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# The Belt and Road Initiative: Economic Causes and Effects

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# The Belt and Road Initiative:

# Economic Causes and Effects

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Abstract

Chinese investment abroad has grown significantly in connection with the Belt and Road Initiative. This article tries to answer two questions: first, what considerations gave birth to the BRI? And second, what are the project's economic effects in terms of capital flows and international trade? It is found that the project is above all a way to deal with large surplus capacity in China's capital-intensive industries, to increase growth in relatively poor regions of the country, and to secure a supply of energy and raw materials. For other countries involved in the project, BRI investments are a means to increase production and international trade. International trade and foreign direct investment have been positively affected, although to a limited extent. Finally, there are concerns that lack of transparency in Chinese lending may lead to increased corruption, and that some countries will face financial difficulties.

JEL codes: F10; F20; O10; O50

Keywords: The Belt and Road; China; Trade; FDI; Investments

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## 1. Introduction

Chinese investments abroad are becoming increasingly controversial, especially those linked to the Belt and Road Initiative (BRI), sometimes referred to as the New Silk Road. This is a mammoth project run by President Xi Jinping that marks a shift in the country's relationship with the rest of the world. More specifically, the first phase of China's integration into the world economy was characterized by large numbers of foreign companies entering the country and by a high level of exports. The second phase, that associated with the BRI, is rather defined by a growing Chinese presence abroad in the form of significant infrastructure investments aiming to connect national economies together. This form of integration can be expected to increase trade and growth in recipient countries and in China itself. But it has also been argued that these investments are made for other than economic reasons and that recipient countries are becoming mired in a negative dependency relationship with China. The BRI has led to countermoves, such as the G7 countries' "Build Back Better World" initiative, which also includes plans for significant infrastructure investment. The motive is obviously to counterbalance what the G7 countries see as China's extensive global influence.

The BRI was launched in 2013. Nearly a decade on, it is now possible to evaluate various aspects of this project. On the one hand, there are more and more data on trade and investment, and on the other, a growing number of studies examining different aspects of the initiative. This article reviews the existing literature in search of answers to two questions: first, what considerations gave birth to the BRI? And second, what are the project's economic effects in terms of capital flows and international trade?

## 2. Background

In 2013, President Xi Jinping gave a speech in Kazakhstan announcing the launch of a comprehensive program to link China with Central Asia and Europe. Later, the initiative was expanded to include investment in shipping routes primarily connecting China with Southeast Asia, the Gulf states, North Africa and Europe. At the heart of the program are massive investments in infrastructure such as roads, railways, ports, bridges and airports. It came to be called the Belt and Road Initiative.

The project expanded rapidly. Within a few years of Xi Jinping's speech, many countries had signed cooperation agreements with China (Lai 2021, p. 330). Exactly which and how many

countries is unclear, however, and various Chinese sources state the number to be anything between 57 and 138. The countries that are included in the BRI according to Hillman and Sacks (2021), together with the year of joining, are listed in Table A1 in the appendix. The unclarity is caused by a lack of an accepted definition of the BRI and no one, including those in power in Beijing, seems to know exactly what the project comprises (Ang 2019). Furthermore, many of the agreements are non-binding. Some countries that are signatories to the BRI have had no Chinese investment, while others that are not have received large sums.

Infrastructure investments have shortened global transport times. For instance, investment in Central Asian railways has meant transport systems from China to Europe have become more integrated. Direct rail connections between Chinese cities and Europe have enabled, for example, the transport of laptops from Chongqing, textiles from Suzho, and car parts from Changsha (Li et al. 2018). The longest railway line stretches 13,000 km from Yiwu to Madrid. Transporting goods by train is more expensive than shipping, but it is also much faster: it takes about half as long to move a container by train from China to Europe. For example, it takes a maximum 16 days by train from Chongqing to Duisburg, while from Shanghai to Rotterdam takes almost 40 days by ship (Pomfret 2019). Most trade between China and Europe still takes place via maritime routes, but in industries where inventory is kept low and the global value chain is important – such as electronics, for example – rail transport is becoming increasingly significant.

The expansion of critical infrastructure in different countries has often followed a similar pattern. The cost has been borne by the recipient nations, but China has offered loans from a variety of state financiers (OECD 2018, pp. 18–19), and Chinese companies have built the projects, usually using Chinese labor. This is in contrast to investments paid for by international organizations where local companies are more involved in the implementation. More specifically, some 89 percent of projects financed by Chinese loans are carried out by Chinese companies, 8 percent by local companies and 3 percent by third countries. In projects using other sources of finance, approximately 40 percent are implemented out by domestic companies (Council on Foreign Relations 2021, pp. 22–23).

It is difficult to make an exact estimate of total investments under the BRI initiative. One reason is the aforementioned ambiguity surrounding which countries are actually included; another is that many projects are still only on paper and have not yet been implemented. For example, there are plans for 40 different projects in Central and Eastern Europe, but by the end of 2021

only four had actually been implemented (Storey 2021). Similarly, only around a third of the projects have been implemented as part of the major effort to link Pakistan and China.

