

The Historical and Global Nature of Dependent Development

**A Time-Series Analysis of Brazil
and Mexico, 1901-80***

Kathleen C. Schwartzman

Despite its historical pedigree, "history" rarely appears as a variable in dependency studies. We do not know from the empirical scholarship, for example, if dependency processes observed in the period prior to the Second World War foretell those of the postwar period; if observations about dependency relations found in the upswing hold for periods of downswing; or if dependency relationships are affected by world-system factors such as the global growth.

Ironically, the empirical scholarship in dependency research appears guilty of the charge leveled against neoclassical economists: it presents what it observes as laws that seem to be eternal and is unable to integrate history into the analysis (Fontvieille, 1991: 234). This is surely a preposterous charge to level against the dependency research agenda which was born of the recognition that 1) the history of developed countries did not reveal the path of underdeveloped ones; and 2) that one could not comprehend the current state of underdevelopment without the recognition of the historical processes which integrated peripheral countries into the global economy.

* This work was supported in part by a Tinker Field Research Grant and a University of Arizona Social and Behavioral Sciences Research Institute Grant. The author would also like to thank Albert Bergesen, William J. Dixon, Samm MacMurdo, Michael Sobel, and Paul Whitley for their suggestions.

Still, there is a place for this charge of neglect which is, in part, the by-product of the division of labor in the research community. Research agendas have traveled two divergent paths: case narratives that maintain loyalty to the historical component, and cross-national research with loyalty to the empirical component. Each makes a unique contribution at the expense of something else. On the one hand, case studies of nations, it has been charged, do not facilitate theoretical refinements of dependency notions (Bradshaw, 1988: 693). The comparative dependency literature, on the other hand, has been less attentive to "history-as-process." I have created a hybrid of the two research agendas with some trepidation. While each of the above-mentioned agendas has its advocates and opponents, this hybrid will satisfy neither: it lacks the large "N" studied by quantitative scholars and it lacks the historical richness favored by case study scholars. Quantitative scholars will want me to "pick-up" a few more countries or additional variables, and case study scholars will want me to tell the story of each year. I think there is a niche for this hybrid work albeit not a large one.

Since its opening salvos in the 1950's, dependency theory has been revised to incorporate historical changes and events. Two major conceptual pillars of the paradigm have undergone substantial reconstruction—1) the most studied dependency mechanism has shifted away from trade to direct foreign investment and indebtedness, and 2) the study of development has been supplemented or replaced by questions of distribution and social inequality. Further, the widening of the debate to include the East Asian Newly Industrializing Countries (NICs) (Gereffi, 1989: 1) and most recently the former Soviet Bloc (Wallerstein, 1991) has led to modifications of the generalizations. The questions posed by these historical events have reinvigorated the dependency debate.

Yet the research which accompanies the reinvigorated debate focuses on Lesser Developed Countries (LDCs) and their dependency ties to core nations and continues to slight the role of the global economy during different historical periods. The comparative dependency scholarship relies principally on data published after the Second World War and thus is incapable of assessing the question of historical continuity. Certainly global economic expansion and contraction must influence the nature of the relationships which unfold among countries occupying different locations in the world-system hierarchy. The study reported here examines economic

growth with a model that incorporates global economic trends and historical periods along with a conventional dependency model. The justification for each of these is discussed below.

THE GLOBAL FACTOR: AN ALTERNATIVE PERSPECTIVE

The cross-national scholarship on dependency focuses on linkages between LDCs (peripheral and semiperipheral) and the developed countries (core). Such conceptual and empirical framing precludes asking if the changes observed in the growth or industrialization of a given nation are the result of global economic trends. Perhaps it is "world-contextual variables," specifically world-economic growth, which determine the economic development of individual nations (Chase-Dunn et al., 1982: 342). As Bornschier & Chase-Dunn argue, country-level studies contrast with a "world-system perspective in which the world-economy and its dynamics are taken as the starting point" (1985: 4).

