Assessing the Impact of the Belt and Road Initiative

Zem Wang[1*]
[1] *Research School of Economics, Australian National University*

1 Introduction

The Belt and Road Initiative (BRI), also known as One Belt One Road (OBOR), is China's most ambitious global development program under the administration of President Xi Jinping. Featured by its vast coverage of countries all around the world — involving more than 60 countries, about two-thirds of the world population and 40 percent of the global economy — and its ambitious infrastructure projects, the BRI is "endeavoring to build one of the biggest and most expensive super-projects the world has ever seen." (Kugelman, 2019)

China portraits BRI as "a bid to enhance regional connectivity and embrace a brighter future". However, the proposal draws as much suspicion and critiques, if not more than, praise and support. Some critique the initiative as ill-defined and impractically ambitious. Some warn of the unmanageable debt burden the project would impose and accuse China of "debt-trap diplomacy". Some question China's motivation that is not to promote economic development but to expand its geopolitical influences (Rolland, 2019).

The purpose of this paper is not to add more rhetoric to the debate, but to provide evidence as quantitatively as possible to answer the questions: does BRI benefit the host countries or only benefit China? Is it a win-win strategy or a win-lose strategy? How much debt burden does China impose on them?

The evidence I find are: (1) Chinese investments have a slightly positive impact on host countries' GDP growth; (2) Chinese investments do increase local employment; (3) some BRI countries do face debt stress, but Chinese loan is not the sole reason. Finally, I argue that, the reason why the Belt and Road Initiative draws so many disputes is that China's approach to development is fundamentally different from the official development assistance (ODA) approach adopted by the West.

*E-mail: zem.wang@anu.edu.au

The paper is organized as follows. Section 2 briefly discusses some background and motivation of BRI. Section 3 provides quantitative evidence on the impact of BRI on host countries. Section 4 analyzes the debt problem associated with Chinese lending. Section 5 provides discussion on China's approach to international aid and concludes the paper.

2 Belt and Road: What is it? What is it for?

The Belt and Road Initiative was initially proposed by Chinese President Xi Jinping during his visits to Kazakhstan and Indonesia in late 2013. President Xi called for new models for regional cooperation and development by collaboratively building the so-called "Silk Road Economic Belt" and the "21st Century Maritime Silk Road". The initiative was officially termed as the "Belt and Road" or "One Belt One Road".

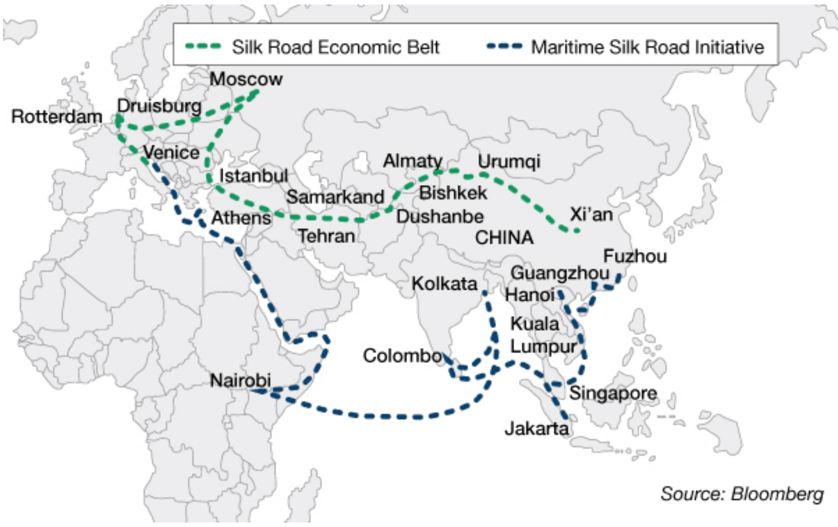

FIGURE 1

The "belt" and the "road"

The "Belt" refers to an overland route analogous to the ancient Silk Road that connects West China, Central Asia, West Asia, and Europe. The "Road" is a maritime route through the South China Sea, South Pacific Ocean, Indian Ocean, and onward to Africa and Europe (Figure 1).

