
The Global Economy and Changes in the Determinants of Cross-National Income Inequality*

THERESA M. MORRIS
Texas A & M University

Abstract

This study examines the capacity of modernization theory, dependency theory, world-system analysis, and political democracy theory to explain the determinants of income inequality in less-developed countries before and after major structural economic changes, stemming from the collapse of the Bretton Woods system in 1971 and the OPEC oil crisis in 1973 and 1974, occurred in the global economy. Data from two cohorts of countries are used to test these theories. The first cohort contains thirty-three countries with data on income inequality between 1968 and 1973, and the second cohort contains thirty-one countries with data on income inequality between 1985 and 1992. The results suggest that world-system analysis and some aspects of dependency theory are relevant to explaining income inequality both before and after the global changes. However, modernization theory and political democracy theory are only predictive of levels of income inequality before changes in the global economy occurred. Overall, the results of this research highlight the importance of integrating historical shifts in the global economy into theories of income inequality.

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Introduction

A large number of studies have examined the determinants of income inequality in less developed countries (LDCs). Despite significant theoretical and methodological advances in the area, a major shortcoming remains in the literature: the effects of changing historical conditions, in particular recent changes in the global economy, on determinants of income inequality in LDCs have not been examined. Recognizing this omission is important if we are to avoid ahistorical explanations of social phenomena.

Changing Historical Conditions

Since the 1970s the structure of the global economy has experienced dramatic changes as a consequence, in part, of two events: (1) the collapse of the Bretton Woods monetary system in 1971, making the value of the dollar vulnerable to fluctuations in the world monetary market (Block 1977) and (2) the 1973-1974 OPEC oil crisis, causing the price of Middle East oil to rise from its 1970 price of \$1.50 per barrel to \$9.50 per barrel in 1973, a 533% increase (Barnet and Müller, 1974: 198). These two events were a manifestation of a larger change in social structures, which signaled a major change in the way that developed countries treated developing countries (Cox 1997: 53). Whereas development assistance had been a major international focus in the post-World War II years, the structural changes that took place in the 1970s resulted in a new focus on the debt of developing countries (Cox 1997: 55). According to Cox: "public funds would not flow to developing countries; their capital needs would have to be met by offering conditions to attract multinational corporations (MNCs) or by borrowing from foreign banks" (1997: 55).

Three trends in LDCs have accompanied these changes in the global economy. First, the structure of trade and foreign investment in LDCs has experienced a decrease in the export of

raw materials and an increase in the export of manufactured products (Berberoglu, 1987: 34-35). For example, the share of U.S. manufacturing investments rose from 17% of its total investment in LDCs in 1960 to 29% in 1994, while the share of U.S. raw-material investments dropped from 61% in 1960 to 23% in 1980 (Berberoglu, 1987: 35; U.S. Bureau of the Census 1996). Further, between 1972 and 1983 the United States increased its manufactured imports from LDCs from 11% to 28% of its total imports (Kolko, 1988: 215).

The second trend is an increase in foreign investment in the financial sector of LDCs, increasing from 8% of the U.S. total investment in LDCs in 1970 to 35% in 1994 (Berberoglu, 1987: 35; U.S. Bureau of the Census 1996). The third trend involves the expansion of intrafirm trading through subsidiaries of multinational corporations (Kolko 1988). For example, it is estimated that in the 1980s about half of all foreign trade took place through transnational corporations and their subsidiaries (Bornschiefer and Chase-Dunn 1985). More recently, it is estimated that in 1992 the top 100 non-banking multinational corporations accounted for about \$3.4 trillion in global assets (Thompson 1997: 149) and controlled sales nearly equal to the size of the U.S. economy (McGrew 1997: 6).

Major historical shifts in the global economy may yield changes in the determinants of the distribution of income in LDCs. However, no theoretical or empirical research has specifically addressed this issue. This study will attempt to fill that gap by examining the capacity of modernization theory, dependency theory, world-system analysis, and political democracy theory to explain income inequality in LDCs before and after the historical shifts in the global economy.

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Theories and Hypotheses

Modernization Theory

Numerous scholars have used modernization theory to examine income inequality (Kuznets 1957, 1963; Cutright 1967; Paukert 1973; Chenery and Syrquin 1975; Ahluwalia 1976; Weede and Kummer 1985; Nielsen 1994). Modernization theorists contend that all countries proceed through unilinear stages of economic development and that in order for LDCs to industrialize they must increase productivity, develop a modern manufacturing sector, and modernize their social and political institutions (Rostow, 1971: 1, 39). These theorists further allege that the diffusion of modern values from core countries to LDCs initiates the development of modern political and social institutions and modern attitudes necessary for industrialization. Modern values include an openness to new experience, readiness for social change, orientation toward the future, efficacy, long-term planning, valuing technical skill, and educational and occupational aspirations (Inkeles and Smith, 1974: 19-25).