A global perspective would hold that domestic economic development is influenced by the global economic development and is sensitive to periods of expansion and contraction. Two schools have specified the nature of the global impact. The first—the development of underdevelopment—argues that increased industrialization of LDCs will take place when the more industrialized countries suffer economic contractions, and inversely, that industrialization will suffer when the industrialized countries do well (the argument popularized by Frank, 1969). Baretta & Markoff make this case for Brazil: they argue that the drop in antiindustrial attitudes (that had been rampant earlier) owed more to the 1930 world crisis than anything else (1986: 447). Events in the world-economy are also identified by Eckstein & Evans,

... World War II provided a crucial stimulus for the growth of local manufacturing industries in the two countries. ... In short, Mexico and Brazil have been affected by similar international forces and they have responded similarly (1978: 134).

Neither Baretta & Markoff nor Eckstein & Evans champion a general model of economic development; yet they explain two specific historical changes in terms of world-contextual factors. Arguing the more general association as a secular trend in the world-system,

Boli-Bennett (1980) claims that the more industrialized the world becomes, the more difficult it is for any individual nation to industrialize.

The second school—dependent development—argues a positive association between global and national well-being: that LDCs become developed as the more industrialized countries do. How is a positive global effect communicated? A global perspective neither presumes nor precludes a dependency relationship, in fact a “global impact on domestic development” is equally accommodated in “liberal economic” as well as “radical” thought (Walter & Blake, 1992: ch. 2). The global impact could be delivered through a variety of mechanisms, two of which are briefly mentioned. Marx, for one, thought that capitalism would spread in a kind of contagion process (Kay, 1975: 11). The contemporary artillery which “batters down all Chinese walls” could be technological diffusion, or market expansion. Goldstein’s version of this is that “the long-term ups and downs of national economies are not autonomous but synchronous throughout the core. Synchrony spreads to larger and larger regions of the world over the centuries as the core expands” (1988: 4).

The same result could obtain through a dependency mechanism, such as the establishment of export processing platforms by Multi-National Corporations (MNCs) in areas that have low wages as their “comparative advantage.” “As core economies shift toward services, vigorous industrialization becomes the hallmark of the periphery . . .” (Portes & Kincaid, 1989: 491). Owing to this process, Bornschier & Chase-Dunn report that in 1978 about 50% of trade of the developing countries was channeled by transnational corporations (1985: 72). If this globalization is the case, or:

[i]f a new international division of labor is indeed emerging, one would expect LPE [level of processed exports] to be increasing for LDCs as a whole. Such an increase is evident for the 1970’s; . . . 44 of the 73 LDCs in our sample increased from their LPE during the 1970’s, and “mean LPE” increased from 1.58 in 1970 to 1.69 in 1980 (Firebaugh & Bullock, 1986: 341).

In short, Third World “dependent developing countries,” acquire “increasingly diversified industrial capacity” within their borders (Evans, 1979: 9).

Although the underdevelopment and dependent-development schools appear to be contradictory in their predictions regarding the effect of the global economy on LDCs, some reconciliation between these two perspectives is possible if one distinguishes peripheral LDCs from semiperipheral ones. This logic is employed by Baumol: he finds convergence among a club of industrial leaders and centrally-planned economies [*sic*], but a convergence that excludes developing nations (1986: 1079). Regardless of the mechanism and direction of the effect, these perspectives share the notion that the key to understanding national economic growth is found at the aggregate level of the global economy, not simply in one nation's dependent relationships.

Since many have pointed to the fact that "the war [Second World War] was accompanied by an overwhelmingly strong increase in U.S. influence on Latin America" (Thorp, 1992: 187), the paper also examines the cases replacing the core growth rates with those of the United States.

HISTORICAL PHASE: AN ALTERNATIVE PERSPECTIVE

The scholarship on development has generally disregarded the question of "historical period." First, the bulk of empirical studies are executed with cross-national data sets. They perforce treat individual country histories as homogeneous, when, in fact, historical processes might well be discontinuous (Isaac & Griffin, 1989). Secondly, availability has confined researchers to data testing the period following the Second World War. Yet, the effects of trade dependency could be period-specific: that is, different causal processes could operate in the prewar and postwar periods. The pre- and postwar periods differ in two crucial ways: first, the prewar period was a time of contested hegemony while the postwar period was one which resolved the hegemonic conflict in favor of the United States. Secondly, the prewar period was one of modest economic growth while the postwar period was one of economic expansion (average rates of change were 2.2846 and 4.3500 respectively).

