



Diplomatic Visits and International Trade

The Effects of Diplomatic Visits of Chinese Leaders on China's Export Flows

Master thesis

Name: Wanlu Hou

Student number: 512538

Supervisor: Prof. dr. A.G. Dijkstra

1st reader: Prof. dr. A.G. Dijkstra

2nd reader: Dr Michal Onderco

Word count: 20393

Erasmus University Rotterdam

International Public Management and Policy 2018-2019

20-07-2019

Abstract

Ever since the first application of the gravity model of trade on studying bilateral trade flows, more scholars have begun to pay attention to the research related to the effects of political factors on international trade. Only after numerous factors had been identified, they broadened their scope and turned their focus to the influence of diplomatic visits. However, most of the research is performed focusing on developed countries, and both positive and negative results are found in specific countries. Their results are therefore difficult to generalise to other countries in the world. In recent years, more studies on the effects of diplomatic visits on international trade in developing countries and rising powers have appeared. As one of the significant representatives of rising powers, studies on China are still limited. Hence, this research concentrated on China, trying to add more evidence to the existing literature about China on this topic. In addition, as economic diplomacy has been playing a more and more critical role in international trade, this research would provide helpful insights for future policies.

More specifically, the goal of this research is to explore the relationship between diplomatic visits of Chinese leaders and China's export flows. A quantitative research of panel-data design has been employed with data covering 175 countries and a time span of 15 years. The gravity model of trade has been used for other variables. Results of the panel regression analysis present that diplomatic visits of Chinese leaders are positively correlated to China's export flows. In addition, more findings have shown that there is no significant positive relationship between state visits of Chinese Presidents and China's export flows. Based on the theoretical and empirical analysis, the results of this research provide implications for future research and policies.

Acknowledgements

As the only Chinese student in this program, I was born and grown up in China. This is my first time to Europe, and this “first time” covers nearly one year of my whole life. In the very beginning of my Master, I encountered various problems. The most difficult part is the language. Although I passed the IELTS exam and satisfied the application requirements of the program, I found that it is a totally different thing between passing a language exam and using a language in a flexible way after I came here. At that time, it would take me several hours or even the whole day to read one article for the courses. Therefore, overcoming the language problem became the biggest and hardest challenge for me. Fortunately, I received a lot of help from lecturers and classmates. Up till now, I have finished all my courses, and hope to finish the thesis successfully. I spent a meaningful, wonderful, and fruitful year in the Netherlands. Deciding to study abroad in this program and in this country is one of the most right decisions I have ever made. Even though I choose to come back to China after graduation, I will remember the time I spent here for my whole life. It is a treasure for me.

As for the thesis, it really took me a long time and a lot of energy to work on it. One of the reasons why I would like to choose this research topic is that I would like to do something related to China, to explore more things about China using the knowledge I learned. Moreover, quantitative research is the thing I always want to try. However, I did my Bachelor thesis in a qualitative research design, and I have had no course concerning with statistical analysis, which means no background knowledge for me. Therefore, it is really a challenge for me to finish this quantitative thesis. Now, I am kind of proud of the results. During the process of writing the thesis, I got a lot of help and support. I am extremely grateful for their help and really want to thank them. Firstly, I would like to thank my family, especially my mother who provides me with significant support. She makes it possible for me to live and study in the Netherlands. Thanks to her, I can devote myself fully to study without worrying about life. Then my thanks would go to my beloved boyfriend. He is always there when I need him and gives me the brave to face things in a foreign country without feeling lonely. He even came to visit me in the Netherlands. Additionally, I would like to express my heartfelt gratitude to my supervisor, professor Dijkstra. She has provided me with sufficient patience, help, and support. I did my Bachelor thesis in Chinese. Writing a thesis with more than 20000 words is really a challenge for me. But I have received a lot of constructive

feedback from her to keep working on my thesis and make progress. Even though I decided to make some changes to my research topic after I got insignificant results for my previous one, I got support from her. It means a lot to me. She also gave me enough freedom to work on this thesis on my own pace. Furthermore, I would like to thank the girls of my thesis group. We worked together and helped each other. Although my suggestions for their theses are really limited in the thesis group meetings, they provide a lot of advice for me. I also would like to thank Viktoria. She is my best friend in this program. I was not that familiar to the way of the group working here at the beginning, and exams really made me anxious. She really helps me a lot. Without these people, I could never have finished this thesis. Finally, my gratitude would go to this program. It provided us with plenty of opportunities to see the world. We went to Switzerland together to visit the UN, WTO, and other international organisations. The visit to the EU in Brussels is also an unforgettable memory to me.

List of Contents

Abstract	2
Acknowledgements	3
List of Contents	5
Abbreviations	7
Lists of Tables and Figures.....	8
1. Introduction	9
1.1 Research aim and research question	11
1.2 Sub-questions.....	11
1.3 Research approach.....	12
1.4 Theoretical and societal relevance.....	13
1.5 Research structure.....	13
2. Literature Review and Theoretical Background.....	15
2.1 Diplomatic visits.....	15
2.2 Why might diplomatic visits matter for international trade?	16
2.3 China's strategies in economic diplomacy	21
2.3.1 Historical evolution of China's economic diplomacy.....	21
2.3.2 China's economic diplomacy since the 18th CPC National Congress	24
2.3.2.1 Trade negotiations: efforts to promote the Doha Development Round	24
2.3.2.2 Free Trade Agreements: signing up new partners.....	25
2.3.2.3 One Belt, One Road: a road to peace and prosperity	26
2.4 Diplomatic visits of Chinese leaders	27
2.5 Gravity model of trade.....	29
2.6 Conceptual model.....	31
2.6.1 Hypotheses.....	31
2.6.2 Control variables.....	32
2.6.3 Conceptual model.....	35
3. Research Design.....	37

3.1 Panel-data research design.....	37
3.1.1 Empirical method	39
3.1.1.1 Equation of the gravity model of trade applied	39
3.1.1.2 Choice of model.....	41
3.1.2 Sample	42
3.2 Operationalisation.....	43
3.2.1 Dependent variable	43
3.2.2 Independent variables	43
3.2.3 Control variables.....	44
3.2.3.1 GDP of China and its trading partners.....	44
3.2.3.2 Population of China and its trading partners	44
3.2.3.3 Differences in GDP per capita between China and its trading partners.....	45
3.2.3.4 Geographic distance between China and its trading partners	45
3.2.3.5 Other control variables	45
3.2.4 Operationalisation table.....	46
3.3 Reliability and validity	47
4. Analysis.....	50
4.1 Descriptive statistics	50
4.2 Correlation analysis and VIF multicollinearity test.....	52
4.3 Model selection.....	54
4.4 Results	54
5. Conclusion.....	58
5.1 Answers to the sub-questions and main research question	58
5.2 Limitations of the research	59
5.3 Research implications.....	60
5.4 Policy implications	61
References	63
Appendix	70

Abbreviations

WTO:	World Trade Organisation
VIF:	Variance Inflation Factor
US:	United States
IMF:	International Monetary Fun
GATT:	General Agreement on Tariffs and Trade
JCCT:	US-China Joint Commission on Commerce and Trade
APEC:	Asia-Pacific Economic Cooperation
ASEAN:	Association of Southeast Asian Nations
FTA:	Free Trade Area
CAFTA:	China-ASEAN Free Trade Area
GCC:	Gulf Cooperation Council
EU:	European Union
TPP:	Trans-Pacific Partnership
TTIP:	Transatlantic Trade and Investment Partnership
TISA:	Trade in Services Agreement
G20	Group of Twenty
TFA:	Trade Facilitation Agreement
FTAAP:	Free Trade Agreement of the Asia Pacific
BRFIC:	Belt and Road Forum for International Cooperation
OLS:	Ordinary Least Squares
HS:	Harmonised System
UNSD:	United Nations Statistics Division
SD:	Standard Deviation

Lists of Tables and Figures

Tables

Table 1: Empirical studies on diplomatic relations and international trade 20

Table 2: Summarising table of control variables 35

Table 3: Operationalisation..... 47

Table 4: Descriptive statistics 51

Table 5: Descriptive statistics of logarithms of most variables 52

Table 6: Correlation analysis 53

Table 7: VIF multicollinearity test..... 53

Table 8: Regression results..... 56

Figures

Figure 1: Diplomatic visits of Chinese leaders and state visits of Chinese Presidents between 2002
and 2016 27

Figure 2: Diplomatic visits of Chinese leaders and China’s export flows..... 28

Figure 3: State visits of Chines Presidents and China’s export flows 29

Figure 4: Conceptual Model..... 36

1. Introduction

National leaders pay extensive diplomatic visits to other states representing their countries. These foreign trips mainly aim to build up and maintain cooperative relations between states as well as promote closed political and economic connections. International trips by Chinese leaders are not an exception. For example, after the 18th National Congress of the Communist Party of China, Chinese President Xi Jinping has made four state visits within one year, which covered 14 countries and approximately 100,000 kilometres. At the same time, Premier Li Keqiang performed visits to India, Pakistan, Switzerland and Germany for the first time, followed by visits to countries including Brunei, Thailand, Vietnam and Romania. According to the data from the official website of the Ministry of Foreign Affairs of the People's Republic of China (2019a), in 2018 Xi has paid 11 state visits, including the United Arab Emirates, South Africa, Philippines, Spain, Argentina, Panama, Portugal.

