

Three Contending Theories Predicting Patterns  
of Economic Development in Latin American Countries:

An Empirical Evaluation

Kevin P. Keating

University Undergraduate Fellow, 1989-90

Texas A&M University

Department of Political Science

APPROVED

Fellows Advisor  
Honors Director

*Mitchell Casper*  
*D.J. Fisher*

## Chapter One: Background and Research Methodology

Economic development has been a subject that has attracted considerable attention in the last several decades. With the burgeoning Third World debt crisis, the growing emphasis on an integrated world economy, and the increasing multi-polarity of the international system, economic development seems all the more crucial. A wealth of literature exists which investigates the mechanics of how and why economic development takes place. Some authors use a general approach to explain why certain countries are more developed than others. Other authors focus on the nuts and bolts of the economic mechanisms that operate during development. Still others use patterns of economic development as an independent variable to explain a variety of political and economic phenomena.

None of these writings, however, explain what factors actually lead a country to choose a particular pattern of development. This lack of concern with patterns of economic development as a dependent variable has led to a serious gap in our understanding of the development process. In other words, the usefulness of knowledge about the general effects of a particular set of development policies is restricted by our lack of understanding as to why that particular set of policies was implemented rather than another. To my knowledge, there has been no satisfactory attempt to fill

this gap in the development literature.

This project is an attempt to fill that gap in the development literature. This chapter provides background information which reviews some of the relevant literature and then outlines my research methodology. Chapters two through five relate research results country by country, and chapter six draws general conclusions from the four specific country cases. Included at the end is an extensive bibliography that contains not only works specifically cited in this paper, but also works that contributed significantly to development areas which are closely related to my study and that have been invaluable in providing the necessary background knowledge to tackle a project such as this.

#### The Relevant Literature:

In their treatment of economic development in general, economists have tended to focus on what economic factors cause (or at least what conditions lead to) economic development. Meier (1984) has outlined six of the major areas on which this branch of the development literature has tended to focus: (1) savings and investment, (2) the acquisition of appropriate technology, (3) agricultural improvement, (4) foreign trade with close attention to comparative advantage and its implications, (5) economic systems and their various allocation efficiencies, and (6) human resource development. Each of these factors has proven

to be in some way important to the development process, and most of the work related to these factors can be described as an investigation into the "nuts and bolts" of the development process. Rostow's *Stages of Economic Growth* (1960) is probably the classic work in this area, and, while somewhat non-rigorous, he does provide material to which many authors have reacted.

Another of the branches of development literature uses more of a political focus to explain economic development. Political scientists and economists have both looked at some of the variables that are involved in and affected by the development process. Rostow's work, while the first example of a serious analysis of economic factors, also bridges the gap between the strict economic approach and the political approach, since his work fits in nicely with other projects that have related development to specific political regime types. In particular, he claims that economic and political development covary. Furthermore, he argues that countries pass through specific stages when they develop, and that those stages involve specific levels of political and economic development. Lipset, Seligson, Ridker, O'Neill, Schatz, Rostow, and others have investigated the relationship between economic development and democratic systems of government. The theme of their work is that economic development involves structural changes which allow democratic regimes to flourish. Ridker has argued that

democracy is a prerequisite to economic development, but most of today's literature would contradict him.

In fact, there is a growing trend towards the belief that authoritarian regimes have a significant advantage over democracies countries in promoting economic development. Collier, Malloy, Harwitz, Lim, and Westphal all support this viewpoint, arguing that authoritarian regimes are better equipped to force a population to accept the difficult choices that are a prerequisite to economic development. For example, the need for low wages to make pricing competitive in foreign markets may be better met under a repressive authoritarian regime. The Bureaucratic-Authoritarian model has become fairly well accepted, arguing that the technocrats and the military have overlapping interests in the promotion of economic development. When these interests are threatened, as they are when the population demands expanded rights, better wages and better working conditions, the bureaucracy and the military band together to suppress this activism. This model is pessimistic about development taking place in a relatively free context, a pessimism shared with O'Donnell by Gershenkron in his treatment of the role of the state in the development process.

There is another branch of development literature that embodies both political and economic dimensions of the development process. This branch is known as dependency theory, and debate about this theory is quite common. For

example, Peter Evans (1977) has argued that a country's level of economic development can be predicted by the degree to which it is dependent on outside forces. Two examples of this might be penetration by multi-national corporations or international organizations or a neo-colonial posturing on the part of more developed countries. Wiarda argues that it is each country's individual history that best determines development progress (Wiarda 1982). Tony Smith (1983) is at the head of an opposing faction that posits that instead of these exterior forces, domestic factors such as regime structure are more important in predicting a country's level of development. The dependency literature revolves around the idea that economic development does not take place in a vacuum. In fact, it can only take place in an international context that leaves smaller, less developed countries at the mercy of economic forces that they cannot control. For example, if a country lacks capital to invest in its own development, it will have to rely on foreign sources. The developing country is thus subject to the will of the developed country, and the developed country may even expropriate the profits from its investments, making it impossible for the underdeveloped country to boost its own growth through reinvestment. In the search for economic development in the modern system, developing countries are forced into paths that benefit their larger trade partners more than themselves. This can often create severe disruptions in the domestic and political life of their

individual countries.

The dependency literature provides a good example of one of the serious shortcomings in the development literature. A typical argument contends that domestic conditions are the result of international forces upon which the developing country is dependent. This argument does not, however, address the conditions that lead a country to select a specific set of developmental policies. Even if the argument were correct, insofar as it went, it would be leaving out an important causal link in the development process. Because the level of development in any given country is dependent to a large degree on the pattern or specific policy of development adopted by that country, a model that does not incorporate these patterns is circumventing the logic of the development process. Those who argue against the dependency theorists often claim that rather than being dependent on the international system, countries are responsible in large part for their own development patterns. In other words, they argue that it is domestic and not international forces that determine a country's domestic conditions. For example, Sowell has argued that it is a lack of emphasis on human capital that leads to underdevelopment in the Third World (Sowell 1983). Again, there is no rigorous analysis of the specific forces that lead a country to choose a particular pattern of development. Moreover, neither side looks at the other

perspective as having any validity, and lessons that could be gleaned from a combining of the two perspectives have been lost.

Having looked at some of the problems in the literature that analyzes why and how countries develop, we can now turn to the problem of defining economic development. This will help provide a better idea of why the use patterns of development is superior to simply using level of development as a variable. It has been said that "no branch of economics has had more difficulty in finding acceptable names for its subject matter" than development economics (Hogendorn 1987). Indeed, there are as many different names for developing countries as there are approaches to the subject. The nineteenth century term "backward" had, by the mid twentieth century, largely been supplanted by terms such as "undeveloped" and "underdeveloped" which still see frequent use. Also common in today's development literature are the catch all phrase "Third World," the geographic designation "South," and the descriptive phrases "Lesser Developed Countries" and "Developing Countries." Although the last two are probably most common today, the variety of terms indicates the lack of consensus within the development community.

This lack of consensus is paralleled in the disagreement over what development actually means. Clower's treatise Growth Without Development (1966) points out the



difference between actual development and mere economic growth, a distinction which most developmentalists would echo. Growth might be thought of as an increase in per capita GNP, but development is typically thought to refer not only to growth but also to underlying structural, institutional, and qualitative changes, like degree of political freedom, that affect both productive capacity and, in some sense, the overall well-being of an entire population. Thus there is agreement that the term economic development has normative aspects, but there is little agreement as to what these aspects are and less about how they should be measured. Indeed, in a survey of forty theories which had used economic development as either an exogenous or endogenous variable, Clark (1982) found no less than twenty clearly distinct indicators.

Hogendorn boils these indicators down into the following definition: development is the "process through which over a long time period the real per capita income of a country rises with the understanding that not just an elite few, but the general mass of a population is the beneficiary of the increase (Hogendorn 12)." This definition seems to reflect the spirit of most of the prevailing indicators which are used for economic development, but it contributes very little to the actual conceptualization of the problem. Indicators used commonly today include GNP and per capita GNP growth rates; measures of income distribution such as Lorenz

curves, Gini coefficients and quintile percentages; measures of physical well-being such as infant mortality rates, total per capita caloric intake and the Physical Quality of Life Index (PQLI); other measures of social development such as literacy rates, percentage of labor force in agriculture, school enrollment, energy consumption, number of vehicles, radios and telephones per capita, consumption of steel, iron and cement; and various measures of the extent and efficiency of infrastructure such as number of highway and railway miles (Hogendorn 1987).

It is clear that there are a huge number of ways to conceptualize and operationalize the term economic development, and it is also clear that no one way has been demonstrated to stand out from the rest. Many authors have simply chosen whichever measures suited their independent tastes or data sources, and have, in essence, assumed that either their measure is best or that the choice of measures is not that important to their results. Unfortunately, it has been demonstrated that the ways that one defines economic development can and do have real impact on researchers' findings (Bornschier et al 1978). This is true whether development is being used as an independent or a dependent variable, and whether it is being used in a political, social, or economic context. This calls into question not only the reliability of the results of many studies, but also their generalizability. While this problem may not render

the results of a particular study invalid, one must be suspicious of any work that does not at least explore the ramifications of this problem. One partial solution to this problem is to use the patterns of development that led to the various levels of development, however defined, as variables. Even though there are many possible indicators for pattern of development, inconsistencies in research results caused by different definitions for those patterns will be more easily placed into a historical context than those caused by differences in the definitions for the level of development. This distinction should become apparent as the statistical results in this study are placed in their historical contexts.

The deficiencies in the development literature with which I am concerned come down to two specific problems. First, most of the development literature focuses on the level of development as a variable, but pays very little attention to what factors might lead a country to choose the policies that led them to their levels of development. This omits one crucial link in the logic of the development process. Countries, by and large, have had a great deal of flexibility in their options for developmental policies, and those policies are the primary causal link in the developmental process. For example, if a country is dependent, then its policy choice will be influenced by its dependent status, and that will, in turn, affect its

development experience. Clearly, work is needed that will explore the specific forces that can shape a country's chosen pattern of development.

Second, those authors who have disagreed over the importance of international and domestic factors have never tried to consolidate their arguments. There is no discussion of when and under what conditions each force might dominate. Given that there are good historical examples of both domestic and international dominance, this shortcoming is surprising. This study will empirically demonstrate the need for a synthesis of the two approaches to development by proving that in most cases, it is possible to empirically demonstrate that both internal and external forces have a significant effect on patterns of development.

#### Research Methodology

These deficiencies in the economic development literature will be the focus of my attention. I set up three contending theories to explain a country's chosen patterns of economic development. The first two theories have their roots in the debate surrounding the concept of dependent development. The first theory argues that internal forces are the most important influences on a country's pattern of development. For example, the number of and degree to which internal political actors are allowed to make demands on the government could affect the development pattern that the

government would emphasize. The political actors could either demand a particular policy or limit the number of realistic policy options open to the government. The second theory contends that it is external rather than internal forces that are the most important influences on a country's pattern of development. For example, the degree to which a country is dependent on export markets to generate its GNP may circumscribe the options available to a developing country or actually channel the country into a particular developmental pattern. The third theory synthesizes these two approaches, asserting that neither the first or second theories are adequate in and of themselves, and argues that some combination of the two is needed to fully explain patterns of development. For example, Theory 3 would argue that both internal political actors and export market dependence have a significant impact on development patterns and that both the internal and external actors would have to be considered in order to have a complete understanding of the country's policy selections.

This research design is a significant improvement over the existing literature for several reasons. First, it focuses on the patterns of and strategies for economic development that countries adopt in their search for modern economic growth. As I have shown, the previous work has focused merely on level of economic development as a dependent variable -- leaving out an important logical link

in the actual development process. My approach captures this logical link. Second, it treats the effects of both internal and external forces as political variables with the reasoning that political agents are responsible for implementing development policies and that these political agents will be influenced by political variables. This reasoning is backed up by Epstein's findings that regime type influenced the establishment of austerity programs in Argentina (Epstein 1989). Third, it uses patterns of development rather than level of development as the dependent variable, thus better reflecting the actual development process. Finally, it makes an effort to reconcile the two sides of the dependency debate. It seems that both approaches and contentions have merit, and my research design will allow me to determine under what conditions internal forces are more important than external forces and under what conditions external forces dominate. This seems to be a more valid approach than simply assuming that one or the other perspective is the 'correct' one.

This project uses a Most Similar Systems comparative design. Four Latin American countries were chosen for this study: Argentina, Brazil, Chile, and Mexico. All four have similar histories, and all are newly industrializing countries. All of the countries had indigenous Indian populations prior to European colonization, and all had similar colonial experiences with their Iberian mother

countries (Wiarda 1986). In a sense these countries can be viewed as a "fragment of Southern European and Iberian culture and civilization of approximately 1500 [A.D.] (Wiarda 1986, p. 209)." Spanish feudalism was incorporated into Latin America, and many of the historically dominant political coalitions stem from the relationships that come from that feudalism. The roles that the Catholic Church, the military, the bureaucracy, and the university have played, and their impact on the authoritarian styles of government that have been common in the region, having come from the same Iberian colonial source, are quite similar across all four countries. The latifundia that grew out of European colonialism were present in all four countries, and the effects of these on the distribution of wealth and power are being felt even today (Jackson et al 1986).

Perhaps most importantly for this study is the similarity of the impact of the Great Depression on the four countries. Prior to 1930, all four countries received a great deal of income from exports of goods in which they had a natural resource based (NRB) comparative advantage. Manufactured consumer durables in all four countries are largely imported from the developed Western world. The Great Depression had two effects on the four countries. First, demand for the Latin American exports dropped significantly. Second, the availability of imported consumer durables to Latin American purchasers declined rapidly. This depression

in consumer durable availability became even deeper when World War II broke out in 1939. Thus the Great Depression and World War II give us a point of departure from which to conduct our research. The data for this study run from 1950 to 1980, and, they will allow us to distinguish the changes in development pattern that occur after the Depression and WWII. In effect those events serve as "equalizers" that overwhelm almost all other factors affecting development pattern at this time, and we can treat the four countries as having had much the same Depression experience. Moreover, we can use our data to determine how the differences in internal and external forces affect development pattern in all four countries after that period, and that will, in turn, allow us to evaluate our three theories using the MSS design.

#### Independent Variable Measures:

Several measures are used for internal forces -- regime type, regime change, and degree of freedom permitted the population. First, regime type was classified as democratic or authoritarian. Then each regime change was coded by type ranging from regular election to violent overthrow. When elections took place, the percentage of votes garnered by the victorious party was taken as a measure of electoral competitiveness. Finally, Freedom House's indices (FREE) for political and civil liberties are used as indicators of the degree of freedom allowed. The results were plotted across time.



The external force measured is dependence on external sources of capital (FIP). This measure was operationalized the percentage of total capital investments coming from foreign sources. These results were also plotted across time.

#### Dependent Variable Measures:

Turning to the dependent side, two classifications are used to describe each pattern of economic development. Each pattern is classified as export oriented or import substituting, and as capital or labor intensive. The distinction between ISI and EOI is operationalized by using effective rates of protection (ERP) across time, and relative capital/labor intensity (CIR) is indicated by a five point scale with five being the most capital intensive.

#### Data Collection:

Regime type and transition data come from published historical timelines such as those found in the Third World Encyclopedia. For electoral competitiveness I used Facts on File to get the dates when the election results were released and then went to the appropriate issue of the New York Times to verify the results. Data on the importance of export markets and on the percentage of investments coming from foreign sources was found primarily in various statistical abstracts including SALA, The Statistical Yearbook for Latin

America, various World Bank data sources, and IMF Financial Statistics. Data on the dependent side, pattern of development, have proven very difficult to find. Because no one has really taken pattern of development as a variable before, there is no concise data base that exists describing these patterns across time. As a result, these patterns are reconstructed from a variety of unrelated sources including development textbooks, newspaper articles, and various journals. I was, however, able to develop a five point scale to represent relative capital-labor intensity, and several World Bank memos, when combined with journal articles on tariff rates, allowed me to compile effective rates of protection for all four countries from 1950 to 1980.

#### Statistical Analysis:

Each theory is evaluated across time and across countries. The times and conditions under which each one appear most useful are noted, and this allows us to discern the conditions under which external and internal forces become dominant. The statistical technique used is ordinary least squares, and significance levels are reported on all independent variables, as well as the coefficient of determination. Specifically, for each country the indicators for the independent variables -- Freedom House's index for political and civil rights (FREE) for internal forces and foreign investment dependence (FIP) for external forces -- are regressed on each of the two indicators for the dependent

variable, effective rates of protection (ERP) and relative capital/labor intensity of new projects (CIR). Additionally, multiple regressions are performed regressing both FREE and FIP against each indicator for the dependent variable in turn. Simple correlations and covariances between the independent and dependent variables are reported for each country, as is a plot of the residuals from each regression performed.

#### Organization of Paper:

As noted earlier, this project places the statistical evaluations of the three theories into a historical context in order to enhance our interpretation of the results. Chapters 2 through 5 provide the historical context country by country. These chapters begin with a historical overview, then present the actual statistical evaluations of the three theories in the country, and finally interpret those evaluations within the countries historical context. Chapter 6 synthesizes the statistical results in each country, uses historical context to draw broad conclusions and explain anomalies, and closes with a brief discussion of the prospects for future research.

## Chapter Two: Argentina

Argentina is the first of the four Latin American countries which I will discuss. Since 1950 there have been at least six major changes in political leadership of which nearly all were brought about by some form of military pressure. At the same time, there has been a good deal of variation in the quality of political and civil rights that are enjoyed by Argentinians. Dependence on foreign investments has also varied significantly over time. It is these variations that we will use to investigate the factors that determine Argentinian patterns of development within our theoretical framework.

Recall that Theory 1 predicts that internal forces are the most important determinant of patterns of development, Theory 2 predicts that external forces will dominate, and Theory 3 predicts that both internal and external forces have a significant effect on pattern of development. We will see that, in Argentina, Theory 3 works better than either Theory 1 or Theory 2 to explain patterns of development as indicated by effective rates of protection, but Theory 2 works better to explain pattern of development as indicated by relative capital-labor intensity. To fully appreciate the way that internal and external factors combine to shape patterns of Argentinian development we must first consider the historical forces and events that are unique to

Argentina.

#### Historical Background:

There are three categories of historical forces with which we are most concerned. These are the actual economic changes which occurred over time, the changes in internal political variables, and the changes in the power of external actors. These forces will set up the historical context for our statistical analysis.

Prior to 1930, Argentina's economy largely revolved around the export of meats and agricultural products, such as grains and cereals (Baer 1972). The benefits of the economic activity in these sectors accrued to a fairly small class of land and ranch owners that controlled the resources on which these businesses were based, and these owners formed the basis of the political groups that would control Argentina until President Yrigoyen took power in 1916. Also important were the groups that facilitated the trade of its agricultural and meat products. Since Buenos Aires was the chief port through which these goods passed, political power began to center itself in this area. Great Britain, Argentina's chief trade partner, provided manufactured goods, chiefly consumer durables and military equipment and advisors, in exchange for Argentinian primary products. This trade structure cemented Buenos Aires as the power center of Argentina, and with the addition of those businessmen who

facilitated international trade, the political power base was complete (O'Donnell 1978).

It is interesting to note that at this point the political power base had shifted very little from the unitarios that controlled the latifundia on which the agricultural exports were based. The cement that now held the unitarios in Buenos Aires at the forefront of Argentinian politics was, as we have seen, based on the export of primary products. The value of those exports had risen to almost 600 million pesos by 1916 -- a substantial proportion of Argentine GNP.

Probably most important for our purposes is the impact that the volume and profitability of these primary exports had on the political system. Those exports allowed the landowning aristocracy to become entrenched in power before constitutional rule was established between 1853 and 1862 by giving them economic profits that no other groups could match. The aristocracy was thus in a unique position to guide the development of Argentinian political institutions, and it certainly was not afraid to do so in a way that benefitted its own interests. Indeed, the elite circle of Aristocrats (sometimes referred to as the Generation of 1880) held the "keys to economic, social, and political power (Smith 1978)." They gained control of the military, arranged the ruling party, the Partista Autonomista Nacional, in such a way that it became a puppet of the ruling class, and

"restricted the decision-making process to their own circles (Smith 1978)." Congress was not a place where the public as a whole was represented, and the aristocracy went so far as to openly rig elections.

The stage was now set for political conflict because the interests in Buenos Aires did not represent the masses that lived in the interior. These masses were largely those who worked to produce Argentina's primary products. However, a small portion were craftsmen who produced a number of labor intensive, low-tech consumer goods. These craftsmen were for the most part unable to compete with British imports, and they were unable to do much more than raise themselves slightly above the poverty level of the rest of the masses (Teitel 1986). A good example of these craftsmen were those who used traditional methods to produce textiles. While occupying a small niche because of their traditional appeal, they were unable to compete on any large scale with British textiles that were mass-produced using the most modern industrial techniques. Another, and perhaps more salient, example of craftsmen who were able to survive and even grow in the import-export economy were those who learned to service the manufactured goods imported from Great Britain. As manufactured imports became more important to Argentina, demand surfaced for workers who could service and repair these goods. At this point service was not a terribly large enterprise -- the manufactured imports had not reached a

complexity that required huge amounts of support. On the other hand, these craftsmen were the beginnings of the urban middle class. Although they had not yet advanced very far up the social ladder, they were slightly better off than the rest of the public. Over time, they were able to raise themselves to a level where they could genuinely be described as a middle class. Gradually the mass public and, in particular, the small but growing middle class began to clamor for political representation.

As this call for representation grew louder, a crisis of participation began to emerge. Nearly everyone who had been excluded from the political process joined this call, but the most effective, organized, and respected groups came to be known as the Radical movement. At the center of the Radical movement stood the new middle class groups, the nouveaux riches landowners, and a few discontented aristocrats (Smith 1978). In response to these calls for admission to the political process the Conservative leaders of the old elite decided to allow greater participation. They enacted an electoral reform package in 1912 that was designed to give the Radicals more political power. Their reasoning was that they could coopt the strength of the Radicals by giving them enough voice to disarm their claims of non-representation while still preserving Conservative control. In 1916, shortly after this reform package was passed, the first Radical President, Hipolito Yrigoyen was



elected President.

This Conservative strategy was ultimately to backfire. While the Conservatives did not want the reforms which they implemented to give the Radicals firm control of the government, the accelerating socio-economic changes made Radical control almost inevitable. As the middle classes grew and urban labor became more and more important, these groups swelled the ranks of the Radicals. Electoral reform and demographic changes greatly expanded the size of the electorate, and the majority of the new voters supported the Radicals (Kling 1956). The Conservatives were ill-prepared to deal with the forces they unleashed through reform, and, stunned and complacent, they watched the Radicals win consecutive victories at the polls. By the mid 1920s the Radicals held almost all political power, and they would continue to do so until they were overthrown by a military coup in 1930.

The coup occurred when the Conservatives, fed up with being frozen out of their "traditional" dominance of the political arena formed a coalition with the military to wrest power back from the Radicals. A growing economic crisis culminating with the Great Depression contributed to the upheaval and gave the Conservatives a concrete Radical failure to point to as they took control (Schnitz 1984). The growing crisis disrupted the economic structure that had developed to this point. While the Conservatives were not

happy about having lost political power, their socio-economic status had not been directly threatened by the initial Radical takeover. However, as the Great Depression hit the world economy, demand for Argentina's exports dropped, and at the same time supplies of manufactured imports dropped significantly (Hirschman 1968). This directly threatened the old landed aristocracy by harming their ability to earn a profit using their substantial material resources. The threat of losing profits as a result of the declining economic situation when combined with the Conservative dissatisfaction with their loss of political power was enough to prompt the coup in 1930. The military was dissatisfied not only with Argentina's economic health, but also with Yrigoyen's meddling in military affairs. They were more than willing to go along with the Conservatives.

It is important to realize that the coup took place just as the Great Depression was taking hold of the world economy. This has important implications for what the Conservative/Military coalition was able to do. Until this point, Argentinian history had largely been dominated by a struggle between the landed aristocracy and the slowly growing middle class which the import-export economy had fostered. The Great Depression was to fundamentally alter the nature of the economic activities that were profitable in Argentina, and thus it altered the nature of the traditional sources of political power. When the Great Depression hit,

demand for Argentina's exports dropped, and, at the same time, supplies of manufactured imports dropped significantly (Hirschman 1968).

The reduction in export earnings hurt the Conservative coalition by undermining their source of income. As exports generated less and less of Argentina's GNP, the Conservative's power base shrank as well. Probably more importantly, the reduction of manufactured imports provided an opportunity for the development of consumer manufacturing within the Argentinian economy. This meant, in turn, that the craftsmen who had been unable to compete with British imports now had the opportunity to expand their enterprises, and they ultimately developed into what would be Argentina's consumer durables industry (Hirschman 1968). As the new manufacturing class grew, people who had previously been employed in the traditional sectors were able to shift into the new sectors, and as their wealth grew, so did their political power. In effect, the Conservatives had regained power at the same time that world events favored the Radical coalition. For example, many of the workers who had been trained to fix radios that were imported were able to develop their own radio production facilities (Cornblit 1976). This pattern is similar in all of Argentina's new consumer durables industries. As a result, the new factory owners had strong ties to the Radical coalition, and the Radical coalition definitely benefitted from their association with

the new businessmen.

The outbreak of the Second World War in 1939 further curtailed the availability of manufactured imports, and this meant that the growing manufacturing and consumer goods sectors were insulated from virtually all foreign competition. These protected industries experienced a surge in growth, while at the same time the power of the old Conservative coalition continued to erode. A new power base, made up of what O'Donnell calls "Populists" (Klarén and Bossert 1986, p.241) -- the urban workers, domestic factory owners, and other elements of the growing middle class -- grew out of the old Radical political party and nominally gained control of the political arena. The Populists elected Juan Domingo Peron in 1946.

In the Peron government we see a perfect example of the way in which regime type and political (internal) forces affect pattern of development. Peron immediately implemented an official policy of what is known as Import Substituting Industrialization (ISI). This policy is aimed at stimulating the growth of domestic industries by taking advantage of domestic demand for consumer goods. The domestic suppliers are protected by a system of tariffs, quotas, and other import restrictions. In effect, foreign sources of consumer goods are cut off leaving a protected opening of which domestic businessmen can take advantage. Because these protectionist devices directly benefit those people who own

domestic consumer goods manufacturing companies, one would expect that these new businessmen would fight for them. Indeed, this is precisely what we see happening. As the new industrialists gained economic clout during the Great Depression's de facto protection of them, they also became more mobilized into the political arena. By the time Peron was elected, they were able to push through the protectionist ISI policies that would benefit them most.

At the same time that the populists were asserting their newfound power, the economy began to exhibit the problems that ISI typically brings. First, emphasis was placed on the production of consumer durables that had previously been supplied by British companies, and this emphasis was achieved at the expense of the development of intermediate industries. For example, the category of consumer durables includes such things as automobiles, refrigerators, washing machines, and stoves. (Teitel 1986) The production of these products depended on the input of intermediate goods like machined steel, electrical components, and plastics. Without a developed intermediate goods industry, the production of consumer goods could only progress so far. In the absence of an adequate intermediate goods industry, the consumer goods industry was unable to get enough intermediated goods to finish their products. Thus result the "development bottlenecks that are often associated with ISI. In Argentina the growing consumer goods industry

depended on the intermediate goods businesses that had developed prior to the implementation of the ISI policies, and these businesses were extremely inefficient by world standards -- certainly they did not have the capability to support the growing consumer goods industry (Schnitz 1984).

The second characteristic of ISI stems from this divergence between consumer goods and intermediate inputs. The only alternative to the Argentinian intermediate goods industry was foreign exchange. Although the protectionist devices of ISI closed out most foreign sources, some exception was made for intermediate products -- the ISI protection devices were aimed at the protection of the consumer goods industry. The problem was that Argentina had sacrificed much of its export capacity to develop its consumer goods industries at the same time that demand for its primary products was falling off. Hence, Argentina was not able to generate the foreign exchange necessary to support its quest to find intermediate goods in foreign countries. Argentina experienced a severe balance of payments deficit, and this retarded growth in all sectors of the Argentine economy. It also led to a number of drastic devaluations of the Argentinian Peso (O'Donnell 1978). These devaluations, coupled with high inflation rates, contributed to the popular conception that the economy was falling apart.

External forces also become important at this point.

As the popular perception of the state of the economy worsened, fewer entrepreneurs were willing to make investments in long term endeavors. Thus, investment had to come from outside sources. Our FIP indicator shows that foreign investment dependence skyrocketed in 1954.

Foreign investments came with a price however. Most foreign investors demanded that more capital intensive techniques comparable to those used in the modern industrial world. For example, decorative metal works were now made on assembly line rather than by hand by a blacksmith. This trend was true in most industries, but it was particularly strong in those heavily funded by foreign sources because with a higher proportion of foreign investment, foreign actors have more influence in technological choices. In effect, the more capital intensive techniques froze the less highly skilled and educated workers out of the labor market. This worsened the income distribution in the country and may have contributed to the growing popular dissatisfaction with the economy.

As popular dissatisfaction with the state of the economy grew, the populist control of the political arena began to wane. This is reflected in the rights index (FREE) beginning in 1950. The military forced Peron to leave office in 1955, and we see a significant worsening of the rights index at this time. A series of political struggles involving populist, conservative, and military elements

occurs between 1955 and 1965, and this is also reflected in the rights index. Note that as the military plays a greater role in the political process, the rating for civil and political rights worsens. As the level of political conflict increased, effective rates of protection (ERP) became more variable, indicating that the tensions growing between the various political elements was affecting the commitment to and the emphasis of the country's ISI policy. Because the ERP is an average annual effective rate, changes in tariff rates in individual sectors affects the overall value. Havrylyshyn (1982) suggests that as the government sought to balance the competing interests, tariff rates might become more variable.

The political struggles between the populists and the conservative/military coalition came to a head in 1966 when the military overthrew the Illias presidency. O'Donnell's analysis of this event as the transition to Bureaucratic-Authoritarianism provides a useful framework for understanding how the political coalitions worked to shape the internal forces that affected development patterns. He explains that the populist supported Peronist government was overthrown by a military/technocratic coalition. On the agenda of this coalition was the stimulation of economic growth. The mechanism that they were going to use to achieve this growth was the development of export industries. Export industries would not only serve the interests of the



coalition directly by putting money into their pockets, it would also solve the balance of payments problem and help to stabilize the disruptive swings that the economy had experienced to that point.

The implementation of this shift towards export oriented industrialization is reflected in the sharp drop in the level of effective protection in the year following the coup. General Onganía used the power of the military to freeze out the populist groups that had a vested interest in maintaining the economic status quo. In attempting to promote export industries, it was important to limit the power of the labor unions. By shrinking wages, the new coalition could boost earnings and improve the terms of trade. The bulk of the actual growth in export oriented sectors came in the traditional agricultural and meat packaging areas, although chemical exports were a notable and important addition (UNCTAD 1978). The earnings from these exports were pointed to as evidence of economic stabilization and were reinvested in other export enterprises. The consumer goods industry suffered because they were once again subject to foreign competition, and their workers no longer benefitted from free and active labor unions -- although some consumer goods businesses were able to make some headway in export markets, and some, in fact, were shifted into export-oriented activities. It is interesting to note that although Argentina's resource-based comparative advantage was

arguably in primary agricultural and meat products, to meet with IMF aid requirements the new coalition spent time and resources trying to develop non-traditional export sectors. This was successful in the chemicals sector but was much less successful in the intermediate goods sector (Westphal 1982).

The emphasis that the new government placed on the development of intermediate goods was another clear break from the historical pattern, and it is another good example of how regime change and internal forces affect patterns of development. These intermediate goods were not, however, earmarked for the domestic market. Rather, they were intended as export products, and thus the benefits that they might have had in improving the efficiency of Argentina's consumer goods sector in large part was lost (Balassa 1983). Moreover, the techniques used in the new intermediate goods category were fairly capital intensive (although the same trend is not apparent in the agricultural and meat sectors), and thus the domestic benefits of this expanded sector accrued to a relatively small group of people. While foreign investment dependence is dropping at this time, intermediate goods investments still often came from foreign sources. By 1970, income distribution had declined, and the economy was beginning another "apparent" downturn. While the public perceived the economy as failing, this was not in fact the case. Although inflation was rising, actual GDP was actually rising at a fairly constant rate during this entire period.

(see Figure #\_) The popular perception of economy as failing was likely do to fluctuations in inflation and in patterns of employment, while in reality we can see that, at least as measured by GDP, the economy was adjusting quite well to these shocks.

As the perceived economic outlook worsened, the political arena began to adjust as well. The technocratic/military coalition had begun to liberalize, feeling succesful in their attempt to improve the economy. The leaders did not share the popular view that economic conditions were declining. Moreover, their liberalization was another attempt to coopt the opposition. Political and civil rights had dramatically improved, and the populists had regained some of their power. Indeed, by 1971, the pro-Peron presidential candidate Lanusse had been installed, promising to bring economic prosperity and, more importantly, stability, to the country. By 1973, Peron was again sent to the Presidential office by popular vote. Peron brought with him his old protectionist ideas, and rates of protection skyrocketed, reaching an all time high in 1975. Under Peron, the economy quickly worsened, and political crisis approached in much the way it had in 1966.

Peron died in 1975, and was briefly succeeded by his wife Isabel. Inheriting the problems to which her husband had contributed, her government was overthrown by a military coup in 1976. Export-oriented policies were again quickly

implemented, but this time more emphasis was placed on Argentina's traditional, natural resource based sectors. Green technology was implemented, and in contrast with the previous period, consumer goods were not entirely discounted. Additionally, the intermediate goods industries began to be modernized for the benefits that they could provide Argentina internally. The economy seemed to be on the upswing through 1980, but the benefits of this upswing did not flow to as many people as it could have because the increased capital intensity of many of the projects meant that fewer new jobs were being created.

Several factors, both internal and external, can be used to explain these events. After the coup, the old Conservative/Military coalition was again in power, and the drastic worsening of political and civil rights at this time indicates that the new government was paying very little attention to popular demands. Indeed, the torture, disappearances, and executions that took place during this time are well documented (Amnesty International 1981), and reflect the fact that the ruling elite would brook little opposition. The implementation of Green technology also directly benefitted an important element of those in power -- the old landowning aristocracy. Large landowners could now work the land using the most modern techniques, generating higher yields and higher profits. At the same time, costs went down over time because fewer workers were needed to work

in the fields. Although the policy of implementing Green technology hurt the workers, the type of regime in power was such that the government did not take account of their interests. In other words, with fewer political and civil rights, the workers were less able to place demands on the government.

At the same time we see an increase in the level of foreign investment dependence. We have seen that the ruling coalition did not neglect the intermediate goods industries after the '76 coup. There are two reasons for this. First, some of the intermediate goods owners had managed to work their way into the ruling coalition, and second, that ruling coalition knew that the intermediate goods sector was crucial to the continued health and growth of the Argentine economy. The fact that more capital intensive techniques were used in these industries reflects three facts. First, there was a perception among the ruling elite that implementing the most modern techniques would give Argentina the best chance to increase its growth. Second, the capital intensive techniques would benefit the plantowners and an elite circle of skilled workers rather than the large number of unskilled workers that had accumulated in Argentina's urban area. Finally, the growing involvement of foreign capital meant that there was greater pressure to implement capital intensive techniques, as foreign investors tend to prefer to put their money into projects that are similar to ones that

they have seen work in their own countries. Additionally, the IMF often supported the use of these technologies (particularly Green technologies), and this was another impetus for the development of capital intensive techniques.

