

Impact of Privatization on Economic Growth

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The concept of economic growth is a fundamental part of the field of macroeconomics, which is masterfully captured in William Easterly's *The Elusive Quest for Growth*. Easterly powerfully depicts the real, long term economic crisis that many countries are facing around the world and stimulates the reader to take part in the search for economic growth. In the early parts of *The Elusive Quest for Growth*, one begins to appreciate the meaning behind the book's title. Individual policies such as aid for investment, population control, and human capital investment have all failed as a solution to the lack of economic growth in underdeveloped countries. In other words, Easterly alludes to an idea that a combination of different factors (investment, education, technological innovation), along with a fundamental structural change might be the path to long term economic growth. One of the underlying themes throughout Easterly's book is the idea that people respond to incentives. In fact, most of Easterly's analysis of various economic models throughout the book is an analysis of the incentives created by those models (Easterly, 2001). This paper examines the relationship between growth and privatization from an incentives perspective.

Privatization, a method of reallocating assets and functions from the public sector to the private sector, appears to be a factor that could play a serious role in the quest for growth. In recent history, privatization has been adopted by many different political systems and has spread to every region of the world. The process of privatization can be an effective way to bring about fundamental structural change by formalizing and establishing property rights, which directly create strong individual incentives. A free market economy largely depends on well-defined property rights in which people make individual decisions in their own interests. The importance of property rights is captured by economist Hernando de Soto as he states, "Modern market economies generate growth because widespread, formal property rights permit massive, low-cost exchange, thus fostering specialization and greater productivity" (1996). Along with creating strong incentives that induce productivity, privatization may improve efficiency, provide fiscal relief, encourage wider ownership, and increase the availability of credit for the private sector. This paper will analyze the effects and the influence of privatization on the rate of economic growth, stimulated by the idea of people responding to incentives. Ultimately, the goal of this paper is to evaluate and analyze the idea of privatization as a possible factor of economic growth.

The first section of the paper will begin with a brief historic overview of privatization in the past few decades. The main content of the first section will be an introduction to the Coase Theorem and an analysis of the theoretical framework for privatization. The material in this section will be centered around Robert W. Poole's "Privatization for Economic Development" and Hernando de Soto's "The Missing Ingredient." The second section of the paper will describe different methods of privatization as well as provide examples of privatization taking place around the world (with an emphasis on Eastern Europe). The third section of the paper will present an empirical study done by Paul Cook and Yuichiro Uchida, analyzing the effects of privatization on economic growth in developing countries. The fourth section will introduce and discuss the results of my own empirical study. In the final section of the paper I will attempt to draw useful conclusions regarding privatization as an economic growth policy.

I. Theoretical Framework

A world-wide era of privatization has been picking up momentum in recent decades, making it a fairly new trend in the area of economic policy. The modern idea of privatization as an economic policy was pursued for the first time by the Federal Republic of Germany in 1957, when the government eventually sold majority stake of Volkswagen to private investors. The next big move in privatization came in the 1980s with Margaret Thatcher's privatization of Britain Telecom and Chirac's privatization of large banks in France. Privatization spread to other continents as Japan and Mexico privatized government owned communication companies (Megginson, Nash, and Randenborgh, 1996). Another major contribution to the world-wide process of privatization has been the fall of the communist regime in Eastern Europe and the former Soviet Union. In recent times, countries like China and Cuba, as well as many other developing countries have begun to implement privatization in the hope of stimulating economic growth. Over the period of 10 years between 1984 and 1994, there has been a world-wide shift of \$468 billion in assets from the public sector to the private sector (Poole, 1996).

The theoretical framework behind the idea of privatization is largely dependant on understanding the concept of property rights. In order to develop an expanded, specialized market system, a society must have an efficient way of dealing with numerous transactions that take place in a specialized economy. Specialization and allocation of resources depends on low transactions costs, which are dictated by prices in market economies. Competitive markets, in which transactions are effectively handled by market prices, rely heavily on formal, well-defined property rights (Mankiw, 2001). De Soto explains, "To be exchanged in expanded markets, property rights must be 'formalized', in other words, embodied in universally obtainable, standardized instruments of exchange that are registered in a central system governed by legal rules" (1996). In fact, de Soto argues that the lack of formal property rights is "the missing ingredient" that is keeping underdeveloped countries from sustaining long-term growth. Furthermore, the lack of property rights limits the amount of goods and services that can be exchanged in the market. An important implication of well-defined property rights is that it creates strong individual incentives, which, according to Easterly, is a significant factor in the quest for long term growth. By creating strong incentives, property rights lead to an increase in investment since people are certain and secure about the ownership of their property¹. Furthermore, individuals gain an access to credit since they can use their formal titles as a collateral for loans, ultimately leading to an increase in investment. Finally, property rights give people an incentive to pursue long-term rather than short term economic goals. In the case of land ownership, individuals who have secure and well-defined ownership will invest in their land instead of continuously draining new land (Soto, 1996).

Another fundamental aspect of privatization, which plays an essential part in the efficiency improvement² associated with privatization, is embedded in the Coase Theorem. Ronald Coase proposes that the private sector is effective in solving the problem of externalities³, through costless bargaining, driven by individual incentives. According to the Coase Theorem, individual parties will directly or indirectly take part in a cost-benefit analysis, which will eventually result in the most efficient solution (Mankiw, 2001). Thus, Coase argues the role of the legal system is to establish rights that would allow the private sector to solve the problem of externalities with the most effective solution. A major implication of the Coase Theorem is the fact that the initial allocation of rights does not affect the outcome as long as the rights are well-defined. Furthermore, the solution that results from bargaining of private parties will be a Pareto optimal solution. From the perspective of privatization, the Coase Theorem

implies that by shifting the assets from the state to the private investors, the market will become more effective in dealing with numerous externalities (Medema and Zerbe, 1999).

There are many theoretical economic benefits that are connected to the process of privatization. One of the main reasons why countries pursue privatization is in order to reduce the size of the existing government, based on the idea that many governments have become too large and overextended, consisting of unnecessary layers of bureaucracy. Therefore, many countries require restructuring in order to improve efficiency, which can be achieved through privatization. The private sector responds to incentives in the market, while the public sector often has non-economic goals. In other words, the public sector is not highly motivated to maximize production and allocate resources effectively, causing the government to run high-cost, low-income enterprises. Privatization directly shifts the focus from political goals to economic goals, which leads to development of the market economy (Poole, 1996). The downsizing aspect of privatization is an important one since bad government policies and government corruption can play a large, negative role in economic growth (Easterly, 2001). By privatizing, the role of the government in the economy is reduced, thus there is less chance for the government to negatively impact the economy (Poole, 1996).

