Human Capital as a Transmission Mechanism of the Resource Curse

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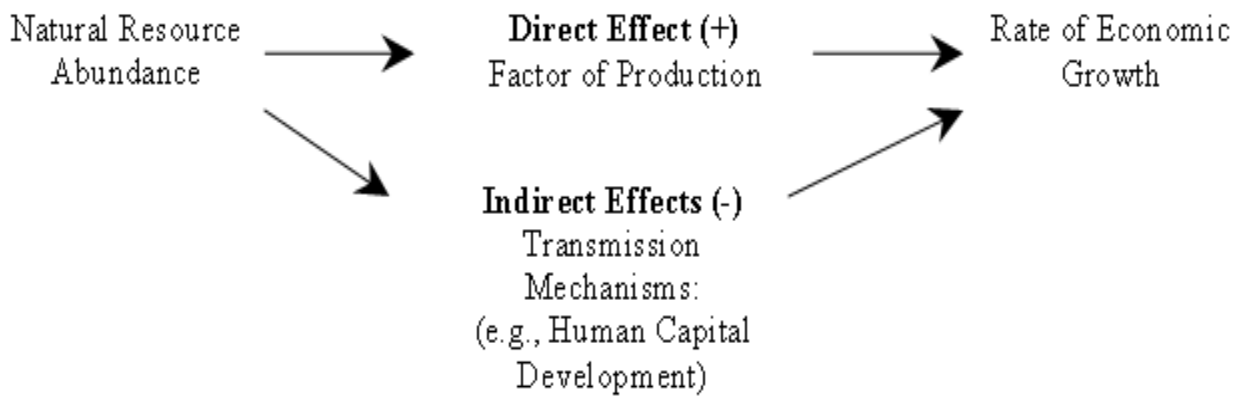
I. INTRODUCTION

Logically, natural resources should promote economic development, because natural capital expands the production possibilities of an economy. Historically, natural resources have played an integral role in the development of currently wealthy, industrialized nations, including Australia, Canada, Scandinavian countries, and the United States (Stevens, 2003). At the very least, natural resource wealth should not impede or hinder economic performance. Yet many developing nations view their resource endowment as an ambiguous blessing. The president of Zambia, Kenneth Kaunda, explains Zambia's impoverished yet resource-wealthy state: "We are part to blame, but this is the curse of being born with a copper spoon in our mouths." The oil minister of Saudi Arabia, Sheik Ahmed Yamani views the presence of oil in his country with some degree of ambivalence: "All in all, I wish we had discovered water" (Ross, 1999). Juan Pablo Pérez Alfonso, founder of OPEC, laments: "It [oil] is the devil's excrement. We are drowning in the devil's excrement." These leaders of natural-resource rich countries are justified in their complaints in that resource-rich developing countries have consistently underperformed relative to resource-poor developing countries since the 1960s (Auty, 2001). A large body of empirical evidence supports a clear negative correlation between economic growth and resource abundance—known as the resource curse—in regards to developing nations during the past forty years.

Clearly, natural resources themselves are not inherently detrimental to economic development as evidenced by basic economic theory, common sense, and historically based counter examples. Rather, resource abundance often causes distortions or certain tendencies in an economy, and these distortions then undermine economic performance. These distortions serve as "transmission mechanisms," which create and explain the negative correlation between natural resource abundance and economic growth. Figure 1 provides a visual representation of the direct and indirect effects of natural resources on economic growth. Previous studies attribute the *resource curse* with mixed success to the following sources: long-term decline in terms of trade, primary export revenue volatility, Dutch Disease[1], crowding out effects, government mismanagement, corruption, low levels of human capital as well as others. While empirical evidence strongly supports the existence of the *resource curse*, the underlying causes or transmission mechanisms remain controversial (Ross, 1999).

This study examines the relationship between natural resources abundance, human capital, and economic growth. It first seeks to confirm or refute the presence of the "resource curse" utilizing the most current data for developing countries. I hypothesize that a negative correlation currently exists between natural resources and economic growth in developing countries. This study then analyzes the relationship between human capital and resource abundance. I hypothesize that a negative correlation exists between human capital and resource abundance.

