



**LUND UNIVERSITY**  
School of Economics and Management

# If you want to get rich, first build a road

A study on Chinese trade network building in Eurasia

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# Abstract

This paper examines the effect of Chinese OFDI on China's bilateral trade with affected countries, to investigate the possible build-up of a Eurasian China-centric trade network. The main contribution of the paper is to have combined economics, war theory and geopolitics to analyse and produce a theoretical framework for it.

Whereas there is a lack of consensus on the effect of FDI on trade in general, this study suggests that the influence of the CCP over the Chinese economy allows the party to use Chinese OFDI for its own interests. Furthermore, trade has become a vital interest to the CCP. Another problem for the CCP is the increasing geopolitical tension with primarily USA. According to this paper, the formation of a China-centred trade network would help the Chinese domestic economic situation, increase Chinese influence in Asia and increase the economic resilience of China. All this would help address the aforementioned concerns facing the party.

This was tested empirically using a modified version of the gravity model of trade. The result was in line with the theoretical prediction but not in line with the prediction of the gravity model. This could not be explained but was still taken to support the theory, thus opening for future studies on the subject.

*Keywords:* OFDI, trade, China, Belt and Road Initiative, China-centric trade network

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# Acronyms

AIIB = Asia Infrastructure Investment Bank

CCP = Chinese Communist Party

FDI = Foreign Direct Investment

BRI = Belt and Road Initiative, also known as One Belt One Road

OFDI = Outgoing Foreign Direct Investment

PBoC = People's Bank of China (Central bank of China)

PLA = People's Liberation Army (Armed forces of China, including army, navy and air force)

RMB = Renminbi or yuan (Chinese currency)

SOE = State-Owned Enterprise

USD = United States Dollar

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# 1 Introduction

This paper examines the effect of Chinese overseas foreign direct investments (OFDI) on China's bilateral trade. After having been the recipient of a lot of FDI, China has become a major investor in more recent years. According to official Chinese statistics, by the end of 2016 the Chinese OFDI stock totalled some 5 trillion USD (Ministry of Commerce of the People's Republic of China 2017 p. 3). This paper will argue that the unique characteristics of the economic system of China results in its OFDI also having some unique traits. As a consequence of the role of the Chinese Communist Party (CCP) the OFDI has been used for political purposes. The result is the gradual build-up of a vast China-centric trade network. The paper then goes on to argue that as a consequence Chinese trade should have increased with the affected countries. Lastly, it finds some support for this hypothesis through quantitative analysis.

In September 2013, during a visit to Kazakhstan's Nazarbayev University, president Xi Jinping of China pointed out the need for greater economic integration across Eurasia and announced the Chinese initiative to counter the economic issues of Asia through projects promoting such integration (Huang, 2016, p.314). Later that autumn, during a visit to Indonesia, the president once again spoke of this initiative and the need for it to focus on integration via sea as much as over land (which had for obvious reasons been in focus in Kazakhstan). Before long, the initiative had been formalized in Beijing and written into the ambitions of the People's Republic of China. This initiative would be in the form of a belt of trade and economic integration over the sea and a road of the same nature across the Eurasian landmass. Hence it was termed the "One Belt One Road" – initiative. Later it was renamed the Belt & Road Initiative (BRI).

Since then, more than 60 countries have signed up to take part in the initiative (Ministry of Commerce of the People's Republic of China, 2017). It has thus come to stretch well beyond the immediate neighbours of China and now spans across three continents and affects an area accounting for a considerable part of the world's output (65 % of the land-based output) and a total of more than 4 billion people inhabit the involved countries. It's also some of the most promising regions of the world in terms of economic potential. (Du & Zhang, 2018, p. 190-191). Taken together, this makes the BRI-initiative a highly interesting prospect for the world as the next few decades unfold.



This paper will also hypothesize that this is the region that China finds most interesting in terms of building up its trade network and that BRI is the formalization and intensification of the build-up of that network to more easily coordinate the actions of the numerous Chinese and foreign actors taking part. This assumption saves the author the cumbersome task of going through every country in the world and either confirm or discard it as being central to the Chinese plan. Given the massive effort China has already put into the initiative, this seems like a reasonable assumption. Furthermore, the investments into the BRI-countries accounted for more than half of the value of Chinese OFDI in 2017 (Ministry of Commerce of the People's Republic of China, 2018). Considering that none of the industrialized countries of Western Europe, North America or Japan are included in this it is a quite high value which demonstrates how important China considers this region to be. This provides additional support for the assumptions made.

## 1.1 Outlay of the paper

The question then of course becomes what the aims and means of the projects are. In order to answer this one needs to look at what brought about the BRI, which issues the OFDI is meant to address. In this paper it is suggested that BRI is designed as a partial solution to a great many problems for the initiator of the initiative, the CCP. BRI will be assumed to primarily be a very ambitious infrastructure project that will build a trade network for the future. An explanation of the role of trade routes and networks in economics, war theory and geopolitics will be laid forward as the fundamental assumptions for the rest of the paper. Working from those assumptions, some of the issues facing the CCP will be presented and how these are addressed through the trade network. This network and BRI as an at least partial solution to these issues will explain their centrality to the CCP and offer a description of what role they might come to play in the future.

The last task of the paper is to test and empirically verify the theoretical work presented in the first part. Based on the assumptions of the BRI as the facilitation of a new trade network with China at its core generates some predictions for how the happenings of the world will play out.

Whereas it is much too early to look at many of these issues some can be made about today as well. One of them would be that if the BRI does indeed strive to create a trade network along the lines laid out in this paper, one would expect the investments within the initiative to generate trade between China and the country in question. Due to lack of data on some of the preferred variables the hypothesis will thus be that Chinese direct investments along the BRI will increase the trade between the affected country and China.

## 1.2 What is BRI?

The initiative then actually consists of two different initiatives or projects, the Silk Road Economic Belt and the 21<sup>st</sup> Century Maritime Silk Road (Huang, 2016, p.314). They both aim to connect China with the rest of the world. This is to be done primarily through trade but there are plenty of other aspects as well. During his opening address at the Belt and Road Forum 2017, president Xi Jinping (2017) spoke not only of trade but also of cultural exchanges, research collaboration and an overall integration of systems in order to smoothen trade. There are also plans for the setting up of industrial parks for Chinese companies along the BRI that are meant to bring jobs and other opportunities to the local communities (Wang, 2016, p. 459).

The main part of the BRI is undoubtedly infrastructure though (National Development and Reform Commission, 2015). Many projects are already either finished or under way and more projects are being planned. The infrastructure consists of ports, railroads, channels, roads and pipelines. Worth mentioning are also the auxiliary projects that are the two economic corridors under way around either end of the Himalayas<sup>1</sup> meant to give China new ways to the Indian ocean (Wang, 2016, p. 459-460).

During the above-mentioned state visit to Indonesia, president Xi also proclaimed the establishment of another important initiative, the Asia Infrastructure Investment Bank (AIIB), an initiative that is in much an auxiliary financing institution of BRI (Wang, 2016, p. 456). There are also a bunch of other institutions through which China finances the construction of infrastructure across Eurasia such as the China Development Bank. The actual project itself is however carried out by a combination of private firms, SOEs and companies with different

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<sup>1</sup> One goes from China's Xinjiang province, through Pakistan to Gwadar port at the Arabian Sea. The other will run mainly through Myanmar, but also connect with Bangladesh and India, thus connecting the Chinese province of Yunnan with the Bay of Bengal.

hybrid constellations of private and public ownership (Du & Zhang, 2018, p. 190-193, 204-205). They have played slightly different roles within the BRI-investments. Given the structure of the Chinese economy they are all quite keen on following the directives of the CCP though, according to previous research.

### 1.3 Why examine Chinese OFDI and BRI?

First of all, the aforementioned massive stretch and ambition of the BRI does make it in and of itself interesting as an object to study. The prestige and the money that has come to be attached to the initiative makes it very relevant to the region in general and China in particular from several points of view. There are many aspects, meaning the issue can be addressed from different angles by different scientific fields. However, the project is first and foremost economic in its nature and therefore economics should concern itself with BRI. So far, it seems to have concerned scholars from various fields, including economics, but not quite in the way this paper addresses it. Combining geopolitical analysis, war theory and economic thought on this issue and then also testing the predictions of such an analysis empirically has to the knowledge of the author not yet been done.

The unique design of the Chinese economy means that we cannot expect it to work according to the rules that theory has set up for “normal” economies (Du & Zhang, 2018, p. 190-193, 204-205). The current design of the Chinese economy places the CCP in a rather unique position in comparison to other countries around the world. The party controls the state more or less in its totality and to that the state controls much of the other aspects of society indirectly. The control of several big banks and the big state-owned enterprises (SOEs) gives the state and through it, the CCP, considerable influence over the economy.

The influence of the CCP on the OFDI is arguably even greater. According to the report by the Chinese Ministry of Commerce (2017) a considerable majority of the 100 biggest OFDI-companies, during the years covered in this paper, were SOEs or partially government owned (see table 2 in appendix). Furthermore, as previously stated, both SOEs and private firms are following the commands of Beijing rather loyally (Du & Zhang, 2018, p. 193). This is central to the argument of this paper as this opens up for the prediction that they will behave slightly different from regular private OFDI from other countries. Instead of exhibiting profit maximizing behaviour they might work towards more political goals. To test exactly how it

differs first requires an analysis of those political goals, which in turn requires one to also look at what motivates the political force behind those goals, the CCP.

Lastly it might be worth pointing out that previous research has looked into and found support for that BRI promotes Chinese OFDI (Du & Zhang 2018). In other words, BRI does affect OFDI but what this paper brings to the table is examining the effect of that OFDI on third parties and on the world as a whole.

## 2 Theory

### 2.1 The effect of FDI on trade according to theory and why it would be different in this case

There have been several studies on the effect of FDI on bilateral trade. However, the results are mixed. At the very end of the previous millennia Fontagné (1999, p. 23-24) argued that there was positive correlation between FDI and trade, but also that the relationship between the two appeared to be rather dynamic and change over time. The core reason for this relationship seems to be the facilitation of contacts. There are theoretical reasons for why this relationship exists however they cannot clearly predict whether the correlation should be positive or negative. FDI leading to local production and sales would substitute trade for FDI while other FDI could be complimentary in nature, facilitating trade by increasing the competitiveness of companies in the target market (Fontagné, 1999, p. 13).

Amiti and Wakelin (2003) used the gravity model on a dataset of bilateral trade between 36 countries to estimate the relationship between FDI and trade, in relation to investment liberalization. They found a complex relationship that varies depending on several characteristics of the countries involved. Similarities in for example factor endowments or size seem to make FDI stimulate trade when investments are liberalized. When the relative differences instead are high, the effect appears to be the reversed. The type of FDI, vertical contra horizontal, amongst other factors also seems to matter. This further suggest that the relationship between FDI and trade is quite complicated and difficult to predict.