#### Statistical Evaluation:

Given this history of the conditions in Argentina, we can turn now to the evaluation of the three theories as they relate to the Argentinian case. First we will consider the three theories using effective rates of protection as the dependent variable.

For the first theory, predicting that internal forces are more important, we regressed effective rates of protection against the freedom index of Freedom House. Regressing ERP against the freedom index (FREE) alone yielded an adjusted R-squared of 0.36. (Significant coefficient) Turning to external forces, we regressed foreign investment dependence (FIP) against ERP. This yielded an adjusted R-squared of -0.01, and neither the regression nor the coefficient was significant. When both factors were accounted for in a multiple regression with ERP being regressed against both FREE and FIP, the adjusted R-squared was 0.45. The FREE coefficient was significant with a P-value of virtually zero, while the P-value for FIP was now 2.6%.

Turning to capital intensity rating (CIR) as an indicator for the dependent variable, we tested the three

theories in the same way. Regressing CIR on FREE for theory one (internal forces), the adjusted R-squared was 0.07, with a P-value of 8.8%. Regressing CIR on FIP for theory two (external forces) yielded an adjusted R-squared of 0.23 with a P-value of 0.5%. Regressing CIR on both FREE and FIP yielded an adjusted R-squared of 0.24. The P-value for FREE was 23.1% while the P-value for FIP was 1.0%

Taken together, these results indicate at first glance that in Argentina, theory three works better for both indicators of the dependent variable. While the correlation between FREE and ERP is the highest, including FIP does increase explanatory power in the multiple regression. The correlation between FIP and CIR is second highest, but including FREE as an explanatory variable does slightly increase the R-squared value. On the other hand, with a P-value of 23%, this increase is probably the result of adding an additional variable. In sum, while internal forces as indicated by FREE have the most explanatory power for effective rates of protection, foreign investment dependence as indicated by FIP also help to explain patterns of development. External forces (FIP) have the most power to explain the capital intensity of development pattern (CIR), and including FREE does little to provide any additional amount of explanatory power.

These results clearly make sense in the Argentinian context. The conclusion that both internal and external

forces are needed to explain rates of protection reflects the historical events that we have seen in Argentina. The political rights index is by far the more powerful in explaining ERP because the changes in regime that caused the changes in FREE occurred because of power shifts within the country. When the Conservatives were in power, we see low rates of protection, reflecting the fact that an export-import economy best benefits them. However, when Radicals were in power, a broader range of interests were able to effectively place demands on the government. Protection of industry benefits this broader range of interests. At the same time we must account for a small effect that external forces seem to have on rates of protection. I would contend that in Argentina, the external forces essentially raised protection rates because foreign sources of capital saw protected industries as being safer investments. In other words, because the protected industries did not have to face foreign competition, they were more attractive investments in the short run. Moreover, since foreign investment was highest during the Peronist periods, we would expect that the people that were receiving these investments would push for higher rates of protection. The notable caveat is the increase in FIP just before 1980, and ERP did not increase because of the strong free-trade orientation of the government.

Turning to capital intensity, we have concluded that



external forces are the major determinant of the kind of techniques employed in industry. This makes sense because to a large degree the investor was able to control the kind of techniques used. When investment came mostly from Argentinian sources, we saw that more labor intensive techniques are used. This can be explained by two facts. First, labor intensive techniques were cheaper to implement, and they could have been physically implemented with little foreign assistance. Second, labor intensive techniques could have been thought of as being the appropriate technology for a labor and land abundant economy.

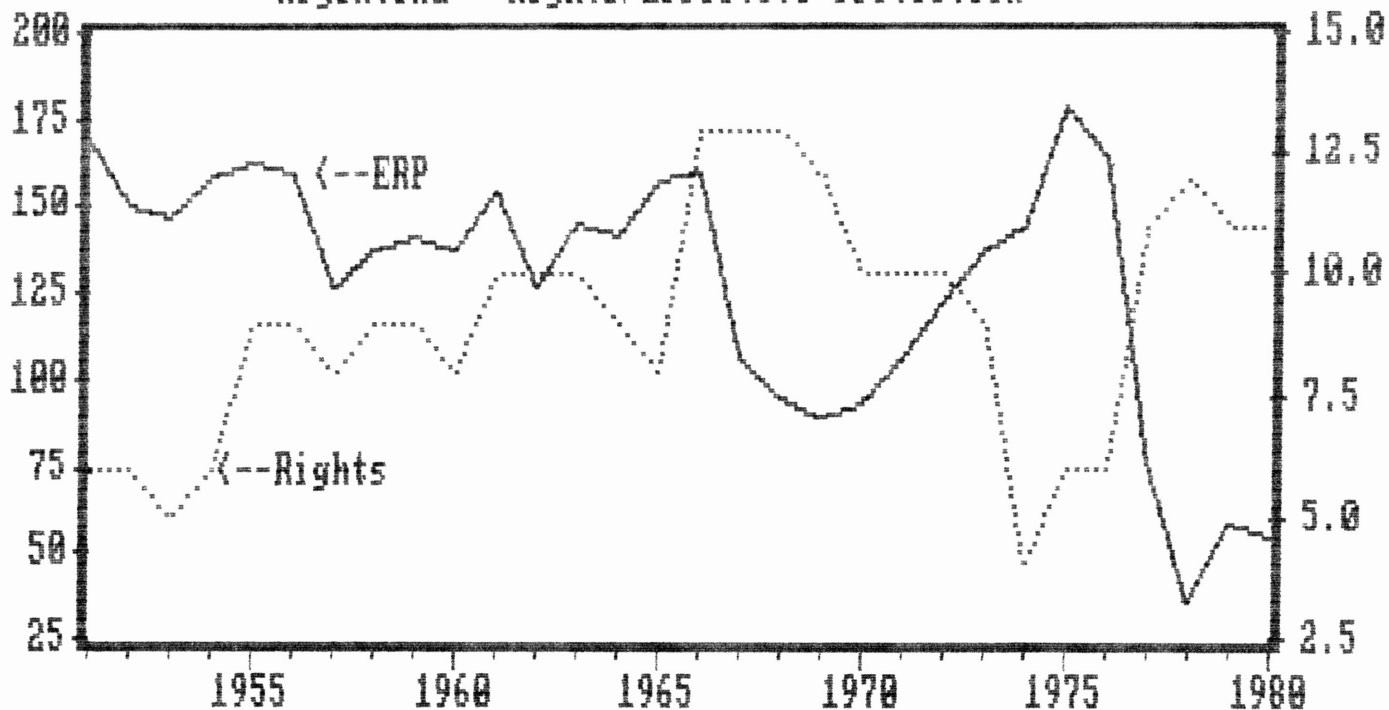
On the other hand, as foreign investment dependence increased, we saw an increase in the capital intensity of the techniques employed. One reason for this was the preference of foreign investors for endeavors that are similar to ones that had been profitable for them at home. These were in large part very capital intensive. Second, the IMF has often suggested countries implement more capital intensive techniques in the hope that they would be more profitable, allowing the country to more quickly pay off its IMF obligations. Finally, there was often a popular perception in developing countries that modern capital intensive techniques were the key to fast economic growth and respect in the world community. This was true in Argentina, particularly after the second Peronist period. Unfortunately, Argentina lacked the resources and knowledge

to implement these more capital intensive techniques herself, and had to get foreign help in order to use them. In other words, even if Argentina wanted to implement capital intensive techniques, the limiting factor was foreign willingness to provide them.

Conclusion:

In Argentina Theory 3 works best to explain effective rates of protection, and Theory 2 works best to explain relative capital-labor intensity. We have seen how internal and external factors can combine to shape patterns of economic development, and the conclusions that we have just drawn could not have been made without first taking a look at the Argentinian historical context.

### Argentina - Rights/Effective Protection



LS // Dependent Variable is AERP1  
 Date: 1-01-1980 / Time: 1:16  
 SMPL range: 1951 - 1980  
 Number of observations: 30

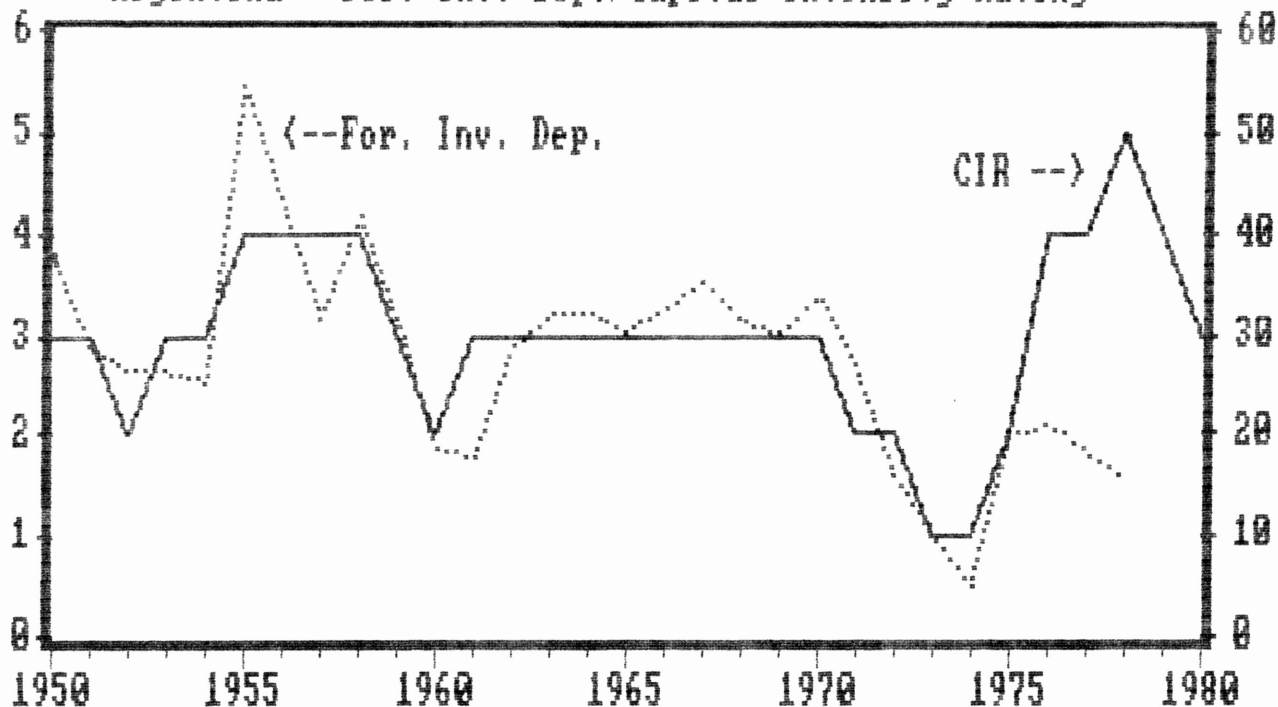
| VARIABLE  | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|-----------|-------------|------------|------------|-------------|
| C         | 214.31240   | 18.999712  | 11.279771  | 0.000       |
| AFREE(-1) | -9.7092583  | 2.0563776  | -4.7215347 | 0.000       |

R-squared 0.443261 Mean of dependent var 127.9000  
 Adjusted R-squared 0.423378 S.D. of dependent var 36.80363  
 S.E. of regression 27.94707 Sum of squared resid 21869.09  
 Durbin-Watson stat 0.588405 F-statistic 22.29289  
 Log likelihood -141.4426

#### Covariance Matrix

|                     |          |             |           |
|---------------------|----------|-------------|-----------|
| C,C                 | 360.9891 | C,AFREE(-1) | -37.63533 |
| AFREE(-1),AFREE(-1) | 4.228689 |             |           |

# Argentina - For. Inv. Dep./Capital Intensity Rating



LS // Dependent Variable is ACIR  
 Date: 1-01-1980 / Time: 3:23  
 SMPL range: 1950 - 1980  
 Number of observations: 29

| VARIABLE           | COEFFICIENT | STD. ERROR            | T-STAT.   | 2-TAIL SIG. |
|--------------------|-------------|-----------------------|-----------|-------------|
| C                  | 1.7368731   | 0.4306494             | 4.0331487 | 0.000       |
| AFIP               | 0.0445040   | 0.0146509             | 3.0376341 | 0.005       |
| R-squared          | 0.254704    | Mean of dependent var |           | 2.965517    |
| Adjusted R-squared | 0.227101    | S.D. of dependent var |           | 0.905647    |
| S.E. of regression | 0.796197    | Sum of squared resid  |           | 17.11611    |
| F-statistic        | 9.227221    | Log likelihood        |           | -33.50372   |
| Covariance Matrix  |             |                       |           |             |
| C,C                | 0.185459    | C,AFIP                | -0.005926 |             |
| AFIP,AFIP          | 0.000215    |                       |           |             |

### Chapter Three: Brazil

Having undergone profound socioeconomic changes since the Great Depression of the 1930s and especially since WWII, Brazil is a perfect country in which to apply this research approach. After looking at the historical background that is important in understanding the Brazilian case, we will be able to put the statistical evaluation of the three theories into a proper perspective. We will find that in Brazil, Theory 3 works better than either Theory 1 or Theory 2 to explain pattern of development as indicated by effective rates of protection. For explaining pattern of development as indicated by relative capital-labor intensity, we will find that Theory 2 works better than either Theory 3 or Theory 1.

#### Historical Background:

The indicators that we are using for pattern of development have varied a great deal during Brazil's history. In order to understand the effects of the internal forces, as indicated by the Freedom House index, and the external forces, as indicated by foreign investment dependence, we need to examine the historical context in which these variations took place. This context includes both changes in the economic and political structure of the country as well as the effect of foreign actors. Because the political actors with the most clout have derived their power

from their historical involvement in profitable economic activity, we will first consider the early economic history of the country and its relation to the establishment of political elites.

Brazil was not considered by Portugal to be a particularly rich prize, especially during its early colonial period. The Portuguese did not capture the same immediate economic benefit from their colony that the Spanish did from some of their colonies such as Peru and Mexico. The Brazilian territory was only sparsely inhabited by nomadic indians who could not be readily trained and disciplined for plantation work (Baer 1983). Simply put, Brazil did not have a large population that could be put to use by Portuguese conquerors. This dearth of manpower, coupled with the lack of obvious economic benefits, led to a "decentralized political-economic organization of the colony (Baer 1983, p.14)." Only the main outlines of policy were set forth in Europe while the implementation and interpretation were left to governors and municipal councils (Glade 1969). These political institutions were dominated by the owners of large rural estates and those businessmen who were involved in the production of Brazil's first great export product -- sugar.

The cultivation of sugar was introduced around 1520, and this enterprise rapidly spread until it had developed into the first of a series of primary export cycles that were to dominate Brazil's economy and growth until well into the

twentieth century (Freyre 1946). Most of the sugar was grown on large estates, and increases in productivity were based on employing a greater number of slaves on a given area of land rather than on any substantive change in production techniques. The sugar export sector was profitable for a number of social groups: the estate owners, those engaged in marketing, financing, shipping, and slave trading. While the profits of the sugar export sector benefitted all of these social groups, this represented only a small fraction of the people living in the country. The distribution of this income was extremely unequal, and the legacy of this pattern of concentration of income and ownership can be seen in Brazil even today. In addition to the persons engaged in the export of sugar, a small group of traders grew wealthy importing various commodities. At this point, the colony was almost totally dependent on foreign manufactures and even on some imported foodstuffs (Baer 1983).

During the early part of the seventeenth century, Brazil was the leading exporter of sugar in the international economy, but this began to fade by the end of seventeenth century. The decline of the Brazilian sugar export industry was brought about by the increasing quantity of sugar supplies in British, Dutch, and French colonies which had preferential access to the markets of their respective mother countries, but this decline did not lead to the disappearance of the sugar plantations. At most, some of the plantations

switched to the production of other commodities such as tobacco and cacao. The impact of the sugar export cycle was to leave human resources undeveloped and the distribution of resources and income highly concentrated. This impact reflects several facts about the sugar sector. Being based on a concentrated pattern of land ownership, the direct profits of the sugar exports did not trickle down to the workers who actually picked the sugarcane. Also, since there was no reason for a plantation worker to need an education, large groups of the labor pool remained uneducated.

As the sugar export industry was declining, a new export commodity stepped in to help fuel Brazilian economic growth. The discovery of gold in the center-south area of the colony quickly led to the development of another export-import cycle. Gold production increased steadily during the 1700s, and it has been claimed that Brazil was responsible for half of the world's gold output in the eighteenth century (Glade 1969). Along with the new export sector came demographic, social, and economic transformation. Workers came from all over Brazil to take advantage of the new finds, and many new towns emerged to support the extraction activities. These contained more complex occupational structures than had been present under the old sugar arrangements. For example, an artisan sector emerged and private banking groups appeared. Additionally, the new trade resulted in Rio de Janeiro's emergence as a



major port. This city quickly became the chief port through which exports flowed and manufactured imports came. Soon, all of Brazil's major mercantile houses, financial institutions, and other service activities were located there.

With the substantial increase in the value of the Brazilian colony, the Portuguese government dramatically tightened its administrative controls. The mining districts became closely supervised, and the shipping industry became highly regulated. This represents the first major involvement of government in the economy. Moreover, this government involvement helped give the small elite that held power in Brazil -- an elite whose roots grew out of its unique position in the Brazilian economy -- even more influence. The government needed people who knew the workings of the sectors that it was going to control, and it seems only natural that it would turn to the owners and businessmen who had that knowledge to help them implement their policies. The owners were willing to take part because this way they maintained at least a degree of control over their businesses.

The gold cycle came to an end in the latter part of the eighteenth century as most of the mines began to run out of reserves. This was a particularly difficult time for Brazil because the old institutional structures were without a commodity with which to operate (Baer 1983), and it was

also at this time that Brazil was to gain its independence.

Independence for Brazil began when Napoleon occupied Portugal in 1807. Under British protection the Portuguese royal family set sail for Brazil, and in 1808, it established Rio de Janeiro as the capital of the Portuguese empire. With this shift from colonial status to central power status, Brazil began a new set of socio-economic changes. While Brazil was too isolated from Europe to actually wield the influence of a central power, the Portuguese monarchy was determined to give Brazil at least the trappings of global importance. The crown established a new government sector, and implemented a major push for the development of the Brazilian infrastructure, a part of development that had until this point been neglected. The crown also founded a number of higher education institutions and tried stimulate a variety of industrial activities (Prado 1967). As the crown tried to transform the Brazilian state into a worthy seat for the monarchy, the government became more and more involved in the economy and in the control of the direction of development. Further, the class of elites that helped to control the country became even more firmly entrenched.

The king returned to Portugal in 1821, leaving his son as regent. It quickly became obvious that the crown was going to return Brazil to its previous subordinate status, and the increasing discontent throughout the colony drove the regent to declare its independence in 1822. As a newly

independent nation, Brazil would fit into the world arena quite well. Like many other nations of the periphery, Brazil's economy was based on exporting primary goods to Great Britain while at the same time importing British manufactured goods. A new export commodity also arose at this time. Originally grown as a specialty item, coffee exploded in importance in the nineteenth century with exports of this product expanding almost twenty-fold between 1820 and 1890.

The production of this new commodity fit well into traditional framework of concentrated ownership and profit distribution. The old plantation structure quickly adapted to the growth of coffee when it became evident how profitable coffee exports could be. In fact, many of the same families that had owned sugar plantations were now in control of the new coffee plantations. Additionally, some of the families that had become wealthy exporting gold were able to buy into the export sector, but no new groups joined the elites that had established themselves to this point. Although new land was utilized for the cultivation of the coffee crop, only those people who had the economic and political clout necessary to establish and defend titles, i.e. the old elites, were able to take advantage of the expansion. The major differences between the sugar and coffee plantation owners was the increased commercial awareness of the coffee exporters and their willingness to embrace the government as

legitimate apparatus for furthering their economic goals (Baer 1983). For example, the coffee growers were quite willing to accept small taxes on their exports in order to have the help of the state in opening new export markets and in maintaining control of their labor.

At this time, we also see the beginnings of the influence of internal and external forces as we are considering them in this study. The political elites who controlled the government were almost entirely responsible for the decisions that affected patterns of development. For example, they set up laws that protected a monopoly on shipping that had grown up during the years that the Portuguese crown had been located in Brazil. In addition, we also begin to see the involvement of external forces as well. The emergence of railroads to carry coffee from the plantations to the shipyards helped coffee growers become more profitable, but the actual building of these railroads was accomplished with British capital and engineers.

Another important event was the abolition of slavery in 1888. Many of the plantation owners were able to take advantage of immigrant labor, and they actively promoted European immigration before 1888. With the abolition of slavery, labor relations began to alter. Although the average laborer was still very poor, the class would later develop into a very important segment of the Brazilian society, and although that process would take many years, the

beginnings of it occur here. Moreover, the profitability of coffee-growing depended on the availability of immigrant labor, so that even though the distribution of income remained concentrated, the importance of the laborers cannot be discounted.

The extremely profitable coffee-exporting economy was to lead Brazil into the twentieth century and also into its first real taste of industrialization. Industrial growth became significant in the 1880s. This was first apparent in the textile industries after a tariff was imposed on British textile imports. The Brazilian textile industry grew quite rapidly, but it is important to note that at this time the tariff was implemented as a revenue raising device and not as a way to promote the domestic textiles industry. Nevertheless, cotton textile output increased more than tenfold between 1885 and 1905 and an almost doubling of output in the ten years after that (Stein 1957). By the 1920s, Brazilian textile manufacturers produced enough textiles to cover almost 90% of domestic demand.

Much of the industrialization of this time followed the pattern of the textiles industry. Other light industries that were developing include the clothing, shoe, and food industries. As we have noted, the main driving force behind this early stage of industrialization was the "coffee boom based on free immigrant labor (Baer et al 1973)." Substantial improvements to the infrastructure that had been financed by

planters and foreign capital "provided the setting for greater local industrial output and gradually created a demand for locally produced spare parts (Baer 1983, p.38)." Moreover, the large immigrant population provided a large market for cheap consumer goods. Interestingly, many of these industries were controlled by importers. Having decided that they could make a bigger profit by manufacturing the commodities domestically rather than importing them from foreign sources, these entrepreneurs shifted their knowledge of these commodities into production oriented activities (Dean 1969). This occurred in industries whose products had such a high weight-to-cost ratio that even utilizing low technology domestic production techniques more than covered the cost of shipping from Europe.

Other industries did not really begin to develop until the 1920s. Still driven by the coffee sector, we see at this time a rapid rate of expansion in metal products. This is reflected in the emergence of new small steel plants and capital goods enterprises. These were developed as a way to support the growing demands for infrastructural development. Domestic cement production also began at about this time. Financed by coffee profits, these sectors expanded until the Great Depression.

We should also briefly consider at least one aspect of political development to this point. Brazil was established as a republic in 1889, one year after the

abolition of slavery. Partly in an attempt to encourage immigration, a constitution was drawn up that provided for political rights and a democratic system of government. Although in reality the elites still maintained control of the economy through their superior economic and political positions, legal avenues were opened through which other groups could enter the political arena as their strength and relative socioeconomic position improved. The adoption of the constitution set the stage for many of the political developments and events that would occur up until modern times by setting up the framework within which political competition and conflict would occur. Essentially, this conflict occurred as new groups gained economic power and demanded a concurrent increase in their political power and as the old elites resisted these demands. A good example of this trend is the development of labor organizations during this period. The constitution made it possible for labor to organize, and as economic growth led them to move up the social ladder, they began to ask for more political rights. The old elites resisted this because the new groups threatened their traditional monopoly on political power. By the 1920's new industries had sprung up, and the owners of these new industries also began to insert themselves into the political arena. Indeed, as the new industries developed in the 1920s, the owners of these industries began to look for greater economic power, and this pattern explodes after the impact of the Great Depression.

The impact of the Great Depression on Brazil was similar to its impact on most other Latin American countries. The value of Brazilian primary product exports plummeted, and, at the same time, the supply of manufactured consumer goods from foreign sources declined dramatically. Between 1929 and 1931 the value of Brazilian coffee exports fell from US\$445.9 million to US\$180.6 million, and the Brazilian terms of trade had dropped by 50 percent. The government implemented programs to support the coffee industry including production quotas and government purchases of surplus product.

The decline of imports of manufactured consumer goods combined with the continued demand for these products and the increase in incomes as a result of the coffee support programs acted as a catalyst for a dramatic surge in industrial production. This was accomplished in a variety of manufactured goods industries, and industrial capacity nearly doubled in the eight years between 1928 and 1936. These new industries created opportunities for employment and helped to increase the standing of industrial labor as a social class and as a political actor. The Depression had thus fundamentally altered the structure of the economy upon which the traditional political elites were based. The political elites, based on the old patterns of income and power concentration, began to see an erosion of this concentration. Moreover, under the constitutional



arrangement of the republic, the old elites could not legally lock the new class out of the political arena. On the other hand, they believed in their own ability to implement election laws and structure political parties to the extent that they did not feel particularly threatened by the rise of the new groups. Those new groups are known as the populists (O'Donnell 1978).

Industrialization slowed during WWII, and although demand for Brazil's primary exports rebounded slightly, export earnings did not approach their pre-war and pre-Depression level. Dissatisfaction with Brazil's economic performance began to grow domestically, and by 1945, the presidential election was dominated by discussion of what should be done about the economy. By this time, the old elites had lost enough power and the new Populist classes had gained enough power that a candidate promising to help the industrial sector was elected. Enrico Dutra implemented policies to protect Brazil's growing industrial sectors. Effective rates of protection skyrocketed, and other policies such as import quotas were implemented. Getulio Vargas was elected president in 1951 promising to do an even more effective job of aiding the Brazilian economy. By the election of 1951, Brazil had completely embraced the dogma of import-substituting industrialization (ISI).

Brazil's ISI policies were, at first glance, very effective. Industrialization was occurring at a feverish

pitch, and because Brazil had a more highly than average developed intermediate and capital goods sector, the typical problems that ISI causes did not become immediately apparent. Although the intermediate and capital goods sectors were not ignored, the fact that they were implemented in a highly protected environment meant that they did not have to maximize efficiency in order to survive. Inefficient management techniques, inappropriate technological decisions, and a host of other problems that go along with protected industries plagued both the Brazilian intermediate and consumer goods industries. As a result we began to see development "bottlenecks" that were so often associated with ISI. With so many new people looking to buy consumer goods, and with the inability of the intermediate and finished consumer goods industries to meet this demand, an economic slowdown foreshadowed the economic crisis that would help contribute to the military coup in 1964.

As a result of the growing dissatisfaction with the economy, Vargas was forced to resign and was succeeded by Oliviera. He remained in power until Quadros was elected president in 1961. He also was quickly forced to resign and Joao Goulart took over for him from the position of vice-president. This series of elections and forced resignations can be seen as representing the conflict between the old elite political sectors and the newly mobilized Populist sectors. The changes of political power and the

character of the various regimes led to the gradual decline of effective rates of protection.

As the economic situation worsened, political instability continued to increase, more and more demands were placed on the government by the people who were dissatisfied with the state of the economy. The specific problems to which they pointed were inflation and severe balance of payments problems. These problems came to a head in the early 1960s with both political and economic pressures reaching a climax in 1964 when President Goulart, having declared the constitution irrelevant to the problems of the day and having also alienated the military, was overthrown in a military coup. The worsening political situation is reflected in Brazil's FREE index, with a dramatic decline in political and civil rights apparent starting in 1962.

As the new military government, led by General Castelo Branco, took power, it abandoned Brazil's import-substituting policies. The new government was essentially made up of what O'Donnell calls a military-technocratic coalition. The technocrats represented the interests of the old elite, and wanted to return to a process of industrialization that was based on a strong export-import economy. Additionally, they wanted to go beyond the export of primary products and enter the realm of manufactured exports. In their view, not only would a reduction in tariff rates help the overall economy, it would

allow the implementation of export-oriented policies that would serve their interests. Consequently, as the coup took place, there was an immediate and sharp reduction in the effective rates of protection (ERP) that Brazil imposed.

The new government's plan for economic improvement was not limited to reductions in rates of protection, however. The new government came in to power determined to eliminate both political and economic instability, and the technocrats had specific plans for achieving these ends. In addition to the reductions in tariffs, the new government thought that it was important to reduce inflation, eliminate price distortion, modernize capital markets to facilitate investment, create government sponsored incentives to direct investment into sectors deemed most important, attract foreign capital, and use government spending to stimulate important sectors (Stepan 1973). Essentially, this begins an era of government attempts to micro-manage the economy.

These events can be seen as a partnership between the actual members of the government, the technocrats, and the industrialists who owned Brazil's means of production. For the first four to five years after the coup, the industrialists were quite content to let the technocrats run the economy. During this period, the government implemented policies that were in line with the wishes of the industrialists, or, as it might be more accurate to say, the wishes of the industrialists coincided for a time with the

technocratic perspective. The technocrats used various incentive structures to direct investment into the sectors controlled by the industrial class. For example, tax incentives were used to direct private funds into the northeast region of the country. These incentives were overseen by the development agency called SUDENE (Baer 1983), and were later extended into the Amazon basin. Also, government investment expenditures remained an important element of industrial capital sources, with virtually all of these funds going to sources that would benefit the industrial class. For example, infrastructural endeavors, steel production, mining and petrochemicals were all dominated by government investment and sponsorship (Syvrud 1974).

The industrialists became uneasy when the government began to focus more and more on one specific element of their economic scheme, the attraction of foreign capital. The industrialists remembered the experience of the 1950s when foreign multinational corporations first became important in Brazil. Although the industrialists had benefitted from the influx of capital, they had also suffered a diminution of their autonomy vis a vis the foreigners who controlled the multinationals. Fearing that they would lose power and autonomy again, the industrialists began to call for liberalization of the political arena (Cardoso 1986). Their belief was that, under a more liberal regime, they would be

more likely to be able to place effective demands on the government. The fact that this might give other competing social groups, such as labor, a stronger voice in government did not seem to concern them.

These trends occurred against the backdrop of the actual economic performance of post-coup Brazil. Although the new government's policies for economic stabilization and growth were implemented immediately, economic stagnation lasted until 1968. This lag can be attributed to the fact that many of the policies of the technocrats took several years to be fully implemented. However, in 1968 Brazil began remarkable period of growth that would last until 1975. "Annual growth rate of the GDP, which averaged only 3.7% in the period 1962-67, surged to yearly rates averaging 11.3% in the years 1968-74 (Baer 1983, p.98). The industrial sectors led this growth, with the highest gains occurring in consumer durables and chemicals. Traditional sectors such as textiles, clothing and food products grew at much lower rates. These patterns of growth reflect the technocratic policies of the government.

It is interesting to note that these growth rates were achieved without a great deal of dependence on foreign investment. This is in stark contrast to the growth of the 1950s. The difference is that growth in the late 1960s and early 1970s was achieved at much higher levels of capital utilization (Baer 1983). In other words, industries were

operating at much closer to maximum capacity than they had been during the import-substituting period. Because they were not carrying out business under heavily protected conditions, they were forced to become more productive in order to be competitive.

By 1975, growth was again beginning to slow down, and it was at this point that the Brazilian government began to actively recruit foreign capital. As we have seen, this drove a wedge between the technocrats and the industrialists, who now began to call for liberalization. This call for liberalization from the industrialists was, of course, welcomed by the public. The public had actually seen a gradual increase in their political and civil rights. Furthermore, as the economy improved, the public, and in particular labor, began to share in the economic rewards generated by the growth. Labor began to place more demands on the government to implement policies to help them, but at this point the government began to tighten its grip on labor. For example, in 1976, the minister for industry and commerce was removed from office. Severo Gomes had supported the return to a protectionist strategy for Brazilian industry, and thus became a voice for the interests of labor. (In a protected industry, wages are not held down by competitive forces. With the reimplementations of protectionist devices, wages could have risen, and labor would have benefitted.)

The economic slowdown that had begun in 1975 continued and grew worse in the last half of the 1970s. The cause of this slowdown was the inability of the regime's economic managers to cope with the oil price shocks of 1973-74. Brazil had to borrow large amounts of foreign currency to buy oil to supply the needs of its growing economy. The debt burden that Brazil thus took on disrupted not only the government's plans for continued economic stability by destroying its investment incentive structures, it also led to inflation and foreign exchange problems. The Figueiredo administration, which took office in 1979, faced the difficult task of coping with inflation, increasing debt service payments, and stagnating economic growth. Furthermore, as inflation and the debt service burden increased, Brazilian development payments, and stagnating economic growth.

#### Statistical Analysis:

Given this history of Brazil, we can now turn to the empirical testing of the effects of internal and external forces on development pattern. We will look at the regression results for all three theories using both effective rates of protection and capital intensity rating as indicators for the dependent variable. First, we consider effective rates of protection (ERP) as the dependent variable indicator. Regressing ERP on FREE for Theory 1 gives us an adjusted R-squared of 0.35 with a P-value of 0%. For Theory 2



regressing ERP against FIP, we find an adjusted R-squared of 0.49 and a P-value of 0%. Multiplically regressing ERP on both FREE and FIP for Theory 3 yields an adjusted R-squared of 0.56, with the P-value for FREE being 2.9% and the P-value for FIP being 0.1%.

The results using capital intensity (CIR) as the indicator for the dependent variable are as follows. For Theory 1 regressing FREE on CIR yields an adjusted R-squared of 0.1 with a P-value of 4.2%. Regressing FIP on CIR for Theory 2 yields an adjusted R-squared of 0.46 and a P-value of 0%. The multiple regression of CIR on both FREE and FIP for Theory 3 yields an adjusted R-squared of 0.44 with the P-value for FREE being 88.1% and the P-value for FIP being 0.0%.

In Brazil, Theory 3 works best in explaining effective rates of protection, with the freedom index being the most important and powerful explanatory variable. Theory 2 works best in explaining capital intensity. This is true in Brazil because FREE has virtually no explanatory power in terms of CIR. Although the Theory 1 regression yields an adjusted R-squared of 0.1, this is very weak and is probably attributable to the bias introduced by leaving out FIP as an explanatory variable. This view is reinforced by the fact that the P-value for FREE in the multiple regression is 88.1%.

These results clearly make sense in the Brazilian context. The conclusion that both internal and external forces are needed to explain effective rates of protection reflects the historical events that we have seen in Brazil. The statistical analysis of Theory 3 as it relates to effective rates of protection indicates that the freedom index and foreign investment dependence are of about equal importance. We can explain this by looking at the Brazilian historical context. FREE is important in explaining ERP because FREE reflects the ability of a wide number of groups to place effective demands on the government. When political and civil rights are expanded, the regime takes the interests of a broader range of groups into account when it is forming policy. For example, during the 1950s, the FREE index showed a high degree of civil and political rights available in Brazil. This meant that the Populists were able to push through the protectionist policies that would benefit them the most. The old elites were not able to or inclined to resist this shift. However, after the coup takes place, we see tariff barriers fall to serve the interests of the new military-technocratic coalition.