The American Enterprise Institute provides data on Chinese activities in countries which, given a generous interpretation, are part of the BRI. They include various types of construction and civil engineering investments that are not Chinese-owned but are carried out by Chinese companies, usually financed through Chinese loans. It is unlikely that all BRI projects are included, smaller projects in particular might fly under the radar, and the figures might therefore underestimate the true extent of BRI investments. Figure 1 shows the value of these investments during the period October 2014 to 2021. These peaked in 2016 at $76 billion.[2]

Figure 1 also shows that the value of Chinese investment has decreased since 2016, particularly during the pandemic years 2020-21. But the decline began before the pandemic set in. In total over this period, Chinese investment amounted to about $500 billion. This is a significant sum. One can compare it, for example, with the Marshall Plan after the Second World War, which amounted to approximately $114 billion dollars at today's prices. At the same time, the figures reported above include only around half the infrastructure projects that have been mentioned in connection with the BRI.[3] In other words, it seems that investment is slightly less than originally planned (Storey 2021). Given that investment has decreased in recent years, it is unclear whether it will achieve the intended level.

By studying the industries that China is investing in, we can get a clearer idea of why it launched the BRI. Table 1 shows the three most common sectors for Chinese investment in BRI countries. The energy sector is the largest with 40 percent. This suggests that China has a strong interest in securing access to energy – something we will return to in more detail below. The transport sector accounts for almost a third, which consists of extensive investment in roads and railways. Finally, a fairly large share of total investment has taken place in the real estate sector.

[2] The figures are based on data from the American Enterprise Institute https://www.aei.org/china-global-investment-tracker/

[3] A figure of $1 trillion in planned investments is often cited in discussions about the BRI. But the number varies and is sometimes said to be as high as $8 trillion (Hurley et al. 2018).

Figure 1. Chinese investment in BRI countries (million dollars in current prices)


*Source: American Enterprise Institute, https://www.aei.org/china-global-investment-tracker/*

Table 1. The most important sectors for Chinese investment in BRI countries (2013–2021, percentage of total investment in BRI countries)

| | |
|---|---|
| Energy sector | 40% |
| Transport sector | 31% |
| Real estate sector | 11% |

*Source: American Enterprise Institute, https://www.aei.org/china-global-investment-tracker/*

Table 2 shows the geographical spread of Chinese investment. Investments are fairly evenly distributed, with large shares in Africa, Asia, the Middle East, Russia and Central Asia. The BRI countries in Europe and South America attracts relatively low levels of investments.

Table 2. The most important regions for Chinese investments in BRI countries (2013–2021, percentage of total investments in BRI countries)

| | |
|---|---|
| Sub-Saharan Africa | 25% |
| Russia, Central Asia, and South Asia | 25% |
| Middle East and North Africa | 21% |
| East Asia | 19% |
| Europe | 5% |
| South America | 3% |
| North America | 1% |

*Source: American Enterprise Institute, https://www.aei.org/china-global-investment-tracker/*

## 3. Why did China launch the Belt and Road Initiative?

Chinese motives for the BRI are complex and include both economics and politics. With regard to the former, it is natural that China hopes the BRI will increase growth and prosperity. The expectation is that improved infrastructure and integration will lead to increased trade and thereby higher revenues. But the authorities are hoping above all for stronger growth in certain industries and regions. More specifically, the BRI is seen as an opportunity to utilize surplus capacity in capital-intensive industries, as well as to raise the standard of living in western and relatively poor parts of the country. Furthermore, China wants to secure imports of raw materials that are in short supply and which are critical to industry and the economy as a whole.

### *Overcapacity in Chinese industry*

Overcapacity is significant in large parts of Chinese industry. This applies not least to capital-intensive industries directly involved in building new infrastructure, such as steel, cement, aluminum and construction materials (Lai 2021, p. 337). Capacity utilization averages about 75 percent, which is very low by international comparison (ibid, p. 336). This is a result of misallocation of resources: investments are made in industries where demand cannot match the increased capacity for production, which means lower welfare than would otherwise be the case.

Investment in industry has been very high for a long time. In comparison with most other countries, China's economic growth has been driven more by investment (and net exports) than by domestic consumption. This applies in particular to the period following the global financial crisis of 2008-2009. The government decided to tackle the crisis with the help of major fiscal investments, which have since been made permanent. Investment in industry was encouraged through various subsidies, and as a result investment rose to as much as 47 percent of GDP in 2011. Since then it has fallen slightly, but was still relatively high at 43 percent in 2020.

This high level of investment is hardly justifiable from a business perspective, but is often a result of local authorities' desire to deliver high growth figures. All levels of Chinese government make growth plans, both for longer periods (five years) and for one year ahead. As the careers of political leaders are intimately linked to growth, there is a built-in tendency for growth planned at the center to be exceeded by growth plans at city and provincial level. Chen et al. (2021) describe how this process works in practice. The government established a national growth target for 2007 at 8 percent. For leaders of China's 34 provinces, it was important to set a target that was relatively high, but not so high that there was a risk of failure.[4] Authorities in Zheijang Province, for example, set a growth target of 10 percent. This was followed by prefectures (counties) and cities within Zheijang setting their own growth targets. The city of Jinhua, for example, set a target of 12 percent, which led the neighboring city of Quzhou to set a higher target of 12.5 percent. In this way, competition between regions drives ever higher growth targets.

