mobility.¹⁷ Overall, this group of country quintiles increased its share of world GNP from 1.9% in 1965 to 6.5% by 1992.

If "very high upward mobility" involved a shift of four deciles or more between 1965 and 1992, 0.8% of the world population in 1965 (and 1.0% of the same population in 1992) underwent such mobility. These country quintiles were all related to six countries: Botswana (all four bottom quintiles), Lesotho (fourth quintile), Malaysia (poorest quintile), South Korea (two bottom quintiles), Thailand (second quintile), and Tunisia (sec. and quintile).¹⁸ Overall, the group of country quintiles characterized by "very high upward mobility" increased its share of world GNP from 0.1% in 1965 to 0.4% by 1992.

Other country quintiles underwent opposite trends. Following equivalent criteria, "high downward mobility" involved country quintiles that moved down either two or three deciles. For the period under consideration, 1.0% of the world population in 1965 (and 1.3% of the same population in 1992) was characterized by such mobility. This mobility involved most clearly population quintiles from countries from Africa (e.g., the two

¹⁶ An additional observation is warranted by the information presented in appendix table A1. While the results reported here clearly suggest that data on the distribution of income between countries are likely to provide a sufficiently accurate description of trends in world income inequalities on their own, the use of more disaggregated data (i.e., including information on the distribution of income between countries) provides a more nuanced account of the changes under consideration. For example, according to the data on the distribution of income between nations, the United States fell from being ranked first in our sample for 1965, to number 4 (below Switzerland, Japan, and Denmark) by 1992. However, the more disaggregated data also tell us that the wealthiest quintile of the United States retained its number 1 ranking for both 1965 and 1992. Both pieces of information are relevant: the first serves to identify changes in the relative resources accruing to a nation (a variable that is of crucial importance in explaining overall world income inequalities, as we have shown above); the second helps explain how different populations are actually affected by gains and losses in national income.

¹⁷ This mobility involved most clearly population quintiles from countries from Asia (the poorest quintile of Sri Lanka and various quintiles of Japan, Malaysia, South Korea, and Thailand) and to a lesser extent from Latin America (e.g., the poorest quintiles of Jamaica and Mexico, and the poorest and middle quintiles of Brazil) and Africa (e.g., the wealthiest quintile of Botswana, the poorest, and middle quintiles of Tunisia, and assorted quintiles from Lesotho, Morocco, Mauritius).

¹⁸ While some of the Asian cases have received considerable attention in the development literature, this has not been the case of countries such as Botswana, a country characterized by some of the highest rates of GNP and GDP growth in the world during the 1980s and 1990s.

wealthiest quintiles of Tanzania and the middle quintile of Zimbabwe) and Latin America (e.g., the three poorest quintiles of Guatemala, the poorest quintile of Peru and Panama, and the fourth quintile in Honduras), and to a lesser extent from Asia (e.g., the fourth quintile of Bangladesh). Overall, this group of country quintiles decreased its share of world GNP from 0.15% in 1965 to 0.06% by 1992.¹⁴

In general terms, however, the main characteristic of the period was a striking stability in the relative standing of the population of poor and wealthy nations. "Stability" can be defined as involving country quintiles that remained in the same income decile or moved only to an adjacent income decile for the 1965–92 period as a whole. Hence defined, approximately 91.7% of the world population in 1965 (and 91.4% of the same population in 1992) experienced relative stability over the period as a whole. Overall, this share of the world population accounted for 93.1% of the 1992 world GNP in the sample under consideration (and 97.9% in 1965). Such stability further corroborates the few authors who have highlighted the growing inequalities of the 1980s (e.g., Arrighi 1991; Chase-Dunn 1989; Passé-Smith 1993a, 1993b), while challenging the hypothesis (e.g., as raised in Ram 1989) that world inequality in the distribution of income has been abating.

DISCUSSION

The world distribution of income has become more unequal over the 1965–90 period, and while the gap between the populations of wealthy and poor nations has grown steadily since 1965, it intensified during the worldwide recession of the 1980s. These findings are robust even when controlling for population growth or using alternative sources of data. By decomposing world income inequality into between- and within-country components, we also found strong evidence that between-country inequalities are of significantly greater importance in shaping the trends in question. Overall, while between-country inequality has become more pronounced over the period under consideration, the opposite was the case of within-country inequality. However, the attenuation of income inequality within nations was not nearly sufficient to compensate for the accentuation of between-country inequality. Inequality in the distribution of in-

¹⁴ According to our criteria, there were no cases of "very high downward mobility" in our sample for the period under consideration. Of course, it might be the case that the type of data analyzed in this study are less likely to be reported by state authorities and public officials in countries experiencing slow economic growth, high levels of poverty, and/or a deterioration of standards of living. In this sense, our results (particularly in regard to downward mobility) must be interpreted with caution.

come between-countries continues to be of essential importance to global social stratification.