Privatization can have a positive secondary effect on a country's fiscal situation. As Easterly discusses, privatization should not be used to finance new government expenditures and pay off future debts. Instead, privatization enables countries to pay a portion of their existing debt, thus reducing interest rates and raising the level of investment. By reducing the size of the public sector, the government reduces total expenditure and begins collecting taxes on all the businesses that are now privatized. This process can help bring an end to a vicious cycle of over-borrowing and continuous increase of the national debt⁴ (Poole, 1996).

Along with creating incentives, privatization gives ownership to a larger percentage of the population. Given the level of established property rights, individuals become more motivated and driven to work on and invest in their property since they are directly compensated for their efforts. Therefore, privatization will cause an increase in investment for yet another reason (Poole, 1996). Furthermore, state ownership leads to crowding-out of investment from the private sector. In order to retain a monopoly in a particular industry, state enterprises prevent the private sector from getting to credit (Cook and Uchida, 2003). Additionally, privatization leads to an increase in foreign direct investment which can potentially play a significant factor in the quest for growth. Foreign investment has "positive spillovers of improved technology, better management skills, and access to international production networks" (World Bank, 2002). Easterly stresses the importance of the possible benefits from technological improvements as well as the spillover effect created from new innovations. In fact, Easterly presents the theory and examples of how underdeveloped countries might have an advantage over developed countries when it comes to new technology. He points out the possibility that underdeveloped countries have less invested in old technology, and are therefore more willing to invest in new technology⁵. Thus, foreign direct investment could potentially have multiple positive effects on the growth of underdeveloped countries.

II. Methods of Privatization

Countries around the world have pursued different methods of privatizing state assets

depending on the initial conditions of the country's economy and the economic ideologies of the political party in charge. The process of privatization is often easy for small institutions, while the process becomes harder when it comes to finding the appropriate buyers for larger enterprises⁶. One of the main methods of privatization is the sale of state-owned enterprises to private investors. The state would simply decide which institutions should be privatized and through the use of market mechanism, private investors are able to buy shares of each firm. The benefits from this method of privatization are that it creates badly needed revenues for the state while putting privatized firms in the hands of investors who have the incentives and the means of investing and restructuring. On the other hand, finding domestic investors in underdeveloped countries is often a difficult task (Stirbock, 2001). Amongst many other countries that have used this method, Jamaica has been successful in privatizing its National Commercial Bank through the sale of shares to domestic investors. Despite its underdeveloped financial market, symbolized by an almost non-existent stock market, Jamaica's government was still able to successfully privatize the bank in less than three months. Not only did the number of shareholders in Jamaica go up five times, but the nation's largest bank was in the hands of the private sector, which responds to market conditions (Poole, 1996).

Another widely used method of privatization has been known as voucher privatization. The government universally distributes⁷ vouchers to its eligible citizens, which can be sold to other investors or exchanged for shares in other institutions being privatized. Although this method does not create revenues for the state, it does privatize state-owned firms in a short period of time (Stirbock, 2001)⁸. Many countries such as Canada and Russia have employed this method, but the most notable voucher privatization program was the one designed by the Czech Republic. Due to the fear of the return of the communist party, the government felt that it was necessary to pursue a rapid privatization process. For a nominal price, vouchers booklets were sold to the citizens who had the option of claiming a share in a particular firm or investing in the newly created investment funds. The purpose of the investment funds was to consolidate vouchers and diversify risk for the citizens. Furthermore, the investment funds were expected to motivate enterprise restructuring as the investment funds use the invested vouchers to obtain shares in particular firms. Mass voucher privatization was conducted in two waves; one under the rule of Czechoslovak Federation and the second after the break up. Although a large percentage of state-owned enterprises was privatized in short period of time, the overall process was not considered very successful due to "the lack of appropriate accompanying institutional policies and lagging banking sector reform" (World Bank, 2002). It becomes evident once again that a potentially successful economic policy fails due to the lack of institutional changes and other appropriate economic policies (World Bank, 2002).

Internal privatization, also known as "employee or management buy out," is another method of privatization. State-owned enterprises are sold to managers (for an extremely low price) who are already familiar with the particular firm and its structure, but there are minimal revenues created for the state. This method creates some incentives but the incentives are much stronger when firms are sold to strategic investors. Additionally, new owners often do not have the resources to invest and restructure, which is badly needed in a large percentage of state-owned firms in underdeveloped countries (Stirbock, 2001). Slovenia has been known for their internal privatization process in which majority of the state assets were distributed to state-owned institutional investors (such as pension funds) while the rest were sold to employees (with

many subsidies). This process led to a lack of strategic investors, which may have played a role in the limited success of Slovenia's privatization (World Bank, 2002).

There is another type of privatization method that has been employed in some circumstances, but is not used nearly as often as the three methods discussed earlier. Restitution is the process of giving the property rights of a company back to the original owner. Along with the difficulty of finding the original owner, there are many drawbacks to this method of privatization since the value of the company changes over time (Stirbock, 2001).

Examples of privatization in Hungary as well as the privatization in a group of Latin American countries are worth being mentioned. Hungary was the most indebted country in the region, in per capita terms, and therefore wanted to implement a speedy privatization process that would create revenues. The government opened up the sale of state-owned firms to strategic investors, including foreign ones. The result was an inflow of foreign capital, which led to much needed technological improvement and an increase in competition. The bank sector was a major target of foreign investors, resulting in the restructuring of the banking laws and regulations. The World Bank attributes Hungary's good growth in the second part of the last decade to their method of privatization (World Bank, 2002). Once again the importance of technological improvements and the benefits of advanced foreign technology become evident. In the case of the privatization process in the countries of Argentina, Mexico, and Peru, it is worth mentioning that each of those countries was able to create major revenues from privatization process. Instead of using the revenues to balance the current operating budget, the countries used it to pay off the outstanding debt (Poole, 1996).