The salient feature of the Belt and Road Initiative, which distinguishes it from other global cooperative programs is its emphasis on *infrastructure*. The initiative plans to build a vast web of infrastructure, including cross-broader roads and railroads, oil and gas pipelines, telecom and electricity links, seaports, and more. From 2013 to 2018, China has invested more than 90 billion dollars in BRI countries, growing at 11.9% annually. The amount of investment will, as China says, total up to 4 trillion dollars in the future. (Xinhua, 2019)

The motivation behind this ambitious initiative is at the center of the debate in related literature. Some observers believe that it is China's geostrategic move to expand its global influence and "enhance international political legitimacy as a global power and leader of the Developing World" (Scobell et al., 2018). It is also believed that there are national security concerns that China seeks to secure its resource and energy supply from West Asia and Africa by enhancing relations with the countries to its west and plan ahead for the risk of US strategic encirclement from the Pacific Ocean.

Economic motivations are also important driving forces behind the proposal. While China's economic growth has slowed down in recent years, BRI is considered one of China's efforts to sustain its economic growth (Huang, 2016). By helping BRI countries building their infrastructure, China is exporting its excess capacity of steel, coal, construction, and building materials. This helps China to sustain its old industries while it might take decades transitioning to innovation-led new industries.

The BRI also serves as a development strategy for China's vast western inland (Yu, 2016). China's vast western inland, which occupies almost two-thirds of the national land, has long been suffering from economic backwardness due to its landlocked disadvantage. Revitalizing the ancient Silk Road enables Western China to participate in global trade, which might possibly turn it into a landlocked trade hub of Eurasia.

China has been one of the favorable destinations for global labor outsourcing for decades. However, as its domestic labor cost steadily rising, China seeks to outsource some of its industries to countries with even cheaper labor. This motivates China to help some countries improving their infrastructure and pave the way for such industrial relocation. The BRI political dialogue also helps to reduce the policy risk and uncertainty for Chinese firms to invest in those countries. (Du and Zhang, 2018)

China believes by helping other developing countries improving their economic capability, it opens new markets for China's export goods, and helps to sustain China's export-oriented manufacturing industries. Since the launching of the initiative, China's trade volume with BRI countries reached 1.3 trillion dollars in 2018, compounded 16.4% annual growth. The increasing trade volume with BRI countries effectively offset the declining trade volume with developed countries (Xinhua, 2019).

Although there is rich literature analyzing BRI from China's perspective, it is at least equally important to assess the program from other countries' perspective. Does the massive investment in infrastructure promote their economic growth, or is it a trillion-dollar blunder? Does it "mutually beneficial" as proclaimed by China, or only China wins?

There are drastically different answers to these questions. The proponents, such as Rwanda's President Paul Kagame, extolled the strategy as "deeply transformational" (Maru, 2019). While the opponents describe the strategy as a plot. For example, Brahma Chellaney, a professor at the New Delhi's Center for Policy Research, argued that it is China's strategy to "ensnare strategically-located developing countries in a debt trap that leaves them vulnerable to China's influence." (Rolland, 2019)

To clear out the myths, the following sections draw on quantitative evidence to address these questions.

3 Chinese Investment: Win-Win or Win-Lose?

Despite plenty of rhetoric and debates around BRI, there is scarce empirical evidence to assess the impact of the program. de Soyres et al. (2020) analyze the overall effects of BRI on trade, welfare, and gross domestic product. However, their analysis is based on a general equilibrium model, not on empirical data. Du and Zhang (2018) find that BRI significantly promotes Chinese overseas direct investment. Yu et al. (2020) show that the BRI expands China's export potential to the countries along the Belt and Road. But none of them analyze the impact of the Chinese investment to the host countries. There is a rich literature studying the impact of Chinese investment in Africa. For example, Donou-Adonsou and Lim (2018) find that Chinese FDI improves national income of African countries. Meanwhile, they find the effect of Chinese FDI is more pronounced than US and German FDI. Megbowon et al. (2019) investigate whether China helps Africa to industrialize and conclude China's FDI is not enough to boost industrialization in Africa. However, to the best of my knowledge, there is no study yet to assess the impact of Chinese investment based on all BRI countries.

