LESSER DEVELOPED COUNTRIES AND NATURAL ECONOMIC GROWTH

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Thesis: Economies follow two distinct mathematical patterns of natural economic growth, and those that have switched from the slow to the fast pattern possess four characteristics. Resulting from the juxtaposition of the two growth patterns, capital flight often undermines the most valuable characteristic, capital accumulation, resulting in the economic failure of much of the third world.

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I. Introduction

Our parent's income rose by several times over their lifetime. Will ours? Will our children's? With this sudden explosion in economic growth over the past one hundred and seventy years? Why are many economies left out? Lead by Great Britain's economic take off almost two hundred ears ago, many economies have also taken off growing at unprecedented rates. Fortunately, many nations kept statistical records of this growth. In addition, economists have tested and adjusted these statistics (for example, Maddison 1982: 46; Kuznets 1983: 145 - 252), estimated what such statistics would have looked like even centuries ago, and developed theories explaining the growth process. (for example, Brenner 1966; Rostow 1971; Maddison 1982; Reynolds 1985; Lewis 1978; Kuznets 1983)

However, no one has yet pointed out or explored a startling discovery concerning the aggregate output of an economy, termed gross domestic product (GDP) or gross national product (GNP). It is the thesis of this paper that economies follow two distinct mathematical patterns of what this paper terms natural economic growth; those that have switched from the slow to the fast pattern possess four characteristics. The absence of one or more of these characteristics explains an economy's inability to switch to the fast pattern both in historic and most importantly in modern times. Resulting from the juxtaposition of the two growth patterns, in modern times, capital flight often undermines the most vulnerable characteristic, capital accumulation, leading to the economic failure of many lesser developed countries (LDCs). Moreover, the nature of this fast pattern leaves troubling questions about the future of fast pattern economies; since

economies of scale are so essential to a fast pattern economy, such growth may have a limited life.

II. The Two Patterns

A. Fast Pattern

1. In History

Let us first look at the growth pattern dominating our present way of life. In this century, economists have documented GDP in detail. Especially in the last several decades, they have provided statistics on almost all economies. They have developed sophisticated techniques for testing and adjusting statistics as well as uncovering many of the properties of economic growth. What we see from this work is that beginning around 1800, just after the commencement of the great growth of the British economy, quite a few economies entered periods of massive growth. (Lewis 1978: 15)

To put this recent growth in perspective, economists have marshaled historical, anecdotal evidence to show that economies have always from time to time switched to a period of faster growth. For example, the Roman economy attained a level of GNP not to be reattained for many centuries in Europe. (Lewis 1978: 15, footnote 1) During the Middle Ages and Renaissance, economies periodically switched to a period of fast growth attaining great prosperity. This periodic attainment of great growth is a characteristic common to all parts of the world.

2. The Fast Pattern and Modern Economies

Line A of **Figure 1** is a graph of the theoretical fast pattern discussed in this paper. The general nature of this fast pattern is well known and commonly observed in many fields of study. The growth of bacteria in a test tube, the reproduction of fruit flies in a contaminated fruit

shipment, and the future value of a bank account all follow this pattern. The pattern is commonly represented mathematically by y^x, an exponential growth equation, which is also the basis for the future value equation.[1] When portrayed on a graph, the pattern is characterized by a period of slow growth gradually transforming into a period of rapid growth.[2]

With an amazingly close fit, this well defined hypothetical growth pattern matches the GNP growth of several nations, for example, the United States. **Line B** of **Figure 1** is a plot of the actual GNP of the United States from 1870 indexed to a base of 100. **Line A** represents the hypothetical natural growth pattern, in this case, a plot of the future value equation where interest is 3.3 percent starting from a base of 100 in 1870. Obviously, the U.S. economy is following the fast pattern of the future value equation where the growth rate is somewhere near 3.3 percent. The link between interest and GDP growth of fast pattern economies has not been lost on economists. (for example, Rostow 1971: 6) In the short-run, such growth is not predictable since temporary fluctuations occur. However, in the long-run, such growth returns to the pattern.[3] Almost every developed economy has also followed this pattern with a similar close fit. However, the interest rate of the natural pattern differs from country to country. The amazing aspect is that, once on the fast pattern, an economy will stick closely to a particular rate of growth over long periods, two centuries in Great Britain's case. Each economy seems to possess something similar to its own natural resonance frequency. It is difficult to find a developed nation not following this pattern.

3. Distinguishing Slow Pattern Economies

Figure 2 is a plot of what this paper terms slow pattern economies, discussed in more

detail in the next section. (All three of these economies have since become fast pattern economies.) The one percent growth line from **Figure 1** is included in **Figure 2** to aid comparison. One might argue that the economies of **Figure 2** follow the fast pattern also but at a lower interest rate; thus, the diversion between the two patterns is not nearly as clear as this paper argues.

Such is not the case. It is true that exponential growth, displayed on a graph, eventually enters a period of apparent inexorable fast growth, the steep portion of the graph. However, lowering the interest rate delays the steep portion to such an extent that it becomes irrelevant to economic planning. For example, referring to **Figure 1**, **Line C**, the one percent line needs 327 years to attain the same future value that **Line A**, the 3.3% line, attains in 100 years. This comparison is especially significant since so many economies' real growth is near the one percent line. Those depicted in **Figure 2** all grew at less than one percent. One percent growth strings out the period of growth to such an extent that the economy is never truly vibrant. When the horizontal axis is measured in centuries, the steep portion of the pattern is so removed from having a practical impact on the present moment as to be irrelevant. Merely tracking minimal population growth, such growth has no effect on per capita income.

What about the economies represented in **Figure 3**? Are they following the fast pattern? They certainly seem to be growing faster than the economies of **Figure 2** and even **Figure 1** in some instances. In **Figure 3**, Brazil's average growth rate is 5.3%, Honduras', 3.2%, and Argentina's, 2.1%. Such high growth by **Figure 3** economies, especially Brazil, seems to undermine the thesis of this paper. However, the growth portrayed in the economies of **Figure 3** is not real. The growth is deceptive for three reasons. First, the fact of overall high percentage

growth does not mean the fast pattern is being followed. We must say a little more about the nature of this fast pattern. It is much more than a pattern of predetermined growth. It represents a process. Just as the day-to-day growth of a tree is a daily struggle far more than a graph of its growth portrays, the growth of an economy represents the untold stories of the underlying struggle. To have a large fruitful tree, a small seed must be planted. That seed must have the right growing conditions especially early in life. As a sapling, it must struggle as it competes for light, soil, and water while protecting self from disease and insects. Even though the tree is successful in the day to day struggle, it may succumb to the vagaries of blight or a fire. When the tree reaches maturity, this giant of the forest no longer struggles in the competition for a minimum amount of light and water. Its growth is much more stable and predictable.