III. Empirical Analysis Review

Although a number of empirical studies have been conducted in order to measure the financial effects of privatization on the newly privatized firms throughout the world, only a limited number of empirical studies have attempted to measure the effect of privatization on the economic growth in the developing countries. Perhaps the main reason for the lack of such studies arises out of the fact that privatization has been a fairly new phenomenon, particularly in developing countries. A recently published study (August 2003), conducted by Paul Cook and Yuichiro Uchida, provides an empirical analysis of the effects of privatization on economic growth in developing countries. Furthermore, Cook and Uchida's study gives valuable insights into the possible methodological and ideological changes that should be considered when conducting a future study in this particular field⁹.

The main difficulty with constructing an empirical study that measures the impact of privatization on economic growth is due to the fact that many factors and policies have influential roles in the rate of economic growth. In his book, Easterly identifies numerous factors that can potentially influence growth and describes their interdependence on each other. Furthermore, data from each country is only available for a limited number of years. Cook and Uchida's study is based on the extreme-bounds analysis (EBA) framework, which is a form of cross-country growth regression analysis¹⁰. In order to obtain a coefficient of privatization, it is necessary to run the regression using every possible combination of Z variables. Once the process is complete, all the statistically significant coefficients of privatization are used to estimate the base coefficient of privatization as well as the maximum extreme coefficient and minimum extreme coefficient. In the EBA framework, if the sign of the maximum extreme

coefficient and the sign of the minimum extreme coefficient is the same, then the result is considered robust (Cook and Uchida, 2003).

A privatization variable in a study should reflect the magnitude of privatization in a given country, thus making the magnitude of privatization an important measurement. Cook and Uchida decided that computing the cumulative proceeds from the privatization during the period from 1988-1997 as a percentage of the average GDP during that same period would be a good way to measure the magnitude of privatization. Therefore, their study is based on 63 developing countries that have the data required to compute the magnitude of privatization. Aware of the fact that privatization variable could possibly pick up the effects of other economic reforms, Cook and Uchida test and conclude that there is no correlation between privatization and government budget deficit nor is there a correlation between privatization and World Bank adjustment loans. As Cook and Uchida begin to specify the control variable used in their study, an obvious connection becomes apparent between Easterly's work and theirs. The task of selecting the right control variables is of the utmost importance since the study should control for the initial economic, political, and social conditions in each country. Such variables are the typical factors that affect economic growth, many of which are discussed in great detail by Easterly¹¹. The empirical results depend heavily on the control variables used in the regression analysis, thus specifying them correctly is essential. Using the investment variable as an example, it is possible that investment does not necessarily affect growth, as Easterly and others have suggested. Instead, it is very possible that the causality is reversed so that economic growth affects the amount of investment in a particular economy (Cook and Uchida, 2003).

Contrary to theory and previous studies, Cook and Uchida's empirical analysis suggests that there is a robust negative correlation between privatization and economic growth in developing countries. Since the theory predicts a positive correlation between privatization and economic growth, something is possibly lacking from the model specifications. This can provide powerful insights in the methodology of future studies. Cook and Uchida's study largely eliminates the possibility that the privatization variable captures other economical changes. Perhaps, as theory implies, it is possible that some of the success of privatization as a policy that promotes economic growth lies in the fact that privatization leads to other structural changes in the economy. Furthermore, as Easterly points out, any policy over the past 50 years that isolates a single macroeconomic ideology has been a failure as a source of economic growth. Therefore, Cook and Uchida's empirical results reaffirm the idea that privatization as a policy of economic growth should be analyzed in context with other economic policies. They suggest that a possible reason for a negative correlation between privatization and economic growth is due to the lack of competition in the private sector in the developing countries. Thus, more research should be done in the area of privatization and competition in order to make any kind of conclusive ideas.

The fact that proceeds from privatization are used as a way to measure the levels of privatization in each country might negatively impact the credibility of the empirical results. It is possible that developing countries with underdeveloped regulatory systems may have enhanced proceeds from privatization. Furthermore, proceeds from privatization could possibly be a completely inaccurate measure of the magnitude of privatization, since different methods (discussed in the previous section) of privatization result in different levels of proceeds. Additionally, Cook and Uchida's study does not control for the method of privatization that was used in each country, which could potentially play a large role on the empirical results. In fact, a World Bank analysis of the privatization in Eastern Europe suggests that the means through which privatization is implemented has played a significant part in the potential success of privatization in Eastern Europe (World Bank, 2002). Finally, Cook and Uchida's empirical analysis supports Easterly's idea that no individual economic policy will be the solution to the quest for economic growth. Instead, more research should be done in order to analyze the effects of privatization, accompanied by other economic reforms, on the rate of economic growth.

IV. Empirical Study

A. Model and Methodology

The purpose of the study is to examine the effectiveness of privatization as a policy to promote growth in developing countries. Thus, this study uses a cross-country regression analysis to estimate the effects of privatization on economic growth. After analyzing previous theoretical and empirical studies on privatization, I took into consideration the suggestions and shortcomings of those studies. In particular, I wanted to examine the effects of competition¹², foreign direct investment, national debt, and property rights in regards to their interaction with privatization. Theory suggests that each of these factors could play a role in determining the type of impact that privatization has on economic growth. Thus, this study estimates the following basic model using ordinary least squares regression:

$$(1) \quad Y = a_1B + a_2Z + a_3PRIV + a_4I + u,$$

where Y is the GDP per capita growth rate; B is a set of variables known as Barro-regressors, that are commonly included in cross-country regressions; Z is a set of additional macroeconomic indicators; $PRIV$ is the privatization variable; I is a set of zero, one, or two interaction terms; and u is the error term¹³. Detailed explanations of the variables appear below along with the table of variable definitions.