As mentioned above, political leaders' careers depend on high growth and meeting the targets. This means they in turn are dependent on the business community increasing its activity. So investment is both encouraged and subsidized, both in private and state-owned companies. Chen et al. (2021) found that ambitious growth targets led to more company visits from the authorities, probably to put pressure on businesses to boost investment. They also found that this led to more subsidies and state support for business.

State-owned companies are the segment of the business community that is most strongly connected to the political sphere. There are approximately 175,000 state-owned companies in China, many of which are controlled by local authorities (Lin et al. 2020). A sign of their importance is that, of the Fortune 500 list of the world's largest companies, around 130 are

[4] More accurately, there are 22 provinces (23 according to China when Taiwan is included), four metropolitan areas, five autonomous regions and two special administrative regions.

Chinese, of which some 80 percent are state owned (Huang and Véron 2022). The state-owned companies are under the direct control of the authorities, which often order local branches of China's state-owned banks to provide investment loans.

Private companies are also affected by the wishes of local authorities. The latter control lending and land rights, for example, which causes private companies to follow government directives as far as possible. Compliance leads to better opportunities to obtain loans and land, and on better terms, as well as lower taxes and other supportive measures by the authorities.

This system of growth targets and pressure on companies to invest is an important explanation for overcapacity. It has also led to falling profits, increased debt and lower returns on equity (Guluzade 2019). The situation is serious and demands increased production, something the Chinese authorities hope will follow from investment in the BRI (Lai 2021). When Chinese companies build roads, railway tracks and ports, the necessary inputs come from China. This prompted Prime Minister Li Keqiang in 2014 to call on Chinese companies to adopt a more international outlook.

> "After years of development, China now has a strong capacity in infrastructure development and Chinese equipment is of high quality. We encourage competitive Chinese producers of iron and steel, cement and plate glass, etc. to shift their operation to ASEAN countries to meet the local need of infrastructure development through investment, leasing and loan lending so as to achieve mutual benefit" (Li Keqiang 2014).

It is reasonable to believe that increased investment abroad will raise sales of Chinese goods in industries with large overcapacity. However, it is more uncertain how long such an effect can be maintained. It is unclear whether this is just a temporary solution aimed at gaining time to implement structural economic changes.

*Regional development*

Another goal of the BRI is to develop the western part of the country, which makes up about one-third of China's provinces and two-thirds of its total land area. These western areas have slipped behind other parts of the country, due both to economic policies and purely geographical considerations (Demurger et al. 2002). Not least, the export-led growth that prevailed until recent years has benefited mainly the coastal provinces, partly because these

were the first to be opened up to foreign companies and international trade, and partly because proximity to marine transport routes has given them a continuing advantage.

Today, per capita income in western China amounts to only about 50 percent of that in coastal provinces (Lai 2021). This regional division seems to have stabilized at a high level and is very high by international comparison (Zhang 2021). Income disparities in turn have led to extensive migration. There are about 300 million migrants in China, most of whom have left western and central regions in search of work in the eastern provinces.

Moreover, the industrial overcapacity discussed above is particularly large in western provinces such as Guizhou, Xinjiang and Tibet (Chen et al. 2021, p. 7). Any attempts to address the overcapacity might therefore have a relatively large negative impact on growth in the western provinces and further increase income disparities.

A number of development programs for western China have been launched over the years in an attempt to achieve more balanced regional development. These have not succeeded in redressing regional inequalities, and in recent years the issue seems to have become a priority. The land-based part of the BRI will connect the western parts of China with Europe, Central Asia and the Middle East. The hope is that this will increase western China's income through trade, investment and new businesses. In parallel with these attempts to connect western China with the outside world, infrastructure investments are being made to link the region with the coastal provinces.

*Raw material supply*

The BRI is important for China's imports of raw materials (Lai 2021). China is dependent on large imports of oil, coal, iron ore and much more. For example, the country is the world's largest producer of steel, with around half the world's total production. But domestic iron ore is of low quality and China is therefore the world's largest importer of iron ore.

China is also the world's largest importer of oil and natural gas: over 70 percent of oil consumption and around 40 percent of natural gas is imported. Natural gas in particular has grown in importance, to some extent as a way of reducing dependence on coal, which has a greater environmental impact. Natural gas can be transported either by pipelines or by sea, and China use both (O'Sullivan 2019). Imports through sea transport come through the Straits of

Malacca and the South China Sea. As political tensions with the United States and other countries increase, China has identified natural gas as vulnerable in a possible conflict.

Land transport is judged to be less vulnerable, and the BRI has facilitated this switch. New pipelines are therefore planned from Siberia to China. China's efforts to gain access to ports are also partly aimed at avoiding the Straits of Malacca. This is the case, for example, with the port of Gwadar in Pakistan, which is operated by China. The port makes it possible, via roads and other infrastructure built by China, to transport oil and other raw materials from Africa and the Middle East to China without crossing the Straits of Malacca.