At the same time, FIP is also an important explanatory variable in terms of ERP. This can be explained by looking at the impact of foreign investment in the 1950s. Foreign investment dependence was high meaning that many new projects were implemented with foreign capital. The influx

of capital benefitted the owners of the industries, and the new opportunities for work benefitted labor. There is a positive correlation between FIP and ERP for two reasons. First, the foreign investors were looking for protected industries in which to place their funds. They believed that these investments were of lower risk because they took place in a less competitive environment. Second, the fact that foreign investment helped labor at a time when they had significant rights meant that they could call for protection. Labor's rationale was that, in a protected industry, their wages could grow faster because management would not have to be as concerned with keeping labor costs down to be competitive.

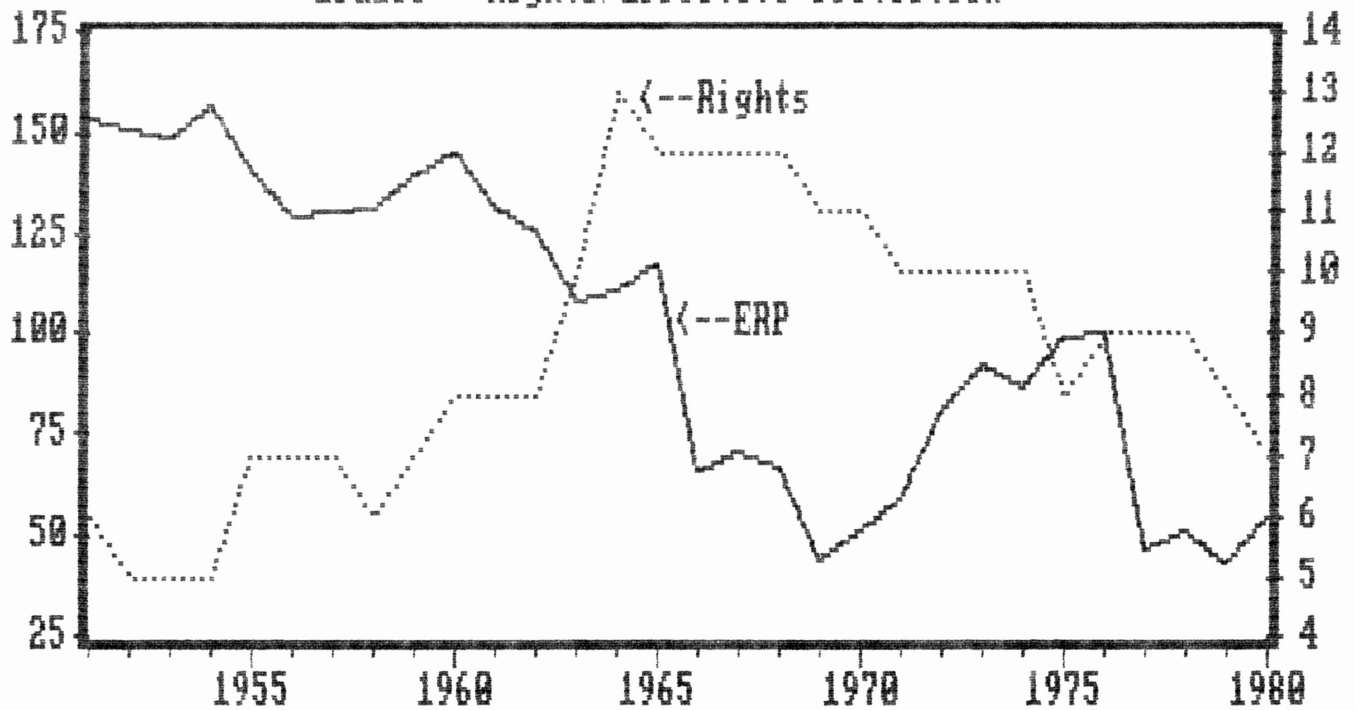
Turning to capital intensity, we have concluded that Theory 2 is the best predictor of CIR. Capital intensity is highest in the 1950s when multinationals were rapidly increasing their influence. Foreign investors preferred to invest in projects with which they were familiar, and those projects were more capital intensive. We saw lower capital intensity when more investment came from domestic sources because these techniques were cheaper to implement, needed less foreign assistance, and were more "appropriate" to a labor abundant economy.

Conclusion:

In Brazil Theory 3 works best in explaining effective

rates of protection (ERP), while Theory 2 works best in explaining relative capital-labor intensity. These statistical results are supported by the Brazilian historical context even though Theory 3 is not the best in both cases.

## Brazil - Rights/Effective Protection



LS // Dependent Variable is BERP1  
 Date: 1-01-1980 / Time: 1:29  
 SMPL range: 1951 - 1980  
 Number of observations: 30

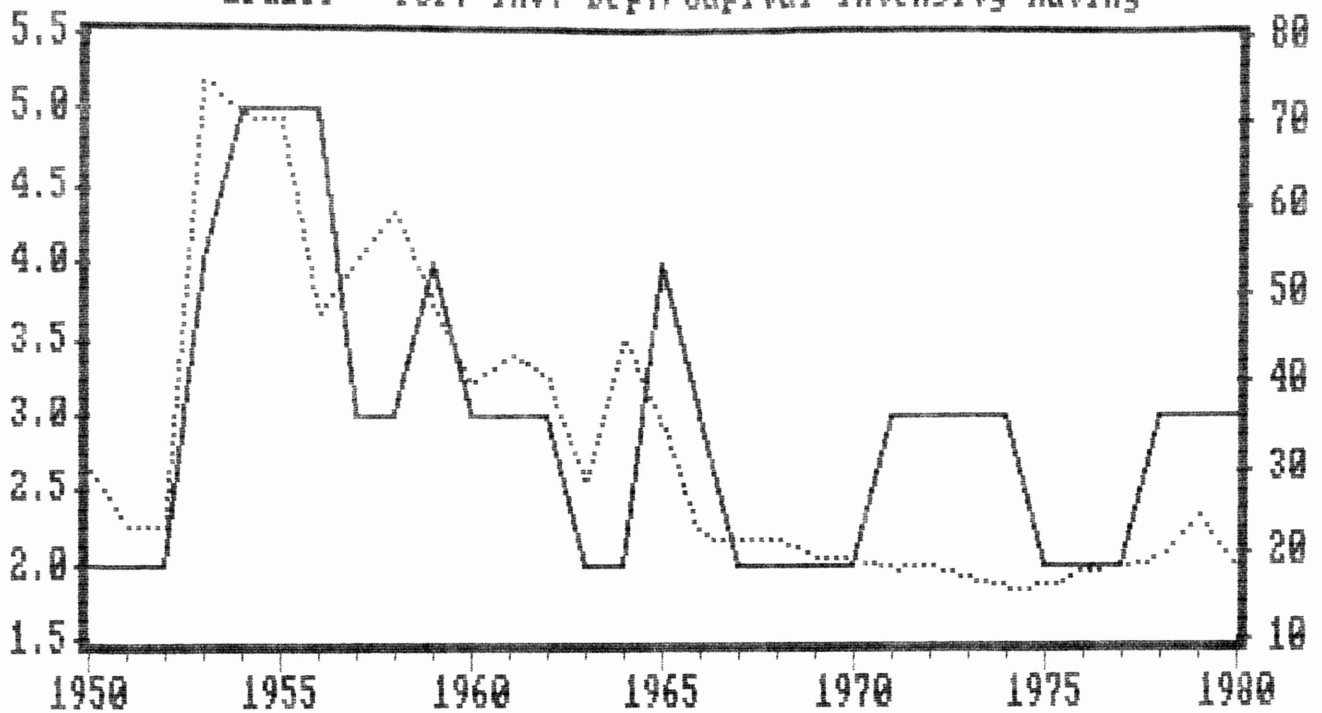
| VARIABLE  | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|-----------|-------------|------------|------------|-------------|
| C         | 205.42999   | 19.071238  | 10.771717  | 0.000       |
| BFREE(-1) | -11.976627  | 2.1194626  | -5.6507846 | 0.000       |

R-squared 0.532799 Mean of dependent var 101.2333  
 Adjusted R-squared 0.516113 S.D. of dependent var 38.33490  
 S.E. of regression 26.66651 Sum of squared resid 19910.88  
 Durbin-Watson stat 0.568033 F-statistic 31.93137  
 Log likelihood -140.0355

### Covariance Matrix

|                     |          |             |           |
|---------------------|----------|-------------|-----------|
| C,C                 | 363.7121 | C,BFREE(-1) | -39.08146 |
| BFREE(-1),BFREE(-1) | 4.492122 |             |           |

### Brazil - For. Inv. Dep./Capital Intensity Rating



LS // Dependent Variable is BCIR  
 Date: 1-01-1980 / Time: 3:31  
 SMPL range: 1950 - 1980  
 Number of observations: 31

```

=====
      VARIABLE      COEFFICIENT      STD. ERROR      T-STAT.      2-TAIL SIG.
=====
          C          1.7014814          0.2655647          6.4070327          0.000
        BFIP          0.0363135          0.0070827          5.1270396          0.000
=====
R-squared              0.475460      Mean of dependent var      2.903226
Adjusted R-squared    0.457372      S.D. of dependent var      0.943569
S.E. of regression    0.695064      Sum of squared resid      14.01029
Durbin-Watson stat    1.439176      F-statistic                26.28654
Log likelihood         -31.67707
=====
                          Covariance Matrix
=====
C,C              0.070525      C,BFIP              -0.001660
BFIP,BFIP        5.020-05
=====
    
```

## Chapter Four: Chile

Chile, the third of our Latin American countries, had been dominated by class conflict and an uncertainty about the best patterns of development to implement. Foreign influence has always been present in Chile, particularly in the foreign ownership of many of Chile's mines and extractive industries, but we will see that this also varies significantly over time. We will find that in Chile, Theory 3 works better than either Theory 2 or Theory 1 to explain patterns of development as indicated by both effective rates of protection and relative capital-labor intensity.

### Historical Background:

The historical context in Chile is, as in our first two countries, crucial to the understanding of our empirical evaluation. In order to gain this historical perspective, it is necessary to look first at the events that surrounded Chilean political and economic development as far back as the Spanish colonial period, and then trace those developments through the present.

Chile was a very valuable colonial asset to the Spanish crown with a great deal of economic wealth in land, commerce, and mining (Kinsbruner 1973). The gold, silver, and copper mines and the landed estates were dedicated to production for both internal and external markets. Thus, the

foundation for an import-export based economy was laid down early in Chilean colonial history. Of course, during the colonial period, the mercantilist desires of the Spanish crown superseded the economic wishes of the Chilean residents, and distortions were introduced under colonial law which delayed the natural progression of Chile's import-export orientation. For example, the Spanish House of Trade oversaw a highly restrictive system of legal constraints that were designed to insure that the production of colonial goods did not interfere or compete with Spanish production, to guarantee the flow of raw materials to the Spanish mainland, and to provide a market to absorb surplus Spanish production.

The local colonial government that was installed by the Spanish was designed to be able to effectively achieve these goals, and by the end of the colonial period, Chile was governed by an elaborate political system. At the bottom of the "vertical" structure was the town council, or cabildo. These cabildos were able to communicate directly with the Crown to redress grievances with higher authorities, but in practice, the distance of the colony from Spain made this process virtually impossible. Next on the ladder was the provincial governor, or corregidor. At the head of the colonial government stood the governor and captain general. This figure came to be known as president by eighteenth century, and in addition to his administrative duties, he



also served on a Supreme Court. This meant that, although a high court existed to adjudicate conflict, from the very beginning this institution was used as a political tool of the elite. Indeed, during this period the court also had certain "administrative and consultative duties" which made many of its decisions explicitly political (Gil 1966).

Near the end of the colonial period, two important changes took place in the structure of Chilean government. First, the corregidores were replaced by "more powerful and influential intendants (Kinsbruner 1973)." These new figures came from the most dominant economic groups in each of the provinces, and represented the most powerful families in the colonial structure. Second, two guild-like organizations were established in Santiago to represent powerful economic interests. A merchant tribunal and a mining tribunal not only commanded power and legal jurisdiction over their own members, but were also able to affect implementation of national policy. These developments are important because the new groups carried over into the post-colonial period and dominated the political arena that was to develop. Moreover, the history of government involvement in the economy sets the stage for future post-colonial activities.

The first steps toward Chilean independence were taken as a consequence of Napoleon's seizure of the Spanish throne in 1808. This seizure precipitated a Spanish war for independence, and in the absence of the King, a number of

juntas came into existence to carry out the war effort. A supreme junta, or suprema, was quickly formed, and it was generally successful in obtaining the support of the colonies for the war effort. In return for their support, the new suprema did not oppose the creation of local colonial juntas to govern the colonies in the absence of the Spanish monarch. Chile established such a ruling junta in 1810, with Mateo Toro being elected president. Toro had been a successful merchant and was one of Chile's most important landowners. After enjoying the luxury of self-rule, the new junta was unwilling to surrender power to the Crown after Ferdinand regained the Spanish throne. The junta declared Chile independent shortly after the Spanish monarchy was reestablished.

A series of conflicts, both with Spain and Peru, prevented the establishment of a new Chilean constitution until 1833, although several were promulgated during this period. These conflicts, combined with the internal economic and political legacy of the colonial era, shaped the new constitutional structure. Several of these factors are key to the understanding of the new constitutional order. First, the merchant class had been pushing for free trade since before their declaration of independence. Spanish colonial policy had flooded many of the markets dominated by the merchant class by circumventing their distribution networks. This angered the merchants who began to favor independence

and demand a strong voice in any future government so that they could avoid any of the problems that had been caused by the intervention of the Spanish government. Second, the owners of Chile's extractive enterprises also demanded to be included in any new government, hoping to avoid the restrictions placed on their activities by the colonial government. The merchant and mine tribunals were the institutions that were used to implement these demands, and the final constitution reflects their input.

Indeed, the new constitution, although "liberal in the nineteenth century sense of the term (Kinsbruner 1973, 69)," established the control of the landed aristocracy and the industrialists over the new political system. Those who were able to affect the development of the new constitution wanted to insure that they were never again going to come under the control of other groups. At the same time, they were more than willing to use the institutions that had developed under Spanish colonial rule to further their own ends. The new constitution was designed in part to prevent the rise of popular democracy, and to that end the local assemblies were abolished. The net effect of these developments was to establish a national "democratic" structure that was dominated by a small group of wealthy landowners and businessmen. The new government favored free international trade but was not above intervening in the economy to further the interests of those people who were in

control.

Unlike many Latin American countries, Chile was fortunate in that post-independence feuds that were common to the region were quickly settled. Consequently, Chile was able to experience a period of exceptional stability under the rule of Diego Portales. This stability opened the way for what has been described as "the greatest economic boom in Chilean history (Stallings 1978)." Wheat produced in Chile's central valley was shipped to Australia and California, and, much more importantly, copper was sent to markets in the United States and Europe. The economy thrived, exporting primary extractive and agricultural goods and importing finished goods. The role of the state at this point was limited to major infrastructural projects and a brief flirtation with tariff-protection for industries that was quickly abandoned in favor of the export-import based economy.

Not having to concern itself with the management of the economy, the state was free to turn to other interests. In 1879, Chile went to war with Bolivia and Peru and emerged victorious. The importance of this event cannot be overstated since the victory gave Chile control of the nitrate fields in what are now the provinces of Antofagasta and Tarapaca. The huge revenues generated by the newly won mineral resources had an important impact on the economic, social, and political development of the country. Nitrate

exports soon surpassed exports of both agricultural and industrial goods and would dominate the Chilean economy until the 1930s when a synthetic substitute for nitrate was found.

Because of the export orientation of the economy, Chile was deeply involved in the world capitalist system. As a result, price changes on the international market had a strong effect on Chile, and as the nitrate sector was particularly volatile, this effect was greater on Chile than on other countries. Additionally, foreign capital was becoming more and more important. The British in particular were looking abroad for opportunities to invest in mineral wealth, and as investments flowed into the mineral sector, merchant companies followed suit. The War of the Pacific was a very important event in terms of both foreign capital and the role of the Chilean state in the economy. The nitrate fields were turned over almost immediately to investors from Great Britain. The fact that the main export sector was foreign-owned created a situation that was quite different from almost any other country in Latin America. It meant that the Chilean state came to control very large sums of money in the form of taxes paid by the nitrate companies and was in a position to decide how to distribute these revenues. Thus, in spite of a general free trade, laissez-faire attitude, the state was forced into a key role in the economy.

The nineteenth century also witnessed the formation of the political and social organizations that characterize

modern Chile. The old agrarian oligarchy which was represented by the Portales regime was joined by commercial, financial, and industrial factions as the productive structure grew and diversified. By the end of the century, these groups had formed into associations to promote their various economic interests. For example, the National Agricultural Society (SNA), the Central Chamber of Commerce (CCC), the National Industrial Society (SOFIFA), and the National Mining Society (SNM) were all formed at this time. Their relationship with the state was much the same as the tribunals that had formed in the colonial period, indicating that although sweeping economic changes were occurring, the influence of the old institutional arrangements continued to be felt.

Political parties also began to form. The Conservative, Liberal, and Radical parties all date to this period, although at the time the major differences between them were religious and ideological while their economic views were quite similar (Stallings 1978). The conservatives were most concerned with maintaining stability, the Liberals with providing religious freedom, and the Radicals with representing the interests of the "petty bourgeoisie and state bureaucrats (Reynolds 1965)."

One other effect of the nitrate boom was the formation of the first large, cohesive working class in Latin America (Stallings 1978). Because the most active mines were

located in the remote areas of the north, it was necessary to import large numbers of workers from the south. These workers came by the thousands and found themselves working in arduous, unsafe conditions. This situation led to the rapid development of a strong class consciousness among the laborers, and the first general strike broke out in 1890 with workers demanding monthly payment, payment in money instead of tokens, freedom to purchase goods when and where they wanted, and the end of a number of abuses by their employers (Walton 1985). Although the president recommended that their requests be given serious consideration, the army broke up the strike, killing a large number of workers.

Labor's setback in 1890 led the workers to realize that in order to have any chance for success, they would have to be much more organized. Thus, we see the beginnings of unionization in the north at this time. By 1900, union membership was in the tens of thousands, and by the 1905-1907 period when many organized strikes took place, union groups had become an important social and political force. The unions had broadened their role and become crucial in "training leaders, spreading ideas, and preparing the way for future union development (Stallings 1978)." By 1917, many of these independent unions had joined into one organization known as the Workers Federation of Chile (FOCh), the first national labor federation in the country's history. This group's aims were quite militant, demanding that the

capitalist system be abolished and that industry be run by the unions. Although the group was never able to achieve any of its extremist goals, it did have more than 60,000 members by the end of World War I, and was able to establish institutional links to the government that would be important after the Depression. Perhaps more importantly, it was able to get the government to agree to implement electoral reform. The government was willing to implement this reform because it believed that the political position of labor was much too radical to ever claim a broad based political victory, and it felt that by giving the unions a measure of victory it could defuse some of their radical ideas.

By 1920, electoral reform had endangered the monopoly on government control that had been enjoyed by the old coalitions, and it was in this year that the voters elected Arturo Alessandri. He promised the revision of the Chilean constitutional and capitalist systems. He was most likely elected because the public was dissatisfied with the economic malaise that had infected Chile since 1918, angered by continued corruption in the government, and tired of the old patterns of concentration of wealth and income. Over the next four years, Alessandri supported a large number of reforms, among them a minimum wage, labor law to protect workers from their employers and improve working conditions, social insurance programs to address the problems of the concentration of wealth, and increased government management



in the financial sectors.

These reforms were very popular with the masses, very unpopular with the old elites and aristocracy, particularly those who owned the mines and industrial base, and very unpopular with foreign investors. Essentially, the masses reaped the benefits at the expense of the elites who had maintained control for so long. Under the reforms workers saw wages rise, but perhaps more importantly the new social insurance programs gave them access to services, such as medical care, that, until now, few outside the elite had been able to obtain on any regular basis. The elites did not like the reforms because they represented an erosion of elite power and control. Also, by implementing a minimum wage, the government had imposed an economic cost on large landholders, and owners of mining and industrial facilities. The reform laws not only guaranteed higher wages, which meant higher costs for employers, they also guaranteed improved working conditions. In mining the practical impact of this requirement for improved working conditions was to force mineowners to use better equipment (Pinto et al 1969). This would show up as a higher CIR rating if our data went back that far. The owners were not only forced to raise wages, they were also forced to change technologies. Additionally, the higher wages were in industries where there was a good deal of foreign involvement and ownership. Foreign owners had the same reaction as domestic owners, and foreign

investors were unhappy with increased profits because they threatened to lower the yield on their investments.

More problems were caused during this period by the collapse of the international market for nitrates, which sent nitrate prices plummeting and destroyed the export sector upon which the Chilean economy was based. This undermined public support for Alessandri's policies, and at the urging of the old displaced elites, the army compelled Allessandri to resign and set a military government in his place. A new constitution was created, and it represented a compromise between the revisionist reformers and the old elites. First, the new constitution provided for social progress by interpreting private property rights in a broader way and insuring that, in theory, no one group could profit at the expense of everyone else. In other words, the government could break up large estates, establish tighter controls over working conditions, and provide a higher degree of social insurance. At the same time, the old elites were able to structure political institutions in such a way that they believed that they would in fact be able to control the political system. By agreeing to the reforms, they were attempting to cement themselves in power and thus be able to control the way and the degree to which the reforms were actually carried out.

The new constitution was accepted in 1925, the same time that a new export product was emerging to take the place

of nitrates as the linchpin of the Chilean economy. Copper exports were rising dramatically at this point, and it was widely believed that the economy would quickly recover as copper profits increased and the new reform mechanisms spread this profit throughout the country, and indeed by 1927, the economy was improving as growth rates increased. It was in this environment that the first presidential elections under the new constitution were held.

The first candidate elected was the former Minister of the Interior, Colonel Ibanez. Politically his administration amounted to a dictatorship because Ibanez set aside civil liberties and, in general, frustrated the representative process. At the same time, Ibanez put into effect "one of the most impressive internal improvement schemes in modern Latin American history (O'Brien 1976)." Highways and sewer systems were constructed, ports were modernized, public utilities were improved, and, in general, there was a massive reconstruction of the Chilean infrastructure. Education was also dramatically improved as spending on education increased by five times in only three years. At the same time, the industrialists and mine owners were given virtual carte blanc in their sectors, and working conditions and wages fell. The public, faced with dramatic improvements in social programs yet, at the same time, faced with decline in their job positions chose to do nothing, but the beginnings of dissatisfaction were growing within the

ranks of labor.

This dissatisfaction came to a head as the Depression took hold of Chile in 1930. Chile again faced rapidly declining economic conditions, and as imports of finished consumer goods slowed, Chile's economic system collapsed. Mining output fell by seventy percent and total output fell by forty-six percent. Ibanez was in serious trouble, and his last-ditch effort to help the Chilean economy by imposing austerity programs caused such a political backlash that he was forced to resign. Yet another constitution was created, this time with much stronger restrictions on activities that could lead to the domination of the old elite. Alessandri was reelected under the new constitution, and he promptly implemented far-reaching reforms and policies that were to demonstrably alter the structure of the Chilean economy.

Until this time, Chile had been dependent on imports to supply its needs for finished consumer goods, and these finished goods were largely purchased with profits from their primary exports. Alessandri began a program that substituted Chilean industry as suppliers for finished consumer goods. This was the beginning of Chile's import substituting stage. Tariffs and other restrictions were placed on imported goods, and a series of measures were taken to improve and develop Chilean capital and intermediate goods industries to support the new consumer goods sector.

Chile's ISI programs were at the same time both more and less successful than the ISI policies of her neighbors. First, the nature of the mineral extraction based economy that had powered Chile was such that Chile already had technical knowhow that could be applied to the development of intermediate and finished goods industries. Moreover, the resources that were needed to build these kinds of facilities did not have to be imported from foreign sources. With a more efficient intermediate goods sector, the development bottlenecks that are characteristic of ISI programs did not become severe until later in the ISI process relative to the experiences of other countries in the region. On the other hand, the money to finance the ISI investment needs came from copper exports. Chile was able to maintain an export sector even during its ISI period, but this also had drawbacks. This meant that the development of the consumer goods industry was linked to the profitability of copper exports. While copper prices were fairly stable, there were shocks that negatively affected the development of the Chilean consumer goods industry. For example, at the end of the Korean war, the international prices on a variety of metals fell. This shrank Chilean export earnings.

It is interesting to look at a few of the specific arrangements that grew out of the import substituting period. Many of the trade associations were able to influence the development of economic policy during this

period. For example, SOFOFA was able to persuade the government to double its protection for consumer industries by applying political pressure through the newly established channels. An official organization, the State Development Organization (CORPO) was established to coordinate development policies. Its relationship with the industrialists was ambiguous at times because, although they wanted its assistance, they also feared its competition and interference. The dominant view seemed to be that they would take advantage of the new organization, and, indeed, several predominant industrialists eventually became CORPO officials.

CORPO's main role was the founding of many of Chile's most important industrial firms. By providing capital far beyond its ownership share, it became the mechanism through which copper profits were converted into consumer goods industries. CORPO was also the main channel through which foreign funds were obtained, both from private sources and official sources such as the United States' Export-Import Bank. The important thing to realize about CORPO is that it actually owned parts of the industries that it was trying to develop. This strengthened the role of the government in the Chilean economy a great deal.

It was within the framework that ISI set up that the historical events between 1950 and the 1973 coup took place. The election of 1952 was startling because the former ruler

Ibanez was elected. This is startling because of his former unpopularity and the fact that he was a surprise candidate. The most reasonable explanation for his election is the fact that none of the other four candidates were well enough organized to effectively campaign for the office. In addition, his old dictatorial style was seen to be "above politics." This was considered positive because by this time, so many groups had been mobilized into the political process that agreement and compromise had become very difficult to achieve in the national government. Also, the economy had begun to slow, the first stages of ISI having been completed.

As the first stage of ISI began to exhaust itself, growth fell from an annual rate of 9 percent to an annual rate of 2.4 percent. Chile had reached the limits of its own technology; goods that required small markets, small amounts of capital, and relatively simple technologies had reached the level of market saturation. In order to move ahead, Chile now began to look abroad for further technological improvements and additional capital so ISI could proceed into more sophisticated goods. The fact that these were not immediately available caused the decline in growth rates. The problems that were caused by reduced growth were exacerbated by the fact that inflation skyrocketed during the beginning of the second Ibanez era, jumping to 56 percent in 1953 and to 71 percent in 1954.

To cope with this, Ibanez hired a U.S. consulting team known as the Klein-Saks Mission. Their recommendations included cutting the fiscal budget, cutting bank credit, eliminating subsidies on basic consumer goods and services, implementing a progressive tax structure, and giving wage increases that were less than the increase in the cost of living (Stallings 1978). Ibanez attempted to implement all of these programs, but the right-wing Congress only implemented those that served their own interests. The best example of this were wage cuts that benefitted the owners of the productive industries and foreign and capital sources. The policies that Ibanez wanted to implement resembled his old austerity approach too closely for him to maintain any popularity, and by 1958, he was no longer a contender for president.

The election of 1958 pitted Salvador Allende against Jorge Alessandri. Alessandri won the election on the basis of a traditional platform, promising to use the same ISI devices to get the economy under control. Alessandri's main goal was the stimulation of investment, both domestic and foreign. Alessandri's main policy for the attraction of foreign and the inducement for foreign was a series of tax incentives, interest rate restructurings, and, in the case of foreign capital, the guarantee of profit repatriation rights. Alessandri was largely unsuccessful, although we did see investments of the short term, speculative variety increasing



marginally in 1964. By then, Chile was experiencing a serious foreign exchange crisis. Alessandri's policies of investment incentives had completely undermined the value of the escudo, with exchange rates going from one per dollar in 1958 to more than 250 per dollar by the time he left office. Alessandri's attempts to stabilize the economy by attracting foreign investments failed miserably, and because he was now so unpopular that he stood no chance of winning reelection against either of the candidates Frei or Allende, he withdrew from the 1964 election at an early date. Frei was to win this election taking a much more leftist stance than had Alessandri in 1958.

Frei won the election with the support of almost all important groups in Chile except the Communist and Socialist parties. This fact implied that widely diverging views on policy matters were hidden under this apparent unity, and this meant that if Frei were unsuccessful in stabilizing the economy, support for him would quickly erode. His program included the attempt to "Chileanize" (sic) (Stallings 1978) the copper industry by purchasing the mines from their U.S. owners, the expansion of the social welfare system, and the implementation of agrarian reform to help ease the concentration of wealth in the country. While attractive to the public, these policies did little to help the economy, and by 1970, growth rates in important industry began to fall substantially. Moreover, the attempt to gain control of the

copper industry completely alienated the United States, and placed the two countries squarely at odds. It was at this time that the C.I.A. began to investigate ways in which it could "favorably alter the political system in Chile (U.S. Congress 1974). Frei was unable to improve the economy, and was thus no longer a realistic candidate for re-election. Salvador Allende was finally elected at this time.

Before proceeding to the Allende regime, it is interesting to compare the Frei and Alessandri periods. Both regimes can be divided into three subperiods: an initial span where the government attempted to implement its stated development strategy, a short period when the Left and Right battled to change the governments policies, and a final period where the government merely struggled to keep afloat, unable to unite internal divisions. The Allende regime also fits this pattern. Allende came to power with several stated economic goals. These included the reorientation of production from luxury goods to basic consumer items, guarantees of employment for all Chileans of working age at adequate salaries, liberation of Chile from foreign capital, rapid economic growth, and the control of inflation. There were also a number of social goals which revolved around the establishment of better social insurance and safety nets. Allende essentially promised something to everyone and was unable to make good on almost any of his promises. By nationalizing foreign controlled industries such as the

Anaconda and Kennecott operations, he alienated foreign capital, and by promising higher wages he alienated the industrialists. When growth slowed to practically zero, the social fabric of Chile was torn apart. This created a situation of mass conflict, strikes, and economic dissarray which prompted a bloody military coup in 1973 where General Pinochet took over.

Pinochet immediately implemented austerity measures, curtailed political and civil freedoms, and established a monetary approach to economic development. His approach was free-market, and he promptly cut tariff rates so Chile could benefit from foreign imports. Also, he placed strict limits on the growth of the Chilean money supply in order to get runaway inflation under control. His removal of government subsidies and protection caused Chile's output to shrink significantly in 1974, but after a short period of adjustment, the economy recovered quite well. Pinochet's consistent free-market approach, forced on Chile by military force, was able to stabilize the Chilean economy. Pinochet completely destroyed the class conflicts that had paralyzed the government in previous years and led it into one failed policy after another. Those who opposed his policies were imprisoned and killed (Amnesty International 1976). Over the next ten years he was able to obtain the shackling of inflation, the virtual elimination of the budget deficit, the reduction in tariff rates to a uniformly low level, and the

liberalization of price and interest rate structures. Foreign investments again rose due to the stabilization in Chile under the rule of Pinochet, and by 1980, the economy was stronger than most other Latin American examples.

#### Statistical Analysis:

Turning to the empirical testing of our three theories we will now look at our regression results. Recall that Theory 1 predicts that internal forces are the most important determinant of pattern of development, Theory 2 predicts that external forces are the most important in determining patterns of development, and Theory 3 predicts that both internal forces and external forces have a significant effect on patterns of development.

We turn first to the results using effective rates of protection as the indicator for the dependent variable. Regressing ERP on FREE for Theory 1 yielded an adjusted R-squared of 0.81 with a P-value of 0%. For Theory 2 the regression of ERP on FIP yielded an adjusted R-squared of 0.11 and a P-value of 3.8%. The multiple regression for Theory 3 yielded an adjusted R-squared of 0.83 with the FREE P-value being 0% and the FIP P-value being 4.6%.

The results using relative capital-labor intensity as the indicator for the dependent variable are as follows. For Theory 1 regressing CIR on FREE yielded an adjusted R-squared of 0.27 with a P-value of 0.2%. Regressing CIR on FIP for

Theory 2 yielded an adjusted R-squared of 0.004 with a P-value of 29.4%. The multiple regression of CIR on both FREE and FIP yielded an adjusted R-squared 0.83 with the FREE P-value being 0% and the FIP P-value being 0.8%.

Taken together, these results indicate that Theory 3 works best for both ERP and CIR as indicators for pattern of development. These results make sense within the Chilean historical context. First, consider effective rates of protection. Clearly, internal forces were the stronger of the explanatory variables, as we would expect from the historical context. With so much class structured political conflict, the opportunity for many different groups to impact development pattern was enhanced. Moreover, the most important variation in ERP comes immediately after the 1973 coup when Pinochet cut tariff rates dramatically. At the same time, foreign actors were important in supporting the groups that decided protection rates, particularly during the ISI period. The historical context, then, validates our statistical results.

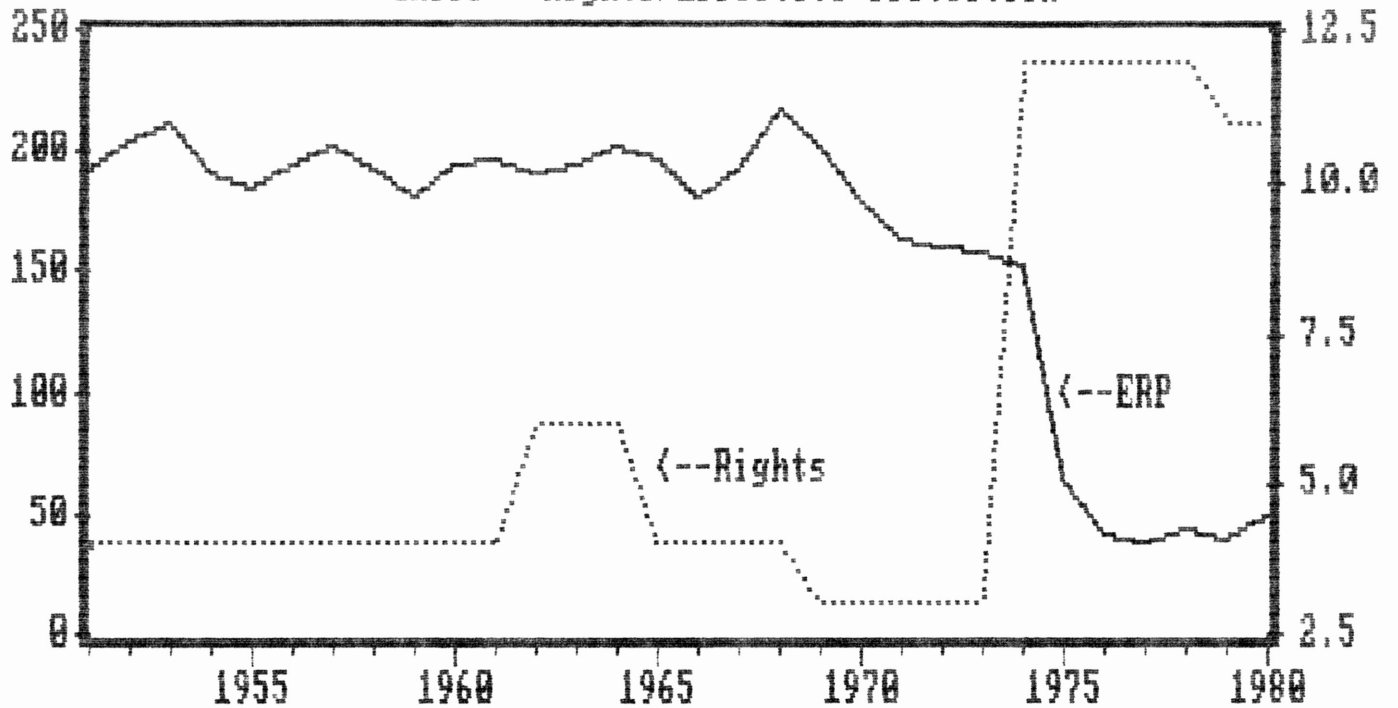
The same thing was true using CIR as the indicator for the dependent variable. Theory 3 works as the historical context would lead us to expect. Internal forces were the most important influence on CIR, reflecting the fact that labor and other social groups had institutional means of placing demands on the industrialists that made capital intensity decisions. External forces were important because,

as in other countries, foreign investors prefer to invest in projects that are similar to the ones that they have found successful in their home countries. In Chile we also see a partnership, albeit only in the early part of the twentieth century, between labor and foreign mine owners. Both wanted higher capital intensity. The laborers wanted this because it meant better working conditions and the foreign companies wanted this because they thought that increased capital intensity would increase output. Furthermore, the influence of foreign capital (FIP) was less because Chile often completely alienated foreign owners.

