Division of Human Capital Creates Surplus Wealth

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The results of an experimental abstraction of economic development for 79 countries resulting from their proximity to the highest form of capitalist economic adaptation, democracy and rule of law is reported. A structural contribution uses a least squares regression format to isolate and measure marginal effects of institutions on per capita real gross domestic product adjusted for purchasing power parity. Instead of focusing on natural resources, poor nations can improve their economic positions along a continuum by rearranging the institutional cultural priorities of capitalism, democracy and rule of law that promote trade and entrepreneurial development within their societal borders.

INTRODUCTION

The idea that proper institutional blends foment the highest economic development, living standard and growth has a dearth of saliency in modern literature of political economy. North(1991) suggested that emergent economies resulted from the proper mix of social, political and economic institutions. He argued that human beings devise prescribed constraints on behavior that bind instructional interactions as a set of rules that act as a dominant ideology or what is in common parlance called rule of law. Although somewhat nebulous, rules of law comprise the codicils to a societal constitution that outline the rights of micro-agents, property rights, and statutes that limit liability when one party injures another. Alternatives to rules of law are cultural adaptations which include taboos, customs and traditions that govern codes of conduct that find their way into formal rules and laws, and thereby distinguish one society from another.

The purpose of this paper is to use the general institutional foundations of political, economic and social arrangements tied together by rules of law outlined by North, to devise a metric of

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marginal contributions to livings standards. Living standard is measured by per capita real gross domestic product adjusted for purchasing power parity (G) over 79 countries for which a complete set of data is available. Institutional strength is measured by proximity to the highest form of capitalist economic adaptation, democracy and rule of law. Hereinafter, the social and political institutions will be denoted: capitalism (C), democracy (D) and rule of law (R), and the regression model will be referred to as the CDR model. D and R are manmade institutions designed to improve commercial trade and the human condition. These institutions developed and evolved over many centuries (North, 1991, Acemoglu, 2005). But, it was not until the 1662 Royal Charter from King Charles II of England for the study of science created adequate technology, and the 1811 New York limited liability law and other versions attributable to England (1855) and Germany (1892) created the mechanism of C that C, D and R combined to initiate and facilitate the industrial revolution. It could have occurred anywhere in the world that this combination might have existed, but it occurred in England. Prior to the industrial revolution, with few exceptions, all people were poor. The exceptions were feudal lords, and beneficiaries of the 17th century Amsterdam stock exchange, the Dutch and English East India Companies, and certain skilled artisans. The world saw a history of unnecessary wars, invasions, looting of resources, and wealth changing hands. There was destruction of wealth but little or no creation of wealth. Toward the end of the second world war, Winston Churchill (1943) said that the "empires of the future will be empires of the mind." This was his testament to the massive and saddening waste from the war. It appears that the experience taught him to recognize that there had to be a better way for national achievement. His remark was consistent with what became a switch to massive wealth creation by the likes of General Electric, International Business Machines, Intel, Microsoft, Apple and now Google, all completely unrelated to natural resources and related wars of conquest. This is clear evidence that the source of wealth always was and still is the imagination and creativity of the human mind. The rich countries that adopted the policy of CDR became rich and continue to get richer while the low CDR countries have remained relatively poor. We attribute this to the mechanism of the G generating process from C, D and R wherein C is attracted to R and D releases the imagination and creativity of the human mind for the superior deployment of C in the generation of G.

This paper elucidates the wealth generating mechanism suggested in the Ridley (2016) and Ridley, Davis and Korovyakovskaya (2017)

CDR model. In-country wealth distribution is an entirely different matter that is best investigated elsewhere. For example see Piketty (2014) and Krugman (2009) that advocate government intervention and more progressive taxation of income and wealth. Better thought through concepts based on increasing economic freedom (Friedman and Friedman, 1980, Friedman, 2002, Gwartney, Holcombe and Lawson, 1999, Gwartney and Lawson 2003, Heritage Foundation, 1995-2016, Sowell, 2015, Rand, 1961, Homburg, 2015) advocate reduced government and the empowerment of people, are consistent with the CDR model, and appear to be working (Gwartney, Lawson and Hall, 2015). An extreme philosophical view on freedom is objectivist epistemology as described by Rand (1990). Whereas objectivism is the philosophy of rational individualism, democracy is the mechanism for creating new pathways that connect people. People of course may comprise rational individuals. This is useful because it is a way to deploy the human capital from which G is generated.

