

SINGAPORE AND USA: Can Small and Large Countries alike Apply Collaboration to End Poverty?

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Abstract: Countries that rank highly in capitalism, democracy and rule of law (CDR) are known to have high levels of real per capita gross domestic product (GDP) adjusted for purchasing power parity (GDPppp). Singapore and the United States of America (USA), one small and one large, are high CDR countries with high GDPppp. However, Singapore's GDPppp is significantly higher than that of USA and others, which is remarkable and noteworthy. The purpose of this paper is to determine the reasons for this and to identify any characteristics that can be adopted by poor countries, whether large or small, to improve their own GDPppp. The paper is scientific in that it presents a theory of collaboration and describes the corresponding experiment in school sport collaboration training that Singapore did, thereby making CDR work to create the world's highest GDPppp. The novelty is the revelation that while cooperation is the basis of ordinary economic growth, collaboration is the embryo of extraordinary economic growth.

Keywords: Collaboration; CDR economic model; Gross domestic product; Rule of law; Sports training; Gene Therapy.

Introduction

The capitalism, democracy, rule of law (CDR) economic growth model, and to a much lesser extent, natural resources and geography explain almost all of real per capita gross domestic product (GDP) adjusted for purchasing power parity (GDPppp). Capitalism is the process of organizing capital. It is measured by total market capitalization. Democracy and Rule of law are rank measures. Rule of law attracts capital and protects democracy. Democracy creates additional pathways for the optimal deployment of capital (see Figure 1 in the appendix and Ridley, 2020a, 2023). Capitalism (by Adam Smith, 1776), democracy and rule of law (per Magna Carta) are

not evolutionary, they are revolutionary inventions (see Ridley & Nelson, 2022a, 2022b). Before capitalism, democracy and rule *of* law we had mercantilism and feudalism, tribalism, and rule *by* law. Furthermore, they are not common sense. Like physics and chemistry, they are uncommon sense sciences. Democracy also has a desirable side effect that is favorable to the economies of nations. Throughout the vicissitudes of time, human tribes who gained any technological advantage would attack, raid, enslave, and colonize their neighboring tribes, making them into client states that paid taxes to them. Minor wealth changed hands, but no new wealth was created. As weapons became larger the devastation and destruction of capital became larger, and the economies were lesser for it. This is the nature of man, African, Asian, European, alike. Then there came a time when democracy was invented, tribes became nation states, and the wars stopped. Subsequently, no more did any two democratic nations go to war (Germany under Hitler and Italy under Mussolini were not democracies, and Japan was an absolute monarchy). Instead, there was comity. Wealth was created and the related democratic economies flourished. The purpose of this paper is to identify possible causes for Singapore and US economic success that poor countries can adopt.

C, D and R are policy variables that can be determined by governments, investors, and other decision makers. They account for 80% of GDPppp. Natural resources and geography are not policy variables. They are natural variables that are fixed and cannot be changed. And they contribute only 6% and 4% respectively to GDPppp (Ridley, 2020a, 2023). Natural resources are meaningless without human creativity, imagination and know-how to determine their applications. Geographic disadvantage and scarcity are easily overcome by modern day communication, transportation and trade. In studying the CDR model, Ridley & Nelson (2022a, 2022b) discovered that the genesis of rule *of* law is Magna Carta, and that collaboration is essential for the development of rule of law where no man is above the law. There was a time in England when there were no human rights and having ideas were unlawful. All prior legal codes were rule *by* law where kings such as Ur-Nammu and Hammurabi, and popes were above the law. The positive epigenetic generational psycho sequela (EGPS) depicted in Figure 1 is an assumption that the genetic traits presented are normal and collaboration is functional for the acquisition and operation of rule of law. And formally oppressed countries exhibit negative EGPS traits and little collaboration and rule of law (Ridley & Nelson, 2022a, 2022b). It is remarkable how so few variables can explain such a very complex economic system. Einstein (1934) once said "It can scarcely be denied that the supreme goal of all theory is to make the irreducible basic elements as simple and as

few as possible without having to surrender the adequate representation of a single datum of experience." In other words, "Make everything as simple as possible, but not simpler." This is in keeping with Occam's razor.

Collaboration and cooperation are often confused. As is the role of rule of law and property rights in economic growth and development. Therefore, we establish the following definitions.

Cooperation is a plan and execution thereof by participants, each with their own personal self-interest and economic gain in mind yet yielding unintended mutual benefits.

Collaboration is a plan and execution thereof by participants for their intentional mutual benefit of shared goals, objectives, and rewards.

Rule of Law is the reverse of corruption, the protection of shareholder and other property rights, and a catalyst for the attraction of capital.

Property is the legal expression of an economically meaningful consensus by people about assets, how they should be held, used and exchanged.

Collaboration is unique to human beings. Animals can cooperate but they cannot collaborate (Tomasello, 2001, 2009, 2019, 2005, 2012). Cooperation is consistent with division of labor and trade as advanced by Adam Smith (1776). In that scenario individuals pursue their self-interests. Said cooperation generates ordinary economic growth and development and does increase GDP. But collaboration is consistent with investment in human ideas of imagination and creativity as advanced by Ridley and Nelson (2022a, 2022b). That is invention, innovation, and entrepreneurship. Entrepreneurship is the process of starting a business, typically a startup company offering an innovative product, process or service. Knowledge is about the past and entrepreneurship is about the future. Collaborating individuals contribute to shared goals and expect shared rewards. Successful entrepreneurs create more than they consume. Consider the fact that they can only drive one car at a time, sleep in one bed at a time, eat three meals per day, and so on. Much of their time is spent creating products and methods to make them in greater quantities, raise quality, lower cost so that the public can afford them, purchase them, enjoy them, save labor, and creating more spare time for their customers. The excess living standard thereby created accrues to society. Entrepreneurs do not level men down to some common denominator. Instead, they lift the whole society to the level of their own achievement, while rising further and ever further. Even if the entrepreneur has a profit motive, entrepreneurship is an act of giving (Gilder, 2013). Therefore, the entrepreneur is altruistic, and in this regard, we depart from the Ayn Rand

(1990) assertion that altruism is incompatible with capitalism. Collaboration is necessary for extraordinary economic growth and development. It is the embryo of great human scientific and engineering accomplishment that we find in high CDR countries. High CDR countries are where ideas go to fly. Low CDR countries are where ideas go to die.

