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COMMENTARY

China's Belt and Road Initiative: The rationale and likely impacts of the new structural economics perspective

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Abstract
China, a rising global power, proposed the Belt and Road Initiative (BRI) in 2013 as a development cooperation framework to fulfill its responsibility for assisting other developing countries. The initiative, based on China's experiences and strength, focuses on infrastructure and is enthusiastically received by both developing countries and multilateral development institutions as infrastructure is the bottleneck for growth in most developing countries. Using a new structural economics perspective, this commentary discusses China's rationale for proposing the BRI and analyzes the unprecedented opportunities that the initiative offers for partner countries to achieve their industrialization and modernization.
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INTRODUCTION

Before its transition from a socialist planned economy to a market economy, China was a poor, inward-oriented country with a per-capita GDP of US $156 in 1978, less than one-third of the average of US $495 for countries in Sub-Saharan Africa. At that time, 84% of its population lived below the international poverty line of US $1.25 a day. Over the past 43 years after 1978, it achieved an average annual growth rate of 9.2% in GDP and an average annual growth rate of 14.1% in the value of export and import. With those remarkable growth rates, China's GDP, measured in market exchange rate, overtook Japan in 2010, becoming the world's second largest economy, and China's export value surpassed Germany in the same year, becoming the world's largest exporter. China overtook the US in total value of import and export in 2013 and total economic size, measured in purchasing power parity, in 2014, making the country the world's largest trading nation and economy. China lifted all of the population out of extreme poverty in 2020, 10 years ahead of other nations in achieving the UN's Sustainable Development Goals (SDG) of eliminating extreme poverty.[1] In 2021, China's per-capita GDP reached US $12,551, about to cross the high-income country's threshold of US $12,695.

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When that happens, the share of global population living in high-income countries will increase from 16 to 34%, a historical landmark in human history. Currently, China is the largest trading partner for more than 120 countries and the second largest trading partner for another 70 and more countries. China's achievements since the reform and opening in 1978 is unprecedented in the world economic history. Against this backdrop, I would like to discuss in this commentary the rationale for China's proposal of the Belt and Roald Initiative (BRI), its popularity, and the BRI's likely impact on global development from the perspective of new structural economics.[2]

CHINA'S RATIONALE FOR PROPOSING THE BRI

After the Second World War, various multilateral development institutions, including the World Bank, the International Monetary Fund, and various regional development banks, were set up for the purpose of helping the economic reconstruction from the war to eliminate poverty and to narrow the income gap between developing and developed countries, which were all considered essential goals for social and political stability and peace in the world. Developed countries also set up their own bilateral development institutions, such as the US's Agency for International Development, UK's Department for International Development, and France's French Development Agency to carry out their own countries' overseas development agenda and to coordinate their projects with those of multilateral development institutions. China, as an emerging global power, needs to take the same responsibility as other developed countries for assisting other developing countries' growth. There are two main reasons for China to propose the BRI as a new global development cooperation initiative.

Firstly, it is expected in the global community that China needs to share a responsibility for global development commeasurable to its weight in the world economy. In 2009, President Hu Jintao of China reached an agreement with President Obama at the G20 Summit to increase China's contribution to the funding and voting powers in the World Bank and International Monetary Fund. However, the United States Congress balked at the agreement, frustrating China's intention to increase its role in the existing multilateral development institutions.

Secondly, and more importantly, since the 1960s, over US $4.6 trillion, measured in constant 2007 dollars, in gross Official Development Assistance has been offered to developing countries, including both bilateral and multilateral aid (Lin & Wang, 2017). Despite this generous funding support, the results have been disappointing. So far, only two low-income economies South Korea and Taiwan, China have successfully moved up to high-income economies since World War II. Mainland China is likely to be the third around 2025. Among the 101 middle-income economies in 1960, only 13 were able to overcome the middle-income trap and become high-income economies by 2008 (Agenor et al., 2012). Most developing countries have been trapped in poverty or middle-income status and the development assistance with the combination of money, advice, and conditions from rich nations fails to achieve its intended goal for supporting a sustainable development in developing countries (Easterly, 2007). If China's assistance follows the same approach as that adopted by the existing global development institutions, the results are not expected to be different.