The remainder of the paper is organized as follows. First the rich and poor person dilemma is demystified since the potential wealth of a country cannot be tapped without full and willing participation of all citizens. Next, the combined C, D and R impact is illustrated by a vexillological chart while commonly held beliefs in natural resource, government spending, country size and population physical characteristics are dispelled.

ONE PERCENT VERSUS NINETY NINE PERCENT

The poor insist on the apocryphal claim that 1% of people get rich off the sweat of 99% of people. This ad hominem has done nothing to raise the lot of the poor. Neither has the advocacy of the rent seekers who claim to represent their interests. Piketty (2014) claimed to have discovered that return on capital is outpacing growth in G. The implications there are that inherited wealth will grow just by virtue that it is capital and the inheritors of wealth will simply continue to get even richer relative to the 99%. That is the 1% can sleep, otherwise take no action, and get relatively richer. A modicum of reasoning should tell us that this is impossible. Capital stock will depreciate and become obsolete. In time it will become zero. It is inexorable. Only new ideas can replenish capital and wealth. To grow, capital must be invested in new ideas that must come from somewhere and there is no reason to believe that it will not come from members of the 99%. Furthermore, such investment creates new products and services that benefit the 99%, typically on a massive scale. That is why the poor in the United

States of America (USA) experience a living standard that is far better than that of the preindustrial revolution members of any royal family since none of them ever had indoor plumbing.

As it turns out, the 1% includes entrepreneurs who are routinely mischaracterized as intending to pursue wealth. Whether that is true or not, the entrepreneur very soon learns quite to the contrary that their life is one of long days of experimentation, design and development, disappointment, joy of discovery, and risk taking. Finally, when they create a new product, they must find ways to manufacture it in quantity and at a cost that makes it affordable to the 99%. That leaves literally no time for recreation. Assuming that wealth is the final outcome, the 1% can only live in one house at a time, drive one car at a time, eat three meals per day, etc. Therefore, the profits of the entrepreneur has nowhere to go but to investment, growth and new job creation. The 99% on the other hand enjoy an increased standard of living, labor saving devices, and more leisure time. The 1% really does sweat the details. So, they might say that the 99% live off the sweat of the 1%. The 99% should not focus on equality of income for that will surely make them unhappy. They should simply focus on equality of consumption. At any time the 99% can put a stop to all this. All they have to do is not purchase the products of the 1%.

When all things are considered, we recognize that the entrepreneur is a gift to humanity. Anything done to impede their activities can only destroy capital and threaten a return to widespread poverty.

SOME HIGH AND LOW CDR & G COUNTRIES

The regression line in Figure 1 shows the relationship between G and the CDR for 79 countries for which a complete data set is available (the regression model and the CDR index are given below in the section: Relative contributions to G). The populations in these countries represent almost the entire world. Also plotted are twenty one countries, selected for their contrast between culture, history, population characteristics, appearances and size, income and CDR. These countries are spread wide on the world map. The diameters of the bubbles are directly proportional to the square root of population. There can be no doubt that G increases with the CDR Index. The scientific relationship (Prakash and Sharma, 2016) is undeniable. Country size has no bearing on G.

As expected, Western Europe, USA and Canada comprise high income countries. Despite differences in their types of economies, for example relatively small variations in elements of socialism and
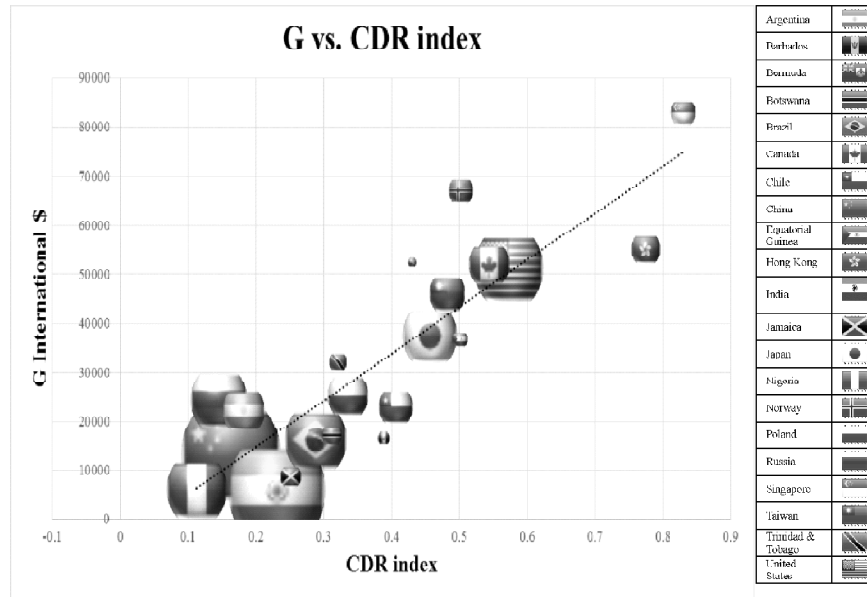
Figure 1: Year 2014 G vs CDR Index for 79 countries (line). Bubble size (21 countries) is the square root of population

