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RESEARCH ARTICLE

The political economy of China's Belt and Road Initiative

Gregory W. Caskey

The Citadel, The Military College of South Carolina, Charleston, SC, USA
Email: gcaskey@citadel.edu

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Abstract

The Belt and Road Initiative (BRI) is the Chinese government's effort to promote global development and interconnectivity through a vast network of transportation, energy, and telecommunications infrastructure projects. Involving over 140 countries, Beijing has clearly stated aims and methods for the Belt and Road, including that BRI contributes to economic development in participant countries and that all projects be carried out according to 'five cooperation priorities' representing win–win partnerships between China and BRI-participant countries. Taking China's stated aims as given, this paper argues that Beijing faces information and institutional constraints that prevent the successful planning, implementation, and operation of BRI. By employing ill-suited means to achieve their stated ends, Beijing undermines their own ability to carry out BRI successfully. This paper explores the mechanisms at work on the ground within BRI, utilizing case studies of BRI's flagship projects and BRI contract data as evidence for the theory.

Keywords: Belt and Road Initiative; China; development planning and policy; state-owned enterprises; official lending and foreign aid

JEL classification: F15; O10

Introduction

Niamey, the capital city of Niger, is divided by the Niger River. For many decades, the only bridge that crossed the Niger River was the John F. Kennedy Bridge. In 2006, the Chinese Ministry of Commerce provided funding (equivalent to US$73 million in 2014) to build an additional bridge over the Niger River, roughly 2 miles downstream from the Kennedy Bridge. The newly constructed four-lane bridge was completed in around 2010, providing a suitable alternative to the highly congested Kennedy Bridge (Dreher *et al.*, 2017). All was well – except, very few local people actually used the bridge upon completion. Due to local mistrust and resentment of China, many local people regarded the bridge with suspicion. Despite it being a much newer and larger bridge, its use remains much lower than the Kennedy Bridge, and the new bridge provides very little in terms of value-added for local Nigeriens, despite its great cost.[1]

With the onset of the Belt and Road Initiative (BRI), Beijing's signature policy programme to promote economic development and connectivity in upwards of 140 countries through massive infrastructure investment projects, a relevant question emerges: Should we expect BRI projects be value-adding for local populaces, or will they be more like the new bridge in Niamey? According to state policy documents regarding BRI, Beijing aims to '…realize diversified, independent, balanced and sustainable development in these countries' by '[promoting] the connectivity of Asian, European and African continents and their adjacent seas' through BRI (State Council of the PRC, 2015). To this end, Beijing conceives of BRI as the creation a '21st Century Silk Road', governed by a spirit of

[1]The Nigeriens referred to the bridge utilizing a term in Hausa meaning, 'Chinese $#%@'. For this anecdote, I am indebted to a former student who lived in Niamey, Niger for 3 years, during which the construction of the second bridge crossing the Niger River occurred.

'win–win cooperation'. Along these lines, the Chinese government has outlined five 'cooperation priorities' as benchmarks for how the successful implementation and operation of BRI should function between China and participant countries (State Council of the PRC, 2015).

Although BRI projects have the potential to be welfare enhancing, a different alternative is at least as likely. This paper argues that fundamental information and institutional constraints reside at the core of BRI's planning and implementation process that will prevent Beijing from achieving success according to their own stated goals. A successful BRI entails project implementation consistent with Beijing's 'cooperation priorities', including enhanced policy coordination, facilities connectivity, unimpeded trade, financial integration, and people-to-people bonds (State Council of the PRC, 2015). Taking Beijing's stated aims and methods as given, this paper argues that the successful planning and implementation of BRI rests upon information and coordination mechanisms that BRI planners and decision makers cannot access given the institutional context BRI decision making takes place in, namely, the political process. By employing ill-suited means to achieve their stated ends, Beijing undermines their own ability to carry out BRI successfully.[2]

Within the market context, prices and profit and loss coordinate economic activity and the disparate, often conflicting plans of people (Hayek, 1945). These signals are guides that assist market actors, including consumers and entrepreneurs, to accomplish their desired ends. Embedded in these signals are information and incentives that provide sharp and continuous feedback as to whether resources are being allocated to their highest-valued uses among given alternatives (Coyne, 2013). In this domain, the means are present for rapid adaptability on the part of economic actors, as the information contained in the relative prices of final consumer goods as dwell as the various factors of production, 'represent knowledge about a continually and rapidly changing structure of economic relationships' (Lavoie, 1985a: 82).

In contrast, BRI projects are chosen through political processes. BRI projects are bid upon primarily by Chinese state-owned enterprises (SOEs) and host-country agencies, funded by Chinese state and policy banks, and vetted by state officials in Beijing. At each step of the allocation and resource disbursement process, the relevant actors are non-market facing, and as such, lack the ability to assess whether their chosen projects are a productive usage of scarce resources that are value-adding for local populaces in BRI-participant countries. Instead, BRI resources are allocated through central planning and the political process. Actors within this institutional context must rely on other means – such as output targets and politically salient narratives – as opposed to market price signals as the basis of guiding, adapting, and evaluating their decisions (Coyne, 2013: 64–66). Fundamentally, BRI decision makers face information and institutional constraints that prevent the successful implementation of BRI, as the construction of infrastructure projects (i.e. solving a technological problem) is distinct from those processes that serve as means to promote economic growth (i.e. a coordination problem).

Given these constraints, it is unlikely that BRI projects can feasibly achieve outcomes in accordance with its coordination-producing goals, including 'win–win cooperation' and 'strengthening all-around exchanges'. These outcomes are reflective of market processes, not political processes. Because the resource allocation and implementation processes of BRI take place outside the market nexus, the foundations for broad scale economic coordination, which is reliant upon the tacit knowledge of millions of dispersed individuals pursuing their manifold plans (Hayek, 1973), are undercut.

This article builds on existing work related to the constraints facing planners and implementers of state-led development initiatives (Coyne and Moberg, 2015; Moberg, 2015). A long tradition of theoretical and applied work discusses these constraints with respect to comprehensive economic planning (Hayek, 1945; Ikeda, 1997; Lavoie, 1985b; Mises, 1920), the development of law (Benson,

[2]This is not to deny any potential benefits associated with BRI projects. For examples of BRI successes, see Lu *et al.* (2021), who argue that BRI has strengthened political relations between China and participant countries by strengthening economic ties. Similarly, Wang *et al.* (2020) argue that BRI has improved economic growth in participant countries due to the positive spillovers arising from the network effects of transportation infrastructure projects. Kong *et al.* (2021) argue that BRI has a significant, positive impact on the quality of economic growth in a number of prefecture-level cities in China.

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1989; Cai *et al*., 2020; Hayek, 1973), foreign intervention (Coyne, 2008, 2013; Coyne and Hall, 2018), as well as institutions and culture (Boettke, 1993, 2001; Boettke *et al*., 2008). Hirschman's (1967) 'trait-making' *versus* 'trait-taking' framework is a related one with respect to the success prospects of state-led development projects. Throughout this work, focus is placed upon the constraints facing actors engaging in economic calculation devoid of market prices, with specific emphasis upon the ill-chosen means to achieve their stated ends.

