

RGC Ref. No.: UGC/FDS16/B20/19 <hr/> (please insert ref. above)

**RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR**

FACULTY DEVELOPMENT SCHEME (FDS)

Completion Report

(for completed projects only)

<p><u>Submission Deadlines:</u></p> <ol style="list-style-type: none"> 1. Auditor's report with unspent balance, if any: within six months of the approved project completion date. 2. Completion report: within 12 months of the approved project completion date.
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Part A: The Project and Investigator(s)

1. Project Title

The Effects of Improved Trade Facilitation and Physical Connectivity of OBOR's Six
Economic Corridors on Trade and the Spillovers Effects from the Economic Corridors

2. Investigator(s) and Academic Department(s) / Unit(s) Involved

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Dr Mathew YEUNG Chi Hei/Associate Professor	Lee Shau Kee School of Business and Administration, Hong Kong Metropolitan University
Co-Investigator(s)		
Others		

3. Project Duration

	Original	Revised	Date of RGC / Institution Approval <i>(must be quoted)</i>
Project Start Date	1 Jan 2020	1 Jan 2020	
Project Completion Date	31 Dec 2021	31 Dec 2022	5 Oct 2021
Duration <i>(in month)</i>	24	30	5 Oct 2021
Deadline for Submission of Completion Report	31 Dec 2022	30 June 2023	5 Oct 2021

Part B: The Final Report

5. Project Objectives

5.1 Objectives as per original application

1. *To examine the effects of improved border administration and infrastructure on the export performance of OBOR countries.*
2. *The OBOR project connects OBOR countries and develop a hierarchy such as countries, countries nested within corridors, and sectors nested within countries nested within corridors, etc. Such a hierarchy leads us to examine the effects improved border administration and infrastructure on the export performance of the newly formed six economic corridors.*
3. *To examine the differences in the effects of improved border administration and infrastructure on exports performance by sectors for OBOR countries.*
4. *To access the spillovers effects from the six newly formed economic corridors*

5.2 Revised objectives

Date of approval from the RGC:

Reasons for the change:

- 1.
- 2.
3.

5.3 Realisation of the objectives

(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)

Objective 1 was met by studying a gravity model built with data of Belt-and-Road countries. The model examines the effects of hard and soft infrastructure on trade performance and the results suggest that the improved soft infrastructure is relatively more important when compared to the improved hard infrastructure in terms of fdi and trade performance.

Objective 2 was accomplished by offering a comparison of various types or modes of infrastructure investments and their influence on trade across BRI corridors. Despite the rankings of the effects of enhanced infrastructure across corridors being largely similar, the results across distinct modes of infrastructure investments were highly significant. This objective was also addressed by examining the hierarchy of effects; the results suggest that exporters are most likely to benefit from improvements made by importers.

Objective 3 was met by studying the econometrics models built with data of countries along the New Eurasia Land Bridge Economic Corridor and China-Mongolia-Russia Economic Corridor. The models examine the effects of hard and soft infrastructure, natural resources, market size, infrastructure, institutional distance and cultural proximity on the ability to attract Chinese investments. The results suggest that the attractiveness of strategic assets among countries along different economic corridors can be very different from the standpoint of Chinese investors.

Objective 4 was fulfilled by investigating whether improved infrastructure investment has spillover effects on other sectors, particularly logistics capacity. While studies show that transport infrastructure reduces shipping and trade costs, facilitating trade in terms of cargo value, few studies have directly emphasized physical weight as a driver of international specialization. The physical weight of the product exhibit product quality and there is great heterogeneity in the unit weight of traded goods even within narrowly-defined product categories. The results suggest that improved infrastructure would have a greater impact on trade logistics capability than on trade values.

5.4 Summary of objectives addressed to date

6. Research Outcome

Objectives <i>(as per 5.1/5.2 above)</i>	Addressed <i>(please tick)</i>	Percentage Achieved <i>(please estimate)</i>
1. To examine the effects of improved border administration and infrastructure on the export performance of OBOR countries.	✓	100%
2. The OBOR project connects OBOR countries and develop a hierarchy such as countries, countries nested within corridors, and sectors nested within countries nested within corridors, etc. Such a hierarchy leads us to	✓	100%

	examine the effects improved border administration and infrastructure on the export performance of the newly formed six economic corridors.		
3.	To examine the differences in the effects of improved border administration and infrastructure on exports performance by sectors for OBOR countries.	✓	100%
4.	To access the spillovers effects from the six newly formed economic corridors	✓	100%