Modern economic development is a process of continuous structural transformation including the upgrade of industries from traditional agriculture to manufacturing and further to service so as to raise productivity and income (Kuznets, 1966). In the process, both infrastructure and institutions require improvements according to the needs of industries so as to make the application of specific technology feasible and to reduce the transaction costs of organizing the production and market exchange (Lin, 2011). A developing country has the potential to grow faster than developed countries due to the advantages of backwardness (Gerschenkron, 1962). If development assistance is used to help removing the bottlenecks of structural transformation in the developing countries, the recipient countries should be able to tap into the potential of advantages of backwardness, eliminate poverty, and catch up to developed countries. If the development assistance is not used to remove the bottlenecks of development in the developing countries, even assistance with the best intentions will be ineffective.

What is the main bottleneck for structural transformation in developing countries? According to the new structural economics, any developing country can grow dynamically (1) if the enterprises in a country develop their industries according to the comparative advantages determined by the country's endowment structure so their factor costs of production will be competitive in domestic and

international markets, and (2) if the state plays a facilitating role in helping its enterprises overcome the bottlenecks in hard and soft infrastructure so as to reduce the transaction costs in their business so that their total costs, including factor costs and transaction costs, will be low and competitive in domestic and international markets. According to this perspective, no matter the stage or condition of development, a country must have comparative advantages in certain industries. The failure of development in a country is most likely caused by the bottlenecks of soft and hard infrastructure, so the country's comparative advantages remain in the latent state and its enterprises fail to be competitive in the domestic and international markets. Infrastructure bottlenecks are observable for any one traveling in the developing countries and the benefits of infrastructure investment are particularly apparent when examining the Chinese development experience. During its transition towards a market economy between 1978 and 2020, China expanded its railroad network from 48,600 to 146,300 km, highway network from 890,200 to 5,198,100 km, and expressway network from 100 km in 1988 to 161,000 km in 2020. Roberts, Deichmann, Fingleton, and Shi (2010) show that aggregate Chinese real income was approximately 6% lower than it would have been in 2007 if the expressway network had not been built from 4800 km in 1998 to 41,000 km in 2005. Most development assistance from the multilateral and bilateral development institutions was used for humanitarian purposes, such as health and education, and improvement of governance, such as transparency, law, democracy, and business environment, in the recipient countries. Those projects fall largely into the category of improving the soft infrastructure. The hard infrastructure bottleneck remains the major obstacle for development in the developing countries.

There are huge needs for infrastructure investment. According to estimates of the Asian Development Bank, from 2016 to 2030, developing Asia requires infrastructure investment of US $26 trillion as the infrastructure gap averages 2.4% of the projected GDP for the 5-year period from 2016 to 2020. Estimates by the African Development Bank (AfDB) suggest that the continent's infrastructure needs amount to $130–$170 billion a year, with a financing gap in the range of $67.6–$107.5 billion a year. The Inter-America Development Bank calculates an infrastructure gap of $150 billion per year in Latin America and the Caribbean. If the development assistance is used for removing the hard infrastructure bottlenecks, the recipient countries should be able to grow dynamically, as suggested by the Chinese motto: "for a country to get rich, build roads first".