*Political influence*

China has seen an opportunity to increase its influence, as the United States in recent years has tended to become more inward-looking, especially under President Trump but also under President Biden. This ambition is partly a new phenomenon – for a long time China showed only a passing interest in what was happening outside its immediate geographical proximity. Nowadays, however, there is a much more visible presence in international politics. A stronger global presence has many benefits for China. Not least, it hopes this will lead to greater freedom of action on issues of national importance, such as Hong Kong, Taiwan, and the Xinjiang Uygur Autonomous Region. Furthermore, it is possible that China's strategy of investment and diplomacy in Eastern Europe and its modest presence in Western Europe could lead to a weakened EU, which also has its advantages from the Chinese perspective (Miao 2021). However, as mentioned above, actual investment in the EU has been relatively small, and it is perhaps only in the Balkans that large investments have taken place. There has also been a tendency for several Eastern European countries in recent years to move away from China and highlight the negative security aspects that any rapprochement might entail.

Chinese investment is often described in terms of promoting development as part of a Chinese model that it is seeking to spread around the world. One reason may be that China wants to strengthen its soft power and gain political influence. However, the BRI differs in a number of respects from China's own economic development (Skidmore 2020). First, the massive increase in infrastructure investment came only after many years of high growth – i.e. investment followed growth, rather than the other way around. Second, Chinese investments have been financed with domestic rather than foreign capital (ibid).

## 4. Economic effects of the Belt and Road Initiative

The discussion above reveals that the BRI is a means for China to tackle domestic imbalances such as overcapacity and regional disparities. Another motive is a desire for increased political influence internationally. The question is: to what extent have these different objectives been achieved? Here I will limit myself to the economic effects.[5] There are few, if any, studies that have examined whether the BRI has been successful in terms of tackling overcapacity and uneven regional development. Instead, the empirical literature focuses on how the BRI has affected international trade and capital flows. These can be expected to have had a positive effect on developments in China and other BRI countries, but it is difficult to say anything with certainty about their impact on specific Chinese regions and industries.

### *Chinese lending*

As previously shown, the BRI has involved a significant amount of investment, financed mainly with Chinese loans. This has meant large capital flows from China to other BRI countries. China is today a much bigger source of what is sometimes called development financing than any other country (Malik et al. 2021). Despite their size, these capital flows have gone relatively unnoticed. One reason is that China is not a member of international organizations where capital flows are reported and monitored, such as the Paris Club. Horn et al (2021) have conducted a comprehensive review and mapping of Chinese capital flows. Some aspects stand out and distinguish China from most other countries. First, all lending is handled essentially by government actors, either state-owned companies or the Chinese central bank. Second, only about half of these flows are reported to the most common statistical forums, such as the International Monetary Fund, the World Bank, the Bank for International Settlements and the OECD. Overall, capital flows from China are therefore characterized by a low degree of transparency.

Horn et al. note that a large number of developing countries have built up significant debts to China. More specifically, the debts to China of the 50 most indebted countries increased from 1 percent of their GDP in 2005 to more than 15 percent in 2017. Debts to China amount to at

[5] It seems unclear whether the BRI has given China any political gains. In some countries, influence and goodwill seem to have increased, but in others the BRI has rather led to increased distrust of China (Ang 2019).

least 40 percent of these countries' total debts. Steil and Della Rocca (2019) have also examined debt to China as a share of national GDP. The most indebted nations were Kyrgyzstan (42 percent), Tajikistan (24 percent), Mongolia (23 percent) and Cambodia (22 percent). The figures are from 2017 and it is unclear how the situation has developed since then. It should be noted that some European countries also have large debts to China, in particular Belarus (15%), Bosnia and Herzegovina (15%) and Serbia (11%).

In a related study, Hurley et al. (2018) investigate which countries are at risk of a serious debt crisis due to the BRI, concluding that 10 to 15 countries are vulnerable, and for 8 the risk is acute. From a European perspective, it is interesting that one of these is Montenegro,[6] whose indebtedness is due to construction of a motorway from the coast to Serbia that has become significantly more expensive than expected. Montenegro can no longer pay the interest on its debt to China and is negotiating new loans with the EU. If the negotiations fail, China will receive control of the port in the city of Bar as compensation for non-payment.

The terms of Chinese loans tend to be worse than those of development loans from other countries and international authorities, but often better than those offered by private lenders (Dollar 2020). However, it is unclear whether alternatives to Chinese loans have been available to borrowers.

It is sometimes claimed that it is easier to borrow from China than from, for example, the World Bank, and that the latter places more demands on the lender in terms of transparency and sustainability. China also, unlike many international organizations, never demands economic reforms as a condition for loans (Council on Foreign Relations 2021, p. 15). Furthermore, multilateral lenders, unlike Chinese lenders, focus increasingly on social investment and democracy support, and less and less on infrastructure (Dollar 2020).

Whether Chinese loans are a problem or an opportunity depends on how they are used. If they are employed for productive investments, it is positive for the country. But the opposite naturally applies if the borrowed funds disappear through corruption in the host countries, for example. There are currently no studies that compare the economic effects of loans from China with those from other countries and organizations. However, Isaksson and Kotsadam (2018) have examined Chinese aid to 29 African countries, finding that it increases local corruption

[6] The other seven countries are Djibouti, Kyrgyzstan, Laos, the Maldives, Mongolia, Pakistan and Tajikistan.

and has no noticeable effect on economic growth. This is in contrast to aid from the World Bank, which increases growth without leading to more corruption.