Conclusion:

In Chile, Theory 3 works best to explain both effective rates of protection (ERP) and relative capital-labor intensity (DIR). In other words, both internal and external forces have a significant impact on patterns of development in this country. Moreover, the historical context validates our findings.

### Chile - Rights/Effective Protection



LS // Dependent Variable is CERPI  
 Date: 1-01-1980 / Time: 1:37  
 SMPL range: 1951 - 1980  
 Number of observations: 30

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=====
```

| VARIABLE  | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|-----------|-------------|------------|------------|-------------|
| C         | 254.08452   | 9.4231389  | 26.963894  | 0.000       |
| CFREE(-1) | -16.681759  | 1.4598264  | -11.427221 | 0.000       |

```
=====
```

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.823435  | Mean of dependent var | 160.6667 |
| Adjusted R-squared | 0.817129  | S.D. of dependent var | 60.02720 |
| S.E. of regression | 25.66971  | Sum of squared resid  | 18450.15 |
| Durbin-Watson stat | 0.670900  | F-statistic           | 130.5814 |
| Log likelihood     | -138.8926 |                       |          |

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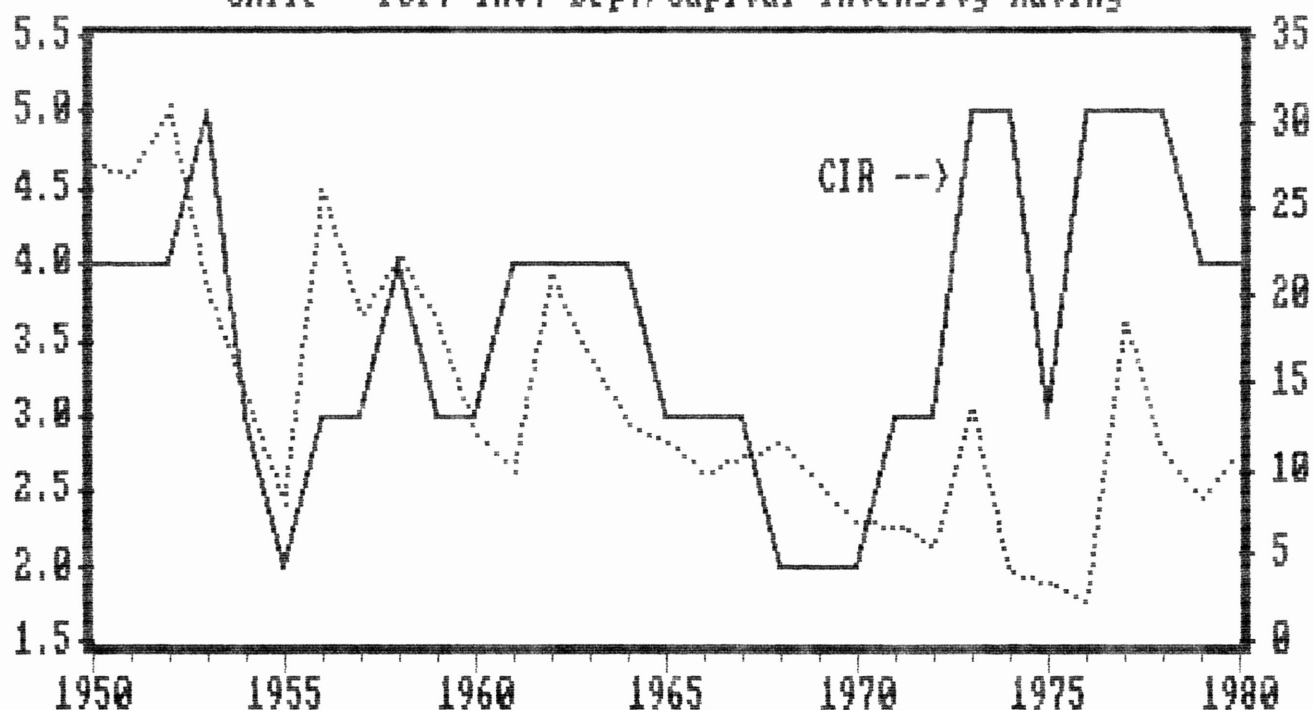
Covariance Matrix

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|                     |          |             |           |
|---------------------|----------|-------------|-----------|
| C,C                 | 88.79555 | C,CFREE(-1) | -11.93412 |
| CFREE(-1),CFREE(-1) | 2.131093 |             |           |

```
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```

### Chile - For. Inv. Dep./Capital Intensity Rating



LS // Dependent Variable is CCIR  
 Date: 1-01-1980 / Time: 3:40  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE           | COEFFICIENT | STD. ERROR            | T-STAT.   | 2-TAIL SIG. |
|--------------------|-------------|-----------------------|-----------|-------------|
| C                  | 3.2373084   | 0.3642210             | 8.8883089 | 0.000       |
| CFIP               | 0.0246754   | 0.0230850             | 1.0688900 | 0.294       |
| R-squared          | 0.037904    | Mean of dependent var |           | 3.580645    |
| Adjusted R-squared | 0.004728    | S.D. of dependent var |           | 0.958269    |
| S.E. of regression | 0.956001    | Sum of squared resid  |           | 26.50419    |
| Durbin-Watson stat | 0.919497    | F-statistic           |           | 1.142526    |
| Log likelihood     | -41.55849   |                       |           |             |
| Covariance Matrix  |             |                       |           |             |
| C,C                | 0.132657    | C,CFIP                |           | -0.007415   |
| CFIP,CFIP          | 0.000533    |                       |           |             |



LS // Dependent Variable is CERP  
 Date: 4-01-1990 / Time: 17:31  
 SMPL range: 1950 - 1980  
 Number of observations: 30

```
=====
```

| VARIABLE  | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|-----------|-------------|------------|------------|-------------|
| C         | 254.08452   | 9.4231389  | 26.963894  | 0.000       |
| DFREE(-1) | -16.681759  | 1.4598264  | -11.427221 | 0.000       |

```
=====
```

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.823435 | Mean of dependent var | 160.6667  |
| Adjusted R-squared | 0.817129 | S.D. of dependent var | 60.02720  |
| S.E. of regression | 25.66971 | Sum of squared resid  | 18450.15  |
| F-statistic        | 130.5814 | Log likelihood        | -138.8926 |

```
=====
```

LS // Dependent Variable is CERP  
 Date: 4-01-1990 / Time: 17:32  
 SMPL range: 1950 - 1980  
 Number of observations: 30

```
=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 118.30090   | 22.056391  | 5.3635656 | 0.000       |
| DFIP     | 3.1478444   | 1.4484812  | 2.1732035 | 0.038       |

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=====
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|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.144328 | Mean of dependent var | 160.6667  |
| Adjusted R-squared | 0.113768 | S.D. of dependent var | 60.02720  |
| S.E. of regression | 56.50954 | Sum of squared resid  | 89413.18  |
| F-statistic        | 4.722813 | Log likelihood        | -162.5655 |

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LS // Dependent Variable is CERP  
 Date: 4-01-1990 / Time: 17:35  
 SMPL range: 1950 - 1980  
 Number of observations: 30

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=====
```

| VARIABLE  | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|-----------|-------------|------------|------------|-------------|
| C         | 231.79538   | 13.875448  | 16.705434  | 0.000       |
| DFREE(-1) | -15.932687  | 1.4245167  | -11.184627 | 0.000       |
| CFIP      | 1.3444378   | 0.6420641  | 2.0939306  | 0.046       |

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|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.848101 | Mean of dependent var | 160.6667  |
| Adjusted R-squared | 0.836850 | S.D. of dependent var | 60.02720  |
| S.E. of regression | 24.24611 | Sum of squared resid  | 15872.59  |
| F-statistic        | 75.37509 | Log likelihood        | -136.6354 |

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```

LS // Dependent Variable is CCIR  
 Date: 4-01-1990 / Time: 17:36  
 SMPL range: 1950 - 1980  
 Number of observations: 31

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=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 2.6896750   | 0.2969854  | 9.0565903 | 0.000       |
| CFREE    | 0.1543021   | 0.0446578  | 3.4552116 | 0.002       |

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```

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.291620  | Mean of dependent var | 3.580645 |
| Adjusted R-squared | 0.267193  | S.D. of dependent var | 0.958269 |
| S.E. of regression | 0.820318  | Sum of squared resid  | 19.51472 |
| Durbin-Watson stat | 1.395911  | F-statistic           | 11.93849 |
| Log likelihood     | -36.81341 |                       |          |

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LS // Dependent Variable is CCIR  
 Date: 4-01-1990 / Time: 17:37  
 SMPL range: 1950 - 1980  
 Number of observations: 31

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=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 3.2373084   | 0.3642210  | 8.8883089 | 0.000       |
| CFIP     | 0.0246754   | 0.0230850  | 1.0688900 | 0.294       |

```
=====
```

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.037904  | Mean of dependent var | 3.580645 |
| Adjusted R-squared | 0.004728  | S.D. of dependent var | 0.958269 |
| S.E. of regression | 0.956001  | Sum of squared resid  | 26.50419 |
| Durbin-Watson stat | 0.919497  | F-statistic           | 1.142526 |
| Log likelihood     | -41.55849 |                       |          |

```
=====
```

LS // Dependent Variable is CCIR  
 Date: 4-01-1990 / Time: 17:37  
 SMPL range: 1950 - 1980  
 Number of observations: 31

```
=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.7150217   | 0.4351278  | 3.9414204 | 0.000       |
| CFREE    | 0.1944105   | 0.0424937  | 4.5750381 | 0.000       |
| CFIP     | 0.0534031   | 0.0188487  | 2.8332489 | 0.008       |

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|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.449455  | Mean of dependent var | 3.580645 |
| Adjusted R-squared | 0.410131  | S.D. of dependent var | 0.958269 |
| S.E. of regression | 0.735979  | Sum of squared resid  | 15.16662 |
| Durbin-Watson stat | 1.688472  | F-statistic           | 11.42936 |
| Log likelihood     | -32.90629 |                       |          |

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## Chapter Five: Mexico

Mexico can be described as having had a somewhat unusual development pattern because Mexican state evolved into a classic corporatist organization. This had, as we shall see, several implications for the ways in which Mexico was to develop -- both in the ways that internal forces were mobilized into development process and in the ways that external forces were allowed to participate. We will find that even though Mexico is a slightly unusual case, our research design will apply quite well. We will also find that Theory 3 best predicts patterns of development for both effective rates of protection and relative capital-labor intensity as indicators for the dependent variable.

### Historical Background:

Mexico's earliest economic development revolved around the export of primary extractive commodities. Later, the export of agricultural commodities also became important (Cockcroft 1983). The first major exports were gold and silver, and the exporters and merchants that were associated with these precious metals settled in the ports of Acapulco and Veracruz. These ports were very important to Spain because they provided a stopping point for ships that were going further south. As trade in these commodities expanded, more and more laborers were needed in the mines, and as the labor force grew, demand for agricultural goods increased.

To service the booming mining centers, the agricultural sector was made more commercial. Agricultural productivity increased significantly with more labor being used to work the fields (Cockcroft 1983). Like most other Latin American countries, the patterns of landownership, or latifundia, were very concentrated. The latifundia were controlled by a small landed aristocracy and worked by a large number of peasants.

This concentrated pattern of profit and wealth was to have an impact on the way in which Mexico was to gain independence. Mexico's peasant population was quite large, and beginning in 1810, large numbers of these peasants began to call for the opportunity for social mobility (Hewlett et al 1982). In 1810, under the leadership of a parish priest, Father Hidalgo, thousands of peasants mobilized against what they perceived to be a horribly unjust colonial government and social order. The wealthy elites were forced to ask the Spanish Crown for help in putting down the uprisings, but, at the same time, they realized that Spain's complete refusal to permit a quasi-democratic system which would "preserve some 'respect' among the Indians and the other peasants would ultimately forment a revolution that the elites would be unable to control (Cockcroft 1983, p.59)." It was this explosive class threat from below that persuaded the elites to opt for independence, even though they themselves were not really organized enough to govern (Randall 1977).

Mexico gained its independence from Spain in 1821

without having developed a political system capable of setting a direction for economic growth (Newell et al 1984). The War of Independence destroyed most of the productive basis of the country as the fighting, the guerillas, and the invading mobs almost destroyed the agrarian and mining industries that had been the center of economic life in the colonial period. Moreover, the lack of any consensus about the proper direction of economic development, and the lack of any institutions that could help to mold a consensus among the wealthy elites, hindered the development of a viable economic system. The only legacy of the colonial period was the enormous disparity between different social groups in the Mexican society. One of the important disparities was that between the mostly Indian peasantry and the Criollos, offspring of Spaniards born in Mexico. Income was still extremely concentrated in the old landed aristocracy and the owners of the active mines, but this aristocracy suffered greatly during the War of Independence. The fact that income and wealth were highly concentrated had two implications. First, there was the continued threat of another peasant rebellion. Second, it became the responsibility of the wealthy elites to both deal with this threat and plan the development of the Mexican economy. The elites, however, were plagued with an inability to reach a consensus about how to deal with these problems.

The effect of this inability to reach a consensus was

that conflict was chronic between the "enlightened" European groups and the "backward," traditional Indian society. This led to continuous political instability, coups, and other evidence of a society without a clear identity. The first clearly unifying event was the war with the United States between 1846 and 1848. This served to draw the various groups together to fight a common enemy, and it also served as a catalyst for the definition of common goals and political beliefs. Many of the feuds between the people of Mexican descent and the people of Indian descent were resolved into a basic two party structure containing the Liberals and the Conservatives (Haber 1989).

Although the Liberals and the Conservatives were never able to see eye to eye, the national identity that the war with the United States helped develop allowed the Liberal party to promulgate a constitution in 1857. The constitution was aimed at the creation of a capitalist society that, while not imitative of the United States system, also embodied democratic ideals. These ideals were not well translated into reality in the Mexican nation, however. For example, the constitution touted the virtues of liberty, equality, representative government and economic liberty, but, in reality, these rights were found only among those of European descent. Mexico remained an extremely unequal society where only seven percent of the people could read and only about three percent of the people could qualify to vote (Newell et

al 1984).

Because the constitution applied so little to the actual conditions that existed in Mexico, and because Mexico so totally lacked the institutions to channel and control popular participation, none of the liberal governments that came into power at this time were able to effectively govern (Hansen 1971). It was not until Porfirio Diaz became the leader of the country by military coup in 1876 that any semblance of an effective government could be created. Diaz was able to forge an effective government for thirty years because he limited himself to what he considered socially important groups, in this case the owners of large landholdings. It was among this group that he concentrated on forming a consensus about government policy, and he was fairly successful. On the basis of this new coalition he began to push for the economic integration and modernization of the country. Although Diaz was successful in building a limited civil society and promoting national economic integration, he failed to establish a broad enough consensus to insure his political hegemony. In particular, he failed to embrace the growing middle class that his own economic development policies helped to create.

The key policy of Diaz that led to successful industrialization and development during the early period of Diaz's rule was the active recruitment of foreign capital. Elaborate sets of initiatives were given to foreign

investors, and some estimates placed the United States' share of foreign investment alone as approaching fifty percent Mexico's national wealth (Reynolds 1970). One key to his policy was the maintenance of political stability. For large numbers of foreign investors to be interested in Mexico, the country had to display the stability that would reduce the risk to foreigners on Mexican investments. During his early years, Diaz was successful in achieving at least the semblance of stability, but as stability decreased in his later years, foreign investment also decreased dramatically. This decrease in stability can be attributed to the disagreements among the Mexican elite over the desirability of Diaz's policies. In particular, the mine owners who had not had much input into government decisions had become dissatisfied with the role that they were playing and demanded to be allowed to affect development policy.

By stimulating economic growth, Diaz unleashed a number of industries including steel, cement, beer, cotton textile, paper, glass, dynamite, soap and cigarettes (Haber 1989). This led to the growth of a new middle class of owners that were able to benefit from the economic activity of these firms, and, even more importantly, a new class of labor that was frozen out of the benefits that the developing economic system had to offer. Labor was controlled by both co-optation and repression and was completely excluded from the political process (Cockcroft 1983). We have seen that one



important aspect of the Diaz era was the recruitment of foreign capital for the development of Mexican industry. Knowing that Mexico lacked the technical knowledge to develop independently, Diaz had actively recruited foreign sources of capital, and, to that end, he was committed to maintaining political stability and making Mexico look as attractive to investors as possible. He even went so far as to describe his approach to governing and economic development as scientific, much in the way of the technocrats common in Latin America a century later.

If he called it scientific, it is unlikely that the majority of people living in Mexico would have agreed with him. The owners of industries such as mining that had already developed in Mexico saw the introduction of foreign capital and ownership as usurping the little power that they did have. A few of the upper-middle classes had been incorporated into the government, but most remained on the sidelines, subject to the whims of their government. By the beginning of the twentieth century, many of those groups that remained outside the government sphere were ready to stand against it. In fact, they hoped to achieve broad popular mobilization and to adopt a progressive ideological program. Also, they hoped to extend the economic and political basis of society to include a more differentiated and representative group of the population. This would help all of those people who did not benefit from the Diaz society:

"members of the peasantry, the hacienda peons, workers, and essentially all of the middle classes (Hewlett 1982)." In opposition to their goals they saw the powerful foreign element in industry, the government, large landholders, and the new industrial groups of the country. It was against these groups that the people who had been excluded from the political process would rebel in the revolution that would come in the next decade.

Actual revolutionary sentiment was sparked initially by a seemingly innocuous magazine article in which it was claimed that Diaz had said that he would retire at the end of his term and would under no circumstances accept re-election. Diaz, however, said a short time later that he had no intention of stepping down. This declaration spurred several of the dissident organizations to action. The magazine article had led them to believe that they would have the opportunity to change the political process through peaceful, institutional means. Diaz's statements made it clear that this was not going to happen, and this unyielding position galvanized the dissident groups to action. After thirty years of one man rule, a large number of groups formed the National Anti-Re-election Party. They attempted to negotiate with Diaz, informing him of their their direct ambition to gain the vice-presidency. Diaz was not, however, willing to let any new coalitions into the ruling block, and he was forced to resign soon after.

The fall of Diaz reflected a central fact about Mexican society at that time. Consensus and legitimacy were the keys to political stability in Mexico, and the fact that Diaz had been able to impose a consensus among a small group of the elite had given him his thirty-odd years in power. However, once that consensus had eroded, both because of Diaz's own response to the opposition movement and the lack of adequate institutions through which to channel the opposition, Mexican society was torn apart. This whole experience demonstrated that some kind of a consensus would have to be found in order to move forward both politically and economically.

Diaz resigned his office as the Revolution broke out, and a revolutionary leader named Madero took his place. Diaz's resignation took place when his army was defeated in an uprising that Madero had led. Madero's supporters came from elites that had not had a voice in the government, new bourgeoisie groups from the new industries, and peasants. Two of Madero's closest allies were Pascual Orozco, a military figure, and Emiliano Zapata, a peasant Indian leader. Thus, the revolution came from all elements of Mexican society, although elite involvement was the catalyst that made the revolution possible (Cockcroft 1983). The goals of the revolutionaries, then, were not necessarily coincident. The peasants were most concerned with land reform, while the elite elements were more concerned with being represented in

the government.

Interestingly, Madero, the man who had led the call for revolution, only wanted to change the government, not the underlying structure of the political system or the economy. Consequently, there were few improvements in the concentration of wealth and power under his government. Additionally, he simply did not address the problem of building a consensus among the elites, both old and new. Apparently he believed that a few cosmetic changes in the government would build up the legitimacy that was needed for an effective government. Madero allied himself with the dominating sectors to carry out his cosmetic changes, but, in doing so, failed to carry out the economic reforms necessary to maintain control of the popular classes. Therefore, Madero actually planted the seeds that destroyed the existing order.

One of the agents of this destruction was the Zapatista peasant movement. The peasants had seen the revolution as a means to land reform. They had voiced a series of demands for this reform that they considered necessary to any new political and social order, and they articulated a plan to take control of the government, the Plan de Ayala. Another agent was labor, who, in contrast to the peasants, concentrated on forming its own new organizations through which they would be able to affect the government. As a result, many guilds and unions date from

this period. Moreover, the elites who continued to be excluded from the government saw these groups as resources that they could use to increase their ability to insert themselves into the political process. Madero died in 1913, and this was taken as a signal for the new groups to begin their attempt to take power (Haber 1989).

Indeed, Madero's death signalled the beginning of a period of continual upheaval that seriously disrupted the Mexican economy. This upheaval was characterized by the establishment of two executive bodies within the political system which coexisted while, at the same time, operated against one another. These two groups revolved around Huerta, a general in the military, and Venustiano Carranza, a landholder and businessman who took up arms against him. Carranza would ultimately be victorious, and by prompting the inclusion of some popular reforms and goals in a new constitution, Carranza provided the foundations for a new social and economic order. That constitution replaced the 1857 constitution and formally crystallized the project of social reorganization that the progressive faction of the revolution had been proposing.

The new constitution embodied contradictory views about the role of the individual vis-a-vis the state. On the one hand, it reiterated the concepts of federal democratic government that had been in the 1857 constitution: freedom of association, periodic elections for public posts, and

representative government. On the other hand, it established the primacy of the executive over the legislative and judicial branches, and it placed the social interest above individual freedom. Probably the most important affect the constitution had at this time was to establish the state as the only legitimate entity capable of imposing and attaining a consensus. In other words, the state was given the authority to impose its will on the competing elites. By combining guarantees of freedom of action with a powerful state capable of imposing its will, the constitution prompted the establishment of what would be the classic corporatist state.

By 1917, the Mexican government might have been able to create a new constitution, but it had been unable to stabilize the economy. Indeed, the economy had suffered desperately in the face of the political instability that had led up to the new document. The economic picture now was very poor, with only very small increases in private capital taking place, and no foreign investment existing outside of the oil and mining industries. Nevertheless, Carranza still felt that the primary thrust of his policy should be to politically stabilize the country and maintain peace. In early 1920, a strike broke out in Sonora in a number of railyards. Carranza at first tried to put down the strike, but this angered so many of the contending alliances that he was forced to leave the capital. Shortly after leaving, he

was murdered by one of his followers.

Three figures now contended for the position he vacated: Adolfo de la Huerta, Alvaro Obregon, and Plutarco Calles. Huerta became the interim president, and after that term expired at the end of 1920, Obregon was elected president. He viciously imposed order before giving social concessions, believing that the continued hegemony of the coalition in power was crucial to the improvement of economic development. Indeed, growth did improve slightly, increasing to an annual rate of 3.4 percent by the end of the Obregon presidency (Hansen 1971). He was able to attract foreign capital once again, and he increased the level of direct state involvement in the building of productive resources. For example, the state created at least three new programs to accelerate infrastructural development: the Electric Company of Matamoros, the National Lottery, and the Power Company of Toluca. In particular, Obregon displayed strong interest in the construction of highways, electric energy facilities, schools, and sanitary services (Newell et al 1984).

One interesting contradiction in the Obregon policy was its disparate attitude towards foreign capital. He actively recruited foreign investments, but at the same time he carried out the nationalization of several U.S. run railroads. This, of course, was not a popular action in the United States. The owners of these railroads lost important investments, and relations with the United States were again

strained as conflict over the nationalizations took place. Eventually a series of agreements, such as the Huerta-Lamont Treaty, were signed between the two countries to help avoid these contradictory signals. This illustrates that the relationship between internal and external forces is not at all simple in the Mexican case. While the Mexican government vigorously attempted to attract foreign capital, it was unwilling to cede to foreign investors any large degree of control of the Mexican economy. This trend will ultimately be reflected in our empirical analysis as an effect of the freedom index on capital intensity.

The main achievement of the Obregon presidency was the establishment of the first stable government since Diaz. He was the first person who "set in motion many of the stipulations contained in the new constitution (Hewlett et al 1982)." His policies and procedures set the norms that were followed by all successive presidents (Newell et al 1984), and he enlarged the executive position and power of the office that those succeeding presidents would hold.

The first president after Obregon was Plutarco Calles. Calles was elected with the support of Obregon, and he ran the government in much the same way that Obregon had. He also expanded the role of the government in the development of the Mexican economy through the establishment of a number of state run enterprises and institutions. For example, the Bank of Mexico was created, along with an



institution for the distribution of pensions, and several state divisions to promote infrastructural and industrial development. These institutions had as one of their primary missions the channeling of investment into highly valued projects. Under Calles' programs, growth rates rose to 6 percent per annum, and the economic outlook had brightened substantially (Camp 1989).

These development arrangements and institutions would form the framework in which all other development would take place in Mexico. Calles had completely inserted the Mexican state into the development process, and he had given it the institutional means through which it could implement development policy. At the same time, Calles completed the consolidation of political power that transformed Mexico into the classic corporatist state, and delimited the way that political changes would occur until the present date. He created the Partido Nacional Revolucionario, the political party that was the precursor to the PRI -- the dominant political party through virtually all of the twentieth century. This party became the institution through which the ruling coalition gathered resources, controlled the political process, and organized Mexican political life.

The ruling group also allowed a controlled kind of opposition. The groups in opposition to state action combined into various institutional structures that would eventually consolidate into the modern PAN opposition party,

of National Action Party. Mexico had grown into a mature political state, able to direct its programs through channelled institutional means, and able to control opposition through structured arrangements. The consensus that was crucial to the existence of the Mexican state had been achieved from the top down by state imposition. Little by little, the new rulers had been able to subordinate all the political forces to their conception of the world. This was not accomplished by the complete elimination of opposition; it was accomplished by the incorporation of competing political groups into the political process in highly structured ways. This is why Mexico can be described as the classic corporatist state. These groups were vertically organized in such a way that they were controlled by the state but were also able to place certain demands on it. At the same time, the state prevented most lateral organization because this could threaten the consensus upon which the government was based. In other words, the state tolerated demands from specific social groups. For example, industrial labor had its own institutions for communicating with the government, and within these institutions it had fairly extensive freedom to do as it wished. However, it could not organize with agricultural labor or factory owners to further its own ends (Camp 1989).

It was within this corporatist structure that the various plans for economic development in the remainder of

the twentieth century took place. The first important events came during the Cardenas presidency (1934-1940) as the Mexican government was called upon to respond to the depression. Prior to this time, government had inserted itself most heavily into the banking, railway and other infrastructural sectors, and in the mining industry where most of Mexico's export profits had come. Although these profits were not large by the standards of other countries such as Chile, they nevertheless were an important element of Mexico's ability to invest in capital projects. The Depression robbed Mexico of its export earnings and of a significant amount of its foreign investment.

It was in this environment that the beginnings of Mexico's import-substituting stages were found. Unlike some countries, Mexico's ISI period can be divided clearly into two stages. First, ISI concentrated specifically on developing lower technology based commodities, and later Mexico's ISI policies shifted emphasis directly to more capital intensive goods. As the availability of manufactured imports dropped off, Mexico was able to substitute domestic industry to fill some of the surplus demand. Mexican growth during this period was not much faster than it had been under Calles, but the emphasis of the economy was shifting. It is interesting to note that in the late 1930s, hostility to foreign actors had reached a very high level. In fact, Cardenas nationalized the petroleum industry in 1938 to

eliminate the possibility that the petroleum sector would form the basis of a return to the foreign dominated primary export economy that had existed at the turn of the century, although he was eager to maintain earnings as high as he could on the exports of primary extractives. This is another example of the Mexican resistance to foreign control in the economy.

This stage of ISI lasted until the mid 1950s. Mexico improved its utilization of its productive capacity, and essentially exhausted the avenues for future autarchic industrialization. Mexico experienced a severe recession in 1954 and was experiencing severe balance of payments crisis. This forced a 50 percent devaluation of the peso in 1955 (Haber 1989). The reason for the balance of payments problems was the inability of the Mexican economy to provide the consumer durables that the people with money were demanding. For example, there was practically no automotive industry in Mexico, so consumers turned to the United States for their cars. Since Mexico did not have exports of sufficient magnitude to cover these imports, the trade deficit increased dramatically. The government took this to mean that a new stage of import-substitution was needed in the consumer durables area.

This new ISI focus was accomplished with two complementary policies. Tariff rates were increased, and foreign capital was again actively sought. The emphasis was

now on capital deepening through ISI. The original ISI period had focused on relatively labor intensive, low technology goods such as specialty textiles, jewelry, and metal-working. It was now time to develop capital and intermediate goods industries to support a new consumer durables industry, and tariff rates were raised on appropriate goods such as automobiles. Moreover, the aid of multinational corporations was now actively sought, although safeguards were employed to insure that multi-national corporations (MNCs) did not become too powerful. One mechanism for controlling this was the insistence that MNCs allow some local ownership of factories. A good example of this was the auto industry around Monterrey. This stage of industrialization did not change much between 1955 and 1970, and indeed, all of its elements remained in place through 1980.

This is not to say that in the early 1970s important changes were not occurring. Changes did occur, but very few of the ISI policies dating from 1955 were dismantled. The changes amounted to additions to the old policies. By 1970, industrialization had proceeded to the point by 1970, an economy based on a diversified set of export products had emerged. Specialty textiles and various assembly industries gave Mexico a fairly strong export market. Furthermore, in 1973, the global rise in oil prices was a great windfall for the Mexican economy. Mexico now had the capital and

collateral to back up large scale borrowing from the First World. The funds that it received were then reinvested in industrial development, and as Mexico moved into the late 1970s, it appeared that it had achieved a miraculous level of modern economic growth using its highly involved corporatist state to direct and manage development.

Mexico was less successful in managing political conflict during this period, however. As the economy had grown during the ISI period, income concentration had not improved to any great extent. Class conflict was the problem that, with development policy, dominated the political arena. Indeed, variations in Mexico's FREE index across time can be explained in large part as the response to the threat of class mobilization from below and the erosion of the corporatist vertical political organization. Fueling the class conflict was, as we have noted, income and wealth inequality. Economic development contributed to these problems in at least two ways. First, it actually increased the disparity in the distribution of income by increasing the percentage of wealth held by the wealthiest five percent of Mexican citizens. At the same time, some social mobility among the poorest citizens had occurred. That mobility was just enough to provide the poor with a better glimpse of what they were missing, and when they saw a very small group of elite continuing to improve their already dominant position, they felt the impulse to organize and implement reform

(Cockcroft 1983).

This pressure on the elites from below forced them to reconsider some of their policies. The most notable changes that they made were in the Mexican relationship to foreign capital. As the elite began to feel that the corporatist structure was threatened, they wanted to insure that the economy remained in good health so as to prevent the growing class tensions from becoming more severe. In an attempt to achieve this, they redoubled their efforts at attracting foreign capital. The difference was that far fewer restrictions were placed on the autonomy of the foreign investors, and we see a consequent rise among foreign actors to affect technological decisions within the Mexican economy. The profits on United States investments in 1977 that were returned to the United States were higher than the total profits in the entire decade of the 1960s (Cockcroft 1983). The effect of this foreign investment was to increase even more the wealth of the Mexican elites. While the wealth of the elites was strengthened, the elites also demonstrated a willingness to improve Mexican social programs. This decision reflected the attempt on their part to appear concerned about the Mexican peasant, and the strategy seemed to work as long as the economy continued to grow at a reasonable rate. Strong growth rates were, however, not going to last much longer.

As oil prices fell going into 1980, the Mexican

economic boom came to an abrupt end. As this occurred, there was a significant increase in class conflict because the poor were hit hardest by the economic collapse. While the economy had fallen into a shambles by 1980, there was no denying that the Mexican economy had been able to achieve a large degree of economic growth very quickly and with an extremely unusual level of political stability for a Latin American country. Mexico experienced economic difficulties just as did all of the other Latin American countries, but the corporatist regime type was able to plan development and manage opposition in such a way that energy was not lost in a series of military coups. Probably the most important result of this stability was the ability of the Mexican government for much of the twentieth century to dictate the terms on which foreign capital participated in the Mexican economy.

#### Statistical Analysis:

Turning to the empirical testing of our three theories, we will now examine our regression results. Recall that Theory 1 one predicts that internal forces are the most important influences on pattern of development, Theory 2 predicts that external forces are the most important in determining patterns of development, and Theory 3 predicts that both internal and external forces have a significant effect on patterns of development.

We turn first to the results using effective rates of



protection as the indicator for the dependent variable. Regressing ERP on FREE for Theory 1 yielded an adjusted R-squared of 0.34 with a P-value of 0%. For Theory 2 the regression of ERP on FIP yielded an adjusted R-squared of 0.35 with a P-value of 0%. The multiple regression for Theory 3 yielded an adjusted R-squared of 0.47 with the FREE P-value being 1.0% and the FIP P-value being 0.9%.

The results using relative capital-labor intensity for the dependent variable indicator are as follows. For Theory 1 regressing CIR on FREE we found an adjusted R-squared of -0.02 with a P-value of 67.2%. Theory 2 yielded an adjusted R-squared of 0.32 with a P-value of 0%. The multiple regression for Theory 3 yielded an adjusted R-squared of 0.36 with the FREE P-value being 12.9% and the FIP P-value being 0%.

Taken together, these results indicate that Theory 3 works best for both ERP and CIR as indicators for pattern of development. These results do make sense within the Mexican historical context. First, consider effective rates of protection. As a result of Mexico's corporatist structure, we would expect more actors to be able to place demands on the government, albeit in a tightly controlled way. This is in fact what we see, as internal forces show up as significant on ERP. This is reflected by the Freedom House indicator which shows that at times, the corporatist structure was slightly more accommodating and at times slightly less.

External forces are important to ERP because of the unique relationship between the Mexican state and foreign actors. Their continued search for compromise on the need for foreign capital and the desire to prevent foreign control was in part achieved by providing foreign investors with a protected environment in which to invest while still controlling the effects of that investment.

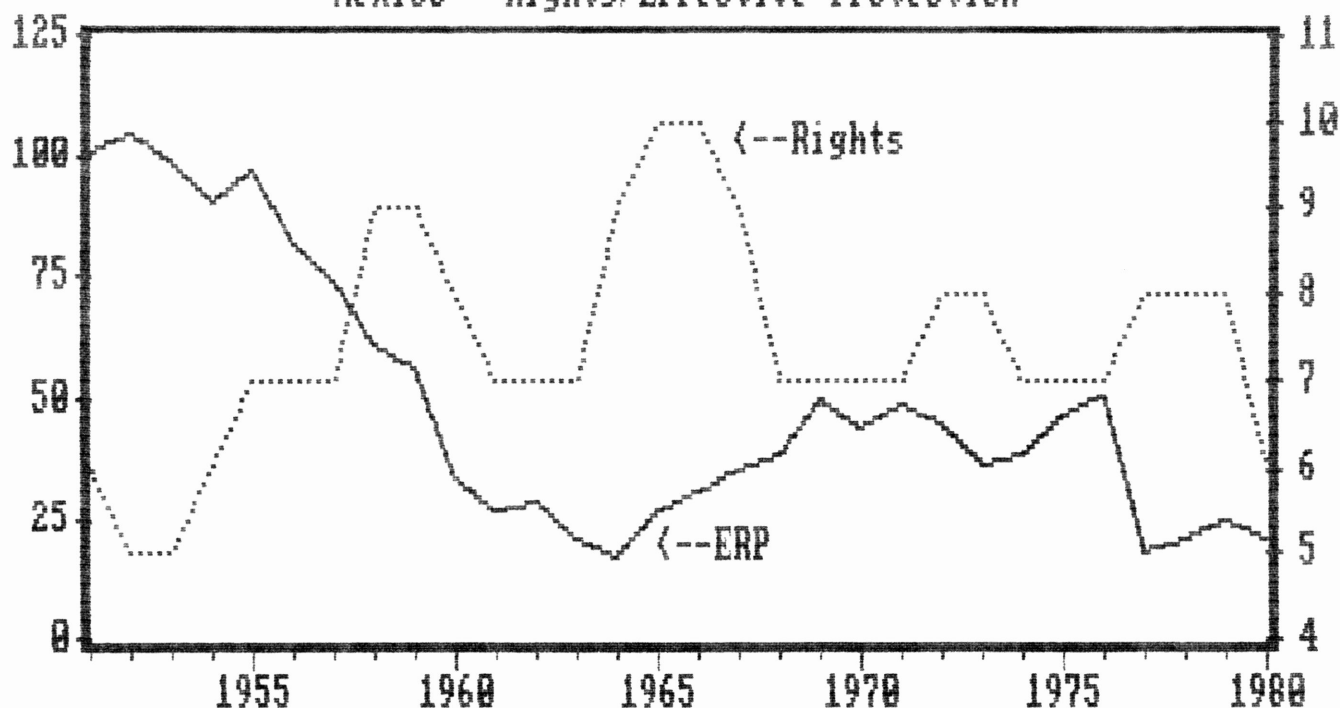
Theory 3 also works using CIR as the indicator for pattern of development. Internal forces are important in Mexico because the corporatist structure gave the government greater control over technological decisions. Furthermore, the fact that the Mexican government owned a significant fraction of Mexican industry meant that it had a good opportunity to influence choices about capital intensity. Foreign actors have an important influence, as always, because foreign investors prefer to invest in the kinds of projects abroad in which they are accustomed to investing at home. These kinds of projects are more capital intensive, and moreover, there is the perception that these kinds of projects will have a higher and more reliable return.

#### Conclusion:

We have found that in Mexico, Theory 3 works best to explain both effective rates of protection and relative capital-labor intensity. Moreover, we have seen how important Mexico's history was in determining how much

control the government was able to have over foreign actors, and we have seen how both these internal and external forces combine to shape patterns of Mexican economic development.

### Mexico - Rights/Effective Protection



LS // Dependent Variable is MERP1  
 Date: 1-01-1980 / Time: 1:47  
 SMPL range: 1951 - 1980  
 Number of observations: 30

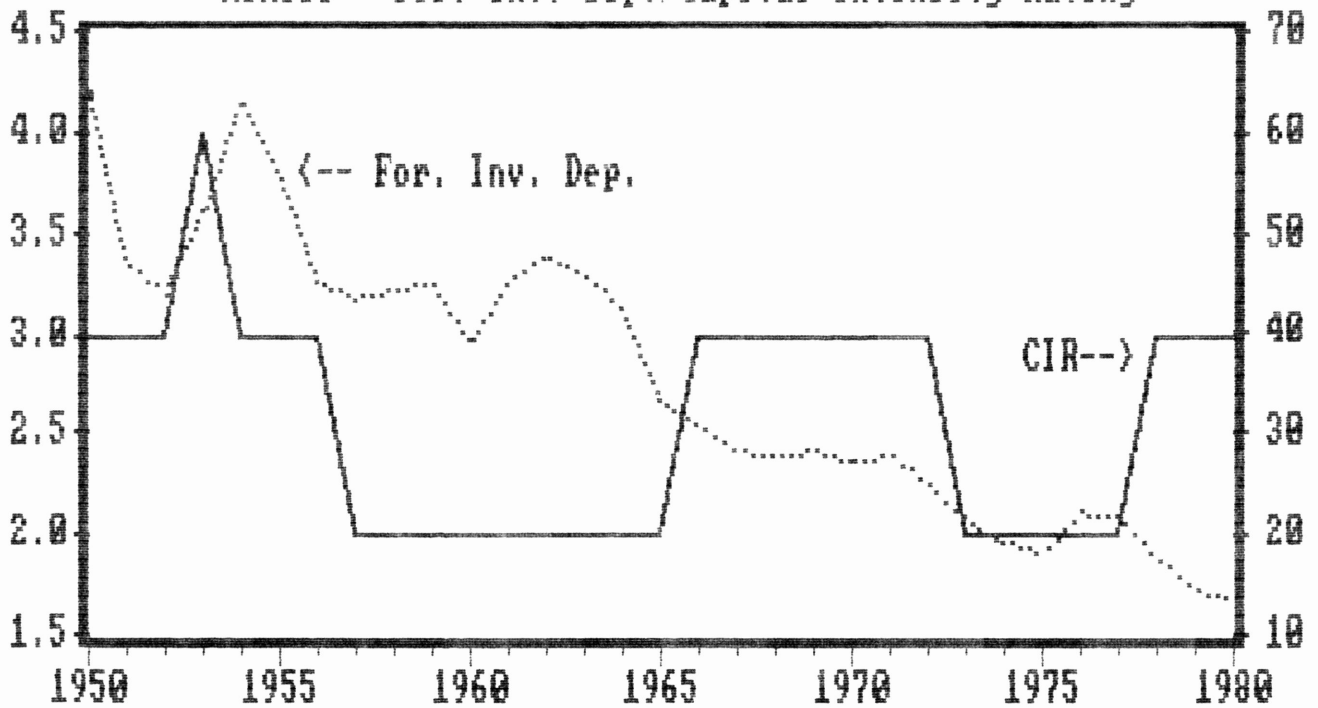
| VARIABLE  | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|-----------|-------------|------------|------------|-------------|
| C         | 150.92331   | 25.400928  | 5.9416456  | 0.000       |
| MFREE(-1) | -13.654908  | 3.3585481  | -4.0657176 | 0.000       |

R-squared 0.371211 Mean of dependent var 48.96667  
 Adjusted R-squared 0.348755 S.D. of dependent var 27.43831  
 S.E. of regression 22.14266 Sum of squared resid 13728.32  
 Durbin-Watson stat 0.466182 F-statistic 16.53006  
 Log likelihood -134.4584

#### Covariance Matrix

|                     |          |             |           |
|---------------------|----------|-------------|-----------|
| C,C                 | 645.2071 | C,MFREE(-1) | -84.22284 |
| MFREE(-1),MFREE(-1) | 11.27985 |             |           |

### Mexico - For. Inv. Dep./Capital Intensity Rating



LS // Dependent Variable is MCIR  
 Date: 1-01-1980 / Time: 3:49  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 2.4346841   | 0.2811687  | 8.6591576 | 0.000       |
| MFIP     | 0.0041085   | 0.0073696  | 0.5574961 | 0.581       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.010604  | Mean of dependent var | 2.580645 |
| Adjusted R-squared | -0.023513 | S.D. of dependent var | 0.564163 |
| S.E. of regression | 0.570757  | Sum of squared resid  | 9.447139 |
| Durbin-Watson stat | 0.640927  | F-statistic           | 0.310802 |
| Log likelihood     | -25.56883 |                       |          |

| Covariance Matrix |          |        |           |
|-------------------|----------|--------|-----------|
| C,C               | 0.079056 | C,MFIP | -0.001929 |
| MFIP,MFIP         | 5.43D-05 |        |           |

LS // Dependent Variable is MERP

Date: 4-01-1990 / Time: 17:38

SMPL range: 1950 - 1980

Number of observations: 30