So, as the young sapling do, the economies of **Figure 3** seem to have entered into the fast pattern at least for a time. But something interfered with two of the three economies portrayed. As is so often the case with LDCs, these two economies suddenly sharply departed from the natural growth curve. In 1980, Argentina's GDP declined while the growth of Brazil's GDP declined. Certainly, one can easily ascertain what particular malady interfered in these two cases. However, the true question is what is the underlying weakness that makes LDC economies so vulnerable? What that weakness is will become clear in Part III.B.3. when we study the mechanisms that move an economy from the slow to fast pattern. For now, it is enough to observe that the early stages of the pattern were broken up, the saplings are now seriously stunted. The extent of damage done may not become apparent for years, but it will have serious implications for future growth.

A second reason points to the deceptive nature of **Figure 3** growth rates. A look at per

capita growth as seen in **Table 1** shows that in most cases fast pattern economies, United States and France in this example, have a higher per capita growth than slow pattern economies. A direct comparison of per capita income bears this out as shown in **Table 2.** These **Tables** demonstrate that a significant part of the growth of all **Figure 3** economies is attributable merely to population growth. No underlying change or development of the economy took place. In some instances, important aspects of the economic structure, for example infrastructure, deteriorated.

What about the slow pattern economies that have exceeded the fast pattern economies in per capita growth over even long periods? Brazil from 1950 to 1980 is an example. (South Korea is a special case of an economy that made the transition to the fast pattern. It will be discussed in detail later.) How could these countries consistently outperform the U.S. economy in per capita growth and end up with per capita income so far below that of the United States? A third reason explains the deceptive nature of this growth and is the most compelling reason that the growth is deceptive. The reason must be in large part that the statistics are flawed. Their economies could not have grown that fast. The source of the statistical error lies mostly in one area -- a large part of the economies of **Figure 3** is nonmonetized. What appears as growth often is increased monetization. As a greater portion of their economies becomes dominated by large enterprises, such as *McDonald's* and *Coca Cola*, a greater portion becomes measurable through bookkeeping, since large enterprises must take bookkeeping much more seriously. The important contention is that such large enterprises add very little in real output -- refreshments and food were always produced in these countries -- but what they produce is now measured.

The remaining large nonmonetized sectors of the **Figure 3** economies explain the

statistical error even further. Since the greater portion of these economies remains nonmonetized, the true growth rate depends greatly on what is taking place in this vast nonmonetized sector. If growth in that sector is stagnant, then the overall growth rate will plummet. Strong reason exists to believe that growth in that sector is stagnant at best. As has already been seen, the large growing enterprises are often doing little more than displacing already existing production. Therefore, production in the nonmonetized sector must be plummeting in direct correspondence with the large enterprises' growth. Certainly, much anecdotal evidence of this exists. Many observers report that life for the vast majority in **Figure 3** economies has changed little in years, even centuries. Often the level of income has deteriorated. Therefore, many of the statistics showing the gap between income levels in these economies and that of fast pattern economies narrowing could not be true.

B. Slow Pattern

Obviously, the emphasis of this paper is on the fast pattern because it brings us prosperity, and also because it is much more dynamic and mysterious. However, an understanding of the slow pattern is essential to an understanding of the fast pattern and places it in perspective. What this pattern consists of is growth over long periods, often centuries, linked almost exclusively to population growth, and indeed, population growth was quite small. China experienced such growth for six centuries straight. (Reynolds 1983: 941, 942 & 947.) In the past, output per capita varied little so that these long periods of slow growth were punctuated by slumps resulting from population declines. Diseases and agricultural disasters caused this population instability. Such economies, vulnerable and unstable, did not foster the investment confidence so necessary to a fast pattern economy, as will be developed in the next section.

Nevertheless, the increase in GDP was usually slightly above the population increase, attributable to small, almost unnoticed technological advances especially in agriculture.

Although **Figures 2 and 3** represent slow pattern economies, the historical economies of **Figure 2** may not be an overall representation of historic growth. Since these economies were relatively wealthy and politically stable, their study growth may not have been duplicated by other countries. Economies of scale resulting from government-provided infrastructure such as improved roads were more likely to be achieved. As for the **Figure 3** economies, remember that their apparent periodic dynamism is largely limited to monetized sections of the economy as discussed in the above section.

III. Transition From Slow to Fast Pattern

A. Four Characteristics of Fast Pattern

Before we can show precisely why LDCs are not following the fast pattern, we must outline the nature of the two types of economies both in historical and modern times. This outline is especially necessary since GDP statistics alone provide little information about the innerworkings of an economy. (Rostow 1971: xi-xiv) "Growth is only an automatic process if one can assume that a society will respond actively, and effectively to the potentials for growth available to it. To assess that likelihood one must move into political, social, and institutional analysis of its history over the relevant period of time." (Rostow 1971: 193-194) A review of the economic history of both slow and fast pattern economies reveals four characteristics common to only fast pattern economies. Unfortunately though, at least at this time, statistical evidence is not available to define these characteristics. So the following analysis may at first seem less objective. However, the observations of this section, both basic and straight forward,

are not contrary to current thought on economic development.

1. Capital Accumulation Provides Economies of Scale

The key characteristic of fast pattern economies is that they accumulate capital that allows economies of scale to be achieved. This characteristic is key since, as will become clear later, it proves to be the Achilles heel of the fast pattern both in historical times and in modern times. In fact, it is recognized as so important that economists have devoted much effort to its study. (for example, Moses Abramovitz, as quoted in Brenner 1966: 178; Rostow 1971: 41 & 171; Higgins 1968: 189; Day 1982) First, let us explain economies of scale in the content of economic development. With economies of scale, production becomes more efficient solely as a result of improved organization -- production is carried out on a larger and larger scale using the same technology. So this characteristic is not to be confused with technological progress (a different characteristic discussed below). The ability to increase economic output in the absence of technical progress must not be underestimated. Perhaps much more of the increase in output in modern economies is due to this characteristic than is generally realized. The high income level achieved by several historical economies supports this view: The high income level of the Romans seems largely due to Roman organization rather than technological advancements, largely limited to architecture. The Aztecs's economic prosperity may be another example. (Williams 1904: 514 - 515)

Two types of capital are accumulated to achieve economies of scale, human and physical. Initially, such economies are mostly achieved by accumulating human capital -- one person is designated to produce one discrete item. In such a case, the organization may be a trading system allowing a person to specialize rather than a production enterprise. However, more

commonly, the organization is a production enterprise that brings together individuals to produce a particular product. In a short time, physical capital is also accumulated.

Second, let us explain the mechanism by which physical capital is accumulated. Capital accumulation comes about in two ways. One general way assets are accumulated is through private means, that is, a formal pooling, the other general way is through public means, that is, a government sponsors the accumulation of assets by itself or by an individual or by a group. This public means usually required a less sophisticated political system and so will be noted first. The one essential element of the public means is force. At first, it may be an individual war lord. As a political system becomes more developed, a hereditary or republican form of government may undertake production, again the Romans or the Aztecs are examples, the communists are another example.