The remainder of the paper is organized as follows. The next section is a review of related literature. This is followed by an explanation of wealth and standard of living and their relationship to the CDR economic growth model that was developed recently to explain GDPppp globally. An appendix is provided to illustrate the CDR economic growth model and make comparisons between various countries. Next, there is a brief review of the world economy in general and Singapore in particular. This is followed by a discussion of legal constructs and comparative administrative law between Singapore and the USA. The final section contains some conclusions and suggestions for future research.

Related Literature

Huff (1995) presents the most authoritative in-depth analysis of the Singapore economic development model which is founded on strong government intervention and planning. More specifically, Singapore's unique history as a British colony and its precarious circumstances because Malaysia, with which it planned to share a common market, expelled Singapore from the Malaysia Federation in 1965. Political leaders developed political and economic structures based on this history and formed a strong interventionist government. The model is built on providing services (transportation, communications, financial, and business) and manufactured exports through direct foreign investment from multinational enterprises (MNEs) attracted to Singapore's geographic location on the East-West communications route. Government, namely the People Action Party (PAP), controlled wages and labor. Controlling wages gave way to profit. Jobs created by MNEs in the manufactured export sector ended unemployment, which was high after Singapore split from Malaysia. Full employment allowed the government to force a high level of savings that were used to build infrastructure and invest in education.

Quah (2018) identifies five factors to Singapore's success: (1) political leadership targeting foreign investment from multinational corporations (MNCs); (2) civil servant salaries competitive with the private markets; (3) low corruption; (4) investment in education; and (5) learning from other countries during the infancy stages of Singapore's independence. It was Singapore's government interventionism that distinguished its economic

development policies and catapulted it to the ranks of one of the world's wealthiest nations (Huff, 1995a). Scholars often examined Singapore's rapid economic growth in comparison with other East Asian countries (South Korea, Taiwan, and Hong Kong). Much of the credit is attributed to the guidance of the PAP and the leadership of Singapore's first Prime Minister, Lee Kuan Yew, who served from 1959 to 1990. The PAP and Yew's long tenure offered stability to Singapore's new economy. Others credit a collaborative relationship between the public and private sectors as the key to the Singapore model (Kuruvilla, Erickson, & Hwang, 2002). The consensus among scholars is that Singapore's strong government interventionism played a significant role in its rapid economic growth.

Hamilton-Hart (2000) describes Singapore's form of government as less democratic, with no genuine involvement of special interest groups, low transparency, and questionable practice of the rule of law, despite its high ranking on the rule of law index. The effectiveness of the government is based on both formal as well as informal institutions where private actors work with the government. Ortmann & Thompson (2016) describe Singapore's government as one with authoritarian leanings "carefully balanced with some political openness and transparency while promoting meritocracy." Huff (1995) posits that the form of government is inconsequential, whether an authoritarian or democratic form of government. Instead, it is the government's focus on investment, capital formation, and savings, all critical economic growth factors. Nonetheless, it is less democratic and more authoritative in some respects. Some researchers say this led to its fast growth during the earlier stages of developing its economic model. Yet, it still has some elements of democracy beginning with its 1959 elections. Despite some aspects of authoritarianism, the government has the broad support and trust of indigenous Singaporeans. Singaporeans have strong trust in their government institutions and policies. Huff (1995) also points out very low corruption and no special interest groups. The continuity of government leadership that focused on economic growth resulted in the continuity of its economic policies and led to heightened credibility in the global marketplace. Workers in government bureaucracy are the same as leading members of the business community and the financial sector (Chong, 2010). There is a blurred line between public and private. Political leaders are also leaders within the business community, specifically the financial sector (Hamilton-Hart, 2000). The exact mix of government interventionism and market forces is the point of much debate (Huff, 1995a). Still, other scholars question whether modernization will cause Singapore to move further away from authoritarian rule (Vadaketh & Low, 2014).

Huff (1995), Huff (1995a), and Kuruvilla, Erickson, & Hwang (2002) agree that Singapore's model cannot be replicated in other least-developed countries (LDCs). Other LDCs may not tolerate the significant presence of multinational enterprises headed by foreigners. Non-Singaporeans make up over forty percent (40%) of the workforce (Huff, 1995a). Singapore was able to offer itself as an international services and financial center to respond to the needs of the global economy using foreign investments while creating jobs for indigenous Singaporeans (Huff, 1995).

Kuruvilla, Erickson, & Hwang (2002) posit that the early planners recognized the limitations of its small size, so it had to be open. Singapore somehow struck the right balance between government control and the free private market. This is not easily duplicated. Singapore's economic policies were developed around its small size, with an eye towards exports, and the attraction of foreign investment. However, even other developing countries with the same attributes lack the historical precursors instrumental in creating Singapore's governmental institutions. Further, Singapore's export-centered economic development plan required a transition into higher-value-added and more technologically advanced products that are required by industries directly related to foreign investment (Kuruvilla, Erickson, & Hwang, 2002). With the increased speed of technological advances, soon least developed countries that rely on unskilled labor in manufacturing may have to train their workers by investing in higher skills training. Yet, Kuruvilla, Erickson, & Hwang (2002) propose that some elements of Singapore's economic development plan may be transferable. Strong government planning and integration of education and skills development must be linked to specific governmental economic development policies. Least developed countries would have to engage in rapid acceleration of skills development to meet today's technologically advanced needs essential to all industries today. This would require an acceptance that foreign workers would have to train local workers. The government would have to create incentives for the private sector to invest in and be a part of the skills training process. Whether a particular least developed country has similar governmental institutional structures in place makes this transferability questionable.