Second, this article contributes to the literature on the political economy of China's overseas lending activities and development policies. In recent years a large empirical literature has been developed on the nature and extent of China's development lending (Gelpern *et al*., 2021; Horn *et al*., 2021; Malik *et al*., 2021), as well as the effects of China's overseas activities upon the political and economic institutions of recipient countries (Brazys and Dukalskis, 2019; Dreher *et al*., 2019; Hurley *et al*., 2019). A different strand of the Belt and Road literature suggests that the BRI is as much about domestic considerations within China as it is about China's overseas objectives. For instance, Ye (2019) argues that BRI is a mobilization campaign by the Chinese Communist Party (CCP) leadership to deal with domestic challenges of fragmentation, whereas Jones and Zeng (2019) argue that BRI is primarily driven by competing domestic interests, especially SOEs, and that their struggle for power and resources has shaped BRI's design and implementation. Zhang and Smith (2017) characterize Chinese overseas lending as a by-product of competition for influence among domestic actors including China's Ministry of Commerce (MOFCOM), the Ministry of Foreign Affairs, the Ministry of Finance, as well as powerful SOEs implementing overseas projects (Zhang and Smith, 2017). Similarly, Chaisse and Matsushita (2018) argue that a primary factor for China's initiation of BRI is the reduction of excess domestic production capacity.[3]

Lastly, this article builds upon the literature on megaprojects, which are 'large-scale, complex ventures that typically cost a billion dollars or more' (Flyvbjerg, 2014). Often involving multiple private and public stakeholders, megaprojects are increasingly used across a wide range of sectors, including infrastructure, energy, defence, major events, and a number of others. The existing literature covers a range of topics related to megaprojects, often focused on why such projects fail at a high rate and why they are so difficult to manage. Such analyses focus on size (Flyvbjerg, 2017), uncertainty (Lenfle and Loch, 2010), complexity (Davies and Mackenzie, 2014), and institutional structure (Flyvbjerg, 2013). As Flyvbjerg (2014) points out, when projects of this size go wrong, national economies (especially those of smaller countries) can suffer.

Although much of the BRI literature focuses on its geopolitical nature and scope, this paper fills a gap in the literature by focusing on the knowledge and institutional constraints central to the feasibility of BRI. The paper is organized as follows: the second section contains a brief overview of BRI as well as the literature on BRI. The third section lays out the analytical framework regarding the information and institutional constraints facing the BRI decision makers with respect to the planning and implementation of projects around the world, utilizing a comparative institutional analysis approach to understand how different contexts influence BRI-related decision making. The fourth section applies the theory, utilizing case studies of BRI's flagship projects, and the last section concludes.

The BRI: brief overview

A large literature has developed around the analysis of BRI.[4] Within this, three common emphases are prominent. First, BRI provides external stimulus for Chinese SOEs and firms, providing a solution to

[3]See also Marcoux and Sylvestre-Fleury (2022), who note that Chinese SOEs operating in BRI-participant states are likely to procure goods and services from other Chinese enterprises in an effort to address excess domestic capacity.

[4]For an excellent overviews of the political economy of BRI, see Cai (2017), Maçães (2019), Miller (2019), Hillman (2020), and Rolland (2019a, 2019b). On the public diplomacy and geopolitics of BRI, see Custer *et al*. (2018, 2019) and Lu *et al*. (2021). On the potential welfare gains from BRI, see Jaborov (2018), Reed and Trubetskoy (2019), and De Soyres (2018). On the debt implications of BRI for participant countries, see Hurley *et al*. (2019), Brautigam (2020), Horn *et al*. (2021), Malik *et al*. (2021), and Acker and Brautigam (2021).

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domestic overcapacity. This is apparent within BRI, as a large percentage of projects financed by China abroad are carried out by Chinese SOEs and firms.[5] By creating an external demand for China's technology and knowhow, Beijing '[extends] the life of older industries… [helping] debt-laden SOEs and other companies to cover variable costs, thereby avoiding defaults' (OECD, 2018). Although this may not be productive in the long run, Beijing avoids political instability by assuaging powerful SOEs with subsidies for long-term BRI projects. Of this, Brautigam (2019) describes BRI as 'Xi Jinping's branding' of the 'Going Global' strategies initiated by Xi's predecessors, Jiang Zemin and Hu Jintao, to address excess domestic capacity.[6]

Second, China expands its economic and political influence through BRI. Maçães (2019) refers to BRI as the 'the most ambitious geopolitical initiative of the age', suggesting that BRI, 'symbolizes a new phase in China's ambitions as a superpower'. For instance, China places additional pressures upon India through heavy BRI investment in its neighbours, Pakistan and Sri Lanka. BRI has been described as 'one of the main planks of a bolder Chinese statecraft under [Xi Jinping]' (Chatzky and McBride, 2020), and others argue that through BRI, Xi Jinping has surpassed all of his predecessors in his attempts '…to achieve the goal of national revival… thus reinforcing the claim of Chinese centrality' on the geopolitical scene (Economy, 2018: 141). Another strand of literature suggests that BRI improves bilateral relations between China and recipients. Lu *et al.* (2021), for example, argue that BRI improved bilateral ties by strengthening economic ties with partner countries.

Third, BRI enhances China's position with respect to global supply chains, in addition to providing enhanced resource security and alternative energy supply routes (Jochec and Jenish Kyzy, 2018). Of this, Maçães (2019) argues that Beijing's efforts to cultivate 'Chinese-led value chains', enabling Chinese firms to increasingly occupy more lucrative positions within global supply chains, deserve central attention in BRI analyses. Here, BRI facilitates movements 'from Made in China to Created in China, from China Speed to China Quality, and from Chinese Products to Chinese Brands' (Maçães, 2019: 85). Similarly, Cai (2017) argues that an underrated aspect of BRI is Beijing's desire to export Chinese technological and engineering standards, and that in this manner, the return on investment on infrastructure projects is less valuable than pushing participating countries to adopt Chinese technical standards in construction, finance, and information technology (Polk, 2018).

In the time since President Xi Jinping first announced China's plans for BRI during a 2013 speech at Nazarbayev University in Kazakhstan, grandiose and esoteric rhetoric calling for a 'community of common destiny' in the form of a resurrected, modernized Silk Road has been replaced by thousands of current, planned, and completed projects spanning the world. At the core of BRI is the aim to promote better relations with partner countries through greater connectivity and increased economic exchange (Lu *et al.*, 2021). Describing BRI at the 19th National Party Congress in 2017, President Xi said, 'China will actively promote international co-operation through [the BRI]… we hope to achieve policy, infrastructure, trade, financial, and people-to-people connectivity and thus build a new platform for international co-operation to create new drivers of shared development' (Xi, 2017). At this same meeting, BRI was formally adopted into the Constitution of the CCP, strongly signalling President Xi's sustained commitment to BRI (Hurley *et al.*, 2019).

The BRI consists of thousands of projects all over the world. Examples of major projects include the 142 km Jakarta–Bandung high-speed railway in Indonesia, the Colombo Port City in Sri Lanka, and the Mombasa–Nairobi Standard Gauge Railway through Kenya and Uganda. Each of these projects entails investment of well over $1 billion. As of early 2020, Beijing claims that over 170 countries have signed Memorandum of Understanding agreements to join the Belt and Road (Xinhua News

[5]Estimates vary regarding the percentage of BRI projects implemented primarily by Chinese agencies. Malik *et al.* (2021: 72) estimate that 35% of BRI projects are implemented solely by Chinese agencies. In contrast, the World Bank (2019: 80–81) estimates the share implemented by Chinese agencies to be 50% while Hillman (2018: 3) suggests the figure to be 89%.