It is therefore possible that Chinese capital to developing countries leads to increased corruption, although it is hard to determine the precise risk.[7] Studies appear to show that Chinese actors adapt to domestic norms (Carrai 2021), which suggests that institutional conditions in recipient countries determine whether capital inflow is positive or negative for a country's development. In countries with a high level of corruption, Chinese actors will adapt and use bribes as part of their business strategy, while in countries with transparency and good institutions, there is likely to be compliance with good corporate ethics. In light of this reasoning, it is worrying that much of China's lending has gone to some of the more corrupt countries in the world. This is also evident in difficulties with implementing projects financed by BRI lending. Malik et al. (2021) report, for example, that 35 percent of BRI projects face major implementation problems; the corresponding figure for Chinese projects in other countries is 21 percent. In the same way, BRI projects on average take more than 1,000 days to complete, compared with just under 800 days for projects in other countries.

Sri Lanka is an example of how corruption combined with Chinese capital can have negative consequences. Chinese authorities loaned Sri Lanka a large sum to build a port in Prime Minister Rajapaksa's home town of Hambantota. The project was carried out with no actual business plan and without any investigation of alternative locations for the port, or even to see whether there was a need for additional port capacity in Sri Lanka. As usual, the work was carried out by a Chinese company, in this case the China Harbor Engineering Company, one of China's largest state-owned enterprises. The project was a failure. It did not provide enough revenue to pay back the loan, and eventually the Chinese state took over the port. In addition, they were granted a 99 years lease on 15,000 hectares of land for an industrial park.

Sri Lanka may be an example of China lending money for highly dubious purposes, in other words on the basis of more than purely business calculations, but instead for security or foreign policy reasons (Council on Foreign Relations 2021). In the case of Sri Lanka, the possibility of gaining access to a strategically located port may have played a role in the lending.

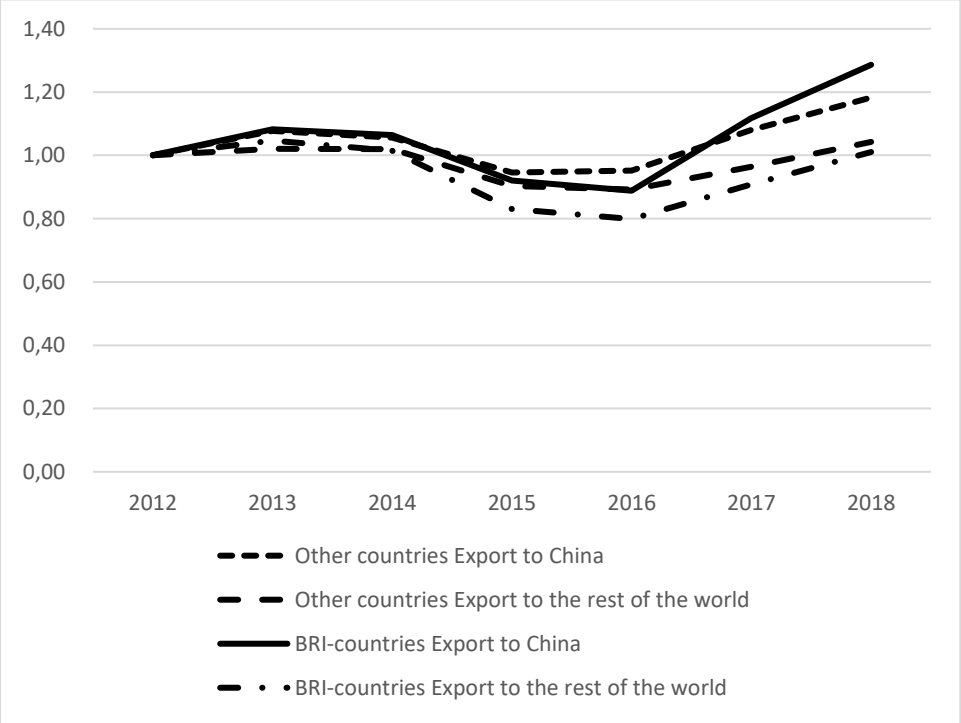
[7] A similar fear sometimes advanced is that China's increasing involvement in developing countries will reverse their transition to democratic governance of a Western nature.

*International trade*

Improved infrastructure and increased economic integration can be expected to boost trade between China and the countries concerned. Furthermore, trade may also grow between BRI countries excluding China that are linked by, for example, new railway lines. Finally, trade with the rest of the world, i.e. countries that are not BRI members, can also increase if integration with the rest of the world is improved thanks to ports and other infrastructure.

Increased trade is based on the assumption that trading costs will fall as a result of BRI investments. De Soyres et al. (2018) have investigated what a fully developed Silk Road program would mean for trading costs. They estimate that cheaper transport, for example, leads to a reduction in trading costs of between 2.2 and 3.5 percent – a modest but not negligible reduction. The lowering of trading costs is greatest in East and South Asia. Furthermore, the decrease is greatest for countries that are part of BRI, but other countries also see their trading costs decrease.