According to the classification by Nitsch (2007: 1801), there are four types of diplomatic visits: state visits, official visits, working visits, and other visits. While the general aim of visits by national leaders is to maintain and strengthen bilateral and international relations between countries, the specific purpose of diplomatic visits could vary greatly from type to type. Even visits by the same leader may concentrate on different issues each time. The topics of diplomatic visits are probably about political cooperation, cultural exchanges, global security, human rights, environmental protection, *etc.* (Nitsch, 2007: 1797). However, among these themes discussed during diplomatic visits, the topic related to economic relations frequently stands out and plays a significant role. These talks may concern bilateral economic cooperation between particular countries, such as co-investing projects, signing trade agreements, and dealing with trade disputes, which could lead to trade creation. For instance, signing trade treaties could contribute to creating a more business-friendly environment. In addition, national leaders are often accompanied by official government economic and trade delegations such as industry representatives while performing diplomatic visits, which may bring benefits to a wide range of exporting industries (Nitsch, 2007: 1804). Moreover, there are also firm and industry representatives following national leaders to perform diplomatic visits. They are typically from the areas with the most significant trade potential and go out for visits at their own costs. Therefore, as an essential diplomatic mechanism, a visit by national leaders is not only to establish a relation between particular countries but

also to encourage trusting communication and strengthen effective cooperation in political, economic and other specific areas.

Among the limited pool of literature about the relationship between diplomatic visits and trade, Nitsch (2007) and Head & Ries (2010) both use a gravity model of international trade. The gravity model of international trade is a model that initially predicts and demonstrates bilateral trade flows based on the economic sizes of trading partners and distance between two countries (Bergeijk & Brakman, 2010). Ever since its original application by Tinbergen (1962), more empirical research of bilateral trade flows has begun to pay attention to the influence of political factors. Some scholars have tried to find the effects of the infrastructure of embassies and consulates on trade (Marrewijk & Bergeijk, 1993; Rose, 2007; Bergeijk, 2010; Afman & Maurel, 2010). The research by Nitsch (2007) and Head & Ries (2010) were directly relevant to this topic. However, the results of their research were completely opposite. Nitsch (2007) used a large amount of data related to foreign trips by the heads of state of France, Germany and the United States between 1948 and 2003. By using the gravity model of trade, he found that state visits and official visits could lead to approximately 8 to 10 per cent increase in bilateral exports while controlling other variables (Nitsch, 2007: 1816). He also took the endogeneity into account by presenting numerous robustness checks, which involved the use of a difference-in-differences specification. The result also revealed that foreign visits by the heads of state and government would generally bring a positive effect on exports. Head and Ries (2010) applied gravity specifications to determine whether and to what extent the Canadian trade mission could motivate trade creation. Their analysis showed that if unobserved bilateral effects were not taken into account, Team Canada missions could lead to a 14% increase to Canadian export flows. When considering the factors which have already existed before the trade missions by the Canadian government, however, they found approximately zero effects of visits by trade missions on trade (Head & Ries, 2010: 772).

According to the research of Yakop and van Bergeijk (2011: 254), the influence of economic diplomacy varies from countries at different levels of development or income. China is one of the representatives of the rising powers. Its enormous size and population could not be neglected across the world, along with its rapidly growing economy, which seems to present a new model for some developing countries. Given the rising international status and the leading role of China in international affairs, more and more countries turn their attention to China and establish diplomatic relations with it.

However, its GDP per capita is only \$9,608 in 2018 (International Monetary Fund, 2019b), which is far lower than that of established powers. Therefore, based on the research mentioned above, which concentrate on the established powers, this thesis will focus on China. It will examine the empirical relationship between diplomatic visits by Chinese leaders and China's export flows, attempting to explore this research topic from the perspective of China. To analyse this issue, this research will use the sample consisting of all visits paid by Chinese leaders and data of China's exports to its all trading partners. Moreover, China became a member of the World Trade Organization (WTO) on December 11th, 2001, which was a milestone to China. This entry relaxed the restrictions for Chinese companies to participate in international market competitions. Hence, this research will study the data from 2002 and cover a time span of 15 years.

1.1 Research aim and research question

The general aim of this research is to contribute to the existing pool of literature on international trade, to study the effects of political factors on international trade. More specifically, it aims to make a further contribution to the limited existing studies about the relationship between diplomatic visits and export flows in rising powers. Furthermore, this thesis hopes to demonstrate whether results from previous research in developed countries also hold for China. Overall, this research tries to present practical observations of the factors that influence international trade and to provide valuable insights for future foreign policies of China.

Followed by the research aim, the main research question is:

How do diplomatic visits of Chinese leaders affect China's export flows to its trading partners?

1.2 Sub-questions

This thesis will use the following sub-questions to answer the central research question:

- 1. What is already known about the effect of diplomatic visits on international trade?*
- 2. How can the variables be operationalised and the possible relationship be explored?*
- 3. What are the outcomes of the analysis?*

In what way these sub-questions will be addressed, will be discussed in the next paragraph.

1.3 Research approach

Before answering the main research question, the thesis will try to answer the three sub-questions above in the first place. The first sub-question is preoccupied with the literature review, aiming to acknowledge what the existing research has reached on this topic. First, an overview of the concepts and classifications about the diplomatic visit will be addressed. China's strategies in economic diplomacy will also be introduced to explain the theoretical importance of diplomatic visits to China. Then, the literature review will focus more on the existing knowledge about the diplomatic relations and international trade. In addition, the thesis will also have a look at other factors that influence bilateral trade flows in general, namely theories related to the gravity model of trade. Based on the findings, hypotheses will be formulated, and a new conceptual framework will be developed.

The second sub-question focuses on the research design and the operationalisation of variables. A quantitative research of panel-data design will be applied. This research design covers the collection and analysis of data on multiple variables of multiple cases over time (large N), and it corresponds to the objective of the research. For one thing, the inclusion of many cases try to cover as many of China's trading partners as possible over time, and the inclusion of multiple variables help to contain more control variables. This facilitates the internal validity of this study and accordingly improves the opportunity to reach the results of causality. Moreover, a large number of observations tend to receive more statistically significant results. More details about the research design will be described in chapter three. The gravity model of trade and equation applied to this research will be introduced in this part as well. Finally, the indicators that have been selected based on previous studies and the data available to operationalise the variables will be addressed to answer the second sub-question.

The third sub-question relates to the statistical model, analysis and its results. According to the panel-data research design, the thesis will add all diplomatic visits of Chinese leaders and other control variables into the traditional gravity model of international trade. Before carrying out the regression analysis, this research will first use the method of descriptive statistical analysis to verify the data distribution of variables. Then, it is necessary to test whether the assumptions of linear regression analysis hold. In order to guarantee freedom from the interference of multicollinearity, VIF (variance inflation factor) will be applied to test the model. After the assessment above, the final model will be determined. Subsequently, the analysis will be conducted, and the results will be interpreted to answer

the last sub-question.

1.4 Theoretical and societal relevance

As mentioned above, since the first application of the gravity model by Tinbergen (1962), scholars have begun to pay attention to the effects of political factors on international trade. Among them, some focus on the relationship between diplomatic relations and bilateral trade. Nevertheless, more research is performed upon developed countries (Nitsch, 2007; Yeo & Lee, 2009; Head & Ries, 2010). There is somewhat limited research in the existing literature about rising powers like China. Some results of the previous empirical studies in developed countries are even diametrically opposite (Nitsch, 2007; Head & Ries, 2010). Meanwhile, the research related to this topic mostly focuses on the influence of state visits by the Heads of State on international trade (Nitsch, 2007; Yeo & Lee, 2009; Vieira, 2014; Kunychka & Raneta, 2016; Lin, Yan, & Wang, 2016) instead of all category of diplomatic visits by national leaders. Theoretically, a relevant research will contribute to having a better understanding of the studied phenomena. Therefore, this thesis has theoretical relevance. Answering the research question will provide valuable insight into the academic world about the effect of all diplomatic visits on export flows in China. According to this, the research will test whether the results from similar research in developed countries still hold for China. Moreover, if visits of Chinese leaders did not influence its export flows or even exert an adverse effect, the results of this research would raise a new question to a new research field, related to the differences in the effects of visits on trade between established countries and rising powers.

Besides the theoretical relevance, this thesis also has implications for society and policies. This research will bring a better understanding of the factors that affect the trade of China from the perspective of diplomatic visits. If international trips by Chinese leaders were found to have a significant positive effect on export flows, it could provide approaches to enhance bilateral trade flows or investment and innovation between China and its trading partners. It might also contribute to the strategic direction of diplomacy of China in the future and provide a reference for other rising powers.

1.5 Research structure

This thesis will proceed as follows. Chapter 1 serves as the introduction to the topic of this research, including the background information, research aim, research question and sub-questions, research

approach, as well as theoretical and societal relevance. Chapter 2 will focus on the current research and presents a literature review to figure out what is already out there about the relationship between diplomatic visits and international trade. According to this, the second chapter will try to answer the first sub-question. Chapter 3 will reflect on available research designs. After evaluating the reliability and validity of each research design, it will justify a choice of the quantitative method of panel-data research design supported by a gravity model of trade. Besides dealing with the variables, this chapter will attempt to answer the second sub-question. Chapter 4 will be related to the third sub-question. It will add diplomatic visits of Chinese leaders and control variables into the traditional gravity model of trade to carry out the empirical analysis. By analysing the gravity model and the data from the linear panel regression, an overview of the statistical results will be shown, and a conclusion will be given in Chapter 5. This chapter will interpret the results of the research and try to answer the main research question. Also, it will go over the limitations of this research and propose suggestions for future research.