capitalism, what they have in common is high CDR and that accounts for their high G.

One of the recent surprises is Singapore with C=0.58, D=0.52, R=0.96. Although not the best example of democracy, together with its high ranking in R, the low D ranking is still high enough to attract capital and attain a high CDR index of 0.83. The outcome is soaring high G=$83,066. Another surprise is Hong Kong with C=0.87, D=0.92, R=0.93. Its CDR index of 0.77 is lower than that of Singapore due to Hong Kong's high negative interaction effect. That and some random negative effect unaccounted for by the CDR model yield G=$55,097. Yet another recent surprise is China. It has become well known for recent high percentage growth rates, albeit applied to a very low base. Because of its very large population it has a large gross domestic product. But, when adjusted for population size the G is low. As best as one can tell, this is attributable to its low D ranking, low R ranking and therefore low CDR index. One of the commonly held beliefs is that size matters. But, as the chart is traversed from left to right, there is no systematic change in bubble size.

One of the commonly held beliefs is in the importance of natural resources. Some countries have benefitted from the possession of

natural resources. But, the benefits are much smaller than they first appear to be. Auty (1993), Sachs and Warner (2001), Ross (2001), Sala-i-Martin and Subramanian (2003), Humphreys (2005), Wadho (2014) explain many ways in which natural resources have actually been a curse. Indeed, countries with an abundance of natural resources are more often than not poor. They include for example Russia, Nigeria, Brazil, India and China, to name just a few.

One scenario of the natural resource curse is the Dutch disease paradox (Ebrahim-zadeh, 2003). For example, Jamaica was once a leading agricultural country. A significant source of research and development with knowledge of crop rotation and the creator of numerous advanced methodologies and techniques, Jamaica was a successful agricultural producer and exporter. Then, bauxite ore was discovered. The first discovery of the red ferruginous earth called Jamaican bauxite was in 1869. Exploration and development work began in the 1940s. Exportation began in June 1952. Production increased rapidly, and by 1957 Jamaica became the leading bauxite producer in the world, with a production capacity of almost a quarter of all the bauxite mined in the world in that year. They had contracted with international companies with related expertise to extract the ore, produce alumina and place it on the world market in return for royalty payments. Alumina extraction requires massive quantities of energy. So, bauxite was sent to a cheap energy country, Canada, for hydroelectric extraction. When the bauxite entered the international market, the country's currency was upwards revalued. Currency traders were more willing to be paid in Jamaican dollars and hold Jamaican dollars than previously. It had the world's fastest growing economy. The Jamaican currency was already strong. Its currency strengthened even further. During the 1960s, one Jamaican dollar was equivalent to as many as two US dollars (Figure 2). Jamaicans could travel to Miami, USA and make purchases that were favorable to their currency. Nobody would want it any other way? As it turns out, the higher currency value raised the cost of exports and drastically reduced the country's other exports. Agriculture began to fail. Even tourism was threatened. The value of the Jamaican dollar fell steadily downward to one US dollar by 1978. Since then it continued to fall at a steady but faster rate ever since. One must ponder what the outcomes might have been had the exchange rate been right adjusted by choice earlier rather than by force as it was later.