6.1 Major findings and research outcome

(Maximum 1 page; please make reference to Part C where necessary)

Considered to be one of the most important and largest international development programs of the 21st century (Li et al., 2021; Nugent and Lu, 2021), the Belt Road Initiative (BRI), which was launched by China's President Xi Jinping in 2013, aims to connect China to markets in Asia, Europe and Africa. While the over-arching objective of the initiative is to "strengthen exchanges and mutual learning between civilizations and promote world peace and development" (NDRC, 2015: p.1), the project essentially comprises multiple infrastructural projects that connect various strategic locations by land and sea, as well as digitally through the Digital Silk Road. The importance of infrastructure in economic development was emphasized by the Chinese president at the Belt and Road Forum in Beijing in May 2017, "infrastructure connectivity is the foundation of development through cooperation. We should promote land, maritime, air and cyberspace connectivity, concentrate our efforts on key passageway, cities and projects and connect networks of highways, railways and sea ports ..." (Xi, 2017). As the supply of funds for BRI projects become more scarce and stringent, as cautioned by President Xi Jinping in a video speech at the triennial Forum of Africa-China Cooperation in Senegal in November 2021 (Financial Times, 10 January 2022), it becomes essential then for governments, both China and the host country, to prioritize those infrastructures that provide the highest returns and those that fill the most pressing need of the host country. The research attempts to fill this gap in the literature by comparing the impact of ground, sea and air transportation on international trade, particularly among the BRI countries and corridors. The study found that all infrastructure variables were significant in influencing export performance, regardless of whether the dependent variable was weight or value. Specifically, port infrastructure had the largest impact, with larger beta coefficients for importers than exporters, indicating the quality of transportation infrastructure in the importing country had a greater impact on export performance in terms of weight. In terms of cargo value, the coefficients for exporters and importers were almost equal. Further tests showed that ground infrastructure and port infrastructure were more important than air infrastructure, and the importers' infrastructure was more important than the exporters'. However, the study detects very similar results across economic corridors (e.g. importers' port infrastructure provides the largest impacts). The study suggests that policies prioritizing importers' port and ground infrastructure would benefit exporters, not just China's Belt and Road Initiative. The results showed that improved port and air infrastructure in BRI importing countries would significantly benefit exporters compared to non-BRI importers, while the coefficient for ground transport was negative and insignificant. Furthermore, the additional counterfactual analysis shows that China will benefit from increased exports as a result of the improved transport infrastructure of importing BRI countries. Even a 0.5

(out of 7) or about 7 per cent improvement in all types of transport infrastructures among importing countries would increase China's exports. As expected, the significance of our results improves with greater improvements in the quality of transport infrastructure. However, other exporters like the UK, the USA, France, Italy and most other countries in our selection also benefit from the BRI objectives. In fact, all the countries in Table 3 benefit from the improved port infrastructure. When the port infrastructure of the importing BRI country improves by 1 point, the additional increase in exports of the selected economies is significant at the 5 per cent level. The additional benefit to exporters is also obvious as a result of better ground infrastructure.

6.2 Potential for further development of the research and the proposed course of action (*Maximum half a page*)

Some new developments have been considered. China has played a central role in the global parts and components trade for two decades, but its role is evolving rapidly following the imposition of punitive tariffs and protectionist threats by the Trump administration. I aim to extend the current research to examine the variations in parts and components trade to identify whether any exporters possess the trade potentials to replace China's role under a range of feasible counterfactual scenarios on adjusting their infrastructure investments.

7. Layman's Summary

(*Describe in layman's language the nature, significance and value of the research project, in no more than 200 words*)

The study contributes to the literature in several ways. First, while most of the previous literature has paid attention to the impact of better infrastructure in a given country or across countries (e.g., Ramasamy and Yeung 2019; Want et al 2020), the current study is one of the first that explicitly estimate and compare the effects of different types of infrastructure investment on trade. This is an important concern regarding the prioritization of resources, as infrastructure investment is long-term in nature, and many BRI economies are financially constrained. Second, most previous studies about the impact of logistics performance on trade focus on trade value. There is a lack of studies that directly address the physical weight of exported/imported goods. As recently noted by Lashkaripour (2021), the physical weight of the product exhibits its quality, which better captures the logistics capacity of the trade relationship. Our paper establishes a direct relationship between transport infrastructure and the physical capacity of trade flow. We also use trade value to check the robustness. Third, the study conducts a counterfactual analysis to observe the impact of hypothetically improvement in the quality of infrastructure on export performance. This analysis is novel in the BRI research. It enables us to investigate which exporters are benefiting from improved infrastructure and whether such benefits are distributed equally across exporters. Finally, the research contributes to the BRI literature in empirical estimation methodology. Our baseline model extends the gravity model, and we adopt the Bonus-Vetus estimator (Baier and Bergstrand 2009). This estimator allows the estimation of the coefficients of the time-invariant variables while preserving the statistical properties of the fixed effect estimator.