The prewar period was typified by hegemonic disputes. Even the Brazilian export statistics reflect the competition among Germany, the United Kingdom, and the United States. In 1910 for exam-

ple, Germany purchased 25% and the United States took 37% of Brazilian exports. In that same year, imports into Brazil came from Germany (15.9%), Great Britain (28.5%), and the United States (12.8%). By 1950, those percentages had drifted to 1.7%, 12.3%, and 34.5% respectively, with the United States emerging as the undisputed hegemon. In this undisputed position, it was able to construct the edifice of international economic exchange which reigned during the subsequent years. Included in the edifice were organizations such as General Agreement on Trade and Tariffs (GATT), founded in 1948 and the International Monetary Fund (IMF), founded in 1944. In this liberal period of international trade, institutions like GATT were mandated to acquire reductions in tariffs and maximize growth in world trade. The Bretton Woods international monetary system provided the glue for this edifice by keeping the dollar as the unit of exchange (Maddison, 1982: 137). While Brazil joined GATT in the first year, 1948, Mexico only finally signed the treaty of adhesion in July of 1986 (Castillo, 1986). Mexico had argued against adhesion since 1947 on the grounds that such integration would compromise the autonomy of the Mexican state to plan its own economic development (Castillo, 1986: 10). However, Mexico always had an intense economic trade relationship with the United States, and the issue of adhesion to GATT appears somewhat symbolic. Mexico already was constrained by bilateral or multilateral agreements regarding: basic foodstuffs (sugar, coffee, cacao), and raw materials (cotton, copper, iron, and phosphate); steel, textile, and fibers; and excessive U.S. protectionism against the products of the Mexican agropecuario industry (Castillo, 1986: 20-21).

Despite 40 years of protectionist legislation, Mexico produces few goods which are competitive on the international market. Although it is clear that some of this is owing to the failure of Import Substitution Industrialization (ISI), another obstacle to a developed export program was access to international markets, particularly the United States market (Castillo, 1986: 18). Joining GATT opens these markets. The inference that might be drawn from this discussion is that during the prewar stage, core growth should have more of a positive impact on growth because the dependency ties were more attenuated. In the postwar period, when the United States rises to the undisputed position of hegemon, the dependency ties were multiplied through the mechanisms mentioned above.

In many ways the pre- and postwar periods were qualitatively different. Between 1950 and 1973 "output per man-hour rose at unprecedented rates—more than twice as fast as in the previous eighty years" (Maddison, 1982: 96). "In the 'Golden Age' of the 1950's and the 1960's economic growth in the advanced capitalist countries surpassed virtually all historical records" (Maddison, 1982: 126). Kondratieff called this period an A-phase. It is the moment when the world-economy has a higher percentage of monopolistic sectors which exert an expansionary force on the economy. A-phases are followed by B-phases in which contractions are observed in the existing monopolistic sectors and in capital accumulation rates, due in large part to oversaturated markets (Wallerstein, 1991: 40). Because the postwar period was one of unusual growth and expansion, "results found during this period may be conditioned on certain characteristics of the world-economy . . ." (Bornschiefer et al., 1978: 660).

A plethora of data sets describe the postwar period, however, the exclusive use of postwar data could bias the findings in a number of ways. Conclusions derived from the postwar period (such as those summarized by Rubinson & Holtzman, 1981) could misstate the long-term relationship between trade-dependency and development. In other words, they may be typical of a period of expansion and misspecify the relationship for a period of contraction. Because the pre- and postwar periods are so significantly different, they may require different models of development. The question of historical continuity is examined here with time-series models which periodize the historical sequence into the pre- and postwar periods.