Table 1: Variable Definitions

GDP	GDP per capita growth rate in 2000
GDPI	GDP in the initial year 1990
POP	average population growth rate during the period 1990-2000
GOVC	ratio of government consumption to GDP in 2000
SAVE	total savings as a percentage of GDP in 2000
EDUC	gross secondary school enrollment ratio in 2000
INFL	inflation of consumer prices in 2000
GOVB	government budget balance as a percentage of GDP in 2000
DEBT	total national debt as a percentage of GDP in 2000
AID	aid for development per capita measured in \$ in year 2000
PRIV	privatization proceeds during 1990-1999 as a percentage of GDP in 2000
FDI	foreign direct investment as a percentage of GDP in 2000
PROP	percentage of individuals who expressed the lack of confidence in courts to uphold property right
COMP	the intensity of local competition (1 for weakest, 7 for strongest)
PRIVFDI	interaction term: PRIV*FDI
PRIVDEBT	interaction term: PRIV*DEBT
PRIVCOMP	interaction term: PRIV*COMP
PRIVPROP	interaction term: PRIV*PROP

Since the particular focus of this study is on the developing countries, the data include all the developing countries for which there is privatization data during the period between 1990 and 1999 (for a list of countries, refer to Appendix B). The dependent variable, GDP per capita growth rate, along with all other variables used in the study are taken from year 2000¹⁴. Following the methodology used in previous studies, namely Plane (1997), Cook and Uchida (2003), and Bennett (2004), the magnitude of privatization is measured as total privatization proceeds during the period 1990-99 as a percentage of GDP in 2000. The main reason that the privatization variable is dependent on a period of 10 years is due to the fact that all the benefits of privatization on economic growth are not necessarily instantaneous. In other words, the effects of privatization in a particular country for a given year will depend on the overall level of privatization that has taken place in recent history. Furthermore, PRIV variable should also capture the relative level of commitment to privatization as an economic policy. If privatization levels were only taken for one specific year, particularly high privatization proceeds for a specific country, in a given year would indicate strong implementation of privatization when, in fact, that particular country could have possibly had no privatization program in previous years. Additionally, the privatization variable was calculated similarly in previous empirical studies, namely Plane 1997 and Cook and Uchida 2003. Thus, such specification of privatization variable has the advantage that it does not pick up effects of other economic reforms, as Cook and Uchida empirically verify in their study (2003).

As already mentioned, specifying control variables in cross-country regressions is important to the overall validity of the study. Control variables used in growth model regressions traditionally control for initial political, economic, and social conditions (Cook and Uchida 2003). Following the ideology of Cook and Uchida, the main set of control variables used in the study is known as Barro-regressors. Due to the lack of data for certain economic indicators for a number of developing countries, the version of Barro-regressors used in this

study is slightly different than the traditional definition of Barro-regressors used in EBA methodology. Therefore, in order to control for initial political, economic, and social conditions, the following control variables are included: natural log of GDP in the initial year 1990 (logGDPI); average population growth rate during the period between the years of 1990 and 2000 (POP); government consumption as a percentage of GDP in year 2000 (GOVC); total savings as a percentage of GDP in year 2000 (SAVE); and gross secondary school enrollment percentage in year 2000 (EDUC). It is worth noting that the inclusion of GOVC is based on the idea that a measure of government spending is in effect a proxy “for political corruption or other aspects of bad government, as well as for the direct effects of non-productive expenditure and taxation” (Cook and Uchida 2003). For the remainder of the paper, letter *B* will be used in the equations to refer to the five control variables described above as Barro-regressors.

In addition to the control variables already described, four additional variables are included in each regression specification used in the study. These four variables, which were represented by letter *Z* in equation (1), and will continue to be represented by letter *Z* through the remainder of the paper, are: inflation in year 2000 (INFL); government budget balance in year 2000 (GOVB); aid for development per capita in year 2000 (AID); and total national debt as a percentage of GDP in year 2000 (DEBT). A measure of inflation is certainly a good indicator of economic and political stability. Furthermore, inflation variable is a proxy for the condition of the credit market and investment climate, thus needs to be incorporated into the model (World Development Indicators 2003). Government budget balance should be controlled for since it is possible that some countries might be privatizing in order to create revenues to pay for the deficit rather than making privatization decisions based on the goals of economic growth. Similarly, a variable representing national debt (DEBT) is also included in the model since large national debt may influence numerous economic and political policies. Finally, AID variable controls for various impacts of international aid from the perspective of economic growth and policy reforms that are conditionally attached to international aid. Therefore the first regression specification used in the study is:

$$\text{Regression \#1: } Y = b_1B + b_2Z + b_3PRIV + u$$

The sign of coefficient of PRIV, namely b_3 , is expected to be positive based on economic theory.

Theory suggests that the existing levels of foreign direct investment (FDI), property rights (PROP), competition (COMP), and national debt (DEBT) may play a role in the overall effect of privatization on economic growth. An important part of an empirical study that analyzes this notion is to specify regressions by incorporating different interaction terms, which are obtained by multiplying each of the variables (FDI, PROP, COMP, DEBT) with the privatization variable (PRIV). The theoretical justification for including interaction terms in multiple regression analysis is based on a possibility that the change in the dependent variable (in the this case GDP per capita growth rate), as one of the independent variables changes (namely PRIV), depends on the value of another independent variable (FDI, PROP, COMP, DEBT) (Stock and Watson 2003).

A measure of foreign direct investment (FDI) is essential in the model due to the fact that

foreign direct investment can have positive spillover effects particularly in the field of new technology and improved firm efficiency. Therefore, theory implies that high levels of foreign direct investment might facilitate the effectiveness of privatization as a policy of economic growth. Thus, I include FDI variable and the interaction variable between privatization and foreign direct investment (PRIVFDI) in the study to test if the level of foreign direct investment affects the impact of privatization on economic growth. This leads to the following specification of Regression #2:

$$\text{Regression \#2: } Y = c_1B + c_2Z + c_3PRIV + c_4FDI + c_5PRIVFDI + u$$

Based on the theory, the coefficients of PRIV and PRIVFDI (namely c_3 and c_5 respectively) are both expected to be positive. Also the coefficient of FDI (namely c_4) is also expected to be positive.

Perhaps, the most important condition for the success of privatization as an economic policy is the existence of clearly defined property rights. According to de Soto, property rights encourage investment and create incentives, thus playing an essential role in the building blocks of market economy (1996). Therefore, a variable PROP, measuring the lack of confidence in courts to uphold property rights in year 2000, is used as a proxy for the existence of well-defined property rights. It is important to note that variable PROP and the existence of clearly defined property rights are inversely related. Additionally, the inclusion of the interaction term PRIVPROP is justified by the belief that the change in economic growth, as the level of privatization changes, might in fact depend on the extent to which property rights exist in a particular country. Thus the specification for Regression #3 is:

$$\text{Regression \#3: } Y = d_1B + d_2Z + d_3PRIV + d_4PROP + d_5PRIVPROP + u$$

Since the PROP variable can be thought of as estimating the lack of property rights, coefficients of PRIV and PRIVPROP (namely d_3 and d_5 respectively) are expected to be positive for d_3 and negative for d_5 . Additionally, coefficient of PROP (namely d_4) is expected to be negative.