FIGURE 1
Effects of Natural Resources on Economic Growth



Finally, this paper examines the combined effect that resource abundance and human capital exert on economic growth. I hypothesize that human capital exerts a positive effect upon economic growth. However, I also hypothesize that this negative correlation between economic growth and resource abundance decreases in magnitude and significance when both resource abundance and human capital serve simultaneously as explanatory variables. The magnitude of the natural resource abundance variable should decrease when both natural resource abundance and human capital serve as explanatory variables because human capital impacts economic growth directly whereas natural resources only negatively impact economic growth through transmission mechanisms, such as human capital. This study posits that low levels of human capital in resource-rich countries serve as a transmission mechanism that creates the *resource curse*. Thus, low levels of human capital directly hinder economic growth in resource-rich countries, not the actual natural resource endowment.

This paper develops as follows: Section II encompasses a review of relevant past literature regarding the *resource curse* and human capital. Section III provides a theoretical model based on previous research and economic concepts. Section IV describes the data used to estimate the model. Section V presents the empirical model, restates the model in terms of the data, and predicts the effects of each variable. Section VI presents and analyzes the results of the regressions. Section VII summarizes results and discusses policy implications of these results.

II. LITERATURE REVIEW

A. Presence of a *Resource Curse*

A large body of empirical evidence supports the negative correlation between natural resource abundance and economic growth seen during the last several decades in the developing nations (Auty, 1997, Sachs 1995). Sachs and Warner (1995, 1999, 2000) conduct several comprehensive econometric studies analyzing the relationship between natural resource dependency and economic growth, and they discover a consistent negative correlation between natural resource abundance and economic growth regardless of the inclusion or exclusion of controlling explanatory variables. In their 1995 study, Sachs and Warner discover a clear negative relationship between natural resource-based exports, including agriculture, minerals, and fuels, and GDP growth. Sachs and Warner investigate ninety-five developing countries, and only two resource-rich countries achieve even a 2% annual GDP growth rate from 1970-1989. Subsequent studies by Sachs and Warner analyze the effects of various controlling explanatory variables, such as institutional quality, regional effects, price volatility, and outliers, such

as oil-producing nations (Sachs and Warner 2001). The negative correlation between resource abundance and economic performance persists despite the inclusion or exclusion of these controlling variables, thus indicating the robust nature of this relationship (Auty, 2001).

Although economists measure "resource abundance" with various methods, the negative correlation between resource abundance and economic growth remains (Stevens, 2003). Sachs and Warner (1995) measure "resource abundance" as dependence on primary exports (natural resource exports percent of GDP); Glyfason (1999) uses percent of the labor force in the primary sector; Wood and Berger (1997) use land per capita (Auty, 2001). Despite these varying methods of measurement, these studies unanimously find a negative correlation between natural resources and economic growth. The consensus of these studies indicates that the "resource curse" is not sensitive to the exact method of resource measurement.

However, research indicates that the negative relationship between natural resource abundance and economic growth is a relatively recent phenomenon. Historically, the presence of natural resources has played an integral role in economic development as evidenced by Australia, Canada, and the United States (Stevens, 2003). In addition, time-series empirical studies find that natural resources have promoted economic growth from the late nineteenth century till the 1960s in developing countries. During the 1960s the "resource curse" begins to appear in developing countries and remains currently (Auty, 2001).

Literature emphasizes that the "resource curse" is not inevitable. As stated above, historically, natural resources have proven advantageous to economic growth, excluding the past forty years (Auty, 2001). In addition, a few resource-endowed developing countries, such as Botswana, Chile, Indonesia, and Malaysia have avoided the "resource curse" through systematic economic policies, and these countries have used their natural wealth to promote, rather than hinder economic growth (Stevens, 2003).

B. Human Capital and the *Resource Curse*

Human capital encompasses skills and knowledge of workers, often derived from education and training, which contribute to productivity (Ehrenberg, 1994). Human capital, rather than natural or physical capital, exerts the greatest influence on economic growth throughout the world. Specifically, human capital generates just under two-thirds of the income in developing nations (Auty, 2001). Thus, previous literature strongly supports the existence of a positive correlation between human capital—generally measured by education—and economic growth.