According to this theory, economic development is curvilinearly related to income inequality, with low levels of income inequality at low and high levels of development, and high levels of income inequality at intermediate levels of economic development. With industrialization, the need for a highly skilled labor force to perform technologically complex jobs increases, and the need for low-skilled positions declines, while educational opportunities concomitantly expand to meet the needs of a skilled labor force (Stack, 1978: 881; Stack and Zimmerman, 1982: 348; Prechel, 1985: 214; Simpson, 1990: 682). Further, because capitalists are forced to compete for labor, wages throughout labor markets increase (Firebaugh and Beck, 1994: 634). Inequality initially increases because only a small portion of the workers finds employment in the industrialized sector of the economy. However, as industrialization expands,

more jobs are created, resulting in an expansion of the middle class and a subsequent decline in the level of income inequality.

- H1: The level of income inequality is a curvilinear (inverted-u shaped) function of level of economic development in LDCs.

Dependency Theory

In contrast, dependency theory is rooted in the idea that asymmetrical economic dependence of LDCs on core nations produces the "development of underdevelopment" in LDCs (Frank 1969; Galtung 1971; Chase-Dunn 1975; Kaufman et al. 1975; Rubinson 1976; Bornschier, et al. 1978; Bornschier and Ballmer-Cao 1979; Evans and Timberlake 1980; Bornschier and Chase-Dunn 1985; Prechel 1985; London and Robinson 1989). Economic dependence of LDCs ranges from investment by transnational corporations that own and control the means of production within the LDC to less direct forms of dependence such as foreign aid programs, credit agencies, and international trade (Chase-Dunn, 1975: 721). Dependency theorists assert that the more dependent a country is on other countries for its livelihood, the less dominance and influence that country will have relative to other countries. Levels of income inequality, according to this perspective, are positively related to the level of dependence because of the structural consequences of LDCs' having less power to advance their interests relative to other countries. Such structural consequences include export-oriented economies, weak governments, and domestic elites that align with elites in advanced capitalist societies (Rubinson, 1976: 638; Braun, 1991: 31-32; Nielsen, 1994: 672).

Dependency theorists focus on three types of dependence, the first of which is foreign investment dependence. Dependency theorists assert that investment by transnational corporations increases income inequality due to the creation of a "bridgehead"

(Galtung, 1971: 83) between the core and LDC elites (Galtung 1971; Firebaugh and Beck 1994). Transnational corporations influence the expenditures of the host state through direct and indirect political pressures to favor their interests, for example, calling for an expansion of the host country's infrastructure (Bornschieer and Ballmer-Cao, 1979: 499). This diverts resources that could be used to redistribute income to poorer members of society. Sunkel (1973) asserts that the connection of the transnational corporations with the elites of the LDC creates a political structure that keeps wages low and concentrates development on the world market. Further, transnational corporations frequently oppose any redistributive programs because they fear such policies will lead to a "threat to the stability of the dominant sociopolitical coalition which they support and by which they are also supported" (Bornschieer and Ballmer-Cao, 1979: 499).

In addition, investments by transnational corporations increase income inequality because profits are reinvested in the profitable, high-wage sector, restricting economic growth in the less-profitable sectors of the economy (Bodenheimer, 1971: 350). This fractionalizes labor by paying higher wages than the "going rate" in the high-profit, high-wage sector, creating labor aristocracies. The subequal dual labor market creates a structural variable to disunify labor and a concerted labor movement, decreasing labor's bargaining power (Bornschieer and Ballmer-Cao, 1979: 495; Rubinson, 1976: 644).

Second, dependency theorists focus on debt dependence. Dependency theorists view loans from international lending agencies as harmful to LDCs because they accrue foreign debt. The foreign assistance is invested in the most profitable sectors of the economy, and whatever profits that are made through the utilization of this assistance must be used to repay the lending agency (Bodenheimer, 1971: 351). Further, loans received by IMF and the World Bank at certain points in time required some

countries to devalue their currency and make other structural adjustments, which often caused hardships for the masses of citizens.

Third, dependency theorists focus on trade dependence. These theorists assert that the foreign trade relationship between LDCs and core countries creates a high-profit, high-wage sector and a low-profit, low-wage traditional sector in the economy of the LDCs (Barratt Brown, 1974: 276; Nielsen, 1994: 658). Capital is concentrated in the modern sector because it is able to produce more and maintain higher profits than the traditional sector. This reduces the amount of capital available to invest in the traditional sectors, thus exacerbating the inequalities between the two sectors. The wage disparity between the traditional and modern sectors encourages workers to migrate to urban areas in order to attain employment in the modern sector (Barratt Brown, 1974: 253). However, with only a limited number of urban jobs available, many of the migrants will be unemployed at the same time that the rural areas are experiencing a labor shortage (Evans and Timberlake, 1980: 534; Prechel, 1985: 216). Thus, inequality increases because few workers are employed in the very profitable modern sector, while most workers are employed in the traditional sector or are unemployed (Prechel, 1985: 216; Evans and Stephens, 1988: 755; London and Robinson, 1989: 305).

Dependency theorists further contend that the nature of foreign trade harms developing countries due to the unequal exchange between developed and developing countries (Emmanuel 1972). Barratt Brown (1976: 229) sums up this idea quite nicely:

With abundant resources or mechanical aids a rich country can obtain more direct labour and provide less in the goods exchanged than a poor country, so that wealth and poverty become cumulatively polarized; and this widening gap is compounded by steadily deteriorating terms of trade for the poor countries, i.e. the prices of their products rise more slowly or fall faster than those of the rich countries' products.