Some scholars have explored whether Singapore's model can be replicated in large countries like China, a non-democratic nation that sees Singapore as a good marriage between authoritarianism and good governance and seeks to adopt the PAP's merit-based civil service system for its Chinese Communist Party (Ortmann & Thompson, 2016). But China disregards the impact of British colonial rule woven into the fabric of Singapore's history. Even before Britain took complete control, it established

Singapore as a trading post, and the British East India Company operated a factory there. Singapore's main exports were pepper, gambier, tin, and rubber. These factors uniquely positioned Singapore to become a significant export economy, and the PAP built upon this. Ortmann & Thompson (2016) posit that the legacy of the British colonial era still exists within the PAP and that meritocracy is more ideal than reality since the PAP leaders still promote like-minded people who are primarily upper-class, ethnic-Chinese males from well-connected families who attended the best schools.

Lastly, scholars are beginning to question the sustainability of the Singapore model both politically and economically. The political system sees signs of fraying and may not survive in the long term (Hamilton-Hart, 2000). "Recent elections have threatened the dominance of PAP, with opposition parties gaining more and more strength. This places the PAP in the position of defending its policies and being responsive to its citizenry" (Ortmann & Thompson (2016). Kuruvilla, Erickson, and Hwang (2002) question whether an "innovative environment" exists in Singapore. Singapore does not have many venture capitalists. The government mandates creativity in education, including higher education. The question becomes whether Singapore's universities would allow autonomy, unfettered freedom of expression, and academic freedom characteristic of American universities. It is creativity and innovation in business that sustains the business environment long-term.

Wealth and Standard of Living

The CDR model and index

There is a commonly held view that wealth just exists, and government's role is to distribute it. That such wealth is embedded in natural resources. In reality, the source of wealth is the exogenous human capital of imagination and creativity. A capitalist is a person who seeks to maximize the payment they receive for their own personal effort. Every rational person is a capitalist. This is consistent with the Ayn Rand (1990) objectivist libertarianism epistemology and theory of value. It is also consistent with the Friedman & Friedman (1980) consequentialist libertarianism epistemology. Every individual is accorded maximum freedom to choose so long as he does not interfere with the freedom of others. Capitalism is the process of organizing capital for profitable investment. Human capital is converted into endogenous capital stock of knowledge, machines, recordings, computer programs, etc. These are used to convert raw materials into goods and services. This is measured as real per capita gross domestic product (GDP) adjusted for purchasing power parity (GDPppp). Also known as standard

of living. After consumption, depreciation (of machinery) and obsolescence (of knowledge), this contributes to wealth. Knowledge is finite, ignorance is infinite. Human imagination and creativity are unlimited therefore wealth is unlimited. There may be a fixed number of atoms in the world but the number of ways that they can be combined is incalculable.

Various economic growth models for estimating GDP have been developed over time. The most recent by Ridley (2019, 2020a, 2023) shows that GDP_{ppp} can be calculated from the CDRindex given in Figure 1 and Figure 3 in the Appendix. The coefficients of the C, D and R policy variables are positive and contribute to GDP_{ppp}. However, there is a negative interactive term (-1.21CDR). It measures the degree to which excess democracy can delay decision making and decisions, and over regulation can prevent investment opportunities, unnecessarily, and thereby reduce GDP_{ppp}. Thoreau (1849) said “that government is best which governs least”.

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

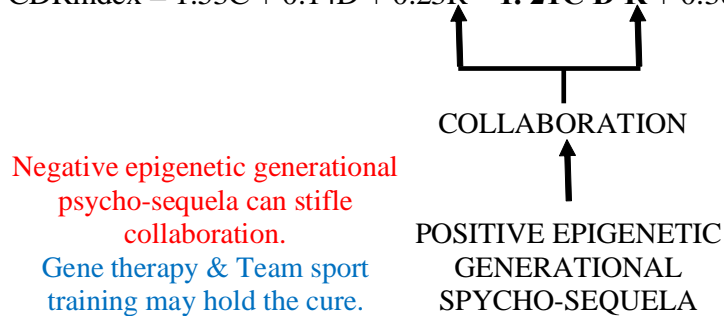


Figure 1: Year 2014 CDR Index and model for 79 countries. This model was re-estimated for years 1995 to 2016 with similar results. For additional comments on the countries included see Ridley (2020a, 2023). R requires collaboration skill which requires positive epigenetic generational sequela. [Click here for animation.](#)

Research Questions

What are the differences between Singapore and the USA that result in a higher year 2014 GDP_{ppp} in Singapore? Is it their systems of constitution, politics, money, taxation, human development, minimum wage, immigration, capital punishment, education? Is there a law that permits GDP to be incentivized by government pay, and USA has no such law? Is the Singapore method of ministerial remuneration a law or is it just a unique management method? Maybe all countries should make such a law. If that is the case, can this be shared with the world, to raise CDR, and thereby GDP_{ppp}, and build middle class countries worldwide.

The World in General

Help from a distance

It is common for poor countries seeking aid to request money and machines. But these are mere analgesics. Money often creates more debt and corruption than anything else. Machinery is subject to depreciation and obsolescence. Lomanski and Teson (2015) note that foreign aid, whether in the form of money or machinery, is ephemeral. They do more harm than good. For the most part, help is better offered from a distance. Instead of tackling this problem directly, it may be possible to create incentives that will raise CDR automatically. What poor countries need is help to raise their CDR index, thereby raising their GDP automatically. We know from Ridley and Nelson (2022a, 2022b) that the process begins with collaboration in pursuit of rule of law. This is distinctively different from cooperation where self-interest is an unsurmountable impediment to rule of law. The absence of rule of law and property rights has left 90% of the world's population in dire poverty. They live on approximately US\$2-3 per day. Savas Dimopoulos said, "The thing that differentiates scientists is purely an artistic ability to discern what is a good idea, what is a beautiful idea, what is worth spending time on, and most importantly, what is a problem that is sufficiently interesting, yet sufficiently difficult, that it hasn't yet been solved, but the time for solving it has come now." If there is such a problem, it is the problem of poverty, and we hope to report a scientific solution through this research.