The relationship between human capital and natural resource abundance remains less decisive. This particular relationship has not received as much attention as other transmission mechanisms of the *resource curse*. Birdsall (1997) finds a negative link between human capital and resource abundance, as does Kim in her 1998 study. Also, education in Latin America, a resource-rich region, lags behind the resource-poor countries of East Asia after controlling for differences in income (Birdsall, 1997). The comparatively scarce literature analyzing low human capital as a transmission mechanism of the "resource curse" merits further investigation.

III. THEORETICAL MODEL

A. *Resource Curse*

According to the *resource curse*, natural resources and economic growth vary inversely. As the amount of natural resources increases, the rate of economic growth falls. This pattern is counter-intuitive, because economic theory predicts, *ceteris paribus*, that natural resources enhance an economy's production possibilities, thus augmenting the potential for economic growth. The mere presence of natural resources does not cause economic stagnation. Rather, natural resource abundance induces certain distortions in the economy, which then serve as transmission mechanisms, which, in turn, affect economic growth. These transmission mechanisms directly influence economic growth whereas natural resources only exert an indirect impact via the transmission

mechanisms. Some transmission mechanisms include: the Dutch Disease, rent seeking, government mismanagement, and low levels of human capital (Gylfason, 2001).

B. Underdevelopment of Human Capital as a Transmission Mechanism

Human capital represents the skills and knowledge of workers. Human capital improves worker productivity, which then causes economic growth. An economy develops human capital primarily through education and other forms of training. According to the World Bank, human capital as opposed to natural or physical capital exerts the greatest influence on income (Auty, 2001). Thus, the development of education, which generates human capital, plays an integral role in economic growth.

Large natural resource endowments often create distortions in the economy that result in low levels of human capital. If a developing country possesses a large natural resource endowment, this country will devote its efforts and resources to the exploitation of the natural resource, because it possesses a comparative advantage. Also, primary production appears particularly attractive, because it requires lower levels of initial investment. Primary production and natural-resource-based industries do not require high levels of human capital compared to the manufacturing sector. In addition, few positive externalities exist in natural resource-based industries. Thus, a resource-abundant economy develops a very limited sector of the economy—the natural resource-based industry, and this sector does not require or promote the development of human capital.

On the contrary, resource-deficient countries do not possess the option of natural resource reliance. Therefore, these countries devote their resources to the exportation of manufactured goods. Manufactured goods require comparatively high levels of skill, thus creating a high demand on education. In addition, the manufacturing sector creates stronger positive externalities. The manufacturing sector encourages the development of technology and promotes "learning by doing" benefits (Matsuyama, 1992). Manufacturing demands the development of human capital, which, in turn benefits, the entire economy whereas primary production does not require high levels of human capital (Gylfason, 2001).

If a country centers its economy on a natural resource, this country will not develop an extensive educational system, because the core of the economy—the natural resource sector—does not necessitate high levels of education. People do not pressure the government to provide better education, because the return rate of education is very low. The resource-based economy cannot utilize these new skills, and therefore, additional education does not increase income (Birdsall, 1997). In addition, if multinational companies, instead of the government or nationally-based companies control the natural resource sector, then the development of human capital may be nearly non-existent. Often, multi-national companies import their own skilled employees instead of training members of the local population. As a result, the local economy does not experience human capital development.

Without an effective education system, this economy lacks the ability to develop human capital. Thus, this resource-dependent economy cannot easily diversify into other economic sectors of the economy, such as manufacturing. Considering that human capital represents the most significant component of income creation, an economy based on low human capital-demanding sectors will experience lower levels of economic growth (Gylfason, 2001).

Interestingly, it is plausible that resource-abundant economies still supply education, despite the lack of demand for education in the economy. Governments may still provide education funded by natural resource revenue windfalls in order to appease its constituents. However, this type of education qualifies as consumption good rather than an investment good. Therefore, this education does not develop human capital and does not confer positive benefits on the economy (Birdsall, 1997). Unfortunately, it is difficult to separate the investment and consumption components of education empirically.