2. Literature Review and Theoretical Background

This chapter is designed to provide the reader with an overview of the existing pool of literature on diplomatic visits and international trade. More precisely, it will describe the concepts of diplomatic visits applied in this research and demonstrate the effects of diplomatic visits on international trade in both developed and developing countries. In addition, China's strategies in economic diplomacy will be discussed, aiming to explain the theoretical importance of diplomatic visits to China and make a theory preparation for this specific research of China. Furthermore, the main factors that influence the gravity model, as well as related theories, will be introduced. To conclude, hypotheses will be formulated based on the literature discussed in this chapter. After examining the control variables of this research, the conceptual model will be presented.

2.1 Diplomatic visits

According to the primary purpose of the visit and the politicians who lead the visit, diplomatic visits are classified as state visits, official visits, working visits, and other visits. This classification has been widely used in the international stage, and Chinese government and academia adopt this classification as well (Nitsch, 2007; Head & Ries, 2010; Kunychka & Raneta, 2016; Lin, Yan, & Wang, 2017; Wang & Tian, 2017). Nevertheless, different countries have different governmental structures, which may lead to diversity among specific types of diplomatic visits. This research will apply the detailed definition of the four types of diplomatic visits by Tang (2013).

China follows standard international practices of categorising the diplomatic visits by state guests and distinguished foreign visitors into four groups: state visits, official visits, working visits and other visits. In the definition, state guests refer to heads of state and government, while distinguished foreign visitors cover deputy heads of state and government, ministers of foreign affairs, and other officials from ministry-level institutions and above. Firstly, a state visit is a formal trip led by a head of state to a foreign country at the invitation from the head of state of that foreign country (Tang, 2013: 55). The latter, acting as the host country, usually prepares a full state reception with formal events. Typically, the heads of state are accompanied by their spouses. State visits are considered as the highest form of diplomatic contact between two countries (Nitsch, 2007: 1798). Secondly, an official visit is a formal visit paid by a head of government to a foreign country at the invitation from the head of government of

that foreign country (Tang, 2013: 55). There is also a typical ceremony for the heads of government. Thirdly, a working visit refers to a visit by a head of state or government based on the primary purpose of working. At the invitation of the heads of state or government, working visits generally have specific objectives, such as attending national exhibitions or international conferences held in host countries, signing agreements or treaties, and negotiating or exchanging opinions on particular issues. The duration of working visits is shorter than state visits or official visits, usually lasting 2 to 3 days without formal receptions. Finally, other visits are generally under the name of governments. According to the aims of visits, there are non-official visits, private visits, political vacation visits, stopovers, treating illnesses, *etc.* One of the outstanding features is that visitors have greater freedom while paying visits, and the host countries mainly make arrangements based on the wishes of the visitors. Overall, “diplomatic visits” in this research cover all kinds of visits mentioned above..

2.2 Why might diplomatic visits matter for international trade?

During the past decades, bilateral visits between countries and face-to-face meetings have substantially increased, even though performing diplomatic visits are normally expensive, and there are also various security issues to consider besides political ones. This increasing trend is due to the fact that countries pay more attention to diplomatic relations and visits are more effective than distant contacts. For example, Nitsch (2007: 1797) presented that state visits are becoming the “*highest form of diplomatic contact between countries to build up and maintain the bilateral relations among various areas, such as political issues, human rights, environmental protection, cultural contacts, or other themes*”. The Office of the German President also states that:

“Such visits make a valuable contribution to foreign relations, for although the Federal Republic of Germany is represented abroad by its embassies, it is often only through face-to-face talks between leaders that productive outcomes fair to both sides can be found. Whether the objective is coordinating policy, explaining German interests or resolving any bilateral problems that may arise from time to time, the kind of informal talks the Federal President has with foreign leaders during his trips abroad can be most helpful” (Der Bundespräsident, 2019).

Likewise, the British government notes that visits are not merely ceremonial affairs; they are presented with specific aims and are used to reflect the British’s national interests (Landale, 2017).

According to Saner and Yiu (2003), in addition to the political parts, representatives from overseas

missions also play crucial roles within the economic fields. For instance, embassies and consulates of the states, Foreign Affairs and other government departments are able to provide information and advice related to the trade environment and opportunities of the states visited (Saner & Yiu, 2003). They could contribute to the promotion of international trade, and are often marked as “economic diplomacy”.

The relationship between diplomatic relations and international trade is not a new topic. Numerous scholars have done plenty of empirical studies on this issue. When taking into account diplomatic representation and its effect on international trade, the literature review will distinguish two main groups related to this topic. The first vector of research focuses more on the effects of diplomatic and non-diplomatic representations on international trade. Specifically, they concentrate on diplomatic representations like *foreign diplomatic offices, consulates general, honorary consulates*, and non-diplomatic representations like *trade and investment promotion agencies, foreign offices of chambers of commerce, regional trade representations, etc.* (Kunychka & Raneta, 2016: 25). For instance, Lederman, Olarreaga and Payton (2006) conducted a research on the relationship between export promotion agencies and export flows. The study covered 104 industrialized, and developing countries and results showed that export promotion agencies had a substantial and statistically significant effect on export flows. Also, Rose (2007) had investigated whether foreign embassies and consulates had an impact on export promotion. He used a sample including 22 exporting countries and 200 importing countries during a two-year period. Rose found that each additional embassy or consulate could bring an approximately 6-10% increase to export flows and this influence varied by exporters. Following Rose’s study, Gil, Llorca and Serrano (2008) did research about the effects of the export promotion agencies of Spanish regional governments on export flows. The sample covered the exports of 17 Spanish regions to 188 countries from 1995 to 2005. The results suggested that having an export promotion agency could lead to a more than 50% increase to Spanish regions’ export flows. Nevertheless, Head and Ries (2010) expressed doubt about that relationship between diplomatic representations and international trade. They introduced a notable work related to the Canadian trade missions and trade creation. In the country-pair fixed-effects specification, they used the data on bilateral goods trade from 1993 to 2003 and found that Canadian trade missions had negative and mainly insignificant impacts on Canada’s exports and imports. Davis and Meunier (2011) investigated whether political relations would influence economic exchange. Their statistical analysis showed that variation in the number of negative diplomatic events did not

change bilateral trade for the United States or Japan in their relations with 152 states.

In addition, the second vector of research concentrates on the alleged high-level diplomacy, such as presidential diplomacy, state visits, official visits. They are associated with political and cultural relations. More importantly, they can promote international trade. For example, based on the research of Rose, Nitsch (2007) analysed all travel activities of the presidents or chancellors of France, Germany and the United States from 1948 to 2003 to demonstrate the effects of state visits and official visits on international trade. He presented that state or official visits could be regarded as crucial tools to facilitate trade, which helped to create sound and beneficial political and legislative environment for stable development of bilateral economic relations (Nitsch, 2007: 1804). He reached a conclusion that each state or official visit by a French, German and the US leader may lead to an 8-10% increase in exports. Yeo and Lee (2009) investigated the relationship between state visits and trade flows. They applied a single-country research covering the data of all official external visits by South Korean presidents and its export and import flows between 1981 and 2007. They found that state visits by South Korean presidents have a positive effect on Korea's exports and imports. Another relevant research regarding the impacts of Brazil's diplomatic action on its exports during globalisation was conducted by Vieira (2014). He found a relation between diplomatic action and exports between 1997 and 2002, during which Brazil was under Cardoso's leadership and withdrew from neoliberal globalisation. However, in the long term from 1992 to 2008, bilateral treaties and state visits had no significant effect on trade flows from Brazil to its trading partners. Kunychka and Raneta (2016) investigated how state, official and working visits of Ukrainian leaders affect export flows. They analysed 74 Ukrainian trading partners between 1995 and 2014. Their results showed that any kind of visits is positively associated with export flows. Last but not least, Lin, Yan and Wang (2017) empirically explored the effects of state visits on international trade between China and African countries. They did not find significant effects of China's state visits on China's exports to Africa. However, they documented evidence that Africa-to-China visits could stimulate China's exports to the African continent. Table 1 shows the empirical evidence above.