Collaboration

There is a commonly held belief that IQ is an excellent predictor of economic success. This may be true on an individual level. But Ridley (2020a, 2023) shows that collaboration trumps IQ as a predictor of national standard of living (see also Surowiecki, 2005). When GDP_{PPP} is regressed on IQ and collaboration is controlled for, IQ is statistically insignificant. Collaboration is an innate human property but the skill must be developed. Ridley (2022, 2023) and Ridley & Nelson (2022b) suggested that tests for collaboration, like tests for individual IQ be developed to monitor the progress that might be associated with the attempt at cures that they suggested for negative epigenetic effects. One such test could be the PISA test. PISA 2015 defines collaborative problem-solving competence as "the capacity of an individual to effectively engage in a process whereby two or more agents attempt to solve a problem by sharing the understanding and effort required to come to a solution and pooling their knowledge, skills and efforts to reach that solution." Singapore is the highest scoring country on the 2015 PISA test (OECD, 2015). Singapore deliberately trains its school children in the skill

of collaboration. Children form numerous synaptic connections. Then, they prune the connections down to what matters to them. This type of plasticity is prominent in children prior to complete synaptic pruning. Therefore, their success in the PISA test is not surprising. This early training strategy may also bode well for adult collaboration in Singapore.

Taxation

Singapore is among the low corporate tax rate countries. Its corporate tax rate is 17%. The USA corporate rate is now 21%. But it was higher in prior years. The US corporate tax rate was 52.8% in 1968 and 1969. Immediately prior to year 2018, it was 40%, the second highest in the world. Entire industries and related jobs were being lost to competing countries. Beginning in 2018, the US Tax Cuts and Jobs Act (P.L. 115-97) replaced the graduated corporate tax structure with a flat 21% corporate tax rate. This coincides with the optimal tax rate computation given in Ridley (2022b) and Ridley & Davison (2022). The low Singapore rate, *ceteris paribus*, would help explain why its GDPppp was higher than that of the USA prior to the USA rate reduction to 21%. This optimal tax rate is estimated as 17.5% plus depreciation and obsolescence of 3.5% (Hernández and Mauleón, 2005). One might wonder if Singapore omitted depreciation and obsolescence when choosing 17%. In that case they may need to include it in the future as their infrastructure ages. In passing, we mention that personal income tax rates in Singapore are also relatively low, capping out at 22% (Singapore Tax Table, 2022). There is no personal capital gains income tax on selling securities, properties, and other intangible assets in Singapore. This may result in greater investment. But these items will be taxed if they are constantly bought and sold for profit-making.

Monetary policy

There is a commonly held belief that the fiscal policy of Keynes (1936) is an effective method of national financial management. But Friedman and Friedman (1980) explain that fiscal policy is entirely ineffective. And it can only create inflation. They show that inflation is due to excess money in the economy (too many dollars chasing too few goods) and can only be controlled by controlling the money supply. Ridley (2020a, 2023) shows that when added to the CDR model, government spending has no effect whatsoever on GDPppp, except for a possible small inflationary effect (see also Hayek, 1994 and Friedman, 2002). And this inflation effect is a small tax on the private sector. This non effect of government spending is because all money for government spending must be obtained from taxing the private sector. Government spending does contribute to GDPppp. But that

contribution is exactly offset by the reduction in money that the private sector no longer has available to spend.

Singapore, like the United States, has a monetary authority. The US has the federal reserve, whose board of Governors manipulate the money supply by altering the federal funds rate and discount rate, in an effort to comply with their dual mandate, to wit: low inflation and full employment. The US normally runs a large budget deficit, along with a cumulative federal debt of nearly \$32 trillion dollars. Military spending is a major component (Ahmed, Mahmood & Shadmani, 2022). The Federal Reserve from 2008-2022, monetized this debt by purchasing bonds issued by the US Treasury department, keeping interest rates artificially low. This quantitative easing, as it was called, reached an apex after the Covid-19 pandemic, in an effort to prop up the economy and increase economic activity.

The monetary authority in Singapore, the MAS, does not have the dual mandate that its US counterparts have. Nor does Singapore run large deficits and national debt. Rather than manipulating the money supply, the MAS, which meets twice yearly, focuses on exchange rates, to achieve its goals. Apparently, the basket of currencies used to establish the exchange rate of the Singaporean dollar, is not known to the public. Under previous regimes, the Singaporean dollar was pegged to the British pound and briefly to the US dollar, but this was abandoned many years ago in 1985. The Singaporean approach is a simpler monetary regime and when coupled with an open trade philosophy, enhances stable growth.

The Singapore anomaly

In contrast, in year 2014, Singapore had a GDPppp that was more than 50% higher than that of the USA (see Figure 3 in the Appendix). This was a phenomenal outcome due to high CDR. What is unique about Singapore is that government leaders are remunerated by a bonus system that is based on economic performance. The ministerial salary formula is a function of 1) real median income growth rate of Singaporean citizens; 2) real growth rate of the lowest 20th percentile income of Singaporean citizens; 3) Unemployment rate of Singaporean citizens; and 4) Real GDP growth. The government sector intentionally shares in national economic performance goals and rewards. That is, they collaborate. It is the highest and broadest level of collaboration known for uniting the efforts of the entire nation. Government behavior is the same as in the private sector. This is consistent with management theory that rewards are best related to objectives if high performance outcomes are desired. Krugman (1994) and other studies attribute Singapore's success to capital accumulation and high skilled labor rather than productivity. We attribute Singapore's success to

high CDR in general and very high rule of law in particular (see Ridley, 2020a, 2022b). Rule of law is responsible for attracting capital. Capital in Singapore may be domestic, foreign direct investment or outsourcing to Singapore by other countries.