EXPLAINING ECONOMIC GROWTH AND INDUSTRIALIZATION

Disagreement over the causes of economic stagnation motivated the original dependency debates. But what is economic growth? In a historical context, the concepts of economic development and economic growth are often used interchangeably. Schumpeter lamented that "historians and economists seem to know well enough what they mean by economic growth or contraction. But this is so only because, in most cases, it is not necessary to be very precise about it" (Clemence, 1951: 227). Growth is often defined in a

narrow sense: "the idea of economic growth denotes an increase in income" (Schultz, 1964: 74); yet implicit in historical and, certainly, in sociological analyses is the notion of transformation. Hirschman implies this: development means the process of change of one type of economy into some more advanced type (1958: 51-52); as does Rostow (1964): stages of growth invoke the notion of increasing diversification of the economy as it moves from a more homogeneous agricultural stage to a more heterogeneous agricultural and industrial stage. Even those who use national income data (GNP/GDP) or growth rates as the dependent variable subscribe to this conceptualization of economic diversification:

A national economy is considered developed if it has high levels of internal differentiation, integration, energy consumption, employs scientific technology in production, and has a high level of productivity in all sectors (Bornschieer et al., 1978: 654).

While growth (or rate of growth) is the variable most frequently used in contemporary studies of dependency to indicate economic growth and transformation (Portes, 1976), it fails to completely capture the sense of diversification. In the study reported here, economic development is operationalized in two ways and the findings are compared.

What determines the level of economic development in a country? While standard economic theories model growth with the basic factors of labor, capital, and land (Looney, 1985: 28); development economists mandate that we model growth with factors such as investment rates, levels of savings, money supplies, and foreign exchange (Zarembka, 1972: 135). Cardoso & Fishlow demonstrate how a neoclassical production function including investment and labor is "markedly inferior to an augmented definition of the production function which includes other variables, reflecting the success of integration into the international economy" (1992: 204). This latter endorsement for an expanded model has been the founding principle in the sociological work on development. On the particular relationship between trade and growth, classical and present-day advocates of "comparative advantage" argue that trade integration into the world-economy maximizes economic development. Dependency theorists argue the opposite, namely that a country's location in, and relationship to, the rest of the global

economy would hinder economic development (Prebisch, 1949; Frank, 1969; Wallerstein, 1974).

Since 1970, a plethora of studies using synchronic cross-national data sets have analyzed the effect of economic dependence on the development of LDCs (Alschuler, 1976; Bornschieer, Chase-Dunn & Rubinson, 1978; Chase-Dunn, 1975; Dixon, 1984; Mahler, 1980; McGowan & Smith, 1978; Rubinson, 1976; Tyler & Wogart, 1973 to name a few).¹ Under colonial rule, the causal link between dependency and obstructed economic development was transparent: it was politically created and maintained. Dependency theorists assert that postcolonial market mechanisms—mediated principally through prices—produce economic outcomes similar to those produced by the political apparatus of the colonial state. While the scholarship has moved away from the more orthodox “underdevelopment” position, it affirms, in many cases, a “dependent development” position, namely, that countries which are more “dependent” on industrialized nations for the direction and velocity of their growth suffer dampened or distorted economic development.

RESEARCH QUESTION

The questions posed above are incorporated into three models which are then compared. The first model is the simple trade dependency model; the second is an expanded model which incorporates domestic presidential policies; and the third is the global model. Separate models are run for Brazil and Mexico, for the two dependent variables—growth and industrialization, and for the pre- and postwar historical periods. Taken together, the 24 equations offer the basis for answering a number of questions such as: Has the classical dependency effect been attenuated as Evans and others argue? Do domestic policies make a difference (Gereffi, 1989)?

¹ The studies vary in period covered and countries sampled. Alschuler (1976) looks at eighteen Latin American countries in 1960 and 1965; Chase-Dunn (1975) looks at from 24 to 46 countries in 1950–55 and 1965; Dixon (1984) looks at 72 developing countries between 1960 and 1980; McGowan & Smith (1978) look at 30 African countries; and Tyler & Wogart (1973) look at 39 developing countries from 1964–66. Bornschieer, Chase-Dunn & Rubinson (1978), McGowan & Smith (1978), Mahler (1980), and Rubinson & Holtzman (1981) all offer extensive surveys of the development literature.