Authors	Targeted countries	Dependent variable	Independent variable	Results	Implemented model
Lederman, Olarreaga, & Payton, 2006	104 developed and developing countries	International trade Export flows of targeted countries	Non-diplomatic representation National export promotion agencies and their strategies	National export promotion agencies and their strategies have a strong and statistically significant effect on exports.	Gravity model of trade
Rose, 2007	22 exporting countries and 200 importing countries	International trade Export flows of targeted countries	Diplomatic representation Foreign embassies and consulates	Each additional embassy or consulate brings an approximately 6-10% increase to export flows.	Gravity model of trade
Gil, Llorca, & Serrano, 2008	Spanish regions	International trade Export flows of 17 Spanish regions to 188 countries	Non-diplomatic representation Export promotion agencies of Spanish regional governments	Export promotion agencies lead to a more than 50% increase in regressions to Spanish regions' export flows.	Gravity model of trade
Head & Ries, 2010	Canada	International trade Export and import flows of Canada with 17 countries	Non-diplomatic representation Canadian trade missions	Canadian trade missions have negative and mainly insignificantly impacts on Canada's export and import flows.	Gravity model of trade
Davis & Meunier, 2011	The US and Japan	International trade Export and import flows of the US and Japan with 152 countries	Political relation Negative diplomatic events between the US or Japan and 152 states	Negative diplomatic events do not change bilateral trade for the US or Japan in their relations with 152 states.	Gravity model of trade
Nitsch, 2007	French, Germany and the US	International trade Export flows of French, Germany and the US	State and official visits State and official visits paid by the heads of state or governments of France,	Each state or official visit by a French, German and the US leader lead to a 8-10% increase in export flows.	Gravity model of trade

			Germany and the United States		
Yeo & Lee, 2009	South Korea	International trade Exports and imports of South Korea with 54 countries	State visits States visits paid by South Korean presidents	State visits of South Korean presidents have a positive impact on Korean trade.	Gravity model of trade
Vieira, 2014	Brazil	International trade Export flows of Brazil with 18 countries/groups	Diplomatic action States visits paid by Brazilian President to its partners, bilateral agreements and treaties	State visits and bilateral agreements and treaties have no significant effect on export flows of Brazil to its trading partners during globalization.	Probit model ¹
Kunychka & Raneta, 2016	Ukraine	International trade Export flows of Ukrainian with 74 countries	State , official and working visits State, official and working visits paid by Ukrainian leaders	Any kind of visits, including state , official and working visits paid by Ukrainian leaders, is positively associated with export flows.	Gravity model of trade
Lin, Yan, & Wang, 2017	China, African countries	International trade China's export flows to African countries	State visits State visits between African countries and China	There is no significant effect of China's state visits on China's exports to Africa; Africa-to-China visits can stimulate China's export flows to the African continent.	Gravity model of trade

Table 1: Empirical studies on diplomatic relations and international trade

As mentioned above, studies on the relationship between diplomatic relations and international trade can be mainly distinguished into two groups. The studies of the second vector, where this research would belong to, mostly have a result that denotes the positive effects of diplomatic visits on international trade,

¹ A probit model is a popular specification for an ordinal or a binary response model and a type of regression where the dependent variable can take only two variable. When apply the gravity model, there are evidences to show that a large portion of international trade matrix consists zero trade. One of the solutions to the zero trade problem is to estimate a probit model in which the dependent variable is a dummy indicating whether or not a given observation is in the sample.

especially exports. Moreover, a significant characteristic here is the widespread implementation of the extended gravity model of trade in the research above, which enables to control for different economic and geographic factors. It is also able to contain various dummy variables in the equation. More details about the gravity model of trade will be discussed in section 2.5.

2.3 China's strategies in economic diplomacy

Over the last few decades, China has found its way onto the international economic stage while becoming the second-largest economy in the world. In the meantime, China uses economic tools frequently in wide diplomatic practice in order to achieve its strategic objectives such as national security, political stability, social development, *etc.* It can be seen that China has made its efforts to be an active participator in the global and regional economic governance and to promote further bilateral economic cooperation between countries. Economic diplomacy has become one of the most significant parts of China's overall diplomacy. At the Bo'ao Forum for Asia Annual Conference last year, President Xi Jinping (2018) stated that "*China will never shut its door to the world, but will only become more and more open..., no matter how the external environment changes, China will not waiver in its commitment to deeper reform and further opening-up, which will be developed at its own pace*" (Ministry of foreign Affairs of the People's Republic of China, 2019b). This section will mostly concentrate on China's strategies in economic diplomacy associated with the trade.

2.3.1 Historical evolution of China's economic diplomacy

Economic diplomacy is regarded as an official external communicative activity implemented by the central government of one country and its functional departments towards the governments of other countries or international organisations (Yakop & Bergeijk, 2011: 255). It mainly focuses on economic affairs by using international political tools (diplomacy) to realise the following dual objectives: (1) to achieve bilateral or multilateral international economic cooperation through the governments, and (2) to achieve non-economic goals like national security through diplomatic activities related to economy (Yakop & Bergeijk, 2011: 254). From China's reform and opening-up policy in 1979 up to now, China's economic diplomacy has been confronted with new opportunities. It generally witnessed four developing stages: *tentative economic diplomacy*, *integrative economic diplomacy*, *participatory economic diplomacy*, and *leading economic diplomacy* (Li, 2018: 25).

The first stage is *tentative economic diplomacy*. In the early years of reform and opening-up in China, its economic diplomacy aimed at breaking economic isolation and reconnecting with the world in order to provide a better external environment for development (Jiang, 2009: 41). During that time, the Chinese government held a great passion for the external world, and Chinese leaders paid plenty of diplomatic visits (Jiang: 2009: 45). For example, an economic delegation led by the Vice Premier Gu Mu visited France, Switzerland, Belgium, Denmark, and Germany. This was the first economic delegation of Chinese government sent to the developed capitalist countries in the west after the establishment of new China (Yang, 2008: 7). The visits directly promoted economic exchanges and came to open a window for its external communication (Yang, 2008: 7). In the meantime, China tried to participate in multiple international economic organisations. In 1980, the International Monetary Fund (IMF) and the World Bank restored China's seat. Since then, China was able to borrow money from the World Bank and made progress in carrying out a series of cooperative projects like infrastructure construction and talents cultivation (Lu, 2011: 88). Then, China became a member of the Asian Development Bank in 1986. In terms of trade, China submitted its application of re-entry into the General Agreement on Tariffs and Trade (GATT) in June 1986, which indicated that China has stepped into a long and winding way of re-entry into the GATT and the subsequent negotiations to join the World Trade Organisation (WTO) (LaFleur, 2003). In addition, China has made progress in bilateral economic diplomacy. The US decided to ease restrictions in technology and export controls towards China in the 1980s. The US-China Joint Commission on Commerce and Trade (JCCT) established in 1983 is one of the earliest diplomatic dialogue mechanisms between the two countries (Ministry of Foreign Affairs of the People's Republic of China, 2019c). However, during that period, China's economic reform just started, and its overall economic strength was limited (Lu, 2011: 90). Therefore, at this stage, China's economic diplomacy mainly focused on building a bridge of dialogue with the international economy and getting familiar with the basic rules of the international economic system, namely *tentative economic diplomacy* (Li, 2018: 26).

The second stage is *integrative economic diplomacy*. The 1989 Tiananmen Square protests triggered international economic sanctions on China. As a result, China tried to use economic diplomacy to change this situation in the 1990s (Li, 2018: 26). Firstly, China made efforts to fix its relationship with Japan. President Jiang paid a visit to Japan in 1992, which was remarked as a new beginning of the

relationship between China and Japan (Liu & Li, 2007: 91). Then, Chinese leaders strengthened exchanges and communication with the European Community countries and Canada. Subsequently, it targeted towards the US. These diplomatic visits finally improved the relationship between China and the US (Ministry of Foreign Affairs of the People's Republic of China, 2019c). Moreover, China has speeded up its pace of integrating into regional economic systems. For instance, China was invited to join the Asia-Pacific Economic Cooperation (APEC) in 1991, and China attended its first summit in 1993. Against the context of economic globalisation and post-financial crisis, the "10+3" cooperation mechanism (ASEAN plus China, Japan, and South Korea) emerged. China has not only taken an active part in its dialogues at all levels but also made its efforts to drive the mechanism towards maturity and consummation (Wang, 2009: 98). At the global level, China's core strategy in economic diplomacy was all around the long-running negotiations of re-entry into GATT and entry into WTO, among which the most crucial part was the US-China bilateral economic negotiation (Jiang, 2006: 338). In the end, China successfully joined the WTO in November 2001, which opened a new era for China's economic diplomacy. The main character of China's economic diplomacy at this stage is its strong willingness to learn, namely, keep learning the rule in order to integrate into the international economic system (Li, 2018: 27).

The third stage is *participatory economic diplomacy*. With entry into WTO as the symbol, China has become one of the official members in the international economic system. It is also an equal participant in the stage of the global economy and diplomacy to participate in building the international economic order and mechanism (Ruan, 2001). Also, economic diplomacy is becoming more important in the whole of national diplomacy. In the first decade of the 21st century, China's economic diplomacy has gained numerous significant achievements (Li, 2008: 27). Firstly, China has played an essential role in promoting global economic governance. In the Doha Round negotiation, China presented its firm image to maintain and implement multilateral trade system. Secondly, China has contributed to setting up the Free Trade Area (FTA) with prospective countries at the regional level. As an East Asia cooperation advocator and participant, China is one of the most vital actors to establish a financial order in East Asia (Zhang, 2010). In 2000, Premier Zhu Rongji proposed the initiative to build the China-ASEAN free trade area (CAFTA). It was formally completed in 2010. Up till now, China has signed FTAs with 11 countries or regions, including ASEAN, Chile, New Zealand, Switzerland, *etc.* The FTAs

with Australia, South Korea, and the Gulf Cooperation Council (GCC) are in the process of negotiation, while the FTAs with India and Colombia are still under discussion (Li, Guo, & He, 2018: 49). Concluding FTA, as a significant part of China's trade diplomacy, is an important measure to expand the breadth and depth of opening to the world, enhance the open market-based economy, and participate in the process of economic globalisation (Li, Guo, & He, 2018: 49). Therefore, by starting regional cooperation, China has stepped beyond simple participatory economic diplomacy. China is beginning to take on leadership matching with its economic power (Li, 2018: 27).

The fourth stage is *leading economic diplomacy*. This stage is marked by the global economic crisis of 2008-2009 and China's leadership in international economic diplomacy since it became the second-largest economy in 2010 (Li, 2018: 27). Under the impacts of the financial crisis and debt crisis, the traditional leadership of the US and European Union (EU) was challenged. China has become one of the three leaders in the international stage of economic diplomacy together with the US and the EU due to its large size of the economy and its effects on the world economy (Wang & Tian, 2017). This leading role mainly reflects the leadership of issues under discussion, talents, and rules (Li, 2018: 28).