Although not known for democracy, Singapore's high rule of law protects what democracy they do have and more than makes up for what they do not have. Although their national elections appear to be less than the democratic average for the world, their high level of collaboration is in effect democracy that is practiced at the local levels of government and private sector operations. The net result is high CDR and high GDPppp. Singapore is a tour de force for collaboration and GDPppp. It was lifted out of poverty in just one generation after colonial independence, before being propelled into wealth. Singapore specifically sought advice and adopted methodology from economically prosperous countries. These included England, their former colonial master. And the formerly burgeoning 1960's economy of Jamaica. This policy is unlike that of other former colonial subjects who despise England and reject English methodology outright on the basis that is ill-founded and immoral as it was designed for the purpose of illicit exploitations of innocent subjects. Ironically, for example, Jamaica's succumb to corruption and reversal of fortune from good to bad economy. It is apparent now that other countries should adopt Singapore's level of collaboration and rule of law. Like any other tool or instrument, unregulated capitalism is subject to abuse. We do not recommend the adoption of what appears to be Singapore's benevolent dictatorship despite how well it is working for them. We know from Lord Acton (1834-1902) that 'Power tends to corrupt, and absolute power corrupts absolutely.' It brings into question the sincerity of democracy. And who is to say that future leaders of Singapore with unlimited terms of office will be benevolent or respect the PAP zeitgeist? This policy is fickle to say the least. Term limits appear to be a better policy.

Singapore designs its system of tax so as not to double tax. So, can US law be modified to eliminate double taxation? What would that legislation look like? What is the legislative process?

Legal Constructs and Comparative Law

Singapore vs USA

There are many differences between the Singapore and US governments. Some are obviously of no significance. But some can contribute to a superior GDPppp, even if their effect is indirect. Many cannot be quantified because there are no available data. Nevertheless, we wish to give them due qualitative consideration. Like collaboration, many of these are directly

related to capital, democracy, or rule of law. And CDR are what determine GDPppp. The following are those major differences that are most likely to be consequential for economic outcomes.

Constitution

There are vast differences between the systems of government in Singapore, vis-a-vis the USA. In the US, the constitutional authority is vested equally in three branches: the Executive, the Legislative (House and Senate) and the Judiciary (with the Supreme Court at the apex of the Judiciary). The US also has state and local governments, which have vast powers under the 9th and 10th amendments to the US constitution.

On the other hand, Singapore has a constitution, which only dates to 1965. The governmental system is Westminster style, with a Judiciary, President, and Parliament, with the Prime Minister as the head of Parliament. The President in Singapore is a mostly ministerial position, in contrast with the strong executive powers that the US President wields. The Prime Minister in Singapore, along with the Parliament wield the power there.

In order to do a comparative evaluation of the rule of law, between Singapore and the USA, we must initially determine the origins of law in the former. The laws of Singapore originate in their constitution, which is supreme. Modification of these provisions is limited and, in many cases, requires a referendum of the citizenry, with a 2/3 vote to modify. In other cases, a 2/3 vote of the legislature is required to modify constitutional law. There are several basic rights (akin to the USA Bill of Rights), which are inviolate.

Legislature

The second primary source of law is legislation. In Singapore, not only must the parliament approve laws, but they must also be approved by the Prime Minister and by the President. If the President objects to a law on the basis that it curtails his powers, it is referred to a council of Ministers to resolve the issue. The legislative process appears to be more cooperative than in the USA, as once a Bill is proposed, all parties input (Executive and Legislative branches) is considered, as opposed to the US's President exercising veto power. The next area of rule of law are Subsidiary Laws, which do not require as formal a method of passage. These are laws to implement existing legislation.

Judiciary

The final area of law is Judicial Law. Here we have a major differentiation from the US system. The Judicial branch, as envisaged by the constitution

of the USA, sets up the Judiciary Branch as a referee, interpreting, not making law. In Singapore, there is Judicial made law, and the notion of Stare Decisis (let the decision stand) in Singapore is less restrictive. Although, in most situations, the courts in Singapore follow precedent, it is not mandatory. Despite this important difference from the USA system, there do not appear to be complaints of judicial activism. It appears that policies are only changed incrementally in Singapore and that economic rules favor free market capitalism. Rule of law in Singapore is strong and dates back 200 years to British colonial rule.

Politics

Singapore has a multiparty system, in contrast to the US system which is a two-party system. The PAP party in Singapore has held the Prime Minister position since the party was founded in 1959, by Lee Kwan Yew. Obviously, this means that the party's agenda has been implemented over many decades. It is argued that this has enhanced economic stability, resulting in increased GDP. It has allowed Singapore to deploy its human as well as investment capital in an efficient manner. The government has consistently encouraged research and development, as well as deployment of technological advancements. This, along with enhancing infrastructure, has increased productivity, again enhancing GDP. Also, as noted herein, the educational system, which is among the world's best and promotes collaboration, provides for an effective labor force, again enhancing GDP. The combination of these factors creates a virtuous circle that maximizes GDP.

Trust

In addition to collaboration, Ridley & Nelson (2022b) discuss the importance of trust. There are no data for trust so it cannot be analyzed directly and quantitatively. The happiness index (HI) utilized there includes trust. And, Singapore has a high happiness index. So, one might argue that trust is the reason for Singapore's economic success. One might also take notice of the very favorable geographic position of Singapore. A plausible explanation for high GDPppp, except that Ridley (2020a, 2020b) show that in general, geography contributes only 4% to GDPppp. There can be no doubt that trust is of ultimate importance. However, the mechanism of how trust works to produce a good economy is not obvious. The first description of trust that comes to mind is man's trust in each other. Because of what we know about Asian culture, Singaporeans may trust each other more than do Westerners. However, that proposition implies that North Koreans and Chinese, also, Asian, trust each other, and should have good economies.

But they do not. Their economies are among the worst in the world. This is not to say that trust is not important. Quite to the contrary. It is most important. But it is not trust in one's fellow man that is important. In fact, it may be that trust in one's fellow man is naturally low, Asian and Westerner alike. And it is rule of law in which man must have trust. Rule of law permits one citizen to trust that others will be required to abide by agreements and fulfil contracts (see also Braithwaite (2021), Wallace & Goodman-Delahunty (2021), Johnston (2006), Marmor (2004), Sarsfield (2010), Tyler & Trinkner (2017)). Trust in institutions reduces the need for men to trust each other. Singapore ranks among the very highest in rule of law. That is, the highest trust in the rule of law. Said differently, they have the highest level of deference to the institution of rule of law. However, since the rule of law requires collaboration, collaboration is the beginning point for economic success, not trust. Trust is an essential component of the construct of collaboration. And Singapore is the epitome of collaboration.

