Roundtable Discussion - How Does Technology Influence Developing Countries to Emerge and Experience Economic Growth?

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The purpose of this research paper is to investigate how technology has influenced the economic growth of developing countries and what steps are needed to be implemented in the regions of the world such as Latin America and Sub-Saharan Africa. The paper reflects the arguments and the conclusions brought up during the discussion with a student roundtable answering the general research question; 'Are certain developing countries doomed to remain emerging'? In answering this question, the group identified four factors for economic growth: 1) human resources, 2) natural resources, 3) physical capital and 4) technology. Of the four factors technology was the single most significant factor for economic growth in developing countries, although the others are just as important. The group concluded that countries that lead the world in generating advanced technologies and leveraging their full productive capacity can gain a strategic comparative advantage and become an advanced country. Innovation and entrepreneurship are crucial for long-term economic development

Key words: developing countries, technology, roundtable discussion, globalization, educational initiatives

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Introduction

The Global Economics class at Westcliff University engaged in a Roundtable Discussion to discuss the following question: 'Are certain developing countries doomed to remain emerging'? The purpose behind the roundtable discussion was to have students bring their research to class and discuss this timely question, comparing their ideas and thoughts, making an argument for their case. During the discussion, the group agreed that it seems developing countries may catch up with advanced economies, but it will be slow in the future. The question that evolved from the overall discussion with the group is, 'what is the primary factor that developing countries need in order to catch up with advanced economies'? The class identified many factors, which will be shared in this journal article, but the most dominant factor that stood out is technology.

Based on this finding, that technology is the key factor, this journal article answers the question; 'How does technology influence developing countries to emerge, experience economic prosperity and catch up with advanced economies?' Through the roundtable discussion the group began to answer this question about technology, which led to some significant findings for future developing countries to consider.

Globalization has provided the opportunity for developing countries to expedite their economic growth improving their current performances of their industries and allowing them to be involved in global trade. Although there are many theories about the causes of economic development, the findings are conclusive: Those countries with the most economic freedom have higher rates of economic development than those with less economic freedom (Scott, 1997)' Economic freedom is defined as, a country who has personal choice, voluntary exchange, freedom to compete in markets, and protection of person and property. Institutions and policies are consistent with economic freedom when they allow voluntary exchange and protect individuals and their property (Lawson, 2019).

To support the idea of economic freedom, according to Scott (1997), Government is the economic driver for economic freedom. Scott's (1997) opinion supports that the Government is the primary driver for the following reasons: tariff rates, taxation, government's share of output, inflation (a proxy for monetary policy), limits on foreign investment, banking restrictions, wage and price controls, property rights, general business regulation, and the extent of the black market. The group agreed in the discussion that government policies for developing countries need to be open to new innovative ways to increase their economic growth. Without government involvement to push economic freedom the developing country is doomed from seeing and experiencing prosperity in the future. Since the research is emphasizing government is the primary force to moving a developing country towards economic growth then technology and innovation must be the government's primary focus.

Significance of the Discussion

The roundtable discussion has prompted significant research to consider the question for this paper: 'How does technology influence developing countries to emerge and experience economic growth so they can catch up with advanced economies?'

From the group research and discussion significant global trends helped the group understand the growing shifts in developing countries over the past decade. For example, trends showed the average per capita incomes in developing countries have increased significantly since the early 2000's. Some other significant findings came from the Global and Economic development, at Brookings Institute (2017): 1) There were about 3.2 billion people in the middle class at the end of 2016, 2) the rate of increase of the middle class is approaching its all-time peak with about 140, 3) millions are joining the middle class annually and this number could rise to 170 million in five years, 4) an overwhelming majority of new entrants into the middle class will live in Asia, 5) in 2015, middle-class spending was about $35 trillion (in 2011 PPP terms), 6) the global middle-class market is now showing a slow-growing developed country middle class, and a fast-growing emerging economy middle class, 7) and finally annual growth of all developing

countries over the past decade was 7.6% which was 4.5% higher than the growth in rich countries (Brookings, 2017).