Growth in the bauxite industry led to rampant speculation of corruption. That was not unfounded. Theories arose on a foreign capital
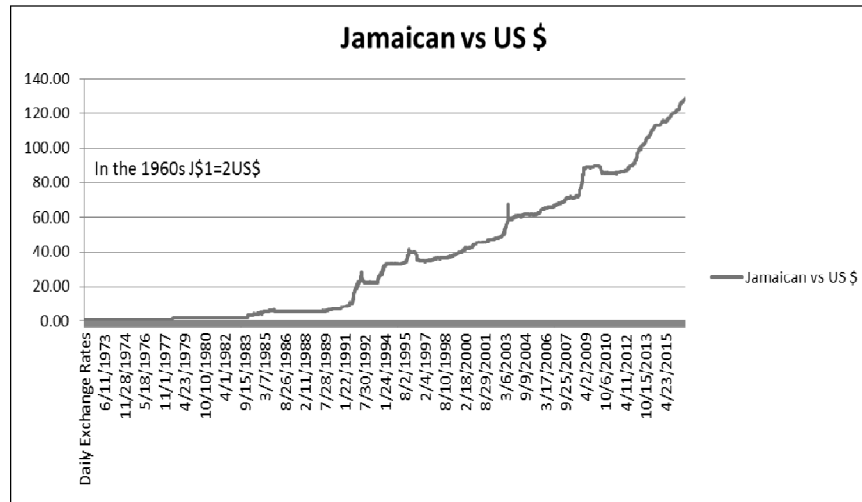
Figure 2: Jamaican vs US$

and economic underdevelopment enigma (Girvan, 1971). The net impact was no increase in total exports and no increase in G. There were numerous social ill effects (Hirschman, 1958, Seers, 1964) that gave rise to a negative impact on G. There was widespread loss of non-bauxite related jobs, disruption, dislocation, and social crisis. Jamaica was a democratic country with regular and vigorous elections. But, social unrest introduced violence into the election activities. Government policies long based on capitalism were traded for socialism as a means to correct perceived injustice. Rule of law declined and there was capital flight, not the least of which was an exodus of human capital in the form of highly educated and experienced scientist, mathematicians, engineers, and other professionals. The year 2014 numbers were C=0.018, D=0.74, R=0.56 as the CDR index and G ended up at 0.25 and $8,610 respectively.

In contrast to Jamaica that was a victim of the Dutch disease natural resource curse, Cayman Islands, a former dependency of Jamaica, until 1972 is a high CDR high G country. Other western countries with common histories, high CDR and high G are Bermuda, and to a lesser extent, Trinidad & Tobago and Barbados. Other former British colonies with high CDR and G are Singapore and Hong Kong in asia, and Equatorial Guinnea and Botswana in subahara Africa. Still other high G high CDR countries that are very different from their neighbors are Poland and Chile.

THE WEALTH GENERATION PROCESS

We can best understand where wealth comes from by decomposing the souce of wealth then examining the wealth generating process. The process is depicted in Figure 3. The system comprises CDR where C represents capital. C starts in the form of exogenous human capital that belongs to the capitalist. A capitalist is a person who seeks to deploy personal effort in such a way as to maximize the benefit to him or herself (Smith 1776, 2010, Rand, 1961). No rational person would seek less. Therefore, all rational human beings are capitalists. Potential contributors of capital can refuse to participate in a corrupt economy (see Brosnan and de Waal, 2014 on the evolution of responses to unfairness and Barclay and Stoller, 2014, Brandstätter and Königstein, 2001, Güth, Schmittberger and Schwartze, 1982, Jensen, Call and Tomasello, 2007 on the ultimatum game). Initially, exogenous conceptual intangible imagination and creativity wealth is converted to real tangible wealth through a production process. The related knowledge can be taught to other human minds as capital stock. Just as division of labor creates surplus capital, this division of human capital creates surplus wealth. D and R are catalysts that create alternative pathways and lower the effort required to convert C into G. R attracts C and D releases knowledge of how to deploy C so as to best produce G. Attraction and distribution of capital are orthogonally distinct features and catalysts are neither substitutes nor complements. In the absence of D and R catalysts, growth is possible but there is no new capital from entrepreneurship, capital is limited by depreciation and obsolescence, and growth is minimal. There are at least three important applications of democracy to the superior deployment of capital. One application is the election of government and corporate officers by citizens who know their own needs. A second application is the distribution of votes according to shares of corporate stock. A third application is in the numerous decisions associated with investment in capital projects, services and daily operations. This is the process by which a human capital idea is converted into wealth and capital stock that can be reinvested, minus depreciation and obsolescence. Without new human capital ideas, capital stock will decline continuously. Each new human capital idea will raise the total level of C. The components C, D and R are each of a different structure.