Overall, after more than thirty-year practice and development, the ability of China's economic diplomacy has greatly improved, which correspondingly lay a solid foundation for a more active international participation in the future.

2.3.2 China's economic diplomacy since the 18th CPC National Congress

China's economic diplomacy has witnessed three important events in the 21st century: the outbreak of the financial crisis in 2008, surpassing Japan as the second-largest economy in the world in 2010 and surpassing the US as the largest trading nation in the world in 2013. Together, they become the distinctive watershed of China's economic diplomacy since the 18th National Congress of the Communist Party of China in 2012. China is officially becoming a global power in economic diplomacy and has steadily made new progress (Li, 2018: 26). In this case, China has adopted a series of normative policies in trade diplomacy to safeguard its central role in the international trade system.

2.3.2.1 Trade negotiations: efforts to promote the Doha Development Round

Since President Obama took office, the US government successively initiated three trade negotiations of the Trans-Pacific Partnership (TPP), Transatlantic Trade and Investment Partnership (TTIP), and

Trade in Services Agreement (TISA) to reshape the rules of international trade. In order to prevent the US from putting aside the global multilateral trade mechanism, China has made great efforts to facilitate the negotiation process of the Doha Development Round (Li, 2018: 27). As one of the representatives of rising powers, China has been making significant contributions to the Doha Development Round, which are mainly manifested in supporting the position of developing countries (Garnaut & Song, 2012: 185-189). For, example, China takes an active part in negotiations to support the maintenance of agricultural and rural development in developing countries (Kuiper & Tongeren, 2005). Agriculture has become an important issue while paying diplomatic visits to other countries, and President Xi repeatedly emphasised the necessity of agricultural cooperation between developing countries and China during his visits (Li, 2018: 27). In July 2008, China attended the “green room” meeting called by the director-general of WTO for the first time. After that, China becomes more positive to move ahead of the talks to fruition (Mattoo, Ng, & Subramanian, 2011). Nevertheless, it was not until 2013 that the Doha Development Round achieved some preliminary results. In December 2013, after several intense negotiations of 159 members, the Bali Package was reached, resulting from the Ninth Ministerial Conference of the WTO in Bali, Indonesia. Thus, it broke the deadlock for the first time in 12 years. China made efforts to “*facilitate talks, promote peace, and enhance success*” during this process (Ministry of Foreign Affairs of the People’s Republic of China, 2019d). In 2017, the Trade Facilitation Agreement (TFA) official took effect. Premier Li reaffirmed China’s determination to promote trade facilitation and liberalisation, and further perfection of international trade rules in the Davos Forum in 2017.

2.3.2.2 Free Trade Agreements: signing up new partners

In the past decades, FTAs have been one of the most popular mechanisms for countries across the world to hedge against the sluggish or even stalled process of multilateral trade liberalisation under the WTO (International Trade Administration, 2019). Under this situation, it is clear that China accelerates its strategy of FTAs to avoid trade transfer effects from the development of the free trade zone of the US (Li, Guo, & He, 2018: 49). The concrete measures include creating an updated ASEAN-China FTA, concluding the negotiations with South Korea and Australia, and fully supporting the Regional Comprehensive Economic Partnership of ASEAN (Li, Guo, & He, 2018: 50). At the APEC Leaders Beijing conference in 2014, China has helped to facilitate the important decision of launching the

process of the Free Trade Agreement of the Asia Pacific (FTAAP), and the Beijing Roadmap for FTAAP was approved. It is worth mentioning that one observable character of China's FTAs is that China has more FTAs with small countries, which do not have large trade volumes like China (Cheng, 2013). At present, China has signed 16 FTAs with 24 countries or regions, and 24 FTAs are still under construction. FTA is also one of the significant topics of diplomatic visits of Chinese leaders.

2.3.2.3 One Belt, One Road: an important part of China's new diplomatic strategy

The "One Belt, One Road" initiative is a "Silk Road Economic Belt" and a "Twenty-first-Century Maritime Silk Road", which concerns a number of areas, including trade, finance, investment, energy, technology, transportation, and infrastructure construction (Ge & Hu, 2018: 16). It geographically covers dozens of countries in the Asia Pacific region, Eurasian region, Middle East, and the African continent. It is also China's most important innovation in economic diplomacy since the 18th National Congress of the Communist Party of China. The "One Belt, One Road" initiative was formally proposed in 2013. So far, China has signed 103 cooperation documents with 88 countries and international organisations, which are associated with more than \$5 trillion trade in goods and \$70 billion in foreign investment with related countries (Belt and Road Portal, 2019). The "One Belt, One Road" construction contains two aspects. On the one hand, this initiative will be beneficial to China to expand further international cooperation with surrounding areas, and then look for a new world's motive power of economic growth (Ge & Hu, 2018: 23). More specifically, in trade diplomacy, it aims at achieving a smooth flow of goods by low trade barriers. On the other hand, the "One Belt, One Road" initiative is designed to stabilise the surrounding geographical environment and to seek a way for mutual economic development (Ge & Hu, 2018: 23). For this reason, Chinese leaders make try to promote the construction of the "One Belt, One Road" during diplomatic visits or in the international arena. The first Belt and Road Forum for International Cooperation (BRFIC) was held in May 2017 and received strong responses from neighbouring countries. The summit forum has published a list with 279 outcomes.

In general, based on the more solid economic strength, China's economic diplomacy is more active and mature in the new time. Furthermore, its economic diplomacy is leading China to the centre of the international stage.

Economic diplomacy is the combination of "economy" and "diplomacy". The overview of China's strategies in economic diplomacy above shows that economic diplomacy is an important and

irreplaceable mechanism for China’s development. Also, various diplomatic tools do bring significant effects on China’s trade. Therefore, the theoretical importance of economic diplomacy for China provides the probability and feasibility of this research. The empirical relationship between diplomatic visits of Chinese leaders and trade needs more research.

2.4 Diplomatic visits of Chinese leaders

In recent years, diplomatic visits of Chinese leaders are becoming more and more frequent. Between 2002 and 2016, the total amount of diplomatic visits paid by Chinese leaders is 1520. Figure 1 shows the numbers of diplomatic visits of Chinese leaders and state visits of Chinese Presidents between 2002 and 2016. From an overall perspective, the number of all diplomatic visits has an increasing trend over time, rising from 62 times in 2002 to 151 in 2016. While the number of state visits by Chinese Presidents is unstable and limited per year. It generally reaches several peak time, including 2002, 2004 and 2009. It can be stated that since 2013, the number remains at a comparatively high level.

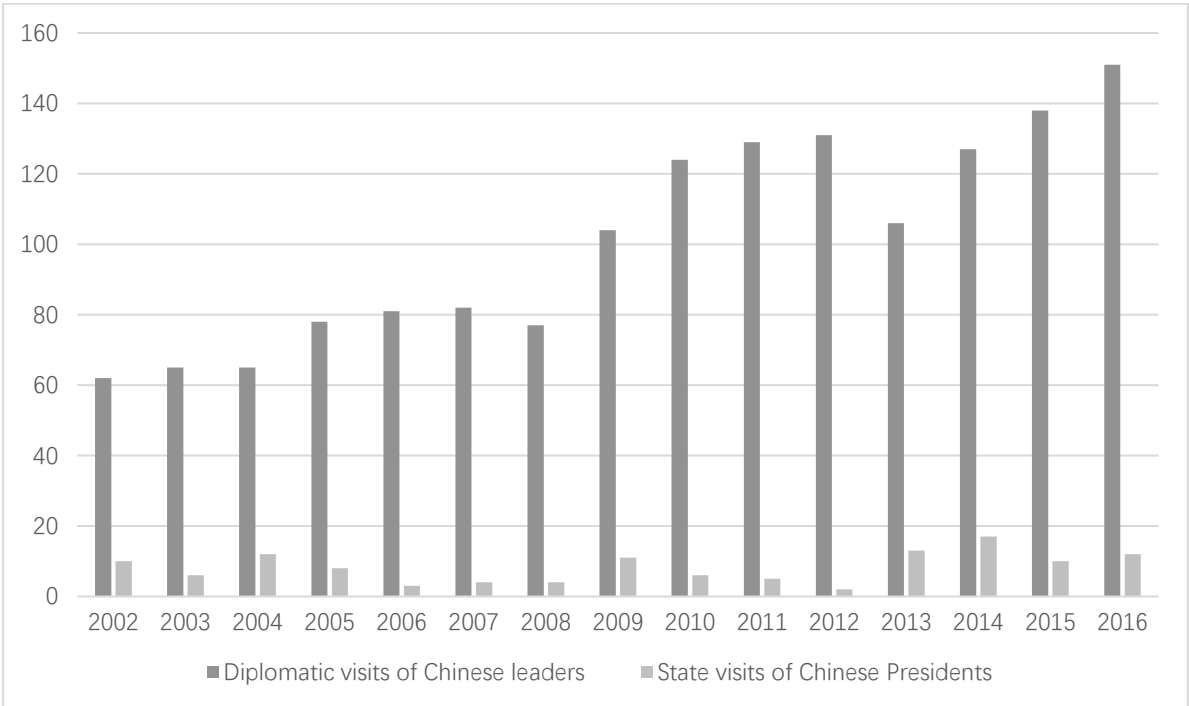


Figure 1: Diplomatic visits of Chinese leaders and state visits of Chinese Presidents between 2002 and 2016
 Source: Ministry of Foreign Affairs of the People’s Republic of China, 2019

As a representative of rising power, the trade flows of China witnessed a rapid increase during the past decades. In 2018, the value of Chinese export flows exceeded 2.48 trillion USD (661% increase over the volume of export in 2002). Import of goods was about 2.14 trillion USD during the same period.