Does the effect of global economic well-being dampen the dependency and domestic policy effects? Does historical period affect the nature of the relationships?

Model I: A Simple Trade Structure Model

How does trade affect the economic growth and industrialization of a LDC? Trade structures identified in the literature include: concentration of exports in one unprocessed commodity, balance of trade, and trading partner concentration in exports and imports. Each can have an affect on economic development.

EXPORT PRODUCT CONCENTRATION IN PRIMARY GOODS
AND DEVELOPMENT

Export commodity concentration in unprocessed goods is typically associated with restrained economic development. If the undifferentiated economy supplies mostly raw materials for the world market, the country is vulnerable to external vacillations of prices, markets, and the like (Chase-Dunn, 1975: 723). Firebaugh & Bullock enumerate the previously cited mechanisms which translate export product concentration into dependent development: long-run decline in terms of trade for unprocessed goods exporters, volatile prices for primary goods, slow growth of unprocessed goods markets, tendency of unprocessed goods to be concentrated in enclaves, and unequal exchanges between LDCs and rich industrial nations (1987: 88).

Firebaugh & Bullock charge that these dynamics cannot be empirically verified; instead they point to "export upgrading" as the mechanism that mediates between product concentration and growth. Forward linkages are crucial to development, "because they set up pressures that lead to creation of new industries" (1987: 92). Rather than promoting technological and infrastructural spin-offs, a high concentration of export products hinders forward linkages and export process upgrading (1987: 97).

In examining the export product concentration effect, Stokes & Jaffee show that an export concentration in goods with low levels of processing has a negative effect on economic growth (1982: 406). Dixon also argues that trade concentration dependence "will have a weak debilitating effect on the rate of economic growth" (1984: 767). This is corroborated by Firebaugh & Bullock who found im-

provements in level of export processing between 1970 and 1980 associated with increases in GNP among LDCs (1986: 341, 347). A negative association between trade dependency and growth is also documented by Alschuler (1976); Chase-Dunn (1975); Gorin (1981); and Tyler & Wogart (1973).

McGowan & Smith (1978), in contrast, looking at African states, found little support for the trade dependency model. Kaufman et al. also claim that commodity concentration has no effect on economic growth (1975: 317). Jaffee joins these authors with his evidence that export dependence has a significant positive effect on economic growth (1985: 114)—although his measure of export dependence describes what most would refer to as simply an “open” economy not a “dependent” one. More recently the argument against the trade dependency thesis has taken the form of asserting its diminished relevance, arguing that, in the postwar period, factors such as direct foreign investment, loans, and aid have a greater “dependency” effect (McGowan & Smith, 1978: 187; Bornschier & Chase-Dunn, 1985: 52).

Summarizing findings (basically of the 1970's) on the question of commodity concentration and economic growth, Rubinson & Holtzman cite zero studies that find positive effects for commodity concentration, three that find no effect (although two of the three are negative but not significant), and five that find negative effects (1981: 93).

BALANCE OF TRADE AND DEVELOPMENT

Balance of trade should also have an identifiable impact on economic diversification. While trade surpluses constitute a positive factor in the “comparative advantage” theory, dependency theorists have argued that trade surpluses can produce a negative effect on economic diversification. When prices favor the unprocessed good, trade surpluses result. Such surpluses signal the profit of the agroexport and attract domestic investment to the detriment of alternative economic activities.