However, almost two decades later, Sgrignoli et.al. (2017, p. 2) argue in their summation of previous research that the studies since Fontagné have had mixed findings on the effect of FDI on trade. Lipset and Weiss (1984 quoted in Sgrignoli et al. 2017) and Liu et al. (2001 quoted in Sgrignoli et al. 2017) found positive correlations between FDI and trade with the area of origin of that FDI for USA and China respectively. On the other hand, Bloningen (2001 quoted in Sgrignoli et al. 2017) found a mixed relationship between FDI and trade. Belderbos and Sleuwaegen (1998 quoted in Sgrignoli et al. 2017) even found a negative relation for Japanese firm's FDI and those same firms trade with Europe. Sgrignoli et.al went on to find a positive

relationship when going beyond bilateral trade and accounting for the indirect FDI through third-party-countries (2017).

Renu and Mandeep (2013) found contradictive results for China and India when looking at the effect of FDI on exports and imports. This implies that the effect of FDI could be different for different geographic or political units. This is not very strange given the result of Fontagné (1999) that the relationship is changing over time, meaning that different political entities have different attributes which might generate different dynamics in the interaction between FDI and trade. Qiang (2013) argues that the gains for China are different from investing in developing and industrialized countries respectively and suggest that there is much to be gained for developing economies by engaging in OFDI. Qiang (2013) also found that China's OFDI boosted overall trade development. However, Zhao (2013) found that Chinese FDI does not have a significant effect on Chinese trade. This suggests that the effect can be different even for the same country.

Looking at these findings there appears to be some support for a positive effect of FDI on trade, but it is quite weak as the empirical findings are weak and the theoretical foundation suggests that the relationship is not consistent across time. Taken together, the support seems to be stronger for that the relationship between FDI and trade would be inconsistent across time and/or space.

However, most of these results are from studies of corporations as the main actors in FDI, trying to make economically sound investments from a business point of view. This paper argues that in the case of China the results should be more clear-cut because the "machinery" behind Chinese OFDI is essentially different. The influence of the CCP turns OFDI into a political tool that works for a "greater" goal than short term returns for individual firms. Instead of focusing exclusively on short term economic success the FDI as a whole works toward also generating a more long-term geopolitical return that makes the mechanisms of the Chinese OFDI more consistent across time and with a clear effect on trade.

It should be pointed out that when it comes to investments, whether FDI or not, in infrastructure in poorer regions the consensus seems to be that this helps the region develop and leads to better access to foreign markets (Cosara & Demirb 2015 p. 234). For inaccessible countries or regions, such as landlocked countries, the trade protection from transport costs caused by geographic factors or insufficient infrastructure is nowadays often a greater obstacle to trade than artificial

barriers such as tariffs (Limao & Venables 2001 p. 451-452). Thus, there is much to be gained for poorer countries from infrastructure investments to incorporate them into global trade networks.

## 2.2 The role of trade networks in economics, geopolitics and the wars of the future

### 2.2.1 Trade networks in economics

On an abstract level, trade is about flows of things between geographically separated places. An actor, to whom these flows are vital, will be highly motivated to make sure that these flows are maintained. Trade flows through channels and provides the actors at either end with what they need from the other and so, trade is essentially massive networks of flows. The actors are connected with many other actors with whom they trade and therefore act as nodes for the different channels in the network. The outline of these networks decides the trade flow as the trade can only flow through the established channels. New channels can of course be constructed but that is not necessarily so easily done, and the existing networks will therefore have an advantage over potential ones, namely that they already exist.

Furthermore, the networks link markets to each other. Thus, an actor will want to make sure that its network links it to any interesting markets where the necessary inputs can be acquired and one's own products can be sold. Ensuring access to interesting markets is crucial for the economic success of an actor that is dependent on trade. However, if dependent on channels that are exposed to interference by third parties, it will leave the original two actors engaged in the trade vulnerable to that third party. This third party can then exert direct pressure on the trading actors, allowing this third-party actor to influence the trading actors. Overdependence on one channel thus makes an actor vulnerable, whereas preferential access to certain markets provides economic opportunities. The design of the networks is therefore crucial to an actor that is dependent on such flows.

An ever-increasing interconnectedness has enabled trade on a scale never seen before (Khanna, 2016). The internet, phones and so on have enabled instant communication across the globe. These technologies and many others have formed a great wave of change sweeping across the globe and is continuously changing the world of international economics. As the foundation of the economic system is changing, the system will unavoidably be reshaped as well. The massive changes that are taking place are providing a great opportunity to not passively stand by as the world changes around oneself, but to rather actively engage in the change to push the development in a preferable direction. Such active efforts could hypothetically allow a powerful actor to redesign at least parts of the blueprint for the economic future of us all.

China is constructing a new network to bind together interesting actors and potentially also to lock out competitors from this network (some major countries have so far not been included). The arguments laid out on the following pages are intended to explain the BRI-initiative as a way for Beijing to address many issues that it anticipates in the future. These can be summarized as the need to ensure a large network of trade and influence in order to allow the Chinese economy to continue to grow into a new form and ready that same economy for the risks and demands put on it as China steps up as a major player on the international stage.

### 2.2.2 Trade networks in geopolitics and the wars of the future

By anticipating the challenges of the future and addressing them through a coherent strategy already today China is setting up the board so that the game will play out in its favour, no matter whether the future players will want it to or not. This is a sort of grand strategy version of the tactical imperative of the famous Chinese military theorist Sun Zi (also known as Sun Tzu): *“Thus a victorious army wins its victories before seeking battle...”* (Sun Zi, n.d., p. 87).

The use of military theory in an economic paper might come across as rather unusual. However, economics, politics and military affairs are not separate spheres but rather different aspects of the same. They are all concerned with the interactions between humans. Furthermore, the everchanging face of war and its more recent developments has led to these different aspects being increasingly overlapping (Qiao & Wang 1999 p. 12, 50-56). As von Clausewitz (1832) pointed out, wars are not separate from politics but rather a continuation thereof. Differently put, war is a tool or a state, employed as a political conflict escalates.



In the more complex environment of today and the near future new tools will be introduced, and old ones will have to be used in new ways. The tools employed to achieve victory will have to be different and will be successful often because they are not conventionally military, at least if we are to believe the modern day Chinese military theorists Qiao Liang and Wang Xiangsui (1999) of the People's Liberation Army (PLA). They put it quite eloquently in the following quote:

*“... the immortal bird of warfare will not be able to attain nirvana when it is on the verge of decline: When people begin to lean toward and rejoice in the reduced use of military force to resolve conflicts, war will be reborn in another form and in another arena, becoming an instrument of enormous power in the hands of all those who harbor intentions of controlling other countries or regions.” (Qiao & Wang 1999 p. 6)*

In other words, assuming that the struggle between nations will continue in the future, the means employed in those struggles will invariably change. This will change the face of the game even though the game remains at heart the same, much along the lines of what Clausewitz pointed out in “On War” (1832); different tools, different rules even, yet the adversarial, chaotic nature of war is unavoidably still there. However, as the nature of war is constant, some of the fundamental principles remain the same. An, for this paper, important example hereof is that one's own *Schwerpunkts*<sup>2</sup> will still have to be protected.

The rejection of some means will only lead to the deployment of new ones (Qiao & Wang 1999 p. 50-56). Military force is less acceptable as a mean to resolve conflicts. At the same time, the tools of the game of not only governments but all kinds of actors are expanding into other arenas. In the interconnected world of today employing trade channels to your advantage should prove a potent weapon in geopolitical rivalry. Targeting and protection of channels, undercutting competition for economic gains or expansion of one's geopolitical sphere of influence are some examples of how trade channels can be employed to achieve goals beyond short term returns on investments. Further on it will be described in more detail exactly how a Eurasian China-centric trade network would serve these purposes to Beijing's advantage.

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<sup>2</sup> *Schwerpunkt* is a theoretical concept of Clausewitz referring to the optimal target of attack, i.e. were the resources spent will give the greatest impact to force the enemy into compliance or surrender.

### 2.2.3 Summary of the role of trade networks

In summation, the idea is that networks are key to understanding trade, and trade is essential for nations to survive and thrive in the interconnected world of today. Networks matter because they are both opportunities and vulnerabilities. Therefore, as the economic map is being redrawn, if any one actor can affect it significantly in its favour that should prove immensely useful in the future. That way one might set up the board so that the game plays out in one's favour simply by designing the trade network so that it addresses one's own issues rather than anyone else's. This seems to be what Beijing is doing, by promoting trade routes that are not exposed to rival actors and promotes Chinese economic and geopolitical interests.

Based on this, this paper will argue that the trade network is a grand strategy-tool employed by Beijing in the geopolitical struggle to face the challenges of the future. It is the creative use of old tools to exert influence and increase China's readiness for potential future conflicts. On the coming few pages exactly what issues the China-centric trade network seems to be meant to address will be explained in more detail so as to provide further support for the hypothesis that this is what is going on. Thereafter an attempt to test this empirically will be made.

# 3 Motivations for a China-centric trade network

## 3.1 The Communist Party of China and Chinese trade

In order to properly understand the motives of China for using OFDI to construct a political trade network one first needs to understand the motives of the power within China that is promoting this process, the CCP. The main driver or motivation of the CCP is arguably to remain in power. In other words, it strives to maintain the status quo of political stability. In order to achieve this, it needs some source of legitimacy (Eaton & Hasmath, 2017, p. 1-5). The sustained remarkably high level of growth over the past decades seems to have provided the party with such a source, namely the material improvement of the life of almost everyone in China, resulting in several hundred million people having been lifted out of poverty. That the growth rate has been sustained for so long has also meant that the party has been able to rely on the implicit and explicit promises of a better tomorrow. This has led to the Chinese government, under the leadership of the party, having achieved remarkably high levels of approval compared with most other countries (Eaton & Hasmath 2017 p. 5).

The CCP of course desires to maintain high approval ratings as the status quo benefits it. To keep the population happy requires continued improvements in standard of living. Earlier, this was to a large extent achieved through an export oriented economic development that meant large capital inflows into what was a very poor country. However, as a result of the increasing wealth of the nation, the government has recognized that it can no longer rely solely on the export sector (Huang, 2016, p. 316-317). Rather, it has announced that the Chinese economy is to be reformed to eventually rely on internal, rather than external, consumption as the main motor of growth. The domestic market is growing rapidly and in order to keep the Chinese people happy, the supply must step up to meet the demand. The domestic industry needs more raw material and energy from abroad in order to be able to produce to meet both the domestic

and foreign demand for its goods as exports are needed to finance the imports. And so, China needs to trade to acquire both power and input materials needed to support the production. This means that even though the country continues to be a major exporter, its imports are also growing. Interestingly enough, the CCP has thus placed itself in a position where achieving the goal of political status quo requires continued economic change (for the better), and trade is an essential prerequisite for that economic change.

In other words, the CCP power base is reliant on trade. This can furthermore be supported by how the party has come to embrace the concept of international free trade. The importance of free trade has been repeatedly stressed by the president, for example in his address to the Belt and Road Forum in Beijing where he spoke of how openness and exchanges between nations make civilizations thrive (Xi, 2017). Free trade is a way to ensure the flow of goods and thus maintain the trade that is vital to the CCP.