Human Development

Singapore scores extremely high on the human development index (HDI). The country is known for an effective health care system, which enhances longevity and productivity. Singapore has a consistently excellent education system, where children all are taught equally, irrespective of socioeconomic status. This leads to collaboration. Ridley, Ngnepieba & de Silva (2021) show how collaborative learning transforms calculus test scores from a multimodal nonnormal distribution to a unimodal normal distribution while raising the scores. There is a strong Singapore governmental-private enterprise relationship, instead of over regulating, encourages entrepreneurship. It also enhances the ability to innovate, as well as to implement innovations at a much faster pace by cutting red tape. This speed generator suppresses the effect of the negative (-1.21CDR) interaction component of the CDR index. That in turn gives rise to a higher GDPppp. Also, the governmental system of Singapore, changes laws incrementally, which allows for predictability and long-term investment. Singapore focuses on human capital through the means outlined, which when combined with collaboration, portends its continuing high score in CDR and HDI.

Minimum wage

Leading up to year 2014, USA had a minimum wage law whereas Singapore had no such wage laws or regulations. Ridley (2020a) explains how minimum wage increases unemployment, suppresses micro intrapreneurship, and promotes dead capital. Unemployable people must accept welfare transfers or resort to crime in order to make a living. Should

they acquire a criminal record and experience incarceration, subsequent employment is even less likely. The US would be better off without the minimum wage law. Job seekers would start at a low wage and in a short time, having gained experience, become worthy of a living wage. Singapore has a comparative advantage by not having a minimum wage for employees (post 2014 a minimum wage was introduced for security jobs and cleaning services). The absence of a minimum wage, contrary to popular belief, encourages workers to maximize their skills and retrain, should they lose their employment, thus maximizing their potential and enhancing productivity.

City-state

The economy of the city-state of Singapore, begins with several apparent impediments to being a robust, high GDP economy. They lack natural resources. They have limited water supplies and must import most of it from Malaysia. Their agricultural sector is relatively small, requiring them to import most of their food. Their immigration system appears to be somewhat restrictive, reducing the labor supply. Being an island makes access by illegal immigrants difficult. Despite these impediments, the economic system, initiated by Raffles 240 years ago, premised on an open port, continues to thrive. The economic system of Singapore, vis-a-vis the US, is much more open. Taxes are extremely low, with very few tariffs (duties) imposed on imports. Significantly, there are no capital gains taxes, allowing businesses and risk takers to allocate capital, both human and monetary, efficiently. Taxes on businesses and individuals are also low, allowing entrepreneurs and innovators to accelerate the deployment of capital.

Immigration

The US immigration is based on the US constitution that requires consideration of immigrants who are persecuted and seek asylum in the US. And the jus soli birthright citizenship of the children of illegal immigrants. The US is judged to be the land of opportunity and the shining house on the hill. This is in addition to US rule of law being a high attraction of human capital. Having two massive borders, makes access by illegal immigrants inviting. Unlike Singapore the US has a huge agriculture sector. The net result is that the US economy is continually absorbing immigrants. On one hand these immigrants provide entry level workers to replace American citizens who have acquired skills that promoted them to higher paying jobs. The new entry level job fulfilment permits the US economy to grow and expand accordingly. On the other hand, it reduces the average

pay, temporarily, until the immigrant becomes more skilled. This could reflect a lower US GDPppp compared to Singapore where immigration is more restrictive.

Capital punishment

Unlike the US, thirty-three offences including murder, drug infraction, terrorism, use of firearms and kidnapping, warrant the death penalty under Singapore law. In the USA drug dealers kill numerous drug consumers as a result of drug usage. Short of death, physical and mental health are severely impaired. The CDR growth model depends on human capital. So, this loss of capital may be a greater cost to the USA than to Singapore.

Education

One of the government-sanctioned programs that distinguish Singapore from the USA is children sports in schools. Whereas physical education (PE) is a common option around the world and in the USA, the government of Singapore sanctions a variety of sports-based programs for education in addition to the normal PE. The National Physical Fitness Award (NAPFA) was introduced in 1982. It is a scheme which requires mandatory participation of all primary and secondary school children. The scheme gives awards for a variety of physical tests for endurance, cardiovascular fitness, and strength. Also included are medium distance runs of 1.6 and 2.4 kilometers for primary and secondary students respectively. The results are reflected in each student's report book. Although gaining an award is not mandatory, students are often pressured to do so. The concept behind the Singapore Sports School is that sporting talent should not be compromised when striving for academic excellence. Our reason for bringing attention to Singapore sports is that it is an example of a mandated policy. As mentioned above by Ridley and Nelson (2022a, 2022b), collaboration is essential for the development of rule of law, and they propose mandatory children school team sports training for collaboration skills training. See Figure 2 for a depiction of how sports training can promote collaboration that facilitates rule of law, that attracts capital and protects democracy, that deploys capital for the generating of GDPppp. Therefore, we argue that although Singapore sport policy, albeit focused on individual sports, should develop collegiality, a preface to collaboration, the benefit would be even greater if the activities were team sports. For example, soccer games cannot be won by even the most stellar individual performances. Only collaboration can triumph. And children will observe this fact for themselves, supplementary to being told this by their teachers.

The educational system, which is the envy of the world, not only enhances literacy and math skills, but fosters collaboration. By having a

highly educated and highly skilled workforce, Singapore has a comparative advantage vis-a-vis other countries.

It is said that if we do not learn our history, we are doomed to repeat it. But as mentioned above, all history teaches us is that wars get larger as weapons get larger. As we learn how to make larger weapons than in previous history, the devastation is greater. It is as if the more history we learn, the more we are doomed to repeat it. It is the nature of man. But the more democracy there is the less war there is. Perhaps it is collaboration training that should be made mandatory and not history lessons.