The first section of this article notes that empirical studies on world income inequality are characterized by ambivalent findings. The trends in the distribution of world income found in this study, however, can be used to identify possible sources of these discrepant results. Most of these empirical studies were conducted with data from the 1960s and 1970s, a period in which trends of inequality were not as pronounced as they became in the 1980s. Given these conditions, minor differences in methodological procedures (e.g., in the percentage of the world population included in a sample, or in the indicator used to measure the distribution of income among nations) were likely to sway results in different directions. World income inequality grew at a more rapid pace during the 1980s, a decade when empirical research on this issue was lacking.⁴⁹ Empirical studies that include this particular decade in their analysis, rather than restrict their investigation to the 1960s and 1970s, are likely to inevitably produce results that corroborate the main findings of this article.

The trends identified here also help understand the recent theoretical convergence discussed in the first section. On the one hand, indications of the persistence and deepening of world income inequality in the 1980s (slow growth in areas such as Latin America and Africa and high growth among core nations) are likely to have influenced scholars within the field of economics toward greater emphasis on the importance of institutional development and endogenous variables shaping growth. At the very least, such trends provided strong intuitive ammunition to analysts seeking to challenge the notion that exposure to markets alone would serve to reduce the income gap between wealthy and poor nations. On the other hand, such trends were accompanied by noteworthy exceptions. For the population of some poor and middle-income nations (such as those in East Asia), development strategies appeared to play an important role in generating sufficient economic growth to escape the polarization of income. These exceptions were particularly influential in shaping critical studies of the political economy of development within other disciplines in the social sciences.

While advancing our understanding of the current theoretical conver-

⁴⁹ Our findings are compatible with the argument that periods of global economic expansion are likely to accentuate the gap between peripheral countries and the rest of the world economy (core and semiperipheral nations), while producing mixed results for semiperipheral countries (with upward mobility for some and relative stagnation for others; see Wallerstein 1980, p. 2: 1). Other authors within the same perspective have suggested that the outcome of global economic downturns varies over time, with no clear pattern characterizing the trajectory of the different groups of nations (Arrighi, Kuczyniewicz, and Martin 1996; Arrighi 1994).

genre that characterizes this field of inquiry, the findings reported in this article are insufficient to conclusively support one theoretical approach above all others in areas of continuing contention. Adherents of a world-systems perspective might claim that the persistence of inequality reflects the constraints inherent in the world-economy for the vast majority of the population. Other theoretical approaches might argue that such inequalities merely reflect the incomplete adoption of market-oriented strategies of growth in countries bounded by conflicts and negotiations involving rent-seeking interests, and that as countries abandon state-centered strategies of growth in favor of markets, a shift toward greater growth and social equality might be expected sometime in the future.

In this respect, however, the coming decade is likely to provide fundamental evidence as to whether a shift toward market-centered strategies of growth will deliver greater inequality or a more proportionate distribution of economic resources in the world-economy. This article joins others (e.g., Rubinson 1976; Breedlove and Nolan 1988; Pearceck et al. 1988) to suggest easily implemented procedures that can be followed in the near future to continue tracing trends in world income inequality. By endorsing the use of easily available between-country data in such inquiries, the findings presented in this study will make it easier to closely track the future impact of market-centered strategies of growth on world income inequality and to further evaluate the relevance of alternative theoretical approaches.

Our findings indicate that efforts to account for patterns of development in the world-economy must include polarization as a crucial component of recent trends. Findings in this respect are rather clear. The world distribution of income became more unequal over the 1965-90 period, and inequality accelerated during the 1980s. Some populations (such as in East Asia) experienced upward mobility in a "world hierarchy of income," but such mobility is limited when compared to polarizing tendencies in the world distribution of income as a whole. These results highlight the continuing need for more detailed inquiries into the processes that generate growing inequality in the world distribution of income. In challenging current commonsense expectations regarding the economic opportunities easily available to the majority of the world population, such findings call at the very least for pause and critical reflection.