G that is not consumed is reinvested in capital stock and a negative income tax (see the below section on entrepreneurship and the appendix). Corruption, depreciation, obsolescence and transfer welfare payments, are synonymous with dead capital.
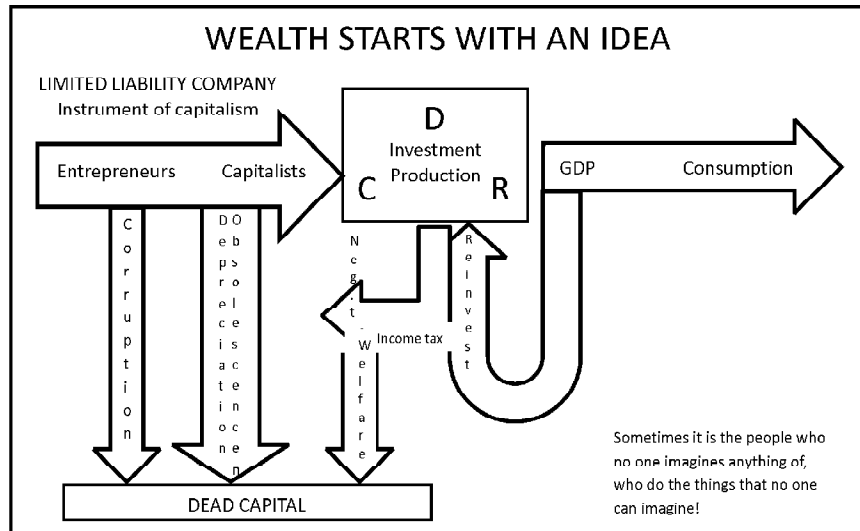
Figure 3: C to G generating process in the presence of D & R catalysis

CDR STRUCTURES

The structure of C is exogenous human capital of ideas acquired from capitalists through entrepreneurship, sweat equity, and endogenous capital stock added to the stock of capital generated from prior investments less depreciation and obsolescence, measured by outstanding shares of stock that correspond to financial investment in the capital markets.

The Structure of D is the exogenous creation of pathways for connecting human capital through idea generation, extraction and combination.

The structure of R is the exogenous creation of governance that enforces contracts and property rights, and discourages corruption.

Catalysis is a term coined by Baron J. J. Berzelius in 1835 to describe the property of substances that facilitate chemical reactions without being consumed in them. Catalysis can speed up or slow down a process. Either way, the equilibrium composition of reacting components and products are the same. Homogeneous catalysts are present in the same structure as the reacting components and products. Heterogeneous catalysts are present in a different structure. Therefore, D and R must be exogenous heterogeneous catalysts. That way, they are relative easy to separate from the product. This is important since D and R must remain robust and incorruptible by the wealth production

that it facilitates. In summary, economic growth is G production from capital C, in the presence of the exogenous catalysts D and R. Growth is a chemical process that results in a physical stock of capital that can be reinvested together with additional human capital. The human capital component of the process is what is now commonly referred to as entrepreneurship.

As a vignette to the foregoing account, we recognize that the human being is a most complex, fascinating and magnificent sack of chemicals. Therefore, it is quite conceivable that D and R are the chemical catalysts that create the pathways and rules that connect human beings together. A synergistic triumph in which, the whole community is indeed greater than the sum of the human beings. We also recognize the magnitude of this massive simplification and the absence of accounting for human spirit. But, we also recognize that the mere observation of the power of the connected is an inspiration in itself.

RELATIVE CONTRIBUTIONS TO G

To determine the relative contributions of C, D, R and natural resources (N), we standardize the variables to guarantee upper and lower bounds of $0 \leq g, C, D, R, CDR, N \leq 1$ as follows:

g	=	(G-lowest G)/(highest G-lowest G)
G	=	Per capita real gross domestic product adjusted for purchasing power parity
C (Capitalism)	=	(per capita capitalization-lowest per capita capitalization)/ (highest per capita capitalization - lowest per capita capitalization)
D (Democracy)	=	(lowest democracy rank-democracy rank)/ (lowest democracy rank- highest democracy rank)
R (Rule of law)	=	(lowest corruption rank-corruption rank)/ (lowest corruption rank- highest corruption rank)
N (Natural resources)	=	(per capita total natural resource rents-lowest per capita total natural resource rents)/(highest per capita total natural resource rents- lowest per capita total natural resource rents).