So, China has over the last couple of decades become a major trading nation and this trade has become vital to the CCP under its current model for political stability. China also cannot sustain itself without an inflow of capital and certain raw materials and goods. Thus, trade has become a security issue for China and a major security concern for the party. Consequently, the party has a very direct need to ensure it has access to a trade network no matter what external and internal challenges it may face. The paper will now go on to explain in detail what economic and geopolitical concerns have led to the specific design of the network and its formalization through BRI.

## 3.2 Problems facing the Chinese economy

Wang (2016 p. 457) points out that the massive foreign exchange reserve of China is a challenge for the Chinese leadership as they need to find ways to make use of such vast sums of money. However, a challenge is also an opportunity. In this case, it would be the opportunity to finance other projects, to realize other ambitions. Thus, the then newly elected president had the opportunity to realize grand new projects and that he did indeed in the BRI and the AIIB. In other words, these projects were ways to make use of the accumulated capital of the People's Bank of China (PBoC).

Another problem for the Chinese leadership is the overcapacity of certain industries (Wang, 2016 p. 457). Various policies, not the least the stimulus package to counter the 2008 Global Financial Crisis, has led to the Chinese economy developing excessive output in certain fields. This has become a strain on the economic growth and on the planned transition of the overall economy to a new model of growth (Huang, 2016 p. 316).

This overcapacity cannot be sustained unless it finds a market and much of this excess production could potentially go to the economies along the belt and the road (Huang 2016 p. 316-317). Much of the overcapacity seems to be in industries producing for the “investment part of the economy”. That is, for projects in for example construction rather than consumer goods. Many of the economies along the routes of the BRI are in dire need of such basic investments already as it is though, and the BRI-initiative will only increase the need for investments in primarily infrastructure. Much of the Chinese overcapacity could therefore find a market within the framework of BRI. By investing in other countries or ensuring access to markets where basic infrastructure and similar investments are still very much needed, much of the excess steel can be exported to these markets while still serving the Chinese government’s intents and purposes.

So, China could postpone the inevitable cancellation of the overcapacity, thus buying itself time to smoothen the process and possibly avoiding, amongst other things, mass unemployment. Large scale unemployment is something that the CCP wants to avoid for it threatens the position of the party as it means a worsening rather than an improvement of the everyday life of people.

A related but much graver concern for the CCP is the already mentioned fundamental change that the Chinese economy needs to undergo and that is in fact already taking place. Chinese economists are talking about a “new normal” as the growth rate continuously declines (Wang 2016 p 357). While still high compared to Western countries it is far lower than the “normal” Chinese growth rate at the turn of the millennia. At that time China’s economy enjoyed continuous double-digit growth (Eaton & Hasmath, 2017, p. 3) but for 2018 the Economist estimates Chinese growth at a mere 5.8% (the Economist, January 2018, p. 113).

The cause of decline in growth is not yet known for sure but according to Huang (2016) the more widely accepted argument seems to be that it is structural in nature. Huang further argues that this is an indication of that the old Chinese growth model has run its course and must be replaced by a new way forward if economic growth is to be maintained. In order to avoid the

middle-income trap, the Chinese economy has to move away from its hitherto primary reliance on labour intensive manufacturing (Huang 2016 p 315-317). Like many of the other East Asian miracle economies, China needs to move its labour-intensive industries to countries with cheaper labour in order to remain competitive. Meanwhile, the Chinese economy needs to instead focus on more advanced industries and high-tech sectors. In order to achieve this, it will have to see many of its old industries die to be replaced by new ones, but this transition may take time and result in low growth while the transition is taking place. Manufacturing companies moving abroad or simply going bankrupt would result in unemployment, which the CCP, as already mentioned, wants to avoid.

This transition can be smoothed however, thus possibly avoiding mass unemployment, by letting the old industries survive for longer without preventing the growth of other sectors or be a drag on them in any other way such as subsidies that more profitable industries have to pay for. A way of doing this would be creating demand through accessing new markets. Improved infrastructure, less bureaucracy and razing other obstacles to trade should also cut trade costs for Chinese companies, in turn making them more competitive. This is exactly what trade network building is about, especially BRI. Thus, BRI can help lessen the adverse effect of increasing wages in China in the present, buying time for the CCP to reform the economy. It will also help Chinese firms move part of its production abroad to more profitable countries.

At present, the more western provinces of China are lagging behind the eastern coastal provinces quite severely in terms of socio-economic development according to research carried out by the OECD (Maddison, 2007, p. 98-99). The regional inequality within China is quite extreme, with a range of ten-to-one for per capita GDP in 2005. This is well ahead of many other large countries (for example the USA) although quite similar to the situation in India around the same time.

Beijing intends to use its OFDI to help tackle these economic imbalances between different parts of China. By creating overland trade networks, the western backwater is turned into the new frontier in opening up to the world (Du – Zhang 2018 p. 191). The plan is that this will generate new growth points, bringing new opportunities to these provinces. More infrastructure will have to be built in these regions bringing economic benefits by connecting the Chinese hinterland to the rest of the world. Thus, it might help keep the country together. Economic development also means strengthening the CCP's standing in these areas as it reinforces the party's legitimacy model from the richer parts of the country.

Another liability of the Chinese economy is its energy import dependence. China is already heavily dependent on imported energy to fuel its industrial production and fill the needs of the Chinese households. As the economy continues to grow and as the shift to domestic consumption will make domestic demand grow at an even higher rate, the energy-needs of China will only increase. Beijing is putting a lot of effort into addressing this problem by increasing the energy resilience of China. Domestic energy sources such as nuclear power plants and solar power are being developed as well as efforts to increase the capacity for and diversify the import of foreign fossil fuel. The predicted continuous increase in Chinese energy consumption means that China is likely to remain dependent on foreign energy sources in the future. An important part of BRI is ensuring access to such sources, which can be seen from the considerable efforts to build pipelines to China from all over Central Asia, Siberia and even Iran. (Maddison 2007 p. 97-98; Wang 2016 p. 460).

In summation, the Chinese economy is facing new problems as it enters a new stage in its development. This generates new challenges for the CCP, some of which can be at least partially addressed through the expansion of its trade network, not only through trade but also the specific design and areas of focus of the initiative. The perhaps most important is building a trade network that gives China access to new markets on which to sell and buy its goods and services. Additional benefits include countering the domestic imbalance in socio-economic development, making use of the excessive reserves of the PBoC and improving Chinese resilience in energy and other sectors.

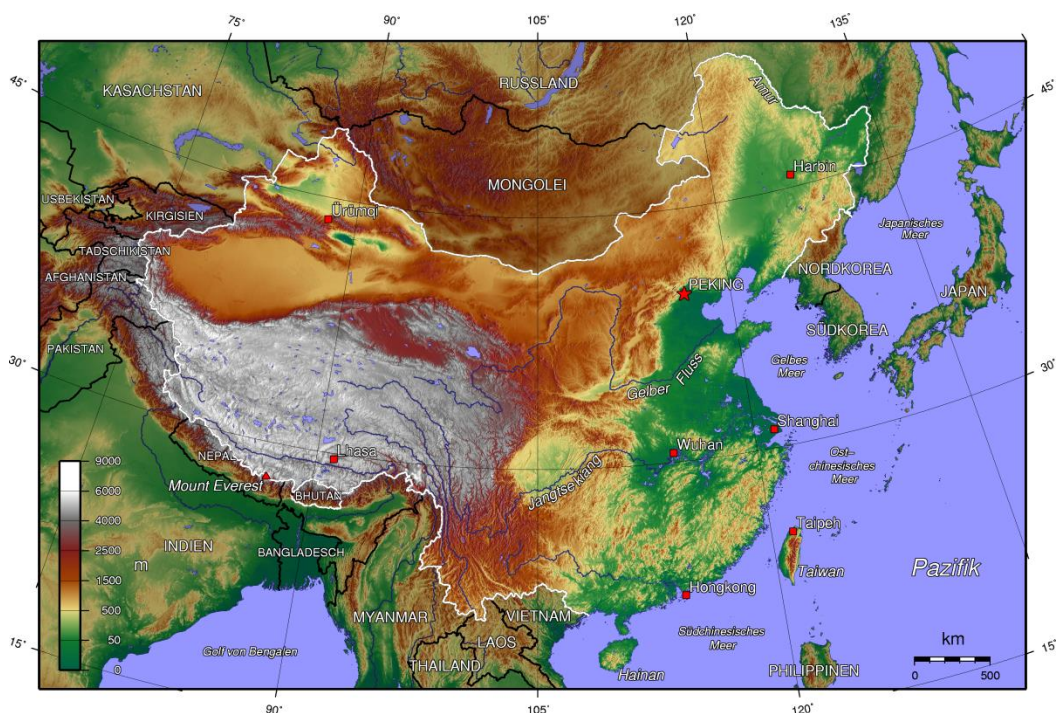
### 3.3 Geopolitics, geo-economics and grand strategy of China

As explained above, trade networks are potential political tools, or even weapons. This next section dives into the role of the BRI in China's geopolitical strategy. The design of the project suggests that it will serve to meet some of the security concerns of China and more importantly, the Chinese regime, for example vis-à-vis the USA.

In the field of international politics China has kept a rather low profile for a long time, especially in the field of international economics, compared to its weight and potential (Huang, 2016, p. 318). However, at some point, in the words of Huang, "*the elephant could no longer hide*

*behind the trees*” (2016, p. 318). China will have to, and has already started to, play a more significant role on the international scene. As China grows to assume this role, it will rearrange the stage to some extent. (Ming Xin, 2018, p. 7). That seems to already have, and will probably lead to further, clashes with the established powers. These clashes are likely to be an unavoidable part of the old great powers and the established order having to change in order to accommodate the rise of China (Huang, 2016, p. 318). Deng Xiaoping even spoke of a new cold war between China and USA (Huntington 1993 p. 34).

The USA poses a serious challenge to China, as well as to any other actor with international ambitions, because it dominates the international scene, due to its massive economic and military power. China could not defeat the USA in a direct, all out, military confrontation because of the latter’s complete dominance in the military arena (Qiao & Liang, 1999).



Map 1: Geography of China (Wikimedia 2005)

The geographic situation of China has resulted in that trade routes in and out of the country are mainly going across the oceans to the east and south of the country. Sea trade has many advantages in itself and additionally to the west and north China is in a sense cut off from its neighbours by vast deserts and some of the highest mountain ranges in the world. This has restricted the possibility for inland trade.

The sea outside China is largely controlled by the USA. Especially in the South China Sea but also in the Pacific, tensions are rising as the influence and capabilities of China expands



(Stavridis 2017 p. 190-197). These rising tensions can serve as a warning of things to come, of a more insecure sea around China in the near future as the country struggles to exert influence and deal with security issues in a region heretofore largely under the control of the USA. The seas are international waters, and therefore not belonging to anyone nor blocking activity by any country. Nevertheless, the US navy is highly active in the region and the vast network of US bases and allies enables these activities on a large scale. Through this, the USA can use its naval forces to project power in the immediate vicinity of the Chinese mainland (Stavridis, 2017, p. 195-197).