One of Cook and Uchida's suggestions for future studies of privatization calls for the inclusion of a variable that measures a level of competition in the private sector in each country. It is believed that countries with competitive private sectors might be more likely to experience positive economic effects of privatization as opposed to countries that lack competition. Thus variable COMP, measuring the intensity of local competition in year 2000, is included in the study along with the interaction term PRIVCOMP. This leads to the next regression specification:

$$\text{Regression \#4: } Y = e_1B + e_2Z + e_3PRIV + e_4COMP + e_5PRIVCOMP + u$$

The coefficients of PRIV, COMP, and PRIVCOMP (namely e_3 , e_4 , and e_5 respectively) are all expected to be positive.

Finally, the interaction term PRIVDEBT is added to the study due to a theoretical

possibility that a level of national debt may influence the decision making regarding the method of implementing privatization and thus affecting the rate of change of economic growth with respect to the change in the level of privatization. It should be noted that this study does not test the impact of different methods of privatization due to the lack of data on the subject. Therefore, the next regression specification is:

$$\text{Regression \#5: } Y = f_1B + f_2Z + f_3PRIV + f_4PRIVDEBT + u$$

The coefficient of PRIV (namely f_3) is once again expected to be positive, while the coefficient of PRIVDEBT (namely f_4) cannot be clearly predicted by the theory. It is possible for privatization proceeds to be used effectively to lower high national debts, which has many positive consequences on the economy, as was the case with a number of Latin American countries. In that case, f_4 would be positive. On the other hand, high national debt could possibly force countries to privatize profitable state assets for low prices in order to create instant revenues. Thus the coefficient f_4 would be negative.

The last regression specification used is the study incorporates both PRIVFDI and PRIVCOMP in the same regression. Thus

Regression # 6:

$$Y = g_1B + g_2Z + g_3PRIV + g_4COMP + g_5FDI + g_6PRIVFDI + g_7PRIVCOMP + u$$

According to the theory, coefficients of PRIV, COMP, FDI, PRIVFDI, and PRIVCOMP (namely $g_3, g_4, g_5, g_6,$ and g_7 respectively) are all expected to be positive.

B. Results

NOTE: In all the tables used in this section, the standard errors of each coefficient appear in the parenthesis right below the corresponding coefficient. Also *, **, *** represent coefficients that are statistically significant at 10%, 5%, and 1% respectively. All the results, along with descriptive statistics, are included in Appendix C and Appendix D.

Table 2: Regression #1

$$Y = b_1B + b_2Z + b_3PRIV + u$$

logGDPI	POP	GOVC	SAVE	EDUC	INF	GOVB	DEBT	AID	PRIV	u
-2.611***	-2.392***	0.153*	0.026	0.011	-0.014	0.245	-1.613	0.037	-0.002	21.903
(0.73)	(0.499)	(0.085)	(0.053)	(0.037)	(0.134)	(0.163)	(2.294)	(0.035)	(0.132)	(4.417)
Adj. R^2 : 0.392			SER: 3.093			F-test: 5.57			n=54	

Regression #1 is perhaps the simplest specification used in the study. Nevertheless, it yields some useful information regarding the relationship between growth and privatization as well as the validity of including the other variables in the model. The coefficient of privatization

is negative, but is not statistically significant at any acceptable level of probability. The unexpected negative coefficient of PRIV along with the fact that it is statistically insignificant, suggests that the model specification in regression #1 might be lacking additional explanatory variables. It should be noted that other empirical studies, namely Cook and Uchida (2003) have found a negative correlation between privatization and growth, thus the results are not terribly surprising. Furthermore, the coefficients of the control variables included in Regression #1 (as well as all the other regressions) seem to be consistent with basic economic theory. Certainly INFL, DEBT, POP, and aGDPI are expected to negatively impact economic growth. On the other hand, SAVE, EDUC, positive GOVB, and AID are expected to negatively impact economic growth. Perhaps the most surprising result pertaining to the control variables is the statistically significant positive coefficient of the variable GOVC, representing the level of government spending. The theoretical reason for including GOVC as a control variable was based on the idea that it would be a proxy for government corruption, and therefore should have a negative coefficient. Thus, a positive coefficient is contrary to theory and somewhat surprising. Although no extensive empirical test has been done in this study to test the validity of the particular combination of control variables used in the study, the results in Regression #1 do give the inclusion of these variables some empirical justification.

Table 3: Regression #2

$$Y = c_1B + c_2Z + c_3PRIV + c_4FDI + c_5PRIVFDI + u$$

logGDPI	POP	GOVC	SAVE	EDUC	INF	GOVB	DEBT	AID
-2.484***	-1.919***	0.078	0.002	0.033	-0.015	0.388**	2.179	0.033
(0.702)	(0.652)	(0.099)	(0.056)	(0.358)	(0.017)	(0.173)	(2.276)	(0.034)
		PRIV	FDI	PRIVFDI	<i>u</i>			
		-0.361	-0.095	0.052***	21.583***			
		(0.135)	(0.177)	(0.014)	(3.791)			
Adj. R^2 : 0.540		SER: 2.775		F-test: 11.03			n=50	

The results of Regression #2 yield a negative coefficient of PRIV, but it is not statistically significant. Once again, this is contrary to theoretical expectations. On the other hand, the coefficient of PRIVFDI is positive, as expected, and statistically significant at the 10% level. Consistent with the economic theory, the results of Regression #2 suggest that the level of foreign direct investment positively influences the change in economic growth, as the level of privatization changes. Foreign direct investment can lead to efficiency improvement and development of new technology due to the fact that foreign investors are driven by economic incentives and market conditions. Furthermore, foreign investment enables developing countries to tap into foreign capital markets and opens the doors to global networks (Poole, 1996). Thus, possible implications for developing countries would be to consider the types of privatization that would open the sale of public enterprises to strategic foreign investors. Additionally, the relationship between privatization and foreign direct investment might allude to the possibility that in order for privatization to be successful as an economic policy, there is a necessity to consider other economic policies that would positively accompany privatization.