Democracy and corruption are rank ordered, where the highest = 1 and the lowest = the number of countries.

G, Market capitalization, Democracy ranking, Corruption ranking and Natural resource rents are year 2014 published data from the World Bank fact book.

Then, we regress g on C, D, R, and N. The result is the estimated equation:

$$g = 1.53C + 0.14D + 0.23R - 1.21C{\cdot}D{\cdot}R + 0.38N$$

$$t = \quad (6.60) \qquad (1.69) \qquad (2.60) \qquad (4.40) \qquad (5.59)$$

$$R^2_{adj} = 83\%$$

| 59% | 5% | 10% | 3% | 6% |

where g is the per unit standardized G and G can be estimated from $G = g$ (highest G-lowest G) + lowest G.

The above linear interactive model explains 83% of the variation in G (for the reader who is curious about a log linear modeling approach, the result of fitting $g = \beta_0 \cdot C^{\beta_C} D^{\beta_D} R^{\beta_R} N^{\beta_N} + random\ error, where$

the b's are output elasticities, is the very low value of $R^2_{adj} = 0.36$). One of the commonly held beliefs is in the impact of government spending. As it turns out, when added to this CDR model, the coefficient of government spending is approximately zero, insignificant, and remains unchanged. The consilience of and random unsystematic residuals is high enough to place the linear interactive model among scientific models. The measurement of C is based on publicly traded stock. Therefore, the 17% that is not explained by the model is due to the inability to capture capital invested in businesses that do not have publicly traded stock. Such data are private and will always be unavailable. The contributions of C, D and R are positive. But, the contribution from the interaction between C, D and R is negative. The reason is that while the D makes a positive contribution via the deployment of human capital and capital stock, all the human decision makers will not agree one hundred percent. Any disagreement must subtract from the theoretical optimal contribution. If there were perfect agreement and the agreement was the best possible decision, then the contribution from the interaction would not be negative. From the relative contributions to G, we see that the greatest contribution is 59% from C. The contribution from D is 5%. The contribution from R is 10%. The contribution from the interaction between C, D, and R is 3%. The 6% contribution from natural resources is negligible, in addition to the potential for disaster due to the Dutch disease. Therefore, N is dropped and the CDR index is defined as CDRindex = 1.53C + 0.14D +

0.23R - 1.21C·D·R. The CDR index is the vector inner product (dot product) of the global constant [1.53 0.14 0.23 -1.21] and the country [C D R C·D·R]. If there are no D and R catalysis, growth is reduced. New capital from entrepreneurship is negligible. The only capital is capital stock from prior investments. After depreciation and obsolescence, growth is minimal. The G is estimated from G= CDRindex (highest G-lowest G) + lowest G.

Przeworski and Limongi (1993) reviewed eighteen economic growth versus democracy studies on various data samples ranging from 1949 to 1988 (see Adelman and Morris, 1967, Dick, 1974, Huntington and Dominguez, 1975, Weede, 1983, Kormendi and Meguire, 1985, Kohli, 1986, Landau, 1986, Sloan and Tedin, 1987, Marsh, 1988, Pourgerami, 1988, Scully, 1988, 1992, Barro, 1989, Grier and Tullock, 1989, Remmer, 1990, Pourgerami, 1991, Helliwell, 1992). The findings were distributed equally between yes and no, and no findings at all. For still more on democracy see Barro (1996) and , Przeworski and Limongi (1997). Those studies, as well as other models such as those of Barro (1996) and Solow (1956) excluded the interactive term, which inter alia, explains why the CDR model results are significantly different.

One important element that is missing from this model is the loss of capital due to natural disasters. If different countries have different but persistent geographic propensities for natural disasters, a more accurate model might be one that accounts for natural disaster reduction in C. Jamaica is an example of a country that is plagued by hurricanes and earthquakes.