Inversely, historical accounts have shown how import product substitution or economic diversification have followed vertiginous drops in world prices which were communicated to the exporting countries through trade deficits. Furtado's account of the growth of Brazil posits that trade deficits—not surpluses—contributed to the diversification of the Brazilian economy. When Furtado looked at the im-

petus to industrial growth in the 1930's, and again between 1949 and 1954, he was struck, in both cases, by the benefits that accrued to industrial investment as the unintended consequence of a fiscal policy to defend coffee profits against falling international coffee prices (1965: 101-04). The 1929 world crisis left Brazil without a market for one-third of its production. Faced with increasing production and declining prices, the government continued its price-defense policy leading to diminished metal reserves (Furtado, 1963: 199-201). Coffee prices remained low during the 1930's. The fiscal solution—devaluation of the Brazilian currency—led to a rise in import prices (Furtado, 1963: 205), which transformed the demand for imported goods into pressure on the internal producers. The depreciated currency of the 1930's "constituted a powerful protectionist barrier for domestic industry which began to operate two or three shifts daily with the aid of small additional investments.... Between 1929 and 1937, while imports declined by 23%, industrial output rose by 50%" (Furtado, 1965: 101). When the sector which produced for the domestic market afforded better investment opportunities than the exporting sector, this led to a shift in the location of capital formation (Furtado, 1963: 216). This historical sequence captures the mechanism (albeit indirect) by which trade deficits can be translated into economic growth.²

Despite numerous case studies alluding to the effect that the balance of trade has on economic diversification, this factor rarely appears as a variable in cross-national studies.

TRADING PARTNER CONCENTRATION

Trading partner concentration—the heavy reliance on only one country for receiving exports or sending imports—can also hinder development either through the political vulnerability which can accompany such concentration, or through the economic vulnerability which necessarily follows.

² Several authors have offered parallel accounts regarding the balance of payments (rather than the balance of trade). Evans & Gereffi argue that "pressure on the balance of payments—caused in part by shifts in the international market—was an important impetus for change" (1984: 126). Skidmore suggests that it was attempts to correct deficits in the balance of payments that "provided a powerful stimulus to the creation of domestic productive capacity, both by limiting foreign sources of supply and by channeling the available foreign exchange into purchase of imports essential for industrialization" (1967: 93).

The political vulnerability of trading partner concentration can be seen in the antiindustrial quid pro quos that accompany trading partner concentration. This was exemplified by the 1891 Blaine-Mendonca Trade Treaty between Brazil and the United States, which held that Brazilian coffee and sugar could be imported into the United States with low or no import duties, but: no refined sugar would be imported from Brazil; and Brazil would be encouraged to buy processed goods from the United States. Here, trading partner concentration had the attendant effect of discouraging economic diversification.

When one or few trading partners consume a majority of the exported production, the LDC producer is more vulnerable to market disruptions that occur in the purchasing/consuming country. More generally, trading partner concentration, whether in exports or imports, may impede economic diversification by directly or indirectly allowing extraneous factors to influence a state's decisions about the direction and velocity of growth. In such cases, economic planning is rendered more difficult (Chase-Dunn, 1975: 723).

While historical anecdotes of this process abound, the comparative quantitative literature offers little empirical support for a trading partner effect. In contrast to Rubinson & Holtzman's findings on export product concentration, those on trading partner concentration and growth are ambiguous—two showed positive effects, two showed no effects, and two others, negative effects (1981: 93). Research to date suggests that trading partner concentration does not have a strong independent effect on economic diversification. Research, however, has focused on concentration of "developed" purchasers and not tested concentration of "developed" sellers. Both trading partner concentration effects are tested here.

As indicated in the introduction, many now argue that the dependency effect resides in foreign investment and indebtedness. Although the dependency model can only be partially represented by trade structures, data limitations make the more complete picture of dependency for the entire historical period difficult to achieve.

Model II: A Political Process Model

The quantitative trade dependency scholarship asks about trade structure, but ignores the role that governmental policies play in economic development. Governments transform economic processes

by affecting national endowment factors: investment in human capital, mobilization of natural resources, and increases in capital supply (Jaffee, 1985: 108). Governments are in a position to affect economic growth and diversification by changing the supply and/or demand. In the first case, it is assumed that government investment or the facilitation of investment can change the nature of output. Policies designed to increase investment include: industrial credits, industrial subsidies, a panoply of tax exemptions, and outright government investment. In the second case, it is assumed that the promotion of consumption will lead to increased profits which, in turn, will then have the effect indicated in the first case. Policies directed toward increasing consumption include protecting the domestic market from foreign competition and government purchasing (Maddison, 1982: 129). In general terms, what these policies reflect is the level of state strength (Rubinson, 1976: 649) and its commitment to economic intervention.