The most valuable export partners in 2018 were the United States (19.2% of total Chinese exports), Hong Kong (12.1%), Japan (5.9%), South Korea (4.4%) and Vietnam (3.4%) (International Monetary Fund, 2019a). By contrast, the main export partners of China have not changed remarkably since 2002. In addition, the structure of export product groups in China has remained practically stable. The main export commodities were electrical machinery, equipment, machinery including computers, furniture, bedding, lighting, illuminated signs, prefab buildings, plastics, plastic articles, *etc.* (Trade Map, 2019)..

With the more frequent diplomatic contacts between China and other countries, the effects of diplomatic activities on the economy are increasingly essential and remarkable. In order to have a more direct and intuitive view of the relationship between diplomatic visits and China’s exports, Figure 2 shows the diplomatic visits of Chinese leaders and China’s export flows. From Figure 2, we can see that diplomatic visits of Chinese leaders and China’s export flows both present a trend of growth in general from 2002 to 2016. However, the effects of diplomatic visits on trade are lagged, and it is also uncertain whether this increase in China’s exports is caused by diplomatic visits. Therefore, the relationship between diplomatic visits of Chinese leaders and China’s export flows remains to be tested.

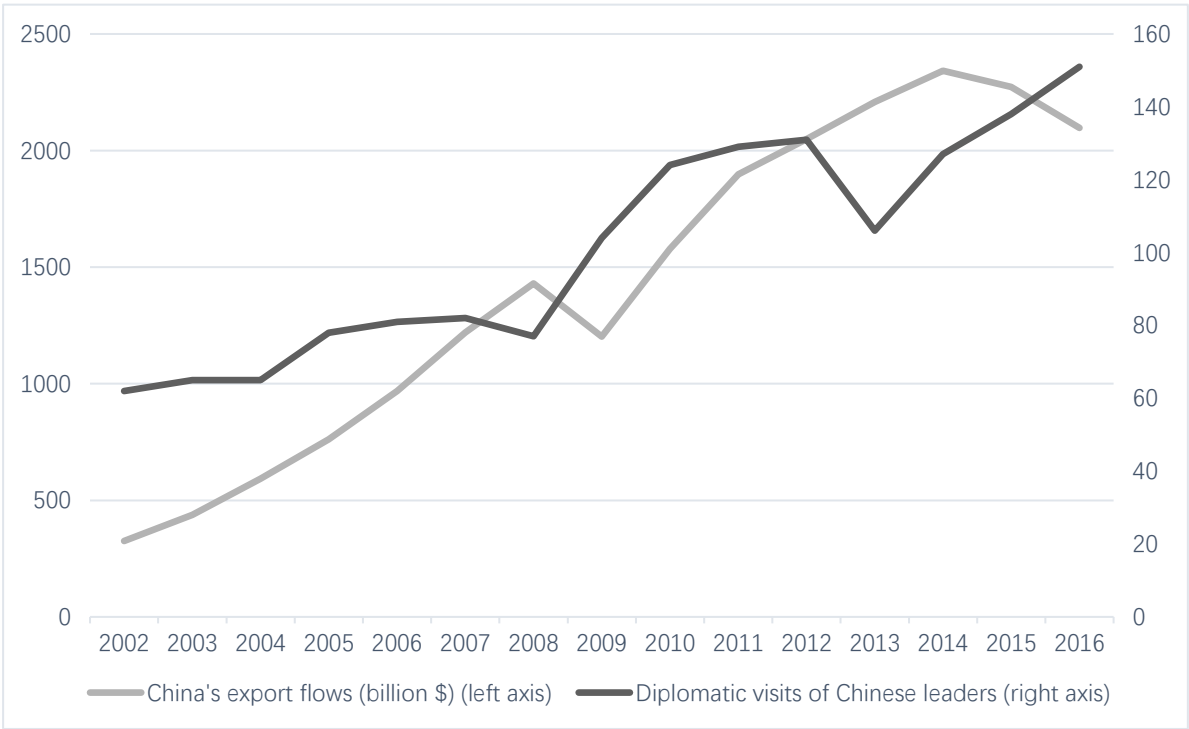


Figure 2: Diplomatic visits of Chinese leaders and China’s export flows
 Source: Data for diplomatic visits of Chinese leaders from Ministry of Foreign Affairs of the People’s Republic of China (2019), for China’s export flows from UN Comtrade Database (2019).

In addition, Figure 3 presents state visits of Chinese Presidents and China’s export flows. From the figure, it is hard to tell the relationship between state visits and China’s export flows at this moment. Hence, a further empirical study is needed to explore the relationship between state visits and export flows of China.

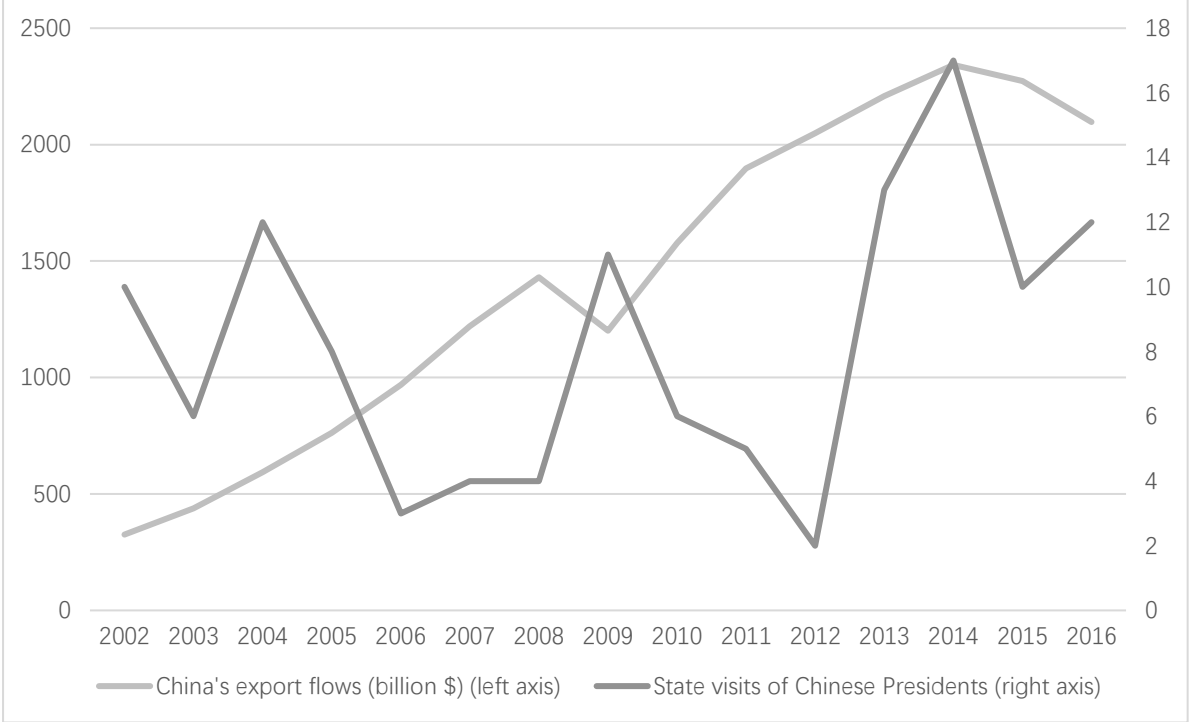


Figure 3: State visits of Chines Presidents and China’s export flows

Source: Data for state visits of Chinese Presidents from Ministry of Foreign Affairs of the People’s Republic of China (2019), for China’s export flows from UN Comtrade Database (2019).

2.5 Gravity model of trade

The basic idea of the gravity model of trade originated from Newton’s law of universal gravitation, i.e. the gravitational force acting between two objects is proportional to the masses of the objects, and is in inverse ratio to the squared distance between the centres of their masses (Daintith & Oxford University Press, 2009). Based on this law, Stewart (1948) and Zipf (1946) found that passenger flows between two regions depend directly on the population of regions and is inversely related to the distance. This is the first time that the gravity model was applied in the social sciences. The model is as follows:

$$I_{ij} = \alpha_0 (POP_i POP_j) / D_{ij}^\beta \mu_0 \tag{1}$$

where I is passenger flows between two regions, POP is the population of regions, D is the geographic distance between two regions. α_0 , β , and μ_0 represent respectively constant, coefficient and stochastic

error. i and j stand for regions.

Since the nineteen sixties, Tinbergen (1962) firstly introduced gravity model into international trade and tried to use GDP and distance to analyse bilateral trade flows. In addition, he did this empirical research by adding dummy variables (preferential trade agreement and common land border) based on the original gravity model. He found that the distance between trading partners plays a significant role in expanding trade. The gravity model he adopted is as follows:

$$X_{ij} = \alpha_1 (GDP_i^{\beta_1} GDP_j^{\beta_2} D_{ij}^{\beta_3} AD_{ij}^{\beta_4} PR_{ij}^{\beta_5}) / D_{ij}^{\beta_3} \mu_1 \quad (2)$$

where X represents exports between countries or regions, GDP is the economic output of trading countries or regions, D means the geographic distance between two regions. Meanwhile, AD and PR are two dummy variables, representing respectively common land border and preferential trade agreement. The value will be 1 if two countries share a common land border, and 0 if otherwise. Also, PR will be assigned the value 1 if there is a preferential trade agreement between two countries, and 0 if not. α_1 is constant terms, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are all parameters to be evaluated, μ_1 is a stochastic error term.