Furthermore, the US navy is by far the strongest naval force in the world and also in the greater Pacific area. Even though China is continuously increasing the funding and expanding the capabilities of the PLA (including the PLA navy), it still cannot compete with its American counterparts (Stavridis 2017 p. 195-197). The CCP is dependent on trade that is currently dependent on the access to a US dominated sea. This gives Washington considerable leverage on Beijing that in turn pushes the latter to find alternative trade routes. So the construction of a new trade network helps address political and security concerns for the CCP as well.

East Asia has also been declared of special interest to the USA through the “Pivot to Asia” strategy (Wang 2016 p. 458-460). Amongst other things, this meant the redeployment of military capabilities from other parts of the world to East Asia to build up the military strength of the USA in the region. Many analysts agree that this is likely a move on China despite American reassurances of that not being the case. The pivot also includes a “soft offensive” with increased diplomatic and economic activity, building up the American network of influence in the region. Wang (2016) argues that these efforts aim to build an Asian NATO that will contain China in the way the original once contained the Soviet Union.

US declines to recognise the so-called “core interests” as defined by Beijing, including the security of the political system of China, send further worrying signals to the Chinese leadership (Wang 2016 p. 461). It implies that at least part of the problem is the intolerance of Washington towards the political system of China, which is the very core of the CCP’s interests. Such suspicions should spread fear throughout the CCP as this signals an incompatibility that could very likely lead to confrontation beyond what we have already seen.

Taken together there are plenty of reasons for the decision-makers in Beijing to be wary of their American counterparts. Their mutual interdependence makes an open confrontation between

them not in the interest of either country. Nevertheless, given what's at stake one cannot take the risk of disregarding the threat. Furthermore, as Publius Flavius Vegetius Renatus put it "*he who desires peace, prepares for war*". The point of preparing for a confrontation is so that one does not leave oneself vulnerable enough to invite an attack. As previously mentioned, the face of war is everchanging, the tools and tactics employed are different (Qiao & Liang, 1999, p. 24). Thus, an escalated conflict between China and the USA will likely not take the form of the great power confrontations of the 20<sup>th</sup> century. In fact, US dominance encourages China to find new, irregular, methods of countering the USA.

New technologies are allowing for such new methods, which allows lesser actors such as China to bring the fight to new arenas which should slowly erode the US domination of the world (Qiao & Wang, 1999 p. 15-16). However, the continuous spread of warfare into new arenas also makes it less predictable, this in turn increases the need for resilience (Qiao & Wang 1999 p. 141-142). The China-centric trade network is one part of building up Chinese resilience by diversifying trade to decrease dependence on any one channel for trade or energy supply, and also bringing Chinese trade away from the US dominated seas to the East. Thus it makes the Schwerpunkt that is the overseas trade less of a Schwerpunkt. Rather than defending it, China is decreasing its relevance as a target in the geopolitical rivalry. This makes sense not only as a countermove to US strategy but also as a way to protect oneself from other threats such as natural disasters that might obstruct vital trade channels.

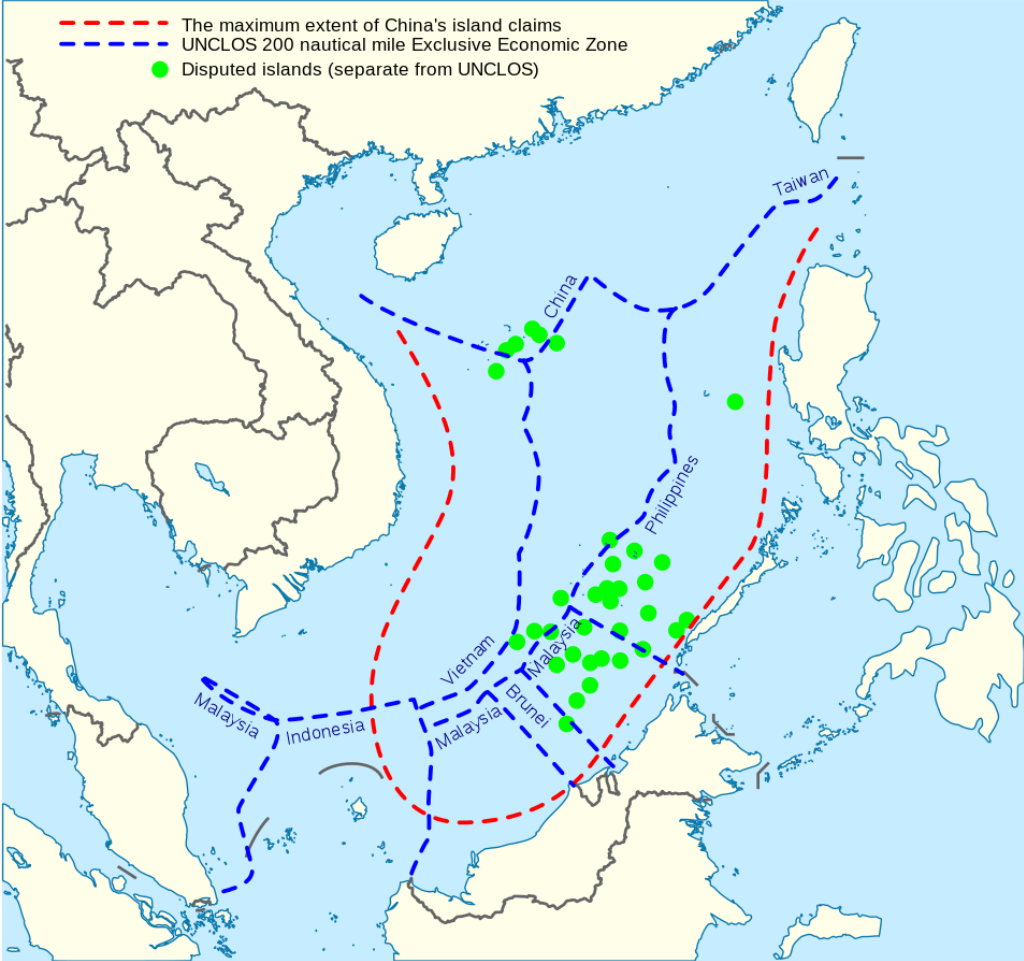
Furthermore, as will be described next, it gives China a new way to influence Asia and make use of its geographical situation to do so. Thus, the building up of a new trade network can be understood as a project with geopolitical ambitions. China is taking an active role in creating a tomorrow to better suit its needs, to make it better able to counter US dominance in its immediate vicinity. This explains why the CCP is so interested in the construction of such a network, and therefore also why the party would use its influence over the Chinese economy to promote it.

### 3.3.1 The South China Sea issue

In the South China Sea the issues mentioned in large above are at an extreme. As approximately half the world's maritime trade, half of the liquefied gas and more than 30 percent of the crude oil traded over sea passes through the South China Sea, these are some highly important trade

routes (Stavridis, 2017, p 170). Additionally, most of that trade goes through the Strait of Malacca, making this naval choke point the single most heavily trafficked sea route in the world (Khanna, 2016, p. 238). This makes it the single most important trade route for China. It is an easy target for hostile actions cutting off China’s essential trade and therefore also a tremendous liability for Beijing.

The strait can be avoided by taking a route south of Sumatra however that would still mean passing up through the South China Sea. Consequentially, a build-up of strength of a superior navy in this area could pose a serious threat to Chinese trade, and thus also to the CCP. This is why the region is of such importance to Beijing and why Beijing in the long run wants to avoid this route as much as possible in order to lessen its dependence on the trade channel.



Map 2: South China Sea and the Nine-Dash Line (Wikimedia 2014)

The South China Sea is largely claimed by Beijing as Chinese waters thanks to the so-called Nine-Dash Line (Stavridis, 2017, p. 185-187). The build-up of PLA forces and bases in the region enable Beijing to project power quite far away from the coastline of the mainland. This gives China an advantage in the immediate area to secure its interests, for example by protecting trade vessels or keeping the route open.

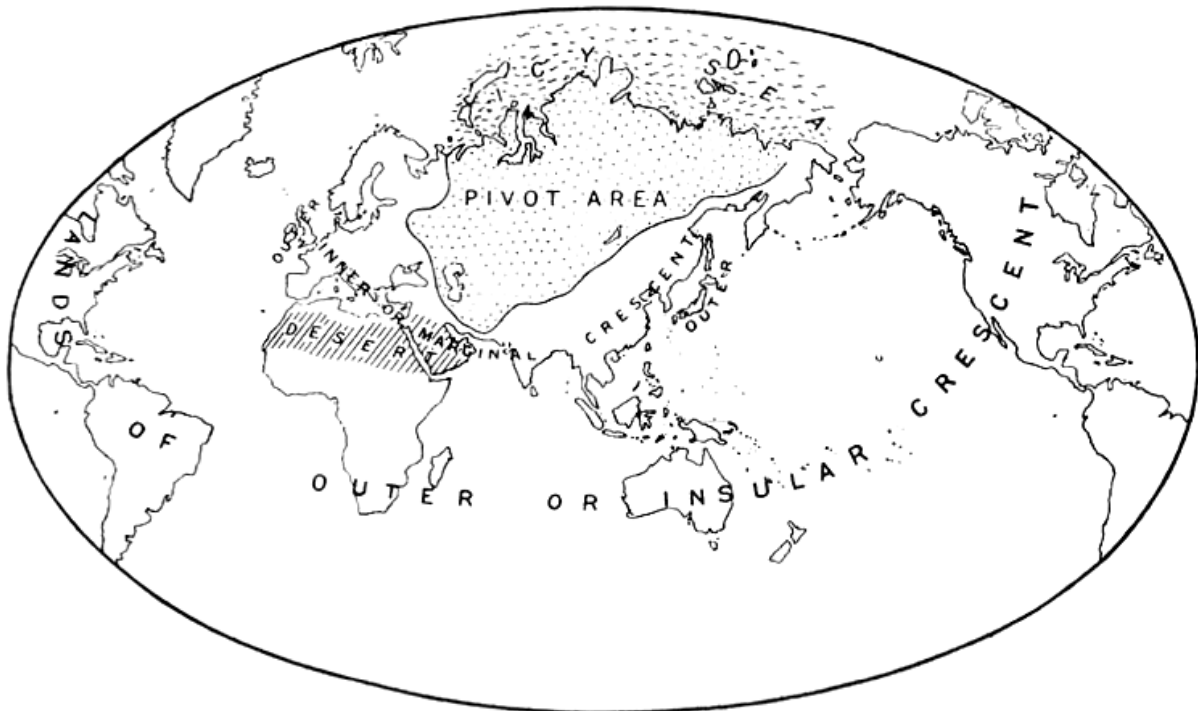
The stakes in the conflict over the sea are heightened by the hydrocarbons found in the seabed. Some estimate the total amount of hydrocarbons to be close to the deposits in the Middle East. (Stavridis, 2017, p. 186-187). This makes them a crucial part of what Khanna calls escaping the “Malacca trap” (2016, p. 237-238). By securing access to energy supplies east of the Strait of Malacca, China lessens its dependence on this vulnerable trade route. Khanna further argues that the long-term aim of Beijing is not to control but rather to avoid the Singaporean choke point as much as it can. This also explains the two economic corridors stretching from China to the Indian ocean on either side of the Indian subcontinent. They ensure access to the Indian ocean without having to pass through the Strait of Malacca, thus avoiding both an economic bottleneck and a strategic liability. These are meant to ensure access to energy imports into China’s hinterland without having to pass the Malacca trap (Wang, 2016, p. 459-460).