In addition, some theorists contend that the structure of the world economy leads to undifferentiated economies in LDCs, diminishing their chances at industrialization (Prebisch 1950).

- H2: Foreign investment is positively related to income inequality in LDCs.
- H3: Foreign debt is positively related to income inequality in LDCs.
- H4: Foreign trade is positively related to income inequality in LDCs.

World-System Analysis

World-system analysis constitutes a third model of income inequality (Wallerstein 1974, 1979, 1980; Nolan 1983a, 1983b; Braun 1991). This perspective is an extension of dependency theory and, as such, is similar to dependency theory in many respects (Bornschier and Chase-Dunn, 1985: 1-5). World-system analysis, like dependency theory, alleges that a country's stratification system is largely determined by its position in the world division of labor and power structure (Bornschier and Chase-Dunn, 1985: 1). However, a distinction between world-system analysis and dependency theory is that whereas dependency theorists group all LDCs into one category, world-system analysts distinguish between two types of LDCs, peripheral and semiperipheral countries (Wallerstein 1974). Chirot (1977: 13) defines peripheral countries as "economically overspecialized, *relatively* poor and weak societies that are subject to manipulation or direct control by the core powers" (emphasis in original). Semi-peripheral countries are defined as "societies midway between the core and periphery that are trying to industrialize and diversify their economies" (Chirot, 1977: 13). World-system analysts contend that semi-peripheral countries have lower levels of income inequality than peripheral countries because they are less dependent upon core countries and are not affected by the structural consequences of having the lowest

position in the world stratification system (Chirot, 1977: 13). Further, semiperipheral countries are generally in the process of industrializing and diversifying their economies, thus making them less open to manipulation by core countries (Chirot, 1977: 13).

- H5: Semiperipheral countries have lower levels of income inequality than peripheral countries.

Political Democracy Theory

Political democracy theory, based on Lenski's (1966) stratification theory, focuses on the effect of democratization on income inequality (Cutright 1967; Jackman 1974; Rubinson and Quinlan 1977; Stack 1979; Bollen and Grandjean 1981; Weede 1982; Bollen and Jackman 1985; Muller 1988; Simpson 1990; Crenshaw 1992). This theory asserts that in order for income inequality to decline, political participation must be extended to the masses. With political democracy "...the many can combine against the few, and, even though individually the many are weaker, in combination they may be as strong or stronger" (Lenski, 1966: 318). As political rights expand, middle-class and lower-class persons are brought into the electorate. With political democracy the government, no longer controlled by an elite group, is accessible to many organized interests and represents the interests of most people in society (Lenski: 318). Political democracy theory argues that representation in the state of the previously excluded and less-advantaged working and lower classes should result in a more equitable income distribution.

- H6: Political democracy is negatively related to income inequality in LDCs.

Conflicting Results of Previous Studies

Some studies confirm that a curvilinear relationship exists between economic development and income inequality, consistent with modernization theory (Kuznets 1957, 1963; Paukert 1973; Ahluwalia 1976; Weede and Tiefenbach 1981; Stack and Zimmerman 1982). However, other studies have found that when level of dependence is controlled this relationship disappears (Prechel 1985; Chan 1989).

Various forms of dependence have been shown to affect income inequality. Kaufman, et al. (1975) and Chan (1989) found that investment dependence increases inequality, and Chase-Dunn (1975) and Rubinson (1976) found that investment dependence and aid dependence increase income inequality. Bornschier and Ballmer-Cao (1979) found that MNC-penetration increases levels of income inequality through its effects on the power distribution of a country. Galtung (1971) and Prechel (1985) found that trade dependence is positively related to income inequality. However, Chan (1989) found that trade dependence has little influence on income inequality, and Weede and Tiefenbach (1981) found little support for the contention that trade dependence and foreign investment dependence exacerbate income inequality.

Research from world-system analysis yields mixed results. Some scholars have found world-system position to be significantly related to level of income inequality (Nolan 1983a, 1983b; Braun 1991), while other have found no significant relationship between the two variables (Weede and Tiefenbach 1981; Bollen and Jackman 1985). Still others claim that world-system status is nothing more than a measure of economic development (see Weede and Kummer 1985 for an elaboration of this argument).

The findings from political democracy theory are also disparate. Some studies have found a negative relationship between level of

political democracy and level of income inequality (Rubinson and Quinlan 1977; Stack 1979; Weede 1980; Muller 1988; Simpson 1990). Other studies have found this relationship to be curvilinear, with countries at intermediate levels of democracy experiencing the highest levels of income inequality (Simpson 1990; Crenshaw 1992). Still others have found no relationship between democracy and income inequality (Jackman 1974; Hewitt 1977; Bollen and Grandjean 1981; Bollen and Jackman 1985).

This study is an attempt to examine the capacity of these theories to explain inequality in a changing global economy. The paper tests dimensions of modernization theory, dependency theory, world-system analysis, and political democracy theory to determine their capacity to explain income inequality in LDCs during two time periods, one before the changes in the global economy and one after. Two time periods are used to analyze whether the effects of the independent variables on income inequality varied before and after rapid changes in the global economy.

