CHANGING INCOME INEQUALITY IN THE SECOND HALF OF THE 20TH CENTURY: PRELIMINARY FINDINGS AND PROPOSITIONS FOR EXPLANATIONS

Volker Bornschier

INTRODUCTION

This paper represents work in progress. It first presents the stylized facts for inequality within and between societies over the post-war era. Then eight propositions are discussed and empirically evaluated to account for the shifts in inequality over the last quarter of a century. We use income inequality as a measure of overall inequality. The first reason for doing so is that we have comparable information for cross-country and world comparisons. But this is less a limitation than one should think. In market societies income is the common denominator of social stratification. Formal education and occupational status—which are powerful predictors of income—are less unequally distributed than income while wealth and formal authority—the other two predictors—are more unequally distributed than income. This sequence in inequality ranging from formal education to formal authority is established for a sample of countries representing about two-thirds of the economically active population of the core of the world system (Bornschier 1988: 249). Therefore, income inequality is taken here as a summary measure of inequality in the stratification of a social system.

CHANGING INEQUALITY: THE STYLIZED FACTS

Looking at the whole postwar era we observe that overall economic growth in the world system was high between 1950 and 1972, while it was much lower between 1972 and 1992 (see Appendix, Table A1). Since the middle 1990s eco-

ABSTRACT

There exists a rather widespread professional consensus that income inequality both within and between societies in the world system has increased over the last quarter of a century. This, however, does not represent a secular trend since inequality between WWII and the 1970s was rather stable or decreasing. For the increasing inequality both within and between societies since the 1970s we present fresh evidence which helps to settle open questions of previous research.

Less consensus has been achieved until now with regard to explanations. Arguing that mono-causal explanatory schemes are of little help, the paper suggests eight propositions for an explanation. The evaluation of them is also enriched by diverse pieces of preliminary empirical evidence. The paper also briefly considers which factors are responsible for a rather transitory increase and those which suggest a lasting higher level of inequality in the world.

Volker Bornschier
Sociological Institute
University of Zurich
Raemistrasse 69, 8001
Zurich, Switzerland
vobo@soziologie.unizh.ch
http://www.suz.unizh.ch

nomic growth is again increasing. Taking all facts together which we will discuss below, we can say that in the high economic growth era of the postwar world system, *i.e.*, between 1950 and 1972, inequality both within countries, between world regions, and between countries was lower than in the second period, from 1972 to 1992. Thus we can point to a first observation, *i.e.*, that overall inequality seems not necessarily linked to the speed of overall economic growth.

If we look in more detail at the data we have at hand for evaluating the development of inequality in the first period, we observe that in fact inequality diminished somewhat within countries—OECD countries and several but not all developing countries—and was roughly stable for the income distribution of the whole world.

In the second phase, 1972–1992, wherever data are available, inequality typically increased, both within the majority of countries from a sample of 51 as well as between 103 countries (analyzed from 1980 to 1997). The increase in inequality within countries (albeit of different degree) pertains to about 87 percent of the sampled population and is therefore relevant for an overwhelming portion of world population.

After having detailed a bit more these stylized facts in Section One we will make this general increase in inequality the topic of our theoretical explanations in Section Two. We will furthermore present preliminary evidence for these explanations. In this paper we do not, however, evaluate the interactions between the different factors, nor do we suggest a ranking in the importance between them.

SECTION I

Details of the Available Evidence for the Change in Income Distribution and Fresh Empirical Analysis

The previous societal model—characterized by Keynesianism in the politico-economic regime and by Fordism/Taylorism in the realm of the industrial production system—started with democratic innovators in 1932–1934 (Sweden, U.S., Switzerland). This social arrangement culminated between the mid-1960s and the mid-1970s while it increasingly decayed from the 1970s onward (see Bornschier, [1988] 1996). The 1980s and the 1990s witnessed different approaches to the new societal model of the "extented market sphere in the telematics era."

Toward the end of the Keynesian societal model we observe a resurgence of globalization, manifested (among other things) by the increased weight of trade, finance and corporate investment across national borders which endured until the 1990s. Although the increase leveled off in recent years with regard to trade, it continued with regard to foreign direct investment.

As compared to the first half of the 20th century, the Keynesian societal model resulted in a decrease of inequality, at least in core countries. And until the culmination of the societal model (1960s to 1970s), inequality actually decreased in many core countries.

Inequality in Single Countries Over Time Until the 1970s

The most detailed evidence for inequality over longer time periods in the 20th century is available for the U.S.. Between 1946 and the second half of the 1960s, inequality in the U.S. (as measured by the Gini index for family incomes) had a clear decreasing trend while it increased since then rather monotonically until the early 1990s (the latest available data). This was demontrated for example by Kerbo (1991: 35, 1996: 24).

The astonishing fact of considerable increase in U.S. inequality since the end of the 1960s must be contrasted with the dramatic decrease following the New Deal of the 1930s (Williamson and Lindert 1980) which thus allows U.S. to extend the above-mentioned *decreasing* trend (1946–1969) backward to the 1930s. Parallel to this pattern we observe the same decrease for the distribution of wealth in the U.S. where the percentage of wealth held by the top one percent went considerably down from the early 1930s to the late 1960s, increasing considerably thereafter (Kerbo 1996: 34).

The scattered evidence for other core countries—although not covering a similar long period of the Keynesian societal model—tells the same story which we have detailed for the U.S.. The second best long run time series for which we have data is for the United Kingdom. Atkinson (1995: 17) reports Gini coefficients and income shares of quantiles in the United Kingdom for the period 1949–1985. Between 1949 and 1976 inequality was decreasing, especially since 1964. After the middle of the 1970s inequality increased again. Although we observe a very similar pattern in Britain there is a delay of the turnaround of several years as compared to the U.S.. This seems not only to be typical for the UK but also for other European countries. Take for example Switzerland, where—similarly to the UK—a decrease was still observed between the second half of the 1960s and the second half of the 1970s (Zwicky 1988) when U.S. inequality was already on the move up.