### 3.3.2 Controlling the Heartland

The high seas have long been central to the great powers (Khanna, 2016, p. 226). They provide economic opportunities through trade and serves as protection from neighbours. For China the sea is an opportunity but also a threat as the US and its allies dominate it. The BRI trade network is meant to, amongst other things, revive the old silk roads across Central Asia (Khanna, 2016, p. 198-200). This turns China’s geographical situation into an advantage as it turns the Chinese trade away from the sea and creates economic opportunities from the land connections.

Although the seas have played a significant role in the geopolitics of modern history, land is certainly not irrelevant. As pointed out by McKinder (1904) already a century ago, the Eurasian landmass is special in that it holds by far the most potential of any landmass because of its abundance of resources and population. Thus, McKinder argues, the actor who controls it will dominate the world. The key to controlling Eurasia is holding the centre of the landmass, in other words Central Asia is key to dominating Eurasia. This makes this currently much overlooked region of the world into what McKinder termed “the Geographical Pivot of

History”. The power that rules this the heartland of Eurasia has a good position from which to partake in the game for world influence.



*Map 3: The world as centred around the Pivot Area (adapted from McKinder 1904, p. 312)*

He also wrote extensively on the importance of infrastructure to control the vast steppes that dominate the region. The introduction of railroads gave the Russian Empire access to the region and gave it the means to actually control it (McKinder, 1904, p. 434,436). Nowadays China is stepping in to take on that role by incorporating the region into the BRI trade network (Khanna, 2016 p. 194-195, 197-198, 203). Economic domination through the use of modern infrastructure allows China to slowly expand its sphere of influence into Central Asia. The infrastructure may act as a form of extended sovereignty that China can claim to buy influence and create a presence all over the region.

That would give China an important advantage in the struggle to control Central Asia and through it, the ability to project power and influence across all of Eurasia. McKinder also pointed out the tremendous potential of a power that could hold both Central Asia and the Far

East<sup>3</sup> because of the resources and geographical advantage of such a power (McKinder, 1904, p. 314). As the largest economy and most populous country in the immediate vicinity of the region, China is an obvious contender for control in Central Asia. Achieving this would be a geopolitical success for China, allowing Beijing to exert influence well beyond Central Asia by controlling the trade routes and the opportunity to project power across much of McKinder's inner crescent as well.

### 3.4 Summary of the motivations for a China-centric trade network

To summarize the discussion above, trade has become a vital interest for the CCP, mainly because of domestic economic concerns. This troubles the CCP because economic success is central to it maintaining its position of power. International trade is however by nature an international concern as it requires international interaction.

In the international domain, China needs a new strategy to deal with the changes of the world and its place in it. The USA poses a potential threat and in the struggle with Washington, trade has become a Schwerpunkt for the CCP. The oceans around China also risk being the primary battleground in an escalation between China and the USA and given the advantage of the USA in this arena and the "Malacca trap", the maritime trade of China is very vulnerable.

The BRI trade network addresses this issue by diversifying trade partners and trade routes, thus increasing trade resilience. Furthermore, it will help increase Chinese energy resilience. It can also serve as a means of influence to control the Central Asian heartland of Eurasia, in turn allowing dominance of this landmass. Taken together, this will turn China's geographical situation, attached to the Asian continent, into an advantage rather than a liability. All this explains why BRI makes sense as much from a geopolitical perspective as an economic one, despite it being fundamentally economic in nature.

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<sup>3</sup> Although because of the geopolitical situation of the time McKinder was referring primarily to Tokyo, rather than Beijing.

Thus, the building up of a new trade network and BRI can be understood as a project with geopolitical ambitions. By increasing resilience and creating new means of influencing the world, China is taking an active role in creating tomorrow to better suit its needs, to make it better able to counter US dominance in its immediate vicinity.

Furthermore, this explains the geographical spread of BRI to some extent. The focus on trade routes away from the South China sea and the Pacific, the stretch to the rich markets of Europe and the focus on direct access to energy suppliers serve the geopolitical strategy of the CCP. The inclusion of many poor countries in China's vicinity further plays into that strategy both as economic opportunities to be part of the transition of the economy to avoid the middle-income trap and as part of the build-up of China's geopolitical ambition. This is why the paper focuses on BRI as the area of trade network building, because this is where political reasons for it were found, even though there might of course be other countries that are affected similarly by the CCP's political ambitions.

### 3.5 Hypothesis

Above has been explained how the construction of a pan-Eurasian trade network makes sense both economically and perhaps even more so from a geopolitical point of view. Furthermore, the previous pages have described how it has been designed to address several issues and thus the conclusion becomes that it is an initiative that serves many purposes. It is meant to serve those purposes though by achieving its main goal, the creation of a pan-Eurasian trade network that will open up China to the world.

So far this work is all theoretical though. However, some of the predictions can be tested empirically to try and verify or discard the theoretical suggestions laid forward in this paper. Since BRI facilitates Chinese OFDI to certain countries, then to test the prediction of a trade network one should examine whether that OFDI generates the expected result, namely an increased interconnectedness between China and the affected countries. This interconnectedness should primarily take the form of trade as this is the main interest of Beijing, as stated above. The hypothesis to be tested then becomes:

*Chinese OFDI in a country meant to be part of the BRI trade network should increase the trade between that country and China.*



## 4 Model specifications

### 4.1 Gravity model of trade

In order to test the hypothesis laid out above one needs to make the prediction into something more definite, and thus measurable. The new trade network that is suggested in the hypothesis would be built by the Chinese primarily, although not exclusively, through infrastructure investments in other countries. Thus it makes sense that, should the hypothesis be correct, more Chinese investments would weave the economy in question tighter to the trade network, and consequently also to China. This should lead to an increasing trade between the countries in question. Therefore, to test the hypothesis, the effect of Chinese direct investments on trade with specific countries will be examined.

The theoretical work above suggests that there should be a positive effect of Chinese OFDI on the trade flows between China and the country in question. The effect should be estimable while controlling for variables that would usually be used to explain trade to see if there is an effect along the lines of the hypothesis. Ideally, one would want to look only at the Chinese OFDI into certain industries such as infrastructure. Unfortunately, this was not possible and therefore total OFDI will be used instead as a second-best option.

It should be pointed out though that trade network building is bigger than just infrastructure investments. It includes setting standards, ensuring access to certain strategic goods, firms and technologies amongst other things. Thus, it also includes investments and even acquisitions other than in infrastructure. Therefore, using total OFDI as a variable is not as problematic as one might at first assume because it captures most of these other aspects as well. However, it might also capture too much. It might include investments that are not part of constructing the trade network. Without due analysis of exactly how the CCP is expected to go about the formation of the trade network, using only infrastructure investments where the effect is likely to be the strongest and where the theoretical framework can make a clear prediction about the expected effect, would still have been preferable.

To estimate the trade flow in absence of Chinese investments, the so-called gravity equation was used. This is a rather basic idea within trade theory that predicts trade between two countries based on but a few variables. Despite its relative simplicity the gravity equation has

become well established through empirical research (Evenett & Keller, 1998, p. 1) The idea of the gravity model is that countries will trade more with big countries as their markets are bigger and thus both have a higher output of things to sell and higher aggregated purchasing power so that more goods can be sold to it (UNCTAD, 2012, p.103-104). It also tries to account for barriers to trade, different versions have used different variables to represent such barriers, but the standard version is the distance between countries as it should be easier to trade with markets in one's immediate proximity. In short, the idea of the gravity model is that it, by analogy with the gravity theory of physics, uses mass (size of the economy) and distance to estimate trade.

There are many versions of the gravity model, varying primarily in what variables to include and which measurements to use (Evenett & Keller, 1998, p. 1-15). This paper will make use of the most basic version, using GDP and trade resistance estimated from geographical factors, to that then adding the variable in focus, Chinese FDI. The advantage of using a basic model is avoiding some of the controversy of the more advanced ones. Furthermore, since the model is modified in this paper to look at FDI, it is better to start working from a base model to not make things unnecessarily complicated. Additional advantages of using the gravity model are that not only is the model itself rather standardized, but it also uses variables that are quite non-controversial as well. GDP is a very well-known concept to say the least and data is readily available. Geographical factors such as distance and common borders are fairly simple although not as well-established in terms of measurement and usefulness as GDP. The modification to the standard gravity model used in this paper is the addition of Chinese OFDI as a variable. It is of course expected to have a positive effect on trade, i.e. that more OFDI will lead to more trade between China and the country in question.

The regressions were run with robust standard errors and fixed effects respectively. This is because they could have had different results although that turned out to not be the case. An obvious problem when dealing with cross-sectional data is heteroscedasticity. Fixed effects models and the use of robust standard errors are meant to address this issue.

Fixed effects groups the observations by country and compare the change within each country over time. This should remove at least most of the potential bias arising from country specific effects such as historical ties. This will also address the problem of heteroscedasticity arising from different countries having different standard errors because of their different sizes. However, the fixed effects have the negative effect of variables with a constant value, such as the distance between countries, of course have to be omitted as there is no variance. Thus, when

using the fixed effects, the gravity model of trade is not fully usable. Rather it has to be restricted to merely account for GDP-factors and FDI. This is a weakness because it breaks with the theoretical model. This is why not only fixed effects have been used, but rather running the regressions with robust standard errors has also been done as a complement. Robust standard errors should decrease the effect of heteroscedasticity.

The problem of time affecting the variables also needed to be considered as it could be that for example overall trends were affecting them and led to a spurious relation being found. Thus, without accounting for this problem, inferences about causality could be wildly misleading and result in omitted variable bias. The most obvious causes of such spurious correlation had already been addressed however, by accounting for inflation and using  $\ln GDP$ . Other causes could exist though and to account for this problem, time fixed effects was added to control for year specific effects. This controls for temporal variation in the dependent variable. Since combining it with the fixed effects model would remove essentially all variation, reducing the variance to essentially zero for the relevant variable OFDI, the time fixed effects was added only to the models using robust standard errors.

Another way of addressing the issue of temporal variation is of course to remove all such variation by removing time as a factor. Therefore, a regression was also run for only 2016 (see table 2). 2016 was chosen because of it being the last year of the dataset when the BRI had been active the longest and therefore the year when an effect was most likely to be found. As time would no longer be a confounding factor, for this data only the robust standard errors model was run.