Table 4: Regression #3

$$Y = d_1B + d_2Z + d_3PRIV + d_4PROP + d_5PRIVPROP + u$$

logGDPI	POP	GOVC	SAVE	EDUC	INF	GOVB	DEBT	AID
-3.739***	-1.964**	0.096	-0.003	0.034	-0.015	0.345	-12.478	0.064
(0.927)	(0.804)	(0.120)	(0.111)	(0.044)	(0.015)	(0.222)	(7.638)	(0.039)
		PRIV	PROP	PRIVPROP	u			
		-0.119	0.040	0.005	29.701***			
		(0.342)	(0.008)	(0.008)	(6.824)			
Adj. R^2 : 0.494		SER: 3.94		F-test: 7.88		n=27		

The relationship between property rights and privatization, regarding economic growth, is incorporated in Regression #3, which yields unexpected results. The coefficient of PRIV is positive (not statistically significant), as predicted, when PROP and PRIVPROP are included in the model. However, it is surprising and contrary to theory that the coefficient of PRIVPROP is positive, since the variable PROP measures the lack of confidence in courts to uphold property rights. Thus, a positive coefficient of PRIVPROP implies that a lack of property rights positively impacts the effect of privatization on economic growth, which is certainly not supported by Hernando de Soto. In fact, de Soto argues that well-defined property rights are a major reason for strong individual incentives in developed countries. Thus, the idea that wider ownership, created by privatization, leads to strong economic benefits partially depends on the validity of the existing property rights. In other words, people are not going to have full incentive to improve and invest in their newly acquired property if they are unsure about their rights as the owners (Soto 1996). Contrary to de Soto's argument, there is a possibility that some developing countries are using privatization as the means of reforming the existing laws, or lack there of, regarding property rights. In fact, public property can be privatized in such a way that it serves as the building block of a legal framework that can be used for future property transactions. Therefore, countries that greatly lack formal property rights are likely to experience greater benefits from privatization, which could be a possible explanation for the positive coefficient of PRIVPROP. Either way, the coefficient of PRIVPROP is not statistically significant, thus the model in Regression #3 is inconclusive and should be adjusted in future studies. Perhaps a better way to measure the extent of well-defined property rights would lead to more dependable results. Additionally, the lack of data on property rights in developing countries (only 27 countries) brings to question the validity of the estimated coefficients in Regression #3.

Table 5: Regression #4

$$Y = e_1B + e_2Z + e_3PRIV + e_4COMP + e_5PRIVCOMP + u$$

logGDPI	POP	GOVC	SAVE	EDUC	INF	GOVB	DEBT	AID
-1.853***	-2.240***	0.172*	0.078	-0.030	-0.035	0.189	-2.286	0.062**
(0.659)	(0.801)	(0.099)	(0.068)	(0.029)	(0.078)	(0.184)	(2.195)	(0.024)
		PRIV	COMP	PRIVCOMP	<i>u</i>			
		-1.125	-1.283	0.221	23.835***			
		(0.985)	(1.267)	(0.212)	(7.673)			
Adj. R^2 : 0.485		SER: 2.554		F-test: 5.37		n=44		

Regression #4 is designed to analyze how the inclusion of competition in the model affects the impact of privatization on economic growth. The coefficient of PRIV is unexpectedly negative, but is not statistically significant. Meanwhile, Regression #4 generates a positive (not statistically significant) coefficient of PRIVCOMP, which is suggested by Cook and Uchida's theoretical predictions in the concluding section of their study (2003). Thus, a positive coefficient of PRIVCOMP implies that strong levels of competition would positively impact the effect of privatization on economic growth. In fact, these results support Cook and Uchida's idea that "weaknesses in these fields [competition and regulation of competition] may explain why privatization is negatively related to economic growth in developing countries" (2003). Furthermore, studies have shown poor execution and enforcement of competition policies in developing countries, leading to the establishment to numerous monopolies in the private sector. Therefore, the results from Regression #4 imply that the potential success of privatization as a catalyst for economic growth would be elevated by an accompanying policy designed to regulate and promote competition.

Table 6: Regression #5

$$Y = f_1B + f_2Z + f_3PRIV + f_4PRIVDEBT + u$$

logGDPI	POP	GOVC	SAVE	EDUC	INF	GOVB	DEBT	AID
-2.730***	-2.308***	0.141*	0.031	0.018	-0.009	0.299*	0.808	0.036
(0.679)	(0.475)	(0.083)	(0.054)	(0.037)	(0.013)	(0.171)	(2.445)	(0.034)
		PRIV	PRIVDEBT	<i>u</i>				
		0.234	-0.699*	21.392***				
		(0.198)	(0.359)	(3.783)				
Adj. R^2 : 0.543		SER: 2.681		F-test: 7.77		n=54		

Another question that the study attempts to answer is how the level of national debt influences the impact of privatization on economic growth. Results from regression #5, which incorporates variable PRIVDEBT, shed light on this topic. The coefficient of PRIV is positive as predicted, but not statistically significant. The coefficient of PRIVDEBT could not be unambiguously predicted by economic theory. Instead, the sign of the coefficient of PRIVDEBT theoretically depends on whether countries make wise privatization decisions based on the goals of efficiency improvement, or simply try to generate large revenues to pay for the existing debt. In either case, revenues will be created that can be used to lower the national debt, but the effects

on the privatized enterprises might be very different. Therefore, the statistically significant negative coefficient of PRIVDEBT indicates that higher levels of national debt negatively affect the impact that privatization has on economic growth. Ultimately, the coefficient of PRIVDEBT generated in Regression #5 suggests that developing countries with large national debt are not driven by the right incentives when making privatization decisions. It is very possible that many countries are privatizing public enterprises in order to create funds to deal with large national debt (Poole, 1996). Thus, such countries are not making privatization decisions based on the relative efficiency of a particular enterprise and therefore are not experiencing the benefits of privatization (Boycko, 1996).