TABLE A1
RANK AND DECADE POSITION OF COUNTRY QUINTILES

| Rank (1995) | Country Quintile | Rank (1965) | Decade Position (65-92) | Rank (1995) | Country Quintile | Rank (1965) | Decade Position (65-92) |
|-------------|------------------|-------------|-------------------------|-------------|------------------|-------------|-------------------------|
| 1 | Tanzania1 | 4 | (D1, D1) | 58 | Honduras4 | 97 | (D7, D5) |
| 2 | Tanzania2 | 11 | (D1, D1) | 59 | Guatemala5 | 103 | (D7, D5) |
| 3 | Tanzania3 | 22 | (D1, D1) | 60 | Mauritius1 | 39 | (D6, D5) |
| 4 | Honduras1 | 6 | (D1, D1) | 61 | Morocco1 | 52 | (D4, D5) |
| 5 | Lesotho1 | 2 | (D1, D1) | 62 | Senegal3 | 52 | (D6, D5) |
| 6 | Guatemala1 | 19 | (D4, D1) | 63 | Ivory Coast1 | 59 | (D6, D5) |
| 7 | Tanzania4 | 35 | (D4, D1) | 64 | Philippines3 | 64 | (D6, D5) |
| 8 | Bangladesh1 | 9 | (D1, D1) | 65 | Thailand1 | 21 | (D1, D5) |
| 9 | Zimbabwe1 | 14 | (D1, D1) | 66 | China4 | 61 | (D5, 6, D5-6) |
| 10 | India1 | 13 | (D1, D1) | 67 | Lesotho4 | 8 | (D1, D5) |
| 11 | Senegal1 | 16 | (D1, D1) | 68 | Sri Lanka4 | 61 | (D6, D5) |
| 12 | Bangladesh2 | 18 | (D1, D1) | 69 | India5 | 112 | (D7, D5) |
| 13 | China1 | 15 | (D1-2, D1-2) | 70 | Malaysia1 | 27 | (D2, D5-7) |
| 14 | Honduras2 | 25 | (D2, D2) | 71 | Peru1 | 92 | (D5, D7) |
| 15 | Pakistan1 | 16 | (D1, D2) | 72 | Jamaica2 | 92 | (D5, D7) |
| 16 | Zimbabwe2 | 26 | (D2, D2) | 73 | Brazil2 | 76 | (D5, D7) |
| 17 | Bangladesh3 | 21 | (D2, D2) | 74 | Venezuela1 | 113 | (D7-8, D7) |
| 18 | Lesotho2 | 5 | (D1, D2) | 75 | Mexico1 | 53 | (D4, D7) |
| 19 | Bolivia1 | 14 | (D1, D2) | 76 | Ivory Coast1 | 62 | (D5, D7) |
| 20 | India2 | 15 | (D2, D2) | 77 | Bolivia2 | 81 | (D5, D7) |
| 21 | Peru1 | 51 | (D4, D2) | 78 | Senegal1 | 95 | (D5, D7) |
| 22 | Bangladesh4 | 44 | (D4, D2) | 79 | Panama2 | 108 | (D7, D7) |
| 23 | Colombia1 | 15 | (D1, D2-3) | 80 | Morocco3 | 55 | (D4, D7) |
| 24 | Sri Lanka1 | 17 | (D1, D3) | 81 | Philippines4 | 96 | (D7, D7) |
| 25 | Panama1 | 22 | (D6, D3) | 82 | Pakistan3 | 114 | (D8, D7) |
| 26 | Ivory Coast1 | 48 | (D4, D3) | 83 | Colombia3 | 84 | (D6, D7) |