[6]Chaisse and Kirkwood (2020) argue that BRI is continuation of Chinese trade policy already in effect, as many BRI jurisdictions are already engaged in bilateral investment treaties with China. Notably, Chinese and other regional arbitral regimes have expanded their scope of activity to meet the growing need for BRI-related commercial and investment arbitration (de la Rasilla, 2021). For labour-related provisions covering BRI agreements, see Otteburn and Marx (2022).

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Agency, 2021). One of the difficulties in identifying the true scope of BRI is the lack of an agreed-upon definition for what qualifies as a BRI project (Hillman, 2018). Although precise investment and lending figures are unknown, the Chinese Ministry of Commerce announced in 2017 that since BRI's 2013 unveiling, over $300 billion in contracts were signed between China and participant countries (Lain, 2018).

Initial upper bound estimates suggest that BRI investment, if implemented fully according to President Xi's wishes, could reach up to $8 trillion (Hillman, 2018). More recent estimates suggest a dramatically lower figure. The World Bank estimates that, as of 2019, BRI expenditure stood at $545 billion, and Morgan Stanley predicts that BRI could reach $1.3 trillion by 2027 (Tonchev, 2020). Should investment exceed $1 trillion, BRI would already be around seven times (adjusted for inflation) what the United States spent on the Marshall Plan to rebuild western Europe in the aftermath of Second World War (Hillman, 2020: 3–4).[7]

The BRI is organized into two key components: the land-based 'Silk Road Economic Belt' (SREB) and the sea-based '21st Century Maritime Silk Road'. The 'Belt' aims to connect Chinese trade and investment to Europe through massive road and high-speed rail infrastructure projects (as well as dry ports and energy-related projects) throughout much of Eurasia,[8] whereas the 'Road' aims to improve Chinese maritime trade through Southeast Asia, the Horn of Africa, and Europe largely through deepwater port infrastructure projects (State Council of the PRC, 2015). Through these, Beijing envisages a network of transportation 'corridors' for goods, materials, and energy, as well as enhanced connectivity through standardized norms, state-of-the-art warehouses, and simplified customs procedures (Jochec and Jenish Kyzy, 2018).

More recently, the Chinese have increasingly invested resources in developing its 'Digital Silk Road' (introduced as an official component of BRI in 2015), which seeks to make Chinese digital technology, fibre-optic cables, and wireless networks standard fare in the developing world. Although massive transportation infrastructure and energy projects dominated BRI's early years, information and communications technology projects are relatively lower cost (both financially and politically) to deliver and monetize for BRI-participant countries. Indicative of this shift, the Chinese Politburo's Standing Committee (the apex of political power in China) in March 2020 called for 'accelerating the construction of new infrastructure such as 5G networks and data centers' as a key BRI priority (Blanchette and Hillman, 2020).

The section that follows outlines the information and institutional constraints facing BRI decision makers. China's overseas activities through BRI are a vast topic, so this analysis does not feign to examine nuances of each of the thousands of projects that comprise BRI. Nonetheless, I aim to provide some basic insights into the mechanisms that are more broadly representative of BRI projects.

BRI's information and institutional constraints

Information constraints

The stated goals of BRI involve promoting 'sustainable development' in participant countries through promoting 'connectivity' between Asia, Europe, and Africa. Given the economic development and coordination-enhancing goals at the core of BRI, what are the mechanisms necessary to bring about such outcomes?

[7]Despite Xi's branding efforts with BRI, many point out that BRI is a continued, though scaled-up, version of China's 'Going Out' policy adopted over two decades ago (Malik *et al.*, 2021: 24). The distinction of BRI is its 'high political status' as Xi Jinping's signature policy project (Ye, 2019). According to Malik *et al.* (2021: 11), China and the United States had very similar overseas spending commitments over the period of 2000–2012 ($32 and $34 billion, respectively). During the first 5 years of BRI (2013–2017), China's overseas commitments ($85.4 billion per year) were more than double the United States ($37 billion per year).

[8]The land-based 'Silk Road Economic Belt' focused on deepening economic connectivity through six economic 'corridors' (State Council of the PRC, 2015). Of these, the China–Pakistan Economic Corridor (CPEC) has absorbed the largest share of Chinese financing and is frequently is referred to as a 'flagship project' of the BRI (Hillman, 2020; Maçães, 2019).

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The primary manner in which BRI decision makers have sought to achieve this goal is through massive investments in infrastructure projects.[9] President Xi has said as much, as he emphasized in his address at the 2017 Belt and Road Forum for International Cooperation, '[i]nfrastructure connectivity is the foundation of development through cooperation… We should promote land, maritime, air and cyberspace connectivity, concentrate our efforts on key passageways, cities and projects and connect networks of highways, railways and seaports…' (Xi, 2017).

Although the highway and railway construction may provide some value to BRI-participant countries, this outcome is distinct from investment that will promote sustainable economic development. Such efforts presume that BRI decision makers have the requisite knowledge to design and implement these projects in a manner that produces value over and above the opportunity cost of those resources. In this respect, the success of BRI as a development-enhancing and coordinating-promoting project hinges upon coordinating mechanisms *generated by markets* that the relevant decision makers within China's ministries and SOEs as well as BRI-participant country governments lack access to. Thus, it is unlikely that BRI can be implemented in a manner consistent with Beijing's stated goals of enhancing economic growth and promoting closer ties between China and participant countries. Importantly, we need not assume malevolence on the part of Chinese and local decision makers for the argument to hold. We can restate the central question along these lines: 'Given benevolence, how will individuals come to know the right thing to do in any given situation?' (Boettke and Leeson, 2004: 101).

First, BRI decision makers face a planner's problem. BRI decision makers lack the abilities to coordinate the disparate plans, goals, and values of millions of people to promote economic progress within the countries that projects are taking place in (Hayek, 1945). Lacking the ability to engage in economic calculation associated with market prices, BRI decision makers must resort to political process to allocate resources using trial-and-error. However, engaging in trial-and-error is no substitute for the ability to engage in economic calculation. Of this, Coyne (2013: 70) writes, 'Decision makers must allocate scarce resources without the advantage of market prices and profit and loss accounting to compare the expected value-added of alternative uses'.

In the absence of the signals of prices and profit and loss accounting generated in the market, which are reflective of consumers' beliefs regarding whether resources are being deployed in a welfare-enhancing fashion, BRI decision makers (including both Chinese and BRI-participant country decision makers) must resort to arbitrary criterion for what constitutes an error in the way that losses clearly do in the market system. In doing so, planners lack the ability to know whether their chosen projects are value-adding for local populaces relative to some alternative usage of resources. In contrast, economic progress occurs 'when resources are continually (re)allocated to the uses that people most value' (Coyne, 2013: 71). Thus, our first prediction:

Prediction 1: Given the absence of a coordinating mechanism, we should expect to see attending underutilization problems with respect to BRI projects.

To be clear, most large-scale infrastructure projects are not decided upon in a market setting. This constraint is not unique to BRI decision makers, but to all involved in efforts of state-led development projects. As Coyne (2013) points out, the planner's problem is ubiquitous. Thus, decision makers choose some other signal, which in this case, is the political process. This process is not a substitute for the coordination yielded through prices, property, and profit and loss accounting that is present in a market setting.