I conduct empirical analysis in this section to fill in this gap and provide an overall assessment of Chinese investment to the developing world. I estimate a similar specification used by Alfaro et al. (2010) studying the impact of FDI on economic growth. My study distinguishes from other similar studies in two aspects: (1) I include all BRI countries (as of 2020, 138 countries have signed the MoU – effectively including all developing countries in Europe, Asia and Africa); (2) instead of using the FDI data, I use the China Global Investment Tracker (CGIT) database by American Enterprise Institute, so that I can distinguish different types of investment. The panel data covers period from 2005 to 2019.

Table 1 presents the effects of different kinds of Chinese investment on host countries' GDP growth. The results suggest that Chinese investment has a slightly positive effect on GDP growth;

TABLE 1

The impact of Chinese investment on economic growth

	GDP per capita growth rate			
	(1)	(2)	(3)	(4)
Total investment (% GDP)	0.060			
	(0.021)			
- Lag (1 year)	0.051**			
	(0.022)			
- Lag (2 year)	0.041*			
	(0.021)			
Construction contracts (% GDP)		-0.010		
		(0.032)		
- Lag (1 year)		0.043		
		(0.033)		
- Lag (2 year)		0.037		
		(0.032)		
Investment excl. construction (% GDP)			0.021	
			(0.031)	
- Lag (1 year)			0.072**	
			(0.034)	
- Lag (2 year)			0.051	
			(0.032)	
Greenfield investment (% GDP)				0.080**
				(0.032)
- Lag (1 year)				0.078**
				(0.035)
- Lag (2 year)				0.039
				(0.033)
Controls	Yes	Yes	Yes	Yes
Country, Year Fixed Effect	Yes	Yes	Yes	Yes
Observations	827	827	827	827
F-statistics	5.670***	5.194***	5.507***	5.961***

Note: Controls include: log GDP per capita, trade (% of GDP), private credit (% of GDP) as a proxy for financial development, natural resource rents (% of GDP) as a proxy for natural resource endowment, secondary school enrollment (% gross) as a proxy for human capital, World Governance Index as a measure for government quality, and ODA (% of GDP) as a proxy for international aid. Chinese investment data are from American Enterprise Institute, converted as percentage of local GDP. All other data are from the World Bank. *p<0.1; **p<0.05; ***p<0.01

TABLE 2

The impact of Chinese investment on other economic metrics

	Manufacturing (% GDP) (1)	Labor participation rate (2)	External debt (% GDP) (3)	Governance Index (4)
Total investment (% GDP)	-0.012	0.019*	0.048	-0.108
	(0.009)	(0.010)	(0.071)	(0.139)
- Lag (1 year)	-0.007	0.020*	0.167**	-0.127
	(0.010)	(0.011)	(0.075)	(0.147)
- Lag (2 year)	0.003	0.009	0.137*	-0.212
	(0.010)	(0.010)	(0.074)	(0.144)
Controls	Yes	Yes	Yes	Yes
Country, Year Fixed Effect	Yes	Yes	Yes	Yes
Observations	795	811	777	828
F-statistics	3.403***	7.677***	11.931***	5.648***

Note: Control variables are the same as Table 1. Governance index is the sum of the rankings of voice and accountability, rule of law, regulatory quality, political stability, government effectiveness, and control of corruption from the World Bank. *p<0.1; **p<0.05; ***p<0.01

and growth may lag the investment one or two years. Overall, 1 percentage point increase in Chinese investment to local GDP boosts the GDP growth rate in the following year by 0.05 percentage point. Decomposing total investment into construction and non-construction investment, the result shows, quite surprisingly, it is the non-construction investment, not the construction projects, that contribute to the GDP growth. Specifically, greenfield investment has more considerable positive effect on GDP growth.