The private means of capital accumulation, the formal pooling, has quite a different essential element. The essential element here is trust -- either trust in associates or in the government's legal system enforcing the pooling agreement. The profit motive must also be keen. To maintain this trust and profit motive, the economic mechanisms must necessarily become more complicated -- adequate employment relationships, contract systems, dispute resolution systems, banking systems. Much depends on the political stability characteristic of the next section.

In both the private and public capital accumulation methods, one economic mechanism is necessary but especially important in the private system. That mechanism is a means to store and transfer capital, that is, a financial system. Since gold and silver are too limited in supply to support a fast pattern economy, the size of the money supply must be increased through the use

of credit. A credit system able to withstand financial panics is probably one of the most difficult economic mechanisms to provide. Besides banking, an equity market system should also exist in order to provide fluidity to the flow of capital. It must freely flow to where the economies of scale or technological application is the greatest.

2. Stable Political Environment

The second characteristic of fast pattern economies is a stable political environment. Although in time it occurs before the capital accumulation characteristic develops, it will prove not quite as important. It might be profitable to first list a few stable governments that were accompanied by prosperous economies. The Romans certainly enjoyed both. (Lewis 1978: 15, footnote 1) The prosperity of certain city states of Renaissance Europe was accompanied by governments able to keep the tensions of a changing society under control. The Aztecs of Mexico were found by the Spanish to be both prosperous and governed by a powerful central government. (Williams 1904: 514-515) The first modern economy to take off in a modern sense, England, is certainly well known for being a unified nation for quite a period of time. Likewise, the historical power of the Japanese central government is well documented. (see, for example, Minami 1986) Finally, these examples make it clear that the stability of the government is the essential element, not any particular social values. "Virtually any society or culture is capable of economic development. The problem is to recognize within the culture those dynamic elements that contribute most to rising productivity and incomes." (Higgins 1968: 26)

So, focusing on the slow pattern-fast pattern analysis of this paper, why is a stable government so important? A stable government is important in three basic ways. First, a stable

government provides capital infrastructure that goes a long way in developing the environment necessary for businesses and undertakings to grow and succeed. Possessing even a revolutionary production breakthrough, a particular industry will grow little if it can transport its product through only an insufficient transportation system. Certainly, the government need not provide the infrastructure directly just as long as it sets the scene for someone to provide it; a public toll road may be just as well constructed and safe as a road constructed with tax dollars. With reliable infrastructure at hand, businesses are motivated to profit from what is available to them. An important part of infrastructure is military might. For, how stable is a prosperous economy if it can be destroyed at the whim of an unstable neighbor?

Second, a stable government provides the legal mechanisms for businesses to function. These mechanisms must both be fair and provide consistent results. Similar to physical infrastructure, this legal infrastructure enhances incentives to increase production. Production contracts, labor contracts, property acquisition contracts must all be a part of a developed, consistent system. The system governing capital accumulation is the most critical as we have already seen in the capital accumulation discussion. A stable monetary system must be in order along with a banking structure and equity capital market, at least a private placement market but better yet a public exchange. In one important aspect, the government's role is not so passive. Through the legal system, especially the tax system, the government must lead the economy in appropriate directions. Certain industries or means of production fit into an economy's development potential far better than others.

Third, a stable government provides confidence in the future of its economy. Of course, a stable government does not manufacture confidence as it manufactures infrastructure.

Confidence in this context is the intangible outgrowth of a well-managed infrastructure. It especially affects capital accumulation. How much is an investor willing to risk when he harbors doubts that the political leaders are amassing personal wealth instead of concentrating on the nation's future. In such circumstances, competition among business leaders degenerates into a race to accumulate wealth outside of the nation's perceived unfair system. So capital flows abroad.

3. Technological Advancements

The third characteristic of fast pattern economies is technological advancements. When a slow pattern economy springs forward into fast pattern growth, often the impetus is technological breakthrough. Much has been written about the relationship between technological advancements, especially in textiles, and the industrial revolution. (see, for example, Rostow 1971: 48-49; Lewis 1978: 30-31; Brenner 1966: 171; and George 1983: 953) The consensus seems to be that a major development of at least one industry using "appropriate technology" is necessary to start an economy on the fast pattern. (See Section III.B.C.c.(2), "What Are the Effects of Capital Flight," below for a related discussion of appropriate technology.) Most directly, such an industrial development increases what the economy's factors of production can produce and so increases the overall output of an economy. Beyond that, the success serves as a confidence building model for other industries; it supports improved infrastructure of all types; and it accumulates liquid capital in the hands of a few who may invest in other industries. An important additional point of technological advancements is that such advancements must be implemented to have an effect. Implementation depends on both a stable political environment and capital accumulation.

Whether technological advancements are implemented depends largely on the role international trade plays within a particular economy. Since manufacturing produces so much value added, employs large numbers, and demands so much infrastructure, it is a key ingredient to economic takeoff. So if a country remains in the rut of merely exporting raw materials and basic commodities, then it is not implementing technological advancements. Therefore, trade contributes to development when it stimulates manufacturing, and retards development when it hinders domestic manufacturing. (Batra 1993: 240 - 241)

However, the social effects such industrial development has on society can be grave -- displacing workers and upsetting the social structure. The government must be strong enough to maintain political stability through such times and guide the economy. In modern times where international trade is highly developed, an entire economy can be ruined by such development even on another continent; a particular economy may revolve around a certain industry devastated by a new means of production more suited to a different part of the world.

4. Stable and Dense Population

The fourth characteristic of fast pattern economies is a population that is growing with stability and that is dense in one region. Several economists have noted that when fast pattern economies began the fast pattern, usually their populations were increasing quite rapidly.[4] Under this circumstance, emerging industries easily recruit new workers; product demand remains high; and the economy as a whole is naturally oriented toward faster growth. Likewise, for an economy to start off on the road to fast growth, its population must be quite dense in at least one region of the country. Thinly populated countries are usually lesser developed. Physical proximity increases efficiency in obvious ways. It especially facilitates communication. Ideas

are often learned or improved upon by physical observations. Logically, then, the more people who see a certain operation the better. On another level, at least a small elite part of the population must be literate and have forums to exchange ideas freely. A certain ease of communication seems necessary for an economy to take off.

5. Economy Takes on Life of Its Own (Not a True Characteristic)

Although not a general characteristic of fast pattern economies, another characteristic develops in the advanced stages of the fast pattern. Although not present during the transition from the slow to the fast pattern, this characteristic contributes to the later analysis of this paper. This characteristic is that the growth of advanced economies is so dynamic that growth both survives shocks and pushes development in the direction of steady growth. Compare the U.S. economy in **Figure 1** with those of **Figure 3**. The U.S. economy, as are those of other advanced economies, is following the well-defined fast pattern as seen through GDP statistics while those of **Figure 3** broke from the pattern. Yet the United States was hit by the same Great Depression and the same 1970s oil shocks as the rest of the world. In addition, the United States is undergoing massive economic restructuring; entire industries are disappearing! How does the United States manage to remain on the fast pattern even in the face of such difficulties?