| 27 | Philippines1 | 20 | (D2, D3) | 84 | Thailand2 | 34 | (D3, D7) |
| 28 | India3 | 42 | (D3, 4, D3) | 85 | Costa Rica2 | 85 | (D6, D7) |
| 29 | China2 | 36 | (D2-3, D3-4) | 86 | Panama3 | 48 | (D5, D7) |
| 30 | Pakistan2 | 33 | (D3, D4) | 87 | Guatemala4 | 101 | (D7, D7) |
| 31 | Senegal2 | 40 | (D3, D4) | 88 | China2 | 121 | (D8, D7) |
| 32 | Guatemala2 | 21 | (D5, D4) | 89 | Ecuador2 | 5 | (D1, D7) |
| 33 | Zimbabwe3 | 27 | (D5, D4) | 90 | Jamaica3 | 120 | (D8, D7) |
| 34 | Brazil1 | 23 | (D2, D4) | 91 | China3 | 95 | (D6-7, D7) |
| 35 | Honduras3 | 57 | (D4, D4) | 92 | Peru2 | 119 | (D8, D7-8) |
| 36 | Bolivia2 | 11 | (D3, D4) | 93 | Mauritius2 | 64 | (D5, D8) |
| 37 | India4 | 69 | (D5, D4) | 94 | Sri Lanka5 | 132 | (D8, D8) |
| 38 | Lesotho3 | 7 | (D1, D4) | 95 | Morocco2 | 59 | (D5, D8) |
| 39 | Morocco1 | 50 | (D4, D4) | 96 | Malaysia2 | 69 | (D5, D8) |
| 40 | Tanzania5 | 111 | (D7, D4) | 97 | Brazil3 | 99 | (D6, D8) |
| 41 | Sri Lanka2 | 43 | (D4, D4) | 98 | Thailand3 | 73 | (D6, D8) |
| 42 | Pakistan3 | 57 | (D4, D4) | 99 | Tanzania2 | 58 | (D6, D8) |
| 43 | China3 | 45 | (D4, D4-5) | 100 | Mexico2 | 55 | (D6, D8) |
| 44 | Philippines2 | 49 | (D4, D5) | 101 | Colombia2 | 115 | (D8, D8) |
| 45 | Costa Rica1 | 65 | (D6, D5) | 102 | Venezuela2 | 158 | (D8, D8) |
| 46 | Ivory Coast2 | 59 | (D5, D5) | 103 | Costa Rica3 | 105 | (D7, D8) |
| 47 | Jamaica1 | 31 | (D3, D5) | 104 | Panama3 | 177 | (D8, D8) |
| 48 | Bangladesh3 | 29 | (D3, D5) | 105 | China3 | 119 | (D8, D8) |
| 49 | Peru2 | 15 | (D1, D5) | 106 | Ivory Coast2 | 141 | (D7, D8) |
| 50 | Sri Lanka3 | 66 | (D6, D5) | 107 | Jamaica2 | 141 | (D8, D8) |
| 51 | Pakistan4 | 75 | (D6, D5) | 108 | Mauritius3 | 117 | (D8, D8) |
| 52 | Bolivia3 | 63 | (D6, D5) | 109 | Botswana3 | 36 | (D1, D8) |
| 53 | Zimbabwe4 | 38 | (D6, D5) | 110 | Bolivia2 | 141 | (D8, D8) |
| 54 | Bolivia4 | 1 | (D1, D5) | 111 | Lesotho5 | 106 | (D7, D8) |
| 55 | India5 | 94 | (D6, D5) | 112 | Zimbabwe5 | 150 | (D8, D8) |
| 56 | Colombia2 | 46 | (D4, D5) | 113 | Mexico3 | 90 | (D7, D8) |
| 57 | Tanzania1 | 25 | (D2, D5) | 114 | Philippines5 | 37 | (D8, D8) |