When we consider the new World Bank data set published by Deininger and Squire (1996) and restrict our analysis only to those data classified by the two authors of being of high quality (see later in the paper) then additional cases can be analyzed in order to show that the pattern for the U.S. and the UK (with the mentioned delay in the turnaround *vis à vis* the U.S.) is also visible in the data on other cases. In Canada inequality decreased between 1951 and 1973 in order to increase since 1973. In Japan there was a decrease between 1962 and

1972, and an increase after 1972. Again the pattern is similar for Sweden: decrease between 1967 and 1975 and increase after 1975.

Outside the Core Countries

From the mentioned Deininger and Squire data set we can also add information for a few developing countries. For India we observe a decrease of inequality since the early 1950s until about 1970 and an increase after 1970. Sri Lanka's situation is quite similar: decrease from 1953 to 1973 and increase after 1973. South Korea's inequality decreases from 1953 to 1969 and remains about constant or increases only somewhat after 1969. Taiwan's inequality also decreased between 1964 and 1979 and increased afterwards.

Although the four developing countries for which we have the necessary information follow a similar pattern as core countries, mention should be made also that some do not, *i.e.* they increased their inequality during the heyday of the Keynesian era: Mexico from 1950 to 1975, Brazil from 1960 to 1970, and Trinidad and Tobago from 1958 to 1971. Therefore the pattern in the Keynesian era seems to be mixed for cases *outside* the core.

Inequality in World Society as a Whole

There exists an early and pioneering study of inequality within and between countries of the world for the years 1950, 1960, 1970 and 1977 (Berry, Bourguignon and Morrison 1983). Berry *et. al.* report evidence for an almost unchanging world income distribution, as demonstrated by Gini coefficients as well as by quintile share figures. If any change is worth mentioning in the results these authors have presented, it is the fact that the bottom 60% of world population to some degree lost income share over time, a trend more pronounced after 1960. The share in total income of the bottom 60% in 1950 was 11.6%, in 1960, 11.5%, in 1970, 10.4%, and in 1977, 10.3%.

Another earlier study of overall inequality in the world system is one by Arrighi and Drangel (1986). They find three layers in the world income stratification from 1938 to 1983: the core, the semiperiphery and the periphery. The structure of inequality—as evidenced by the differences in logged income—between the three layers was as follows: until 1970 the semiperiphery somewhat caught up with the core. But after 1970 (until the end of their series in 1983) the semiperiphery fell back again. The periphery more or less maintained its overall position until 1960, and since then the distance from the core has gradually increased (*i.e.*, a trend of polarization). This suggests a stable or a slightly decreasing inequality in world incomes until 1970 and a slight increase afterwards. This corroborates with the evidence in Table A1 (in Appendix) with which we started this paper, although there the focus was on the difference between regional groups.

Over the first three decades after World War II, *i.e.*, during the era of the Keynesian societal model, overall income inequality in the world was astonishingly stable. The small shifts we mentioned should not be exaggerated given the limits of the quality of data. Furthermore, while income until the heyday of Keynesianism tended to become less unequally distributed in core countries, there was no overall trend deducible from the few cases with data outside the core.

Remarks on Differences in Inequality

Although the relative degree of inequality within various countries is not the focus of this paper since we are interested in the broadly changing trends of inequality, we would like to add here some basic information on differences between countries. Income inequality in core countries is on the average considerably lower than in the average developing country. However, in both groups there are marked differences in the extent of inequality. Such differences are more pronounced for developing countries. The famous Kuznets hypothesis that suggests a relationship between the degree of inequality and the level of development is not supported by the data for developing countries as a recent study by Deininger and Squire (1996) shows.

Here is not the place to review the predictors of inequality in cross-national studies, but mention should be made that earlier research demonstrated forceful predictors of income inequality: inequality in wealth (as measured by agricultural land distribution), structural traits of organizations in the economy, bargaining power of labor, and organizational links with the transnational economy and differences in state action (see Bornschier and Ballmer-Cao 1979). The most recent study in this long history of research is by Alderson and Nielsen (1999).

A second remark relates to the role of state action in terms of taxing and redistributing income. In general this role is much more pronounced in core countries. Especially for core countries this factor in relative inequality should not be underestimated. The state—in what it is or is not doing—is quite influential in shaping final levels of inequality. There exists a very informative and detailed study by Swank and Hicks (1985: 134) on 13 developed countries. They compare the income distribution generated in markets and organizations (primary income distribution) with the distribution after social security transfers (but before taxation) and with the distribution after transfers and after taxation (both directly and indirectly).

Comparing the primary and secondary distribution of income one can state (see Swank and Hicks 1985) that the income distribution generated by processes in the economy (earnings, profits) is the most unequal. With an average Gini

coefficient of 0.43 for their sample of 13 developed countries around 1970, this average Gini decreases after transfers to 0.37 and further to 0.35 after transfers and taxes. This pattern itself is not very astonishing. But at the same time the differences in inequality between the 13 countries increase with state intervention as evidenced by the coefficient of variation which we computed from their published figures: V=0.07 for the primary distribution, V=0.09 for the one after transfers and V=0.12 after transfers and taxes. Thus highly developed countries are more equal in their income distribution with regard to market-generated income and less similar after state intervention. The state therefore not only matters: its impact is quite different across countries.

The Growing Inequality in the Transition from the Old to the New Societal Model of the "Extended Market Sphere in the Telematics Era"

Income inequality in single countries over time after the 1970s

Growing inequality in the United States over the last quarter of the 20th century has been widely recognized and debated (Kerbo 1996, Braun 1997). Over the 1990s several comparative studies have been undertaken to evaluate the trend in inequality outside the U.S..

There exist already several summarizing studies which especially address the trends in OECD countries and distinguish between earnings inequality and income inequality (Gottschalk and Smeeding 1997, Gottschalk 1997, Atkinson et al. 1995, Atkinson 1995). And there exists a broad consensus based on the available evidence in the 1980s and early 1990s.