With China's own experience and the commitment for global development, President Xi Jinping proposed the "Silk Road Economic Belt Initiative" during a visit to Kazakhstan in August 2013. In October of the same year, he proposed the "21st Century Maritime Silk Road Initiative" in Indonesia when attending an ASEAN meeting. Both initiatives form the backbone of BRI. The BRI intends to establish a new global development cooperation framework using infrastructure investment as a vehicle for "policy communication, road connectivity, unimpeded trade, currency circulation, and friendship building" to achieve "a community of common interest, destiny, and responsibility". Along with BRI, China proposed to set up the Asian Infrastructure Investment Bank (AIIB) in 2013 as a new multilateral development institution with a mandate to provide funding for infrastructure projects in Asia and beyond. With the evolving new challenges and opportunities since its conception in 2013, a number of new initiatives have been proposed with new endeavors being brought in and incorporated, including health, green, digital, and clean on top of the initial focus on infrastructure connectivity.

THE POPULARITY OF THE BRI

The BRI has been warmly received globally since its inception in 2013. By January 2022, 147 countries and 32 international organizations have signed cooperation agreements with China. Meanwhile, AIIB has 57 founding countries from five continents, including major developed countries (except for the US, Japan, and Canada), and most countries in Asia and Europe. AIIB's membership has increased to 104 countries, the largest next only to the World Bank among all multilateral development institutions. There are three reasons for BRI's popularity.

Firstly, China has comparative advantages in the execution of infrastructure projects obtained from its large amount of infrastructure investments in recent decades. China produced more than half of the cement, steel, and other construction materials globally each year. Chinese civil engineering enterprises are among the most competitive in the world. China is credible in promoting and giving

assistance to infrastructure projects in other countries.

Secondly, China has high savings, around 45% of GDP annually, and foreign exchange reserves of more than US $3 trillion. So China has ample funds for contributing to infrastructure projects in BRI partner countries. As indicated, the infrastructure projects are welcome by developing countries with infrastructure bottlenecks.

Thirdly, China has an advantage in assisting structural transformation in BRI participation countries. The dynamic development of labor-intensive industries after the reform and opening-up in 1978 has made China the world's factory and the largest exporter. With constantly rising wages and fast accumulation of capital, causing the change of comparative advantages in China, these industries have to be relocated to other developing countries with a lower wage level than China's. Most countries along the routes of Belt and Road are middle- or low-income countries, therefore, ideal destinations for the relocation of China's labor-intensive industries. BRI's infrastructure projects will facilitate these countries to capture the window of opportunity from China's relocation of labor-intensive industries. Experience since World War II shows that a developing country that seizes the window of opportunity arising from the international relocation of labor-intensive industries will grow dynamically for 20 or more years, enabling it to reduce poverty and move up to be a middle-income or even high-income country. In the 1960s, when Japan started to transfer its labor-intensive industries overseas, its manufacturing industry employed 9.7 million people; in the 1980s, when the Four Asian Tigers went through the same stage, the manufacturing industry in South Korea employed 2.3 million people, in Taiwan 1.5 million people, in Hong Kong less than 1 million people, and in Singapore 0.5 million people. By contrast, China employs 125 million in manufacturing industry with 85 million in labor-intensive industry in 2010, which means ample opportunities for all the developing BRI partner countries to achieve industrialization and modernization simultaneously (Lin, 2012).[3]

THE LIKELY IMPACT OF BRI ON GLOBAL DEVELOPMENT[4]

Modern firms' operation relies crucially on infrastructure. Lack of infrastructure not only makes firms less competitive but also causes them to be unable to start many promising businesses.[5] This is most apparent in Sub-Saharan Africa, where per-capita electricity consumption averages only 124 kilowatt-hours a year,[6] hardly enough to power one light bulb per person for 6 h a day (Foster & Briceño-Garmendia, 2010). Since electricity is scarce, it is also costly. According to surveys undertaken for World Bank's Investment Climate Assessments in 2000-2004, firms in Benin, Burkina Faso, Gambia, Madagascar, Mozambique, Niger, and Senegal spend more than 10% of their total costs on energy, whereas the cost of energy for firms in China is only 3% of total costs. For the median Tanzanian firms, losses from power failure alone amounted to 10% of their sales while losses for the median Chinese firm were only 1% (Eifert, Gelb, & Ramachandran, 2005). Furthermore, as a result of poor road and port facilities, many people in Sub-Saharan Africa have no access to domestic and global markets (World Bank, 2009). Many countries in Sub-Saharan Africa (SSA) are land-locked. About two-thirds of their population live in rural areas with the lowest road density in the world. Not surprisingly, transport costs in SSA are high, representing about 16% of indirect costs for their firms (Iarossi, 2009).