ENTREPRENEURSHIP

The above estimated G function shows that the intangibles C, D and R contribute approximately $(59+5+10+3)/ 6 \approx 13$ times as much as the tangible natural resources to the explanation of G. In addition, the above discussion on the Dutch disease reveals how natural resources can create more problems than they solve. The wealth generating process wherein C is converted to G in the presence of the catalysts D and R creates a stock of capital that can be reinvested. But, that is based on old knowledge about the past. Any further annual increase in G must come from new ideas (discovery of natural resources (N) and other new disruptive unexpected ideas), otherwise known as entrepreneurship. Entrepreneurship is about the future. However, entrepreneurship comes in the form of quanta of information that must get noticed if they are to serve any purpose. To be noticed

entrepreneurship requires a low noise channel. The entrepreneurship signal must be relatively high and the D and R must promote a low noise channel. A high signal to noise ratio is required (Gilder, 2013, Romer, 1990). Low D and R serve only to promote a high noise channel of infighting, unproductive conflict, and social disequilibrium through which the entrepreneurial information cannot pass, and goes unnoticed. This wealth maintenance positive equilibrium positive G disequilibrium CDR benefit enigma appears to elude poor countries.

After the CDR index has been raised, there are any number of innovations that if implemented will lift millions of people out of poverty. Such results can be attained in a relatively short period of time. In addition to the remarkable entrepreneurial breakthroughs, there are numerous small contributions that create wealth. These come from many sources, especially people who are employed. Since wealth begins with human capital contribution to C, a negative income tax can raise employment, experience gathering, and contribution to wealth (see Appendix). Further enhancement innovations that involve high technology will require a very knowledgeable community that must be attained through education and will take more time. But, the journey is as rewarding as the planned end result. In any case the end result will be routinely upward revised as new ideas are created. That is, there is no finite end.

WEALTH IS UNLIMITED

Since wealth is the creation of the human mind, and since ideas are unlimited (Lotto, 2017), it follows that wealth is unlimited. The clear evidence for this is that countries that adopted what we present here as the CDR method, have increased their wealth continuously since the industrial revolution. They have gotten richer and richer to the point of, for example, the USA rising out of and beyond the world in which it began, through the atmosphere, and into space. Space travel is only the first indication of the potential for limitless growth.

CONCLUSIONS

In order to progress, the poor need no longer be rancorous. No longer be implacable in the belief that wealth can only be created through rapacious capitalism, colonialism and subterfuge. Likewise, it is best to end the euphemisms and pretense that colonialism ever created wealth when all it did was transfer property by force. The truth is that all rational people are capitalist and capitalism is the best way to deploy creativity for the benefit of all. If wealth is all in the mind and creativity

is unlimited, then wealth is unlimited. It follows that all country wealth will approach infinity. As clear evidence of this, we have seen that the high CDR countries (Ridley, Davis, Korovyakovskaya, 2017) have already attained a living standard that is out of this world. The USA has gone beyond the end of the atmosphere and into outer space. It does not matter where a country starts. Once CDR is implemented, even the smallest increments of growth are followed by more, with no foreseeable limit. There is nothing to suggest that low CDR countries should not leap frog over steps that are already well known in high CDR countries. For example land line telecommunications systems can be foregone in favor of wireless cellphone systems. There is no need to trot out obsolete medicinal cures when better ones are known. This suggests that a country should adopt and raise its CDR, paying great attention to high CDR countries as a strategy to acquire and contribute to the most modern technologies that are suitable and relevant to them. Just as division of labor creates surplus capital, division of human capital creates surplus wealth. However, the theory of phenomenological learning (Biesta, 2012) implies that the way in which democracy releases knowledge from each individual human being is inimitable. So much so that low CDR countries may have to develop democracy in their own culturally unique way. Fortunately, never before have low CDR countries had as much access to high technology computer color graphics animated simulation learning tools and systems that permit accelerated individual learning.

Since the perspicacity and capital that started in the human brain and was converted to capital stock depreciates over time, there is never a final winner in a capitalist system from the beginning to the end of time. Capital gain and loss is a continuous process that continues indefinitely. Leaders at one point in time that stop generating new ideas eventually fall behind new and emerging leaders. The change in position is due in part to depreciation of the prior leader's capital, obsolescence of old capital when compared to new capital from various sources and the acquisition of capital by the new leader. Furthermore, since wealth is infinite, it matters not who the leader is so long as the laggers are improving their wealth. So long as both leader and lagger are creating capital, the world economic pie increases to the benefit of all. This understanding is the inspiration for poor countries to proceed with an optimal plan to raise their CDR, and for rich countries to assist them in raising their CDR (Ridley, 2016, Korovyakovskaya and Ridley, 2017, Ridley, Davis, Korovyakovskaya, 2017).