Discussing these trends helped the group realize how the global economy has shifted and the importance of focusing on developing countries. Per capita income is increasing, a new middle class is emerging, and the standard of living is increasing. To meet these new demands productions along with new skills and education is needed, the one factor to address this need is technology.

To better understand the findings from the discussion and the research the group began to identify key terms used throughout the research and discussion, bringing more meaning, and understanding of the general research question.

Key Terms

The key terms discussed and used in the roundtable discussion are: 1) developing country, 2) emerging country, 3) advanced countries, 4) technology, and 5) innovation and entrepreneurship.

Developing Countries

The first key term in the paper is developing countries. According to Agarwal (2017) developing countries have the following characteristics: a) low per capita income, b) high population growth, c) high level of unemployment, d) dependence on the private sector, and 5) primary commodity export dependence. Countries that meet this criterion are Africa, East Asia, South Asia, Western Asia, and Latin America and the Caribbean (UN, 2019).

Emerging Countries

Secondly, the next term is emerging countries. The International Monetary Fund (IMF) stated 'emerging markets are typically countries with low to middle per capita income that have undertaken economic development and reform programs and have begun to 'emerge' as significant players in the global economy' (Rousseau, 2015).

We are therefore left with the following countries that do seem to match all the criteria of the 'market-oriented reforms,' 'low to middle income,' and 'significant players in the world economy': Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Thailand, Turkey, Ukraine, and Vietnam (Rousseau, 2015).

Advanced Countries

Developing or emerging countries are compared to advanced countries. An advanced economy is a country whose economy is more developed than those of less industrialized nations. An advanced economy has an advanced technological infrastructure. We also use the terms developed country, industrialized country, and more economically developed country (MEDC) (Market Business News, 2020).

An advanced economy has a relatively high GDP per capita. GDP per capita equals a country's total GDP divided by its population. 'Per capita' means 'per head.' GDP stands for gross domestic product. Gross domestic product equals everything a country produces, including goods and services, over a specific period.

The GDP per capita of, for example, Switzerland, an advanced economy, is $78,812. The GDP per capita of a developing country, such as Kenya, is $3,500. Advanced economies also fare strongly on the HDI. HDI stands for Human Development Index (Market Business News, 2020).

Technology and Innovation

The factor that stood out where a developing country can compete and emerge and become an advanced country is technology and innovation. Innovation and entrepreneurship are crucial for long-term economic development. Over the years, America's well-being has been furthered by science and technology and we have seen where technology enables innovation and creates economic prosperity.

Innovation economics is an economic doctrine that reformulates the traditional model of economic growth so that knowledge, technology, entrepreneurship, and innovation are positioned at the center of the model rather than seen as independent forces that are largely unaffected by policy.

Innovation economics is based on two fundamental tenets. One is that the central goal of economic policy should be to spur higher productivity and greater innovation. Second, markets relying on price signals alone will not always be as effective as smart public-private partnerships in spurring higher productivity and greater innovation. This is in contrast to the two other conventional economic doctrines, neoclassical economics and Keynesian economics.

Four Factors of Economic Growth

The students began to share, from their research, various factors that contribute to how developing countries can emerge and compete in the global economy. From the discussion the group narrowed it down to four factors that generate economic growth in developing countries. Supporting research from Woodruff (2019) the group made the argument economists generally agree that economic development and growth are influenced by four factors: 1) human resources, 2) physical capital, 3) natural resources, and 4) technology. As stated by Scott (1997) highly developed countries have governments that focus on these four areas. Less-developed countries, even those with high amounts of natural resources, will lag

when they fail to promote technology and improve the skills and education of their work. The following is a summary of the four factors and how they contribute moving developing countries towards economic growth.

The Impact of Human Resources

The skills, education and training of the labor force have a direct effect on the growth of an economy. A skilled, well-trained workforce is more productive and will produce a high-quality output that adds efficiency to an economy. A shortage of skilled labor can be a deterrent to economic growth. An under-utilized, illiterate, and unskilled workforce will become a drag on an economy and may possibly lead to higher unemployment.