Regarding the developmental role of the state, one finds at least two schools of thought. For decades, social scientists have documented how strong (and often authoritarian) states have intervened in the economy to promote industrial development (Gerschenkron, 1962; Gregor, 1979; O'Donnell, 1973). Non-market forces (such as state-sponsored industrialization) can even reverse the traditional global hierarchy of production resulting in industrialization in the periphery (Bornschier & Chase-Dunn, 1985: 72). This was the assumption underlying the ISI development schemes of Latin America in the 1950's and 1960's (Thorp, 1992).

Others assert that the state has no observable impact; rather, it is the extent and nature of foreign trade and investment that shape the process of state building and define the political room that politicians have for maneuvering (Topik, 1987: 2). Cardoso & Fishlow, in their study of eighteen Latin American countries in the postwar period, find that the "sheer size of current purchases of the public sector . . . does not seem to matter" (1992: 205). In their study of Brazil and Mexico, Eckstein & Evans (1978) found no evidence of a political regime impact. Despite variations in governmental policies, and indeed in political regimes (a 1910 social revolution in Mexico, and 1930 and 1964 elite revolutions in Brazil), they found quite a bit of similarity between the two economies. In 1969, for example, both countries had an industrial sector that held 23% of the labor force, and produced 36% of the total output (Eckstein & Evans 1978: 132).

They conclude by dismissing an independent effect of political regime. Evans & Gereffi also conclude that there is no evidence that endogenous political forces are as important in the process of dependent development as external ones (1984: 118).

Model III: A Global Model

The third model encompasses trade dependency structures, presidential policies, and adds global well-being. The global factor is justified above in the discussion presented under the section "The Global Factor." It assesses the strength of the trade structures and presidential policies when global economic conditions are added.

THE RESEARCH DESIGN

Sample

Brazil-Mexico comparisons abound—Eckstein & Evans (1978); Gereffi & Evans (1981); Topik (1987)—to name a few. As in any comparative project, one "must make a series of forced choices regarding the number of states . . ." (Hage, 1975: 132). A Brazil-Mexico comparison allows the assumption of equivalence to be reasonably approximated. This comparison offers built-in controls on factors exogenous to the models to be tested such as the colonial and postcolonial experience, geographic region, and location in today's global hierarchy. Brazil and Mexico are industrialized, have relatively strong states capable of promoting and protecting local interests, are rich in resources, have large domestic markets, and are integrated into the global economy through trade, foreign investment, and loans. Gereffi & Evans argue that there is significant convergence between the Brazilian and Mexican models of dependent development; namely, in the denationalization of the local economy, in maintaining dependent relations with international capital, and in considering questions of welfare and equity (1981: 44). To posit that these countries constitute a reasonable pair for comparison in no way constitutes an assertion that they are identical. Indeed the data from the two countries are not pooled; they are run separately to permit comparison and the variables used in the model capture some of these differences.

Table 1
Definition of Variables and Data Source

Variable	Operational Definition	Source
Brazilian GDP 1901-79	Annual percent change in GDP	Abreu, 1990: 388-412
Mexican GDP 1901-79	Annual percent difference in GDP per capita, in 1970 pesos	Nacional Financiera, 1990: 132-33
Brazilian manufacturing 1901-40	Annual percent difference in index of manufacturing volume	Haddad, 1978
1947-80	Annual percent industrial contribution to GDP	UN: 1957; 1958; 1962; 1974; 1980
Mexican manufacturing 1901-70	Annual percent industrial contribution to GDP, in 1960 pesos	Nacional Financiera, 1990: 121-23
Trade balance	Value of domestic goods exported divided by total value of goods imported for domestic consumption	Created from data in Brazil, <i>Comercio Exterior do Brasil</i> , and <i>Anuario Estadístico de Brasil</i> and Mexico, <i>Anuario Estadístico de los Estados Unidos Mexicanos</i>
Export product concentration	Value of largest export product divided by value of total exports multiplied by 100	" "
Export Partner concentration	Value of exports going to country which receives most exports divided by value of total exports multiplied by 100	" "
Import Partner concentration	Value of imports from country which sends most divided by value of total imports multiplied by 100	" "
Presidential policy	The presidential score counts the number ¹ of pro-industrial policies passed by each president. A score of "1" was given for the creation of each of the following: Industrial banks Government subsidies to industry	