Let us start with the summary of Gottschalk and Smeeding (1997: 636), who state that there exist wide differences across developed countries both with regard to earnings inequality and income inequality (disposable income after transfers and taxes):

> Almost all industrial economies experienced some increase in wage inequality (…) during the 1980s (Germany and Italy are the exceptions). But large differences in trends also exist across countries, with earnings inequality increasing most in the United States and the United Kingdom and least in Nordic countries …

> Income inequality increased in most, but not all, OECD nations during the 1980s and early 1990s. Trends in inequality were not closesly associated with levels of inequality. Some nations with low levels of inequality experienced some of the largest increases. Increases in household income inequality were more muted than were changes in earnings inequality in most nations. Still increased earnings inequality among men was probably the most important factor in explaining rising income inequality. (…) Reductions in social welfare spending for the non-aged and regressive changes in the structure of income taxes for some countries during the 1980s account for only a small part of the trend in post-tax and transfer inequality in most nations." (Gottschalk and Smeeding 1997: 636)

An empirically-based consensus thus emerges. Yet, except the significant contribution of earnings inequality to overall household income inequality, no obvious single source seems to be responsible for the trend in income inequality. Although politics matters (as we have mentioned above) and political styles—pluralist *vs.* neocorporatist regimes of different intensity—are obviously associated with different inequality outcomes, politics does not seem to be the only factor. Gottschalk (1997: 5) concludes from his study that "it is difficult to attribute the common trend in inequality experienced in western European countries during the 1980s to the emergence of conservative governments."

So far there is little empirical work available on the trends in income inequality outside the OECD world. Therefore, after having finished the review we will present preliminary results of our own research covering 51 countries, the large majority of them from the developing world.

Inequality in the world as a whole

Studies of the type which Arrighi and Drangel (1986) have presented were updated but not published in final form (Arrighi and Korzeniewicz 1996). Peacock, Hoover and Kilian (1988) tried to decompose world income inequality (with observations between 1950 and 1980) into two components, *i.e.,* into inequality within layers and between layers of the world system: core, semiperiphery and periphery. However, their work was based on the results of the flawed block modeling method of Nemeth and Smith (1985), a flaw discovered by Trezzini (1996).

In order to distinguish between different layers in the world system Ebert and Trezzini (1992) employed the block modeling method, using population-weighted aggregate export and import data for 115 countries in 1975. They found an overall structure comprising four subgroups: a core, a semiperiphery, a strong periphery, and a weak periphery. Over the period from 1960 to 1985 a clear income polarization could be observed. Using their country groupings for 1975, Ebert and Trezzini find—in terms of average real per capita income for the time period between 1960 and 1985—evidence for a growing polarization in the world system. There is a clear-cut image of four different average income layers, with the highest growth at the core and absolute stagnation at the weak periphery. These originally unpublished findings from a MA thesis were reprinted in Bornschier and Trezzini (1997: 442).

The world income distribution was studied from 1965 to 1992 by Korzeniewicz and Moran (1997). They temporally extended the pioneering study by Berry *et. al.* (1983). Korzeniewicz and Moran found that world income inequality

increased somewhat in the 1970s and went up considerably in the 1980s. The differences in average income between countries was the most important component of overall world inequality (income within and between countries). This was already the conclusion of Berry *et. al.* (1983) for an earlier period.

The widening gap in average income across the countries of the world which Korzeniewicz and Moran found was in part, however, disputed by the replication study of Schultz (1998). According to him, the increasing gap in average income is only observable if international exchange rates are used to translate national currencies into U.S. dollars. If the series of purchasing power parity-corrected average income data are employed, no increasing income disparities between countries can be detected.

In a similar critical vein Firebaugh (1999) questioned the finding of Korzeniewicz and Moran (1997). Firebaugh also found stable variance in the distribution of logged income across nations and claimed that if income inequality in the world has increased over the 1980s, then the increase must be due to increases within nations.

We conclude this review with the following observations: The information on the increase in inequality within countries outside the OECD world is still shaky, and the widening gap between average incomes across nations has come under severe dispute recently. Therefore, we undertake additional original research in order to clarify these issues.

Our own additional empirical research

First we analyze the latest available set of comparable data of income distribution (Deininger and Squire, 1996) in order to assess the dominant trend in income distribution since the 1970s for a broad range of countries. This analysis allows us to include 51 countries with a population of about 4.2 billion—representing a vast majority of the world population living in countries outside the former second world (since 1990, the transformation of former state socialist systems to more formal democracy and market regulation). The results are summarized in Table 1.

Secondly, we analyze the time series for income (GDP per capita) provided by the World Bank (World Development Indicators, 1999). These series contain data from 1960 to 1997 expressed both in international exchange rates and corrected for purchasing power parity. The gaps in information before 1980 are frequent; therefore, we start in 1980 with yearly observations for a constant sample of 103 countries until 1997.

Fresh evidence on the change in inequality within countries

The basis of the analysis summarized in Table 1 is a sample of observations

which Deininger and Squire (1996) term a "high quality data set." This high quality data set we again screened for comparability over time. If a high quality estimation of income distribution at time 1 relates to households and at time 2 to persons then it is not comparable and not included in estimating trends. The same qualifier applies to information based on gross income at one time and on net income at another. We also excluded those observations which do not have information on parameters which significantly determine inequality. Nor do we consider entries where there is no exact information on whether the measure relates to comparable income units (households, persons).

Most observations on inequality relate to income (in many cases also to expenditures) and the income unit is the household and the figures are gross (before taxes). But many other data entries are found, too. Since we compare trends in the change of inequality rather than relative levels, these differences are not important as long as we compare strictly comparable figures over time. The mentioned selection was done in the already screened "high quality" data set provided by Deininger and Squire.

Furthermore, we considered only cases with at least two pieces of information on income distribution (many cases have much more) and where the last entry is at least in the second half of the 1980s (1986 and beyond). If available we started with observations around 1970.

It is not always easy to classify countries according to trends. Therefore, we distinguish in the first stage of analysis reported in this paper only three categories: increasing inequality, roughly constant inequality and decreasing inequality. The information we consider is the change in Gini coefficients as well as the changes in the shares of income that go to the bottom quintile (20%) and to the top quintile of income units. This additional criterion was used since the Gini coefficient is not very sensitive to inequalities at the bottom and the top of the distribution. Admittedly, there are some questionable classifications likely to be left in our analysis but it nevertheless allows us to draw conclusions about general trends due to the sheer number of cases.

Included are 51 countries, all of them non-transformation countries (to control for the change in inequality due to the profound revolutions which the formerly planned economies have experienced). Our 51 sample countries are those in which the vast majority of the world population is living, *i.e.*, 4,158 million or about 77 percent of the total world population outside the 22 transformation countries.