The capital markets of these advanced fast pattern economies are so efficient that on average all investments grow by something approaching the real prevailing interest rate so that the aggregate output statistics reflect this growth but not so much shocks or underlying structural changes. This reinvesting of profits has been described as "strengthen[ing] the savings capacity of the economies, and . . . help[ing] to make the industrialization process self reinforcing . . . ." (Maddison 1970: 162) Not only do these economies overcome what normally would be

disruptive economic conditions, but also the growth demands of the capital markets push development in the direction of steady growth. When birth rates in the United States and Western Europe fell below what is needed to replenish the population and support fast growth, their economies drew in large numbers of immigrants by whatever means -- legal and illegal -- to maintain growth. Similarly, when their economies centered activity around the use of large quantities of petroleum, the world's economy developed in a manner to supply that oil. All this was accomplished without political or business planning or leadership. Economic conditions drove these occurrences, and governments and businesses simply reacted.

B. Obstacles to Transition to the Fast Pattern

1. Historical Obstacles

a. No Efficient Capital Accumulation

Before modern times, two characteristics of fast pattern economies were particularly impeded in several ways. The first characteristic, capital accumulation, was quite precarious. The simple storing of wealth by the accumulation of land, buildings, or commodities is quite inefficient for obvious reasons. Even the use of precious metals has severe limitations: use is cumbersome, availability is arbitrary, and a stable credit system to expand the money supply was rare. Moreover, when capital was available to invest, the means to invest were lacking. The institutions of anonymous societies, corporations or limited partnerships, were not commonly used. Even when such an institution was used, the machinery they rely upon was weak: contract enforcement, labor laws, property titles. The most significant obstacle sometimes was those with a vested interest in the existing wealth distribution structure. (Lewis 1978: 200-201) The conflict between the landed aristocracy and the rising mercantile class is the classic example.

b. Population Neither Stable Nor Dense

The fourth characteristic, a stable and dense population, rarely existed. When agricultural workers can feed little more than themselves, cities can only grow so large.[5] So in historical times, a dense population only developed at times and places where food production was highly organized. In addition, population growth was both small and unstable for unfortunate public health reasons. Although a particular government may have been stable, efficiently administered, and presiding over advanced production organizations, the physical environment was too little understood. As a result, the mortality rate was both too high and too unstable. Plagues, epidemics, and crop failures not only brought stagnation generally, but also brought unexpected death to the few with education or developed skills. How could a well developed production organization maintain progress when the key players so often suddenly died? An interesting point is that the lack of understanding was not that great. Just a few public health reforms could have made population much more stable, for example, a rudimentary sewer system.

2. Existing Elements of the Four Characteristics

Why have so many modern slow pattern economies not transformed themselves into fast pattern economies? They seem to possess so many elements of the four characteristics. Let us begin by reviewing the many elements of the four characteristics that are in place. The existing elements place in stark relief the true obstacle.

a. Capital Accumulation

Several elements of the first characteristic, capital accumulation, seem very well developed in modern slow pattern economies. Certainly the science of banking and capital

markets is more developed than in the past when many nations switched to the fast pattern. It is difficult, however, to compare the state of present third world capital markets with that of the developed world many years ago. But on the face of the two situations, LDCs compare favorably. A banking system exists in many LDCs, sometimes quite elaborate. Just as foreign direct investment was a factor in the switch to the fast growth pattern of many economies of the past (Maddison 1970: 223-224; Minami 1986: 201), LDCs are the recipient of much direct investment. Equity markets even exist in many LDCs (and in recent months have grown enormously). (Sesit 1993) Finally, most LDC currencies are quoted on international exchanges. So LDCs seem well positioned to interact with the world wide economy to finance lucrative projects and to develop quickly.

b. Political Stability

The second characteristic, political stability, exists for quite a length of time in many slow pattern economies. Eventually though, the lack of confidence in the economy and political system becomes clear. A political crisis erupts. That all important part of the infrastructure, a stable monetary system, falls apart with runaway inflation. The physical infrastructure soon falls into disrepair as well.

Slow pattern economies' tendency toward political crisis in modern times is made all the more perplexing since, in at least one respect, they should possess more political stature than in the past. The concept of a nation state has been generally accepted in modern times. Many Western European nations did not possess this same acceptance when mired in the slow pattern. Especially in Latin America, many modern slow pattern countries are historically and emotionally a nation; their peoples identify strongly with their country. So confidence should be

all the easier to maintain.

Therefore, since political stability exists for such lengths of time as ten, twenty, or thirty years and since it has several reasons to exist, the obstacle must be found in one of the other characteristics.

c. Technological Advancements

The third characteristic, technological advancements, clearly exists in slow pattern economies. All slow pattern economies have access to great technological advancements, certainly much more so than historical slow pattern economies. Through their elite, educated and well traveled, modern slow pattern economies have meaningful access to the latest technology. The increase in factor productivity of implementing some of these advances would be several times greater than from what historical slow pattern economies had available to them. Especially important to developing the fast pattern, modern communications already exist to a large degree in most slow pattern countries. Newspapers are already ubiquitous. Basic telephone networks exist almost everywhere. Such communication should offset some of the disadvantages of lightly populated regions. The obstacle to the fast pattern is clearly not found in the technological advancement characteristic.

d. Stable Dense Population

The fourth characteristic, a stable and dense population, also clearly exists in modern slow pattern economies. In recent decades especially, modern public health measures have been implemented in most parts of the world to great effect. Population growth has increased dramatically over historical times. (Reynolds 1983: 970) So much so that prophets of impending population explosions, termed disasters, are quite in vogue. And except for the recent

AIDS epidemic, man has great control, at least potential, over modern epidemics and plagues.

In recent years, slow pattern parts of the globe have become urbanized to an extent unparalleled in slow pattern economies of years past. The rural exodus has been underway for years though largely unaccompanied by industrialization. Many of the largest metropolises in the world are in slow pattern countries. So the obstacle is not to be found in the population characteristic.

3. The Modern Obstacle -- Juxtaposition

a. Introduction

If so many important elements of the four characteristics seem to be in place, what is preventing so many slow pattern economies from developing fast pattern growth? As we have just seen, the last three characteristics are in place more strongly than probably ever in history. That leaves the first characteristic, capital accumulation, as the culprit. The invitiation of this characteristic is traced to one common source or cause -- the vast difference in vitality between two juxtaposed economies. The difference between slow and fast pattern economies is far greater now than ever before in history. (Brenner 1966: 161 (quoting Simon Kuznets)) Not only is the difference greater, but also the juxtaposition is acute because of the nature of the modern world economy. Economies of the world are now closely linked, the transportation of goods in world trade is highly developed. World travel is highly developed. Communication, also. But most importantly, international capital markets are highly developed. The effect of this acute juxtaposition of two vastly different worlds is first psychological and then financial. It is human nature that everyone's eyes and thoughts are drawn to the success stories, the fast pattern economies, so that a psychological effect is had. From this psychological effect, the financial

effect flows. People put both their confidence and their money in that which they admire -- fast pattern economies. The effect on slow pattern economies is devastating. This conclusion is generally consistent with that reached by the majority of economists. W. Arthur Lewis, who reached the opposite conclusion, stated:

> Our study originates from interest in the proposition that the upward movement of those already on the escalator [, fast pattern economies,] helps to pull more and more countries into the moving company. This proposition is not obvious, and its opposite -- that it is the enrichment of the rich that impoverishes the poor -- is perhaps even more widely held in one form or another.