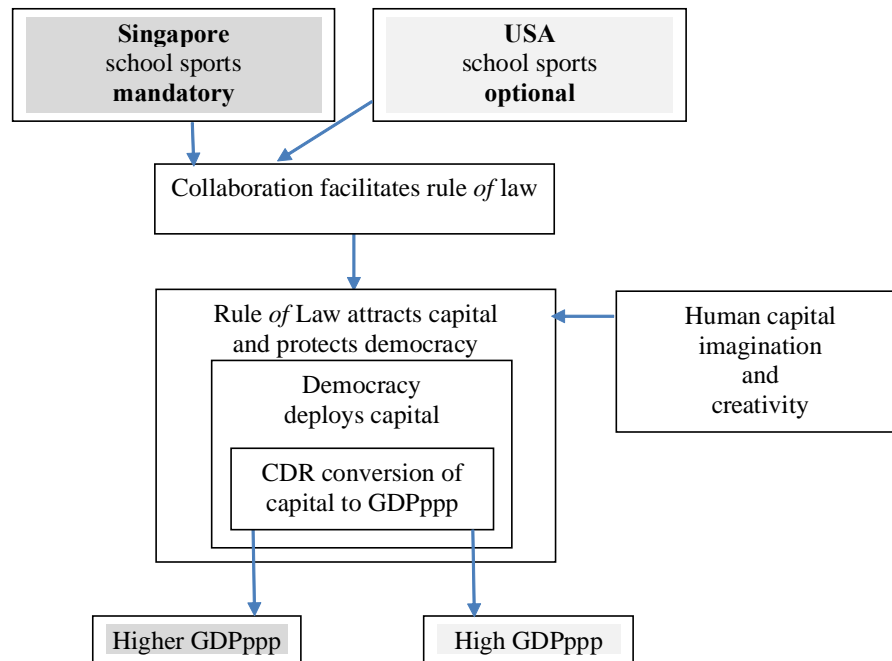


Figure 2: Singapore mandatory and US optional sports education to promote collaboration skills

A summary of key differences between USA and Singapore rankings, reproduced from Hawksford (2016-2018), is given in Table 1. We posit that the twelve categories listed are important indicators of what leads to economic success. Singapore outranks USA in all but one category reported.

Concluding Remarks

Singapore and USA are small and large countries, both with enormous economic success. Examples of other successful small countries are Bermuda

Table 1: Differences in Singapore and USA rankings

<i>Year</i>	<i>Category</i>	<i>Singapore's Rank</i>	<i>Us' Rank</i>	<i>Source</i>
2018	Ease of Doing Business	2	6	World Bank, Ease of Doing Business Report
2017 – 2018	World's Most Competitive Economy	3	2	World Economic Forum, Global Competitiveness Report
2017	World's Best Country for Business	9	12	Forbes Best Countries for Business List
2016	Country Most Open to Trade	1	22	World Economic Forum, Global Enabling Trade Report
2018	World's Freest Economy	2	18	Heritage Foundation's Index of Economic Freedom
2018	City with Best Quality of Living	25	30(San Francisco)	Mercer's Quality of Living Survey
2017	Country with Least Corruption Perception	6	16	Transparency International's Corruption Perceptions Index
2018	World's Most Competitive Economy	3	1	IMD, World Competitiveness Yearbook
2018	Ease of Paying Taxes	7	36	PWC, World Bank's Paying Taxes Survey
2018	World's Most Innovative Economy	5	6	INSEAD Global Innovation Index
2017	World's Most Economically Globalized Country	1	54	KOF Index of Globalization
2017	Global Talent Competitiveness	2	4	INSEAD Global Talent Competitiveness

and Cayman Islands. This suggests that economic success is unrelated to country size or ethnicity. Countries differ in social customs and mores. Nevertheless, all countries should study the policies of Singapore and USA, as well as other high GDPppp countries and form their own policies accordingly. In particular, they should consider Singapore's extraordinary economic success. The reasons for US and Singapore economic successes are high CDR, collaboration, trust in institutions and low taxes. Natural resources and geography are negligible when compared to C, D and R. Natural resources are nonexistent in Singapore. In general, geographic disadvantages are mitigated simply by trading. We attribute the extraordinary Singapore GDPppp, above the US GDPppp, to the two distinguishing elements, lower taxes and higher collaboration. Especially

the manifestation of collaboration in ministerial remuneration. Other differences are attributed to government policy and the law, the application thereof, and matters appertaining thereto.

In particular, Singapore trains its school age children to collaborate. And their winning performance on the PISA test is proof of their success. See also Lim (2016) and Quah (2018) for discussions on the reasons for Singaporean success. Ridley, Korovyakovskaya & Llaugel (2021) and Ridley(2022a) showed that there is a collaboration deficit worldwide. After their independence from England, Singapore sought out and adopted economically successful practices around the world regardless of politics. In general, we recommend that poor countries adopt US and Singapore's policies, paying attention to the fact that US and Singaporean bill of rights, descending from Magna Carta, are inviolate. US Stare Decisis is unique and favorable to economic success. While it is normal to follow precedence in Singapore, it is not mandatory, but change is incremental. Low CDR countries can continue to be impecunious and farblunget or they can pursue those Singaporean education and training policies that develop national collaboration skills which lead to the legal system of rule of law, which protects the political system of democracy, and attracts capital that is maximized by capitalism - democratically. The power of connected human minds is enormous when compared to the smartest individual. Collaboration is the connecting tool. Sine qua non.