Table 1 summarizes the findings. A clear majority of the sample countries are classified as having experienced "increasing inequality" since the 1970s until the early 1990s. This increase, however, was of different size and in most cases

Table 1 – Summary of the analysis of the change in national income distribution in the 1970s, 1980s and early 1990s

Classification	Increase	Roughly Constant	Decrease	Total
Number of non-transformation countries	27	17	7	51
Percentage of all sample cases	53%	33%	14%	100
Number of people living in these countries (billions)	3.632	390	136	total sampled population =4.158*
Percentage of *sampled* world population	87.3%	9.4%	3.3%	100

* The share of the sampled population in total world population (except transformation countries) is 77.4%

does not cover the whole period, the 1970s to the 1990s. Preliminary though they may be, the results tell us that for 53% of the sampled countries inequality was increasing, for 33% it remained rather stable, and only for 14% was inequality decreasing.

This predominant trend of increasing inequality from the 1970s to the 1990s does not only hold for the vast majority of the OECD countries but also for the overwhelming majority of all other countries. Thus, we conclude that increasing inequality within nation-states was a general phenomenon of world society over the last quarter of the 20th century.

If we consider the populations in the three different groups of Table 1 we can punctuate our conclusion even further. The overwhelming majority of the world population (outside transformation countries)—the percentage share is actually 77.4%—live in national societies which experienced an increase in inequality—in some cases a pronounced increase, in others a moderate one.

Looking at individual societies we can thus conclude that inequality did generally increase from the 1970s until the 1990s. What about the differences in income between countries? The summarizing results from 1980 to 1997 are listed in Table 2.

Inequality between countries

There exist various measures for inequality. In Table 2 we employ one that is decomposable (Bourguignon 1979). Among the decomposable inequality measures we chose for Table 2 is one that is not too sensitive with respect to extreme

Technical Note 1

$$L = \log \left(\frac{1}{n} \sum_{i=1}^{n} y_i - \frac{1}{n} \sum_{i=1}^{n} \log y_i \right)$$

where: n = number of countries

y_i = income of the country i (GDP er capita)

If we would like to divide our total sample into subgroups, then the total inequality is the sum of the weighted inequalities within groups:

$$L = \sum_{i=1}^{m} w_i L_i + \sum_{i=1}^{m} w_i \log (w_i / v_i)$$

where: i = subgroup (i = 1......m)

w_i = weigh of the group: number of countries in the subgroup i as a share of the total sample

L_i = inequality between countries in the subgroup i

v_i = income weighting: income of the subgroup i in relation to the income of the total sample.

values and thus allows us to evaluate the general pattern. We employ in Table 2 therefore the mean logarithmic deviation (L) described in Technical Note 1.

In summarizing the results over the period 1980 to 1997, Table 2 lists the growth rates of this inequality measure for 103 countries. The first entry relates to national per capita incomes converted at international exchange rates and the second to purchasing power parity (ppp)- corrected income data from the same World Bank source.

Table 2 tells us that inequality between the 103 countries was in fact increasing from 1980 to 1997. This increase in the inequality measure for income is quite dramatic when we analyze the income data *not* corrected for ppp. The non-corrected data indicates an increase of 43% during the whole period from 1980 to 1997. Considering ppp-corrected figures we still find a substantial increase in inequality of more than 20% between 1980 and 1997. This considerable difference between the movement of the two measures of income may in part explain why earlier findings for ppp-corrected data came to different conclusions (see below).

Table 2 – Change in world inequality – 103 countries and groups of countries*

Percent growth in inequality (L) between 103 countries*

	1980–1989	1990–1997	1980–1997
income p.c.**	25.6%	10.9%	43.4%
income p.c. ppp	10.5%	7.1%	20.1%

Percent growth in inequality (L) between five country groupings***

	1980–1989	1990–1997	1980–1997
income p.c.**	35.9%	7.8%	49.6%
income p.c. ppp	15.4%	7.0%	23.9%

* Inequality is measured by mean logarithmic deviation (L)

** The first entry relates to real income per capita, the second to purchasing power corrected (ppp) figures

*** The five country groupings are: OECD (21), East Asia (9), subsaharan Africa (32), North Africa (4), Latin America (25)

Source: World Bank, *World Development Indicators, 1999,* on CD-ROM

But we find also a substantial increase in inequality for the corrected income data.

Splitting the whole period in two subperiods, *i.e.,* 1980–89 and 1990 to 1997, reveals that the increase in inequality was greater in the 1980s than in the 1990s. But we hesitate to make an issue out of this since the years after 1997 when the Asian crisis became manifest are not covered by the data.

Furthermore, we did additional analyses not reported in the summarizing Table 2. These relate to different regional groupings—inequality within and between groups. The findings are the following:

+ Among the 21 OECD countries in the sample we observe the smallest inequality in income and a trend toward diminishing inequality over time in this group. Thus the OECD world is *converging* with regard to income per capita.

+ The largest differences in income is found in the sample of 9 East Asian countries and this inequality is increasing over time implying a *divergence* in this subgroup.

+ The sub-Saharan African countries (N=32) differ considerably in income inequality and these differences are again increasing over time (*divergence*).

Table 3 – Test of robustness of the increase in inequality in average income levels with regard to different population sizes

Variance of log naturalis of income per capita (ppp)

	1980	1989	1997	% change 1980-97
All cases N=103	1.01	1.11	1.28	26.7%
Without China N=102	1.00	1.11	1.29	29.0%
Without China and India N=101	0.99	1.11	1.29	30.3%
Without 28 countries below 5 million population N=75	1.21	1.31	1.48	22.3%
In addition without China and India N=73	1.18	1.32	1.50	27.1%

+ Latin American societies (N=25) show an inequality among themselves that is in between the mentioned extremes of the OECD world and East Asia and this status is rather stable over time.

The graph from part of the information in Table 2 presents the movement of our inequality measure (L) characterizing 103 countries with yearly observations between 1980 and 1997 (see Appendix).We use only the ppp-corrected values for income in that graphic demonstration since only the increase in ppp-corrected income inequality between countries is under dispute in the literature. We find a clear and almost monotonic increase in inequality between countries, covering both more recent years as well as earlier studies.