TABLE A1 (Continued)

| Rank (1992) | Country Quilnke | Rank (2002) | Thaisk Position (2002) | Rank (1992) | Country Quilnke | Rank (2002) | Thaisk Position (2002) |
|----------------|--------------------|----------------|------------------------------|----------------|--------------------|----------------|------------------------------|
| 115 | Honduras | 151 | (D6,D8) | 173 | Japan | 161 | (D7,D9) |
| 116 | Thailand | 71 | (D6,D8) | 177 | Italy | 152 | (D6,D9) |
| 117 | Tunisia | 93 | (D6,D8) | 175 | Spain | 141 | (D8,D9) |
| 118 | Venezuela | 161 | (D8,D9) | 176 | France | 157 | (D8,D9) |
| 119 | Mexico | 116 | (D9,D9) | 177 | Finland | 155 | (D8,D9) |
| 120 | Costa Rica | 122 | (D9,D9) | 178 | Netherlands | 156 | (D8,D9) |
| 121 | Cuba | 147 | (D8,D9) | 179 | Germany | 168 | (D9,D9) |
| 122 | Seychelles | 146 | (D8,D9) | 180 | USA | 204 | (D7, D8, D9) |
| 123 | Russia | 165 | (D7,D8) | 181 | New Zealand | 206 | (D10,D9) |
| 124 | Mauritius | 118 | (D8,D8) | 182 | South Korea | 159 | (D7,D9) |
| 125 | Morocco | 153 | (D8,D8) | 183 | Great Britain | 191 | (D8,D9) |
| 126 | Peru | 181 | (D9,D9) | 184 | Australia | 196 | (D9,D9) |
| 127 | Pakistan | 128 | (D8,D8) | 185 | Denmark | 173 | (D9,D9) |
| 128 | South Korea | 31 | (D8,D8) | 186 | Israel | 187 | (D9,D9) |
| 129 | Botswana | 37 | (D8,D8) | 187 | Spain | 181 | (D8,D9) |
| 130 | Malaysia | 121 | (D8,D8) | 188 | Norway | 174 | (D9,D9) |
| 131 | Guatemala | 157 | (D8,D8) | 189 | Italy | 172 | (D9,D9) |
| 132 | New Zealand | 150 | (D8,D9) | 190 | Sweden | 180 | (D9,D9) |
| 133 | Venezuela | 176 | (D9,D9) | 191 | Canada | 200 | (D8,D9) |
| 134 | Jamaica | 135 | (D8,D8) | 192 | Netherlands | 177 | (D9,D9) |
| 135 | Mexico | 134 | (D8,D9) | 193 | Japan | 185 | (D8,D9) |
| 136 | Colombia | 17 | (D9,D9) | 194 | France | 188 | (D9,D9) |
| 137 | Argentina | 148 | (D8,D8) | 195 | Germany | 82 | (D9,D9) |
| 138 | Israel | 133 | (D8,D8) | 196 | Finland | 184 | (D9,D9) |
| 139 | Tunisia | 34 | (D6,D8) | 197 | Australia | 208 | (D10,D9) |
| 140 | Great Britain | 156 | (D6,D8) | 198 | Great Britain | 200 | (D9,D9-D10) |
| 141 | South Korea | 32 | (D8,D8,D9) | 199 | USA | 216 | (D10,D10) |
| 142 | Thailand | 127 | (D8,D9) | 200 | Sweden | 210 | (D10,D10) |
| 143 | Costa Rica | 175 | (D9,D9) | 201 | Denmark | 199 | (D9,D10) |
| 144 | South Korea | 70 | (D8,D9) | 202 | Italy | 189 | (D9,D10) |
| 145 | Spain | 109 | (D8,D9) | 203 | Netherlands | 191 | (D8,D10) |
| 146 | Canada | 119 | (D8,D9) | 204 | Norway | 195 | (D9,D10) |
| 147 | USA | 159 | (D9,D9) | 205 | Japan | 180 | (D8,D10) |
| 148 | Korea | 98 | (D7,D8) | 206 | Canada | 215 | (D10,D10) |
| 149 | New Zealand | 179 | (D8,D8) | 207 | Spain | 190 | (D9,D10) |
| 150 | Finland | 102 | (D7,D9) | 208 | France | 207 | (D10,D10) |
| 151 | Italy | 126 | (D8,D8-D9) | 209 | Israel | 212 | (D10,D10) |
| 152 | Finland | 140 | (D8,D9) | 210 | New Zealand | 211 | (D10,D10) |
| 153 | Venezuela | 133 | (D10,D10) | 211 | Germany | 97 | (D8,D10) |
| 154 | Poland | 85 | (D9,D10) | 212 | Finland | 201 | (D9,D10) |
| 155 | South Korea | 85 | (D6,D10) | 213 | USA | 223 | (D10,D10) |
| 156 | Malaysia | 160 | (D8,D8) | 214 | Singapore | 170 | (D9,D10) |
| 157 | Israel | 168 | (D8,D9) | 215 | Norway | 203 | (D9,D10) |
| 158 | Norway | 131 | (D8,D9) | 216 | Sweden | 217 | (D10,D10) |
| 159 | Germany | 139 | (D8,D9) | 217 | Denmark | 211 | (D10,D10) |
| 160 | Mauritius | 158 | (D8,D9) | 218 | Australia | 209 | (D10,D10) |
| 161 | Botswana | 110 | (D7,D9) | 219 | Netherlands | 219 | (D10,D10) |
| 162 | Netherlands | 121 | (D8,D9) | 220 | Great Britain | 222 | (D8,D10) |
| 163 | Chile | 171 | (D9,D9) | 221 | Finland | 221 | (D8,D10) |
| 164 | Great Britain | 167 | (D8,D9) | 222 | Canada | 227 | (D10,D10) |
| 165 | Brazil | 162 | (D8,D9) | 223 | Italy | 214 | (D10,D10) |
| 166 | Spain | 130 | (D8,D9) | 224 | Germany | 226 | (D10,D10) |
| 167 | Australia | 183 | (D9,D9) | 225 | France | 228 | (D10,D10) |
| 168 | Mexico | 86 | (D9,D10) | 226 | Norway | 228 | (D10,D10) |
| 169 | New Zealand | 205 | (D10,D10) | 227 | Sweden | 225 | (D10,D10) |
| 170 | Sweden | 45 | (D8,D10) | 228 | Denmark | 225 | (D10,D10) |
| 171 | Israel | 76 | (D9,D10) | 229 | Japan | 200 | (D9,D10) |
| 172 | Canada | 152 | (D9,D10) | 230 | USA | 230 | (D10,D10) |

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