Table 2 reports the effects of Chinese investment on other economic variables. The results suggest no effect of Chinese investment on industrialization (proxied by manufacturing value-added to GDP). However, there is a significant positive effect on local employment (labor participation rate). This evidence speaks against the critique that Chinese investment contributes no local employment because they only hire Chinese workers. There is another critique accusing China's intransparent practice erodes host countries' governance quality. This is indeed a negative correlation between the governance quality and Chinese investment (Column 4), but the coefficients are not precisely estimated. As expected, Chinese investment significantly increases the external debt of the host countries (Column 3). The severity of the debt problem will be left to the following section for in-depth analysis.

4 Debt Controversy: Loan to Own?

One of the most serious concerns regarding BRI is that the Chinese loans to finance the projects would burden some countries with unsustainable amount of debt. A study by the Center of Global Development (CGD) identifies 23 countries of a high risk of "debt distress" related to BRI financing (Hurley et al., 2019). A report from Brookings Institution also warns Africa of possible sovereign debt crisis: "24 countries have surpassed the 55 percent debt-to-GDP ratio". The report draws parallel between Africa's debt situation today and the debt crisis in the 1980s (Onyekwena and Ekeruche, 2019).

The controversy over China's international lending practice intensified in 2017 when China took over the Hambantota Port after Sri Lanka failed to replay the loans. The widespread concern of "loan-to-own" or "debt-trap diplomacy" calls China's ambitious initiative into question (Chellaney, 2017) . In November 2018, US Vice-President Mike Pence denounced China's lending practice in a speech and proposed an alternative of American financing: "We don't drown our partners in a sea of debt. We don't coerce or compromise your independence. We do not offer a constricting belt or a one-way road." (Yong, 2018)

To disentangle the confoundings whether China burdens its BRI members, two questions need to be answered: (1) how severe the debt problem is in the BRI-targeting regions such as Africa and South Asia? (2) how much does China contribute to the debt problem?

Figure 2 depicts some important metrics of debt burden for Latin America, South Asia, and Sub-Saharan Africa (excluding high-income countries). There is a rise in both external debt stock and debt service ratio in these regions after 2010, as the global commodity prices slump and the natural resource rents fall. The situation bears some resemblances to the emerging market debt crisis in the 1980s, in which the countries in Latin America and Africa that borrowed heavily during the oil boom therebefore faced declining export income and surging international interest rate thereafter. Although the debt service ratio today is still below the historical highest level, it is indeed approaching a risky range. However, two differences between today and the 1980s need to be pointed out: (1) there seems no extravagant borrowing during the commodity boom during 2000-2007; (2) the global interest rate today is much lower than the 1980s. Given the easing monetary environment, the debt problem, if it does turn out to be a problem, would be much more manageable than the 1980s.