Methods

Sample

To address the effects of temporal changes in the global economy, I examine two time periods in this study: one period prior to the rapid changes in the global economy, 1968-1973, and one period subsequent to the changes, 1985-1992 (see pp. 30-32). The first time period was selected to examine the relationship between income inequality and the independent effects of the variables advanced by the competing theories before the changes in the global economy. The second time period was selected to allow the longest time period possible following changes in the global economy, allowing sufficient time for the independent variables to affect the dependent variable.

The original sample consisted of forty-seven countries in the first time period and thirty-six countries in the second time period.¹ Socialist and Eastern-bloc countries were not included in the sample as they are not fully integrated members of the global capitalist economy. Because of missing data on one or more of the independent variables, fourteen countries were eliminated from the first cohort, and five countries were eliminated from the second cohort.² The final sample consists of thirty-three countries in the first cohort and thirty-one countries in the second cohort.^{3,4}

Measurement

The dependent variable, income inequality, is operationalized as the Gini coefficient. This measure is used in many income inequality studies (Galtung 1971; Paukert 1973; Chase-Dunn 1975; Kaufman, et al. 1975; Rubinson 1976; Bornschieer and Ballmer-Cao 1979; Weede and Tiefenbach 1981; Prechel 1985; Weede and Kummer 1985; Nielsen 1994), making the results from this study comparable to the results from previous studies. The data were compiled from several sources.^{5,6} See Table 1 for descriptive statistics on variables included in the study.

Table 1. Descriptive Statistics of Variables Used in the Analysis

Variable	Cohort 1		Cohort 2	
	Mean	Standard Deviation	Mean	Standard Deviation
GINI	.450	.083	.418	.087
LOGDP	5.511	.704	6.737	.739
LOGDPSQ	30.854	7.754	45.914	9.890
DEBT	2.335	3.371	3.450	1.947
GALTUNG	-.591	.270	-.405	.226
FORINV	-.001	.066	.006	.007
DEM	3.636	2.089	4.129	1.746
World-System Position	Frequency	Percentage	Frequency	Percentage
Semiperipheral	9	27.3%	9	29%
Peripheral	24	72.7%	22	71%

Six independent variables are included in the study: level of economic development, investment dependence, debt dependence, trade dependence, world-system position and level of political democracy. Level of economic development (LOGDP and LOGDPSQ) is operationalized as the natural log of gross domestic product per capita.⁷ The natural log of gross domestic product per capita is used by Paukert (1973); Roberti (1974); Prechel (1985); and Nielsen (1994). These data are taken from World Bank's *World Tables of Economic and Social Indicators*. A quadratic expression is used to represent this variable, as income inequality is purported to be a curvilinear function of level of economic development.

The second independent variable, investment dependence (FORINV), refers to the amount of foreign investment flowing into a country.⁸ It is operationalized as the value of foreign investment flowing into the country as a percent of GDP. This measure is taken from the World Bank's *World Tables of Economic and Social Indicators*.

Debt dependence (DEBT) is operationalized as the amount of long-term loan repayment by a country as a percent of GDP. This measure has not been used in previous studies but should capture dependency effects as only those countries that are currently repaying their debt should experience the effects of debt dependence. Most studies operationalize debt dependence with a measure of total external debt. However, this measure may not capture the theoretical construct of debt dependence. Debt injects resources into the economy, perhaps lowering levels of income inequality through its effect on job creation. This advantageous side-effect may not be sustained in the long-term, especially if countries are using their resources to repay their debt. Thus, I believe debt repayment to be a superior measure of debt dependence. These data are taken from the World Bank's *World Tables of Economic and Social Indicators*.

The fourth independent variable, trade dependence (GALTUNG), refers to "the unequal exchange contained in the terms of trade" (Barratt Brown, 1976: 229) and is operationalized with the Galtung trade index⁹ (Galtung 1971). This index ranges from a low of -1 to a high of +1. Countries scoring a -1 on this index have high levels of raw-material exports and high levels of processed-goods imports. Countries scoring a +1 on this index have high levels of processed-good exports and high levels of raw-material imports. These data are taken from the United Nations' *Yearbook of International Trade Statistics*. Galtung (1971) and Alschuler (1976) use this operationalization.¹⁰

The fifth independent variable is world-system position (WSPOS). This variable is operationalized using Snyder and Kick's (1979) classification, with modifications from Bollen (1983). Snyder and Kick (1979) "block model" four types of international networks: trade flows, treaty memberships, military interventions, and diplomatic relations. The block model results in ten blocks of countries, which can be collapsed into core, semiperipheral, and peripheral countries. Bollen (1983) modifies Snyder and Kick's (1979) classification by reclassifying six countries. This classification system is used by Bollen (1983); Nolan (1983a, 1983b); Weede and Kummer (1985); and Braun (1991). I coded five countries not classified by Bollen (1983) or Snyder and Kick (1979) based on my knowledge of the countries: Bangladesh, Barbados, Fiji, Malawi, Zambia, and Zimbabwe. In the regression analysis, semiperipheral countries are coded one, and peripheral countries are coded zero.