```
=====
      VARIABLE      COEFFICIENT      STD. ERROR      T-STAT.      2-TAIL SIG.
=====
          C          150.92331          25.400928          5.9416456          0.000
      MFREE(-1)     -13.654908          3.3585481         -4.0657176          0.000
=====
R-squared              0.371211      Mean of dependent var      48.96667
Adjusted R-squared    0.348755      S.D. of dependent var      27.43831
S.E. of regression    22.14266      Sum of squared resid      13728.32
F-statistic           16.53006      Log likelihood              -134.4584
=====
```

LS // Dependent Variable is MERP

Date: 4-01-1990 / Time: 17:39

SMPL range: 1950 - 1980

Number of observations: 30

```
=====
      VARIABLE      COEFFICIENT      STD. ERROR      T-STAT.      2-TAIL SIG.
=====
          C          5.4766257          11.365996          0.4818430          0.634
      MFIP          1.2576224          0.3072919          4.0925987          0.000
=====
R-squared              0.374293      Mean of dependent var      48.96667
Adjusted R-squared    0.351946      S.D. of dependent var      27.43831
S.E. of regression    22.08833      Sum of squared resid      13661.04
F-statistic           16.74936      Log likelihood              -134.3847
=====
```

LS // Dependent Variable is MERP

Date: 4-01-1990 / Time: 17:40

SMPL range: 1950 - 1980

Number of observations: 30

```
=====
      VARIABLE      COEFFICIENT      STD. ERROR      T-STAT.      2-TAIL SIG.
=====
          C          88.824851          31.793959          2.7937651          0.009
      MFREE(-1)     -9.3569686          3.3800536         -2.7682900          0.010
      MFIP          0.8677321          0.3100201          2.7989538          0.009
=====
R-squared              0.512625      Mean of dependent var      48.96667
Adjusted R-squared    0.476523      S.D. of dependent var      27.43831
S.E. of regression    19.85209      Sum of squared resid      10640.85
F-statistic           14.19940      Log likelihood              -130.6370
=====
```

LS // Dependent Variable is MCIR  
 Date: 4-01-1990 / Time: 17:53  
 SMPL range: 1950 - 1980  
 Number of observations: 31

```
=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 2.6359773   | 0.7104471  | 3.7103077 | 0.001       |
| MFREE    | 0.0403683   | 0.0945030  | 0.4271640 | 0.672       |

```
=====
```

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.006253  | Mean of dependent var | 2.935484 |
| Adjusted R-squared | -0.028014 | S.D. of dependent var | 0.629046 |
| S.E. of regression | 0.637796  | Sum of squared resid  | 11.79674 |
| Durbin-Watson stat | 0.512345  | F-statistic           | 0.182469 |
| Log likelihood     | -29.01156 |                       |          |

```
=====
```

LS // Dependent Variable is MCIR  
 Date: 4-01-1990 / Time: 17:54  
 SMPL range: 1950 - 1980  
 Number of observations: 31

```
=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.9982242   | 0.2537787  | 7.8738843 | 0.000       |
| MFIP     | 0.0263819   | 0.0066516  | 3.9662163 | 0.000       |

```
=====
```

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.351678  | Mean of dependent var | 2.935484 |
| Adjusted R-squared | 0.329322  | S.D. of dependent var | 0.629046 |
| S.E. of regression | 0.515157  | Sum of squared resid  | 7.696207 |
| Durbin-Watson stat | 0.745086  | F-statistic           | 15.73087 |
| Log likelihood     | -22.39157 |                       |          |

```
=====
```

LS // Dependent Variable is MCIR  
 Date: 4-01-1990 / Time: 17:54  
 SMPL range: 1950 - 1980  
 Number of observations: 31

```
=====
```

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.0196846   | 0.6735829  | 1.5138219 | 0.141       |
| MFREE    | 0.1198899   | 0.0767441  | 1.5622021 | 0.129       |
| MFIP     | 0.0288880   | 0.0066876  | 4.3196230 | 0.000       |

```
=====
```

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.403655  | Mean of dependent var | 2.935484 |
| Adjusted R-squared | 0.361059  | S.D. of dependent var | 0.629046 |
| S.E. of regression | 0.502820  | Sum of squared resid  | 7.079187 |
| Durbin-Watson stat | 0.883921  | F-statistic           | 9.476362 |
| Log likelihood     | -21.09626 |                       |          |