(Lewis 1978: 16)

b. Psychological Effect of Juxtaposition

The most obvious effect of such an acute juxtaposition is psychological. The excitement especially present around financial centers and high-tech development projects of fast pattern economies at times seems almost tangible. Corporations are growing rapidly, developing new products, conquering new territories, expanding market share, and acquiring rivals or other businesses. Morale is high. The future seems limitless. Science fiction writers are spoken of as prophets rather than as story tellers.

In the modern world, this enthusiasm is not lost on the population of poorer economies. Radio, and sometimes television, reach almost everyone. They know of the success of the developed world. The U.S. entertainment industry no doubt greatly enhances the successful image of the developed world. But more importantly, those in leadership roles always know of

this image. Many have studied or traveled in the developed world and speak its languages.

This focus of attention on fast pattern economies has effects on slow pattern economies. These effects are real. Corresponding to the enthusiasm for undertakings in a fast pattern economy is a lack of enthusiasm for any undertaking in a slow pattern economy. Sometimes just the perception that an economy or industry is weak can be devastating. Certainly, prestige is a real thing. Talented workers do opt for one firm over another, one location over another simply because of prestige.

One common U.S. phenomenon brings an interesting insight to these psychological effects. In the United States, exist areas that do not much participate in neither the prosperity nor the enthusiasm of a fast pattern economy. However, because of geographic location, the juxtaposition is even more acute than with foreign slow pattern economies. The apparent hopelessness of these areas as seen through high crime, violence, and drug abuse rates is disproportional to the degree of poverty that exists. Not to trivialize U.S. poverty, but in objective measurements the poverty of foreign countries is often greater. Yet the poor of these foreign regions do not seem quite as frustrated as in the United States. To a large extent, the depths of this frustration results from the acute juxtaposition to a prosperous economy and the resultant psychological effects. However, this frustration is also caused by other reasons, cultural reasons and the indignant nature of U.S. unemployment.

c. Capital Flight Effect of Juxtaposition

The above observations concerning the psychological effects of the juxtaposition may strike one as containing much truth, but such effects do not explain the existence of two widely different growth patterns. However, these psychological effects set in the world economic

structure, as it now exists, produce another effect, very real and often measurable. This other effect is called capital flight.

(1) What is Capital Flight?

Very generally, capital flight is the tendency for liquid assets in slow pattern economies to flow to fast pattern economies. Capital flight comes about in the following way. As is well known, income and wealth distribution in slow pattern economies is quite skewed. Those in the favored position are also those most familiar with fast pattern economies. Not only are they under the spell of fast pattern enthusiasm, but also they are familiar with investments in fast pattern economies. Substantial portions of their liquid assets are held in U.S. dollars or other major currencies.[6] Tax systems as well as custom encourage investment in fast pattern economies. (Walter 1990: 18, 185-186) An extensive international finance system is in place making private investment in the developed world both safe and efficient. (Walter 1990: 24-25, 28-29, 56, 186-187) Telephones allow investors to keep in touch and monitor U.S. investment with ease. Through television and the print media, an investor can keep abreast of happenings in the developed world. A well-known economist has made a similar observation: "Simon Kuznets emphasizes . . . . major differences [exist] between underdeveloped countries today and the now advanced countries when they began their industrialization: . . . . the inequality in the distribution of income is wider today than in the past, but not in a way that favors accumulation of productive capital . . . ." (Higgins 1968: 192. Higgins himself comes to a similar conclusion. 505-506)

The reality is that an enormous amount of capital flows into fast pattern economies from slow ones. Others have already documented and begun to analyze the specifics of this

phenomenon (for example, Lessard and Williamson 1987; Maddison 1970: 228)[7] so that it is not profitable to add more in this paper. What they have identified is a continual flow of money that surges greatly during political or economic troubles of a particular country. (Lessard and Williamson 1987: 97) For example, from 1976 to 1981, Argentina, Venezuela, and Mexico experienced massive bouts of capital flight while undergoing economic problems. (Lessard and Williamson 1987: 38-43)[8] Normally these countries always experience a lesser amount of capital flight.

(2) What Are the Effects of Capital Flight?

The importance of capital flight to the analysis of this paper is the effects it has on slow pattern economies. It affects the first three characteristics. Obviously, the first characteristic capital accumulation, is the most directly and most profoundly affected. Two main effects are had on capital accumulation, thus impeding important mechanisms of capital accumulation. First, capital invested abroad is not available for local investment. (Walter 1990: 62-63) Not only is the capital itself not available, but also the credit it could produce through the money multiplier effect is not available. In banking, the amount of money deposited in all banks is multiplied by the money multiplier to obtain the amount of money banks have available. If bank reserve requirements are 20 percent, generally the case, then the money multiplier is five. Therefore, the money removed from an economy shrinks the money supply by five times the original amount. So banking systems are severely crippled by capital flight.[9] In addition, the money supply becomes unstable. "This instability is, as a matter of fact, much higher than that which is usually observed in the developed countries and would in itself make of monetary programming an enterprise highly difficult to realize with any degree of accuracy over time."

(Ground 1984: 45, 77)

Second, capital flight harms capital accumulation by harming the exchange rate mechanisms of the slow pattern economies. The harm comes about in the following way. In the rush to invest liquid capital abroad, capital accumulated in both the local currency and foreign currencies, usually the U.S. Dollar, must be sent abroad. That accumulated in the local currency must first be converted into the currency of the fast pattern country. The large number of those seeking to invest abroad in this manner places downward pressure on the local currency. Confidence in the local economy is diminished all the more. The desire to invest abroad becomes so great that investors willingly pay a premium to do so: they sell their local currency holdings at even greater discounts. The large size of the discount is evidence of how high they esteem investment in the developed world. As the local currency falls, imports become more expensive causing inflation that, in turn, places even more downward pressure on the local currency. Inflation further erodes confidence in the local economy.

Two readily observable trends in slow pattern economies are consistent with the above described effect of capital flight. Firstly, since the local currency has been discounted so much, the preference is to conduct business in U.S. dollars so that dollars often circulate widely in slow pattern economies. Secondly, the loss in confidence in local currencies is so great that the change in the exchange rate usually far surpasses the inflation rate. (for a review of these statistics, see The World Bank 1992; International Monetary Fund 1992) Those able to invest abroad, those most captivated by the spell of the developed world, necessarily have less confidence in the local economy than those who have no choice but to operate only in the local economy.