The oft-cited *Meeting Asia's Infrastructure Needs* (Asian Development Bank, 2017) states that the developing nations of Asia alone require $1.7 trillion per year from 2016 to 2030 ($26 trillion total) if the region is to 'maintain its growth momentum' and 'eradicate poverty'. Evident in the discussion surrounding the success prospects for BRI projects is a confusion between *causes* and

[9]This was particularly the case during the early stage of BRI, as the number of 'mega-projects' (financed with loans of $500 million or more) initiated tripled each year over the first 5 years of BRI (Malik *et al*., 2021: 27).

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consequences of economic development. As Coyne (2013: 85) points out, '[c]ertain conditions are viewed as causes of economic progress when they just as easily could be the consequence of economic progress'.

The applications of this phenomena to BRI projects are myriad. When decision makers in BRI-participant countries are faced with an offer for a railway connecting a country to another one, it is simple to envision how this can be mistaken for economic development itself. In view of wealthier, industrialized nations that are replete with infrastructure like this, decision makers may interpret the infrastructure itself as the driver of economic progress rather than factors related to solving that country's particular economic problem. Coyne (2013: 73) makes this point very well, writing 'The confusion between production and economic progress is evident throughout… typically employ rhetoric about ending a country's poverty while relying on output measures (infrastructure built…. money spent, etc. and so-on) as evidence of success. The implicit, yet incorrect, assumption is that these increases in output are the same thing as economic progress'.

Although decision makers can adjust their plans (e.g. output targets, schedule, resources expended), this overlooks the question of how such output targets were determined and if they yield any resonance to output that is desired by consumers (i.e. the citizens of BRI-participant countries). As Coyne (2013: 82) points out, bureaucrats have incentives 'to mark the progress of some proposed project in terms of clearly observable outputs'. Along these lines, it is telling that some of the definite markers of BRI's progress include, along the margins of 'Policy Coordination' and 'People-to-People Bonds', metrics such as meetings between high-ranking military officials and journalist exchanges, and along the margin of 'Unimpeded Trade', metrics including TEUs (or, 'twenty foot equivalent units', representing the volume of a 20 foot long container). In the same way that meetings between military officials, state-sponsored journalistic exchanges, and the number of BRI memoranda of understanding signed do not constitute the actual stuff of improved relations between countries, metrics such as TEUs as well as miles of road and railroad track laid do not constitute economic development.

Additionally, BRI planners are likely to 'take for granted the host of complementary goods necessary to make such projects worthwhile.' As Coyne (2013: 70) points out, '… most people living in relatively wealthy societies take the wide array of available complementary goods for granted'. For instance, the value of a highway project is realized insofar as a large percentage of inhabitants operate vehicles and travel frequently along the highway's routes. Similarly, massive investment in railway is worthwhile insofar as the resulting output will be the least-cost alternative preferred by individuals relative to their existing, preferred mode of operation.

From this, it follows that we should expect to see consistent scenarios of underutilization with respect to BRI projects relative to their stated objectives. In their new, comprehensive dataset covering over 13,000 Chinese development projects across 165 countries, Malik *et al.* (2021) find a great deal of evidence in support of this. Using a strict definition of projects that 'have underperformed vis-à-vis their original objectives', their conservative estimate is that at least 10% of projects fit this criterion, totalling 91 projects worth over $50 billion (fourth section will outline a sample of mothballed BRI projects).[10]

In this manner, it is unlikely to expect meaningful increases in economic development and coordination resulting from BRI projects, both on the local level in terms of individual projects as well as on the prospects for a broader coherence with respect to BRI's overall vision. As Coyne (2008: 21) points out, 'Thus, failure is not due to a lack of a clear end-goal, but instead, failure is due to the lack of knowledge of how to go about achieving the desired end. In other words, failure is due to the gap between the *know-what* and *know-how*'. That said, the more relevant error with respect to BRI projects

[10]These include, for example, borrowers that have defaulted on repayment obligations, infrastructure assets that are less profitable than explicitly aimed at, company bankruptcies, and contractors that fail to meet key milestones as specificized in their contracts (Malik *et al.*, 2021: 68).

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is to make the opposite error by assuming that the outcomes of intervention are superior to the spontaneous order outcomes that would have resulted in the absence of the intervention.[11]

Although the funds associated with BRI are largely not Official Development Assistance (ODA),[12] very similar constraints that apply to decision makers in the development community also apply to BRI decision makers. On the prospects of effective foreign aid, Barder (2009) writes, 'the coordination mechanism envisaged…for bringing [aid effectiveness] about is that of a planned economy not a market: it is a collective decision among the donors about who will do what, according to where they believe their strengths lie'. In laying out goals involving economic development and improved relations between countries, BRI decision makers assume that investment in inputs resulting in definite outputs will not only better coordinate the plans of millions of people, but also that their investments are a more valuable usage of resources relative to their opportunity cost.

In addition to constraints related to the planner's problem, BRI decision makers also face adaptability constraints once their projects have been initiated. Of BRI's adaptability issues, Hillman (2020: 14) points out that the success of BRI '… hinges on China having the discipline to choose the right projects and walk away from the wrong ones'. Given that Chinese SOEs, the primary implementers of BRI projects, are not subject to the traditional discipline of market profit and loss, it is unlikely that BRI decision makers will on average discover the ability to detect error and adapt to correct inefficiencies and deadweight loss in their production processes. The available data on BRI projects are reflective of this outcome. 'Since leaving the station', Hillman (2020: 14) writes, 'China's BRI has become a gravy train without a conductor. It's fevered pace has already exceeded China's ability to accurately measure, l*et a*lone manage, those activities. Corruption and rent-seeking are thriving in the chaos. Conceptually, China's BRI is closer to the War on Terror: poorly defined and ever expanding'.

Recognizing their adaptability constraints, Coyne (2013: 62) points out that planners and policymakers often employ the rhetoric of adaptability, issuing public statements of 'the importance of "lessons learned" and calls for "better coordination" [and] "improved integration and adaptability"'. We observe this mechanism at work within BRI. As Rolland (2019a: 227, 2019b) points out, Xi Jinping declared a broad movement away from *xieyi* (broad strokes) to *gongbi* (sharp, detailed strokes) at the 2018 symposium marking the 5th anniversary of BRI's launch. Similarly, Xi Jinping also brought attention to the performance of SOEs, demanding that '…the needs and sensitivities of local governments and populations be better taken into account… [focusing] on small-scale projects that respond to the immediate needs of local populations' (Rolland, 2019b).

Finally, issues of adaptability and economic calculation are present for BRI-participant country decision makers as well. Specifically, these decision makers face information constraints with respect to accurate assessment of BRI projects due to the opaqueness of China's development lending process.[13] As Malik *et al.* (2021: 6) point out, 'Beijing's reluctance to disclose detailed information about its overseas development finance portfolio has made it difficult for [low- and middle-income countries] to objectively weigh the costs and benefits of participating in the Belt and Road Initiative'. Because of this, borrowers are thus all the more unlikely to be able to weigh the opportunity cost of BRI investments, a process augmented by the opacity of Chinese lending.

Institutional constraints

In forecasting BRI's success, many have pointed out that BRI is a matter of comparative advantage. Brautigam (2019), for instance, notes that with China's excess foreign exchange and construction capacity, it appears '[t]hat the BRI slots neatly into low-income countries' development aspirations'.

[11]This is not to suggest that all cases of spontaneous order outperform interventions, an erroneous contention that is unwarranted (Leeson, 2010).