Table 7: Regression #6

$$Y = g_1B + g_2Z + g_3PRIV + g_4FDI + g_5COMP + g_6PRIVFDI + g_7PRIVCOMP + u$$

logGDPI	POP	GOVC	SAVE	EDUC	INF	GOVB	DEBT	AID
-2.746***	-1.097	0.236**	0.147**	0.003	-0.007	0.430**	-3.320	0.063**
(0.793)	(0.752)	(0.102)	(0.003)	(0.029)	(0.067)	(0.179)	(2.241)	(0.027)
		PRIV	FDI	COMP	PRIVFDI	PRIVCOMP	u	
		-2.451**	0.222	-3.777**	-0.020	0.534**	35.551***	
		(0.955)	(0.292)	(1.581)	(0.038)	(0.213)	(9.470)	
Adj. R^2 : 0.583			SER: 2.350		F-test: 6.68		n=41	

Regression #6 factors in both the effects of competition and the effects of foreign direct investment on the overall impact of privatization on economic growth. This regression specification, which has the highest adjusted R-squared as well as the lowest standard error, generates a negative, statistically significant coefficient of PRIV. Contrary to results in Regression #2, the coefficient of PRIVFDI is negative but not statistically significant in Regression #6. Furthermore, positive, statistically significant coefficient of PRIVCOMP in Regression #6 is consistent with the results in Regression #4. Perhaps, the main insight gained from the results of Regression #6, in comparison to the other results found in the study, is that the coefficient of privatization seems to be very sensitive to the inclusion and exclusion of other economic variables. In fact, most of the results suggest that the effect of privatization is dependant on which policy variables are included in the model.

Thus, it is clear that the results of this study do not lead to a generalization of whether or not privatization is a policy that will promote growth in developing countries. It is possible that the very sensitivity of the PRIV variable suggests that privatization, as a potentially successful policy of economic growth, should necessarily be implemented in context with other economic reforms that encourage incentives. Furthermore, the very dependence of privatization on other economic factors might imply that privatization decisions should be made based on specific social, political, and economic conditions surrounding a particular country, industry, or firm. In fact, Poole argues that for developing countries “[t]he precise mix of policies will require case-by-case study” (1998). It should be noted that this study does not supply substantial evidence to support this notion, which certainly requires the analysis of privatization at the microeconomic level. Instead, it provides a possible direction for the future studies on privatization. The results should be taken in context with the availability of data and the time limitation that naturally exists in this case.

V. Conclusion

The quest for economic growth in Third World countries has received an enormous amount of attention over the past 50 years. The poverty problem that plagues numerous countries around the world is a monumental challenge for which we have yet to find the solution.

Easterly powerfully captures the significance of economic growth as he states, "Poverty is not just low GDP; it is dying babies, starving children, and oppression of women and the downtrodden. The well-being of the next generation in poor countries depends on whether our quest to make poor countries rich is successful." (Easterly, 2001). Theoretical analysis of privatization suggests that incentives play a significant role in the potential success of privatization as a factor of economic growth. In fact, privatization, accompanied by appropriate structural reforms, creates incentives to improve economic efficiency, increase investment, and adopt new technologies. Furthermore, the methods of implementing privatization play an important role in creating the right incentives and leading the way for the appropriate economic restructuring. It is essential to note that the success of privatization largely depends on the government commitment to legal and regulatory reforms. Cook and Uchida's study suggests that the lack of appropriate governmental reforms might be the cause for a negative relationship between privatization and economic growth. Further research is necessary in order to conclusively determine the benefits and the potential role of privatization in the construction of the future economic policies. Although privatization is a fairly recent economic policy aimed at promoting economic growth, it is safe to conclude that privatization alone will not be the magical solution to the elusive quest for growth.

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Appendix A: Variables Defined

- GDP = GDP per capita growth rate in 2000 (Percentage change in the "GDP divided by midyear population" from 1999 to 2000).
- GDPI* = GDP in the initial year 1990, measured in constant \$1995.
- POP* = the average population growth rate during the period 1990-2000.
- GOVC* = ratio of government consumption to GDP in 2000.
- SAVE* = total savings as a percentage of GDP in 2000.
- EDUC* = gross secondary school enrollment ratio in 2000.
- INFL = inflation of consumer prices in 2000.
- GOVB = government budget balance as a percentage of GDP in 2000.
- DEBT = total national debt as a percentage of GDP in 2000.
- AID = aid for development per capita measured in \$ in year 2000.
- PRIV = the magnitude of privatization as percentage of privatization proceeds during 1990-1999 divided by the GDP in 2000.
- FDI = foreign direct investment as a percentage of GDP in 2000.
- PROP = percentage of individuals who expressed the lack of confidence in courts to uphold property rights.
- COMP = the intensity of local competition (1 for weakest, 7 for strongest).
- PRIVFDI** = PRIV*FDI
- PRIVDEBT** = PRIV*DEBT
- PRIVPROP** = PRIV*PROP
- PRIVCOMP** = PRIV*COMP

Notes:

* Barro-Regressors

** Interaction Terms

DEBT is used as a control variable in all regressions as well as interaction variable in Regression #3.

Appendix B: The list of developing countries that are used in the study, for which there is privatization data.

Issues in Political Economy, Vol. 14, August 2005

Albania	Chile	Ghana	Latvia	Nigeria	South Africa	Zambia
Algeria	China	Guatemala	Lesotho	Oman	Sri Lanka	Zimbabwe
Angola	Colombia	Guinea	Lithuania	Pakistan	Tanzania	
Argentina	Costa Rica	Guinea-Bissau	Macedonia	Panama	Thailand	
Armenia	Cote d'Ivoire	Haiti	Madagascar	Papua New Guinea	Togo	
Azerbaijan	Croatia	Honduras	Malawi	Paraguay	Trinidad and Tobago	
Bangladesh	Cuba	Hungary	Malaysia	Peru	Tunisia	
Belarus	Czech Republic	India	Mali	Philippines	Turkey	
Benin	Dominican Republic	Indonesia	Mauritania	Poland	Uganda	
Bolivia	Ecuador	Jamaica	Mexico	Romania	Ukraine	
Brazil	Egypt	Jordan	Moldova	Russian Federation	Uruguay	
Bulgaria	El Salvador	Kazakhstan	Morocco	Senegal	Uzbekistan	
Burkina Faso	Eritrea	Kenya	Mozambique	Sierra Leone	Venezuela	
Burundi	Estonia	Kyrgyz Republic	Nepal	Slovak Republic	Vietnam	
Cameroon	Ethiopia	Lao PDR	Nicaragua	Slovenia	Serbia/Montenegro	

Appendix C: OLS estimates of the effect of variables on the GDP per capita growth rate using a sample of 92 developing countries.