Besides harming capital accumulation, capital flight harms the second and third characteristics, political stability and technological advancements. The great harm capital flight does to capital accumulation has its effect on confidence -- confidence in political and business leaders, in the nation, in individual undertakings, and in oneself. Political turmoil often erupts in what may have been a stable political environment. Even the most well prepared and intentioned leader is left helpless. The great technological advances at hand are impossible to implement in the face of such great economic and political turmoil. Others have noted the above described effects also although they have not always attributed them to capital flight. For example, one book describes "special problem areas" resulting from "centripetal forces that favor growth of the heartland [, fast pattern economies,] at the expense of the hinterland [, slow pattern economies]." (Berry, Conkling, and Ray 1987: 408 (emphasis added))

Of course, other factors beside capital flight contribute to the stagnation of slow pattern economies. (Schumacher 1975) As noted above under the technological advancements section, "appropriate technology" for manufacturing must develop. For example, the extraction of petroleum from many third world countries does not benefit the local economy much since employment is minimal, skilled personnel are brought in from other countries, and the employment is usually located in sparsely populated areas. (Bairoch 1975: 59-60) Another example is the tendency of the capital holders in the third world to "sterilize [the capital] by hoarding, luxury consumption or low productivity investment outlays." Such use does not contribute to growth. (Rostow 1971: 49)

4. What about the Success Stories?

Another logical step in the analysis of this paper remains. Why did not such a formidable

obstacle to capital growth as juxtaposition and the resulting capital flight prevent all economies from breaking into the fast pattern? Why has Japan done so? And later South Korea, Taiwan, and Singapore, etc.? The answer to these questions strongly supports the thesis of this paper since the success of all these economies is quite consistent with the thesis.

The answer is that all four characteristics were strongly present in these success stories. Since the capital accumulation characteristic has proved to be the Achilles heel, let us concentrate our analysis on it. We know quite a bit about the Japanese economy. Its success is so great and began so early that much has been written about it. The political stability characteristic is well documented to have existed. In more recent times, it began with the Meijing Era in 1868 and continued to the present. As for the technological advancement characteristic, economists have found that Japan implemented at first small technological advances in the silk industry and agriculture and eventually built up to the large industrial advances of recent decades. (Minami 1986; Higgins 1968: 622-625) In addition, the population characteristics were present.

Japan also possessed the capital accumulation characteristic to a very great degree always during its transition to the fast pattern. Unlike many other success stories, such as Australia, where the source of capital accumulation was from abroad, Japan's source was from within. (Minami 1986: 201) Why did not the small, initial, tentative Japanese capital accumulation flee abroad? The juxtaposition present now did not exist. Two facts explain the juxtaposition's absence. First, Japan had isolated itself from the rest of the world especially from the West. It had little contact with the West and had never been a colony of the West. So it was not linked to an international banking network, nor did its wealth holders possess western business contacts or

even much knowledge of the West.[10] Second, the gap between Japan in its slow pattern days, roughly before 1920, and the then existing fast pattern economies was not near as great as such gaps are now. (Minami 1986: 423-424) So the pull on capital was not so strong.

On the other hand, South Korea has not the history of political stability and isolation from its neighbors. However, during the Korean war its people and political system pulled together to meet the outside threat. Thus, the political stability characteristic was quickly obtained. But most importantly it was at center stage of world affairs. During the height of the cold war, its competition with North Korea became a sort of competition between champions of two political systems. The free world, especially the United States, acted as a sort of mentor for the Korean economy. Much foreign capital flowed into South Korea,[11] and the war time government was able to keep tight control of the economy including the control of capital outflows. So the capital accumulation characteristic was to a large part thrust upon it. Technological advances were quickly implemented under these conditions. The population characteristics were present as well. The bulk of the population is densely located in one small region. Taiwan's is a similar story.

Although having many of the elements of the above success stories, the success of several other small Asian countries is attributable to a different circumstance. Such nations, Singapore and Hong Kong for example, have made themselves tax and banking havens. As havens, they have achieved a certain amount of capital accumulation. In the area of finance, they have far reaching bank secrecy laws. So they benefit from the capital flight phenomenon. Much of the money fleeing slow pattern economies, evading taxes, or being laundered flows through their banks on its way to the West. (Walter 1990: 28, 156-157, 186-188) A certain amount of

this money stays in the haven countries, at least enough to be the basis of entry into the fast pattern. They do, however, all possess the three other characteristics as well as capital accumulation.

Can their success be emulated? No, since their success can only be achieved by a few. Even the success of Japan cannot be emulated under present world conditions, however. Japan's method of isolating itself is incompatible with the extensive international trade and communications network of the present world. The economic difficulties of Cuba over the last thirty years is one story of how difficult it is for even the most determined government to control capital flight through regulation and force.

IV. Further Questions

A. All Nations on Fast Pattern

Considering the enormous growth in fast pattern economies in later stages, two concerns about the nature of such growth are apparent. First, could all economies follow the fast pattern simultaneously? Are slow pattern economies looking to join a club with no more membership openings? Such is the case if the fast pattern is dependent upon drawing capital and confidence from other economies. To answer this question requires an additional study, beyond the scope of this paper. However, a few general comments are appropriate. In theory, all economies could follow the fast pattern simultaneously. The four characteristics necessary are largely endogenous. Economic mechanisms such as the bank expansion ratio do not require outside capital to function. In addition, Japan itself was partially isolated when it initially entered the fast pattern. On the other hand, the largest questions lie in the area of confidence in an economy, confidence in a business, and individual confidence. Can an economy maintain the enthusiasm

of a fast pattern economy without considering itself one of the select few, the successful? Perhaps the science of psychology could address the question.

B. Life of Fast Pattern

Second, can a pattern of such enormous growth be maintained indefinitely? Are slow pattern economies looking to join a club destined for failure? Although once again the answer is well beyond the scope of this paper, some general observations are appropriate. Two considerations indicate such growth is not indefinite. First, important to all but the political stability characteristic, the economies of scale production efficiencies will diminish. The production economies of scale made possible by capital accumulation always diminish. The same with the efficiencies made possible by technological breakthroughs. Such breakthrough are bound to become less and less significant. (Kuznets 1983: 254-255) The same is true with the population density characteristic. Populations can only become so dense. On the other hand, the momentum of enthusiasm of the fast pattern might continue on for some time carrying growth with it.

Second, such high growth may lead itself to a dead end. That fast pattern economies follow a natural growth pattern set by nature not by human reasoning is an important aspect of this paper. Through individuals desiring even greater income, fast pattern economies direct growth to industries where the highest increase in economies of scale are obtained. No human reasoning orchestrates overall growth; no reasoning guides the economy to invest in certain industries or certain processes as part of a long-term plan. Business leaders simply strive to identify where the greatest growth potential is and then go in that direction. However, as we know, negative externalities and economic pitfalls are not always considered by such an

economic system. If governments fail to adjust for these externalities, these externalities and pitfalls may suddenly, inopportunely demand consideration.