[12]ODA, as defined by the OECD-DAC, refers to international development finance that includes highly concessional loans and at least a 25% grant component (Malik *et al.*, 2021: 12).

[13]China was ranked last among the 47 international donors and lenders evaluated in the 2020 Aid Transparency Index (Publish What You Fund, 2020).

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Similarly, of the growth-enhancing prospects of BRI, Maçães (2019: 3) writes that, 'After trade [increases], financial flows will inevitably follow then cultural and political influence. Whoever is able to build and control the infrastructure linking the two ends of Eurasia will rule the world'.

However, this notion presumes that infrastructure is a magic bullet to the problems facing societies with less-than-desired economic development. Although it is simple to imagine how a highway can facilitate economic activity, such thinking overlooks/assumes the institutional environment in which such projects are taking place that do or do not lend itself to economic growth. For BRI projects to be contributors to economic development in the locales where they're being deployed, decision makers must have in mind not merely the technological problem of implementing each project, but also the present economic, political, and social conditions existing in each locale.

Importantly, the benefits of some project may be *the result of progress* that has already occurred, rather than the spur for growth that such magic-bullet type thinking reflects. Although it's possible for highway, railway, and other projects to be implemented and utilized in a value-adding manner, Coyne (2013: 84) argues that the reverse case is equally plausible, 'that investments in infrastructure are not the cause of initial growth but a consequence of past growth that makes subsequent investments feasible'. In general, this points to the folly of thinking that 'replicating those conditions in other societies will necessarily lead to [positive economic outcomes]' (Coyne, 2013: 84). Thus, our second prediction:

Prediction 2: Given the manner in which BRI is implemented, we should expect to see resulting negative unintended consequences and institutional asymmetries with respect to BRI projects.

Albert Hirschman's concepts of 'trait-making' *versus* 'trait-taking' with respect to development projects provide useful intuition in this area. Trait-making refers to the decision to introduce new inputs and processes – including technological capabilities, institutions, sociopolitical conditions, and cultural values – required for efficient production to achieve some desired output (Hirschman, 1967: 126, 140). On the contrary, trait-taking refers to the decision to accept certain inputs and processes (i.e. traits) as 'temporarily unchangeable aspects of the environment' (Hirschman, 1967: 120).

The choice for planners between trait-making and trait-taking is particularly relevant when choosing production methods of a relatively labour-intensive or capital-intensive nature.

Consider, for example, the scenario described by James (1999) regarding sugar production in Tanzania. The desired amount of sugar could be produced by five large-scale plants or by 200 small-scale plants. Given the constraints in the country at the time involved a relative scarcity of entrepreneurial and organizational resources, this disincentivized labour-intensive methods of production, favouring the approach with five large-scale plants. To use Hirschman's terminology, choosing a smaller number of larger plants (i.e. capital-intensive techniques) in such an environment provides a salient example of trait-taking, as the developers took the relative scarcity of available human capital as a temporarily unchangeable aspect of the environment. As James (1999: 801) describes, 'The managerial and supervisory problems associated [small-scale production], as well as the training of operatives in the [open-pan sulphitation] method and the difficulties of raising finance for small-scale, labour-intensive techniques all strongly mitigated against its use'. As James (1999) points out, the attraction of developers towards capital-intensive techniques and trait-taking is not surprising given these constraints.

For planners, there are risks associated with both trait-making and trait-taking approaches. Insofar as development projects are introducing 'new activities into a pre-existing environment', Hirschman (1967: 134) points out that such projects '…are likely to imply far more would be trait-making than is commonly realized'. The job of a planner, then, is 'to uncover the most significant economic and sociopolitical changes on which the success of the project is implicitly premised'. As such, Hirschman argues that the 'neglect of the implicit trait-making aspects, ambitions, or premises of projects' constitutes one of the fatal flaws of development projects that fail (Hirschman, 1967: 137).

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Although the trait-taking approach is generally regarded as the lower-risk approach to development assistance (Picciotto, 2015: 4), there are nonetheless risks with respect to the trait-taking approach that endanger the success prospects of development projects. To the extent existing economic, political, and social qualities are in place that are unconducive to promoting growth, development projects may have the unintended consequence of exacerbating those traits. Of this prospect, Hirschman (1967: 124) writes, 'One of the dangers in trait-taking is that the undesirable or backward traits that are taken for granted in planning a project actually become more strongly entrenched and that the project thus fails to generate as much progressive change as is within its grasp'. Even with our guiding assumption that the intentions BRI decision makers are aligned with Beijing's stated goals of 'shared development' and 'win–win cooperation' (State Council of the PRC, 2015), outcomes characterized by further entrenchment of non-growth promoting traits are likely, especially given that BRI projects are highly concentrated in countries that occupy the bottom quartile of the Corruption Perceptions Index (Malik *et al.*, 2021: 46).

Additionally, the manner in which BRI is being deployed takes local institutions for granted. BRI projects are implemented in a manner that presumes an endogenous functionality within the locales where implementation is taking place. As Rajan (2004: 57) points out, a much more sensible starting point is to assume 'a world where nothing is enforceable' and where 'property rights and individual rights are totally insecure'. Additionally, the notion of BRI projects as a panacea for development overlooks numerous negative unintended consequences with respect to the underlying existing realties in these locales.

These concerns (both on the trait-making and trait-taking fronts) are not on the radar for BRI decision makers. Despite the vast differences in locales in which BRI projects are taking place, very similar implementation methods have been deployed, frequently without regard for local differences. One of the important traits that BRI decision makers appear unable to alter is local perceptions where projects are being implemented. Although the national governments of BRI-participant countries are also likely to ignore relevant local knowledge and encounter the same knowledge and institutional constraints with respect to BRI project implementation, these issues are amplified given the presence of BRI since host countries are more easily able to begin large-scale projects that were outside the possibility set for them apart from BRI. Indicative of this, an increasingly large swathe of data suggests strongly negative public sentiment towards China within BRI-participant countries.[14] Pre-existing traits such as these reduce the prospects for success further still. In this respect, BRI decision makers lack the abilities to replace and/or manufacture the sentiments within recipient countries to achieve BRI aims.

President Xi's vision for promoting economic development through BRI is contingent upon the notion that resources and institutions provided by an outside entity can be the exogenous shock necessary for societies to break out of the suboptimal growth scenarios they appear to be locked into. Within each locale, BRI decision makers face the choice to abide by, evade, or directly alter existing institutional arrangements (Henrekson and Sanandaji, 2011). In the case of BRI, such desired outcomes range from the widespread adoption of Chinese technical and manufacturing standards to the development of consistent railway commerce between Europe and China.

International trade patterns, particularly the institutions of commercial law that undergird these flows, are a spontaneous order insofar as they're unplanned in their development and evolutionary in their progression.[15] Thus, in addition to BRI decision makers lacking the knowledge to replace or forecast the least-cost methods of trade for individuals in recipient countries, they also underrate the extent to which they themselves are endogenous to international trade flows between BRI-participant countries and China. To the extent that trade (especially cross-cultural trade) is

[14]See a large number of pieces on major changes in public sentiment within countries, forcing politicians in a number of cases to cancel or mothball projects (Aamir, 2018, 2021; Balding, 2018; Custer *et al.*, 2018; Mundy and Hille, 2019; Parks, 2019; Rolland, 2019a; Shepard, 2020b).

[15]On the endogenous facilitation of trade, see Benson (1989) and Leeson (2005, 2008).