Figure 2. Effects of the BRI on exports




*Source: Comtrade*

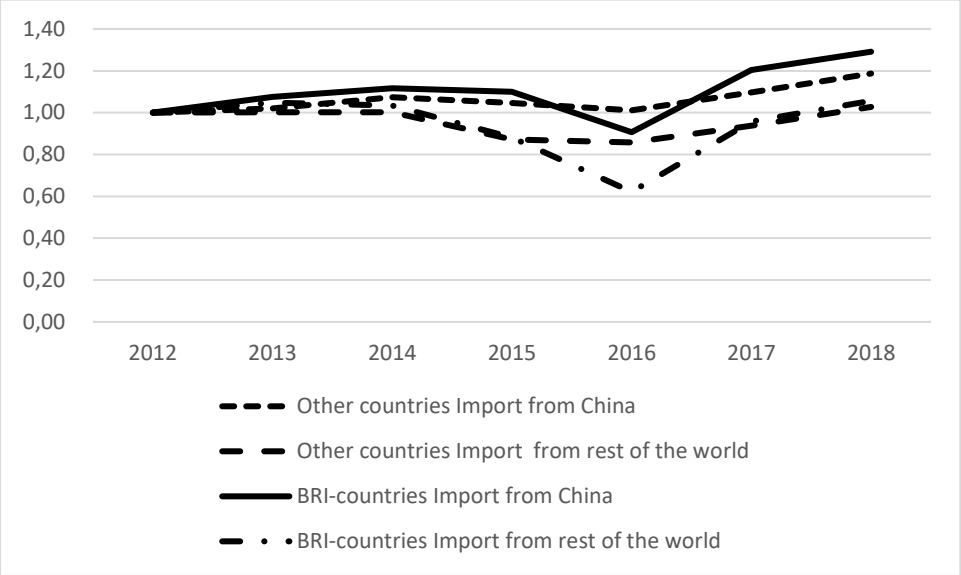
*Note: The classification of countries as BRI members follows the Council on Foreign Relations (2021), https://www.cfr.org/report/chinas-belt-and-road-implications-for-the-united-states/*

Figure 2 shows how exports to China and the rest of the world from BRI member countries have developed between 2012 (one year before the BRI began) and 2018.[8] The baseline is 2012. The increase in exports to China was greater than the increase in exports to the rest of the world, both for BRI and non-BRI countries. BRI countries had a higher increase in exports to China than countries outside BRI, but the difference was non-existent in many years and increased only in 2018. During the period 2012─2018, exports to China increased by 29 percent for BRI countries and by 18 percent for others. Exports to countries other than China show a modest increase; in the case of these exports, there is a marginally smaller increase for BRI countries. More specifically, the increase is one percent for BRI countries and 4 percent for other countries.

Figure 3 shows imports from China and from the rest of the world during the same period. Once again, trade with China grew in importance: imports from China increased faster than imports from the rest of the world for both groups of countries. For imports from China, there is a fairly clear difference between the two groups: for BRI countries, imports from China increased by 29 percent compared with an increase of 19 percent for countries outside BRI. The increase in imports from China has thus been as large as the increase in exports to China (Figure 2). Imports from other countries increased by 6 percent for BRI countries and 3 percent for countries outside BRI.

[8] Data for recent years are not available for all countries.

Figure 3. The effect of BRI on imports from China




*Source: Comtrade*

*Note: The classification of countries as BRI members follows the Council on Foreign Relations (2021), https://www.cfr.org/report/chinas-belt-and-road-implications-for-the-united-states/*

The basic figures above seem to indicate a certain increase in trade as a result of the BRI. Given falling trading costs, this is not surprising. However, this description does not take into account other factors that may affect trade and does not measure any causal effect of the BRI.

A number of empirical studies have been conducted to estimate the BRI's effect on trade. Most are correlation studies comparing trade growth between BRI countries and between other countries. These studies produce similar figures to the ones above, but they control for other factors that may affect trade. Slightly more rigorous are studies that compare trade between the two groups before and after the launch of the BRI, in a so-called "difference-in-differences" analysis. The problem remains that BRI membership is not random, making it difficult to comment on its trading effect.

This selection effect might be important judging from previous studies which have shown that BRI member countries were relatively well integrated with China before the project was launched. Bastos (2020) examines how trade has changed for countries along the new Silk Road as China's integration with the rest of the world has grown, for example through the

country's membership of the WTO in 2001. The analysis examines the period 2000–2015, i.e. mainly before the BRI. Throughout this period the countries are well integrated, and China's growing global integration increases their exports to China. At the same time, however, increased competition from Chinese exports in other markets were negative for BRI countries to these markets. The positive effect of increased Chinese demand was relatively large for raw materials, while the negative effect of increased competition in other markets was relatively large for processed goods. This is in line with the earlier discussion which showed that commodity-intensive industries have been the subject of most of China's interest. Furthermore, the negative competitive effect was relatively large for low-income countries and for countries that were geographically close to China.