V. Conclusion

An objective look at the growth of GNP of various economies shows that they usually follow a very slow growth pattern. Both the statistical data of recent economies as well as the anecdotal evidence of historical economies confirm this pattern. But in recent times several economies have grown quite rapidly often for an extended length of time as with the United States but also often for only a short time as with Argentina. Basic statistical techniques demonstrate that the two groups follow different but identifiable patterns. The slow pattern is mostly a continual rise correlated almost exclusively with a very small increase in population. The fast pattern follows the same mathematical pattern found commonly in nature, an exponential growth pattern.

A review of the economies exhibiting these two patterns shows four characteristics are present in all fast pattern economies. A closer look at these characteristics shows that the capital accumulation characteristic is particularly vulnerable. A review of the economic history of several nations confirms that large scale capital accumulation occurs only in fast pattern economies while slow pattern economies in modern times experience a flow of their capital out of their economies. The cause of this flow, as has already been developed to a certain extent in economic literature, is the juxtaposition of incredibly successful economies with impoverished ones. The allure of fast growth rates, high returns, apparent success, and prestige seems too strong for poor economies trying to compete for capital in a now global economy. The effects of this capital outflow cripple their economies.

Many questions, then, remain unanswered. The most pressing is how slow pattern economies can stem the flight of capital and accumulate their own.

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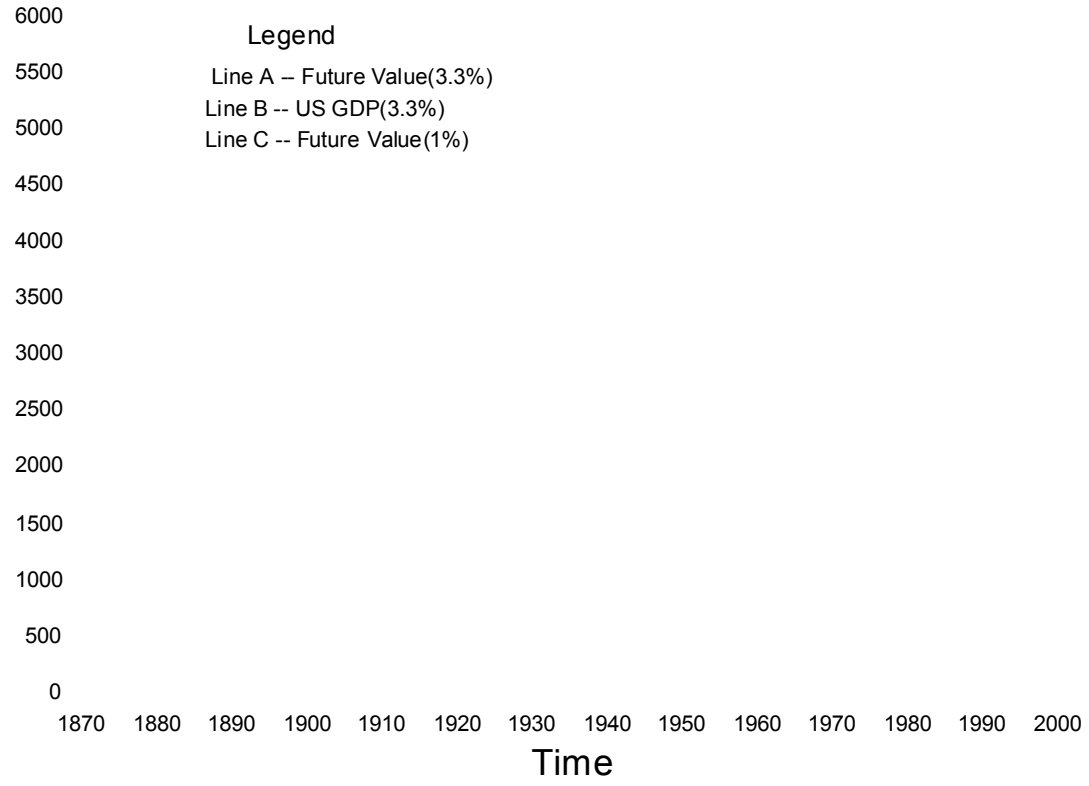
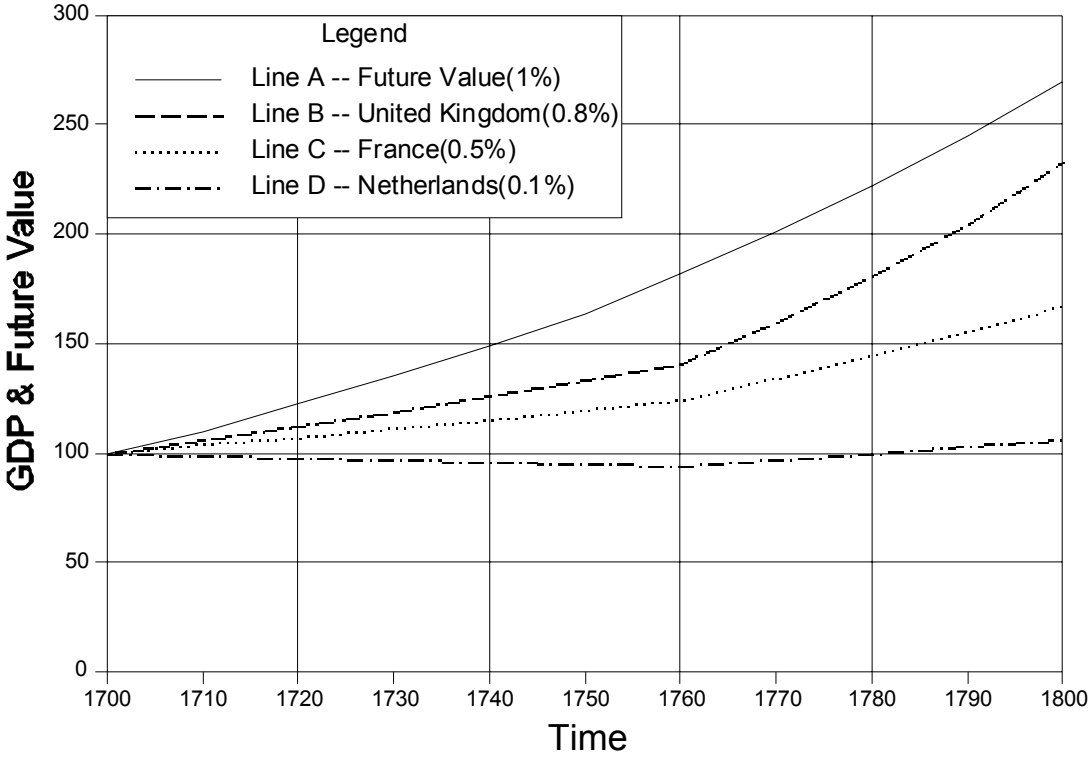
Figure One