Infrastructure investments should have a high priority for developing countries. As new structural economics elaborates, modern economic development is a process of structural transformation, featuring continuous technological innovation, industrial upgrading, and improvement in hard and soft infrastructure. At the pre-modern stage of development, a country often has more than 85% of its population living in rural areas and engaging in agriculture. At this agrarian stage, the production is mostly rain-fed and for farmers' own consumption. When the structure shifts to modern manufacturing, electricity becomes essential for production and producers will mostly mass-produce for broad markets rather than for their own use. As the market range expands, roads and ports are needed for producers to sell their goods to domestic and international markets (Lin, 2011). Especially, the Internet and digital technology make it possible for small firms in remote villages to produce for the global market and workers in a developing country to perform back-office jobs for companies in developed countries if appropriate telecommunication infrastructure is available. In addition, with climate change and increasingly frequent natural disasters, adequate infrastructure is needed more than ever to support sustainable

development by enhancing countries' adaptation and mitigation capacity for natural shocks.

Infrastructure investment has a large positive impact on supporting growth in developing countries. Estimates by Calderón and Servén (2010) show that annual growth among developing countries increased by 1.6% on average in 2001-2005 relative to that in 1991-1995 as a result of infrastructure improvements. This effect, estimated to be 2.7% per year, was most significant in South Asia. If low-income countries in SSA were to have the same level of infrastructure as Indonesia, the growth rate of West African low-income countries would increase 1.7% per year (Calderon & Servén, 2015). If African countries would invest to reduce the infrastructure gap between their level and the average level in Pakistan or India, Central African low-income countries would gain an additional 2.2 percentage points in annual growth and East and West African countries 1.6 percentage points in annual growth. Similarly, if Latin American countries were to reach the average infrastructure level in non-LAC middle-income countries such as Turkey, Latin America would have approximately a 2-percentage-points increase in growth per year (Calderon & Servén, 2015).

Infrastructure deficits in developing countries not only curtail development but also affect the livelihoods of millions of people. In Sub-Saharan Africa, 46% of people lacked access to electricity in 2019 (Blankenship & Golubski, 2021) and only a third of African rural households had access to an all-weather roads in 2006 (International Road Federation, 2010). Infrastructure shortfalls also influence health and education outcomes (Agenor & Moreno-Dodson, 2006). In Morocco, the building of all-weather roads increased school attendance by girls from 28 to 68% during the period 1985–1995. Road improvements also improved accessibility to butane gas for cooking and heating in rural areas, which generated important welfare gains for women. And road infrastructure influenced health indicators, for example, by doubling the number of visits to hospitals and health centers (World Bank, 1996). Other studies have demonstrated that improved sanitation and water supply can substantially reduce diarrheal morbidity, which causes the death of 1.8 million people every year (WHO, 2004). Therefore, infrastructure investments hold the key to realize many SDGs.

Advanced economies also gain from infrastructure investments in developing countries. Building infrastructure projects such as power stations or ports in developing countries requires capital goods, which are 70% sourced from high-income countries. Studies have also demonstrated that infrastructure investment increases trade in both developing and advanced countries. Lin (2013) used WITS/Comtrade data to show that a US $1 increase in investment in developing countries is accompanied by a 50% increase in imports in those countries, and a US $0.35 increase in exports from high-income countries. It is estimated that the entire infrastructure deficit – the gap between projected available resources and estimated financing needs – in the developing world exceeds US $500 billion annually. Based on these estimates, Lin (2013) calculated that overcoming the infrastructure gap would correspond to an increase in demand for capital goods imports on the order of US $250 billion, of which about US $175 billion would be sourced from high-income countries. This corresponds to approximately 7% of total capital goods exports from high-income countries in 2010.