Future research may focus on how to accomplish collaboration skills. Especially in populations that were formerly oppressed. Eastern and Western Europeans look alike and have similar genes. But their economies bear no resemblance. North and South Korea, and China and Japan, similarly. There may be negative epigenetic transgenerational effects that cause differences in gene expression and loss of collaboration skills. See Skinner (2014) and Skinner et. al. (2013) for studies on mice, Harlow & Zimmermann (1958) and Harlow, Dodsworth & Harlow (1965) on monkeys and Yehuda (2023) and Yehuda and Lehrner (2018) for human studies. The outcome may be a cure for collaboration skills deficiencies and abilities needed for developing rule of law and property rights in Eastern Europe, North Korea, China and elsewhere. Gene therapy and team sports training may hold the key. Language is a communications tool that facilitates collaboration. Computers are advanced tools for communication and collaboration. Artificial intelligence (AI) is the most promising of all. While it is understood that imagination and creativity are the domain of the human mind, it would be interesting to learn if AI can supplement (augment or enhance) collaboration in poor nations. The goal is to raise CDR and ultimately high GDPppp.

Appendix A

From Ridley (2020) the ordinary least squares (OLS) model is $g_i = \beta_0 + \beta_c C_i + \beta_d D_i + \beta_r R_i + \beta_{cdr} C_i \cdot D_i \cdot R_i + \beta_n N_i + \varepsilon_i$, where i represents the i th country, the coefficients and variables are dimensionless, and the errors are random and normally distributed with zero mean and constant standard deviation. We regress g on C , D , R , and N to obtain the i th country estimated g as follows.

$$\text{Year 2014: } g_i = 1.53C_i + 0.14D_i + 0.23R_i - 1.21C_i \times D_i \times R_i + 0.38N_i$$

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

g	$= (G - \text{lowest } G) / (\text{highest } G - \text{lowest } G)$, G represents GDPppp
C (Capitalism)	$= (\text{per capita capitalization} - \text{lowest per capita capitalization}) / (\text{highest per capita capitalization} - \text{lowest per capita capitalization})$
D (Democracy)	$= (\text{lowest democracy rank} - \text{democracy rank}) / (\text{lowest democracy rank} - \text{highest democracy rank})$
R (Rule of law)	$= (\text{lowest corruption rank} - \text{corruption rank}) / (\text{lowest corruption rank} - \text{highest corruption rank})$
N (Natural resources)	$= (\text{per capita total natural resource rents} - \text{lowest per capita total natural resource rents}) / (\text{highest per capita total natural resource rents} - \text{lowest per capita total natural resource rents})$.

Democracy and corruption are rank ordered, where the highest = 1 and the lowest = the number of countries. These transformations are all one hundred percent reversible: $G = g(\text{highest } G - \text{lowest } G) + \text{lowest } G$, highest $G = \$83,066$ and lowest $G = \$1,112$.

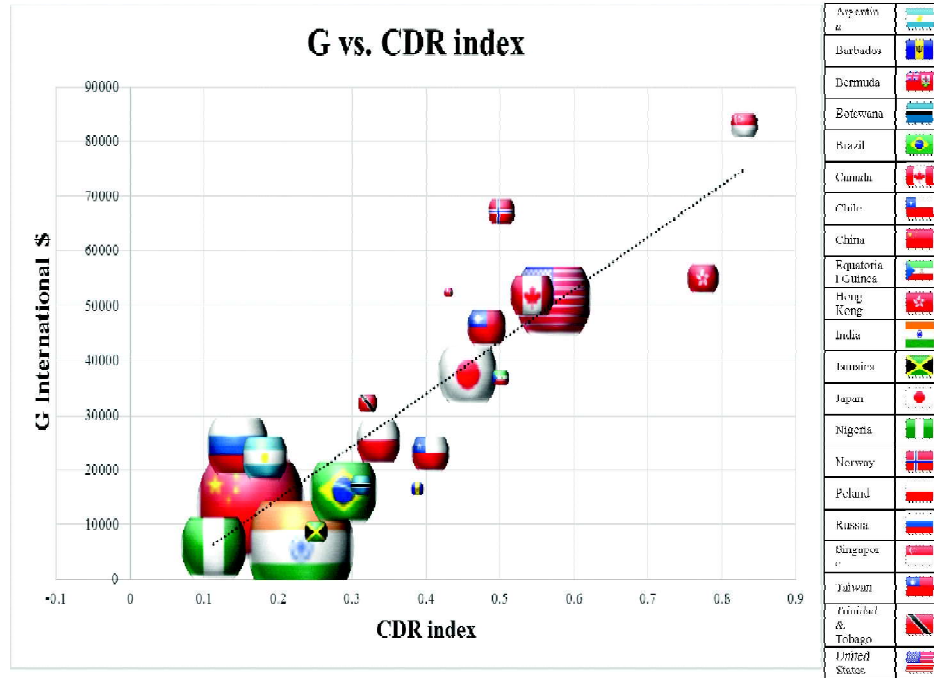


Figure 3: Year 2014 G vs CDR Index for 79 countries (line). Bubble size (21 countries) is the square root of population. This model was re-estimated for years 1995 to 2016 with similar results. For additional comments on the countries listed see Ridley (2020a, 2023). Click on the bubble graph to see an animation.

The CDR model is depicted in the vexillological chart in Figure 3. The CDR model flattens the world and creates a path to widespread and accelerated entrepreneurship.

To correct for biased due to the endogenous capital stock component of capital, a two stage least squares (2SLS) estimate is conducted as follows.

The estimated 1st stage least squares model is

$$\hat{C}_i = 0.04 - 0.07L_i - 0.16D_i + 0.22R_i + 1.11C_i \cdot D_i \cdot R_i - 0.02N_i.$$

where \hat{C} is the exogenous entrepreneurship component of capital and the instrumental variable (IV) is exogenous geographic latitude (L_i).

The estimated 2nd stage least squares unbiased model for estimating g from entrepreneurship capital (\hat{C}_i) is

$$\hat{g}_i = 1.30\hat{C}_i + 0.12D_i + 0.28R_i - 0.98\hat{C}_i \cdot D_i \cdot R_i + 0.39N_i.$$

The contributions to GDPppp (partial correlations) are as follows,

C: 59%, D: 5%, R: 10%, CDR: 3%, N: 6%, L: 4%.

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DR: design of research, writing, calculations, supervision. LL: Monetary policy, legal constructs and comparative law. AN: Related literature.

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