V. DATA AND VARIABLES

A. Data

This study uses data from the 2003 edition of the World Development Indicators data base, supplied by the World Bank. My empirical models utilize cross sectional data from 80 developing countries[2]—the same countries that Auty uses in a 1997 study (Auty, 2001).

B. Variables

This paper defines "resource abundance" as hectares of arable land per capita. This measure of resource abundance mirrors many previous studies, which use hectares of cropland per capita, such as Auty's 1997 study. Arable land per capita primarily captures natural resource abundance in terms of agriculture potential, which admittedly, excludes oil and minerals from this measure of natural resources. However, arable land is a more readily available measure than mineral or oil wealth. Also, previous studies use a similar approximation of natural resource abundance with success, and my dataset contains very few oil-rich but land-poor countries.

Consistent with many previous studies, I measure human capital by using a proxy for education—adult literacy rate. Adult literacy rate measures basic reading and writing skills of adults and a portion of these adults then comprise the workforce. Thus, literacy rate measures the level of human capital in an economy. Ideally, I would also use percent of adults who have completed primary school as well as percent of adults who have completed secondary school as additional proxies for human capital and compared the results. However, the database only contains this data for children, not adults, which would capture the level of future, not current, human capital in a country. Literacy rate captures very basic skills whereas primary or secondary school completion measures a higher level of human capital. The relationship between natural resources and human capital may vary at different levels of human capital. For example, an economy based on natural resources may still encourage the development of low levels of human capital, as measured by literacy rate, but this economy could discourage the development of higher levels of human capital, as measured by the rate of adult completion of secondary education. Nevertheless, literacy rate appears to be a reasonable measurement of human capital for this study, because previous *resource curse* studies use it, and a manufacture-based country—the alternative to a natural resource-based economy—does not require very high levels of education.

VI. EMPIRICAL MODEL

This section presents my empirical model and restates my hypotheses in terms of the empirical model. This section also presents descriptive statistics from my dataset, which provide evidence supporting my hypotheses.

A. Presence of a *Resource Curse*

I regress natural resource abundance against economic growth, and I hypothesize that a negative correlation exists. As natural resources increase, economic growth decreases. This regression establishes whether a *resource curse* exists. Table 1 summarizes this first regression and lists predicted signs of coefficients. Table 2 shows descriptive statistics from data that I use in my regression analysis. These descriptive statistics indicate that resource-rich countries have higher rates of economic growth than resource-poor countries.

B. Human Capital and *Resource Curse*

I regress natural resource abundance against human capital. I hypothesize that an inverse relationship exists. As natural resources increase, human capital decreases. Table 3 summarizes this regression and lists predicted signs. Table 4 shows descriptive statistics that relate arable land per capita and literacy rate from the data the empirical portion of this study uses. This data indicate that resource-rich countries possess lower levels of human capital than resource-poor countries.

C. Human Capital as a Transmission Mechanism

I regress both human capital and natural resource abundance against economic growth. I hy-

TABLE 1
Presence of a Resource Curse

Variable	Definition
Economic Growth	Average annual percent change in real GDP growth per capita from 1965 to 2000
Natural Resource Abundance (-)	Average arable land per capita (hectares)

TABLE 2
Descriptive Statistics of Natural Resource and Economic Growth

Natural Resource Endowment	Average Arable Land Per Capita (hectares)	Average Per Capita GDP Growth Rate 1965 to 2000
Resource Poor Countries[3]	.06	4.3
Resource Rich Countries[4]	.27	3.6

TABLE 3
Human Capital and the Resource Curse

Variable	Definition
Human Capital	Adult literacy rate
Natural Resource Abundance (-)	Arable land per capita (hectares)

TABLE 4
Descriptive Statistics of Natural Resource Abundance and Human Capital

Natural Resource Endowment	Average Arable Land Per Capita (hectares)	Average Literacy Rate
Resource Poor Countries	.06	81
Resource Rich Countries	.27	68

pothesize that natural resource abundance is inversely related with GDP growth rate and positively correlated with human capital as seen in table 5. However, this negative correlation will be less significant and the coefficient will be smaller than in the first regression, because the first regression suffers from omitted variable bias. The inclusion of the human capital variable accounts for a portion of the natural resource effect seen in the first model. The natural resource abundance variable still has a negative correlation with economic growth, because other transmission mechanisms of the *resource curse*, such as the Dutch Disease and primary sector price volatility, still exist. Thus, these other transmission mechanism create a negative relationship between economic growth and natural resources, and therefore, this regression may not show traditional positive relationship of natural resource abundance and economic growth. Finally, I hypothesize that human capital has a positive correlation with GDP growth rate.