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facilitated by social distance reducing activities that increase trust between trading partners (Leeson, 2005, 2008), there's evidence to suggest that BRI project implementation is frequently lacking in this area. Much of this is a by-product of the manner in which projects are being implemented, particularly those by Chinese SOEs.

As Malik *et al.* (2021: 71–73) point out in their extensive examination of BRI's existing portfolio, 'BRI infrastructure projects are less likely to face major problems during implementation when they are undertaken by host country organizations'. Of the thousands of BRI projects, those being exclusively implemented by host country organizations make up only 14%. Projects solely implemented by Chinese agencies make up 35% of the BRI portfolio, whereas 37% are co-implemented by a Chinese and host-country organization. Relative to the latter two categories, it's clear that projects undertaken by host country organizations – or by organizations neither from China nor the host country – are much less likely to encounter such problems during implementation.[16]

A number of findings point to the inability of BRI planners and decision makers to assess the pre-existing traits (especially local attitudes towards China) that affect project outcomes. For example, Malik *et al.* (2021: 1) found, '35% of the BRI infrastructure project portfolio has encountered major implementation problems – such as corruption scandals, labor violations, environmental hazards, and public protests – but the Chinese government's infrastructure project portfolio outside of the BRI has encountered fewer implementation problems'. Additionally, although BRI projects implemented exclusively by host country organizations have a problem prevalence rate of 10%, similar projects implemented by Chinese organizations have a 40% problem prevalence rate (Malik *et al.*, 2021: 72). Unsurprisingly, we've seen backlash from citizens within a few dozen BRI countries, as, 'a growing number of politicians from [low- and middle-income countries] have cancelled or mothballed high-profile Chinese development projects because major changes in public sentiment have made it difficult for them to maintain close relations with China' (Malik *et al.*, 2021: 73). In this respect, for projects to achieve the aims desired by BRI decision makers, a shift in the underlying preferences of individuals within that locale is necessary. In this respect, BRI planners are likely to overlook the importance of those complementary, often informal institutions that permit their desired interventions to function. This extends down to cultural values and norms as well as to patterns of regional trade (Aoki, 2001; Platteau, 2000).[17]

Although massive infrastructure projects have the potential to bolster economic activity, they also may contribute to the discoordination of the plans of market actors, producing unintended, undesirable consequences throughout the economic system. As Coyne (2013: 84–85) points out, infrastructure projects '…do not fall from the sky in predefined and specified bundles, and decisions need to be made regarding the quantity and quality' of such investments provided. Accordingly, these projects do not themselves provide a solution to societies' economic problem.

BRI case studies

For case studies, we will examine some of BRI's flagship projects. This is a sensible approach, as these projects have been touted for having the most transformational potential within the BRI project portfolio. These projects tend to also be highly politically salient in addition to their reputation of possessing significant value-adding prospects in terms of transformational economic growth. Two of our case studies, the Khorgos Gateway and the Gwadar Port, are listed in the *South China Morning Post*'s 'The Five Main Projects of the Belt and Road Initiative' (Arranz and Marcelo Duhalde,

[16]Malik *et al.*'s (2021) dataset of BRI projects defines four major types of implementation problems with respect to BRI projects, including: (1) scandals, controversies, or alleged violations; (2) financial wrongdoing; (3) community or ecosystem harm; and (4) underperformance *vis-à-vis* project objectives.

[17]On the effects of religious and cultural proximity on international trade flows, see Helble (2007), Guiso *et al.* (2009), and Fourie *et al.* (2015). On the effects of co-ethnic networks on international trade, see Rauch (2001), Casella and Rauch (2002), and Rauch and Trindade (2002), who have demonstrated the importance of co-ethnic networks in explaining international commercial behaviour.

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2017b). This is to say that these projects are not outliers, but are central to the functioning and performance of BRI. In evaluating these case studies, I will rely upon Hirschman's trait-making *versus* trait-taking taxonomy as a framework for comparative institutional analysis with respect to BRI projects.

Port of Gwadar/China–Pakistan Economic Corridor

Touted as a 'game changer' by Pakistan's former Prime Minister, Nawaz Sharif, the China–Pakistan Economic Corridor (CPEC) is widely regarded as the flagship project within the BRI (Arranz and Marcelo Duhalde, 2017b). These ambitions are most apparent in the case of the southwestern Pakistani port and city of Gwadar, which has been referred to as the 'crown jewel' (Maçães, 2019: 43) of the CPEC, a network of projects which aims to connect Kashgar in far west China to a deep-water port on the Pakistani coast.[18] China's long-term plan for the CPEC over the period of 2017–2030 states that the orderly flow of economic factors in both China and Pakistan, 'will significantly improve the resource allocation efficiency and bring into full-play the comparative advantage of each country' (Maçães, 2019: 60).

Having received roughly $500 million of BRI investment, China aims to have housing construction completed for 500,000 Chinese professionals in Gwadar by 2023. If all goes well, Maçães (2019: 43) points out, 'If Kazakhstan serves as China's gateway to Europe, Pakistan is its gateway to the Indian Ocean', and Pakistan 'may become China's California, granting it access to a second ocean and resolving the Malacca dilemma'. Embodying China's high hopes for the CPEC, Foreign Minister Wang Yi said, 'if [BRI] is like a symphony involving and benefitting every country, then construction of the [CPEC] is the sweet melody of the symphony's first movement' (Maçães, 2019: 43). Of Gwadar's potential, Maçães (2019: 62) described that 'a quiet fishing village may soon become a major cosmopolis, a new Dubai'.

Thus far, the CPEC embodies both trait-taking and trait-making characteristics. Of the former, BRI energy projects in Pakistan expand capacity by thousands of megawatts of power, which is much needed in a large country that faces chronic electricity shortages. As Downs (2019) points out, these developments have been a by-product of 'push factors' from China (i.e. foreign markets to export excess coal power generation equipment and project expertise) and 'pull factors' from Pakistan (i.e. prioritizing the use of domestic coal to decrease power generation costs). Such practices are emblematic of a trait-taking approach, as BRI decision makers utilized Chinese human capital (i.e. managerial expertise) and physical capital (i.e. excess power generation equipment) to address the electricity problem as opposed to relying upon available resources in Pakistan.

That said, a great deal of trait-making underlies China's CPEC plans. This is most notably the case in Gwadar, as the desired outcomes require massive changes to the character of Pakistani social and commercial life in the region. As Maçães (2019: 61) notes, 'The vision for the city is suitably ambitious: the port will be combined with a new expressway, international airport, an industrial park, and even world-class tourism facilities'. Despite the stated goal of 500,000 incoming Chinese professionals moving to Gwadar for economic opportunity, little more than 1,000 people work at the port at this point. These outcomes are neither encouraging indicators for the growth of Gwadar, nor for a positive return on the billions of dollars China has invested in CPEC, more generally.

We see similar patterns in CPEC-related maritime trade. Initially launched to target the untapped markets between seaports in Pakistan, the Chinese-subsidized Karachi–Gwadar service was launched with aims of improving the regional maritime trade of seafood, fruit, and minerals. With many empty containers, the ships pulling into Gwadar instead were used to load and unload CPEC-related construction equipment, machinery, and other cargo. In September 2019, China's COSCO Shipping

[18]While Gwadar attracts a great deal of BRI attention, a significant amount of investment in power generation has already occurred along the CPEC, with projected costs for the corridor potentially up to $62 billion. In a recent revision to this figure, the Chinese Embassy in Pakistan reported that, as of the end of 2018, 22 CPEC projects (worth $18.9 billion) had been initiated or completed (Downs, 2019).