Human capital is an important input into the economy. Increases in education levels since the 19th century have been estimated to account for between one-fifth and one-third of economic growth in the U.S (McGivieny & Winthrop, 2016).

It should be noted that yet despite massive increases in schooling around the world, where now more than 9 in 10 children are enrolled in primary school, productivity and growth have been slowing (Giviney & Winthrop, 2016). The key point is that the current educational models are not fostering the skills of young people who need to thrive in a rapidly changing labor market and to make the most of the new digital technology in the workplace. With the fast-changing new technologies, skill gaps have emerged as an important constraint to economies' capacity to absorb and benefit to compete with other countries. This supports the argument why technology is the dominant factor, even though education is a significant factor for developing countries to emerge and compete in a Global Economy.

Investment in Physical Capital

Improvements and increased investment in physical capital (infrastructure), such as roadways, machinery, and factories, will reduce the cost and increase the efficiency of economic output. Factories and equipment that are modern and well maintained are more productive than physical labor (Woodruff, 2019). Based on Woodruff's (2019) argument with physical capital investments countries begin to see higher productivity, which leads to increased output. The overall results are an improvement in labor productivity increases the growth rate of the economy. With investments in public capital estimated rates of return ranging from 15 percent to upwards of 45 percent (Bivens, 2012).

Quantity and Availability of Natural Resources

Another factor that causes developing countries to emerge is the quantity and availability of natural resources. The discovery of more natural resources, such as oil or mineral deposits, will give a boost to the economy by increasing a country's production capacity.

The effectiveness of a county at utilizing and exploiting its natural resources is a function of the skills of the labor force, type of technology and the availability of capital. Skilled and educated workers can use these natural resources to spur the growth of the economy. Natural resources, both renewable and non-renewable, and ecosystem services are a part of the real wealth of nations. They are the natural capital out of which other forms of capital are made. They contribute towards fiscal revenue, income, and poverty reduction (OECD, P.5).

Improvements in Technology

The last factor for causing economic growth in developing countries is the improvements in technology. As the scientific community makes more discoveries, managers find ways to apply these innovations as more sophisticated production techniques. The application of

better technology means the same amount of labor will be more productive, and economic growth will advance at a lower cost.

Countries that recognize the importance of the four factors that affect economic growth will have higher growth rates and improved standards of living for their people. Technological innovation and more education for workers will improve economic output which lead to a better living environment for everyone. Increases in labor productivity are much easier to achieve when investments are made on better equipment that require less physical work from the labor force.

Therefore, the research from the discussion supported the significance of technology being the key factor in developing countries to compete. According to Roser (2013) argued technological innovation increases productivity, which is the key to increased prosperity. Roser (2013) also makes the argument that new innovations links to new increase in productivity and increase in output which leads to increased prosperity. This aligns with roundtable discussion that the average per capita income increases with new technology and innovation. The group realized how important technology is to see developing countries compete in trade in the global economy and how other factors are impacted with technological advancement.

Theoretical Framework

Researchers have found a link between technology innovation and national economic prosperity. For example, a study of 120 nations between 1980 and 2006 estimated that each 10-percentage points increase in broadband penetration adds 1,3 percent to high-income country's gross domestic product and 1.21 percent for low to middle-income nations (Brookings, 2011).

In a 2009 survey Newsweek-Intel Global Innovation Survey interviewed 4,800 adults in the United States, China, United Kingdome, and Germany. Researchers found that two-thirds of

respondents believe innovation will be more important than ever to the U.S. over the next 30 years (Brookings, 2011). Based on this survey the organizational leaders understand that innovation is the key for future prosperity and moving ahead. Technology and innovation in a variety of policy areas should be noted that each tech job supports three jobs in other sectors of the economy. Also, in information technology there are five jobs for each IT position (Brookings, 2011).

The group concluded; the path that developing countries need to take to move forward from a developing country to an advanced country is to focus on improving economic growth. The measurement for growth, which economists uses is GDP per capita, which is essentially a metric for determining a country's economic output per each person living there or the country's standard of living.

Another measurement for economic growth is socio-demographic which can help to reclassify countries. For example, when a country has a higher life expectancy and a lower infant mortality, the greater the chances the country is moving away from being a developing country to an advanced country and competing in the global market.