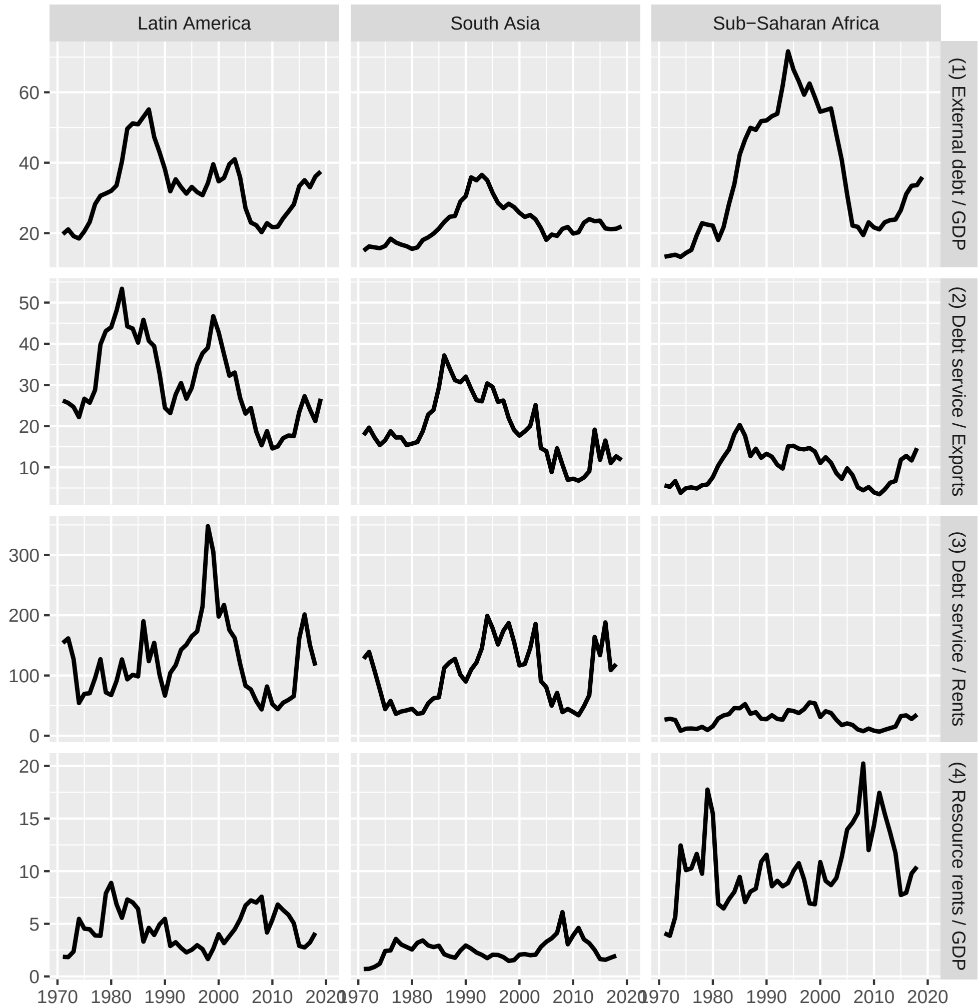

FIGURE 2

External debt for Latin America, South Asia, Sub-Saharan Africa. Souce: World Bank

How much of the debt is owed to China? According to the estimate by *Jubilee Debt Campaign*, a charity that advocates canceling debt for poor countries, China owns an average of 20% (upper-bound estimation) of the external debt to African governments (Figure 3). Private sectors and multilateral institutions (including World Bank and IMF) are also dominant lenders to the continent. Based on the loan data published by China Africa Research Institute (CARI) at John Hopkins University, I calculated the accumulated loan from China (2000-2018) to some African countries as percentage of GDP and compared it to their total external debt (Figure 4). Chinese loans dominate for Angola, Djibouti, Guinea and Zambia. But for most countries, Chinese loans only account for a small fraction of the total external debt.

Bräutigam and Gallagher (2014) document some of the details of Chinese loans to Africa (Table 3). The loans are usually secured by natural resources. The interest rates China charges range from 0 to 6 percent – some of them are concessional, some are not. Most of the loans are in