The final independent variable, political democracy (DEM), is operationalized with Gastil's (1989) measure of political rights, defined as "rights to participate meaningfully in the political process" (p. 7).¹¹ This variable is measured on an ordinal scale with 7 being the least democratic society and 1 being the most democratic society. To simplify interpretation of the findings, the scale was transformed so that 7 is the most democratic

society, and 1 is the least democratic society. This scale is constructed comparatively, thus indicating how free a country is relative to other countries.¹² COHORT is used as a control variable to allow for the analysis of time in the model. Countries in the first cohort are coded zero, and countries in the second cohort are coded one.

Research Design

This study uses a pooled-cohort research design. The first cohort consists of countries with data on income inequality between 1968 and 1973, and the second cohort consists of countries with data on income inequality between 1985 and 1992. This research design is appropriate given the goal of the study, which is to study the determinants of income inequality before and after major change in the global economy occurred.¹³ Using a cohort design allows for the analysis of the effect of time, enabling one to assess the conditioning effect of the changing structural dimensions of the world economy on determinants of income inequality.

A pooled-cohort research design is used due to the small sample size of each of the individual cohorts. Pooling the data increases the number of degrees of freedom and gives more sound estimates than the individual cohort analyses. The difference in dynamic effects of the causal variables on income inequality will be tested by examining interaction terms between cohort and each of these variables. These estimates will indicate whether the effect differed in the two cohorts. Ordinary least squares (OLS) multiple regression is used to analyze the data.

To reduce possible bias that may result from using a measure of the independent variables from one year, the mean is taken from among the fourth, fifth, and sixth years before the measurement of the dependent variable. The measures of the independent variables are lagged to allow time for them to affect the level of income inequality.¹⁴

Findings

Correlation matrices for cohort 1, cohort 2, and the cohorts simultaneously gives no indication of multicollinearity (not shown).¹⁵ An examination of the residuals (not shown) indicates no significant heteroskedasticity. OLS multiple regression is used to examine the multivariate relationships for the pooled data, controlling for cohort. The results are presented in Table 2.¹⁶

Model 1 in Table 2 examines the pooled-data with no interaction terms. This model indicates that the best predictors of income inequality for the pooled data are GALTUNG, FORINV, and WSPOS. The negative coefficient of GALTUNG supports the dependency theory hypothesis that those countries with a more advantageous structure of foreign trade have lower levels of inequality than those countries with less advantageous structures of trade (Hypothesis 4). The negative coefficient of WSPOS indicates that semi-peripheral countries have lower levels of income inequality than peripheral countries, supporting world-system analysis (Hypothesis 5). The negative effect of FORINV on inequality does not support dependency theory's hypothesis of the exacerbating effects of foreign investment on income inequality (Hypothesis 2). However, as discussed earlier, the measure of foreign investment used is a flow measure of investment, which may not truly detect the effects of dependence.

The other dependency measure, DEBT, is not statistically significant. Thus, hypothesis 3, that debt dependence leads to high levels of income inequality in LDCs, is not supported. Modernization theory is not supported in the pooled-analysis as neither LOGDP nor LOGDPSQ are statistically significant (Hypotheses 1 and 2). Further, political democracy theory is not supported in this analysis (Hypothesis 6). The statistical significance of COHORT indicates that the globalization cohort of countries has a significantly lower mean level of inequality

Table 2. Unstandardized OLS Estimates for Regression of Income Inequality on Independent Variables for the Pooled Sample

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
LOGGDP	.060 (.294)	.313* (.044)	.365* (.037)	.040 (.362)	.060 (.298)	.069 (.266)	.034 (.381)	.098 (.192)
LOGDPSQ	-.002 (.418)	-.026 (.059)	-.031* (.049)	.000 (.495)	-.002 (.419)	-.003 (.381)	.000 (.489)	-.005 (.294)
DEBT	-.001 (.420)	-.002 (.305)	-.002 (.296)	.002 (.347)	-.001 (.427)	-.001 (.382)	-.001 (.346)	-.001 (.377)
GALTUNG	-.073* (.049)	-.050 (.134)	-.051 (.125)	-.073* (.047)	-.058 (.183)	-.081* (.033)	-.081* (.054)	-.055 (.105)
FORINV	-.361* (.054)	-.289 (.098)	-.288 (.098)	-.355 (.056)	-.324 (.100)	-.411* (.035)	-.392* (.049)	-.308 (.084)
WSPOS	-.039* (.038)	-.028 (.109)	-.027 (.116)	-.039* (.036)	-.039* (.041)	-.036* (.050)	-.041 (.089)	-.038* (.040)
DEM	-.004 (.239)	-.005 (.156)	-.005 (.154)	-.004 (.240)	-.004 (.225)	-.004 (.211)	-.004 (.236)	-.011* (.054)
COHORT	-.081** (.002)	-.592* (.024)	-.350** (.012)	-.053 (.065)	-.095* (.033)	-.093** (.001)	-.084** (.004)	-.151** (.002)
CO*LGDP	-	.083* (.042)	-	-	-	-	-	-
CO*LGDPS	-	-	.007* (.038)	-	-	-	-	-
CO*DEBT	-	-	-	-.010 (.112)	-	-	-	-
CO*GALT	-	-	-	-	-.029 (.371)	-	-	-
CO*FORIN	-	-	-	-	-	2.623 (.078)	-	-
CO*WSPOS	-	-	-	-	-	-	.007 (.432)	-
CO*DEM	-	-	-	-	-	-	-	.017* (.051)
Intercept	.172 (.306)	-.462 (.174)	-.603 (.135)	.219 (.259)	.186 (.295)	.145 (.333)	.247 (.236)	.096 (.387)
Adj. R ²	.242	.269	.272	.249	.229	.256	.208	.265
n	64	64	64	64	64	64	64	64