The increase of inequality in average income per capita (ppp-corrected) that we find between 1980 and 1997 for our full sample of 103 countries does not necessarily tell us whether this increase in inequality was affecting the majority of world population since the differences in population size between these 103 countries are immense. In order to find out whether the majority of the world population was affected by the increase in income inequality between the 103 countries we performed additional tests reported in Table 3.

Significant cases like China and India which represent about one-third of the world population may affect the overall result. But removing these two cases from the sample leaves the overall result almost unchanged (see Table 3).

The many small countries which represent only a tiny fraction of the world population may be responsible for the result. Excluding the very small countries with a population below 5 million from the sample removes only about 100 million population from the sample but 28 of the 103 countries. In the 75 remaining countries inequality is higher but the increase over time is similar to that in the full sample of 103 countries (see Table 3).

In addition, removing the extremely populated countries of China and India also results in a sample of 73 countries which excludes all the mentioned extremes. Again, the level of inequality between these more comparable countries is higher but the increase over time is very similar (see Table 3). Therefore, the increase of average level of income inequality between countries is rather robust and affects the majority of the world population.

The conclusion from our additional analysis is obvious and helps to settle the mentioned questions left from previous research. If we put all available evidence together, we have to conclude that incomes since 1972 into the 1990s have become more unequally distributed within countries and between countries. How can we explain this? This will be the topic of Section Two.

SECTION TWO

The major reasons for increasing inequality since the 1970s

We propose an explanation that combines a multiplicity of factors. The single propositions are:

(1) Transnational economic integration and national disintegration
(2) More economic openness in the world economy and deregulation
(3) The shift from the old technological style to the new technological style of the telematics era
(4) The shift from peripherization to marginalization in parts of the world system
(5) The shift in the alliance of organizational elites from stakeholder to shareholder orientation
(6) Increasing capital income derived from world stock markets changing the functional distribution of income in favor of capital income

(7) The increased importance of continuing education increasing the inequality in the distribution of qualifications
(8) Pacts between capital and labor tending to shift from collective to intrafirm bargaining

Details on the Propositions and First Empirical Evaluations

(1) *The role of transnational economic integration and national disintegration*

This argument is old and was first spelled out by Osvaldo Sunkel (1970) and applied to the system of transnational corporations by Stephen Hymer (1972). It was further developed by the extensive research on transnational corporations since the middle of the 1970s.

The empirical work of Bornschier, Chase-Dunn and others always found a positive relationship between the degree of foreign capital penetration (by transnational corporations) and income inequality in non-core countries (Chase-Dunn 1975, Bornschier and Ballmer-Cao 1979, Bornschier 1983, Bornschier and Chase-Dunn 1985). Recent research by Alderson and Nielsen (1999) consolidated this earlier finding for a wide range of 488 observations over the whole postwar era.

Given that this relationship between transnational economic integration and national disintegration has manifested in greater income inequality, we can predict an increase in inequality if the system of transnational corporations (TNCs) increases its weight in the world economy. There is a lot of evidence that TNCs have become increasingly important in the world economy since the 1970s. The world stocks of foreign direct investment in relation to world product (percent) was 4.4 in 1960 and 4.5 in 1975. Until 1991 these figures almost doubled to 8.5 (Bornschier and Chase-Dunn 1999: 295). This increase continues in the 1990s and the figure for 1996 is 10.6. According to the latest World Development Report 2000 (p. 4) this figure for 1999 stands now at 15.9%. "The gross product [value added] of all TNC systems together—that is, including parent firms— was an estimated $8 trillion in 1997, comprising roughly a quarter of the world's gross domestic product (GDP)" (World Investment Report 2000: 3). The weight of the overall TNC system in world production increased by a factor of about 3.5 since the 1970s.

If transnational economic integration via the system of TNCs has increased so notably over the last 25 years, then one might anticipate that income inequality has risen considerably, too—yet only if national policies did not or not fully counteract the inequality-enhancing effect induced by TNC investment. In earlier periods, however, this was not the case for the majority of peripheral and

semiperipheral countries, as Bornschier and Ballmer-Cao (1979) demonstrated with their study. In the era of deregulation and cutting back of state intervention this is unlikely to have happened more than in the 1960s.

Thus we have a first cause for the increase in inequality since the 1970s which is substantiated quite solidly by already accumulated research.

(2) *The role of trade*

Greater economic openness of the world economy since the 1970s has tended to contribute to factor price equalization, also implying that real wages for skill levels have a tendency to converge across the world under a free trade regime (Thurow 1996: 166ff.). The production of internationally traded products with a considerable low-skill component is therefore difficult to maintain in developed countries unless the real wages for low-skill work go down.

This produces a tendency of decreasing low-skill real wages in developed countries if they open their borders for imports from LDCs and especially from NICs which then compete for industrial production with the old industrial world. Indeed, we find a positive correlation for OECD countries between the share of imports from LDCs and income inequality as evidenced by Gustafsson and Johansson (1999: 592, 595). They use the Gini coefficient as the inequality measure, but we would particularly expect increasing inequality of low incomes *vis-à-vis* the median income.

If governments and/or unions act against the decrease of low-skill real wages by imposing minimum wages, for example, then imports from developing countries are likely to contribute to (temporary) unemployment. Unemployment itself is not related to income inequality (see Gustafsson and Johansson, 1999: 595), since unemployment benefits may compensate the loss of earnings. Losers of North-South trade can thus be compensated in the North.

Against temporary income losses in developed countries stand the gains from North-South trade in parts of the developing world. Yet, the increasing incomes may then contribute to worsening the income distribution due to more pronounced economic dualism. In principle, governments could counteract the deleterious effects of this dualism. We conclude, therefore, that free trade must not inevitably worsen the distribution of incomes across the world. If it does, it is not free trade per se but the unwillingness of governments to compensate from losers—in my view necessary—structural change in the world economy.

(3) *The role of technological change*

The new technological style (Perez 1983, 1985; Bornschier [1988] 1996) which has been emerging since the 1970s is obviously more knowledge-based as compared to the previous one. It has produced highly productive new lead sec-

tors—telematics and biotechnology. Even if the new style will also reorganize production, distribution and consumption throughout the old economy, it contributes for the time being to a sharp economic dualism between old and new economies.