Bastos (2020) concludes that China was well integrated with the BRI countries even before the project was launched – the question is whether it has further increased this integration. Most studies of BRI suffer, as mentioned above, from problems of identification making difficult to say anything with certainty about causal effects. Baniya et al. (2020) attempt to rectify this kind of bias by examining how travel times between different countries may have changed as a result of the BRI. Then they estimate the extent to which trade is affected by travel times, under the assumption that travel time can be used as a so-called "instrument". This allows the authors to estimate the *potential* causal effect of BRI on trade. An obvious difficulty is that it is unclear how the BRI variable can be measured, because it is unclear both which projects are included and how much of planned investment will be implemented. Their study estimates that, fully implemented, the BRI will increase trade for BRI countries by between 2.5 and 4.1 percent. The increase is greater for products that use inputs sensitive to transport time and for countries that are well integrated into global value chains. The figures must be interpreted with caution, but the result again indicates a non-negligible but limited increase in trade.

*Foreign direct investment*

China's foreign direct investment – investment abroad by Chinese companies that maintain control of these operations – has increased significantly in recent years. In 2019, they accounted for approximately 11 percent of total global direct investment, which was lower than the EU's

share of about 33 percent but higher than the US share of about 8 percent.[9] These shares are based on financial flows, which are rough measures of multinational companies' operations and contain various potential errors (Lipsey and Sjöholm 2011). An alternative source that captures real economic activity are the above-mentioned data from the American Enterprise Institute. According to these data, the BRI countries are not the dominant recipients of Chinese direct investment but account for about 35 percent. This is a different pattern to the importance of the BRI for other types of capital flow. The geographical profile of foreign investment in the BRI countries is shown in Table 3. The pattern differs from the figures on other investments (Table 2). More specifically, much of the investment takes place in neighboring countries. As a share of total direct investment in various countries, the Chinese are particularly prominent in Myanmar (56 percent), Tajikistan (44 percent), Kyrgyzstan (26 percent) and Mongolia (26 percent).[10] That Chinese direct investment is important in neighboring countries is not surprising, but something that looks similar in many other places; there is a strong geographical component in the location of foreign direct investment.

As with lending, a large part of direct investment is directed towards the energy sector (39 per cent). In addition, a relatively large share goes to mining, the metals industry and the transport sector.[11]

[9] The figures are taken from UNCTAD's database of foreign direct investment https://unctadstat.unctad.org/

[10] The figures are from Steil and Rocca (2019).

[11] The figures are taken from the American Enterprise Institute, https://www.aei.org/china-global-investment-tracker/

Table 3. The most important regions for Chinese direct investment in BRI countries (2013–2021, percentage of total BRI investment)

| | |
|---|---|
| East Asia | 38% |
| Europe | 17% |
| Russia, Central Asia, and South Asia | 16% |
| South America | 12% |
| Sub-Saharan Africa | 11% |
| Middle East and North Africa | 6% |
| North America | 1% |

*Source: American Enterprise Institute.* *https://www.aei.org/china-global-investment-tracker/*

Increased integration can be assumed to have a positive effect on foreign direct investment. When exports to China increase from countries along the Silk Road, some of this is likely to happen from Chinese subsidiaries. In the same way, improved infrastructure may make it more attractive for foreign companies from other countries to establish themselves within the BRI area.

Chen and Lin (2020) find that reduced transport costs have a positive impact on foreign direct investment. Based on this, they estimate what an expanded BRI might mean for foreign direct investment – i.e. a similar approach to the study of trading effects discussed above. For BRI countries, the estimated increase would be 3 percent, and for other countries 1 percent.

Other studies look instead at the actual, rather than the potential, increase in foreign direct investment. You and Zhang (2018), for example, compare the flow of foreign direct investment before and after the introduction of the BRI and find a clear correlation. State-owned Chinese companies, primarily in infrastructure-related industries, increased their establishment of foreign subsidiaries, and the same was true for private Chinese companies in other industries. Nugent and Lu (2021) complement the picture, finding no overall increase in Chinese foreign direct investment, but an increase limited to industries with either large overcapacity or large environmental emissions. This confirms our reasoning above that state-owned companies with overcapacity are an important explanation for the origins of the BRI. The fact that investment takes place to a relatively large extent in polluting industries may be a consequence of the major environmental problems that plague large parts of China, and possibly also the outside world's attention to these problems.

Studies have also shown that a large share of BRI investment is made to ensure supply of raw materials (Kolstad and Wiig 2012). The importance of raw materials as a determining factor for Chinese direct investment has not diminished in recent years, despite the fact that a larger proportion of investment is directed at high-income countries (Feng et al. 2020).

## 5. Conclusions

This paper has used new data and reviewed the emerging literature on the Belt and Road Initiative to try to improve our understanding of its origins and economic effects. We can now draw some conclusions from this review.

First, China's involvement in BRI member countries is significant, both in terms of construction projects and investment by Chinese companies. On the other hand, the commitment is both less than sometimes portrayed and smaller than China's stated objective. Furthermore, it has decreased since 2016, which can only partly be explained by the pandemic.

There are several reasons why China is interested in connecting countries through investment in infrastructure. It is clear that its primary interest in the BRI is due to domestic imbalances such as surplus industrial capacity: one way of reducing this is to lend money to recipient countries, allowing Chinese companies to use Chinese inputs to build roads, railways and other infrastructure. The country is also a very large importer of raw materials – securing their supply is another factor behind the BRI. Finally, the project is a means for China to attempt to raise incomes and living standards in western parts of the country.