Part C: Research Output**8. Peer-Reviewed Journal Publication(s) Arising Directly From This Research Project**

(Please attach a copy of the publication and/or the letter of acceptance if not yet submitted in the previous progress report(s). All listed publications must acknowledge RGC's funding support by quoting the specific grant reference.)

The Latest Status of Publications				Author(s) (denote the corresponding author with an asterisk*)	Title and Journal / Book (with the volume, pages and other necessary publishing details specified)	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this Report (Yes or No)	Acknowledged the Support of RGC (Yes or No)	Accessible from the Institutional Repository (Yes or No)
Year of Publication	Year of Acceptance (For paper accepted but not yet published)	Under Review	Under Preparation (optional)						
2020				Bala Ramasamy, Matthew Yeung*, Yann Duval, and Chorthip Utoktham	a)	No	Yes [Attachment 1]	No ¹⁾	Yes
2020				Bala Ramasamy, Matthew Yeung*,	b)	No	Yes [Attachment 2]	Yes	Yes
-		Yes		Matthew Yeung*, Bala Ramasamy	c)	No	No	Yes	Yes

a) Soft infrastructures and the Belt and Road Initiative, *The Belt and Road Initiative: opportunities and challenges of a Chinese economic ambition*, Los Angeles: Sage. ¹⁾ Requests for including an acknowledgment statement was made but it was not added in the printed copy by the publisher.

b) China's outward foreign direct investment (OFDI) to developing countries: the case of Central and Eastern Europe (CEE), *Journal of the Asia Pacific Economy*, 27 (1), pp. 124-146.

c) Under review with *Journal of Business and Industrial Marketing*

9. Recognized International Conference(s) In Which Paper(s) Related To This Research Project Was / Were Delivered

(Please attach a copy of each conference abstract)

Most relevant conferences were cancelled during the COVID period.

Month / Year / Place	Title	Conference Name	Submitted to RGC <i>(indicate the year ending of the relevant progress report)</i>	Attached to this Report <i>(Yes or No)</i>	Acknowledged the Support of RGC <i>(Yes or No)</i>	Accessible from the Institutional Repository <i>(Yes or No)</i>
N/A						

10. Whether Research Experience And New Knowledge Has Been Transferred / Has Contributed To Teaching And Learning

(Please elaborate)

My research experience in the areas of trade and infrastructure in the context of China's One Belt One Road initiative has enhanced my teaching and learning in several ways.

It provides me with a deeper and more up-to-date knowledge of the topics that I teach, logistics and supply chain management, allowing me to provide my students with the latest research and insights into how strategic infrastructure investments can shape international trade and comparative advantage. Such a one Belt One Road project and the related analysis have enabled me to provide real-world examples for students to illustrate concepts like trade costs, infrastructure spillovers, and trade creation versus diversion.

The process of conducting this particular research has also improved my ability to supervise and guide research students. I have a better understanding of the specific methodological challenges and pitfalls research students may encounter, and I can provide more targeted advice and support.

11. Student(s) Trained

(Please attach a copy of the title page of the thesis)

Name	Degree Registered for	Date of Registration	Date of Thesis Submission / Graduation
NIL			

12. Other Impact

(e.g. award of patents or prizes, collaboration with other research institutions, technology transfer, teaching enhancement, etc.)

N/A

13. Statistics on Research Outputs

	Peer-reviewed Journal Publications	Conference Papers	Scholarly Books, Monographs and Chapters	Patents Awarded	Other Research Outputs (please specify)	
No. of outputs arising directly from this research project	2	0	1	0	Type	No.

14. Public Access Of Completion Report

(Please specify the information, if any, that cannot be provided for public access and give the reasons.)

Information that Cannot Be Provided for Public Access	Reasons
N/A	