VI. RESULTS

TABLE 5
Human Capital as a Transmission Mechanism

Variable	Definition
Economic Growth	Average annual percent change in real GDP growth per capita from 1965 to 2000
Natural Resource Abundance (-)	Average arable land per capita (hectares)
Human Capital (+)	Adult literacy rate

TABLE 6
Regression Results

Dependant Variable	Constant	Natural Resources	Human Capital	Adjusted R^2
Economic Growth	4.52 13.17	-3.25 (-2.51)***		.062
Human Capital	75.43 18.17	-19.16 (-1.24)*		.007
Economic Growth	3.09 4.01	-3.30 (-2.65)***	.021 (2.32)**	.163

* indicates significance to .15 level
** indicates significance to .10 level
*** indicates significance to .01 level

NOTE: t-statistic appears in parentheses

The results of this study strongly support the existence of a *resource curse*, though this study does not strongly confirm or refute the existence of human capital as a transmission mechanism. Table 6 summarizes the results of this empirical study.

In congruence with this study's hypothesis, a negative relationship exists between natural resources and economic growth rate, known as the *resource curse*. Figure 2 provides a visual representation of the relationship between natural resources and economic growth. According to the results, one additional hectare of arable land per capita, which is a measure of resource abundance, decreases the economic growth rate by 3.25%. Of course, one hectare per capita is an unrealistically large increment. A more practical interpretation states that an addition of 0.2 hectare results in a 0.65% decline in economic growth rate. These results are highly significant—significant at the 0.007 level. Thus, this study confirms the existence of a *resource curse in* developing countries since 1965, which most previous literature has supported. Not surprisingly, the adjusted R^2 value is low, because obviously, there are a number of other important determinants of growth. Other factors, besides natural resources, influence economic growth.

FIGURE 2
GDP Growth & Natural Resources

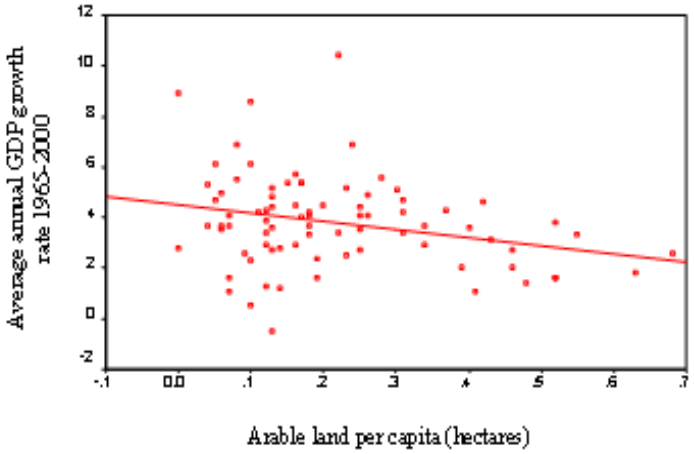
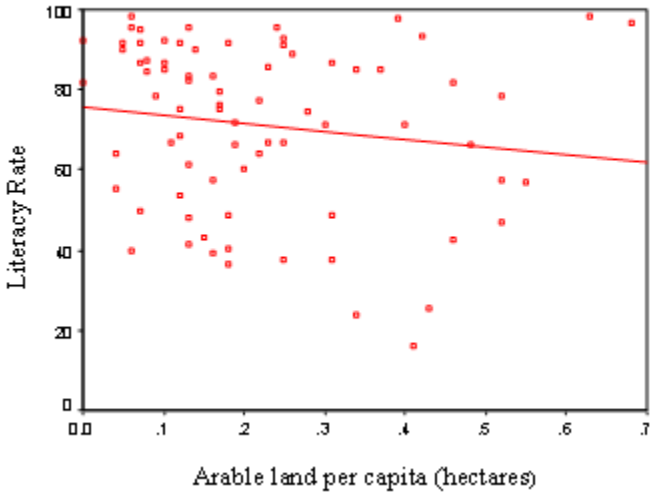