*p ≤ .05 (one-tailed test)

**p ≤ .01 (one-tailed test)

Note: Numbers in parentheses are p values.

than does the pre-globalization cohort. The adjusted R^2 for this model is .242.

To ascertain whether the effects of the independent variables varied between cohorts, I included interaction terms between cohort and each of these variables. They are included in separate models (models 2-8), to reduce problems of multicollinearity. The statistical significance of three of the interaction terms suggests that the effects of LOGDP, LOGDPSQ, and DEM vary between cohorts. These interaction terms indicate that the slopes of these variables changed significantly between the two cohorts. However, they do not tell us whether the statistical significance of the variables changed between the two cohorts. To examine this, I analyzed each of the cohorts independently (Table 3). Before moving on, note that the coefficients from model 1 appear to be fairly robust across models. There are only slight changes in statistical significant of the variables, likely due to problems of multicollinearity.

Table 3 gives the results of the cohorts analyzed separately.¹⁷ Splitting the analysis augments the pooled analysis by letting one examine the statistical significance of the variables in each of the cohorts. This will indicate whether the capacity of each theory to explain income inequality changed with the structural change in the global economy.

It becomes clear from an examination of these two models why the interactions between cohort and LOGDP, LOGDPSQ, and DEM are statistically significant in the pooled analysis. These variables are each significant in the first cohort of pre-globalization countries, but not in the second cohort of countries after globalization. This suggests that modernization theory and political democracy theory are supported in the first cohort but not the second. The adjusted R^2 for the model analyzing the first cohort is .184. The only variable that is statistically significant in the second cohort is DEBT. However, this effect is not in the

Table 3. Unstandardized OLS Estimates for Regression of Income Inequality on Independent Variables for Cohort 1 and Cohort 2

Variable	Cohort 1	Cohort 2
LOGDP	.445* (.056)	.339 (.144)
LOGDPSQ	-.038* (.069)	-.021 (.181)
DEBT	.001 (.446)	-.013* (.062)
GALTUNG	-.030 (.314)	-.062 (.196)
FORINV	-.239 (.163)	2.046 (.147)
WSPOS	-.013 (.343)	-.031 (.170)
DEM	-.012** (.041)	.002 (.431)
Intercept	-.801 (.143)	-.886 (.399)
Adjusted R^2	.184	.222
n	33	31

* $p \leq .10$ (one-tailed test)

** $p \leq .05$ (one-tailed test)

Note: Numbers in parentheses are p values.

predicted direction. The adjusted R^2 for the model analyzing the second cohort is .222. Note that GALTUNG and WSPOS are not significant in either cohort. This is likely due to the small number of countries included in each of the cohorts. However, because their effects do not change across cohorts, when the data are pooled, the true effect of these variables appears.

Discussion and Conclusions

The most important finding in this study is that determinants of income inequality change with transformations in the global economy. Democracy had a statistically significant negative effect on income inequality in the first cohort, but a non-significant effect in the second cohort. This suggests that changes in the global economy may have negated the leveling effects of democracy and that LDCs that focus on increasing levels of democracy will not necessarily experience a more equitable shift in their income distributions.

A possible explanation for these results rests with the simultaneous shift of the international political economy with the end of the Cold War, and the rapid expansion of transnational corporations since that time. During the Cold War, governments outside the core sectors of the global economy had more control over their economies. However, since the end of the Cold War, the power of these governments has been undermined as transnational corporations have become increasingly mobile, integrating national economies into a global economy (Barnet and Cavanagh 1994, pp. 14-19). As Barnet and Cavanagh (1994, p. 19) state, “[b]usiness enterprises that routinely operate across borders are linking far-flung pieces of territory into a new world economy that bypasses all sorts of established political arrangements and conventions.”

One consequence of the increased mobility of capital is the ability of corporations to exploit differences among national tax systems to their advantage (Martin and Schumann 1996: 198). The simplest method of exploiting tax systems is through transfer pricing, which is “based on a cross-border combination of subsidiaries and branches” (Martin and Schumann 1996:198). Martin and Schumann (1996: 198-199) describe this practice:

Since they trade with one another in unfinished products, services or even just licenses, the firms are able to charge

costs to one another in almost any way they please. The expenditure of internationally active companies is therefore always highest where tax rates are also highest. Conversely, subsidiaries operating in tax havens or low-tax regions always make exorbitant profits, even if all they have there are an office with a fax connection and a staff of two.