The only true natural resource is the human mind. What are commonly referred to as natural resources only became resources when the human mind thought of their applications. As one such natural resource is depleted, another is discovered. For example, fossil fuels have already been replaced in part by uranium, which may be replaced by thorium. We will always think of something, if only we think. If we do not think, we will think of nothing.

Nomenclature

Endogenous	Generated from within a system.
Entrepreneurship	The process of starting a business, typically a startup company offering an innovative product, process or service.
Epistemology	The investigation of what distinguishes justified belief from opinion.
Exogenous	Generated from outside a system.
Capitalist	A person who deploys his personal capital so as to maximize his benefit.
Capitalism	Mechanism for the collection and assembly of capital.
Catalysis	The creation of alternative pathways to enable a process.
CDR index	The vector inner product (dot product) of the global constant
	[1.53 0.14 0.23 -1.21] and the country [C D R C'"D'"R].
Company	The instrument of capitalism for the profitable investment of capital.
Democracy	Private work force idea participation and periodic election of public representatives (catalyst for the process of generating G from capital).
Gross domestic product	The monetary value of all the finished goods and services produced within a country's borders in a specific time period .
Natural resource rents	Surplus value of natural resources after all costs and normal returns are accounted for.
Property rights	Property is a legal expression of an economically meaningful consensus by people about assets, how they should be held, used and exchanged.
Rule of Law	Reverse of corruption (protection of shareholder and other property rights) (catalyst for the attraction of capital).
Virtue	Self-governing human property that promotes fairness and justice without the need for central government.

APPENDIX: Negative Income Tax

Sometimes technology will outperform human beings thereby creating structural unemployment. This is a good argument for a government administered welfare program and a minimum wage policy. However, "Welfare programs involve some people spending other people's money for objectives that are determined by still a third group of people. Nobody spends somebody else's money as carefully as he spends his own. Nobody has the same dedication to achieving somebody else's objectives that he displays when he pursues his own. Welfare is antithetical to Adam Smith's (1776) invisible hand." (Friedman, 1912-2006). See also Friedman (1987). As it turns out, welfare is the perfect mechanism for creating rent seekers who use the resources of the government (or company, organization, individual) to obtain economic gain from others without reciprocating any benefits to society through wealth creation. Friedman's simplest plan was simply to replace the entire welfare establishment with an income tax return. Whereas a positive return above a specified amount might be accompanied by a tax payment to the government, a return that is below the specified amount would be accompanied by a tax receipt from the government. Simple but does not require any work to be performed.

The idea of negative income tax was proposed as early as the 1940's. But, the first major experiments were performed in New Jersey and Pennsylvania, USA. Subsequent experiments were conducted in Iowa, North Carolina; Indiana; Washington; Colorado, USA; and Manitoba, Canada. The negative income tax is distinctly different from 'Universal Basic Income,' a flat amount that would be paid to all citizens regardless of what an employer would value them were they to be employed. This would be a type of welfare payment that requires no work to be performed and cannot inject human capital entrepreneurship into the economy via the workplace.

We have established that wealth is a function of CDR, independent of population. This means that the population generates wealth through ideas that are sustaining their standard of living. That is, on average, additional population creates additional wealth. Unlike other proposed negative income taxes, what is suggested here is a negative income tax that involves people working, gaining experience, and thereby enhancing the probability of having ideas that contribute to self-sustaining wealth. Since ideas are the sole source of wealth, it is critical to enable a population's ability to contribute sufficient wealth to maintain its standard of living. A minimum wage that exceeds what employers are willing to pay is certain to raise the unemployment rate and potentially reduce wealth generation. Alternatively, a government wage supplement equal to or greater than the difference between the minimum wage and what employers are willing to pay will end unemployment for all who wish to work. Such an effective negative income tax will facilitate potential wealth generation, while satisfying any justifiable humanitarian cause associated with the welfare portion that it replaces. It is also cheaper for the government since the employer will pay part of the cost associate with any prevailing minimum wage, up to the custom value that the employee is worth to the employer.

Acknowledgements

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