For recipient countries there are opportunities for trade, above all with China but also with other countries that are bound together through improved infrastructure.

The BRI has led to large capital outflows from China for investments in infrastructure. This has had positive effects on member countries' economies, but there is also a concern that it may lead to increased corruption, higher debt burdens and weaker interest in reform. A fundamental problem with Chinese lending is its lack of transparency.

Empirical studies suggest that BRI projects have reduced transport costs and led to increased trade and increased investment by multinational companies. This applies in particular to trade with China – the effect on other trade has been more modest. Above all it is trade in raw materials that has increased, in line with one of China's intentions for the BRI. In quantitative

terms, the trading effect of the BRI is rather limited. More specifically, research has found that trading costs fall by about three percent and that trade may increase by a maximum of four percent through a fully implemented BRI.

Finally, studies suggest that the BRI has had a positive impact on direct investment by Chinese companies. State-owned companies are mainly responsible, and a large proportion takes place in industries where China has significant surplus capacity – also in line with the driving forces underlying the BRI.

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Appendix

Table A1. Countries included in BRI and year of joining

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Afghanistan | 2013 | East Timor | 2017 | Luxembourg | 2019 | Senegal | 2018 |
| Albania | 2017 | Ecuador | 2018 | Macedonia | 2013 | Serbia | 2015 |
| Algeria | 2018 | Egypt | 2016 | Madagascar | 2017 | Seychelles | 2018 |
| Angola | 2018 | El Salvador | 2018 | Malaysia | 2017 | Sierra Leone | 2018 |
| Antigua and Barbuda | 2018 | Equatorial Guinea | 2019 | Maldives | 2017 | Singapore | 2018 |
| Armenia | 2015 | Estonia | 2017 | Mali | 2019 | Slovakia | 2015 |
| Austria | Unknown | Ethiopia | 2018 | Malta | 2018 | Slovenia | 2017 |
| Azerbaijan | 2015 | Fiji | 2018 | Mauritania | 2018 | Solomon Islands | 2019 |
| Bahrain | 2018 | Gabon | 2018 | Micronesia | 2018 | Somalia | 2015 |
| Bangladesh | 2019 | Gambia | 2018 | Moldova | 2013 | South Africa | 2015 |
| Barbados | 2019 | Georgia | 2016 | Mongolia | 2013 | South Korea | 2018 |
| Belarus | 2013 | Ghana | 2018 | Montenegro | 2017 | South Sudan | 2018 |
| Benin | Unknown | Greece | 2018 | Morocco | 2017 | Sri Lanka | 2017 |
| Bolivia | 2018 | Grenada | 2018 | Mozambique | 2018 | Sudan | 2018 |
| Bosnia and Herzegovina | 2017 | Guinea | 2018 | Myanmar | 2016 | Suriname | 2018 |
| Brunei | 2018 | Guyana | 2018 | Namibia | 2018 | Tajikistan | 2018 |
| Bulgaria | 2015 | Hungary | 2015 | Nepal | 2017 | Tanzania | 2018 |
| Burundi | 2018 | Indonesia | 2015 | New Zealand | 2017 | Thailand | 2014 |
| Cambodia | 2013 | Iran | 2018 | Niger | Unknown | Togo | 2018 |
| Cameroon | 2015 | Iraq | 2015 | Nigeria | 2018 | Tonga | 2018 |
| Cape Verde | 2018 | Italy | 2019 | Niue | 2018 | Trinidad and Tobago | 2018 |
| Chad | 2018 | Ivory Coast | 2017 | Oman | 2018 | Tunisia | 2018 |
| Chile | 2018 | Jamaica | 2019 | Pakistan | 2013 | Turkey | 2015 |
| China | 2013 | Kazakhstan | 2015 | Panama | 2017 | Uganda | 2018 |
| Comoros | Unknown | Kenya | 2017 | Papua New Guinea | 2016 | Ukraine | 2017 |
| Congo | Unknown | Kiribati | 2020 | Peru | 2019 | United Arab Emirates | 2018 |
| Cook Islands | 2018 | Kuwait | 2018 | Philippines | 2017 | Uruguay | 2018 |
| Costa Rica | 2018 | Kyrgyzstan | 2013 | Poland | 2015 | Uzbekistan | 2015 |
| Croatia | 2017 | Laos | 2018 | Portugal | 2018 | Vanuatu | 2018 |
| Cuba | 2019 | Latvia | 2016 | Qatar | 2019 | Venezuela | 2018 |
| Cyprus | 2019 | Lebanon | 2017 | Romania | 2015 | Vietnam | 2017 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Czech Republic | 2015 | Lesotho | 2019 | Russia | Unknown | Yemen | 2017 |
| Democratic Republic of Congo | 2021 | Liberia | 2019 | Rwanda | 2018 | Zambia | 2018 |
| Djibouti | 2018 | Libya | 2018 | Samoa | 2018 | Zimbabwe | 2018 |
| Dominica | Unknown | Lithuania | 2017 | Saudi Arabia | 2018 | | |

Source: Hillman and Sacks (2021)