```
=====
```

## Chapter Six: Conclusion

Having been immersed in detailed historical accounts in the four country cases, it will be useful to take a step back and regain a broader perspective on our overall theoretical approach. The purpose of this study has been to test three contending theories that predict patterns of development in Latin American countries. The reason that so much historical detail was needed is that it provided a context within which to view the empirical evaluation in each country case. We have seen that each country's historical background has validated our empirical findings on a country by country basis, but now we need to use all four historical contexts to draw broader conclusions with a comparative perspective. To do this, we will consider first the bottom line results of the empirical evaluation of our theories. Then we will draw some broader conclusions based on those empirical findings, and we will explain any unusual or unexpected results. Finally, we will look at some of the potential weaknesses in this project and the implications of the project for future research.

Before turning to the actual empirical findings, it will be useful to consider some observations about the structure of our theoretical approach. Recall that three contending theories were set up. Theory 1 predicted that internal forces would be the most important determinant for



patterns of development, Theory 2 predicted that external forces would be the most important determinant for patterns of development, and Theory 3 predicted that both internal and external forces would have a significant effect on patterns of development. This theoretical structure implies that if Theory 3 is to be considered valid, both internal forces and external forces must have a significant effect on patterns of development. Similarly, Theory 2 could be found to be superior to Theory 3 only if internal forces were found to be insignificant. Thus, judgements between any two of the three theories can be meaningfully made only contingent on the significance of the third theory. Keeping this structure in mind will aid in the understanding of our results.

#### The Empirical Evaluation:

Put simply, Theory 3 is best in all cases for which the dependent variable indicator was effective rate of protection (ERP). Theory 3 is best in explaining relative capital-labor intensity in Chile and Mexico, while in Argentina and Brazil, Theory 2 best explains relative capital-labor intensity. To get a more detailed look at the statistics behind these conclusions, we look at the actual results in detail.

First, we consider all three theories in all four country cases using effective rates of protection as the dependent variable indicator. (All R-squared values are

adjusted for degrees of freedom.) In Argentina, Theory 1 yielded an R-squared of 0.37 with a critical F-value of 17.94. Theory 2 yielded an R-squared of -0.01 with an F-value of 0.72. Theory 3 yielded an R-squared of 17.22 with an F-value of 12.22. Theory 3 had the highest R-squared and also had significant coefficients on the independent variables.

In Brazil, Theory 1 yielded an R-squared of 0.36 with an F-value of 17.14. Theory 2 yielded an R-squared of 0.49 with an F-value of 29.02. Theory 3 yielded an R-squared of 0.55 with an F-value of 19.39. Theory 3 had the highest R-squared and also had significant coefficients on the independent variables.

In Chile, Theory 1 yielded an R-squared of 0.82 with an F-value of 130.58. Theory 2 yielded an R-squared of 0.11 with an F-value of 4.72. Theory 3 yielded an R-squared of 0.83 with an F-value of 75.37. Theory 3 had the highest R-squared and had significant coefficients.

In Mexico, Theory 1 yielded an R-squared of 0.37 with an F-value of 16.53. Theory 2 yielded an R-squared of 0.35 with an F-value of 16.74. Theory 3 yielded an R-squared of 0.47 with an F-value of 14.20. Theory 3 had the highest R-squared and had significant coefficients.

We will now consider all three theories in all four country cases using relative capital-labor intensity as the dependent variable indicator. In Argentina, Theory 1 yielded

an R-squared of 0.06 with an F-value of 3.12. Theory 2 yielded an R-squared of 0.22 with an F-value of 9.22. Theory 3 yielded an R-squared of 0.24 and an F-stat of 5.45. Theory 3 has the highest R-squared, but the coefficient for FREE is significant only at the 23% level. I conclude that theory 2 really is the better theory in Argentina on the basis of these results.

In Brazil, Theory 1 yielded an R-squared of 0.10 with an F-value of 4.51. Theory 2 yielded an R-squared of 0.46 and an F-value of 26.29. Theory 3 yielded an R-squared of 0.43. Theory 2 had the highest R-squared, and furthermore, in Theory 3, the FREE coefficient is very insignificant.

In Chile, Theory 1 yielded an R-squared of 0.29 with an F-value of 11.94. Theory 2 yielded an R-squared of 0.004 with an F-value of 1.14. Theory 3 yielded an R-squared of 0.41 with an F-value of 11.42. Theory 3 has the highest R-squared, and all coefficients are significant.

In Mexico, Theory 1 yielded an R-squared of 0.02 with an F-value of 0.18. Theory 2 yielded an R-squared of 0.32 with an F-value of 15.73. Theory 3 yielded an R-squared of 0.36 with an F-value of 9.48.

#### General Conclusions:

There are a number of important conclusions that we can draw from these results, particularly with the aid of

Empirical Evaluation of  
Theories

Dependent Variables

|            | <u>ERP:</u>               |          | <u>CIR:</u>  |
|------------|---------------------------|----------|--------------|
|            | <u>R-squared (F-stat)</u> |          |              |
| Argentina: |                           |          |              |
| Theory 1   | 0.37                      | (17.94)  | 0.06 (3.12)  |
| Theory 2   | -0.01                     | (0.72)   | 0.22 (9.22)  |
| Theory 3   | 0.45                      | (12.22)  | 0.24 (5.45)  |
| Brazil:    |                           |          |              |
| Theory 1   | 0.36                      | (17.14)  | 0.10 (4.51)  |
| Theory 2   | 0.49                      | (29.02)  | 0.46 (26.29) |
| Theory 3   | 0.55                      | (19.39)  | 0.43 (12.71) |
| Chile:     |                           |          |              |
| Theory 1   | 0.82                      | (130.58) | 0.29 (11.94) |
| Theory 2   | 0.11                      | (4.72)   | 0.004 (1.14) |
| Theory 3   | 0.83                      | (75.37)  | 0.41 (11.42) |
| Mexico:    |                           |          |              |
| Theory 1   | 0.37                      | (16.53)  | 0.02 (0.18)  |
| Theory 2   | 0.35                      | (16.74)  | 0.32 (15.73) |
| Theory 3   | 0.47                      | (14.20)  | 0.36 (9.48)  |

historical context. First, we should consider the theoretical findings. We have seen that effective rates of protection are best predicted by Theory 3. Moreover, we have also seen that although both internal and external forces are important, internal forces have the greater impact. There are a number of reasons for this. First, internal forces are the most important explanatory variable because decisions about the implementation of protectionist policies are largely political. We have seen that in all four of our countries, lower protection rates and greater emphasis on an import-export oriented economic structure tend to benefit a smaller group of elites than does an import-substituting policy. This is because the means of producing export goods tend to be held by a small group of wealthy elites reflecting the historical concentration of economic power.

Import-substituting policies, on the other hand, benefit a broader group of interests. They allow new industries to develop outside the old patterns of income and wealth distribution. We have seen this in all four of our country cases. Also, wages can rise under ISI policies because the high tariffs cut off foreign competition. This means that companies are operating in a less competitive environment and can thus afford to be less cost conscious and allow wages to rise. This rise in wages directly benefits labor.

Given that high tariff rates benefit a broader range

of interests than do lower tariff rates, it should not be surprising that as political and civil rights improve, tariff rates increase. The specific mechanism through which this occurs is the increased demands that the population is able to place on the government. As political and civil rights improve, the government allows greater participation in the political process to a broader range of social groups. As these groups are better able to participate, they demand policies that better serve their own interests, and tariff rates go up.

At the same time, there is an impact that foreign actors have on effective rates of protection that must be explained. First, foreign investors have preferred to invest in protected industries because they see these industries as less risky investments. A company that is not facing foreign competition will be less likely to be driven out of business, and this reduces the risk born by the investor. Additionally, given this predisposition on the part of foreigners towards protected industries, we can also discern a mechanism by which foreign interests can affect the internal political process. As foreign capital becomes more important in a particular industry, alliances between foreign actors and internal actors can occur. We have seen that this was particularly prevalent in Argentina and Brazil during their ISI periods, and it also occurred in Chile and Mexico, although to a much lesser degree because of those country's

restrictions on the autonomy of foreign capital. The alliances give the external actors a political voice within the domestic country by using their allies to influence the political process. In sum, while this external impact on protection rates exists and is significant, the magnitude of the influence is small compared to the influence of internal forces.

Having dealt with effective rates of protection as the dependent variable indicator, we can now turn to relative capital-labor intensity. These results were not as cut and dried as the results for ERP, but they are, nevertheless explainable. Recall that Theory 2 predicted CIR best in Argentina and Brazil, and Theory 3 predicted CIR best in Chile and Mexico. There are two possible explanations for this. First, it could be that in Argentina and Brazil Theory 3 really does work, but our indicator for internal force, FREE, does not adequately reflect the political forces and processes that are at work in the country. This would imply that some kind of political process was present in Argentina and Brazil that was not in Chile and Mexico, and the historical data do not support this conclusion.

In fact, the historical data support the opposite conclusion. Chile and Mexico have political orientations and structures that have given them greater control over foreign capital than either Brazil or Argentina had. Thus, Chile and Mexico have something that Argentina and Brazil do not.

Theory 3 works better in Chile and Mexico because in those countries, internal forces have a greater impact on CIR.

There are several reasons why this is true, and they fall into two general lines of reasoning. The first line of reasoning relates to the natural resources that these countries were endowed with. Argentina and Brazil were much more agriculturally oriented in their early periods than were either Mexico or Chile. Argentina's original exports were wheat and beef, and Brazil's original export was sugar, and later coffee. Mexico and Chile were much more reliant on extractive commodity exports like nitrates, gold, silver, and copper. These required more capital intensive techniques from the very start. Hence, the Chilean and Mexican early experiences with capital were both more concentrated and more important. Beginning in the ISI periods, which our data cover, Argentina and Brazil had more technological catching up to do. This would limit the number of options available to local factory owners and at the same time increase the role that foreign forces could play. While these are not directly political variables, we have been able to determine that natural resources and timing of industrial development can constrain the ability of a country to control its own technological decisions.

That line of reasoning explains a negative constraint on the internal actors of Argentina and Brazil. At the same time, and more importantly, there is a positive reason that



internal forces in Chile and Mexico have been more important. Both Chile and Mexico evolved means by which they could limit the autonomy of foreign actors. We will consider each country in turn.

The chief mechanism through which Chile controlled foreign actors was the requirement for shared ownership. Fearing that their economy would be dominated by foreign actors, Chile enacted a set of laws that compelled multi-national corporations to share ownership of their Chilean divisions with either local entrepreneurs or the Chilean state. This gave internal actors in Chile a direct means through which they could affect technological decisions. Moreover, the Pinochet regime that came to power in 1973 was so powerful and repressive that it could have foreign capital on its own terms. For example, it was able to depress labor's wages to such an extent that investment became attractive to foreigners even when it was subject to strict control. This can best be seen in the Chilean mining industry after 1974.

Mexico, too, had a set of mechanisms through which it controlled foreign capital. From the days of Diaz, Mexican political elites have feared granting too much autonomy to foreign capital. This is most likely a backlash against the heavy involvement of foreign capital in the Mexican economy and a corresponding loss of elite power in the early years of the Diaz era. The best example of this relationship is in

the Mexican silver mining industry where in the early Diaz period, foreigners had almost absolute control. This alienated two groups: the elites who owned the mines and felt their autonomy being constrained, and the labor who worked in the mines, blaming foreigners for the poor working conditions. As the revolution took place, we see a consensus build in Mexican society against the attraction of foreign capital. While Mexico would eventually realize that it needed foreign investments to develop, it would use its corporatist government structure to tightly control the way that foreign capital was admitted. Consequently, we see in Mexico, as well as Chile, definite political, social, and institutional arrangements and predispositions that give these countries greater control over foreign capital, and hence the technology choices that are funded by that capital. These factors are not present in Argentina and Brazil, and thus those two countries are unable to effectively control the actions of foreign capital.

The other explanatory variable, foreign investment dependence, is a significant factor in all four countries. The fact that Mexico and Chile are able to affect foreign actors does not mean that they have total control. The fact that it is foreigners that have money to invest and technology to sell makes them powerful influences on the choice of technological techniques in all four countries. We can explain the predisposition of foreign capital for more

capital intensive techniques in several ways. First, those technologies are similar to the technologies used in the foreign investor's home country. The investor is likely to be more comfortable investing in projects with which he is familiar. Second, the investor is likely to see more capital intensive techniques as having higher yields for his investments. Third, organizations such as the World Bank and the IMF have often stressed capital intensity because they are afraid of countries defaulting on their loans, forcing the countries to become trapped in their stagnant economies, and depriving developing countries of an equal opportunity to develop with the First World. Capital-intensive technologies, such as Green Technology, have been seen as the cure all for the underdeveloped world's problems. As a result, most foreign capital sources prefer capital intensive techniques for one reason or another. Finally, investors have seen Latin American labor pools as being too undependable to trust with labor intensive techniques. Because capital intensive techniques do not use as much labor, they are less likely to fail because of poor quality workers.

#### Implications for Further Research:

This project has allowed me to conclude several things beyond our four specific countries and three specific theories. First, I have empirically demonstrated that a synthesis of the development literature is needed. In six out of eight possible cases, both internal and external

forces have been necessary in explaining patterns of development. For the dependency theorists who argue that countries' economic development experiences are determined by external forces, and for the theorists that claim that countries' development experiences are shaped by internal forces, this study has clear implications. While both camps provide useful perspectives about economic development, neither can hope to fully explain the development process without the help of the other. Thus, the two camps should apply their joint knowledge and perspectives in an attempt to better understand the dynamics of economic development.

Second, I have not only demonstrated that looking merely at levels of development is an inadequate way to approach development studies, I have suggested a viable, better alternative. The use of pattern of development is better both in terms of the logic and causality of the development process and in its ability to be analyzed within a historical context. This allows the discovery of trends that were not even expected, such as the fact that a country's internal natural resources can constrain that country's ability to control foreign actors.

Finally, by showing the potential of the variable 'pattern of development,' I have opened the door for further research to improve indicators for measuring this variable. For example, the five point scale CIR that I use for capital-intensity cannot show enough variation to get at the

full range of possible technological options that are available to countries. There is a great deal of improvement that can be found in this area.

In sum, I have not only shed light on country specific development patterns within a carefully designed theoretical context, I have also shown the application of my research approach to both the existing literature and possible future courses of investigation. It will be exciting to see what new and fresh ideas are generated in the development literature because, as I pointed out at the beginning of this study, economic development is an increasingly important issue in the international arena. It is my belief that this project has demonstrated beyond a doubt that fresh approaches are still to be found in this field.

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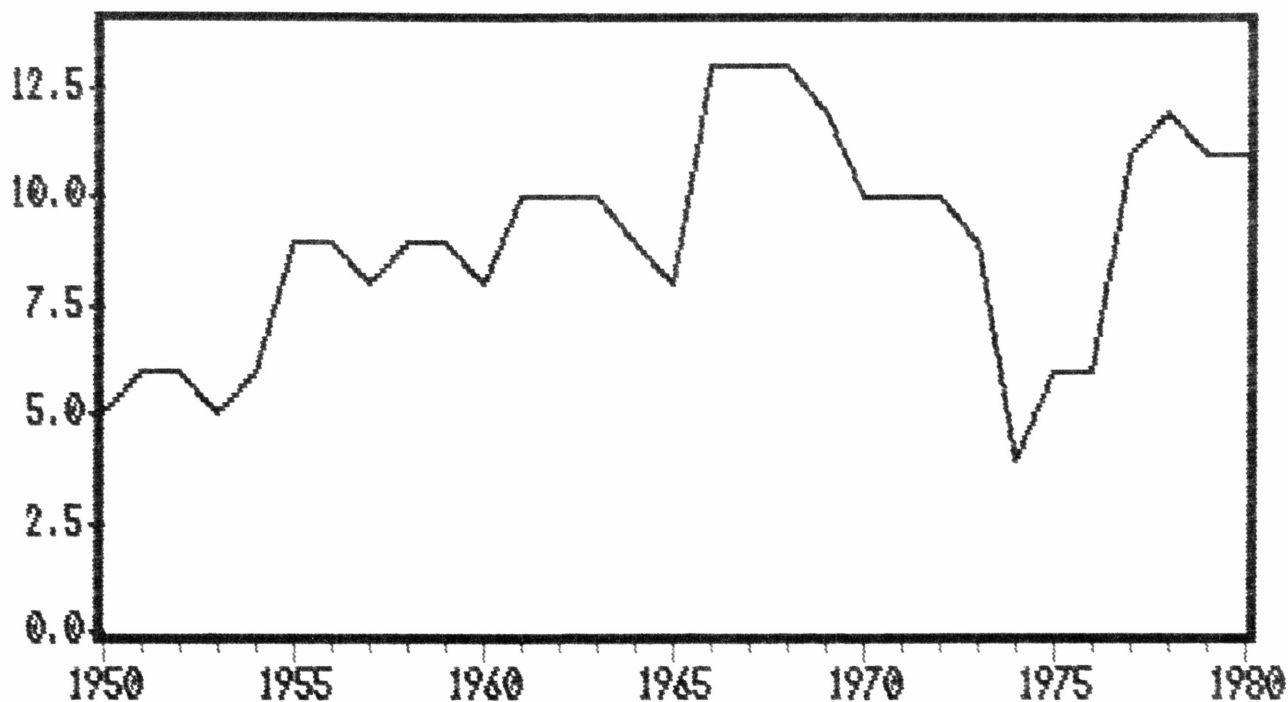
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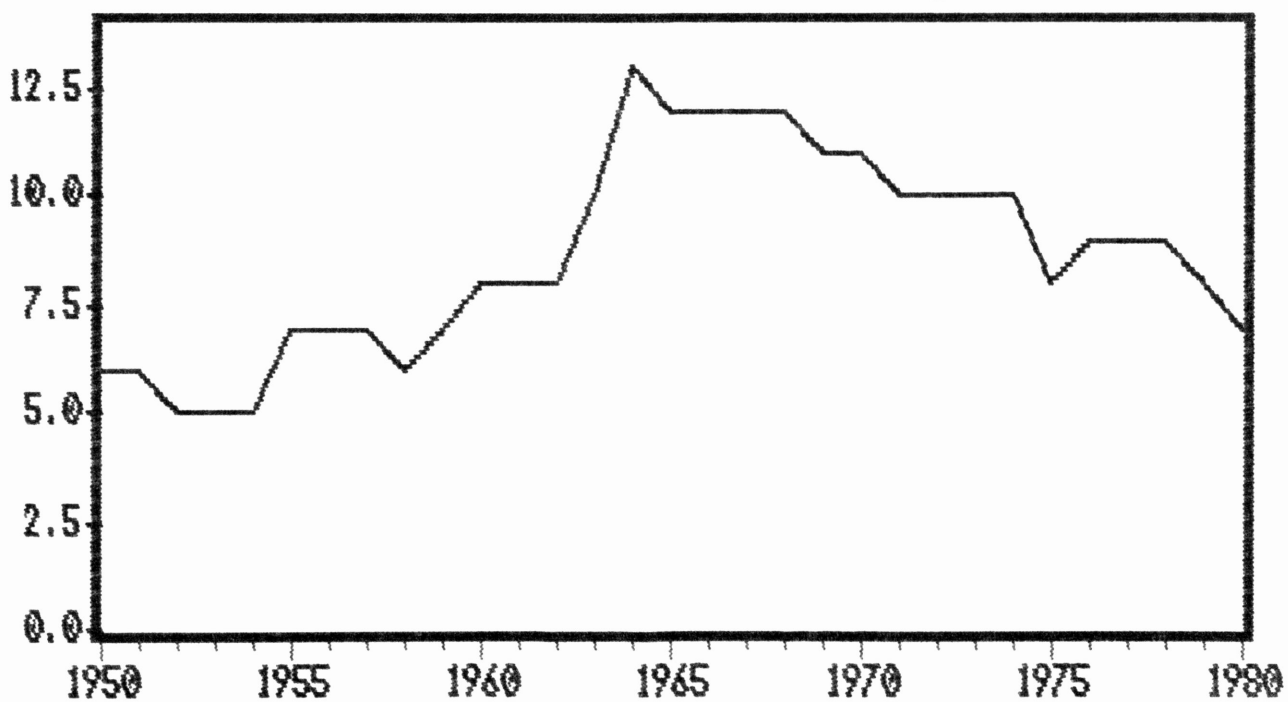
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Statistical Appendix

Argentina - Political and Civil Rights

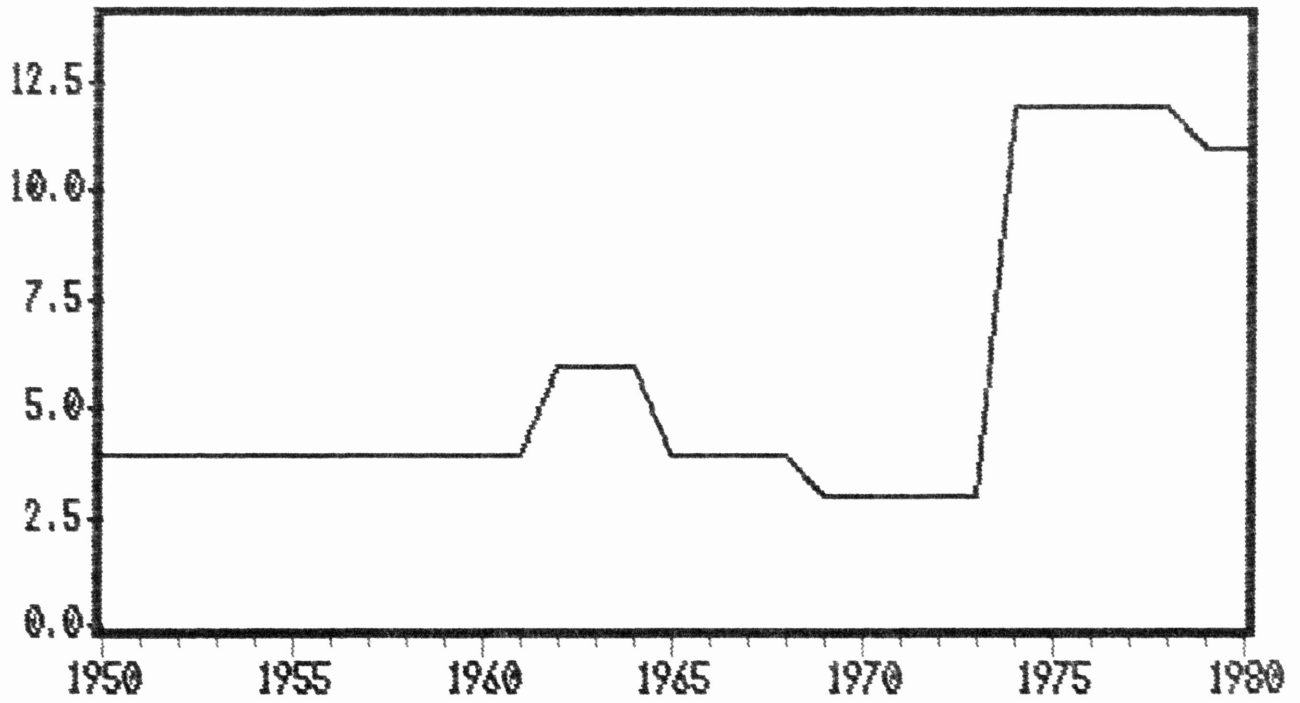


Brazil - Political and Civil Rights

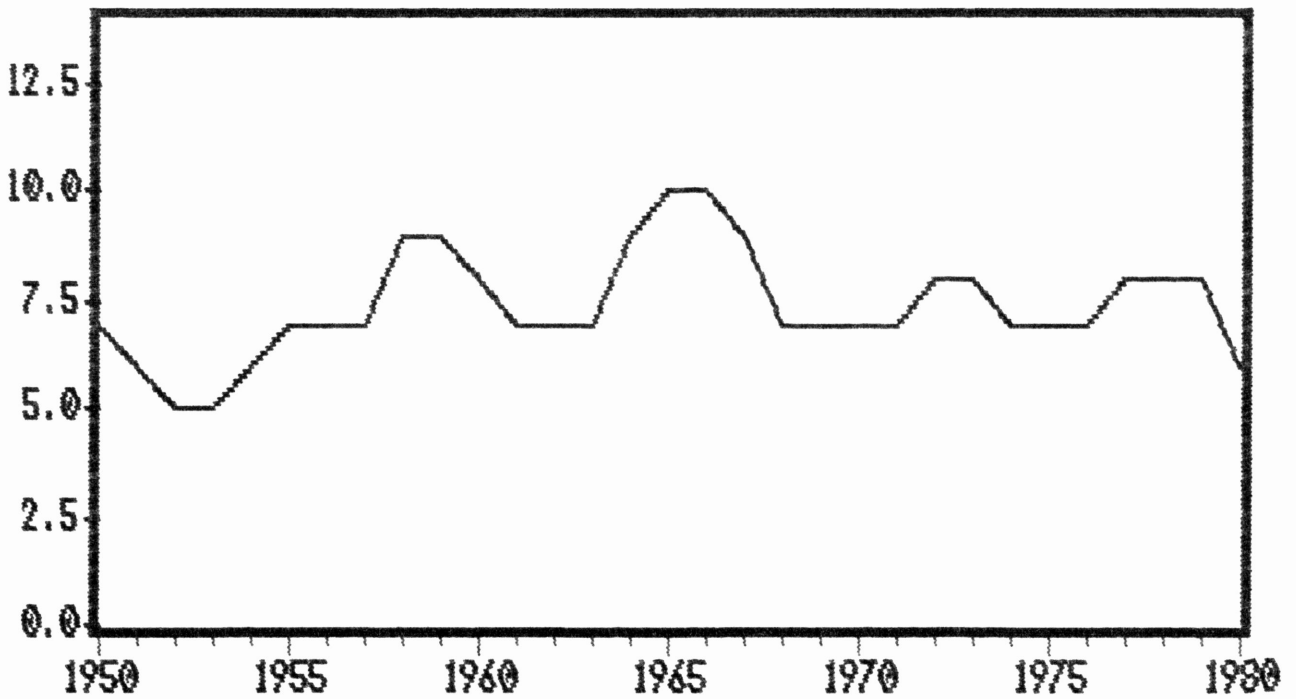




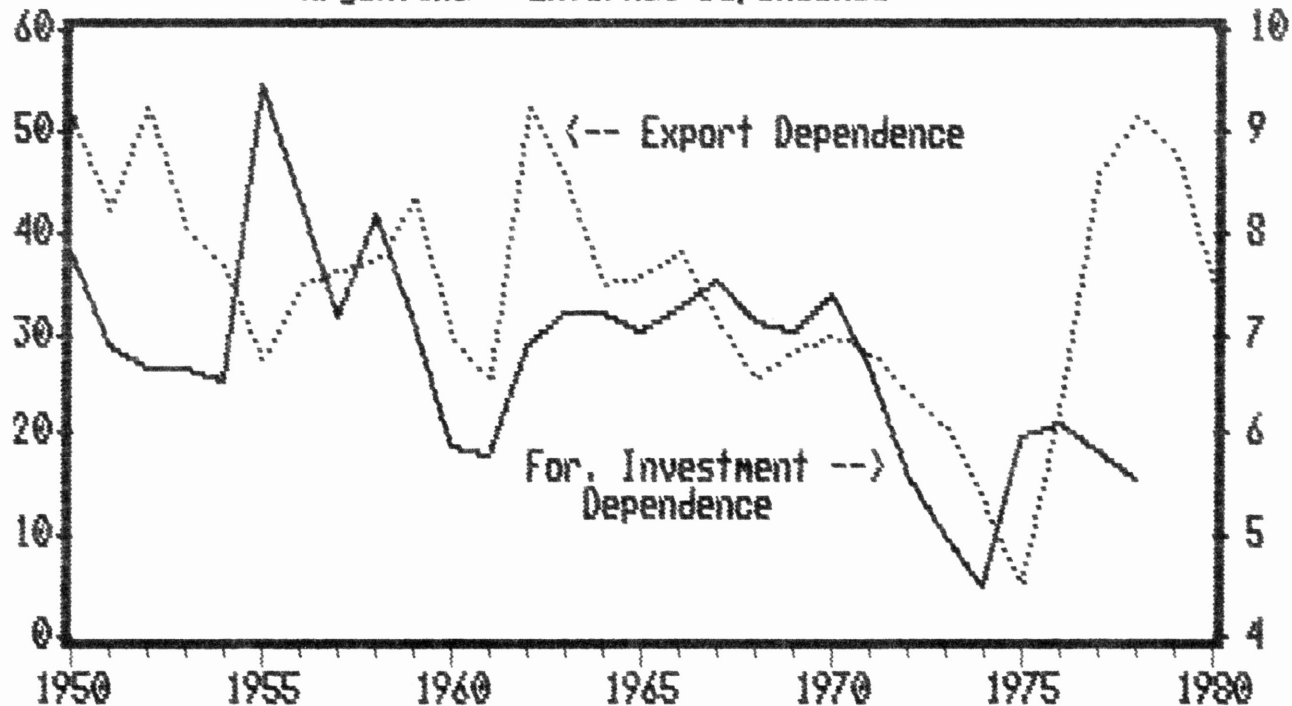
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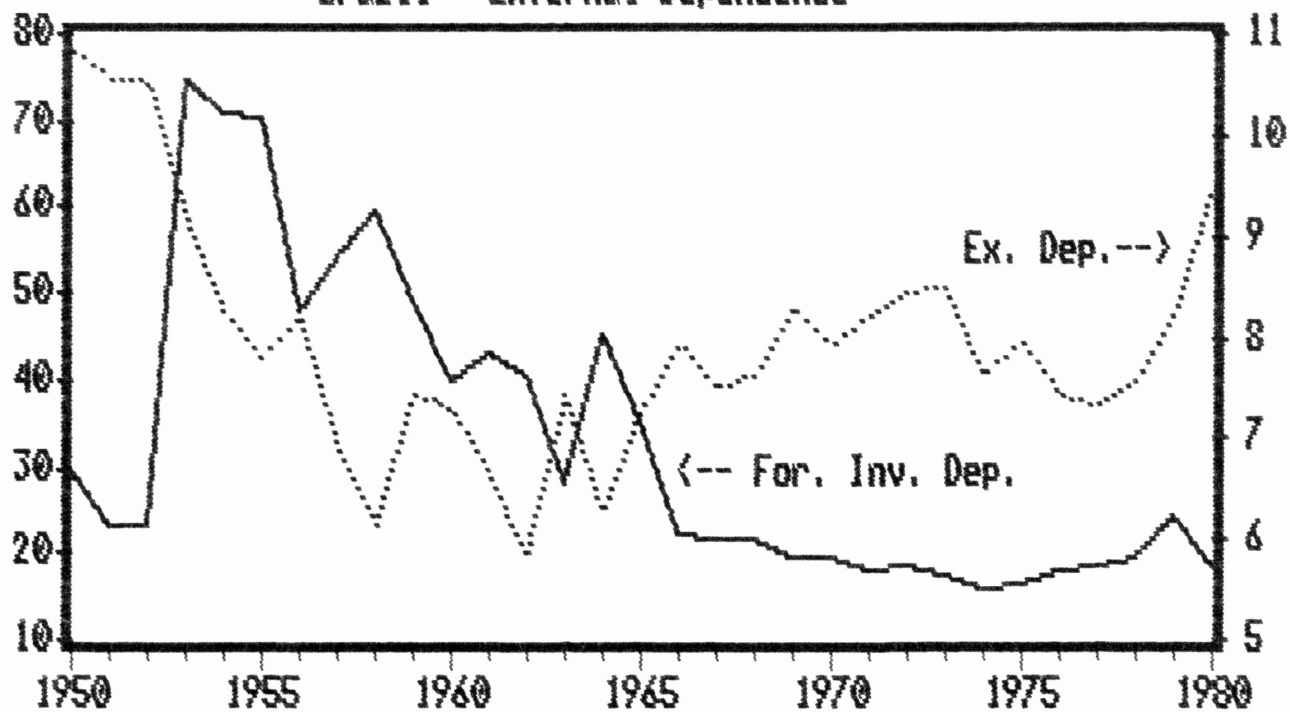
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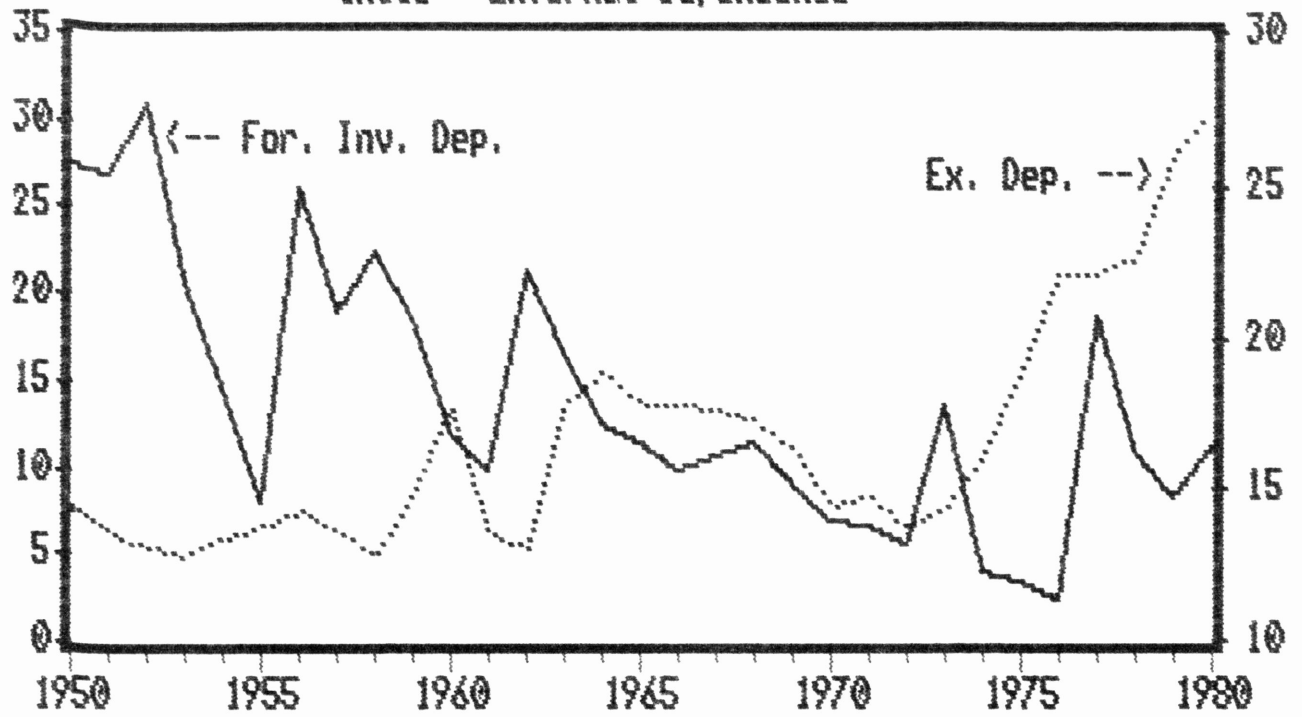
Argentina - External Dependence



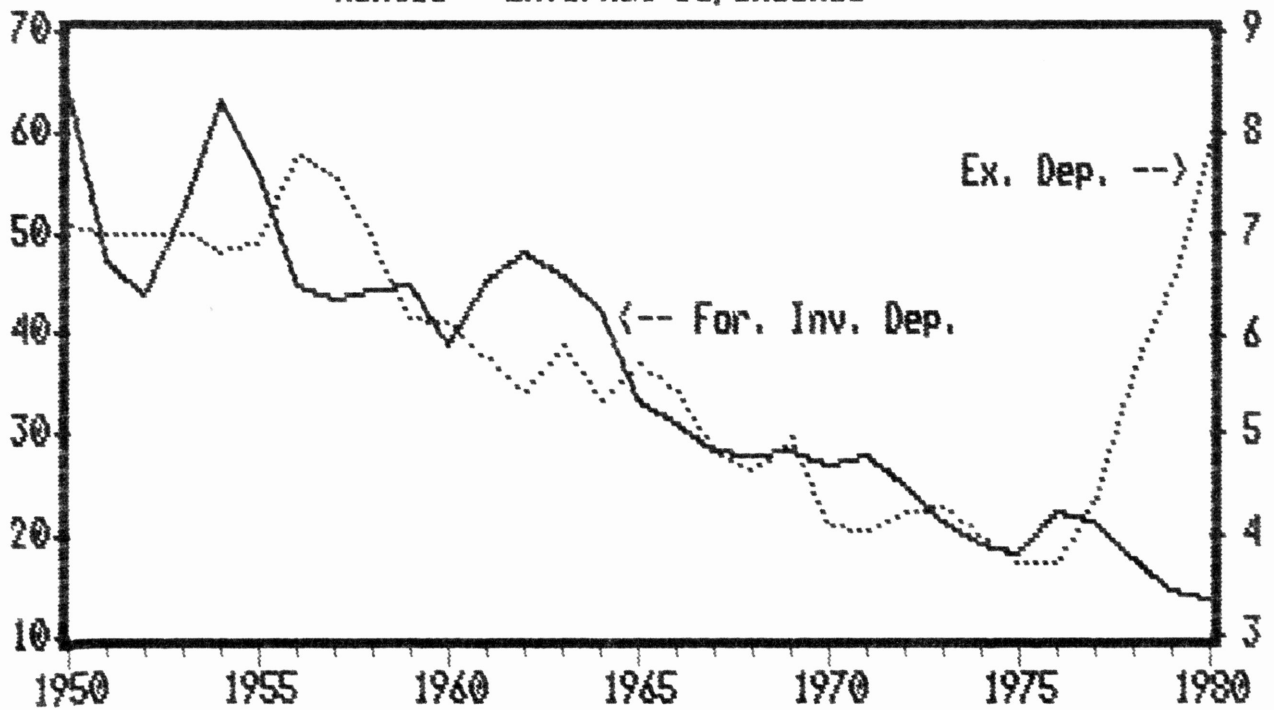
Brazil - External Dependence



Chile - External Dependence



Mexico - External Dependence



Freedom → Tariff Rates

LS // Dependent Variable is AERP  
 Date: 1-01-1990 / Time: 0:31  
 SMPL range: 1950 - 1980  
 Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 213.66763   | 20.939603  | 10.203996  | 0.000       |
| AFREE    | -9.4250145  | 2.2250168  | -4.2359296 | 0.000       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.390550 | Mean of dependent var | 127.9000  |
| Adjusted R-squared | 0.368784 | S.D. of dependent var | 26.90862  |
| S.E. of regression | 29.24014 | Sum of squared resid  | 23939.60  |
| F-statistic        | 17.94310 | Log likelihood        | -142.7995 |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 438.4670 | C,AFREE | -45.05137 |
| AFREE,AFREE | 4.950700 |         |           |

| Residual Plot |   |  |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|--|---|-----|----------|----------|---------|---------|
|               | : |  | * |     | 1951     | 11.8825  | 149.000 | 157.118 |
|               | : |  | * |     | 1952     | -6.11754 | 151.000 | 157.118 |
|               | : |  | * |     | 1953     | -19.5426 | 147.000 | 166.543 |
|               | : |  | * |     | 1954     | 1.88246  | 159.000 | 157.118 |
|               | : |  | : |     | 1955     | 33.1575  | 162.000 | 128.843 |
|               | : |  | : |     | 1956     | 31.1575  | 160.000 | 128.843 |
|               | : |  | * |     | 1957     | -11.2675 | 127.000 | 138.268 |
|               | : |  | * |     | 1958     | 8.15750  | 137.000 | 128.843 |
|               | : |  | * |     | 1959     | 12.1575  | 141.000 | 128.843 |
|               | : |  | * |     | 1960     | -1.26752 | 137.000 | 138.268 |
|               | : |  | : |     | 1961     | 34.5825  | 154.000 | 119.417 |
|               | : |  | * |     | 1962     | 6.58251  | 126.000 | 119.417 |
|               | : |  | * |     | 1963     | 25.5825  | 145.000 | 119.417 |
|               | : |  | * |     | 1964     | 12.1575  | 141.000 | 128.843 |
|               | : |  | * |     | 1965     | 18.7325  | 157.000 | 138.268 |
|               | : |  | : |     | 1966     | 68.8576  | 160.000 | 91.1424 |
|               | : |  | * |     | 1967     | 15.8576  | 107.000 | 91.1424 |
|               | : |  | * |     | 1968     | 3.85756  | 95.0000 | 91.1424 |
|               | : |  | * |     | 1969     | -11.5675 | 89.0000 | 100.567 |
|               | : |  | * |     | 1970     | -26.4175 | 93.0000 | 119.417 |
|               | : |  | * |     | 1971     | -12.4175 | 107.000 | 119.417 |
|               | : |  | * |     | 1972     | 3.58251  | 123.000 | 119.417 |
|               | : |  | * |     | 1973     | 8.15750  | 137.000 | 128.843 |
|               | : |  | : |     | 1974     | -31.9676 | 144.000 | 175.943 |
|               | : |  | : |     | 1975     | 21.8825  | 179.000 | 157.118 |
|               | : |  | * |     | 1976     | 6.88246  | 164.000 | 157.118 |
|               | : |  | * |     | 1977     | -33.9925 | 76.0000 | 109.992 |
|               | : |  | * |     | 1978     | -64.5675 | 36.0000 | 100.567 |
|               | : |  | * |     | 1979     | -50.9925 | 59.0000 | 109.992 |
|               | : |  | * |     | 1980     | -54.9925 | 55.0000 | 109.992 |

Foreign Investment Dep. → Tariff Rates

LS // Dependent Variable is AERF  
 Date: 1-01-1980 / Time: 0:10  
 SMPL range: 1950 - 1980  
 Number of observations: 28

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 118.73028   | 17.782197  | 6.6769182 | 0.000       |
| AFIP     | 0.5224815   | 0.6121570  | 0.8535090 | 0.401       |

|                    |           |                       |           |
|--------------------|-----------|-----------------------|-----------|
| R-squared          | 0.027255  | Mean of dependent var | 132.9643  |
| Adjusted R-squared | -0.010159 | S.D. of dependent var | 32.48986  |
| S.E. of regression | 32.65447  | Sum of squared resid  | 27724.18  |
| F-statistic        | 0.728478  | Log likelihood        | -136.9003 |

Covariance Matrix

|           |          |        |           |
|-----------|----------|--------|-----------|
| C,C       | 316.2065 | C,AFIP | -10.20897 |
| AFIP,AFIP | 0.374736 |        |           |

Residual Plot

|  | obs  | RESIDUAL | ACTUAL  | FITTED  |
|--|------|----------|---------|---------|
|  | 1951 | 35.2782  | 169.000 | 133.722 |
|  | 1952 | 18.4536  | 151.000 | 132.546 |
|  | 1953 | 14.4727  | 147.000 | 132.527 |
|  | 1954 | 27.1220  | 159.000 | 131.878 |
|  | 1955 | 14.7862  | 162.000 | 147.214 |
|  | 1956 | 18.8792  | 160.000 | 141.121 |
|  | 1957 | -8.18510 | 127.000 | 135.185 |
|  | 1958 | -3.44005 | 137.000 | 140.440 |
|  | 1959 | 5.92769  | 141.000 | 135.072 |
|  | 1960 | 8.45984  | 137.000 | 128.540 |
|  | 1961 | 25.9366  | 154.000 | 128.063 |
|  | 1962 | -7.73000 | 126.000 | 133.730 |
|  | 1963 | 9.62697  | 145.000 | 135.373 |
|  | 1964 | 5.46265  | 141.000 | 135.537 |
|  | 1965 | 22.4274  | 157.000 | 134.573 |
|  | 1966 | 24.3373  | 160.000 | 135.663 |
|  | 1967 | -30.1998 | 107.000 | 137.200 |
|  | 1968 | -39.9404 | 95.0000 | 134.940 |
|  | 1969 | -45.4942 | 89.0000 | 134.494 |
|  | 1970 | -43.3964 | 93.0000 | 136.396 |
|  | 1971 | -25.5683 | 107.000 | 132.568 |
|  | 1972 | -4.07756 | 123.000 | 127.078 |
|  | 1973 | 13.0560  | 137.000 | 123.944 |
|  | 1974 | 22.7069  | 144.000 | 121.293 |
|  | 1975 | 49.9842  | 179.000 | 129.016 |
|  | 1976 | 34.2733  | 164.000 | 129.727 |
|  | 1977 | -52.2640 | 76.0000 | 128.264 |
|  | 1978 | -90.8950 | 36.0000 | 126.895 |

Freedom + Foreign Inv. Dep → Tariff Rates

LS // Dependent Variable is ACRP  
 Date: 1-01-1980 / Time: 0:20  
 SMPL range: 1950 - 1980  
 Number of observations: 28

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 186.32482   | 19.203465  | 9.7026669  | 0.000       |
| AFREE    | -9.2996065  | 1.9350987  | -4.8057530 | 0.000       |
| AFIP     | 1.1013359   | 0.4659274  | 2.3637502  | 0.026       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.494365 | Mean of dependent var | 132.9643  |
| Adjusted R-squared | 0.453915 | S.D. of dependent var | 32.48986  |
| S.E. of regression | 24.00923 | Sum of squared resid  | 14411.03  |
| F-statistic        | 12.22141 | Log likelihood        | -127.1399 |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 368.7731  | C,AFREE     | -27.21782 |
| C,AFIP     | -3.824732 | AFREE,AFREE | 3.744607  |
| AFREE,AFIP | -0.233083 | AFIP,AFIP   | 0.217088  |

Residual Plot

|  | obs  | RESIDUAL | ACTUAL  | FITTED  |
|--|------|----------|---------|---------|
|  | 1951 | 6.87231  | 169.000 | 162.128 |
|  | 1952 | -8.65014 | 151.000 | 159.650 |
|  | 1953 | -21.9094 | 147.000 | 168.909 |
|  | 1954 | 0.75880  | 159.000 | 158.241 |
|  | 1955 | -0.66866 | 162.000 | 162.669 |
|  | 1956 | 10.1748  | 160.000 | 149.825 |
|  | 1957 | -19.6130 | 127.000 | 146.613 |
|  | 1958 | -11.3903 | 137.000 | 148.390 |
|  | 1959 | 3.92436  | 141.000 | 137.076 |
|  | 1960 | 4.39383  | 137.000 | 132.606 |
|  | 1961 | 40.9980  | 154.000 | 113.002 |
|  | 1962 | 1.05341  | 126.000 | 124.947 |
|  | 1963 | 16.5901  | 143.000 | 123.410 |
|  | 1964 | 2.94410  | 141.000 | 133.056 |
|  | 1965 | 11.6780  | 157.000 | 145.322 |
|  | 1966 | 58.8784  | 160.000 | 101.122 |
|  | 1967 | 2.63830  | 107.000 | 104.362 |
|  | 1968 | -4.59914 | 95.0000 | 99.5991 |
|  | 1969 | -18.9583 | 89.0000 | 107.958 |
|  | 1970 | -37.5671 | 93.0000 | 130.567 |
|  | 1971 | -15.4978 | 107.000 | 122.498 |
|  | 1972 | 12.0761  | 123.000 | 110.924 |
|  | 1973 | 23.3817  | 137.000 | 113.618 |
|  | 1974 | -10.5286 | 144.000 | 154.529 |
|  | 1975 | 26.7920  | 179.000 | 152.208 |
|  | 1976 | 10.2935  | 164.000 | 153.706 |
|  | 1977 | -28.1253 | 76.0000 | 104.125 |
|  | 1978 | -55.9399 | 36.0000 | 91.9399 |

Freedom → Capital Intensity

LS // Dependent Variable is ACIR  
 Date: 1-01-1980 / Time: 0:15  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 2.0034141   | 0.5849544  | 3.4254921 | 0.002       |
| AFREE    | 0.1111301   | 0.0628781  | 1.7673900 | 0.088       |

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|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.097239  | Mean of dependent var | 3.000000 |
| Adjusted R-squared | 0.066109  | S.D. of dependent var | 0.894427 |
| S.E. of regression | 0.864357  | Sum of squared resid  | 21.66627 |
| Durbin-Watson stat | 0.697452  | F-statistic           | 3.123667 |
| Log likelihood     | -38.43452 |                       |          |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 0.342055 | C,AFREE | -0.035455 |
| AFREE,AFREE | 0.003954 |         |           |

Residual Plot

| obs  | RESIDUAL | ACTUAL  | FITTED  |
|------|----------|---------|---------|
| 1950 | 0.44094  | 3.00000 | 2.55906 |
| 1951 | 0.32981  | 3.00000 | 2.67019 |
| 1952 | -0.67019 | 2.00000 | 2.67019 |
| 1953 | 0.44094  | 3.00000 | 2.55906 |
| 1954 | 0.32981  | 3.00000 | 2.67019 |
| 1955 | 0.99642  | 4.00000 | 3.00358 |
| 1956 | 0.99642  | 4.00000 | 3.00358 |
| 1957 | 1.10755  | 4.00000 | 2.89245 |
| 1958 | 0.99642  | 4.00000 | 3.00358 |
| 1959 | -0.00358 | 3.00000 | 3.00358 |
| 1960 | -0.89245 | 2.00000 | 2.89245 |
| 1961 | -0.11471 | 3.00000 | 3.11471 |
| 1962 | -0.11471 | 3.00000 | 3.11471 |
| 1963 | -0.11471 | 3.00000 | 3.11471 |
| 1964 | -0.00358 | 3.00000 | 3.00358 |
| 1965 | 0.10755  | 3.00000 | 2.89245 |
| 1966 | -0.44811 | 3.00000 | 3.44811 |
| 1967 | -0.44811 | 3.00000 | 3.44811 |
| 1968 | -0.44811 | 3.00000 | 3.44811 |
| 1969 | -0.33698 | 3.00000 | 3.33698 |
| 1970 | -0.11471 | 3.00000 | 3.11471 |
| 1971 | -1.11471 | 2.00000 | 3.11471 |
| 1972 | -1.11471 | 2.00000 | 3.11471 |
| 1973 | -2.00358 | 1.00000 | 3.00358 |
| 1974 | -1.44793 | 1.00000 | 2.44793 |
| 1975 | -0.67019 | 2.00000 | 2.67019 |
| 1976 | 1.32981  | 4.00000 | 2.67019 |
| 1977 | 0.77416  | 4.00000 | 3.22584 |
| 1978 | 1.66302  | 5.00000 | 3.33698 |
| 1979 | 0.77416  | 4.00000 | 3.22584 |
| 1980 | -0.22584 | 3.00000 | 3.22584 |

Foreign Investment Dependence → Capital Intensity

LS // Dependent Variable is ACIR  
 Date: 1-01-1980 / Time: 0:39  
 SMPL range: 1950 - 1980  
 Number of observations: 29

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.7368731   | 0.4306494  | 4.0331487 | 0.000       |
| AFIP     | 0.0445040   | 0.0146509  | 3.0376341 | 0.005       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.254704 | Mean of dependent var | 2.965517  |
| Adjusted R-squared | 0.227101 | S.D. of dependent var | 0.905647  |
| S.E. of regression | 0.796197 | Sum of squared resid  | 17.11611  |
| F-statistic        | 9.227221 | Log likelihood        | -33.50372 |

Covariance Matrix

|           |          |        |           |
|-----------|----------|--------|-----------|
| C,C       | 0.185459 | C,AFIP | -0.005926 |
| AFIP,AFIP | 0.000215 |        |           |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | : | * |   | :   | 1950     | -0.41964 | 3.00000 | 3.41964 |
|               | : | * |   | :   | 1951     | -0.01382 | 3.00000 | 3.01382 |
|               | : | * |   | :   | 1952     | -0.91370 | 2.00000 | 2.91370 |
|               | : |   | * | :   | 1953     | 0.08793  | 3.00000 | 2.91207 |
|               | : |   | * | :   | 1954     | 0.14323  | 3.00000 | 2.85677 |
|               | : | * |   | :   | 1955     | -0.16305 | 4.00000 | 4.16305 |
|               | : |   | * | :   | 1956     | 0.35595  | 4.00000 | 3.64405 |