A country will start seeing higher GDP and productivity to compete in the global market when individuals have access to good healthcare and education. Countries like the USA, Canada, Central European countries who have higher levels of citizen well-being, with access to healthcare and education, have higher economic success than the developing countries who have lower levels. For example, some countries might have high GDP, but low access to education (e.g., Qatar).

There are several sub-groups within developing countries called newly industrialized countries, frontier markets, emerging markets, and least developed countries (O'Sullivan & Sheffrin, 2007). The sub-group of newly industrialized countries such as South Korea, Taiwan, Singapore,

and Hong Kong, starting from 1970, began to focus on rapid technological innovations with developing countries (Wong, 1999). The second sub-group, emerging markets, is a group of developing countries who are in a transitioning phase with focus on gradual integration to the Global Market Place and increasing economic freedom (Kvint, 2009). China, India, and most Latin American countries belong to this group. The third sub-group, frontier markets, are the countries that have experienced a fast-paced economic growth, but their economies are much smaller than ones of emerging markets ones. Thailand, Slovenia, Kazakhstan belong to this group. The fourth sub- group, which are the least-developed countries, demonstrate the lowest parameters of socioeconomic development. Many Sub-Saharan African countries (Niger, Rwanda, Ethiopia, and others) and some Middle Eastern (e.g., Afghanistan) and Asian countries (Cambodia, Nepal, Myanmar) belong to this group (UNCTAD, 2021).

The factor that everyone agreed on is that economic growth and prosperity will come from technology. Technology is the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science, and pure science (Dictionary.com, 2021).

Economic Growth Through Technology

Researchers Ameer and Munir (2016) shared how technology, trade openness, urbanization, economic growth, and environment work well together and work against each other at the same time. However, it should be noted that technological advancement has lowered the cost of transportation and communication. In their current research (Brock and Taylor, 2010; Kang et al., 2016) commented that the technology is a way of bringing the world closer and helps to resolve problems.

It is found that environmental degradation rises with economic growth but fall with on-going technological progress. Technological advancement has lowered the cost of communication

and transportation. They go on to say that technology brings the world closer together and resolves more problems. Advances in technology, telecommunications and transport have created opportunities for a reorganization of global production and distribution system (Industrial development). So, there is a close relationship between technological innovation, infrastructural development, and industrial growth (Hossain, Fan & Sultanuzzaman, 2018: 965).

After identifying the key factors that improve the economies of developing counties an analysis of economies that have succeeded in industrialization and manufacturing and compare them with other developing counties, which failed to succeed despite the opportunities offered by global trade and overall globalization. Among developing counties, Asian countries (China, South Korea, Singapore, Taiwan, India, and others) stand out duy to successful implementation of the structural change in their economies. Africa and Latin America, at the same time, struggle to improve their overall economic performance. Even at the first glance, in becomes obvious that the economies of most promptly developing Asian countries are influenced by the presence of advanced technology.

Multiple economic changes that the world experienced between 2000 and 2010 affected the economic performance of both developed and developing countries. Economists observed an increase in the output per person in the developing countries, it doubled in 10 years (Page, 2016). With the raise of international trade, countries got the access to global supply chains and cheaper transportation and opportunity of specialization. However, not all the countries benefited from global trade equally. Studies show that developed countries disproportionally benefited more from international trade then developing ones (Tarzi, 2016). And within the group the developing counties, there are Asian countries that focused on the opportunities that export opened for them. China and India are leading in these initiatives, with per capita income increases almost twice since 1990 by 2014. Because these 2 countries represent 37 percent of the world population, their development becomes the major influence on global economics (Page, 2016). However, in Sub-Saharan Africa and Latin America the situation is different. These

regions have not demonstrated fasted-paced economic growth, given access to international trade.