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Lines terminated their container services between the Pakistani city of Karachi and Gwadar due to inadequate cargo handled at the port, slow construction of the Gwadar Free Trade Zone, and a lack of use of the port for transit to Afghanistan (Chaudhury, 2019). This scenario is representative of a general pattern of securing funds to initiate projects that investors and other market actors ultimately do not intend to utilize. As a former Pakistani official close to CPEC told the *Financial Times*, '… it's OK to borrow money and build infrastructure, but it's more difficult to bring investors into our zones to make stuff and sell it' (Leahy *et al.*, 2023). Indicative of this, there are movements within Pakistan to disband the 'CPEC Authority', formed in 2019 by BRI decision makers to secure uninterrupted investment, as 'not a single dollar has been invested' through this mechanism (Sharma, 2023).

Better recognition of the implicit trait-making nature of CPEC projects would have permitted BRI decision makers to appreciate that their projects are largely unwelcome by the local populace. As Leahy *et al.* (2023) point out of CPEC, '…the plan took insufficient account of violent militant groups'. Attacks on Chinese engineers in August 2023 increased the security fears associated with the Gwadar port, which 'sits largely unused mainly because of security fears along the highway that serves it' (Leahy *et al.*, 2023). This is not a new phenomenon, as it was noted in 2021 that the main road leading to the Gwadar Port 'has been blocked [for months] by thousands of locals in a sit-down protest'. Their demands included 'basic amenities, including water and power, as well as access to the sea for fishermen' (Aamir, 2021).

Similarly, the manner in which project materials are being procured relative to expectations is a major source of contention for citizens. As a local citizen reported, 'China only procures sand and gravel locally for construction projects… All other raw materials are imported from China, leaving very little for local industry' (Aamir, 2021). Here, CPEC presents a salient example that promoting development is not merely a technical problem, but one that is dependent upon an appreciation of local realities and institutions as they pertain to such projects. As Christoph Trebesch has pointed out with respect to this pattern overly ambitious trait-making, '[Chinese lenders] really went into many countries that turned out to have particularly severe problems' (Kynge, 2023).

It is important to note that incurring the immense up-front costs of getting a project off the ground is not a sign of a project's failure.[19] Certainly, wealthy governments are relatively better-suited to engage in such activities compared to private actors. However, considerable time has elapsed with very little sign of significant commercial activity at Gwadar. This is a strong indication of overly ambitious trait-making in the realm of attracting investment and promoting both regional and international trade on the part of BRI planners and Pakistani officials. As Leahy *et al.* (2023) summarize, '[the] lack of follow-through from Chinese private companies has arguably been CPEC's biggest shortcoming', as very few Chinese businesses (or other businesses, for that matter) have demonstrated an interest in setting up factories in Gwadar.

Khorgos Gateway, Kazakhstan

Situated on the border of China and Kazakhstan, and occupying 'one of the furthest points on Earth from any ocean', the Khorgos Gateway connects China and Kazakhstan by rail (Arranz and Marcelo Duhalde, 2017a). A key component of the SREB, BRI's major overland component, the Khorgos Gateway – one of the largest dry ports in the world – is designed to better facilitate commercial freight travel over rail. Critically, railway track in China differs from the standard track in Central Asia by approximately 9 cm (Arranz and Marcelo Duhalde, 2017a). To address this, the Khorgos dry port is made up of three enormous rail-mounted gantries that hoist cargo arriving from Chinese trains onto trains destined on the Kazakh tracks destined to make the 5,000+ mile journey to Europe (Ruehl, 2019).

A major rationale for the Khorgos Gateway is the advantage of speed that railway enjoys over maritime travel, as well as a less expensive alternative to shipping by air. For instance, a journey carrying

[19]For this point, I thank the insightful comments of a referee.

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freight from the city of Yiwu in eastern China to London takes approximately half the time (around 20 days) compared to the time similar freight would take to arrive via maritime travel (around 40 days) (Arranz and Marcelo Duhalde, 2017b). Along with the dry port, BRI planners have declared Khorgos a special economic zone (SEZ), and as such, have desires for it to become a commercially flourishing hub just like the major SEZs along China's east coast. Along with the city of Khorgos (on the Chinese side of the border), Kazakh decision makers have invested in a 'purpose-built village', Nurkent, which they hope grows to complement Khorgos, which has a population around 75,000 (Standish, 2019). Indeed, productivity at Khorgos has increased. In the 4 years from 2015 (start of construction) to 2019, the dry port handled over 180,000 TEUs a year, and the port's chief operations officer expects this to increase to nearly 500,000 TEUs a year by 2023 (Ruehl, 2019).

Relative to the projects that comprise the CPEC, BRI decision makers have exhibited a trait-taking approach with respect to Khorgos. As Ruehl (2019) points out, Khorgos is somewhat non-representative of most other BRI projects insofar as China 'is not a lender, builder, operator, or majority owner of the dry port'.[20] By the same token, much of the reported upside of Khorgos as a transformational global trade hub is misguided, especially along the margins of the project's scope. As Ruehl (2019) points out, 'Eighty percent of the goods shipped through Khorgos go to the countries of the former Soviet Union, and 35 to 40 percent go to Uzbekistan alone. The number of containers that actually make it all the way to Western Europe is a minute fraction of the millions of containers carried annually by ship from China to European ports'. In this respect, Khorgos is more likely to be an effective regional trade hub for Chinese goods bound for Central Asia, reflective of freight patterns that have long been occurring (Ruehl, 2019).

However, evaluating the success of Khorgos based upon TEUs per year falls into the pattern of assessing projects based upon clearly observable outputs (Coyne, 2013: 82). This does not tell us much by way of whether the investments at Khorgos are facilitating value-added commercial exchange opportunities that were not otherwise available. In fact, many have pointed out that freight travel through Khorgos by rail is only possible because of massive subsidies of up to 40% provided by the Chinese government to incentivize trade through Central Asia (Ruehl, 2019; Standish, 2019). According to Leng (2019), subsidies varying from US$1,000 to US$7,500 per container were offered to Chinese shippers to encourage this sort of economic activity through Khorgos. Although there is increased traffic headed from China to Central Asia and Europe, Standish (2019) reports that many of the cargo containers returning by rail from Europe through Khorgos are empty. What's more, a report by the *Chinese Business Journal* and confirmed by China's state-run *Global Times* revealed that many exporters transported empty containers from China to Europe in order to receive state subsidies (Standish, 2019).

The situation at Khorgos presents an interesting scenario for analysis, particularly in its dissimilarity to the BRI portfolio in Pakistan. On the one hand, BRI decision makers have embraced a trait-taking approach in coming alongside long-established Central Asian regional trade patterns. In this regard, Khorgos appears relatively less dysfunctional compared to China's BRI portfolio in Pakistan, especially in Gwadar. This suggests that the degree to which projects are based upon market mechanisms (even in a limited way) can *partially* mitigate the knowledge and institutional problems facing planners. However in the case of Pakistan, BRI planners sought to create trade routes that have hitherto been non-existent, the Khorgos case is reflective of planners conducting investment in locales that have, to some degree, already passed the market test.