The regressions run are univariate regressions of trade on Chinese FDI stock and then multivariate regressions according to the gravity model of trade. Both versions were ran with robust standard errors and with fixed effects. Furthermore, they are all using a log-log model which not only simplifies the gravity model to allow for OLS but also helps with the interpretation. The regressions thus look as follows:

$$\text{Regression 1: } \ln(\text{trade}) = \beta_0 + \beta_1 \ln(\text{FDI}) + T_i + \varepsilon_i$$

$$\text{Regression 2: } \ln(\text{trade}) = \beta_0 + \beta_1 \ln(\text{GDP}) + \beta_2 \ln(\text{ChineseGDP}) + \beta_3 \ln(\text{distance}) + \delta \text{ sharedborder} + \beta_4 \ln(\text{FDI}) + T_i + \varepsilon_i$$

$$\text{Regression 3: } \ln(\text{trade}) = \beta_0 + \beta_1 \ln(\text{FDI}) + D_i + \varepsilon_i$$

Regression 4:  $\ln(\text{trade}) = \beta_0 + \beta_1 \ln(\text{GDP}) + \beta_2 \ln(\text{ChineseGDP}) + \beta_3 \ln(\text{distance}) + \delta \text{sharedborder} + \beta_4 \ln(\text{FDI}) + D_i + \varepsilon_i$

The first two regressions use robust standard errors whereas the latter two use fixed effects.  $\beta_0$  is the constant and  $\beta_i$  is the coefficient for each factor respectively.  $\delta$  is the coefficient for the dummy variable *sharedborder* and is therefore coded to either take the value 1 or 0.  $T_i$  groups the observations by year to account for year specific effects.  $D_i$  is the term added to the last two regressions to group the observations by country, in other words to add the country specific effects.  $\varepsilon_i$  is the error term.

## 4.2 Data

Finding data after 2013 proved somewhat difficult but as BRI was only initialized in 2013, using data for as many years after 2013 as possible was key. No dataset containing all the data needed for this paper was found and hence a new dataset had to be created. The created dataset covers the years 2008-2016 and is composed of data from several different sources. The time period also resulted in a trade off in which variables to use. In the author's humble opinion this was necessary for the reason stated above. All monetary variables are measured in 1000s of 2010 USD, in other words all values have been converted to real value in 2010 USD.

### 4.2.1 Selection of countries

To test the hypothesis a most likely case was used. In other words, the test was performed on a selection of countries and for a timeframe that was most likely to generate results in support of the theory if there is any truth to it. If confirmed by this test, then one might move on to test the theory under less favourable circumstances to check how robust the results are. A positive finding given this selection of countries would certainly provide support for the theory, but it would not provide as strong support as a negative selection would have done, i.e. finding the effect even under less than optimal circumstances.

Given the role of the BRI as a continuation and formalization of the Chinese trade network building, the selection of countries to look at was the countries that were part of the BRI as of 2016 when the dataset ends. They are the ones in which China has an obvious interest and which have also been willing to take part in this great project. Thus, they are the ones which are to be included in the trade network.

#### 4.2.2 Problems with the data

The general problem with Chinese data is that it can be considered unreliable because of different measurement systems but more importantly because China has been accused of actively distorting its data to manipulate its image in the rest of the world. To what extent there is really anything to these accusations is beyond the scope of this paper, but the accusations are grave enough to be taken into account when considering the data and the results of this paper. However, it is not obvious how the data would have been manipulated and thus the potential effect on the regression results cannot be estimated.

Furthermore, when using aggregated macro-data of the kinds used in this paper there is always the risk of measurement errors (International Trade Centre, 2018a). Furthermore, values have been converted into USD although that might not have been their original unit of measurement. When converting from another currency into USD, the total is often first summed up over the relevant time span and then converted, thus not accounting for more short-term fluctuations in the exchange rate. The trade data used is aggregated from monthly conversions though, which should lessen this effect.

A general problem with trade data is re-imports and re-exports being included in the statistics, meaning that the sale of second-hand goods is included (International Trade Centre, 2018a). A country with no production of a certain good might therefore show up as an exporter of that good simply because it sold previously bought quantities of that certain good. A well-known case of this is China's export to and then re-import from Hong Kong of certain products. For this reason, China appears to have trade with itself in the data of the source used for this paper.

The issue of re-imports and re-exports should not be a problem in this study though as it is concerned with trade flows. If a country resells some good, or even the case of China and Hong Kong mentioned above, means that the trade flow has increased even if domestic production has not (International Trade Centre, 2018a). The paper is concerned with the effect of expansion

of the Chinese trade network on trade and if there is an increase in re-export for example due to a new railroad linking a country to China then this is in line with the theory. The only problem arising from this is that the lack of standards on whether or not to include such sales, make the data inconsistent across countries as some include such trade while others do not.

## 4.3 Variables

All variables are coded by year and country. This is necessary simply because it is the effect on each country that is interesting in this study. One might consider using more variables to account for trade resistance as many versions of the gravity model does. In this paper other measurements than geographical ones will not be used. Firstly, this is because of the choice to use as simple a version of the gravity model as possible. Secondly, it is because many such proxies are estimations of tariffs, bureaucratic obstacles or lack of infrastructure. However, decreasing the negative effect of this is an auxiliary yet important project within the BRI. Therefore, if the hypothesis is correct there would risk being considerable negative correlation between the variables for FDI and trade resistance. By not including trade resistance the problems that would follow are avoided. Geographical measures are not as easily changed however and neither of the ones chosen change during the time period examined in this paper. Therefore these proxies are preferred.

### 4.3.1 Trade

First of all, the interest is primarily in things physically changing hands. Consequently, the measurement of trade has to be of physical trade, thus excluding trade in intellectual property rights and other things that might be more easily transferable, or at least transferred differently. Therefore the variable is trade in goods. The bilateral trade data was collected from the International Trade Centre (2018b). It is measured as the value of the total exchange of goods.

This variable was chosen to catch the effect of increased imports of various strategic resources as well as the export of Chinese produced goods to the newly accessed markets. Therefore, it is suitable to use a measurement that captures flows in both directions between a particular

geographical market and China, i.e. trade. However, because the resources China seeks to acquire or goods it might sell vary from country to country, the trade has to be measured as total trade, rather than focused on certain specific goods.

#### 4.3.2 GDP

GDP was collected from the World Bank statistical database (2018). Since both the source and the measurement are well-known there seems to be nothing more to comment on for this variable.

#### 4.3.3 Distance

The geographical data was collected from the Centre d'Études Prospectives et d'Informations Internationales (CEPII). The exact measurement chosen measures the distance (in kilometres) between the most important cities/agglomerations in terms of population for every respective pair of countries (CEPII, n.d.). First the most important cities/agglomerations have been estimated based on population and then the distance between the coordinates of those cities/agglomerations in each respective country and China has been measured. This is thus a rather simple measurement of distance and more advanced ones could be construed but simpler versions were preferred when selecting variables for the reasons already stated.

A problem with this measurement is that the dataset is rather old and the population distribution within countries might have changed. For example, the internal migration might have redistributed the Chinese population more to the economically more well-off areas by the coast, thus potentially creating a bias underestimating the distance between China and European, Central Asian and West Asian countries when using the old dataset. This underestimation should lead to an underestimation of the effect of the other variables. However, no newer and as comprehensive dataset was found.

It should be noted that Montenegro was not included in the dataset. Therefore, the values for Montenegro were estimated using those of Serbia as this is a neighbour of Montenegro and these countries were until relatively recently part of the same federation. This should be a good enough estimation and any errors should be small enough to not distort the results of the regressions.

#### 4.3.4 Shared border

A dummy variable was used to control for the effect of whether the countries bordered to China or not. It is quite simple, coded to take the value one for the countries with which China shares a land border and zero otherwise. Altogether China has 14 such neighbours of which all but two are included in the dataset, the excluded countries being Bhutan and the Democratic People's Republic of Korea. Neither country was part of the BRI as of 2016 and for Bhutan the Ministry of Commerce doesn't report any FDI (Ministry of Commerce of the People's Republic of China, 2017). This variable was created by the author.

#### 4.3.5 FDI

The measurement for Chinese investments in infrastructure and other fields relevant for the build-up of the Chinese trade network is the total stock of Chinese OFDI in the country in question. The data on this was collected from the report “2016 年度中国对外直接投资统计公报” (2016 Statistical Bulletin on China's Outward Foreign Direct Investment), published by the Ministry of Commerce of the People's Republic of China (2017). The dataset covers the years 2008-2016.

Unfortunately the dataset is not categorized by industry or otherwise. Therefore the total OFDI has to be used as the operationalization of the Chinese investments in trade network building. Data on infrastructure investments would have been preferable but no such data was found for the years as resented in this dataset. This is a flaw of the paper that could not be addressed. It might lead to biases in the result as it is a less than perfect proxy. As the research on the effect of FDI on trade has not yet reached a consensus, the possible bias arising from using total OFDI cannot be estimated. Without being able to estimate them, they also cannot be accounted for unfortunately and therefore lower the overall usefulness of the findings of this paper.



## 5 Results and discussion

### 5.1 Results and interpretation

Table 1

VARIABLES	(1) Model 1 log	(2) Model 2 log	(3) Model 3 log	(4) Model 4 log
lnGDP		-0.024 (0.033)		-0.041 (0.040)
lnChinaGDP		0.107** (0.051)		0.043*** (0.012)
Indist		-1.411* (0.724)		
1.sharedborder		-0.154 (0.780)		
lnFDI	0.150*** (0.041)	0.115*** (0.041)	0.219*** (0.024)	0.204*** (0.025)
o.Indist				-
1o.sharedborder				-
Constant	12.938*** (0.464)	23.038*** (6.376)	12.466*** (0.275)	12.492*** (1.417)
Country FE	No	No	Yes	Yes
Time FE	Yes	Yes	No	No
Observations	558	549	558	549
R-squared			0.195	0.233
Number of ccode	63	62	63	62

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The table above shows highly significant results for *lnFDI* on all four regressions. The models can be grouped into the ones using robust standard errors (1 and 2) and the ones using fixed effects (3 and 4). This means that 1% increase in the Chinese FDI stock would increase trade with China by a little more than 0.2% according to models 3 and 4, or between 0.1-0.15% according to models 1 and 2. The  $\beta$ -coefficient is smaller for Model 2 and 4 than for their

respective other regression within each pair ( $2 < 1$  and  $4 < 3$ ). This is not very strange as they include several control variables which decreases the variance. The remarkable thing is then rather that the difference between the coefficients within each pair is so small (within each pair the values lie within one standard deviation of each other). This implies that the control variables have only a small effect which also seems to be the case as can be seen from the table.

The logarithm of the GDP of every respective country (*lnGDP*) is not significant for either model in which it is used which is surprising as this is a standard variable in the gravity model of trade. Considering the quite extensive empirical support for the gravity model the other variables were expected to be significant. Unfortunately the cause of this remains unclear.