In short, increasing infrastructure investment in developing countries proposed by BRI could support a virtuous, self-reinforcing cycle, and lift growth and well-being in both developing countries and developed countries. According to an assessment by the World Bank (2019), the BRI transport projects could reduce travel times along the economic corridors by 12%, increase trade between 2.7 and 9.7%, increase income by up to 3.4%, and lift 7.6 million people from extreme poverty in the participating countries if the projects are completed and the participating countries adopt needed reforms to increase transparency, expand trade, improve debt sustainability and mitigate environmental, social, and corruption risks. The Digital Silk Road, launched by China together with Egypt, Laos, Saudi Arabia, Serbia, Thailand, Turkey, and UAE in 2017 to harness the opportunities brought by the digital era, is likely to have an impact on reducing transaction costs and expanding market reach and job opportunities, similar to the road connectivity. To implement this initiative, China and 22 partner countries have jointly built up the platform "Silk Road E-commerce". In 2019, the total amount of cross-border e-commerce imports and exports between China and the participating countries of the digital Silk Road platform increased by 87.9% year-on-year (Advisory Council of Belt and Road Forum, 2021). Similar contributions to the realization of other related goals of SDGs can be expected from the Health Silk Road, Green Silk Road, and Clean Silk Road.

CONCLUSION

The response to China's BRI has been enthusiastic by most countries in the world. The initiative goes in line with China's responsibility as an emerging global power and is likely to bring unprecedented opportunities for the partner countries to achieve their goal of industrialization and modernization.

The BRI is a Chinese initiative that is primarily based on bilateral relations because the projects in the initiative need to be accepted by partner countries. Some of those projects may have to be agreed on with many countries. For example, the China–Europe railroad from Chongqing, China, to Duisburg, Germany, passes through many countries. Certainly all countries along the route need to reach an agreement. If BRI projects are well designed and implemented, they will have good economical returns. Without this initiative, many infrastructure projects may never be constructed or take a century to be realized. With this new initiative, a faster infrastructure development in many partner countries can be expected, just like the railway from Chongqing to Duisburg that was inaugurated in 2011.

The BRI is not yet a decade old and is thus still in its early formation stage. More research is needed to understand how BRI will further evolve, how to finance and implement its ambitious projects in a green and clean way in countries with different legal environments, and what opportunities it will generate for local and international business. Overall, the bilateral and multilateral development cooperation of BRI is likely to contribute to faster growth in the developing countries, expanding business opportunities for enterprises and jobs and income for people in its partner countries and the world.

NOTES

[1]The United Nations adopted the Sustainable Development Goals in 2015, which consist of 17 goals to be achieved by all its 193 member countries by 2030. Elimination of poverty is first among the 17 goals.

[2]The new structural economics proposes the use of neoclassical approach to study the determinants and impacts of economic structure and its evolution in the process of a country's economic development. It argues that an economy's production (industrial and technological) structure, infrastructure and superstructure are all endogenous to the economy's endowment structure, which is given at any specific time and changeable over time; the best way to develop an economy is to evolve the economy's production structure according to its comparative advantages, determined by the economy's endowment structure, to improve the infrastructure and superstructure according to the needs of its production structure; and an efficient market and a facilitating state are two fundamental institutions for the structural transformation to proceed smoothly (Lin, 2011).

[3]The number in manufacturing dropped to 121 million and labor-intensive industries around 80 million in 2018 according to China's 4th economic survey in 2018.

[4]This section draws on Lin (2013).

[5]Reinikka and Svensson (1999) find from Uganda's data that unreliable provision of electricity is a significant deterrent to investment.

[6]Excluding South Africa.

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