FIGURE 3
Literacy Rate & Natural Resources



This study hypothesizes that transmission mechanisms—specifically, human capital—create the negative correlation between natural resources and economic growth. Natural resources, themselves, do not impede economic growth. If a variable, such as human capital, is to serve as a transmission mechanism of the "resource curse," it must first have a negative correlation with natural resources, and second, natural resources must be positively correlated with economic growth. The results of this study fulfill both requirements. This paper finds a negative correlation between literacy rate—a measure of human capital—and arable land per capita—a measure of natural resource abundance, which supports my hypothesis. A negative relationship between human capital and natural resource abundance indicates that human capital could serve as a transmission mechanism for the "resource curse," because as natural resources increase, human capi-

tal decreases. The results state that for each 0.2 in arable hectares per capita, literacy rate decreases by 3.8%. However, these results are not highly significant; they are significant at the 0.11 level. Thus, an 11% probability exists the negative correlation between arable land per capita and literacy rate is due to chance. Figure 3 illustrates this relationship between literacy rate and arable land per capita, and as the results indicate, this scatter plot shows a considerable amount of variance.

The relatively low significance of these results could stem from a few possibilities, assuming that, in reality, human capital does serve as a transmission mechanism of the "resource curse." First, literacy rate may not capture the differences in human capital between resource-rich and resource-poor economies. Even resource-poor countries may provide very basic education, which is measured by literacy rate. The difference in human capital levels could perhaps be seen more clearly in primary or secondary school completion, which measures a higher level of human capital.

Second, the government in resource-poor countries may still provide education even though this education is not as directly useful in a resource-based economy as compared to a manufacture-based economy. The government may still provide education, because people demand it, not because the economy demands it. In this case, education is a consumption good rather than an investment good, which signifies that education does not have a significantly high rate of return. If education is a consumption good, human capital can still serve as a transmission mechanism, because education as a consumption good does not contribute to human capital since it does not raise the productivity of a person. Thus, a resource-poor and resource-rich could possess the same level of education, but this education would affect productivity, and therefore, the economic growth rate differently. However, this study could not separate the investment and consumption component of education. The low significance of the relationship between natural resources and human capital could be a result of the consumption component of education.

This study fulfills the second requirement of a transmission mechanism—positive correlation with economic growth; this study finds that a positive correlation exists between literacy rate and economic growth, which also supports my hypothesis as seen in the third row of Table 1. If literacy rate increases by 5%, then economic growth increases by 0.11%. However, the effect of literacy rate on economic growth is much smaller than expected. In congruence with my hypothesis, the negative relationship between economic growth and natural resources persists, despite the inclusion of human capital, because other transmission mechanism, such as the Dutch Disease, declining terms of trade, and primary resource volatility. However, contrary to my hypothesis, the significance and magnitude of the natural resource variable—arable land per capita—does not decrease in significance and magnitude when paired with human capital as an additional explanatory variable. Both the coefficient and significance of the natural resource variable remain very similar excluding or including the human capital variable.

In order to understand the multi-faceted effects of natural resources, it is necessary to distinguish between the indirect, direct, and total effect of natural resources on economic growth. Table 7 summarizes these various effects. The indirect effect of natural resources on economic growth measures the effect that natural resources exerts on economic growth through hindering the development of human capital. The indirect effect of natural resources via the human capital transmission mechanism is -0.40, which is calculated by multiplying the coefficient of arable land per capita in the second regression (-19.16) with the coefficient of literacy rate in the third regression (.021). This indirect effect signifies that an increase 1 hectare of land per capita decreases economic growth by 0.4% through the human capital transmission mechanism. The direct effect of natural resources on economic growth is simply the coefficient of natural resource abundance in the third regression (-3.30). This signifies that an increase of 1 hectare of arable land per capita directly lowers economic growth rate by 3.30%. However, as explained earlier, this direct effect includes the indirect effects

of the various transmission mechanisms this study does not include such as the Dutch Disease, declining terms of trade, primary resource price volatility among others. Theoretically, the direct effect of natural resources on economic growth should be positive if all the transmission mechanisms are taken into consideration. The total effect of natural resources on economic growth is simply the summation of the indirect and direct effects. Thus, the total effect of natural resources on economic growth is -3.7%. This coefficient indicates that each additional 1 hectare increase of arable land per capita decreases economic growth by 3.7%. Human capital accounts for approximately 11% of the total effect that natural resources exert on economic growth.