The  $\beta$ -coefficient for Chinese GDP (*lnChinaGDP*) is significant at the 99%-level. This was expected for the exact same reason that the insignificant result for *lnGDP* was unexpected. These results imply that when Chinese GDP increases by 1% trade increases by about a meagre 0.04%, yet it increases to 0.1% when using time fixed effects. Thusly it would appear that the effect of Chinese GDP-growth on trade is not very big.

The coefficients for distance (*lnDist*) and whether a country borders with China or not (*i.sharedborder*) were both insignificant. This result is also surprising. Using distance is standard in the gravity model of trade and was therefore expected to have a significant effect. Once again this can regrettably not be explained.

The R-squared values are not very high, yet considering how relatively few variables have been included it comes across as quite a good result providing further support for that the effect of FDI on trade is considerable enough to be worth taking into account.

*Ccode* is short for country code and shows how many groups the observations are divided into; in other words, how many countries are included. Model 2 and 4 use one less country than the other two models. This is because the Syrian Arab Republic is omitted because of lack of data on GDP since the start of the Syrian civil war. For the same reason the number of observations differs between models 1 and 3 on one hand and 2 and 4 on the other.

Table 2

VARIABLES	2016
<i>lnGDP</i>	-0.013 (0.016)
<i>lnChinaGDP</i>	0.041*** (0.012)
<i>Indist</i>	-0.916* (0.493)
<i>1.sharedborder</i>	-0.293 (0.506)
<i>lnFDI</i>	0.240*** (0.020)
Constant	19.147*** (4.446)
Country FE	No
Time FE	No
Observations	549
Number of ccode	62

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 2 shows the results when running model 2 for 2016 exclusively. Using data for only one year should remove any distorting effects that time might otherwise have on the results of the regressions. Focusing on 2016 makes sense as it is the last year for which all the data is available and thus also the year in the dataset for which the trade network building has gone on the longest. Thus it is also a most-likely-case-design.

The result when applying model 2 to this selection of data are somewhat better in terms of significance. *lnChinaGDP* becomes significant on the 99%-level and *Indist* on the 90%-level (the same as for model 2 in table 1). The  $\beta$ -coefficient of *lnFDI* is somewhat bigger than before, 0.24 rather than 0.115. *lnGDP* and having a common border remain insignificant however. This still cannot be explained.

The results presented in the two tables above are taken to support the hypothesis that Chinese OFDI has a positive effect on the bilateral trade with China. This is because the  $\beta$ -coefficient of the variable for Chinese OFDI was highly significant and with the expected sign in all

regressions that have been run. The unexpected results for other variables cannot be explained and therefore lower the overall usefulness of the findings. One cannot infer as strongly from the results when they cannot be fully explained by the theory.

## 5.2 Discussion

Despite some unexpected results for certain variables the result is still interpreted as though providing support for the hypothesis. This is because the main variable, OFDI, is still highly significant and in line with the predictions of the theory. It would thus appear as if though Chinese direct investments do increase the trade with China, or at least the value of it. It could of course be that the trade doesn't increase in volume but rather just some goods are substituted for other, more expensive ones. This does not have to be a problem for the theory as it could be that the OFDI has simply made possible the export of some more desirable good that was previously not possible to export. For example, a country exports wood to China where it is made into furniture. The country's infrastructure is improved, leading to the furniture manufacturer moving the production there to be closer to the wood and make use of the cheap labour. As a result the volume of the trade might even go down but the value increases as furniture is more expensive than wood. This is still in line with theory and would generate a positive result in the regressions.

The results therefore provide support for the theory that Beijing is promoting the construction of a China-centred trade network. The results of this can only be speculated on. First of all, the attempt to build such a network doesn't mean it will prove successful in achieving all the goals described above. Nonetheless, it does imply that these are the reasons for the CCP to promote this project yet is no definite proof of it. Therefore further research on this is required to examine all aspects of the theory.

Although it is much too early to tell (much further work is needed to provide support for the theory of this paper) some reasoning on the consequences of the results in this paper would still be interesting. A massive Chinese-centric trade network spanning the Eurasian landmass should have profound effects on the future of trade. It would put China in a much more influential position over the economic future and be a stepping stone for China on the way to regional hegemon.

Furthermore, the results thus imply that the future will see more intra-Eurasian trade and a greater share of overland trade. This could also possibly mean the resurgence of Central Asia to play a more significant role in international economics in the future. This region should, if the trade network is successful, see its economic opportunities increase, providing the prospect

for stronger growth and the possibility of development on other areas as well. This would also redraw the trade map of the world in general, thus affecting many, if not all, countries to some extent. The results would be the most noticeable in Asia though. BRI has already brought many opportunities to poorer countries in the region. Further infrastructure investments should only help their economies develop even further, in line with what Coşara and Demirb describe for Turkey (2015). Even though the trade network might be motivated in much by the CCP's own goals to secure its own position domestically and geopolitically, it will therefore likely still bring much good to the region, especially to less developed countries.

If the project is successful, at least to some extent it would by definition of course also increase China's resilience and provide the CCP with a new tool in the struggle for influence and prestige in the international domain. Thus it would tip the balance of power slightly more in favour of China. Whereas still not posing a direct threat to US dominance, it could quite possibly aid in the erosion of the structure underpinning that dominance, thus slowly bringing it to an end in accordance with the theory of Qiao and Wang (1999).

One can only speculate about a logical next step, once such a network is in place. This would of course depend on the exact ambitions of the leadership of China. Expanding the trade network and intensifying the cooperation would tie the region ever tighter to China, thus once again earning it the name the Middle Kingdom. As trade within the network, without the USA, grows more intense one might consider replacing the USD with the RMB within the network as there should be no need to include the USA in trade that has nothing to do with it. This could then be part of bringing forth the RMB as a world currency along the lines of the USD and the Euro. The increasing energy trade between China and other parties might also help the establishment of a petroyuan to replace the petrodollar in the Eurasian, or at least East Asian, energy market.

Although possibly interesting this is very speculative and beyond the scope of what can conclusion can actually be drawn from this study. However, it is worth noting that not only is BRI the result of trying to create projects as solutions to many issues simultaneously, but one should remember that it is likely to be and already have been used by various actors for purposes other than the official party line of the CCP. So many organizations and individuals are involved in the BRI alone that the initiative is likely to be subject to some of them shaping it to fit their purposes, i.e. address their problems as well. Foreign governments, influential companies, individual politicians or almost anyone with a say in BRI or its auxiliary projects might have

influenced some aspect of BRI to fit his or her interests. Such huge projects might therefore continue to grow and on the outskirts of its reach, morph into things it was not intended to be. The core might also change to keep up with its time. This should be slower though and more in line with the original design of its agenda as many actors, most notably the CCP has to agree for it to happen. This might be worth keeping in mind when analysing and evaluating it in the future. Furthermore, this means that the relation between Chinese OFDI and trade, and not even the BRI can be expected to remain constant but rather probably has a dynamic aspect to it, much like what Fontagné suggested for FDI and trade in general.

### 5.3 Shortcomings of this paper

As already stated, aggregated OFDI data is not a perfect measurement. Arguably the results should be more significant if looking only on certain types of investments such as in infrastructure. Without the data to test it one can of course not be sure though. There could be other unknown factors producing the positive result in this test, that would then be lost if excluding everything but infrastructure.

The lack of relevance of the variables of the gravity model implies that something is wrong. Potential flaws in the data have already been discussed and there is no obvious reason why any of them would cause biases along these lines. It could of course be that the OFDI-variable somehow makes the other variables insignificant. Maybe GDP does not actually affect trade when direct investments are controlled for however that seems improbable. More speculation on this could be done but in truth the reasons for these results are beyond the author.

Just because China is building up a trade network the theory does not necessarily have to be true. It could of course be that there are other goals behind it. This is arguably a quite serious flaw. However, this paper cannot do everything and therefore, laying forward the theory and testing its most basic prediction seems a big enough task considering the time and resources available. Rather, expanding on this makes for an interesting area of future research.

## 5.4 Areas of future research

So, how to build on this result? First of all, what one should do is try to verify or discard these results with other methods and/or data. There should be plenty to improve on, especially when it comes to the data. Finding data on exclusively infrastructure OFDI by China would make for an interesting test as it would allow one to test the predictions of the theory more precisely. A follow-up study compiling such a dataset and running the same and possibly other regressions would therefore be a great contribution on this topic.

Furthermore, the method and data used in this paper does, as mentioned above, provide a most-likely-case-design. Since the results of this paper confirms the hypothesis a logical next step would be to see if positive results could also be found under circumstances that are less favourable for the theory. This would provide much stronger support for the theory laid forward in this paper than the design used. Also, one could try to simply add more control variables to see how robust the results are. Perhaps the perceived effect of the OFDI would then disappear.

Moving beyond replicating the study with different data or design and assuming that further empirical support has been found, then interesting follow-ups on this study would be to build on the theoretical framework and see if it is perhaps generalizable to other circumstances or countries. One could for example look into expanding the investigation beyond the BRI. One might also work further on the use of OFDI for geopolitical purposes to serve as support for the policymakers of the future. The interest could come both from politicians fearing Chinese direct investments in their country or those trying to play the geopolitical game. This paper does so far not provide much support for policymakers with either agenda but opens up the field for future research that could prove much more useful.

As mentioned in the previous section, another way of building on the results would be to make other hypotheses based on the theoretical work and through them test different parts of the theory. Possible such work would be looking more into the acquisition of certain strategic goods by Chinese firms, especially those by SOEs. One could also focus more on the “Malacca trap” and make more qualitative estimations of the Pakistan and Myanmar-Bangladesh-India economic corridors and whether they will actually have the potential to redirect any significant amount of Chinese trade away from the straits south of Singapore. These are only some



suggestions and surely brighter minds could come up with better ways of truly putting the theory to the test.

## 6 Conclusion

This paper has examined the effect of Chinese OFDI on China's bilateral trade with affected countries, in order to investigate the possible build-up of a Eurasian China-centric trade network. The main contribution of the paper is to have combined economics, war theory and geopolitics to analyse a primarily economic phenomenon and produce a theoretical framework for it.

It was theorized that given the extensive influence of the CCP over the Chinese economy, its OFDI included, it could use it to suit its own intents and purposes. The domestic economic situation and the performance-based legitimacy of the CCP has led to trade becoming a vital interest of the party. Another issue of the CCP has been the increasing tension with primarily the USA as the two compete for influence in Asia. It has been described how the formation of a China-centric trade network would help the Chinese domestic economic situation, increase Chinese influence and power projection in Asia and, last but not least, diversify China's trade routes and partners, thus increasing the economic resilience of China.

Using a most-likely-case-design, a test of whether the OFDI was used for the construction of such a trade network or not was conducted. A modified version of the so-called gravity model of trade was used for this test. The result was in line with the theoretical prediction of the first part of this paper but not in line with the prediction of the gravity model. This could not be explained but was still taken to support the theory, thus opening up for future studies on the subject.