At least two consequences result from the exploitation of national tax systems. First, countries are made to compete with each other for corporate capital investments (Martin and Schumann 1996). They do this by offering corporations financial inducements in the form of taxes and favorable economic incentives. Second, the practice of offering inducements puts tremendous financial stress on the governments of these countries in the face of ever-increasing expenses. Accordingly, “the politicians in charge often have no choice but to cut spending in areas where no powerful interest groups prevent it: that is, in social security, cultural facilities and public services, from swimming-baths to schools and universities. *The state thus becomes an agency of bottom to top redistribution*” (Martin and Schumann 1996: 206; emphasis added).

This brief account of the pressures on the state in this global era is meant to demonstrate the very real possibility that LDC governments are increasingly unable to implement policies and make decisions that result in a more equal distribution of income. Even if these governments are democratic, structural pressures stemming from global competition over capital results in reduction or possible elimination of social policies that benefit the lower-part of the income distribution.

Similarly, the effect of level of economic development on income inequality also disappears after globalization. Level of economic development had a curvilinear effect on inequality in the first cohort but not the second. Thus, changes in the global economy may have changed the effects of development. The level of economic development in developing countries may no longer

be a reliable indicator of how equitable incomes are distributed. Further, we should not expect inequality in developing countries to necessarily diminish as they industrialize.

These findings suggest that theories developed during a previous historical period may not adequately explain income inequality in the modern historical period of globalization. It is important to take this into account as one strives to understand the stratification systems of less-developed countries. The global era may present inherently different challenges to countries, ultimately altering the effects of different social structures on inequality. Thus, a fruitful direction for research in this area is to develop new theories more appropriate to the modern era.

Other findings from this study are also important. Support for dependency theory exists in the pooled analysis. GALTUNG, a measure of trade dependence, has a statistically significant negative effect on income inequality, as predicted by dependency theory. This means that countries that export mostly raw materials and import mostly manufactured products tend to have high levels of income inequality, while countries that import mostly raw materials and export mostly manufactured products tend to have low levels of income inequality. This effect appears to hold across cohorts, suggesting that the effect of trade dependence has not changed with globalization. Investment dependence and debt dependence appear to have slight effects on income inequality, although the directions of the effect are reversed from that expected. The direction of the effect of investment dependence is likely due to my operationalizing this variable with a flow measure, as discussed previously. The reversed effect of debt dependence in the second cohort is somewhat troubling. It may indicate that those countries that are able to repay their debts have more revenues with which to reduce inequality.

World-system position also has a statistically significant effect on level of income inequality in the pooled analysis. This finding indicates that semiperipheral countries have a lower mean level of income inequality than peripheral countries, supporting world-system analysis. This is important because world-system position is found to affect inequality while controlling for three measures of dependence. As noted earlier in the paper, dependency theory and world-system analysis are similar in many respects, with one difference being that world-system analysis distinguishes between semiperipheral and peripheral countries, whereas dependency theory groups all LDCs together. This suggests that it is not appropriate to view all LDCs as similar because semiperipheral countries tend to have a more equitable income distribution than peripheral countries.

The finding that trade dependence and world-system position affect income inequality highlights the importance of examining core-semiperipheral-peripheral relations. These findings suggest that a country's chances of maintaining an equitable distribution of income are affected not only by its own characteristics, but also by its relationships to other countries. Thus, examining these relationships becomes important if one wants to understand the stratification system of a country.

Overall, the results of this research highlight the effects of historical shifts in the global economy and point toward the need to further integrate the shifts into theories of income inequality. A historical theories may not help to advance our understanding of the determinants of income inequality in LDCs in a changing world economy. A move toward incorporating past and present histories of the political and economic environments surrounding these countries is necessary to reach a higher level of understanding.

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Notes

¹Countries were selected on the basis of availability of data on income inequality during these two time periods.

²Countries with missing data in the first cohort are Bahamas, Bangladesh, Botswana, Hong Kong, Indonesia, Iran, Ireland, Israel, Malaysia, New Zealand, Peru, Taiwan, Tanzania, and Zimbabwe. Countries with missing data in the second cohort are Botswana, Guinea-Bissau, Lesotho, Tanzania, and Uganda.

³Countries included in the first cohort are Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Fiji, Gabon, Ghana, Guatemala, Honduras, India, Ivory Coast, Kenya, Malawi, Mexico, Nicaragua, Pakistan, Panama, Philippines, Portugal, Senegal, Sierra Leone, Sri Lanka, Sudan, Thailand, Tunisia, Turkey, Uganda, Venezuela, and Zambia. Countries included in the second cohort are Algeria, Bangladesh, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ghana, Guatemala, Honduras, India, Indonesia, Ivory Coast, Jamaica, Jordan, Kenya, Malaysia, Mauritania, Morocco, Pakistan, Panama, Peru, Philippines, Senegal, Sri Lanka, Thailand, Tunisia, Venezuela, Zambia, and Zimbabwe.

⁴Although this sample size is relatively small, the sample size is taken into account by the shape of the t-distribution when hypothesis tests are conducted (Kmenta 1997: 142-143).