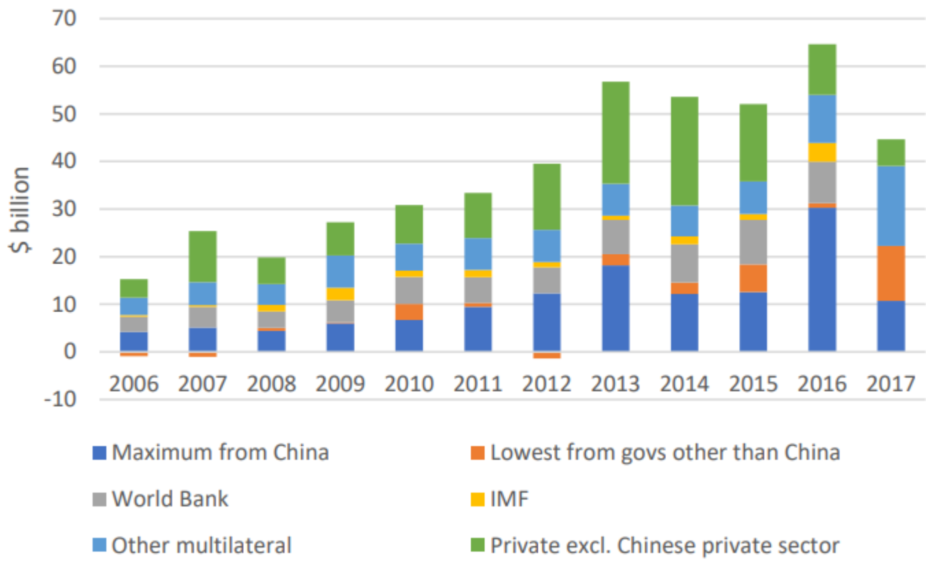

FIGURE 3

Disbursements of external debt to African governments. Souce: Jubilee Debt Campaign

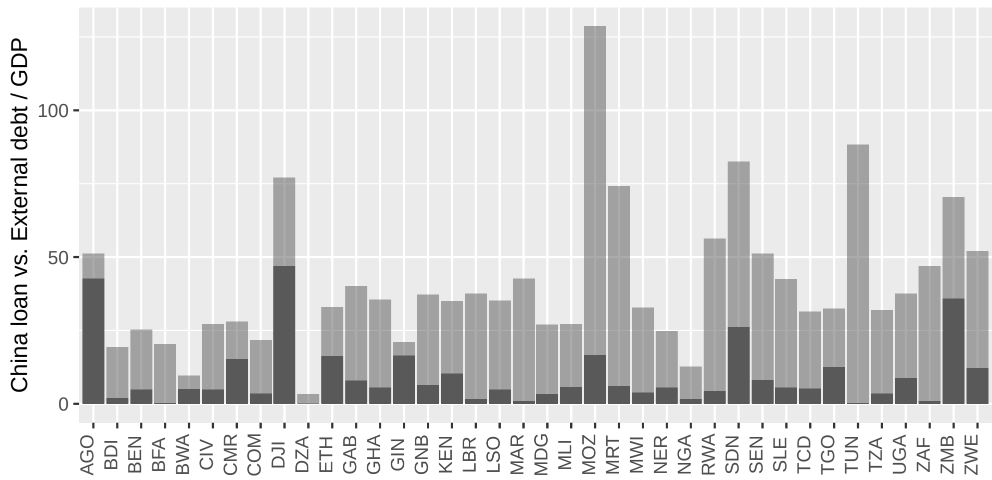

FIGURE 4

China loan versus total external debt. Source: China Africa Research Institute (CARI)

long term (longer than 10 years). According to Cheng (2018), Chinese loans, on average, are in much longer terms (20 years) than other international loans (10 years), because infrastructure requires long-term funding.

Combining the evidence above, it is plausible to conclude some developing countries might indeed face stress in external debt repayment. However, the accusation against China of "loan to own" or "debt-trap diplomacy" is mostly exaggerated. Though we cannot rule out the possibility that China has strategic motivation in some cases, but in general, the accusation is not backed by facts. First, for the vast majority of BRI countries, Chinese loans are simply too small in