There are two reasons for a worsening of income distribution in this process: (i) increasing returns on tertiary education and (ii) the sectoral inequality in average income between the old and new economy.

For the U.S., where the new technological style has developed most, we already have indications of increasing returns on tertiary education (Gottschalk 1997: 15). Katz and Murphy (1992) found that the college premium in terms of earnings (as compared to high school) increased between the 1970s and 1980s from 40% to 90%. We did our own analysis on earnings returns to tertiary education covering the years 1979, 1986, 1991, 1994, and 1997 for the United States (using the Luxembourg Income Study data) and found considerable increases over that time span. At the moment we are analyzing other cases, like Switzerland, to find out whether this is indeed a common feature of the push toward the new, more knowledge-based technological style.

For the earnings distribution, the increasing returns on tertiary education means that the high income segments in the distribution are increasingly moving away from median earnings. This has been demonstrated with detailed figures in the literature (see Gottschalk 1997). As compared to the free trade effect we discussed before, the technology factor thus affects quite a different segment of overall income inequality.

But also controlling for education, we expect that technological dualism between the old and the new economy is worsening the distribution of earnings in the aggregate. Again we take the most advanced diffusion of the new economy in the U.S. as an example. The telematics sector there has become a growth engine absorbing about 10 million employees whose average salary is 60% above the average for the whole private sector. Turnover per employed person in the U.S. Internet sector (with 2.3 million employees in 1999) was $250,000 as compared to $160,000 in the automobile sector, the growth engine of the previous technological style (see www.internetindicators.com). Another piece of evidence comes from California where telematics and biotechnology have become the largest economic sectors by far in terms of employees whose average salary is between 85% and 105% above that of the California average (NZZ no. 128, June 3/4, 2000).

The gap in productivity and thus average salaries between the old and the new technological sectors is therefore a strong force increasing earnings inequalities. This can be demonstrated by two sector models which, in the course of transition, predict increasing inequality.

Table 4 – Evidence for divergence in Internet usage diffusion in the world*

Log Internet diffusion; variance of Logs are displayed			
	N=70	N=36	N=21
July 1997	0.88	0.71	0.144
Jan. 1999	1.02	0.75	0.129

* Internet hosts per 10,000 population

N=21 Subsample of rich countries.

N=36 Subsample of rich countries enlarged by NICs (with 4 large developing countries, in terms of population).

N=70 sample which includes, in addition, 34 peripheral countries, randomly selected

Note: this analysis does not include transformation countries.

Source: Volker Bornschier, computed on the basis of data from World Development Reports of the World Bank

Up to now the diffusion of the new technological style has been very uneven around the world—even if we look only at rich countries (see Bornschier 2000). And this is likely to be one of the major reasons for differences in the increase in income inequality if we compare countries. Governments frequently push the development of the new economic sectors and therefore accept increasing inequality.

Moreover, the new technological style is very unevenly diffused comparing the core, the semiperiphery, and the periphery of the world economy. Table 4 demonstrates the divergence in the world by taking the Internet hosts per 10,000 population as an indicator. Except for the rich countries where we observe a slight convergence in Internet usage, divergence (increase in variance of logs) is obvious over the 1997 to 1999 period.

Thus the shift from the old to the new technological style as a basis of economic development worsens the income distribution within core countries and increases—other things being equal—the income gap between the developed and the underdeveloped world, becoming more pronounced for the periphery and somewhat less for the semiperiphery.

(4) From peripherization to marginalization

The development of the world economy away from the previous importance of agricultural and mineral raw materials toward knowledge-based industry and services marginalizes the typical peripheral country. Though peripheral countries have a subordinate role in world production, they nevertheless were functionally important for the world economy as a whole. Previous export specialties of the Third World, however, increasingly lost ground due to substitution of natural products through modern agriculture and biotechnology at the core. Thus productive capacities in peripheral countries became obsolete and increasing portions of the economically active population became marginalized. This long lasting trend started before it was accentuated through the new technological style towards information society with its diminishing strategic value of raw materials.

Elites in peripheral countries as well as international organizations like the World Bank did little to counteract the long foreseeable trend towards marginalization. Actually, World Bank advisors for a long time recommended specialization according to natural advantage. This was bad advice since it hindered LCDs' ability to adapt early and continuously to the change of the world economy towards knowledge-based economic activities. Various segments of LCDs therefore became increasingly marginalized.

What is the evidence for this proposition? In 1990 peripheral countries in the world economy (without oil exporting OPEC countries and without NICs) had a share of 39% in world population but only of 7% in world trade (exports). The situation was, however, not always like this. In 1950 the share of these countries in world trade was still 19%, dropping to 12% in 1960 and to 9% in 1970. Since 1970 it dwindled once again to about 7%. This is only the information on the aggregate of the periphery, and so the loss of importance in world trade may be even more pronounced for many individual LDCs.

At the same time the available empirical evidence from cross-national studies shows that foreign trade as a share of overall economic activity has a very significant positive effect on economic growth (see, for example, Bornschier and Chase-Dunn 1985: 95). If the share in world trade of a group is going down this implies that they take less advantage of the income-generating contribution of world exports and thus—all other things being equal—fall back with regard to average income. This is likely to have contributed to income polarization in the world system.

(5) *Shift in alliance of organizational elites from stakeholder to shareholder orientation*

Already in the Keynesian era (1930s-1970s) the development of big business witnessed a separation of ownership from control. But top managers being effectively in control of many of the leading corporations typically tended to favor a corporatist alliance with their staff resulting in higher labor incomes in relation to capital incomes and in a lower differential between the income of Chief Executive Officers (CEO) in the corporation and their rank and file employees.

While—in international comparison—there have always been remarkable differences in the income of CEOs *vis-à-vis* their rank and file employees (Kerbo

1996, Braun 1997, Bornschier 1976: 305 ff.) capitalist development since the 1980s is thought of as having favored a general shift from the stakeholder to the shareholder orientation of corporatist elites. It is unclear what the deeper reasons of such a shift are. Is it the new ideology of shareholder capitalism itself which favors the higher incomes of CEOs and top segments of management at the expense of rank and file employees? Or is the shift in orientation of CEOs backed by structural factors: (i) the lower threatening power of organized labor due to decreasing unionization and the increasing fragmentation of labor, (ii) the end of the challenge to capitalism posed by the "counter-core" of state socialism, or (iii) the growing importance of institutional investors?