	Government industries Industrial credits Industrial tax exemptions Import restrictions Import taxes Import tariffs	
Core GDP	Annual percentage change in the aggregate GDP of sixteen core countries ²	Maddison, 1982: 172-73
U.S. GDP	Annual percentage change in the GDP for the United States	Maddison, 1982: 172-73
Foreign Exchange Rates		Annual change in the official ³ quantity of Brazilian Cruzeiros and Mexican pesos equal to one United States dollar.
Population growth	Percent annual change in population size	Brazil, IBGE, 1901-80 Mexico National Financiera, 1990: 132 ⁴

¹ The data were taken from historical accounts of each country. Sources for the Brazilian and Mexican codes came from: Abreu, 1990; Baer, 1983; Baklanoff, 1967; Bergsman, 1970; Buescu, 1985; Burns, 1980; Clarence-Smith, 1985; Clements, 1988; Correia, 1980 [1903]; Dubnic, 1968; Dulles, 1970; Dulles, 1978; Dulles, 1980; Baretta, 1986; Fassy, 1987; United Nations, ECLA, 1964; Flynn, 1978; Furtado, 1964; Gomes, 1987; Hayes & Keith, 1976; Leff, 1968; Leff, 1982; Lopez, 1968; Lopez, 1981; Luz, 1975; Mexico, *Diario Oficial*; Morton & Tullock, 1977; Nieto-Lopez, 1986; Poppino, 1968; Reynolds, 1970; Ridings, 1973; Savasini, 1978; Schneider, 1971; Skidmore & Smith, 1984; Skidmore, 1988; Stein, 1957; Vernon, 1963; Wilkie, 1967; Young, 1972; Young, 1982.

This index measures more than level of presidential activity. Testing this for the case of Brazil, I used a list of "entities created" for the purpose of national, sectoral, or regional economic development (Brazil: *A Handbook of Historical Statistics*: 383). I rank ordered the Brazilian presidents in the postwar period according to this list. While both my list and the Handbook's "entities created" list are topped by President Kubitschek, the others were ordered quite differently, that is to say, my pro-industrial presidential policy ranking is not simply a by-product of proliferate presidents. External validation can be gained by comparing narrative accounts with my rankings. "The programs and policies of Mexican government since 1940 have been designed to stimulate private-sector efforts in the development process" (Hansen, 1971: 55). "Camacho, Aleman, Corti and Matero—each of the four has taken economic growth as a prime objective" (Vernon, 1963: 124). The presidential score of these four was 5, 4, 5, and 6 respectively—all above the 1946-79 average score of 3.58.

² Maddison takes the country annual change in GDP and then divides the total by sixteen. Maddison argues that by first computing each individually, undue weight is not given to the U.S.A. or other large economies. Maddison took data from Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, U.K., and U.S.A. (Maddison, 1982: 172-73).

³ The Brazilian data were taken from the following sources: 1) 1901-30—Mitchell (1988: 702-03) who gives cruzeiro-sterling exchange which I in turn converted with sterling-dollar exchanges found in the United States, 1902-30. *Federal Reserve*. 2) 1930-47—Brasil, *Anuario Estatístico de Brasil* (1936: 207; 1940-45; 219; 1946: 254), and 3) 1948-80—Wilkie (1967: 945). The Mexican data were taken from Nacional Financiera (1978: 227-28) and Reich (1984: 74).

⁴ In the case of Mexico, it was necessary to use interpolations for years of the Mexican Revolution—1911-21.