|               | : |   | * | :   | 1957     | 0.86154  | 4.00000 | 3.13846 |
|               | : |   | * | :   | 1958     | 0.41393  | 4.00000 | 3.58607 |
|               | : | * |   | :   | 1959     | -0.12886 | 3.00000 | 3.12886 |
|               | : | * |   | :   | 1960     | -0.57246 | 2.00000 | 2.57246 |
|               | : |   | * | :   | 1961     | 0.46815  | 3.00000 | 2.53165 |
|               | : | * |   | :   | 1962     | -0.01452 | 3.00000 | 3.01452 |
|               | : | * |   | :   | 1963     | -0.15447 | 3.00000 | 3.15447 |
|               | : | * |   | :   | 1964     | -0.16847 | 3.00000 | 3.16847 |
|               | : | * |   | :   | 1965     | -0.08630 | 3.00000 | 3.08630 |
|               | : | * |   | :   | 1966     | -0.17914 | 3.00000 | 3.17914 |
|               | : | * |   | :   | 1967     | -0.31007 | 3.00000 | 3.31007 |
|               | : | * |   | :   | 1968     | -0.11762 | 3.00000 | 3.11762 |
|               | : | * |   | :   | 1969     | -0.07962 | 3.00000 | 3.07962 |
|               | : | * |   | :   | 1970     | -0.24164 | 3.00000 | 3.24164 |
|               | : | * |   | :   | 1971     | -0.91557 | 2.00000 | 2.91557 |
|               | : | * |   | :   | 1972     | -0.44788 | 2.00000 | 2.44788 |
|               | * | : |   | :   | 1973     | -1.18097 | 1.00000 | 2.18097 |
|               | * | : |   | :   | 1974     | -0.95517 | 1.00000 | 1.95517 |
|               | : | * |   | :   | 1975     | -0.61297 | 2.00000 | 2.61297 |
|               | : |   | : | *   | 1976     | 1.32647  | 4.00000 | 2.67353 |
|               | : |   | : | *   | 1977     | 1.45106  | 4.00000 | 2.54894 |
|               | : |   | : | *   | 1978     | 2.56767  | 5.00000 | 2.43233 |



LS // Dependent Variable is ACIR  
 Date: 1-01-1980 / Time: 0:25  
 SMPL range: 1950 - 1980  
 Number of observations: 29

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.1832460   | 0.6214371  | 1.9040477 | 0.068       |
| AFREE    | 0.0733277   | 0.0598386  | 1.2254260 | 0.231       |
| AFIP     | 0.0411107   | 0.0147784  | 2.7818172 | 0.010       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.295399 | Mean of dependent var | 2.965517  |
| Adjusted R-squared | 0.241199 | S.D. of dependent var | 0.905647  |
| S.E. of regression | 0.788902 | Sum of squared resid  | 16.18152  |
| F-statistic        | 5.450167 | Log likelihood        | -32.68954 |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 0.386184  | C,AFREE     | -0.027034 |
| C,AFIP     | -0.004567 | AFREE,AFREE | 0.003531  |
| AFREE,AFIP | -0.000166 | AFIP,AFIP   | 0.000218  |

Residual Plot

| obs  | RESIDUAL | ACTUAL  | FITTED  |
|------|----------|---------|---------|
| 1950 | -0.10434 | 3.00000 | 3.10434 |
| 1951 | 0.19720  | 3.00000 | 2.80280 |
| 1952 | -0.71032 | 2.00000 | 2.71032 |
| 1953 | 0.36452  | 3.00000 | 2.63548 |
| 1954 | 0.34228  | 3.00000 | 2.65772 |
| 1955 | -0.08438 | 4.00000 | 4.08438 |
| 1956 | 0.39504  | 4.00000 | 3.60496 |
| 1957 | 0.93541  | 4.00000 | 3.06459 |
| 1958 | 0.44860  | 4.00000 | 3.55140 |
| 1959 | -0.12904 | 3.00000 | 3.12904 |
| 1960 | -0.54174 | 2.00000 | 2.54174 |
| 1961 | 0.34911  | 3.00000 | 2.65089 |
| 1962 | -0.09675 | 3.00000 | 3.09675 |
| 1963 | -0.22603 | 3.00000 | 3.22603 |
| 1964 | -0.16564 | 3.00000 | 3.16564 |
| 1965 | -0.01640 | 3.00000 | 3.01640 |
| 1966 | -0.46881 | 3.00000 | 3.46881 |
| 1967 | -0.58975 | 3.00000 | 3.58975 |
| 1968 | -0.41198 | 3.00000 | 3.41198 |
| 1969 | -0.30354 | 3.00000 | 3.30354 |
| 1970 | -0.30656 | 3.00000 | 3.30656 |
| 1971 | -1.00535 | 2.00000 | 3.00535 |
| 1972 | -0.57332 | 2.00000 | 2.57332 |
| 1973 | -1.25343 | 1.00000 | 2.25343 |
| 1974 | -0.67821 | 1.00000 | 1.67821 |
| 1975 | -0.43251 | 2.00000 | 2.43251 |
| 1976 | 1.51155  | 4.00000 | 2.48845 |
| 1977 | 1.26000  | 4.00000 | 2.74000 |
| 1978 | 2.29439  | 5.00000 | 2.70561 |

LS // Dependent Variable is BERP  
 Date: 1-01-1980 / Time: 0:32  
 SMPL range: 1950 - 1980  
 Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 190.80676   | 22.347025  | 8.5383518  | 0.000       |
| BFREE    | -10.256499  | 2.4768945  | -4.1408704 | 0.000       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.379801 | Mean of dependent var | 101.2333  |
| Adjusted R-squared | 0.357451 | S.D. of dependent var | 38.33490  |
| S.E. of regression | 30.72414 | Sum of squared resid  | 26431.24  |
| F-statistic        | 17.14681 | Log likelihood        | -144.2847 |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 499.3895 | C,BFREE | -53.57906 |
| BFREE,BFREE | 6.135006 |         |           |

| Residual Plot |   |  |      | obs | RESIDUAL      | ACTUAL  | FITTED  |
|---------------|---|--|------|-----|---------------|---------|---------|
|               | : |  | * :  |     | 1951 23.7322  | 153.000 | 129.265 |
|               | : |  | * :  |     | 1952 11.4757  | 151.000 | 139.524 |
|               | : |  | * :  |     | 1953 9.47574  | 149.000 | 139.524 |
|               | : |  | * :  |     | 1954 17.4757  | 157.000 | 139.524 |
|               | : |  | * :  |     | 1955 21.9887  | 141.000 | 119.011 |
|               | : |  | * :  |     | 1956 9.98874  | 129.000 | 119.011 |
|               | : |  | * :  |     | 1957 10.9887  | 130.000 | 119.011 |
|               | : |  | * :  |     | 1958 2.73224  | 132.000 | 129.268 |
|               | : |  | * :  |     | 1959 20.9887  | 140.000 | 119.011 |
|               | : |  | :* : |     | 1960 36.2452  | 145.000 | 108.755 |
|               | : |  | * :  |     | 1961 22.2452  | 131.000 | 108.755 |
|               | : |  | * :  |     | 1962 17.2452  | 126.000 | 108.755 |
|               | : |  | * :  |     | 1963 20.7582  | 109.000 | 88.2418 |
|               | : |  | :* : |     | 1964 53.5277  | 111.000 | 57.4723 |
|               | : |  | :* : |     | 1965 50.2712  | 118.000 | 67.7236 |
|               | : |  | * :  |     | 1966 -1.72877 | 66.0000 | 67.7288 |
|               | : |  | * :  |     | 1967 3.27123  | 71.0000 | 67.7288 |
|               | : |  | * :  |     | 1968 -0.72877 | 67.0000 | 67.7288 |
|               | : |  | * :  |     | 1969 -33.9853 | 44.0000 | 77.9853 |
|               | : |  | * :  |     | 1970 -26.9853 | 51.0000 | 77.9853 |
|               | : |  | * :  |     | 1971 -29.2418 | 59.0000 | 88.2418 |
|               | : |  | * :  |     | 1972 -7.24177 | 81.0000 | 88.2418 |
|               | : |  | * :  |     | 1973 4.75823  | 93.0000 | 88.2418 |
|               | : |  | * :  |     | 1974 -1.24177 | 87.0000 | 88.2418 |
|               | : |  | * :  |     | 1975 -9.75477 | 99.0000 | 108.755 |
|               | : |  | * :  |     | 1976 2.50173  | 101.000 | 98.4983 |
|               | : |  | * :  |     | 1977 -51.4983 | 47.0000 | 98.4983 |
|               | : |  | * :  |     | 1978 -47.4983 | 51.0000 | 98.4983 |
|               | : |  | * :  |     | 1979 -65.7548 | 43.0000 | 108.755 |
|               | : |  | * :  |     | 1980 -64.0113 | 55.0000 | 119.011 |



LS // Dependent Variable is BERP

Date: 1-01-1980 / Time: 0:21

SMPL range: 1950 - 1980

Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 112.12441   | 28.130068  | 3.9859272  | 0.000       |
| BFREE    | -5.5528989  | 2.4110769  | -2.3030783 | 0.029       |
| BFIP     | 1.1327584   | 0.3049190  | 3.7149484  | 0.001       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.589583 | Mean of dependent var | 101.2333  |
| Adjusted R-squared | 0.559181 | S.D. of dependent var | 38.33490  |
| S.E. of regression | 25.45214 | Sum of squared resid  | 17490.90  |
| F-statistic        | 19.39335 | Log likelihood        | -138.0917 |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 791.3007  | C,BFREE     | -63.58569 |
| C,BFIP     | -6.458164 | BFREE,BFREE | 5.813292  |
| BFREE,BFIP | 0.386067  | BFIP,BFIP   | 0.092976  |

| Residual Plot |   | obs  | RESIDUAL | ACTUAL  | FITTED  |
|---------------|---|------|----------|---------|---------|
| :             | : | 1951 | 47.7873  | 153.000 | 105.213 |
| :             | : | 1952 | 40.3529  | 151.000 | 110.647 |
| :             | * | 1953 | -19.8564 | 149.000 | 168.856 |
| :             | * | 1954 | -7.44617 | 157.000 | 164.446 |
| :             | * | 1955 | -11.7867 | 141.000 | 152.787 |
| :             | * | 1956 | 1.38797  | 129.000 | 127.612 |
| :             | * | 1957 | -4.72117 | 130.000 | 134.721 |
| :             | * | 1958 | -14.5645 | 132.000 | 146.565 |
| :             | * | 1959 | 11.2672  | 140.000 | 128.735 |
| :             | * | 1960 | 32.1839  | 145.000 | 112.816 |
| :             | * | 1961 | 14.5460  | 131.000 | 116.454 |
| :             | * | 1962 | 12.6731  | 126.000 | 113.322 |
| :             | * | 1963 | 20.2197  | 109.000 | 88.7803 |
| :             | * | 1964 | 19.5285  | 111.000 | 91.4715 |
| :             | * | 1965 | 32.5829  | 118.000 | 85.4171 |
| :             | * | 1966 | -4.53042 | 66.0000 | 70.5304 |
| :             | * | 1967 | 1.02422  | 71.0000 | 69.9758 |
| :             | * | 1968 | -3.25986 | 67.0000 | 70.2599 |
| :             | * | 1969 | -29.5572 | 44.0000 | 73.5572 |
| :             | * | 1970 | -22.3677 | 51.0000 | 73.3677 |
| :             | * | 1971 | -18.2143 | 59.0000 | 77.2143 |
| :             | * | 1972 | 3.22216  | 81.0000 | 77.7758 |
| :             | * | 1973 | 16.7540  | 93.0000 | 76.2460 |
| :             | * | 1974 | 12.2437  | 87.0000 | 74.7563 |
| :             | * | 1975 | 12.9147  | 99.0000 | 86.0853 |
| :             | * | 1976 | 18.4405  | 101.000 | 82.5595 |
| :             | * | 1977 | -36.0471 | 47.0000 | 83.0471 |
| :             | * | 1978 | -33.3099 | 51.0000 | 84.3099 |
| :             | * | 1979 | -52.3975 | 43.0000 | 95.3975 |
| :             | * | 1980 | -39.0748 | 55.0000 | 94.0748 |

LS // Dependent Variable is BCIR  
 Date: 1-01-1980 / Time: 0:16  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 4.1946336   | 0.6288886  | 6.6699147  | 0.000       |
| BFREE    | -0.1493798  | 0.0703403  | -2.1236666 | 0.042       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.134586  | Mean of dependent var | 2.903226 |
| Adjusted R-squared | 0.104744  | S.D. of dependent var | 0.943569 |
| S.E. of regression | 0.892786  | Sum of squared resid  | 23.11494 |
| Durbin-Watson stat | 0.899655  | F-statistic           | 4.509960 |
| Log likelihood     | -39.43772 |                       |          |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 0.395501 | C,BFREE | -0.042774 |
| BFREE,BFREE | 0.004948 |         |           |

| Residual Plot |   |   |   | obs  | RESIDUAL | ACTUAL  | FITTED  |
|---------------|---|---|---|------|----------|---------|---------|
| *             | : | : | : | 1950 | -1.29836 | 2.00000 | 3.29836 |
| *             | : | : | : | 1951 | -1.29836 | 2.00000 | 3.29836 |
| *             | : | : | : | 1952 | -1.44774 | 2.00000 | 3.44774 |
| :             | : | : | * | 1953 | 0.55226  | 4.00000 | 3.44774 |
| :             | : | : | : | 1954 | 1.55226  | 5.00000 | 3.44774 |
| :             | : | : | : | 1955 | 1.85102  | 5.00000 | 3.14898 |
| :             | : | : | * | 1956 | 1.85102  | 5.00000 | 3.14898 |
| :             | : | * | : | 1957 | -0.14898 | 3.00000 | 3.14898 |
| :             | : | * | : | 1958 | -0.29836 | 3.00000 | 3.29836 |
| :             | : | : | * | 1959 | 0.85102  | 4.00000 | 3.14898 |
| :             | : | * | : | 1960 | 0.00040  | 3.00000 | 2.99960 |
| :             | : | * | : | 1961 | 0.00040  | 3.00000 | 2.99960 |
| :             | : | * | : | 1962 | 0.00040  | 3.00000 | 2.99960 |
| :             | * | : | : | 1963 | -0.70084 | 2.00000 | 2.70084 |
| :             | : | * | : | 1964 | -0.25270 | 2.00000 | 2.25270 |
| :             | : | : | * | 1965 | 1.59792  | 4.00000 | 2.40208 |
| :             | : | : | * | 1966 | 0.59792  | 3.00000 | 2.40208 |
| :             | : | * | : | 1967 | -0.40208 | 2.00000 | 2.40208 |
| :             | : | * | : | 1968 | -0.40208 | 2.00000 | 2.40208 |
| :             | : | * | : | 1969 | -0.55146 | 2.00000 | 2.55146 |
| :             | * | : | : | 1970 | -0.55146 | 2.00000 | 2.55146 |
| :             | : | : | * | 1971 | 0.29916  | 3.00000 | 2.70084 |
| :             | : | : | * | 1972 | 0.29916  | 3.00000 | 2.70084 |
| :             | : | : | * | 1973 | 0.29916  | 3.00000 | 2.70084 |
| :             | : | : | * | 1974 | 0.29916  | 3.00000 | 2.70084 |
| *             | : | : | : | 1975 | -0.99960 | 2.00000 | 2.99960 |
| *             | : | : | : | 1976 | -0.85022 | 2.00000 | 2.85022 |
| *             | : | : | : | 1977 | -0.85022 | 2.00000 | 2.85022 |
| :             | : | * | : | 1978 | 0.14978  | 3.00000 | 2.85022 |
| :             | : | * | : | 1979 | 0.00040  | 3.00000 | 2.99960 |
| :             | : | * | : | 1980 | -0.14898 | 3.00000 | 3.14898 |

LS // Dependent Variable is BCIR  
 Date: 1-01-1980 / Time: 0:40  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.7014814   | 0.2655647  | 6.4070327 | 0.000       |
| BFIP     | 0.0363135   | 0.0070827  | 5.1270396 | 0.000       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.475460  | Mean of dependent var | 2.903226 |
| Adjusted R-squared | 0.457372  | S.D. of dependent var | 0.943569 |
| S.E. of regression | 0.695064  | Sum of squared resid  | 14.01029 |
| Durbin-Watson stat | 1.439176  | F-statistic           | 26.28654 |
| Log likelihood     | -31.67707 |                       |          |

Covariance Matrix

|           |          |        |           |
|-----------|----------|--------|-----------|
| C,C       | 0.070525 | C,BFIP | -0.001660 |
| BFIP,BFIP | 5.02D-05 |        |           |

| Residual Plot |   |   | obs  | RESIDUAL | ACTUAL  | FITTED  |
|---------------|---|---|------|----------|---------|---------|
| :             | * | : | 1950 | -0.79053 | 2.00000 | 2.79053 |
| :             | : | : | 1951 | -0.54798 | 2.00000 | 2.54798 |
| :             | * | : | 1952 | -0.54418 | 2.00000 | 2.54418 |
| :             | : | : | 1953 | -0.41024 | 4.00000 | 4.41024 |
| :             | : | * | 1954 | 0.73115  | 5.00000 | 4.26885 |
| :             | : | : | 1955 | 0.74890  | 5.00000 | 4.25110 |
| :             | : | * | 1956 | 1.55594  | 5.00000 | 3.44406 |
| :             | * | : | 1957 | -0.67197 | 3.00000 | 3.67197 |
| :             | : | : | 1958 | -0.87362 | 3.00000 | 3.87362 |
| :             | : | * | 1959 | 0.52001  | 4.00000 | 3.47999 |
| :             | : | * | 1960 | -0.14776 | 3.00000 | 3.14776 |
| :             | : | * | 1961 | -0.26438 | 3.00000 | 3.26438 |
| :             | : | * | 1962 | -0.16397 | 3.00000 | 3.16397 |
| :             | * | : | 1963 | -0.73325 | 2.00000 | 2.73325 |
| :             | : | : | 1964 | -1.35356 | 2.00000 | 3.35356 |
| :             | : | * | 1965 | 1.01854  | 4.00000 | 2.98146 |
| :             | : | * | 1966 | 0.49577  | 3.00000 | 2.50423 |
| :             | : | * | 1967 | -0.48645 | 2.00000 | 2.48645 |
| :             | : | * | 1968 | -0.49556 | 2.00000 | 2.49556 |
| :             | : | * | 1969 | -0.42325 | 2.00000 | 2.42325 |
| :             | : | * | 1970 | -0.41717 | 2.00000 | 2.41717 |
| :             | : | * | 1971 | 0.63753  | 3.00000 | 2.36247 |
| :             | : | * | 1972 | 0.61946  | 3.00000 | 2.38054 |
| :             | : | * | 1973 | 0.66857  | 3.00000 | 2.33143 |
| :             | : | * | 1974 | 0.71633  | 3.00000 | 2.28367 |
| :             | : | * | 1975 | -0.29083 | 2.00000 | 2.29083 |
| :             | : | * | 1976 | -0.35582 | 2.00000 | 2.35582 |
| :             | : | * | 1977 | -0.37144 | 2.00000 | 2.37144 |
| :             | : | * | 1978 | 0.58807  | 3.00000 | 2.41193 |
| :             | : | * | 1979 | 0.41064  | 3.00000 | 2.58936 |
| :             | : | * | 1980 | 0.63106  | 3.00000 | 2.36894 |

LS // Dependent Variable is BCIR  
 Date: 1-01-1980 / Time: 0:26  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 1.8071900   | 0.7487849  | 2.4184970  | 0.023       |
| BFREE    | -0.0097774  | 0.0645933  | -0.1513687 | 0.881       |
| BFIP     | 0.0356734   | 0.0083543  | 4.2700947  | 0.000       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.475839  | Mean of dependent var | 2.903226 |
| Adjusted R-squared | 0.438452  | S.D. of dependent var | 0.948369 |
| S.E. of regression | 0.707077  | Sum of squared resid  | 13.95884 |
| Durbin-Watson stat | 1.429595  | F-statistic           | 12.71189 |
| Log likelihood     | -31.66440 |                       |          |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 0.560679  | C,BFREE     | -0.043109 |
| C,BFIP     | -0.004671 | BFREE,BFREE | 0.004172  |
| BFREE,BFIP | 0.000273  | BFIP,BFIP   | 6.98D-05  |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | * | : | : |     | 1950     | -0.81838 | 2.00000 | 2.81838 |
|               | : | * | : |     | 1951     | -0.58011 | 2.00000 | 2.58011 |
|               | : | * | : |     | 1952     | -0.58615 | 2.00000 | 2.58615 |
|               | : | * | : |     | 1953     | -0.41931 | 4.00000 | 4.41931 |
|               | : | * | * |     | 1954     | 0.71958  | 5.00000 | 4.28042 |
|               | : | * | * |     | 1955     | 0.75657  | 5.00000 | 4.24343 |
|               | : | * | * |     | 1956     | 1.54938  | 5.00000 | 3.45062 |
|               | * | * | : |     | 1957     | -0.67450 | 3.00000 | 3.67450 |
|               | * | * | : |     | 1958     | -0.88238 | 3.00000 | 3.88238 |
|               | : | * | * |     | 1959     | 0.51409  | 4.00000 | 3.48591 |
|               | : | * | * |     | 1960     | -0.14975 | 3.00000 | 3.14975 |
|               | : | * | * |     | 1961     | -0.26432 | 3.00000 | 3.26432 |
|               | : | * | * |     | 1962     | -0.16568 | 3.00000 | 3.16568 |
|               | * | * | : |     | 1963     | -0.72300 | 2.00000 | 2.72300 |
|               | * | * | : |     | 1964     | -1.30305 | 2.00000 | 3.30305 |
|               | : | * | * |     | 1965     | 1.05272  | 4.00000 | 2.94728 |
|               | : | * | * |     | 1966     | 0.52154  | 3.00000 | 2.47846 |
|               | : | * | * |     | 1967     | -0.46099 | 2.00000 | 2.46099 |
|               | : | * | * |     | 1968     | -0.46994 | 2.00000 | 2.46994 |
|               | : | * | * |     | 1969     | -0.40868 | 2.00000 | 2.40868 |
|               | : | * | * |     | 1970     | -0.40271 | 2.00000 | 2.40271 |
|               | : | * | * |     | 1971     | 0.64124  | 3.00000 | 2.35876 |
|               | : | * | * |     | 1972     | 0.62350  | 3.00000 | 2.37650 |
|               | : | * | * |     | 1973     | 0.67174  | 3.00000 | 2.32826 |
|               | : | * | * |     | 1974     | 0.71865  | 3.00000 | 2.28135 |
|               | : | * | * |     | 1975     | -0.30793 | 2.00000 | 2.30793 |
|               | : | * | * |     | 1976     | -0.36199 | 2.00000 | 2.36199 |
|               | : | * | * |     | 1977     | -0.37735 | 2.00000 | 2.37735 |
|               | : | * | * |     | 1978     | 0.58288  | 3.00000 | 2.41712 |
|               | : | * | * |     | 1979     | 0.39880  | 3.00000 | 2.60120 |
|               | : | * | * |     | 1980     | 0.60555  | 3.00000 | 2.39445 |

LS // Dependent Variable is CERP  
 Date: 1-01-1980 / Time: 0:34  
 SMPL range: 1950 - 1980  
 Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 250.75312   | 10.940656  | 22.919385  | 0.000       |
| CFREE    | -15.443392  | 1.6279249  | -9.4865505 | 0.000       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.762701 | Mean of dependent var | 160.6667  |
| Adjusted R-squared | 0.754226 | S.D. of dependent var | 60.02720  |
| S.E. of regression | 29.75883 | Sum of squared resid  | 24796.47  |
| F-statistic        | 89.99464 | Log likelihood        | -143.3270 |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 119.6980 | C,CFREE | -15.45915 |
| CFREE,CFREE | 2.650139 |         |           |

Residual Plot

|  | obs  | RESIDUAL | ACTUAL  | FITTED  |
|--|------|----------|---------|---------|
|  | 1951 | 3.02045  | 192.000 | 188.980 |
|  | 1952 | 15.0204  | 204.000 | 188.980 |
|  | 1953 | 23.0204  | 212.000 | 188.980 |
|  | 1954 | 2.02045  | 191.000 | 188.980 |
|  | 1955 | -2.97955 | 186.000 | 188.980 |
|  | 1956 | 5.02045  | 194.000 | 188.980 |
|  | 1957 | 14.0204  | 203.000 | 188.980 |
|  | 1958 | 4.02045  | 193.000 | 188.980 |
|  | 1959 | -7.97955 | 181.000 | 188.980 |
|  | 1960 | 6.02045  | 195.000 | 188.980 |
|  | 1961 | 8.02045  | 197.000 | 188.980 |
|  | 1962 | 31.9072  | 190.000 | 158.093 |
|  | 1963 | 35.9072  | 194.000 | 158.093 |
|  | 1964 | 44.9072  | 203.000 | 158.093 |
|  | 1965 | 7.02045  | 196.000 | 188.980 |
|  | 1966 | -6.97955 | 182.000 | 188.980 |
|  | 1967 | 4.02045  | 193.000 | 188.980 |
|  | 1968 | 28.0204  | 217.000 | 188.980 |
|  | 1969 | -1.42294 | 203.000 | 204.423 |
|  | 1970 | -25.4229 | 179.000 | 204.423 |
|  | 1971 | -39.4229 | 165.000 | 204.423 |
|  | 1972 | -44.4229 | 160.000 | 204.423 |
|  | 1973 | -46.4229 | 158.000 | 204.423 |
|  | 1974 | 87.5676  | 153.000 | 65.4324 |
|  | 1975 | -0.43242 | 65.0000 | 65.4324 |
|  | 1976 | -23.4324 | 42.0000 | 65.4324 |
|  | 1977 | -26.4324 | 39.0000 | 65.4324 |
|  | 1978 | -21.4324 | 44.0000 | 65.4324 |
|  | 1979 | -40.8758 | 40.0000 | 80.8758 |
|  | 1980 | -31.8758 | 49.0000 | 80.8758 |



LS // Dependent Variable is CERP  
 Date: 1-01-1980 / Time: 0:12  
 SMPL range: 1950 - 1980  
 Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 118.30090   | 22.056391  | 5.3635656 | 0.000       |
| CFIP     | 3.1478444   | 1.4484812  | 2.1732035 | 0.038       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.144328 | Mean of dependent var | 160.6667  |
| Adjusted R-squared | 0.113768 | S.D. of dependent var | 60.02720  |
| S.E. of regression | 56.50954 | Sum of squared resid  | 89413.18  |
| F-statistic        | 4.722813 | Log likelihood        | -162.5655 |

Covariance Matrix

|           |          |        |           |
|-----------|----------|--------|-----------|
| C,C       | 486.4844 | C,CFIP | -28.23759 |
| CFIP,CFIP | 2.098098 |        |           |

Residual Plot

|  |   |   | obs | RESIDUAL | ACTUAL   | FITTED   |         |         |
|--|---|---|-----|----------|----------|----------|---------|---------|
|  | : | * |     | 1951     | -11.2500 | 192.000  | 203.250 |         |
|  | : | * |     | 1952     | -11.7103 | 204.000  | 215.710 |         |
|  | : |   | *   |          | 1953     | 29.2796  | 212.000 | 182.720 |
|  | : |   | *   |          | 1954     | 27.5737  | 191.000 | 163.426 |
|  | : |   | *   |          | 1955     | 42.2052  | 186.000 | 143.795 |
|  | : | * |     |          | 1956     | -6.69078 | 194.000 | 200.691 |
|  | : |   | *   |          | 1957     | 25.3307  | 203.000 | 177.669 |
|  | : | * |     |          | 1958     | 4.40059  | 193.000 | 182.599 |
|  | : | * |     |          | 1959     | 4.50846  | 181.000 | 176.492 |
|  | : |   | *   |          | 1960     | 38.6403  | 195.000 | 156.360 |
|  | : |   | *   |          | 1961     | 47.1873  | 197.000 | 149.813 |
|  | : |   | *   |          | 1962     | 4.70894  | 190.000 | 185.291 |
|  | : |   | *   |          | 1963     | 23.7921  | 194.000 | 170.208 |
|  | : |   | *   |          | 1964     | 44.8343  | 203.000 | 158.166 |
|  | : |   | *   |          | 1965     | 41.1864  | 196.000 | 154.814 |
|  | : |   | *   |          | 1966     | 32.8780  | 182.000 | 149.122 |
|  | : |   | *   |          | 1967     | 40.9887  | 193.000 | 152.011 |
|  | : |   | *   |          | 1968     | 62.5972  | 217.000 | 154.403 |
|  | : |   | *   |          | 1969     | 56.1008  | 203.000 | 146.899 |
|  | : |   | *   |          | 1970     | 39.0994  | 179.000 | 139.901 |
|  | : |   | *   |          | 1971     | 25.3523  | 165.000 | 139.648 |
|  | : |   | *   |          | 1972     | 24.3971  | 160.000 | 135.603 |
|  | : | * |     |          | 1973     | -3.41919 | 158.000 | 161.419 |
|  | : |   | *   |          | 1974     | 22.0336  | 153.000 | 130.966 |
|  | * | : |     |          | 1975     | -64.2096 | 65.0000 | 129.210 |
|  | * | * | :   |          | 1976     | -83.9619 | 42.0000 | 125.962 |
|  | * | * | :   |          | 1977     | -138.228 | 39.0000 | 177.228 |
|  | * | * | :   |          | 1978     | -108.646 | 44.0000 | 152.646 |
|  | * | * | :   |          | 1979     | -104.652 | 40.0000 | 144.652 |
|  | * | * | :   |          | 1980     | -104.326 | 49.0000 | 153.326 |

LS // Dependent Variable is CERP  
 Date: 1-01-1980 / Time: 0:22  
 SMPL range: 1950 - 1980  
 Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 234.60611   | 17.698367  | 13.255805  | 0.000       |
| CFREE    | -14.810853  | 1.7081487  | -8.6707049 | 0.000       |
| CFIP     | 0.9255901   | 0.8003839  | 1.1564826  | 0.258       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.773900 | Mean of dependent var | 160.6667  |
| Adjusted R-squared | 0.757152 | S.D. of dependent var | 60.02720  |
| S.E. of regression | 29.58119 | Sum of squared resid  | 23626.74  |
| F-statistic        | 46.20810 | Log likelihood        | -148.6019 |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 313.2322  | C,CFREE     | -22.91239 |
| C,CFIP     | -11.17558 | CFREE,CFREE | 2.917772  |
| CFREE,CFIP | 0.437789  | CFIP,CFIP   | 0.640614  |

| Residual Plot |   |    |    | obs | RESIDUAL      | ACTUAL  | FITTED  |
|---------------|---|----|----|-----|---------------|---------|---------|
|               | : | *  | :  |     | 1951 -8.34107 | 192.000 | 200.341 |
|               | : | *  | :  |     | 1952 -0.00489 | 204.000 | 204.005 |
|               | : | *  | :  |     | 1953 17.6954  | 212.000 | 194.305 |
|               | : | *  | :  |     | 1954 2.36866  | 191.000 | 188.631 |
|               | : | *  | :  |     | 1955 3.14108  | 186.000 | 182.859 |
|               | : | *  | :  |     | 1956 -5.58856 | 194.000 | 199.589 |
|               | : | *  | :  |     | 1957 10.1807  | 203.000 | 192.819 |
|               | : | *  | :  |     | 1958 -3.03322 | 193.000 | 196.033 |
|               | : | *  | :  |     | 1959 -11.4730 | 181.000 | 192.473 |
|               | : | *  | :  |     | 1960 8.44652  | 195.000 | 186.553 |
|               | : | *  | :  |     | 1961 12.3716  | 197.000 | 184.628 |
|               | : |    | *: |     | 1962 24.5613  | 190.000 | 165.439 |
|               | : |    | *  |     | 1963 32.9963  | 194.000 | 161.004 |
|               | : |    | *  |     | 1964 45.5372  | 203.000 | 157.463 |
|               | : |    | *  |     | 1965 9.90114  | 196.000 | 186.099 |
|               | : | *  | :  |     | 1966 -2.42532 | 182.000 | 184.425 |
|               | : | *  | :  |     | 1967 7.72511  | 193.000 | 185.275 |
|               | : |    | *: |     | 1968 31.0219  | 217.000 | 185.978 |
|               | : | *  | :  |     | 1969 4.41741  | 203.000 | 198.583 |
|               | : | *  | :  |     | 1970 -17.5247 | 179.000 | 196.525 |
|               | : | *  | :  |     | 1971 -31.4504 | 165.000 | 196.450 |
|               | : | *: | :  |     | 1972 -35.2610 | 160.000 | 195.261 |
|               | : | *: | :  |     | 1973 -44.8520 | 158.000 | 202.652 |
|               | : | :  | :  |     | 1974 92.4000  | 153.000 | 60.6000 |
|               | : |    | *: |     | 1975 4.91655  | 65.0000 | 60.0835 |
|               | : | *  | :  |     | 1976 -17.1265 | 42.0000 | 59.1265 |
|               | : | *: | :  |     | 1977 -35.2026 | 39.0000 | 74.2026 |
|               | : | *: | :  |     | 1978 -22.9748 | 44.0000 | 66.9748 |
|               | : | *: | :  |     | 1979 -39.4351 | 40.0000 | 79.4351 |
|               | : | *  | :  |     | 1980 -32.9856 | 49.0000 | 81.9856 |

LS // Dependent Variable:   
 Date: 1-01-1980 / Time: 0:12  
 SMPLE range: 1950 - 1980  
 Number of observations: 31

| VARIABLE           | COEFFICIENT | STD. ERROR            | T-STAT.   | 2-TAIL SIG |
|--------------------|-------------|-----------------------|-----------|------------|
| C                  | 2.6896750   | 0.2969654             | 9.0565903 | 0.000      |
| CFREE              | 0.1543021   | 0.0446578             | 3.4552116 | 0.002      |
| R-squared          | 0.291620    | Mean of dependent var | 3.580645  |            |
| Adjusted R-squared | 0.267193    | S.D. of dependent var | 0.955269  |            |
| S.E. of regression | 0.820318    | Sum of squared resid  | 19.51472  |            |
| Durbin-Watson stat | 1.395911    | F-statistic           | 11.93849  |            |
| Log likelihood     | -36.81341   |                       |           |            |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 0.088200 | C,CFREE | -0.011516 |
| CFREE,CFREE | 0.001994 |         |           |

Residual Plot

|  | obs  | RESIDUAL | ACTUAL  | FITTED  |
|--|------|----------|---------|---------|
|  | 1950 | 0.69312  | 4.00000 | 3.30688 |
|  | 1951 | 0.69312  | 4.00000 | 3.30688 |
|  | 1952 | 0.69312  | 4.00000 | 3.30688 |
|  | 1953 | 1.69312  | 5.00000 | 3.30688 |
|  | 1954 | -0.30688 | 3.00000 | 3.30688 |
|  | 1955 | -1.30688 | 2.00000 | 3.30688 |
|  | 1956 | -0.30688 | 3.00000 | 3.30688 |
|  | 1957 | -0.30688 | 3.00000 | 3.30688 |
|  | 1958 | 0.69312  | 4.00000 | 3.30688 |
|  | 1959 | -0.30688 | 3.00000 | 3.30688 |
|  | 1960 | -0.30688 | 3.00000 | 3.30688 |
|  | 1961 | 0.69312  | 4.00000 | 3.30688 |
|  | 1962 | 0.38451  | 4.00000 | 3.61549 |
|  | 1963 | 0.38451  | 4.00000 | 3.61549 |
|  | 1964 | 0.38451  | 4.00000 | 3.61549 |
|  | 1965 | -0.30688 | 3.00000 | 3.30688 |
|  | 1966 | -0.30688 | 3.00000 | 3.30688 |
|  | 1967 | -0.30688 | 3.00000 | 3.30688 |
|  | 1968 | -1.30688 | 2.00000 | 3.30688 |
|  | 1969 | -1.15258 | 2.00000 | 3.15258 |
|  | 1970 | -1.15258 | 2.00000 | 3.15258 |
|  | 1971 | -0.15258 | 3.00000 | 3.15258 |
|  | 1972 | -0.15258 | 3.00000 | 3.15258 |
|  | 1973 | 1.84742  | 5.00000 | 3.15258 |
|  | 1974 | 0.45870  | 5.00000 | 4.54130 |
|  | 1975 | -1.54130 | 3.00000 | 4.54130 |
|  | 1976 | 0.45870  | 5.00000 | 4.54130 |
|  | 1977 | 0.45870  | 5.00000 | 4.54130 |
|  | 1978 | 0.45870  | 5.00000 | 4.54130 |
|  | 1979 | -0.38700 | 4.00000 | 4.38700 |
|  | 1980 | -0.38700 | 4.00000 | 4.38700 |

LS // Dependent Variable is CCIR

Date: 1-01-1980 / Time: 0:41

SMPL range: 1950 - 1980

Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 3.2973084   | 0.3642210  | 8.8883089 | 0.000       |
| CFIP     | 0.0246754   | 0.0230850  | 1.0688900 | 0.294       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.037904  | Mean of dependent var | 3.580645 |
| Adjusted R-squared | 0.004728  | S.D. of dependent var | 0.758267 |
| S.E. of regression | 0.956001  | Sum of squared resid  | 26.50419 |
| Durbin-Watson stat | 0.919497  | F-statistic           | 1.142526 |
| Log likelihood     | -41.55849 |                       |          |

Covariance Matrix

|           |          |        |           |
|-----------|----------|--------|-----------|
| C,C       | 0.132657 | C,CFIP | -0.007415 |
| CFIP,CFIP | 0.000533 |        |           |

Residual Plot

|  |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|--|---|---|---|-----|----------|----------|---------|---------|
|  | : | * | : |     | 1950     | 0.08217  | 4.00000 | 3.91782 |
|  | : | * | : |     | 1951     | 0.09679  | 4.00000 | 3.90321 |
|  | : | * | : |     | 1952     | -0.00088 | 4.00000 | 4.00088 |
|  | : |   | : |     | 1953     | 1.25772  | 5.00000 | 3.74228 |
|  | : | * | : |     | 1954     | -0.59104 | 3.00000 | 3.59104 |
|  | * |   | : |     | 1955     | -1.43715 | 2.00000 | 3.43715 |
|  |   | * | : |     | 1956     | -0.88315 | 3.00000 | 3.88315 |
|  | : | * | : |     | 1957     | -0.70269 | 3.00000 | 3.70269 |
|  | : | * | : |     | 1958     | 0.21164  | 4.00000 | 3.78836 |