TABLE 3

China's resource-backed finance in Africa

Year	Country	Lender	USD (m)	Resource-Secured	Interest Rate	Term
2007	Angola	Eximbank	2000	Oil	LIBOR + 1.25	15
2007	Angola	Eximbank	500	Oil	LIBOR + 1.5	17
2009	Angola	Eximbank	6000	Oil	LIBOR + 2.2	28.5
2008	DRC	Shareholders	1070	Copper profits	0	
2008	DRC	Eximbank	3000	Copper profits	LIBOR + 1	
2009	DRC	Eximbank	2130	Copper profits	6.1	
2005	Guinea	Eximbank	2000	Oil	LIBOR + 2	5
2008	Ethiopia	Eximbank	500	Export-backed	LIBOR + 2-3	13
2007	Ghana	Eximbank	270	Cocoa; offtake	2	20
2011	Ghana	CDB	1500	Oil	LIBOR + 2.85	10
2011	Ghana	CDB	1500	Oil	LIBOR + 2.95	15
2002	Nigeria	Eximbank	115	Oil	6	12
2002	Nigeria	Eximbank	115	Oil	6	12
2011	Zimbabwe	Eximbank	98	Diamond profits	2	20

Source: Bräutigam and Gallagher (2014)

amount to drown them into debt crisis. Second, China likes to make long-term loans. It would be irrational to think China would "loan to own" after waiting for two or more decades.

5 Discussion: Development Strategy with Chinese Characteristics

Contrary to the Western critique of China as "neocolonialism" (Anderlini, 2018), most BRI countries do not view themselves as the victim of China's exploitation. Maru (2019) writes sensationally: "China is already winning the hearts and the minds of Africans". Africans see China as an alternative to Western development aid: "China has four major attractions: unconditional soft loans and access to capital; quick delivery of services and cheap goods; funding of peacekeeping; and an alternative development model. " (*ibid.*)

Since the establishment of the Development Assistance Committee (DAC) in 1961, the West has a long history of aiding developing countries. From the "Big Push" theory in the 1960s, to the integrated rural development programs in the 1970s, to, later, the structural adjustment and Washington Consensus in the 1990s, wealthy countries have devoted over one trillion dollars to the developing world. The assistance has progressed in poverty reduction, disease control, education, sanitation, etc. However, there is still no clue to boost real economic development.

Bräutigam (2011), based on numerous statistical evidence and personal experience, debunked the myths of China's "malicious" practice in Africa, and proposed China's engagement as "a different kind of aid". Chinese assistance to developing countries, differed from the official development aid (ODA) practiced by the West, is based on China's own development experience and the lessons they learned from the Japanese who assisted China's development in the 1980s.

Specifically, China's approach differs from ODA in the following aspects:

- Experts' prescription vs request-based assistance: Unlike ODA, which is prescribed by Western expert team and imposes on the host countries, Chinese assistance are based on host countries' own requests. China only plays the role to assess the project feasibility.
- Program assistance vs project assistance: ODA is carried out in entire programs that are consulted through experts and guided by grand theories, while Chinese assistance is much simpler in practice – project by project, and guided by mutual interest.
- Soft infrastructure vs hard infrastructure: After the debt crisis in the 1980s, the focus of international aid switched from hard infrastructure investment to "soft infrastructure" building – liberalized market and democratic institutions. However, Chinese assistance stays with traditional infrastructure and manufacturing.
- Aid vs trade: Perhaps most importantly, China views their assistance or investment not as one-way "aid", but as mutual-beneficial trade. China believes that the host countries benefit from improved infrastructure and imported Chinese goods, while China benefits from cheap access to labor and natural resources.

The reason why there are so many misunderstandings surrounding China's B&R proposal, especially from the West, is that it does not fall into any category of Western-style international trade or aid schemes. The BRI does not have a fully rule-based operation; the Chinese investment or assistance does not follow a uniform procedure like standardized ODA; besides, the BRI deals with each country are bilaterally contracted and are not fully transparent to the rest of the world.

However, as a country that has lifted 800 million people out of poverty, China has its unique experience in development. As a developing country itself, China is in a better position to understand the need of other developing countries. As a global manufacturing powerhouse, China is more capable of exporting its industrialization experience to those lagging behind. Therefore, the Belt and Road Initiative may not be a bad alternative to global development.[1]

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