In any case, the improved income position of CEOs and higher segments of the management *vis-à-vis* their rank and file employees is not only favoring the organizational elite but also shareholders whose short-term profits would be lower in case of more proportionate salary increases for *all* employees.

We have little comparative evidence of what the impact of shareholder value orientation on income differentials in organizations are. Let me therefore point only to a telling example. In the Swiss banking sector (being almost exclusively dominated by big business) the salaries of the rank and file employees (about 85% of the employment in the sector) increased over the first half of the 1990s only by 5% (net of inflation) while the small top segment of high ranking employees was able to double its revenues over the same period (CASH 1996, no. 10, March 8, p. 11).

If such a shift goes on over a longer time and if it is not specific to certain sectors or countries, it is clear that this will change the income distribution in the upper segment of Western societies quite remarkably. We need more research to evaluate this factor.

(6) Capital gains at the world stock markets changed the functional distribution of income in favor of capital income

The considerable capital gains in world stock markets since the 1980s until March 2000 seem to be historically unique. While they may have contributed to considerable new wealth and to a redistribution of wealth among capitalists, the impact on income distribution is little understood.

In principle, capital gains of a certain period are part of income of the same period. This is, for example, evident in the recent discussion of the impact of stock market gains on consumption in the U.S.. But since taxing policies differ across countries (Switzerland—in contrast to the U.S.—does not tax capital gains) most of this impact does not seem to be (fully) included in official cross-national figures on income distribution.

Capital gains of such an extent and over such a long period as in the past 15 to 20 years alter the distribution of functional components of income distribution in quite a substantial way. Let me again point to an example. Since 1991 the value of the stocks quoted at the Swiss stock exchange quadrupled to reach a sum of 878 billion Swiss francs in 1997. Over this period shareowners increased their wealth considerably (more than 270%). The stock market "income" (increase in wealth per annum) is said to have overtaken by far all labor incomes in Switzerland for the year 1997 (SonntagsZeitung, December 13, 1998, p. 77). Since stock ownership is by far much more unequally distributed than income, the effective overall income distribution has worsened at the hands of this substantial increase in stock valuation. One has to add again, however, that not all of this is actually represented in income distribution figures since capital gains are taxed differently. While such capital gains (whether realized or not) are an element of income they do not seem to be fully included in income distribution figures. Therefore, the actual increase in income inequality over the long stock market boom may even have been much more substantial than the available figures tell us.

(7) The increased importance of continuing education increased the inequality in the distribution of qualifications

Continuing education and training is a phenomenon indicating a new wave of educational expansion in Western society since the 1980s (Bornschier 1996: 241 ff.). Education after school and on the job is thought of as contributing to the qualification and requalification of the labor force, especially in developed countries.

Yet, there is a special feature to this continuing education that we know from empirical research. Those persons with already comfortable formal education especially tend to take advantage of continuing education. In terms of the distribution of qualifications the 'Matthew principle' plays: those who have will be given. Thus the factual distribution of qualifications in society may become much more unequal than the formal qualification figures are suggesting. While historically, compulsory education and its prolongation over time counteracted the trend towards inequality in formal education, a similar brake does not work for continuing education. Therefore, we may propose that the distribution of earnings has become more unequal over the last quarter of a century because the actual qualifications in the labor force have become more unequal due to continuing education and training.

(8) The bargains between capital and labor tended to shift from collective to intrafirm bargaining

More coordination among unions throughout the economy in wage bargaining reduces the wage differences across branches in the economy and across size classes of firms within branches. However, if unions bargain over wages primarily at the level of firms or establishments, the wage differentials across branches and size classes within branches are larger (Bornschier 1976: 302 ff., especially 307 ff.).

Collective wage agreements since the 1980s and 1990s have increasingly come under pressure, including in neocorporatist systems of the OECD world. This is very likely to contribute to more unequal distribution of earnings within economies. Wage bargains increasingly take place at the level of the firm or establishment—what has long since been the predominant pattern in the U.S. and Japan—and thus contribute to a more pronounced tendency to distribute wages according to productivity, dependent on the sector and size of firms.

While firms seem always to have preferred wage bargains at the level of firms, the pervasive unionization of labor enforced collective bargaining, especially in most European countries and thus reduced overall wage inequality. Yet, decreasing levels of unionization in the OECD world changed the pattern. It is difficult to attribute the loss of labor strength to a single factor, but the absolute level of income and individualization seem to be a fruitful starting point to explain decreasing levels of unionization.

If our proposition is correct, the degree of unionization should have an impact on differences in earnings differences and thus overall income inequality. Indeed, we have strong empirical evidence for this. Gustafsson and Johansson (1999: 595) show a strong relationship between strength of unionization and income inequality in OECD countries. An earlier finding for a sample of countries point to the same link. Bornschier and Ballmer-Cao (1979) find that—other things being equal—income inequality in a cross section of 72 countries inversely varies with the threatening power of labor. Where effective labor organization with proven ability to act is strong, inequality of incomes turned out to be lower.

Prospects for the Future Development of Inequality

The first two propositions to explain the increasing inequality in the last quarter of the 20th century point to factors political actors could counteract, at least in principle. Neither transnational economic integration nor freer trade must inevitably result in increasing inequality, at least not to the considerable degree now prevailing.

More inevitable, in principle, is the worsening of income distribution in the course of the first phase of the diffusion of the new technological style. This is relevant for core countries as well as for the periphery.

Core countries

The famous Kuznets thesis for the development of inequality over the economic history of core countries implied an inverted U-shape form for the inequality in the transition from agriculture to industry (Bornschier 1983). Actually, core countries have to a different degree started to enter a new kind of transition, this time from the old industry of the mass production era to the knowledge-based new economy. If this is a correct description, inequality should have started to increase for some, while further increasing levels of average productivity it should decrease inequality. Indeed, this is the pattern Gustafsson and Johansson (1999: 592) have found in their panel observations for 16 OECD countries over the last two and a half decades. Since the transition as well as the level of productivity is still very uneven in this group we find parts of two inverted U-shape curves present in the overall pattern which thus can actually be described as a U—not an inverted U.