Bangladesh is achieving around 5.9% percent growth in GDP from 1994 to 2016. GDP growth of Bangladesh in 2016-17 financial year is 7.24 percent which is over China and below India. The sectors which are playing very important role in achieving this high performance are the manufacturing, services, private consumption, and public investment (World bank 2107). According to the publication of World Bank (2017) the share of the population living under the poverty line fell from 31.5 percent in 2010 to 24.3 percent in 2016-17. Between 2003 and 2016 the Bangladesh economy generated more than 1.15 million net jobs per year and employment growing 2.4 percent annually. In this matter, industrial development is keeping great contribution to reduce the unemployment problem as well as in the poverty alleviation (World Bank, 2017).

Findings from Discussion

The round table discussion identified some significant findings that should be noted about the importance of developing countries who adapt technology to move towards competing in the global economy.

The first significant finding is developing countries comparative advantage in low-skill and low labor cost production is at risk as routine low-skill tasks are increasingly automated. New technologies are demanding higher-level skills, raising the capital intensity of production, elevating the importance of innovation ecosystems, and requiring strong digital infrastructure and readiness for manufacturers to be competitive. Countries that currently process or are investing actively in the skills, capital and infrastructure of the future are the ones that will dominate global manufacturing in the tears ahead.

Secondly, across these changing prerequisites of success, today's global manufacturing hubs in North America, Europe and East Asia lead, and low-income countries in Africa and elsewhere lag, most notably in measures of interne access and digital readiness. Middle-income countries, particularly many emerging Asian economies, have scope to develop comparative advantages in the increasingly technology-led manufacturing with growing domestic supply chains and consumer markets.

Thirdly, during the roundtable discussion the group discussed the impact of technology on Latin America and Africa. Globalization, trade liberalization and technology transfer have empowered India and Africa by boosting structural change and fueling specialization. It has also improved competition among local companies. Modernization, efficiency of manufacturing and innovative technological solutions allowed these counties to become competitive not only in supplying the world with products of sustainable technologies, but also with the products that aim to disrupt industries (Consultancy.In., 2020).

In Latin American and Sub-Saharan African countries, however, import caused some of the firms to enter fierce competition for customers. However, that was just the smaller percent of businesses. All the rest lost this competition and had to exit the market. The workforce, thus, had to shift to other sectors of economy, which happened to be even less industrialized. Such a transition also increased unemployment rates (McMillan & Rodick, 2011).

Fourthly, in the discussed regions, employment processes are often unregulated by any official laws. Such a situation makes the workforce to perform their duties in unfavorable conditions, be underpaid, have no rights in from of despotism of business owners.

Thus, globalization created a setback in the development process of these regions. In Latin America, where 61% of workers are employed with small businesses in non-tradable sector, the shift to technology-focused businesses seems to be not feasible, unless initiated by

governments. (Page, 2016). In Africa, most workers are involved in agricultural activities and informal sector Globalization in these regions shifter the workforce to less productive activities It is obvious that Latin American and Sub-Saharan African countries need to undergo major structural change in their economics before they can follow India's and China's path of development. Research shows that about 60% of the difference in growth of output per worker in Asia versus Latin America and Africa accounts to structural change (McMillan & Rodick, 2011).

Conclusion

As the roundtable discussion concluded the group agreed that countries that lead the world in generating advanced technologies and leveraging the full productive capacity can gain a strategic comparative advantage and become an advanced country. Innovation and entrepreneurship are crucial for long-term economic development. Over the years America's economic well-being has been furthered by science and technology.

To conclude with, technology, supported by quality education and country policy, can drastically change the economic landscape of any country. By introducing technology to multiple sectors of economy, Latin American and Sub-Saharan African countries can potentially boost economic growth. There are multiple obstacles that as of today prevent these regions from emerging. They include lack of industrialization and automatization; political issues, such as dictatorship and corruption; low level of education; focus on agricultural sector of economy. Technology can change this state of things. However, for these regions to shift to highly productive mode, governments need to introduce policies that support such a shift. Moreover, workforce needs to be prepared for working in technological environment. Thus, the educational level of the workforce needs to be increased through the introduction of appropriate educational initiatives.

Developing countries can reap the benefits of new technologies with reduced prices of goods and services to which they are applied. This will also lead to the creation of new products. Consumers benefit from these improvements, regardless wheatear they live in rich or poor countries.