In summation, this paper supports the existence of a *resource curse*—the negative relationship between natural resources and economic growth—in developing countries since 1965. This study provides some support of the role of human capital as a transmission mechanism, though this paper does not provide unequivocal, conclusive support due to significance levels and coefficient magnitude.

VII. CONCLUSION

This investigation of the role of natural resources in economic growth supports the existence of the inverse relationship between natural resource abundance and economic growth—known as the *resource curse*—for developing countries since 1965. In addition, this study finds some evidence, though not particularly strong, of a negative relationship between human capital and natural resources. Due to the less than robust results, this study neither strongly confirms nor refutes the possibility that human capital serves as a transmission mechanism of the *resource curse*.

Consequently, further research involving the *resource curse* should focus on the transmission mechanisms—the actual causes—of the *resource curse*, rather than merely the statistical relationship between natural resources and economic growth. The underdevelopment of human capital as a transmission mechanism deserves more attention. Specifically, supply and demand of education need to be separated. In addition, future research may find it beneficial to determine the specific level of human capital which natural resources hinder. Do natural resources impede the initial development of human capital as measured by literacy rate? Or do natural resources only deter human capital development at higher levels, measured by secondary school completion?

Given that natural resources are not inherently detrimental to economic growth, rather they create distortions in the economy, which undermine economic performance, governments of resource-rich countries should not view slow economic growth as an unfortunate but inevitable reality. These resource-rich developing countries should look to countries, such as Chile and Botswana who have avoided the *resource curse* (Stevens, 2003). The governments of resource-rich countries should consider promoting the manufacturing sector of the economy in addition to the natural resource sector, for which they have a comparative advantage. Economic theory indicates that lack of manufacturing is a principal cause underlying their poor economic performance. Natural resources possess the potential to promote, not impede, economic growth in developing countries.

ENDNOTES

1. Dutch Disease: The contraction of the tradable goods sector—due to appreciation of local currency, which decreases the competitiveness of the country's export sector. Large-scale exploitation and exportation of a natural resource precipitates these events (Rudd, 1996).

2. Countries: Algeria, Argentina, Bangladesh, Benin, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Chile, China, Colombia, Congo, Dem. Rep., Costa Rica, Cote d'lvoire, Dominican Republic, Ecuador, Egypt Arab Republic, El Salvador, Ethiopia, Fiji, Gabon, Gambia Ghana, Guatemala, Guyana, Haiti, Honduras, India, Indonesia, Jamaica, Jordan, Kenya, Kuwait, Lesotho, Liberia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Mo-

rocco, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Somalia, South Africa, Sri Lanka, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, Venezuela, Zambia, Zimbabwe.

3. Resource Poor Countries < 0.10 hectares arable land per capita: Bangladesh, China, Colombia, Costa Rica, Egypt Arab Republic, El Salvador, Haiti, Indonesia, Jamaica, Jordan, Kuwait, Malaysia, Mauritius, Papua New Guinea, Philippines, Sierra Leone, Singapore, Sri Lanka, Trinidad and Tobago, Venezuela.

4. Resource-Rich Countries >0.10 hectares arable land per capita: Algeria, Argentina, Benin, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Chile, Congo, Dem. Rep., Cote d'lvoire, Dominican Republic, Ecuador, Ethiopia, Fiji, Gabon, Gambia, Ghana, Gambia, Guatemala, Guyana, Honduras, India, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mexico, Morocco, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Paraguay, Peru, Rwanda, Saudi Arabia, Senegal, Somalia, South Africa, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tanzania, Thailand, Togo, Tunisia, Turkey, Uganda, Uruguay, Zambia, Zimbabwe.

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