	GDP Reg #1	GDP Reg #2	GDP Reg #3	GDP Reg #4	GDP Reg #5	GDP Reg #6
logGDPI	-2.611*** (0.730)	-2.484*** (0.702)	-3.739*** (0.927)	-1.853*** (0.659)	-2.730*** (0.679)	-2.746*** (0.793)
POP	-2.392*** (0.499)	-1.919*** (0.652)	-1.964** (0.804)	-2.240*** (0.801)	-2.308*** (0.475)	-1.097 (0.752)
GOVC	0.153* (0.085)	0.078 (0.099)	0.096 (0.120)	0.172* (0.099)	0.141* (0.083)	0.236** (0.102)
SAVE	0.026 (0.053)	0.002 (0.056)	-0.003 (0.111)	0.078 (0.068)	0.031 (0.054)	0.147** (0.003)
EDUC	0.011 (0.037)	0.033 (0.358)	0.034 (0.044)	-0.030 (0.029)	0.018 (0.037)	0.003 (0.029)
INFL	-0.014 (0.134)	-0.015 (0.017)	-0.015 (0.015)	-0.035 (0.078)	-0.009 (0.013)	-0.007 (0.067)
GOVB	0.245 (0.163)	0.388** (0.173)	0.345 (0.222)	0.189 (0.184)	0.299* (0.171)	0.430** (0.179)
DEBT	-1.613 (2.294)	2.179 (2.276)	-12.478 (7.638)	-2.286 (2.195)	0.808 (2.445)	-3.320 (2.241)
AID	0.037 (0.035)	0.033 (0.034)	0.064 (0.039)	0.062** (0.024)	0.036 (0.034)	0.063** (0.027)
PRIV	-0.002 (0.132)	-0.361** (0.135)	-0.119 (0.342)	-1.125 (0.985)	0.234 (0.198)	-2.451** (0.955)
FDI		-0.095 (0.177)				0.222 (0.292)
PROP			0.040 (0.008)			
COMP				-1.283 (1.267)		-3.777** (1.581)
PRIVFDI		0.052*** (0.014)				-0.020 (0.038)
PRIVDEBT					-0.699* (0.359)	
PRIVPROP			0.005 (0.008)			
PRIVCOMP				0.221 (0.212)		0.534** (0.213)
CONS	21.903*** (4.417)	21.583*** (3.791)	29.701*** (6.824)	23.835*** (7.673)	21.392*** (3.783)	35.551*** (9.470)
n	54	50	27	44	54	41
Adj. R-Sq.	0.392	0.540	0.494	0.485	0.543	0.583
SER	3.093	2.775	3.94	2.554	2.681	2.350
F-test	5.57	11.03	7.88	5.37	7.77	6.68
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses. *Significant at 10% level .

Appendix D: Summary Statistics for all variables used in the study

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
GDP	88	1.981818	3.977568	-9.8	14.4
GDPI	87	1660.615	1558.159	107.3298	5775.786
POP	92	1.808696	1.068598	-0.5	4
GOVC	88	14.42045	5.678598	5	40
SAVE	88	14.77273	12.40849	-19	47
EDUC	84	58.71429	28.96053	6	108
INFL	86	15.55754	40.59136	-2.050207	325.0032
GOVB	65	-2.614062	3.185377	-11.4	9.9
DEBT	91	0.485744	0.4223178	0	2.49
AID	92	29.66304	30.97864	-1	178
PRIV	91	5.06026	6.023231	0.0262	27.7
FDI	75	4.904	4.543794	0	25.3
PROP	43	45.86279	15.14311	17.5	83
COMP	69	4.475362	0.635565	2.4	5.6
PRIVPROP	42	316.4167	342.8828	2.73689	1343.45
PRIVCOMP	68	26.34717	27.67988	0.12838	125.93
PRIVDEBT	91	2.035389	3.297969	0	22.77
PRIVFDI	74	34.75288	57.31065	0	343.48

VII. Endnotes

¹Security of ownership is dependant on an effective legal system. Like Easterly, de Soto believes that a corrupt government is detrimental to economic growth (Soto, 1996).

²Efficiency improvement associated with privatization will be discussed in greater detail in the later part of this section.

³Externality – “the uncompensated impact of one person’s actions on the well-being of a bystander” (Mankiw, 2001). Externalities are inevitable, and therefore are continuously present.

⁴By reducing the national debt, countries become eligible for new loans from International Monetary Fund which can be used efficiently now that the economic restructuring is taking place (Poole, 1996).

⁵This argument is completely dependent on whether the old and the new technologies are

substitutes or complements.

⁶It is particularly hard to find the right investors that are willing to buy large, industrial firms, whose value is hard to evaluate (Stirbock, 2001).

⁷In some cases of voucher privatization, vouchers are sold instead of distributed, but for a negligible amount (Poole, 1996).

⁸Ironically, voucher privatization accomplishes a socialist concept of ownership by the people (Poole, 1996).

⁹It is worth noting that two previous studies, one conducted by P. Plane (1997) and the second study conducted by the IMF (2000), both concluded that empirical evidence from each of their studies supports the idea that privatization positively effects economic growth. The data for both of these studies came from developed and underdeveloped countries (Cook and Uchida, 2003).

¹⁰EBA is obtained by using the following linear ordinary least squares regression:

$$Y = \beta_1 I + \beta_2 M + \beta_3 Z + u$$

where Y is the GDP per capita growth rate, I is a set of control variables, M is the privatization variable in this case, and Z is a set of three variables chosen from a large set of policy variables (Cook and Uchida, 2003).

¹¹ The standard control variables used in EBA are: initial GDP per capita; initial life expectancy at birth; average population growth rate; the ratio of government consumption to GDP; the ratio of gross domestic investment to GDP; and the rate of secondary school enrolment (Cook and Uchida, 2003).

¹² Competition refers to local competition within each country between firms in the same or similar industries.

¹³ For a full list of variables, including Barro-regressors and interaction terms, refer to Appendix A.

¹⁴ All data comes from World Development Indicators, except data on COMP and PROP, which comes from World Development Report 2005.