Political action to shorten the transition by speeding up the structural change with policy measures implies to some extent accepting earlier a higher level of inequality, albeit for a shorter overall period. There thus seems to be a trade-off involved.

At the periphery

The change of technology in the economy will most probably foster marginalization at the periphery, much more than at the semiperiphery. Looking at the development of labor productivity between 1960 and 1990 for a world sample (Temple 1999: 117) it is obvious that for quite a large group of countries not convergence but divergence in average levels of income was the destiny up to 1990 and will be beyond. Given the experiences of the postwar era it is hard to imagine that national political responses will be sufficient to counteract polarization. To prevent increasing marginalization in the world is thus the task for the world political community.

The first four propositions then suggest either that political action in principle could counteract aggravating inequality or that the technology factor will be transitory in its impact, albeit active for quite a long time still ahead. The last four propositions suggest rather that despite possible equalizing political responses and the end of the diffusion of the new technological style, the world is likely to stabilize at higher levels of inequality as compared with the ones that characterized the first four postwar decades.

Quite obviously further research is necessary on such a broad and complicated topic. We have modestly made a step in this direciton by presenting fresh empirical evidence and a series of possible explanations.

APPENDIX

Table A1 – The development of per capita income in two growth periods after WWII*

	GDP per capita** 1950	Upswing*** % p.a. 1950-73	GDP per capita** 1973	Downswing*** % p.a. 1973-92	GDP per capita** 1992
World (199)	2.138	2.9	4.123	1.2	5.145
U.S., Canada, Australia and New Zealand (4)	5.126	3.9	12.289	1.8	17.387
West Europe (23)	2.021	4.9	6.015	1.7	8.287
South Europe (7)	2.487	2.5	4.387	0.5	4.820
Latin America (44)	2.631	3.5	5.745	−1.1	4.665
Asia+Oceania (56)	765	3.8	1.801	3.2	3.252
Africa (56)	830	2.0	1.311	−0.1	1.284
Variance of ln (log. natural.)	0.81		0.74		0.94
Coefficient of variation		0.60		1.34	

* Average for the world and for regions (in brackets the number of countries)

** Gross domestic product per capita, corrected for purchasing power parities (in 1990 Geary-Khamis Dollars).

*** Growth rate: "average compoand growth rate."

Source: Angus Maddison, *Monitoring the World Economy* 1820–1992, Paris: OECD, 1995: 60, 228.

Graph to Table 1 – Summary of the Change in National Income Distributions in the 1970s, 1980s, and early 1990s

Frequency According to countries, N=51

Increase in Inequality (different degrees) — 53%

Rather Constant Inequlity — 33%

Decrease in Inequality (different degrees) — 14%
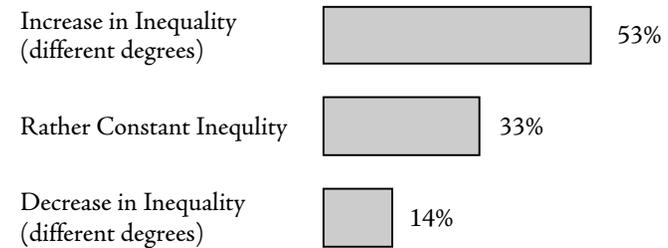
Frequency According to Population (Total: 4.156 Billion)

Increase in Inequality (different degrees) — 87%

Rather Constant Inequlity — 10%

Decrease in Inequality (different degrees) — 3%
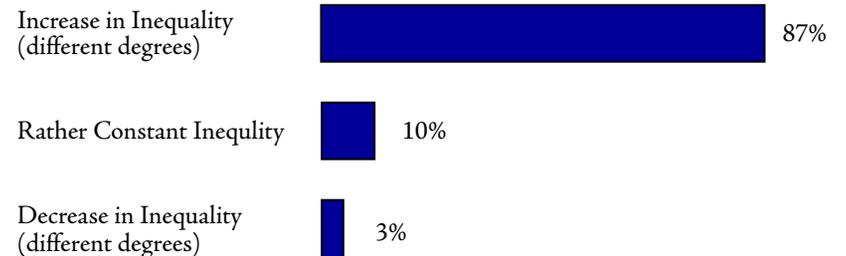
Source: Volker Bornschier, own classification according to World Bank Data (Deninger & Squire 1996)

Graph Addition to Table 2: Income per capita (PPP-corrected) inequality for 103 countries Mean logarithmic deviation (L) is the measure of inequality

Year of observation
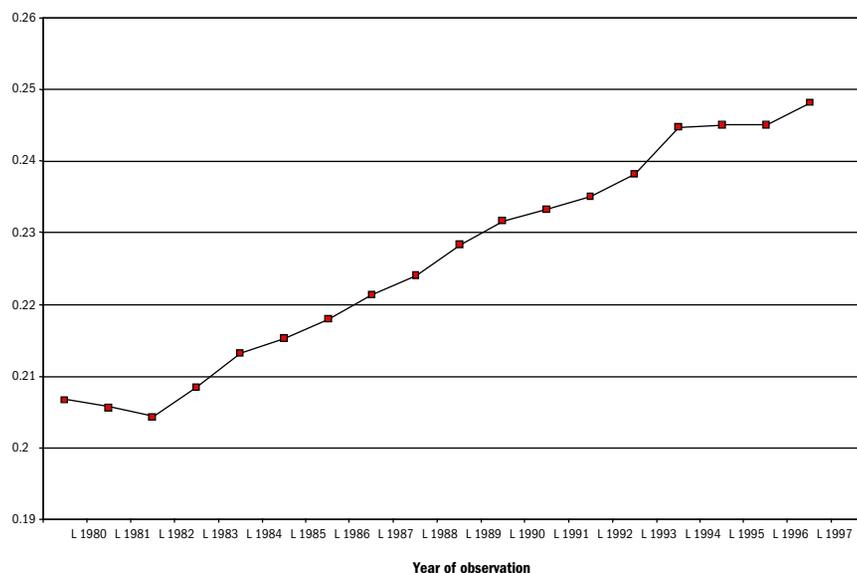
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