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## 7.2 Maps

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# Appendix

Table 1. Descriptive statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
ChineseFDIStock	558	954,597	2.716e+06	20	3.345e+07
sharedborder	567	0.159	0.366	0	1
Distance	567	5,748	1,846	1,172	10,369
totaltrade	567	1.305e+07	2.107e+07	2,378	1.004e+08
GDP	558	2.205e+14	2.445e+14	8.944e+08	1.011e+15
ChinaGDP	567	4.342e+14	3.384e+14	4.690e+12	9.096e+14

Table 2. Countries participating in BRI as of 2016

Created using data from 2016 年度中国对外直接投资统计公报” (2016 Statistical Bulletin on China’s Outward Foreign Direct Investment) by the Ministry of Commerce of the People’s Republic of China

1	Afghanistan
2	United Arab Emirates
3	Armenia
4	Azerbaijan
5	Bangladesh
6	Bahrain
7	Belarus
8	Brunei Darussalam
9	Egypt Arab Rep.
10	Georgia
11	Indonesia
12	India
13	Iran Islamic Rep.
14	Iraq
15	Israel
16	Jordan
17	Kazakhstan
18	Kyrgyz Republic
19	Cambodia
20	Kuwait
21	Lao PDR
22	Lebanon
23	Sri Lanka
24	Maldives
25	Myanmar
26	Mongolia
27	Malaysia
28	Nepal
29	Oman
30	Pakistan
31	Philippines
32	Palestine/Westbank
33	Qatar
34	Russian Federation
35	Saudi Arabia
36	Singapore
37	Syrian Arab Republic
38	Thailand
39	Tajikistan
40	Turkmenistan



41	Timor-Leste
42	Turkey
43	Ukraine
44	Uzbekistan
45	Vietnam
46	Yemen Rep.
47	Albania
48	Estonia
49	Latvia
50	Lithuania
51	Bulgaria
52	Bosnia and Herzegovina
53	Poland
54	Montenegro
55	Czech Republic
56	Croatia
57	Romania
58	Macedonia
59	Moldova
60	Serbia
61	Slovakia
62	Slovenia
63	Hungary

Table 3. Top 100 OFDI companies as of 2016

Created using data from 2016 年度中国对外直接投资统计公报” (2016 Statistical Bulletin on China’s Outward Foreign Direct Investment) by the Ministry of Commerce of the People’s Republic of China

OFDI Stock Top 100 Companies (by the end of 2016)				
Nr.	Chinese Name	English Name	Type	Remark
1	中国移动通信集团公司	China Mobile Communications Group Co.,Ltd. (CMCC)	SOE	
2	中国石油天然气集团公司	China National Petroleum Corporation (CNPC)	SOE	
3	中国海洋石油总公司	China National Offshore Oil Corporation	SOE	
4	中国石油化工集团公司	China Petrochemical Corporation	SOE	
5	中国联合网络通信集团有限公司	China United Network Communications Group	SOE	
6	招商局集团有限公司	China Merchants Group	SOE	
7	腾讯控股有限公司	Tencent Holdings Limited	Private	
8	华润(集团)有限公司	China Resources Holdings Co., Ltd	SOE	
9	中国远洋海运集团有限公司	China Shipping (Group) Company	SOE	
10	中国化工集团公司	China National Chemical Corporation (ChemChina)	SOE	
11	中国建筑工程总公司	China State Construction Engineering Corporation	SOE	
12	国家电网公司	State Grid Corporation of China	SOE	
13	中国五矿集团公司	China Minmetals Corporation	SOE	
14	北京控股集团有限公司	Beijing Enterprises Holdings Limited	SOE	
15	海航集团有限公司	HNA Group Co., Ltd.,(Hainan Airline)	Private	
16	华为技术有限公司	Huawei Technologies Co., Ltd.	Private	
17	中国中化集团公司	Sinochem Group	SOE	
18	中国铝业公司	Aluminum Corporation of China Limited	SOE	
19	中国中信集团有限公司	CITIC Group Corporation Ltd.,	SOE	

20	中国交通建设集团有限公司	China Communications Construction Co., Ltd. (CCCC)	State holding	
21	中粮集团有限公司	Sinochem Group	SOE	
22	中国电力建设集团有限公司	Power Construction Corporation of China	SOE	
23	中国长江三峡集团公司	China Three Gorges Corporation	SOE	
24	兖州煤业股份有限公司	Yanzhou Coal Mining Company Limited	State holding	
25	国家电力投资集团有限公司	State Power Investment Corporation	SOE	
26	中国兵器工业集团公司	China North Industries Group Corporation	SOE	
27	中国民生投资股份有限公司	China Minsheng Investment Group	Private	
28	广东粤海控股集团有限公司	Guangdong Holdings Limited	SOE	
29	深业集团有限公司	Shum Yip Group Limited	Private	*owned by city government
30	中国旅游集团公司	China National Travel Service Group Co., Ltd	Private	*government regulated
31	广州越秀集团有限公司	Yuexiu Enterprises (Holdings) Limited	SOE	
32	中国宝武钢铁集团有限公司	China Baowu Steel Group	SOE	
33	中国航空工业集团公司	Aviation Industry Corporation of China	SOE	
34	大连万达集团股份有限公司	Wanda Group	Private	
35	中国航空集团公司	China National Aviation Holding	SOE	
36	联想集团有限公司	Lenovo Group Ltd.	Private	
37	中国有色矿业集团有限公司	China Nonferrous Metal Mining (Group) Co., Ltd.	SOE	
38	紫光集团有限公司	Tsinghua Unigroup	Private	
39	三一重工股份有限公司	Sany Heavy Industry Co., Ltd.	Private	
40	中国华能集团公司	China National Chemical Engineering Group Corporation	SOE	
41	海尔集团公司	Haier Electronics Group Company Limited	Private	
42	中兴通讯股份有限公司	ZTE Corporation	Private	
43	中国中钢集团公司	Sinosteel Corporation	SOE	

44	中国铁道建筑总公司	China Railway Construction Corporation	SOE	
45	美的集团股份有限公司	Midea Group	Private	
46	光明食品（集团）有限公司	Bright Food (Group) Co., Ltd.	SOE	
47	上海吉利兆圆国际投资有限公司	Shanghai Geely Zhaoyuan International Investment Co.,Ltd	Private	
48	洛阳栾川钼业集团股份有限公司	China Molybdenum Company Limited	State holding	
49	苏宁云商集团股份有限公司	SUNING COMMERCE GROUP CO., LTD.	Private	
50	金川集团股份有限公司	Jinchuan Group Ltd.	SOE	
51	中国国际海运集装箱(集团)股份有限公司	China International Marine Containers (Group) Co., Ltd	State holding	
52	上海云钜创业投资有限公司	-	Private	*investment company
53	中国黄金集团公司	China National Gold Group Corporation	SOE	
54	中国电信集团公司	China Telecommunications Corporation	SOE	
55	中国铁路工程总公司	China Railway Corporation	SOE	
56	上海汽车集团股份有限公司	SAIC Motor Corporation Limited	Private	
57	安徽省外经建设（集团）有限公司	Anhui Foreign Economic Construction Group	State holding	
58	中国中车集团公司	CRRC Group	SOE	
59	中国机械工业集团有限公司	China National Machinery Industry Corporation	SOE	
60	中国华电集团公司	China Huadian Corporation	SOE	
61	中国广核集团有限公司	China General Nuclear Power Group	SOE	
62	中国航天科技集团公司	China Aerospace Science and Technology Corporation	SOE	
63	中联重科股份有限公司	Zoomlion Heavy Industry Science & Technology Development Co., Ltd.	State holding	
64	中国保利集团公司	China Poly Group Corporation	SOE	
65	东风汽车公司	Dongfeng Motor Corporation	SOE	
66	神华集团有限责任公司	Shenhua Group Corporation Limited	SOE	

67	河钢集团有限公司	Hesteel Group	SOE	
68	渝商投资集团股份有限公司	USUM Investment	Private	
69	山东如意科技集团有限公司	Shandong Ruyi Technology Group Co., Ltd	Private	
70	中国节能环保集团公司	China Energy Conservation Investment Corporation	SOE	
71	万科企业股份有限公司	China Vanke Co., Ltd.	Private	
72	金地（集团）股份有限公司	Gemdale Corporation	Private	
73	内蒙古伊利实业集团股份有限公司	Inner Mongolia Yili Industrial Group Company Limited	SOE	
74	中国建银投资有限责任公司	China Jianyin Investment Ltd.	SOE	
75	广州汽车集团股份有限公司	Guangzhou Automobile Group Co., Ltd.	State holding	
76	汉能控股集团有限公司	Hanergy Holding Group	Private	
77	鞍钢集团公司	Ansteel Group	SOE	
78	南光（集团）有限公司	Nam Kwong（Group）Company Limited	State holding	
79	中国建材集团有限公司	China National Building Material Co., Ltd.	SOE	
80	南山集团有限公司	Nanshan Group	Private	
81	绿地控股集团股份有限公司	Greenland Holdings Corporation Limited	Private	*originally founded as SOE
82	紫金矿业集团股份有限公司	Zijin Mining Group Company Limited	State holding	
83	中国能源建设集团有限公司	China Energy Engineering Group Co., Ltd.	SOE	
84	吉林吉恩镍业股份有限公司	Jilin Jien Nickel Industry Co., Ltd.	State holding	
85	广东省航运集团有限公司	Guangdong Province Navigation Holdings Company Limited	SOE	
86	中国重型汽车集团有限公司	China National Heavy Duty Truck Group Co., Ltd.	SOE	
87	中国大唐集团公司	China Datang Corporation	SOE	
88	北京首旅酒店（集团）股份有限公司	BTG HOTELS (GROUP) CO., LTD	SOE	
89	广东省广晟资产经营有限公司	Guangdong Rising Assets Management Co., Ltd.	SOE	

90	宁波东方亿圣投资有限公司	-	Private	*investment company
91	中铁建铜冠投资有限公司	CRCC-TONGGUAN INVESTMENT CO., LTD.	Private	*originally state holding
92	万向集团公司	Wanxiang Group Corporation	Private	
93	中国东方航空集团公司	China Eastern Airlines	SOE	
94	宁波均胜电子股份有限公司	Ningbo Joyson Electronic Corp.	Private	
95	三胞集团有限公司	Sanpower Group	Private	
96	福耀玻璃工业集团股份有限公司	Fuyao Glass Industry Group Co., Ltd.	Private	
97	中国东方资产管理公司	China Orient Asset Management Co., Ltd.	SOE	
98	上海医药集团股份有限公司	Shanghai Pharmaceuticals Holding Co., Ltd.	State holding	
99	泛海控股集团有限公司	Oceanwide Holdings CO.,LTD	Private	
100	三林万业（上海）企业集团有限公司	SALIM WANYE (SHANGHAI) ENTERPRISES CO.,LTD.	Private	