⁵Sources include Ahluwalia (1976); Jain (1975); Lecaillon (1984); Paukert (1973); Roberti (1974); Simpson (1990); World Bank (1979, 1994).

⁶The majority of these data are taken from World Bank, arguably the most reliable source of cross-national data.

⁷Gross domestic product per capita was logged to normalize its positively skewed distribution. This transformation is commonly performed in this literature.

⁸Bornschier, et al. (1978) note that studies that use flow measures of foreign investment often find positive effects of foreign investment on economic growth, while studies that use stock measures of foreign investment tend to find negative effects of foreign investment on economic growth. (Flow measures refer to the amount of foreign investment coming into a country within a given time period, while stock measures refer to the accumulated amount of foreign investment within a country). There is reason to believe that these measures may also affect income inequality differently, with flow measures decreasing inequality because of the initial flow of resources into the country and stock measures increasing inequality because of the creation of a dual labor market and an alliance between core and peripheral elites. However, due to the unavailability of data on stock measures of foreign investment for the given time periods, a flow measure was used.

⁹The Galtung trade index is defined as:
$$\frac{(a+d)-(b+c)}{(a+d)+(b+c)}$$

where (a) is the value of raw materials imported; (b) is the value of raw materials exported; (c) is the value of processed goods imported; and (d) is the value of processed goods exported.

¹⁰According to dependency theory, the Galtung index should be negatively related to income inequality. Countries scoring +1 have a low level of trade dependence, while countries scoring a -1 have a high level of trade dependence. Thus, consistent with dependency theory, countries with high scores on the Galtung index should have low levels of income inequality.

¹¹Bollen's data on political democracy was not used in this study because he provides data on democracy only for the years 1965 and 1980, whereas Gastil provides yearly data on this variable. The use of Gastil's measure allows one to lag the data on political democracy according to the year of income inequality data available for each country.

¹²The scale of political rights measures the extent to which eleven ideals of democracy are met: (1) the chief authority was recently elected by a meaningful process; (2) the legislature was recently elected by a meaningful process; (3) fair election laws, campaigning opportunity, polling and tabulation exist; (4) there is fair reflection of voter preference in the distribution of power; (5) there are multiple political parties; (6) there have been recent shifts in power through elections; (7) there is significant opposition vote; (8) the country is free of military or foreign control; (9) no major group or groups are denied reasonable self-determination; (10) there is decentralized political power; and (11) there is informal consensus (Gastil, 1989: 9).

¹³Although time-series analysis or panel analysis would be preferable to cohort analysis, data availability on the dependent variable would not allow for these more sophisticated data analyses. Time-series analysis is not feasible due to the lack of continuous time-series data on income inequality for LDCs. Panel

analysis is not possible due to the lack of income inequality data on the same countries in both of the time periods analyzed.

¹⁴Due to problems of data availability, it was neither possible to lag all measurements nor to collect data for three years, among which the mean would be taken on all of the independent variable measurements. The exceptions to the research design are as follows. Debt data for the first cohort of countries are from 1971. In the first cohort of countries, foreign investment data from the year 1967 were used for the following countries: Argentina, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Gabon, Ghana, Guatemala, Honduras, India, Ivory Coast, Kenya, Mexico, Nicaragua, Pakistan, Philippines, Senegal, Sierre Leone, Sudan, Tunisia, and Venezuela. Foreign investment data from the years 1967 and 1968 were used for Brazil. Foreign investment data from the year 1970 were used for India. Political democracy data for the year 1972 were used for all countries in the first cohort. In the second cohort, Ghana's trade data are from the years 1980, 1981, and 1982.

¹⁵The variables involved in the polynomial equation (LOGDP and LOGDPSQ) by their very nature are, however, highly collinear.

¹⁶Although the sample in this study is not random, significance levels are reported because they are good indicators as to whether the estimated effects are large enough to be considered empirically important.

¹⁷In the split analysis I accepted coefficients as statistically significant at the .10 level, given that small samples cause conservative significance tests (Winkler and Hays 1975).

Testing a Model of American Elite Generational Continuity with Cross National Data

DONN M. KURTZ II
University of Louisiana at Lafayette

Abstract

A cross national data set consisting of 122 national chief executives who were in office in 1990 is used to test the validity of a model of American elite generational continuity. The hypothesis is that the model will be as useful in explaining the kinship dimensions of elite continuity in other political systems as it is in the study of American political leadership. In broad terms the findings with respect to national chief executives correspond closely to the expectations of the model. Most of the differences between the expected and the discovered kinship patterns may be accounted for by the fact that descendants of at least some of the leaders still have time to enter the political arena.

As the United States approaches the formal beginning of the presidential election of 2000, the four leading contenders represent a continuing characteristic of American politics; they are all the product of politically active or public families. Governor George W. Bush is the son of a president and the grandson of a senator; Vice President Al Gore, the son of another senator; and Senator John McCain, the son and grandson of full admirals. Former Senator Bill Bradley is from a family with at least three previous generations of local political leadership. These candidates are not unique; instead they are current examples of an established pattern of extensive family involvement in American politics documented most recently in a study of state and national supreme court justices which included a three generational model of elite continuity to explain this phenomenon (Kurtz 1997b).