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References

Agarwal, P. (2017). Characteristics of Developing Countries. *Intelligent Economist, Economic Theory & News*. Retrieved from https://www.intelligenteconomist.com/characteristics-of-developing-economies/.

Bivens, J. (2012, 8 April). The Next 'New Thing' for Powering Economic Growth. *Economies Policy Institute*. Retrieved from https://www.epi.org/publication/bp338-public-investments/.

Cambridge English Dictionary (4th ed.).2021. Definition of Developing Country. Retrieved from https://dictionary.cambridge.org/us/dictionary/english/developing-country.

Consultancy. In. (2020, March 17). India ties with China as second most disruptive tech market. *Consultancy. In.* Retrieved from https://www.consultancy.in/news/2885/india-ties-with-china-as-second-most-disruptive-tech-market.

Dictionary.com. 2021. *Definition of Technology.* Retrieved from https://www.dictionary.com/browse/technology.

Hossain, I., Fan, H., and Sultanuzzaman. (2018). Technological Innovation, Infrastructure and Industrial Growth in Bangladesh: Empirical Evidence from ARDL and Granger Causality Approach. *Asian Economic and Financial Review 8(7)*: 964-985.

Kvint, V. (2009). *The global emerging market: Strategic management and economics*. New York: Routledge.

Lawson, R.L. (2016). Economic Freedom. *The Library of Economics and Freedom*. Retrieved from https://www.econlib.org/library/Enc/EconomicFreedom.html.

Majeski, C. (2020, 1 November). *Developed economies vs. non developed economies and criteria*. Retrieved from https://www.investopedia.com/terms/d/developed-economy.asp.

McGivney, E & and Winthrop, R. (2016). *Education's Impact on Economic Growth and Productivity.* URL: https://www.brookings.edu/wp-content/uploads/2017/12/educations-impact-on-productivity.pdf

McMillan, M., & Rodrik, D. (2011). Globalization, structural change, and productivity growth. *Making Globalization Socially Sustainable:* 49-84. doi:10.30875/b10cb347-en

O'Sullivan, A., & Sheffrin, S. M. (2007). *Economics: Principles in action*. New Jersey: Pearson Prentice Hall.

Page, J. (2016, October 5). Are certain countries doomed to remain emerging?.*Brookings.com.* Retrieved from https://www.brookings.edu/research/are-certain-countries-doomed-to-remain-emerging/

Scott, B. R. (1997, May-June). How Do Economies Grow? *Harvard Business Review*. Retrieved from https://hbr.org/1997/05/how-do-economies-grow.

Rosseau, R. (2015, 9 April). What is Meant by Emerging Countries? *Diplomatic Courier.* Retrieved from https://www.diplomaticourier.com/posts/what-is-meant-by-emerging-countries.

Tarzi, S. (2016). The Third World and Relative Gains from Global Trade: An Empirical Comparative Analysis of Developed Versus Developing Countries. *Journal of Global South Studies:* 11-48. Retrieved from http://web.a.ebscohost.com.proxylib.csueastbay.edu/ehost/detail/detail?vid=0&sid=a1302cea-d712-4007-aebc-3331622388c9%40sdc-v-sessmgr02&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl - AN=119605859&db=a9h

UNCTAD. (2021*). UN list of Least Developed Countries*. Retrieved from https://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx

UNCTAD. (2021). *The World´S 50 Least Developed Countries at a glance*. Retrieved from https://unctad.org/en/pages/PressReleaseArchive.aspx?ReferenceDocId=5681

Wong, P. (1999). National Innovation Systems for Rapid Technological Catch-up: An analytical framework and a comparative analysis of Korea, Taiwan, and Singapore. DRUID Summer *Conference on National Innovation Systems, Industrial Dynamics, and Innovation Policy*. Retrieved from http://web.a.ebscohost.com.proxylib.csueastbay.edu/ehost/detail/detail?vid=0&sid=a1302cea-d712-4007-aebc-3331622388c9%40sdc-v-sessmgr02&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=119605859&db=a9h