RAND EUROPE

RESEARCH BRIEF

China Belt and Road Initiative

How revival of the silk road could impact world trade

In 2013, Chinese President Xi Jinping announced plans to build a Silk Road Economic Belt and a 21st Century Maritime Silk Road, which have come to be known as the Belt and Road Initiative (BRI). The BRI is geared towards encouraging policy coordination, infrastructure connectivity, investment and trade cooperation, financial integration, cultural exchange and regional cooperation between Asia, Europe and Africa by creating jointly built trade routes emulating the ancient Silk Road. The colossal scale of the BRI is exemplified by the 4.4 billion people (70 per cent of the world population) and the cumulative gross domestic product (GDP) of around US$21 trillion that it is set to encompass.

The Silk Road Economic Belt connects China, Central Asia, Russia and Europe, and the 21st Century Maritime Silk Road runs along China's coast towards Europe in one direction and from China's coast, cutting through the South China Sea and the South Pacific, in the other. The overland path will leverage existing international transport routes and key economic industrial parks as springboards for cooperation, while the sea route aims to build transport routes bridging major sea ports across the BRI.

Figure 1 Map of BRI regions and projects

Source: Mercator Institute for China Studies. (C.Inton, 24/03/2017. Reuters)

Main research question: understanding the impact of improving multimodal transport connectivity on multilateral trade and economic growth in countries and regions across the BRI

This project aimed to gather evidence to understand and quantify the potential impact of the BRI investment on multilateral trade and economic growth. The research team undertook both qualitative and quantitative analyses consisting of desk research, literature review and econometric modelling.

This is a proof-of-concept study which is targeted at stimulating discussion and providing empirical evidence on the impact of transport infrastructure improvements in the BRI region. The study's findings aim to be of use to policymakers and stakeholders who are interested in this infrastructure plan.

Key findings

Qualitative research suggests that multimodal transport infrastructure and connectivity is key to boosting international trade and economic growth

More specifically:

- Good transport infrastructure reduces transport costs and transport times and improves delivery reliability. Empirical evidence shows that cost of transport, in both time and money, has a significant impact on trade flows. Good transport infrastructure facilitates trade expansion.
- Efficient transport infrastructure facilitates industrialisation and also enables more efficient regional and global production networks. This results in more employment, positively affecting industries and sectors.
- Better transport infrastructure enables regions to be well connected and supports regional economic integration.

- Better transport infrastructure can lower transport and trade costs, accelerate industrial agglomeration, increase labour productivity and foster development and regional and national welfare.

We identify key facilitators of and barriers to transport connectivity to facilitate multilateral trade in the general BRI context. Many barriers could become facilitators, if resolved. The barriers and facilitators are broadly classified into two types: physical and soft.

Physical barriers could include inadequate capacity of infrastructure and equipment, speed and cost of transporting goods or topographical factors such as deserts or mountainous regions. Soft barriers could include legal and regulatory barriers, project financing and security, (inhospitable) terrain and security surrounding trade routes. We also discuss the role of technology in facilitating supply-chain resilience and resource efficiency.

Overall, the BRI promises to boost trade and economic growth but several barriers will need to be overcome.

Quantitative research reveals that improving transport infrastructure across the BRI will result in a win-win situation for trade, both for the BRI region and areas further afield

In the second stage, we develop an econometric model to quantify the impact of improving transport connectivity on multilateral trade between areas covered by the BRI and the rest of the world. The study area comprises 65 BRI countries (up to 2016), 28 European Union (EU) countries and over 40 other countries that are directly or indirectly affected by the BRI. Because of a lack of data, we are restricted to the development of a preliminary gravity model (Anderson and van Wincoop 2003, 2004).

The model development uses readily verifiable data from publicly accessible sources, such as the World Bank and United Nations. A series of indices are defined to measure the quality of transport infrastructure including rail, road and airport densities, maritime logistics performance and the World Bank logistics performance index (LPI). To measure transport connectivity, bilateral distances between countries by rail, aviation and maritime transport are used, which provide a proxy for transport costs by each mode.

The models provide essential input for examination of a set of policy scenarios. Using ongoing BRI project information, we simulate a series of policy scenarios and examine the impact of improving transport connectivity and infrastructure within the BRI region and in the wider study area.

From the quantitative analysis we find that:

- There is a large variation in the quantity and quality of transport infrastructure in the BRI region. On average, the region suffers from having less developed transport infrastructure and connectivity compared to other regions (EU and elsewhere), which hampers trade development. As of 2013, the airport density (number of airports per 1,000 km^2) in the BRI region was nearly one-sixth that of the EU and one-third those of the other economic entities included in the study. In the same time period, railway density (per km^2) in the BRI region was one-fifth that of the EU.
- The econometric model analysis finds a statistically significant positive association between transport connectivity and bilateral

Figure 2 Barriers to and facilitators of transport connectivity and trade related to the BRI

trade. More specifically, in the BRI region, the existence of a rail connection between trading partners is associated with a large impact on improving trade, e.g. improving total exports by 2.8 per cent in the BRI region, including the wider region. We also find that a 10 per cent reduction in air and maritime distance increases trade by 0.4 per cent and 0.1 per cent, respectively. Moreover, improvements in road density by 10 per cent would increase trade by 0.34 per cent. In addition, transport service quality is found to have an important impact on bilateral trade.

- Our statistical analysis suggests that, with the proposed level of investment in transport infrastructure in the BRI region, total trade volumes could increase not only in the BRI region, but also in areas outside the initiative (such as the EU). Improving transport infrastructure in the region would appear to present a win-win scenario in terms of the impact on trade.

Recommendations

Our analysis finds that the area covered by the BRI suffers from having less developed infrastructure than other regions and that this hampers trade. Therefore, investing in trade- and transport-related infrastructure such as ports, airports and road and rail links should remain a priority and sufficient funding should be made available for this purpose.

In addition to improving 'physical' transport infrastructure and connectivity, 'soft' barriers will need to be overcome. Legal and regulatory inconsistencies need to be addressed and streamlined across the BRI's overland and maritime corridors in order to reduce trade friction. Creating clear security arrangements and mechanisms to ensure the safety and security of goods travelling across the BRI can also help protect investments. Advancements in information and digital technology and automation can help improve multimodal transport connectivity by creating digital and information-sharing networks, collaborative platforms and opportunities to improve efficiency and supply-chain resilience.

Further, there could be substantial benefits if countries and regions across the BRI coordinate their development plans to achieve compatibility and complementarity between policies and infrastructure implementations. Countries should work together to ensure the initiative delivers sustained economic, social and environmental benefits.

References

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