However, with the reports of massive subsidies for trade through Khorgos, we can also see misguided trait-making efforts to replace slower-but-cheaper maritime shipping as the dominant mode of long distance trade with the faster but much more expensive trade via railway. As Leng (2019) puts it, '[t]hese routes are an effective advertising device for selling the Belt and Road's overland dimensions which despite the hype, will not challenge the dominance of maritime trade'. The extent

[20]China's COSCO Shipping owns a 49% stake of the Khorgos dry port, while the majority is held by the Kazakh state railways corporation, and the port is operated by DPWorld, publicly traded company based out of Dubai (Ruehl, 2019).

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to which Khorgos remains one of the relatively successful BRI cases will be dependent upon BRI decision makers' embrace of trait-taking decisions (conceiving of Khorgos as a regional, medium-sized infrastructure investment) *versus* trait-making decisions (conceiving of Khorgos as a key input into supplanting maritime trade with trade via rail).

Rajapaksa Airport, Hambantota Port, and the Melaka Gateway

A number of BRI projects are of such massive scale that they are placed in, or close to, the category of 'megaproject' (i.e. over $1 billion in investment). Given this, the scope of deadweight loss (or conversely, for value-added output) is immense. Flyvbjerg (2017) argues that the 'iron law of megaprojects' is: 'Over budget, over time, under benefits, over and over again'. Hirschman (1967) referred to such projects as 'privileged particles of the development process', in that they are trait-making (i.e. designed ambitiously to 'change the structure of society'), as opposed to smaller trait-taking projects, which aim to fit within pre-existing structures or modes of operation (Flyvbjerg, 2014).

These findings are consistent with a number of BRI projects.[21] In Sri Lanka, the $200+ million Mattala Rajapaksa International (HRI) Airport serves as a notable example of this phenomena. As Shepard (2016) comments, HRI is a beautiful, world-class facility in southern Sri Lanka. The problem is that there are virtually no passengers, and despite that, the airport is 'fully in service, despite the lack of a viable reason for it to be'. The location was selected because it is close to Hambantota, a city which planners hoped would be 'transformed into Sri Lanka's second most prestigious city', including a $1.4 billion deepwater port, a large industrial zone, a world-class cricket stadium, and many new high rises for people to live. Unfortunately for Sri Lanka, this has not been borne out. Unused terminals at the airport are now being used as a storehouse for rice, tarmacs are being rented out as long-term parking lots for unneeded jets, and hundreds of soldiers and police officers have been mobilized at times to keep out elephants and other wild animals. At this point, the airport generates more revenue from non-flight-related activities than flights (Shepard, 2016).[22]

In Malaysia, the Melaka Gateway was 'supposed to have been the catalyst that would completely altar the face of Melaka', transforming the southwestern region of Malaysia 'from a low-key epicenter of traditional cultures… to a modern, booming, economic powerhouse' spanning four artificial islands in the Strait of Malacca (Shepard, 2020a). Aimed at rivalling the dominance Singapore's Tuas Port (only 200 km away), analysts suggest this outcome is highly implausible, especially since Malaysia's top three ports only run at about 70% capacity. Concurring, a 2015 study by the World Bank concluded this port project, 'simply wasn't needed' (Shepard, 2020a). Unfortunately for the local populace, most of whom are fishermen, the land reclamation and dredging has already begun. This process resulted in significant damage to the coral reef, with one fisherman saying, 'This place once had a lot of fish. Now don't have. Everything gone'. In November 2020, the Melaka Gateway project was officially cancelled, adding to a number of cancelled and delayed BRI projects in Malaysia including two gas pipelines and rail lines (Sukumaran, 2020).

A common thread running through these projects is the failure of planners to appreciate the significant degree to which the success prospects of these projects was based upon certain favourable economic, sociopolitical, and technological conditions. As Hirschman (1967: 134) wisely pointed out, the 'principal task of the project analyst' to detect implicit trait-making such as this before commencing with a given project. Unfortunately for BRI decision makers, engaging in projects unduly premised on trait-making has been a central feature of its operation to date.

[21]BRI projects associated with major implementation problems related to 'underperformance vis-à-vis original objectives' are heavily concentrated in four countries: Indonesia, Sri Lanka, Pakistan, and Malaysia. Additionally, Kenya and Ethiopia also occupy spots in the top 10 countries with BRI projects of this description (Malik *et al*., 2021: 68–69).

[22]In July 2017, the Sri Lankan government decided on a debt-for-equity swap, opting to grant China a 99 year lease of the Hambantota Port rather than service a $8 billion loan at 6% owed to the Chinese (Hurley *et al*., 2019).

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Conclusion

This paper has argued that information and institutional constraints stand in the way of the success of China's BRI. Because BRI decision making takes place within the political context, planners are unable to access the feedback mechanisms contained in market price signals as the basis for guiding, adapting, and evaluating their decisions regarding BRI projects. In light of these constraints, it's unlikely that BRI decision makers can consistently choose and implement projects in support of BRI's coordination-enhancing goals. By conceiving of the development process primarily as a technological problem to be addressed through investment in massive infrastructure projects, BRI decision makers deploy means that are not themselves input into solving the coordination problem of how individuals in societies where BRI projects are taking place can best utilize their scarce resources to solve their economic problems. As Sandy Ikeda has pointed out of Jacobs' (1961) thinking on cities, planners – lacking in the relevant local and contextual knowledge – are likely to replace (rather than enable or supplement) the spontaneous and disparate 'street-level' plans of ordinary people seeking to better their lot (Ikeda, 2024: 69).

A number of interesting questions remain with respect to China's overseas activities. For instance, given that approximately one-third of Chinese development projects are carried out solely by Chinese SOEs, why is it that this subset of BRI projects are more problematic during implementation than projects implemented by domestic SOEs (Malik *et al*., 2021)? Since both actors are non-market facing, both face the planner's problem, but what is it about the implementation process that results in more problems in the former case than the latter? Similarly, other questions remain regarding the role of local populaces in terms of how they are affected by BRI projects, as well as how those populaces affect the success prospects of the projects themselves. For instance, to the extent that some BRI projects are implemented more effectively than others, how does involvement (or the lack thereof) of the local populace contribute to these outcomes?

As Hayek (1945) pointed out, the 'economic problem' facing societies is not merely 'a problem of how to allocate "given" resources', as if such data were a technological problem to be solved by a single mind. Instead, the challenge facing societies is an economic problem, one that, 'arises when mutually conflicting ends are present, when choices must be made among them' (Buchanan, 1964). In this regard, it is simple to see how, through the lenses of a technological problem, large-scale infrastructure projects may seem like a manifestly great idea. That is, how could building a highway from point A to point B not be value-adding? As Standish (2019) puts it with respect to BRI projects, 'there is a reason that lots of these gaps in global infrastructure that China is trying to fill exist in the first place… It's because they are not so commercially appealing'.

This sort of view focuses on that which is seen (i.e. the construction of a new deepwater port, highway, or railway) and neglects the unseen (i.e. that which the resources allocated towards the BRI project would have went to). With respect to BRI projects, although not all cases of spontaneous order outperform state intervention, it is unlikely that goals involving broad scale social coordination can be achieved through the usage of non-market means. Fundamentally, this is the constraint upon the successes achieved by BRI. As Hillman (2020: 8) puts it, 'Infrastructure is often touted as a solution to society's employment and productivity woes, but the reality is that done poorly, projects destroy more value than they create'.

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