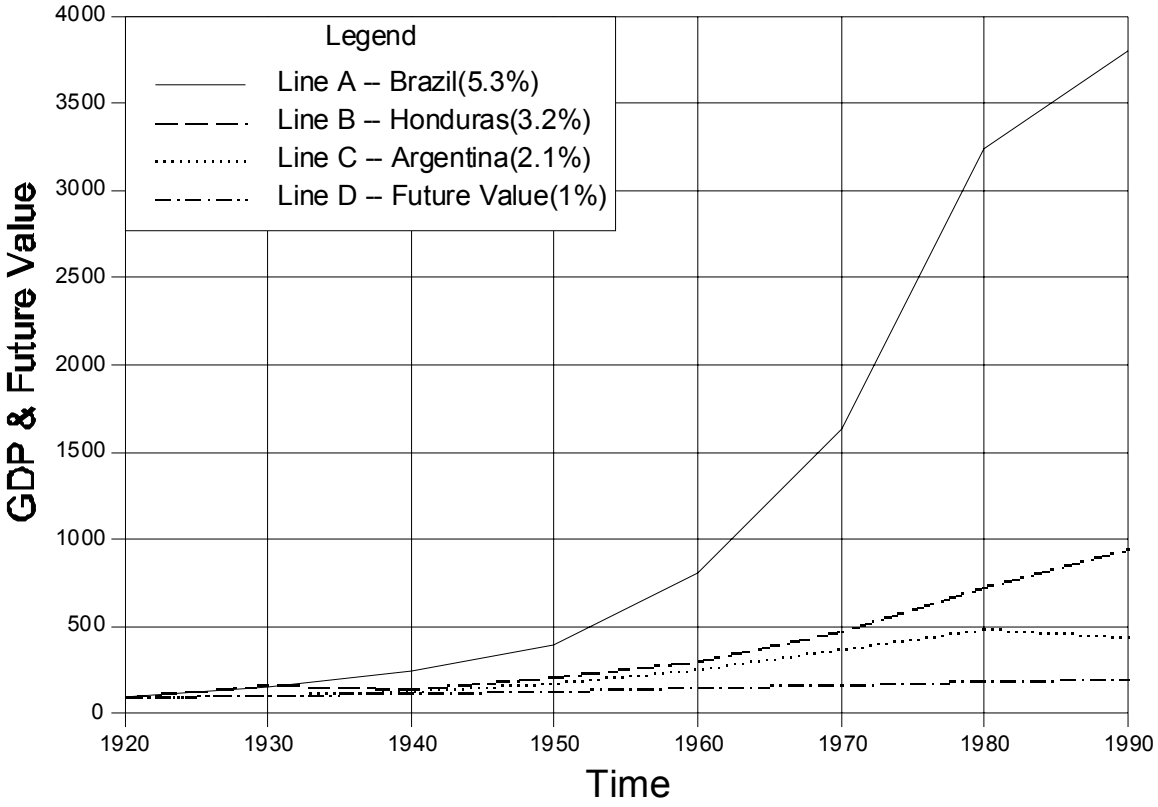
Sources for **Line B of Figure 1**: 1870-1970: U.S. Bureau of the Census (1975) Series F 1-5 (reported as GNP); 1975-1991: U.S. Bureau of the Census (1992) No. 673; 1993: The Wall Street Journal. (29 Oct. 1993). All are in constant dollars.

Figure Two



Source for **Figure 2**: Maddison (1982) Table A4. All are in constant units.

Figure Three



Sources for **Figure 3**: Brazil and Argentina from 1929 to 1983: Wilkie, Ochoa, and Lorey (1990) Table 3323. Honduras from 1920 to 1984: Bulmer-Thomas (1987) Table A.1. Brazil, Argentina, and Honduras from 1983-84 to 1990: International Monetary Fund (1992). The 1920-1929 figures for Brazil are an extrapolation by the author. The 1929-1929 figures for Argentina are an estimate by the author. All are in constant units.

Table 1

Average Growth in Real Per Capita GDP

	1870-1913	1913-1950	1950-1980	1980-1991
United States	2.0%	1.5%	2.0%	1.4%
France	1.5%	1.0%	3.7%	7.0%
Argentina	1.5%	0.6%	1.6%	1.2%
Brazil	1.2%	1.6%	4.4%	-0.6%
Mexico	0.6%	1.8%	2.8%	-0.4%
South Korea	----------	-0.9%	4.7%	8.0%
Philippines	----------	-0.3%	3.0%	-1.0%

Sources for **Table 1**: 1870-1980: Maddison (1983) Table 2. 1980-1991: International Monetary Fund (1992). All are in constant units.

Table 2

Real Per Capita GDP as Percentage of U.S. GDP

	1870	1913	1950	1980	1990

France	0.74	0.59	0.48	0.78	81%
Argentina	0.74	0.6	0.42	0.38	11%
Brazil	0.18	0.12	0.13	0.26	12%
Mexico	0.19	0.11	0.12	0.15	11%
S. Korea	---------- -	0.17	0.07	0.15	25%
Philippines	---------- -	0.14	0.07	0.1	03%
Sources for **Table 2**: 1870-1980: Maddison (1983) Table 2. 1990: The World Bank (1992).					

LESSER DEVELOPED COUNTRIES AND NATURAL ECONOMIC GROWTH

ENDNOTES

1. The future value equation is $FV=P(1+i)^N$. FV represents future value; P, present value; i, the interest rate; and N, the number of years in the future.

2. Some economists dispute whether the transformation can be smooth. For a description of these argument, see (Higgins 1968: 327).

When the vertical axis is in logarithmic scale, the graph is of an upward sloping straight line.

3. Some economists argue that GNP growth is an almost pure random walk while many find a long-run pattern consistent with this paper. For both arguments, see (Cochrane 1988; Cogley 1990).

4. Europe underwent a "spurt of population in the eighteenth and nineteenth centuries" which was smaller than the present spurt in the developing world. (Higgins 1968: 44) (see also, Reynolds 1983: 970)

5. Economists have noted that industrial revolutions are always preceded by agricultural revolutions. (Lewis 1978: 160)

6. "The U.S. dollar appears to be the predominantly vehicle currency, and federal reserve data and the size of reported interbank international currency transactions indicate that a significant proportion of U.S. currency in circulation is actually held outside the United States." (Lessard and Williamson 1987: 111-112)

7. Even before the modern international finance network existed, capital flight existed but took place through political mechanisms of colonialism. (Maddison 1970: 223-224)

8.Bouts of capital flight have also been discerned in Central America: in Costa Rica, El Salvador, and Guatemala from 1978 - 81; in Honduras from 1979 - 82; and in Nicaragua from 1977 - 80. (Bulmer-Thomas 1987: 237 - 238)

9. No statistical correlation seems to exist between the amount of capital flight the size of a nation's money supply, money

multiplier, or related concept of income velocity of money. This lack of correlation can be explained in several ways outside the scope of this paper.

10. Economic statistics from the time show no evidence of capital flight. They do show, however, that Japan had accumulated enough capital even early on to invest in its own colonies. (Minami 1986: 201)

11. Evidence of the control of capital flight can be seen in the strength of the South Korean exchange rate especially after 1964. International Monetary Fund (1979) 262-263. Most notable however are the U.S. government investments in Korea.