|  | : | * | : |     | 1959     | -0.69345 | 3.00000 | 3.69345 |
|  | : | * | : |     | 1960     | -0.58564 | 3.00000 | 3.58564 |
|  | : |   | : |     | 1961     | 0.51568  | 4.00000 | 3.48432 |
|  | : | * | : |     | 1962     | 0.23757  | 4.00000 | 3.76243 |
|  | : |   | : |     | 1963     | 0.35580  | 4.00000 | 3.64420 |
|  | : | * | : |     | 1964     | 0.45020  | 4.00000 | 3.54980 |
|  | : | * | : |     | 1965     | -0.52352 | 3.00000 | 3.52352 |
|  | : | * | : |     | 1966     | -0.47891 | 3.00000 | 3.47891 |
|  | : | * | : |     | 1967     | -0.50156 | 3.00000 | 3.50156 |
|  | * |   | : |     | 1968     | -1.52030 | 2.00000 | 3.52030 |
|  | * |   | : |     | 1969     | -1.46149 | 2.00000 | 3.46149 |
|  | * |   | : |     | 1970     | -1.40662 | 2.00000 | 3.40662 |
|  | : | * | : |     | 1971     | -0.40464 | 3.00000 | 3.40464 |
|  | : | * | : |     | 1972     | -0.37294 | 3.00000 | 3.37294 |
|  | : |   | : |     | 1973     | 1.42470  | 5.00000 | 3.57530 |
|  | : |   | : |     | 1974     | 1.66341  | 5.00000 | 3.33659 |
|  | : | * | : |     | 1975     | -0.32282 | 3.00000 | 3.32282 |
|  | : |   | : |     | 1976     | 1.70264  | 5.00000 | 3.29736 |
|  | : |   | : |     | 1977     | 1.30078  | 5.00000 | 3.69922 |
|  | : |   | : |     | 1978     | 1.49346  | 5.00000 | 3.50654 |
|  | : |   | : |     | 1979     | 0.55613  | 4.00000 | 3.44387 |
|  | : | * | : |     | 1980     | 0.48813  | 4.00000 | 3.51187 |

LS // Dependent Variable is CCIR  
 Date: 1-01-1980 / Time: 0:27  
 SMPL range: 1950 - 1980  
 Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 1.7150217   | 0.4351278  | 3.9414204 | 0.000       |
| CFREE    | 0.1944105   | 0.0424937  | 4.5750381 | 0.000       |
| CFIP     | 0.0534031   | 0.0188487  | 2.8332489 | 0.008       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.449455  | Mean of dependent var | 3.580645 |
| Adjusted R-squared | 0.410131  | S.D. of dependent var | 0.958269 |
| S.E. of regression | 0.735979  | Sum of squared resid  | 15.16662 |
| Durbin-Watson stat | 1.688472  | F-statistic           | 11.42936 |
| Log likelihood     | -32.90629 |                       |          |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 0.189336  | C,CFREE     | -0.014139 |
| C,CFIP     | -0.006484 | CFREE,CFREE | 0.001806  |
| CFREE,CFIP | 0.000267  | CFIP,CFIP   | 0.000355  |

| Residual Plot |    |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|----|---|---|-----|----------|----------|---------|---------|
|               | :  | * | : |     | 1950     | 0.03452  | 4.00000 | 3.96548 |
|               | :  | * | : |     | 1951     | 0.06618  | 4.00000 | 3.93332 |
|               | :  | * | : |     | 1952     | -0.14521 | 4.00000 | 4.14521 |
|               | :  |   | : |     | 1953     | 1.41446  | 5.00000 | 3.58554 |
|               | :  | * | : |     | 1954     | -0.25822 | 3.00000 | 3.25822 |
|               | *  |   | : |     | 1955     | -0.92517 | 2.00000 | 2.92517 |
|               | *: |   | : |     | 1956     | -0.89041 | 3.00000 | 3.89041 |
|               | :  | * | : |     | 1957     | -0.49985 | 3.00000 | 3.49985 |
|               | :  | * | : |     | 1958     | 0.31472  | 4.00000 | 3.68528 |
|               | :  | * | : |     | 1959     | -0.47987 | 3.00000 | 3.47987 |
|               | :  | * | : |     | 1960     | -0.13833 | 3.00000 | 3.13833 |
|               | :  |   | : |     | 1961     | 0.97274  | 4.00000 | 3.02726 |
|               | :  | * | : |     | 1962     | -0.01797 | 4.00000 | 4.01797 |
|               | :  | * | : |     | 1963     | 0.23791  | 4.00000 | 3.76209 |
|               | :  | * | : |     | 1964     | 0.44221  | 4.00000 | 3.55779 |
|               | :  | * | : |     | 1965     | -0.11210 | 3.00000 | 3.11210 |
|               | :  | * | : |     | 1966     | -0.01554 | 3.00000 | 3.01554 |
|               | :  | * | : |     | 1967     | -0.06456 | 3.00000 | 3.06456 |
|               | *  |   | : |     | 1968     | -1.10513 | 2.00000 | 3.10513 |
|               | *  |   | : |     | 1969     | -0.78342 | 2.00000 | 2.78342 |
|               | ** |   | : |     | 1970     | -0.66469 | 2.00000 | 2.66469 |
|               | :  | * | : |     | 1971     | 0.33960  | 3.00000 | 2.66040 |
|               | :  | * | : |     | 1972     | 0.40822  | 3.00000 | 2.59178 |
|               | :  |   | : |     | 1973     | 1.97025  | 5.00000 | 3.02975 |
|               | :  | * | : |     | 1974     | 0.73718  | 5.00000 | 4.26282 |
|               | *  |   | : |     | 1975     | -1.23301 | 3.00000 | 4.23301 |
|               | :  | * | : |     | 1976     | 0.82208  | 5.00000 | 4.17792 |
|               | :  | * | : |     | 1977     | -0.04764 | 5.00000 | 5.04764 |
|               | :  | * | : |     | 1978     | 0.36938  | 5.00000 | 4.63062 |
|               | :  | * | : |     | 1979     | -0.30059 | 4.00000 | 4.30059 |
|               | :  | * | : |     | 1980     | -0.44774 | 4.00000 | 4.44774 |

LS // Dependent Variable is MERP  
 Date: 1-01-1980 / Time: 0:13  
 SMPL range: 1950 - 1980  
 Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.   | 2-TAIL SIG. |
|----------|-------------|------------|-----------|-------------|
| C        | 5.4766257   | 11.365996  | 0.4818430 | 0.634       |
| MFIP     | 1.2576224   | 0.3072919  | 4.0925957 | 0.000       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.374293 | Mean of dependent var | 48.96667  |
| Adjusted R-squared | 0.351946 | S.D. of dependent var | 27.43881  |
| S.E. of regression | 22.08883 | Sum of squared resid  | 13661.04  |
| F-statistic        | 16.74936 | Log likelihood        | -134.3347 |

Covariance Matrix

|           |          |        |           |
|-----------|----------|--------|-----------|
| C,C       | 129.1659 | C,MFIP | -3.265440 |
| MFIP,MFIP | 0.094428 |        |           |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | : | : | * |     | 1951     | 36.5659  | 101.000 | 64.4341 |
|               | : | : | * |     | 1952     | 44.0868  | 105.000 | 60.9132 |
|               | : | : | * |     | 1953     | 28.0622  | 99.0000 | 70.9378 |
|               | : | * | : |     | 1954     | 5.91993  | 91.0000 | 85.0801 |
|               | : | : | * |     | 1955     | 21.4065  | 97.0000 | 75.5935 |
|               | : | : | * |     | 1956     | 20.0217  | 82.0000 | 61.9783 |
|               | : | : | * |     | 1957     | 13.7348  | 74.0000 | 60.2652 |
|               | : | * | : |     | 1958     | -0.36788 | 61.0000 | 61.3679 |
|               | : | * | : |     | 1959     | -5.84003 | 56.0000 | 61.8400 |
|               | : | * | : |     | 1960     | -21.4735 | 33.0000 | 54.4735 |
|               | * | : | : |     | 1961     | -35.4252 | 27.0000 | 62.4252 |
|               | * | : | : |     | 1962     | -36.6539 | 29.0000 | 65.6539 |
|               | * | : | : |     | 1963     | -42.1158 | 21.0000 | 63.1158 |
|               | * | : | : |     | 1964     | -41.8772 | 17.0000 | 58.8772 |
|               | : | * | : |     | 1965     | -20.5159 | 27.0000 | 47.5159 |
|               | : | * | : |     | 1966     | -13.4030 | 31.0000 | 44.4030 |
|               | : | * | : |     | 1967     | -5.90001 | 35.0000 | 40.9000 |
|               | : | * | : |     | 1968     | -2.55414 | 38.0000 | 40.5541 |
|               | : | : | * |     | 1969     | 9.10956  | 50.0000 | 40.8904 |
|               | : | : | * |     | 1970     | 4.86714  | 44.0000 | 39.6329 |
|               | : | : | * |     | 1971     | 8.33442  | 49.0000 | 40.6656 |
|               | : | : | * |     | 1972     | 8.06728  | 45.0000 | 36.9327 |
|               | : | : | * |     | 1973     | 3.53490  | 36.0000 | 32.4651 |
|               | : | : | * |     | 1974     | 8.36308  | 38.0000 | 29.6369 |
|               | : | : | * |     | 1975     | 18.8328  | 47.0000 | 28.1672 |
|               | : | : | * |     | 1976     | 17.5461  | 51.0000 | 33.4539 |
|               | : | * | : |     | 1977     | -14.7124 | 18.0000 | 32.7124 |
|               | : | * | : |     | 1978     | -6.75815 | 21.0000 | 27.7581 |
|               | : | * | : |     | 1979     | 1.07869  | 25.0000 | 23.9213 |
|               | : | * | : |     | 1980     | -1.43488 | 21.0000 | 22.4349 |

LS // Dependent Variable is MERP

Date: 1-01-1980 / Time: 0:37

SMPL range: 1950 - 1980

Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 141.96253   | 25.658724  | 5.5327196  | 0.000       |
| MFREE    | -12.510654  | 3.4055587  | -3.6735981 | 0.001       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.325225 | Mean of dependent var | 48.96667  |
| Adjusted R-squared | 0.301126 | S.D. of dependent var | 27.43881  |
| S.E. of regression | 22.93807 | Sum of squared resid  | 19732.34  |
| F-statistic        | 13.49532 | Log likelihood        | -135.5172 |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 658.3701 | C,MFREE | -86.21053 |
| MFREE,MFREE | 11.59783 |         |           |

| Residual Plot |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|-----|----------|----------|---------|---------|
| :             | : | : | *   | 1951     | 34.1014  | 101.000 | 66.8986 |
| :             | : | : | *   | 1952     | 25.5907  | 105.000 | 79.4093 |
| :             | : | : | *   | 1953     | 19.5907  | 99.0000 | 79.4093 |
| :             | : | : | *   | 1954     | 24.1014  | 91.0000 | 66.8986 |
| :             | : | : | *   | 1955     | 42.6120  | 97.0000 | 54.3880 |
| :             | : | : | *   | 1956     | 27.6120  | 82.0000 | 54.3880 |
| :             | : | : | *   | 1957     | 19.6120  | 74.0000 | 54.3880 |
| :             | : | : | *   | 1958     | 31.6334  | 61.0000 | 29.3666 |
| :             | : | : | *   | 1959     | 26.6334  | 56.0000 | 29.3666 |
| :             | * | : | :   | 1960     | -8.87730 | 33.0000 | 41.8773 |
| :             | * | : | :   | 1961     | -27.3880 | 27.0000 | 54.3880 |
| :             | * | : | :   | 1962     | -25.3880 | 29.0000 | 54.3880 |
| :             | * | : | :   | 1963     | -33.3880 | 21.0000 | 54.3880 |
| :             | * | * | :   | 1964     | -12.3666 | 17.0000 | 29.3666 |
| :             | : | * | :   | 1965     | 10.1440  | 27.0000 | 16.8560 |
| :             | : | * | :   | 1966     | 14.1440  | 31.0000 | 16.8560 |
| :             | : | * | :   | 1967     | 5.63336  | 35.0000 | 29.3666 |
| :             | * | : | :   | 1968     | -16.3880 | 38.0000 | 54.3880 |
| :             | : | * | :   | 1969     | -4.38795 | 50.0000 | 54.3879 |
| :             | : | * | :   | 1970     | -10.3879 | 44.0000 | 54.3879 |
| :             | : | * | :   | 1971     | -5.38795 | 49.0000 | 54.3879 |
| :             | : | * | :   | 1972     | 3.12270  | 45.0000 | 41.8773 |
| :             | : | * | :   | 1973     | -5.87730 | 36.0000 | 41.8773 |
| :             | * | : | :   | 1974     | -16.3880 | 38.0000 | 54.3880 |
| :             | : | * | :   | 1975     | -7.38795 | 47.0000 | 54.3879 |
| :             | : | * | :   | 1976     | -3.38795 | 51.0000 | 54.3879 |
| :             | * | : | :   | 1977     | -23.8773 | 18.0000 | 41.8773 |
| :             | * | : | :   | 1978     | -20.8773 | 21.0000 | 41.8773 |
| :             | : | * | :   | 1979     | -16.8773 | 25.0000 | 41.8773 |
| :             | * | : | :   | 1980     | -45.8986 | 21.0000 | 66.8986 |

LS // Dependent Variable is MERP

Date: 1-01-1980 / Time: 0:23

SMPL range: 1950 - 1980

Number of observations: 30

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 86.696757   | 25.290144  | 3.4280847  | 0.002       |
| MFREE    | -9.9166839  | 2.8555556  | -3.4727686 | 0.002       |
| MFIP     | 1.0405645   | 0.2675760  | 3.8888552  | 0.001       |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.567485 | Mean of dependent var | 48.96667  |
| Adjusted R-squared | 0.535447 | S.D. of dependent var | 27.43881  |
| S.E. of regression | 18.70144 | Sum of squared resid  | 9443.089  |
| F-statistic        | 17.71278 | Log likelihood        | -128.8458 |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 639.5914  | C,MFREE     | -66.78493 |
| C,MFIP     | -3.802609 | MFREE,MFREE | 8.154193  |
| MFREE,MFIP | 0.178480  | MFIP,MFIP   | 0.071597  |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | : | : | * |     | 1951     | 25.0216  | 101.000 | 75.9784 |
|               | : | : | * |     | 1952     | 22.0181  | 105.000 | 82.9819 |
|               | : | * | : |     | 1953     | 7.72371  | 99.0000 | 91.2763 |
|               | : | * | : |     | 1954     | -2.06103 | 91.0000 | 93.0610 |
|               | : | : | * |     | 1955     | 21.7049  | 97.0000 | 75.2951 |
|               | : | : | * |     | 1956     | 17.9702  | 82.0000 | 64.0298 |
|               | : | : | * |     | 1957     | 11.3876  | 74.0000 | 62.6124 |
|               | : | : | * |     | 1958     | 17.3086  | 61.0000 | 43.6914 |
|               | : | : | * |     | 1959     | 11.9180  | 56.0000 | 44.0820 |
|               | : | * | : |     | 1960     | -14.9036 | 33.0000 | 47.9036 |
|               | * | : | : |     | 1961     | -37.3995 | 27.0000 | 64.3995 |
|               | * | : | : |     | 1962     | -38.0710 | 29.0000 | 67.0710 |
|               | * | : | : |     | 1963     | -43.9710 | 21.0000 | 64.9710 |
|               | * | : | : |     | 1964     | -24.6306 | 17.0000 | 41.6306 |
|               | : | : | * |     | 1965     | 4.68651  | 27.0000 | 22.3135 |
|               | : | : | * |     | 1966     | 11.2621  | 31.0000 | 19.7279 |
|               | : | : | * |     | 1967     | 8.24337  | 35.0000 | 26.7561 |
|               | : | * | : |     | 1968     | -8.30332 | 38.0000 | 46.3033 |
|               | : | : | * |     | 1969     | 3.41842  | 50.0000 | 46.5816 |
|               | : | * | : |     | 1970     | -1.54105 | 44.0000 | 45.5410 |
|               | : | : | * |     | 1971     | 2.60448  | 49.0000 | 46.3953 |
|               | : | : | * |     | 1972     | 11.6098  | 45.0000 | 33.3902 |
|               | : | : | * |     | 1973     | 6.30628  | 36.0000 | 29.6937 |
|               | : | * | : |     | 1974     | 0.72965  | 38.0000 | 37.2703 |
|               | : | : | * |     | 1975     | 10.9457  | 47.0000 | 36.0543 |
|               | : | : | * |     | 1976     | 10.5714  | 51.0000 | 40.4286 |
|               | : | * | : |     | 1977     | -11.8983 | 18.0000 | 29.8983 |
|               | : | * | : |     | 1978     | -4.79915 | 21.0000 | 25.7992 |
|               | : | : | * |     | 1979     | 2.37547  | 25.0000 | 22.6245 |
|               | * | : | : |     | 1980     | -20.2280 | 21.0000 | 41.2280 |



LS // Dependent Variable is MCIR

Date: 1-01-1980 / Time: 0:18

SMPL range: 1950 - 1980

Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 3.9730878   | 0.5830042  | 6.8148523  | 0.000       |
| MFREE    | -0.1876771  | 0.0775507  | -2.4200574 | 0.022       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.168022  | Mean of dependent var | 2.580645 |
| Adjusted R-squared | 0.139333  | S.D. of dependent var | 0.564163 |
| S.E. of regression | 0.523386  | Sum of squared resid  | 7.944051 |
| Durbin-Watson stat | 0.827746  | F-statistic           | 5.356678 |
| Log likelihood     | -22.88285 |                       |          |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 0.339894 | C,MFREE | -0.044621 |
| MFREE,MFREE | 0.006014 |         |           |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | : |   | * |     | 1950     | 0.34065  | 3.00000 | 2.65935 |
|               | : |   | * |     | 1951     | 0.15297  | 3.00000 | 2.84703 |
|               | : |   | * |     | 1952     | -0.03470 | 3.00000 | 3.03470 |
|               | : |   | * |     | 1953     | 0.96530  | 4.00000 | 3.03470 |
|               | : |   | * |     | 1954     | 0.15297  | 3.00000 | 2.84703 |
|               | : |   | * |     | 1955     | 0.34065  | 3.00000 | 2.65935 |
|               | : |   | * |     | 1956     | 0.34065  | 3.00000 | 2.65935 |
|               | * | : | : |     | 1957     | -0.65935 | 2.00000 | 2.65935 |
|               | : | : | : |     | 1958     | -0.28399 | 2.00000 | 2.28399 |
|               | : | * | : |     | 1959     | -0.28399 | 2.00000 | 2.28399 |
|               | : | * | : |     | 1960     | -0.47167 | 2.00000 | 2.47167 |
|               | * | : | : |     | 1961     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1962     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1963     | -0.65935 | 2.00000 | 2.65935 |
|               | : | * | : |     | 1964     | -0.28399 | 2.00000 | 2.28399 |
|               | : | * | : |     | 1965     | -0.09632 | 2.00000 | 2.09632 |
|               | : | : | : |     | 1966     | 0.90368  | 3.00000 | 2.09632 |
|               | : | : | : |     | 1967     | 0.71601  | 3.00000 | 2.28399 |
|               | : | : | : |     | 1968     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | : |     | 1969     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | : |     | 1970     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | : |     | 1971     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | : |     | 1972     | 0.52833  | 3.00000 | 2.47167 |
|               | : | * | : |     | 1973     | -0.47167 | 2.00000 | 2.47167 |
|               | * | : | : |     | 1974     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1975     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1976     | -0.65935 | 2.00000 | 2.65935 |
|               | : | * | : |     | 1977     | -0.47167 | 2.00000 | 2.47167 |
|               | : | : | : |     | 1978     | 0.52833  | 3.00000 | 2.47167 |
|               | : | : | : |     | 1979     | 0.52833  | 3.00000 | 2.47167 |
|               | : | : | : |     | 1980     | 0.15297  | 3.00000 | 2.84703 |

LS // Dependent Variable is MCIR

Date: 1-01-1980 / Time: 0:42

SMPL range: 1950 - 1980

Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 3.9730878   | 0.5830042  | 6.8148523  | 0.000       |
| MFREE    | -0.1876771  | 0.0775507  | -2.4200574 | 0.032       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.168022  | Mean of dependent var | 2.580645 |
| Adjusted R-squared | 0.139333  | S.D. of dependent var | 0.564132 |
| S.E. of regression | 0.528386  | Sum of squared resid  | 7.944051 |
| Durbin-Watson stat | 0.827746  | F-statistic           | 5.856678 |
| Log likelihood     | -22.88285 |                       |          |

Covariance Matrix

|             |          |         |           |
|-------------|----------|---------|-----------|
| C,C         | 0.339894 | C,MFREE | -0.044621 |
| MFREE,MFREE | 0.006014 |         |           |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | : | : | * |     | 1950     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | * |     | 1951     | 0.15297  | 3.00000 | 2.84703 |
|               | : | * | : |     | 1952     | -0.03470 | 3.00000 | 3.03470 |
|               | : | : | : | *   | 1953     | 0.96530  | 4.00000 | 3.03470 |
|               | : | : | * |     | 1954     | 0.15297  | 3.00000 | 2.84703 |
|               | : | : | * |     | 1955     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | * |     | 1956     | 0.34065  | 3.00000 | 2.65935 |
|               | * | : | : |     | 1957     | -0.65935 | 2.00000 | 2.65935 |
|               | : | * | : |     | 1958     | -0.28399 | 2.00000 | 2.28399 |
|               | : | * | : |     | 1959     | -0.28399 | 2.00000 | 2.28399 |
|               | : | * | : |     | 1960     | -0.47167 | 2.00000 | 2.47167 |
|               | * | : | : |     | 1961     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1962     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1963     | -0.65935 | 2.00000 | 2.65935 |
|               | : | * | : |     | 1964     | -0.28399 | 2.00000 | 2.28399 |
|               | : | * | : |     | 1965     | -0.09632 | 2.00000 | 2.09632 |
|               | : | : | : | *   | 1966     | 0.90368  | 3.00000 | 2.09632 |
|               | : | : | : | *   | 1967     | 0.71601  | 3.00000 | 2.28399 |
|               | : | : | * |     | 1968     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | * |     | 1969     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | * |     | 1970     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | * |     | 1971     | 0.34065  | 3.00000 | 2.65935 |
|               | : | : | * |     | 1972     | 0.52833  | 3.00000 | 2.47167 |
|               | : | * | : |     | 1973     | -0.47167 | 2.00000 | 2.47167 |
|               | * | : | : |     | 1974     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1975     | -0.65935 | 2.00000 | 2.65935 |
|               | * | : | : |     | 1976     | -0.65935 | 2.00000 | 2.65935 |
|               | : | * | : |     | 1977     | -0.47167 | 2.00000 | 2.47167 |
|               | : | : | * |     | 1978     | 0.52833  | 3.00000 | 2.47167 |
|               | : | : | * |     | 1979     | 0.52833  | 3.00000 | 2.47167 |
|               | : | * | : |     | 1980     | 0.15297  | 3.00000 | 2.84703 |

LS // Dependent Variable is MCIR

Date: 1-01-1980 / Time: 0:28

SAMPL range: 1950 - 1980

Number of observations: 31

| VARIABLE | COEFFICIENT | STD. ERROR | T-STAT.    | 2-TAIL SIG. |
|----------|-------------|------------|------------|-------------|
| C        | 3.9620827   | 0.7135336  | 5.5527628  | 0.000       |
| MFREE    | -0.1871356  | 0.0812959  | -2.3019072 | 0.029       |
| MFIP     | 0.0001967   | 0.0070843  | 0.0277651  | 0.978       |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.168045  | Mean of dependent var | 2.580645 |
| Adjusted R-squared | 0.108619  | S.D. of dependent var | 0.564165 |
| S.E. of regression | 0.532643  | Sum of squared resid  | 7.943032 |
| Durbin-Watson stat | 0.827332  | F-statistic           | 2.827825 |
| Log likelihood     | -22.68243 |                       |          |

Covariance Matrix

|            |           |             |           |
|------------|-----------|-------------|-----------|
| C,C        | 0.509130  | C,MFREE     | -0.053943 |
| C,MFIP     | -0.002808 | MFREE,MFREE | 0.006509  |
| MFREE,MFIP | 0.000138  | MFIP,MFIP   | 5.020-05  |

| Residual Plot |   |   |   | obs | RESIDUAL | ACTUAL   | FITTED  |         |
|---------------|---|---|---|-----|----------|----------|---------|---------|
|               | : | : | * |     | 1950     | 0.33530  | 3.00000 | 2.66470 |
|               | : | : | * |     | 1951     | 0.15151  | 3.00000 | 2.84849 |
|               | : | * | : |     | 1952     | -0.03508 | 3.00000 | 3.03508 |
|               | : | : | : |     | 1953     | 0.96336  | 4.00000 | 3.03664 |
|               | : | : | * |     | 1954     | 0.14828  | 3.00000 | 2.85172 |
|               | : | : | * |     | 1955     | 0.33690  | 3.00000 | 2.66310 |
|               | : | : | * |     | 1956     | 0.33903  | 3.00000 | 2.66097 |
|               | * | : | : |     | 1957     | -0.66070 | 2.00000 | 2.66070 |
|               | : | * | : |     | 1958     | -0.28660 | 2.00000 | 2.28660 |
|               | : | * | : |     | 1959     | -0.28668 | 2.00000 | 2.28668 |
|               | : | * | : |     | 1960     | -0.47266 | 2.00000 | 2.47266 |
|               | * | : | : |     | 1961     | -0.66104 | 2.00000 | 2.66104 |
|               | * | : | : |     | 1962     | -0.66155 | 2.00000 | 2.66155 |
|               | * | : | : |     | 1963     | -0.66115 | 2.00000 | 2.66115 |
|               | : | * | : |     | 1964     | -0.28621 | 2.00000 | 2.28621 |
|               | : | * | : |     | 1965     | -0.09730 | 2.00000 | 2.09730 |
|               | : | : | : |     | 1966     | 0.90319  | 3.00000 | 3.09381 |
|               | : | : | : |     | 1967     | 0.71660  | 3.00000 | 2.28340 |
|               | : | : | * |     | 1968     | 0.34238  | 3.00000 | 2.65762 |
|               | : | : | * |     | 1969     | 0.34233  | 3.00000 | 2.65767 |
|               | : | : | * |     | 1970     | 0.34252  | 3.00000 | 2.65748 |
|               | : | : | * |     | 1971     | 0.34236  | 3.00000 | 2.65764 |
|               | : | : | * |     | 1972     | 0.53008  | 3.00000 | 2.46992 |
|               | : | * | : |     | 1973     | -0.46922 | 2.00000 | 2.46922 |
|               | * | : | : |     | 1974     | -0.65591 | 2.00000 | 2.65591 |
|               | * | : | : |     | 1975     | -0.65568 | 2.00000 | 2.65568 |
|               | * | : | : |     | 1976     | -0.65651 | 2.00000 | 2.65651 |
|               | : | * | : |     | 1977     | -0.46926 | 2.00000 | 2.46926 |
|               | : | : | * |     | 1978     | 0.53152  | 3.00000 | 2.46848 |
|               | : | : | * |     | 1979     | 0.53212  | 3.00000 | 2.46788 |
|               | : | : | * |     | 1980     | 0.15808  | 3.00000 | 2.84192 |

| obs  | ARGPT    | BRZPT    | CHLPT    | MEXPT    |
|------|----------|----------|----------|----------|
| 1945 | NA       | 1.000000 | NA       | NA       |
| 1946 | 1.000000 | NA       | 1.000000 | 1.000000 |
| 1947 | NA       | NA       | NA       | NA       |
| 1948 | NA       | NA       | NA       | NA       |
| 1949 | NA       | NA       | NA       | NA       |
| 1950 | NA       | NA       | NA       | NA       |
| 1951 | NA       | 1.000000 | NA       | NA       |
| 1952 | NA       | NA       | 1.000000 | 1.000000 |
| 1953 | NA       | NA       | NA       | NA       |
| 1954 | NA       | 3.000000 | NA       | NA       |
| 1955 | 4.000000 | NA       | NA       | NA       |
| 1956 | NA       | NA       | NA       | NA       |
| 1957 | NA       | NA       | NA       | NA       |
| 1958 | NA       | NA       | 1.000000 | 1.000000 |
| 1959 | NA       | NA       | NA       | NA       |
| 1960 | NA       | NA       | NA       | NA       |
| 1961 | NA       | 3.000000 | NA       | NA       |
| 1962 | 4.000000 | NA       | NA       | NA       |
| 1963 | NA       | NA       | NA       | NA       |
| 1964 | NA       | 5.000000 | 1.000000 | 1.000000 |
| 1965 | NA       | NA       | NA       | NA       |
| 1966 | 5.000000 | NA       | NA       | NA       |
| 1967 | NA       | NA       | NA       | NA       |
| 1968 | NA       | NA       | NA       | NA       |
| 1969 | NA       | NA       | NA       | NA       |
| 1970 | 4.000000 | NA       | 1.000000 | 1.000000 |
| 1971 | 5.000000 | 1.000000 | NA       | NA       |
| 1972 | NA       | NA       | NA       | NA       |
| 1973 | NA       | NA       | 5.000000 | NA       |
| 1974 | NA       | NA       | NA       | NA       |
| 1975 | NA       | NA       | NA       | NA       |
| 1976 | 4.000000 | NA       | NA       | 1.000000 |
| 1977 | NA       | NA       | NA       | NA       |
| 1978 | NA       | NA       | NA       | NA       |
| 1979 | NA       | 1.000000 | NA       | NA       |
| 1980 | NA       | NA       | NA       | NA       |
| 1981 | 3.000000 | NA       | NA       | NA       |
| 1982 | 4.000000 | NA       | NA       | 1.000000 |
| 1983 | 1.000000 | NA       | NA       | NA       |
| 1984 | NA       | NA       | NA       | NA       |
| 1985 | NA       | NA       | NA       | NA       |

| obs  | ARGECP   | BRZECP   | CHLECP   | MEXECP   |
|------|----------|----------|----------|----------|
| 1945 | 55.00000 | 65.00000 | NA       | NA       |
| 1946 | NA       | NA       | 75.00000 | 81.00000 |
| 1947 | NA       | NA       | NA       | NA       |
| 1948 | NA       | NA       | NA       | NA       |
| 1949 | NA       | NA       | NA       | NA       |
| 1950 | NA       | NA       | NA       | NA       |
| 1951 | NA       | 71.00000 | NA       | NA       |
| 1952 | NA       | NA       | 47.00000 | 74.00000 |
| 1953 | NA       | NA       | NA       | NA       |
| 1954 | NA       | 100.0000 | NA       | NA       |
| 1955 | 100.0000 | NA       | NA       | NA       |
| 1956 | NA       | NA       | NA       | NA       |
| 1957 | NA       | NA       | NA       | NA       |
| 1958 | NA       | NA       | 32.00000 | 90.00000 |
| 1959 | NA       | NA       | NA       | NA       |
| 1960 | NA       | NA       | NA       | NA       |
| 1961 | NA       | 100.0000 | NA       | NA       |
| 1962 | 100.0000 | NA       | NA       | NA       |
| 1963 | NA       | NA       | NA       | NA       |
| 1964 | NA       | 100.0000 | 56.00000 | 90.00000 |
| 1965 | NA       | NA       | NA       | NA       |
| 1966 | 100.0000 | NA       | NA       | NA       |
| 1967 | NA       | NA       | NA       | NA       |
| 1968 | NA       | NA       | NA       | NA       |
| 1969 | NA       | NA       | NA       | NA       |
| 1970 | 100.0000 | NA       | 35.00000 | 85.00000 |
| 1971 | 100.0000 | 93.00000 | NA       | NA       |
| 1972 | NA       | NA       | NA       | NA       |
| 1973 | NA       | NA       | 100.0000 | NA       |
| 1974 | NA       | NA       | NA       | NA       |
| 1975 | NA       | NA       | NA       | NA       |
| 1976 | 100.0000 | NA       | NA       | 94.00000 |
| 1977 | NA       | NA       | NA       | NA       |
| 1978 | NA       | 95.00000 | NA       | NA       |
| 1979 | NA       | NA       | NA       | NA       |
| 1980 | NA       | NA       | NA       | NA       |
| 1981 | 100.0000 | NA       | NA       | NA       |
| 1982 | 100.0000 | NA       | NA       | 75.00000 |
| 1983 | 52.00000 | NA       | NA       | NA       |
| 1984 | NA       | NA       | NA       | NA       |
| 1985 | NA       | NA       | NA       | NA       |

| obs  | AGDP     | BGDP     | CGDP     | MGDP     |
|------|----------|----------|----------|----------|
| 1945 | 11502.00 | 9137.000 | 3038.000 | 9553.000 |
| 1946 | 12567.00 | 9851.000 | 3225.000 | 10227.00 |
| 1947 | 14288.00 | 10090.00 | 3010.000 | 10605.00 |
| 1948 | 14464.00 | 10841.00 | 3357.000 | 10986.00 |
| 1949 | 13800.00 | 11558.00 | 3339.000 | 11819.00 |
| 1950 | 14018.00 | 12309.00 | 3499.000 | 12926.00 |
| 1951 | 14562.00 | 13037.00 | 3683.000 | 13897.00 |
| 1952 | 13821.00 | 14169.00 | 3810.000 | 14314.00 |
| 1953 | 14570.00 | 14528.00 | 4078.000 | 15087.00 |
| 1954 | 15164.00 | 15996.00 | 4108.000 | 15909.00 |
| 1955 | 16242.00 | 17093.00 | 4221.000 | 17167.00 |
| 1956 | 16693.00 | 17636.00 | 4251.000 | 18085.00 |
| 1957 | 17550.00 | 19058.00 | 4371.000 | 19443.00 |
| 1958 | 18623.00 | 20526.00 | 4582.000 | 20335.00 |
| 1959 | 17428.00 | 21656.00 | 4899.000 | 21219.00 |
| 1960 | 18789.00 | 23774.00 | 5147.000 | 22802.00 |
| 1961 | 20128.00 | 26224.00 | 5461.000 | 23926.00 |
| 1962 | 19802.00 | 27599.00 | 5714.000 | 25044.00 |
| 1963 | 19327.00 | 28027.00 | 6004.000 | 27045.00 |
| 1964 | 21327.00 | 28848.00 | 6262.000 | 30207.00 |
| 1965 | 23275.00 | 29634.00 | 6578.000 | 32166.00 |
| 1966 | 23421.00 | 30749.00 | 7039.000 | 34396.00 |
| 1967 | 24053.00 | 32250.00 | 7211.000 | 36552.00 |
| 1968 | 25078.00 | 35852.00 | 7427.000 | 39526.00 |
| 1969 | 27228.00 | 39412.00 | 7684.000 | 42026.00 |
| 1970 | 28686.00 | 42885.00 | 7961.000 | 44934.00 |
| 1971 | 30065.00 | 48590.00 | 8574.000 | 46480.00 |
| 1972 | 31004.00 | 54294.00 | 8566.000 | 49858.00 |
| 1973 | 32020.00 | 61842.00 | 8256.000 | 53495.00 |
| 1974 | 35039.00 | 67888.00 | 8724.000 | 56653.00 |
| 1975 | 34735.00 | 71748.00 | 7472.000 | 58964.00 |
| 1976 | 34142.00 | 78180.00 | 7754.000 | 60218.00 |
| 1977 | 35828.00 | 81825.00 | 8506.000 | 62182.00 |
| 1978 | 31051.00 | 79428.00 | 8575.000 | 76190.00 |
| 1979 | 33134.00 | 84492.00 | 9285.000 | 83199.00 |
| 1980 | 33380.00 | 90592.00 | 10008.00 | 90185.00 |
| 1981 | 31299.00 | 89157.00 | 10561.00 | 97353.00 |
| 1982 | 29668.00 | 89994.00 | 9074.000 | 96826.00 |
| 1983 | 30580.00 | 87163.00 | 9009.000 | 91719.00 |
| 1984 | 31203.00 | 91071.00 | 9580.000 | 94929.00 |
| 1985 | NA       | NA       | NA       | NA       |