At the same time, Pöyhönen (1963) analysed the exchange of goods between ten European countries in 1958 based on the simultaneous application structural and explanatory model, which was an analogy of gravity model. He used square roots of national income replacing the “masses” part, and the distance was measured by transportation cost. The results showed that export flows was in direct proportion to national income, and was inversely proportional to the costs of transport. The specific model is as follows:

$$X_{ij} = \exp(\alpha_2) (GDP_j^{\beta_1} GDP_j^{\beta_2}) / (1 + \varepsilon D_{ij})^{\beta_3} \mu_2 \quad (3)$$

where X_{ij} is the value of exports from country i to country j , \exp is the export parameter of the country of export, GDP stands for national income of each country, and D represents the distance of transportation. β_1, β_2 mean national-income elasticities of exports and imports, and ε stands for transportation cost coefficient per nautical mile. β_3 is an isolation parameter, α_2 is a constant, and μ_2 is a stochastic error term.

Linneman (1966) developed his empirical research based on the gravity model to examine trade flows. He found that the latent demand of importers for exporters' goods would be assumed to depend

on income or GDP in importers and its population level (Linneman, 1996). Moreover, he noted that some human-made impediments, such as tariffs and other commercial arrangements, and natural impediments like transportation costs due to the long distance would exert negative effects on trade flows.

Based on the research done by the predecessors, the trade in a country can be assumed to have a close relation with the GDP of both sides and the distance between two countries. Therefore, a simplified gravity model of trade has been formulated:

$$X_{ij} = A(GDP_i GDP_j) / D_{ij} \quad (4)$$

where X means the trade, GDP is the economic output of home and partner country, D is the geographic distance between the home country and the partner country, which is usually measured by the distance between their capital cities or economic centres. i represents the home country and j is the trade partner, and $Y_i Y_j$ is the product of GDP of country I and country j . A is a constant term.

Overall, as one of the most robust empirical findings in economics, the gravity model of trade has shown its advantages to measure various factors which could influence international trade (Chaney, 2018). Also, with the application of the gravity model into international trade, more empirical research has begun to pay attention to analyse the effects of political factors on international trade.

2.6 Conceptual model

Based on the findings above, this section will now try to formulate a possible answer to the main research question. Additionally, after analysing the control variables in this research, it will present a conceptual model of the relationship between the dependent, independent, and control variables.

2.6.1 Hypotheses

The main research question this paper tries to answer is ‘*How do diplomatic visits of Chinese leaders affect China’s export flows to its trading partners?*’

Based on the existing empirical literature, as discussed above, the following hypothesis has been formulated:

H1: Diplomatic visits of Chinese leaders have a positive effect on China’s exports flows to its trading partners.

In addition, according to the previous research on the relationship between state visits and export flows in section 2.2, this research has formulated a second hypothesis:

H2: States visits of Chinese Presidents have a positive effect on China's exports flows to its trading partners.

2.6.2 Control variables

As can be derived from the hypotheses, this research investigates the relationship between diplomatic visits of Chinese leaders and China's export flows, as well as state visits of Chinese Presidents and China's export flows. Diplomatic visits of Chinese leaders and state visits of Chinese Presidents are the explanatory variables of interest of this paper. However, some other variables are likely to affect China's export flows as well. Hence, the following control variables are included.

The first control variable is the GDP of China and its trading partners. On the one hand, GDP represents the economic size of one country. Therefore, the increase in China's GDP itself can influence its trade with other countries. On the other hand, the importing country's GDP is closely related to its demand for these export goods. As the traditional gravity model testified (Tinbergen, 1962; Linnemann, 1966), larger economies have larger potential capacities of import, which can lead to the promotion of bilateral trade flows. This paper, therefore, expects the GDP of China and its trading partners to account for some of the increase to China's export flows.

The second control variable is the size of the population in China and its trading partners. Population is used as measure of market size of each country, which is also a factor affecting international trade (Linneman, 1996). Firstly, the large size of the population in China means large production capacity, which supplies exports. Hence, the size of the population in the home country can affect its export capacity, and then influence its export flows. Secondly, the size of the population in China's trading partners, namely importing countries, reflects their consumption capacity. A large group of population means more demands for exports, which could bring impacts to China's export flows. A larger size of the population is therefore expected to cause the amount of China's export flows to increase.

The third control variable is the differences in GDP per capita between China and its trading partners. A country's GDP per capita reflects the development level of the domestic economy and a

nation's prosperity by measuring its economic output that accounts for its number of people. This research will also take the effects of GDP per capita into account. However, GDP, population, and GDP per capita have a strong possibility to cause multicollinearity. Therefore, instead of directly applying GDP per capita of China and its trading partners, this research will use the differences in GDP per capita between China and its trading partners. According to Linder (1961) hypothesis, higher differences in GDP per capita between import and export countries will lead to a reduction in trade of monopolistically competitive products in general. It is due to the fact that a greater difference in GDP per capita will decrease the share of the bilateral intra-industry trade under the assumption of differentiated tastes (Linder, 1961: 172). Therefore, this research initially expects that higher differences in GDP per capita between China and its trading partners will lead to lower export flows of China.

The geographic distance between China and its trading partners has been included as the fourth control variable. Geographic distance is one of the critical factors that influence trade. It refers to the distance between the capitals of the two countries, which reflects the transport costs of international trade.

Besides these control variables mentioned above, this research also takes into account a series of dummy variables. With the rapid development of economic globalisation, the wave of regional and international economic integration surges worldwide. The emergence of regional and international economic groups exerts a critical impact on the world economy and trade. Regional Trade Agreements are beneficial to bilateral trade. China is a member of both the WTO and APEC. The WTO is the only global international organization dealing with the rules of trade between countries (The WTO, 2019a). According to WITS (2019), most of China's largest trading partners are members of APEC. Therefore, whether the country is an official member of the WTO or APEC will be one of the dummy variables. Official members of WTO here represent 164 members and observers (The WTO, 2019b). Observer governments are excluded in this research, which must start accession negotiations within five years to become observers (The WTO, 2019b). Also, whether the country shares a common land border with China also influences the bilateral trade flows. In the past decades, the neighbourly cooperative relations between China and its neighbouring countries have entered a new stage of all-round development (Liu, 2016). For example, the "One Belt, One Road" strategy and the Asian

Infrastructure Investment Bank mentioned above provide a beneficial environment for trade between China and its neighbours. Whether sharing a common land border with China is, therefore, another dummy variable in this research.

Table 2 summarises the control variables used in the existing literature mentioned in section 2.2, which also applied the gravity model of trade.

Authors	Control variables	Authors	Control variables
Lederman, Olarreaga, & Payton, 2006	GDP per capita Index of trade restrictiveness Index of market access restrictions Volatility of the exchange rate Geographic distance	Rose, 2007	Geographic distance GDP per capita Average population Common language Common land border Area of the country Colonial history Common currency Membership in the same regional trade agreement Whether being landlocked Whether being an island state
Nitsch, 2007	Geographic distance GDP Per capita income Common land border Common language Membership in the same free trade arrangement Colonial history Common currency	Gil, Llorca, & Serrano, 2008	GDP Geographic distance Member of the European Union/European Free Trade Agreement Common language Common land border Whether being landlocked Whether being an island state
Yeo & Lee, 2009	GDP Population Geographic distance Membership in the same regional trade agreement Colonial history	Head & Ries, 2010	GDP Population Geographic distance Common language Colonial history Common legal system

	Exchange rate between currencies		Membership in the same regional trade agreement Common currency Member of the GATT
Davis & Meunier, 2011	Geographic distance GDP Exchange rate between currencies Member of the GATT/WTO Membership in the same preferential trading agreement Alliance ties Common language Whether being landlocked Whether being an island state	Kunychka & Raneta, 2016	Geographic distance GDP Population Common geographic area Common language Common colony Common land border Membership in the same regional trade agreement Whether being landlocked Whether being an island state
Lin, Yan, & Wang, 2017	GDP Population Exchange rate between currencies Geographic distance Whether being landlocked Whether being an island state		

Table 2: Summarising table of control variables

2.6.3 Conceptual model

In order to visualise the relationship discussed above: (1) diplomatic visits of Chinese leaders and China's export flows, (2) state visits of Chinese Presidents and China's export flows, and (3) multiple control variables and China's export flows, a conceptual model (Figure 4) has been constructed as follows:

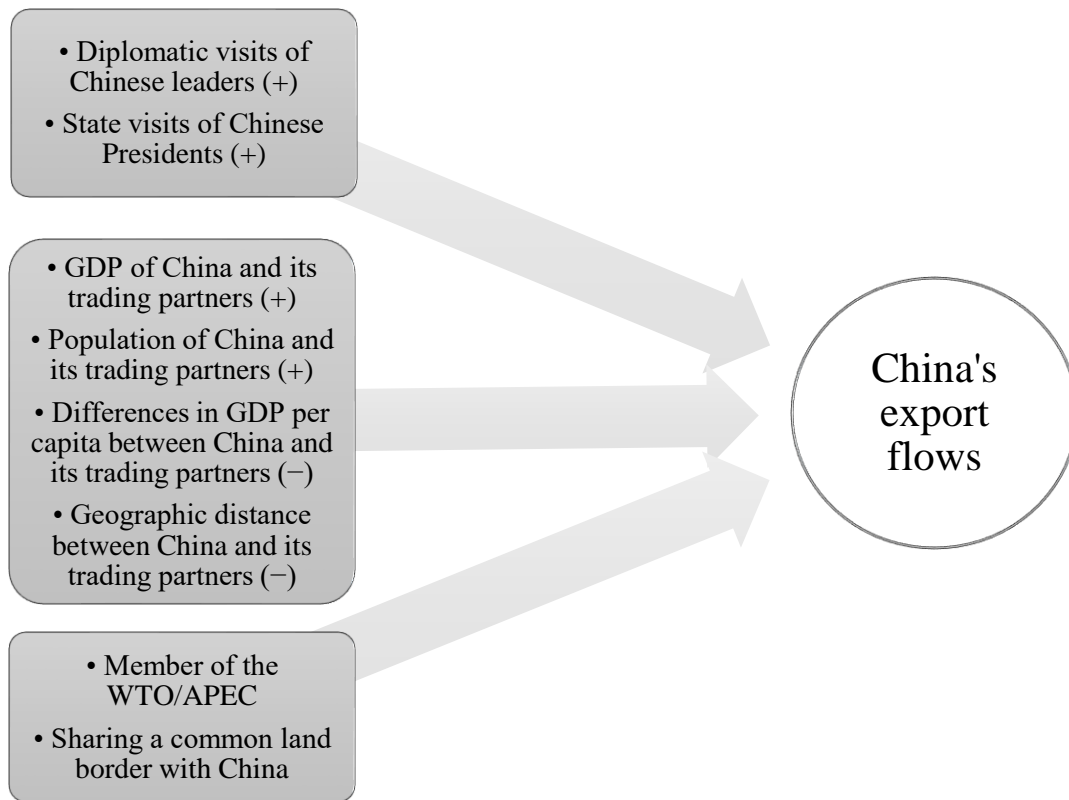


Figure 4: Conceptual Model

Note: (+) represents a positive correlation with China's exports flows, and (-) presents a negative correlation with China's export flows.

3. Research Design

When trying to answer the main research question, this research will also attempt to find causality between independent and dependent variables, namely the relationship between diplomatic visits of Chinese leaders and China's export flows. Therefore, a panel-data research design will be performed to reach the aim of the research and to answer the research question. In this chapter, the research design will be described in more details, and an assessment of this design will be displayed. Then, the equation of the gravity model of trade used for this research will be presented. Also, it will explain how the sample of this research has been selected. Furthermore, it will mention the operationalisation of the dependent, independent, and control variables. Finally, the reliability and validity of this research will be discussed. Hence, chapter three is made up of these different sections, which together try to answer the second sub-question: How can the variables be operationalised and the possible relationship be explored?

3.1 Panel-data research design

In econometrics, data are mainly from two sources: experiments and non-experimental observations (Justice, 2008: 87). Experimental data are based on experiments to evaluate a policy or to explore a causal relationship between variables (Justice, 2008: 87). Non-experimental data are collected outside experiments, such as survey, interviews, records, *etc.* An experimental research design is always considered as the best research method to explore the relationship between a dependent and independent variable. This research is trying to find the causal relationship between the dependent and independent variables, and an experimental research design would be the most appropriate research design. However, it is not possible to test the effects of diplomatic visits and state visits on China's export flows by experiments. In addition, the independent variable, i.e. China's export flows is a variable which cannot be manipulated (Bryman & Bell, 2011: 41; Justice, 2008: 87). It is impossible to affect the trade situation of a country. Therefore, a panel-data research design will be employed due to the multi-dimensional data used in this research.

More specifically, the panel-data research design applied in this paper is a combination of a cross-sectional and a time-series design, encompassing multiple observations over multiple time

periods. A cross-sectional research design contains the data of multiple observations in various cases at one-time point, while a time-series research design includes the data of one observation at multiple time periods (Bryman & Bell, 2011: 53-59). Overall, a cross-sectional research design is not able to measure variable through multiple time periods, and a time-series design is not able to measure multiple variables together. In this research, the analysis objects are diplomatic visits, state visits, export flows, as well as multiple control variables covering a time span of 15 years. Therefore, in order to explore the causal relationship between dependent, independent and control variables at the same time, it is necessary to combine two elements, namely a cross-sectional research design and a time-series research design (Bryman & Bell, 2011: 53-59; Justice, 2008: 87). Panel data has the advantages of containing a large number of data while enhancing the degrees of freedom and decreasing the risk of collinearity among variables (Eom, Lee, & Xu, 2008: 579). There are two dummy variables mentioned above in this research, and the panel-data research design can provide a way to control other unobserved variables related to explanatory variables. A panel-data research design has been widely used in the research related to economic questions.

Moreover, another significant feature of panel-data research design is that it can contain a large number of cases (large N). By controlling the variation of multiple variables and cases, a panel-data research design is able to establish causality between dependent and independent variables. In certain cases, the application of panel-data research design with a large amount of data can simplify the inference than small N. In addition, the external validity is one of the important factors to evaluate a research design. A large group of cases raises the possibility to generalise the results to other studies, and a panel-data design is, therefore, helpful to enhance the external validity of a research (Bryman & Bell, 2011: 56). A large sample also meets the aim of this research.

Furthermore, as mentioned above, a panel-data research design enables to include various control variables as well as dummy variables. It is important to take other factors into account in this research. Because many studies have proved that there are plenty of factors which may exert impacts on international trade such as GDP, population, distance, *etc.* This would correspondingly contribute to the internal validity of the research. Due to the aim of finding the causal relationship between diplomatic visits and China's export flows, a panel-data research design makes the inclusion of multiple control variables possible.

The current research is closely related to the research conducted by Nitsch (2007) that looked into the relationship between the state and official visits and international trade in France, Germany and the US. He also employed a panel-data (time-series and cross-sectional) research design. Other relevant studies that employed the same research design include the studies by Yeo and Lee (2009), Vieira (2014), Kunychka and Raneta (2016), and Lin, Yan and Wang (2017). Previous research has proved the feasibility of the application of panel-data research design. Hence, it is a proper selection.

3.1.1 Empirical method

3.1.1.1 Equation of the gravity model of trade applied

To verify the stated hypothesis, this paper will take the augmented gravity model of international trade as a starting point to examine the association between diplomatic visits and export flows. As mentioned in section 2.5, the gravity model of trade is formulated like (4). However, this model is nonlinear. In order to get a linear relation, formula (4) will be applied natural logarithm on both sides of the equation:

$$\ln X_{ij} = \beta_0 + \beta_1 \ln(GDP_i GDP_j) + \beta_2 \ln D_{ij} + \mu_{ij} \quad (5)$$

where $\ln X_{ij}$, $\ln(GDP_i GDP_j)$, and $\ln D_{ij}$ respectively stand for the natural logarithmic form of X_{ij} , $GDP_i GDP_j$, and D_{ij} . β_1 , β_2 , and β_3 are regressive coefficient, and μ_{ij} is a stochastic error term.

The gravity model is considered as the workhorse for econometric analyses of trade flows, which essentially links the bilateral value of trade between two countries to their economic size and the distance between them. It has been recently used extensively in the literature (Nitsch, 2007; Rose, 2007; Bergeijk, 2010; Afman & Maurel, 2010; Head & Ries, 2010; Yakop & Bergeijk, 2011; Yeo & Lee, 2009; Kunychka & Raneta, 2016; Lin, Yan & Wang, 2017). Although the gravity model of trade lacks essential theoretical foundation, it still has significant application value in the case that classical and neoclassical trade theory has been unable to conduct empirical research about bilateral trade.

The implications of each variable in the gravity model of trade can be interpreted according to different formulations. For equation (5) above, GDP reflects the economic size of a country. On the one hand, if a country's GDP is high, it may have a greater production capacity to expand its export. On the other hand, higher GDP also means a more significant demand for the importers. Hence, there

is a positive correlation between the GDP of the two countries and bilateral trade. Nevertheless, the distance between two countries influences their transportation costs. Further distance could lead to an increase in transportation costs. In general, there is a negative correlation between distance and bilateral trade.

To carry out the regression analysis, this paper will use an extended gravity model of trade. The size of the population in persons will be added into the basic model, which has been widely applied in various research (Head & Ries, 2010; Yakop & Bergeijk, 2011; Kunychka & Raneta, 2016; Lin, Yan & Wang, 2017). In the meantime, GDP, GDP per capita and population are likely to cause the problem of multicollinearity. Therefore, besides the distance, GDP and population will be chosen as endogenous variables to develop the model. Taking into account the effects of the per capita income gap between two countries on trade, the absolute value of the differences in GDP per capita between two countries will be introduced as the variable I , which has been used in the research by Wang & Tian (2017). Based on the above, the gravity model of trade in this research is built as follows :

$$\begin{aligned} \ln (Exp_{cjt}) = & \beta_0 + \beta_1 \ln(GDP_{ct}GDP_{jt}) + \beta_2 \ln D_{cj} + \beta_3 \ln(N_{ct}N_{jt}) + \beta_4 \ln(I_{cjt}) + \\ & \beta_5 X_{cjt} + \gamma V_{cjt} + \delta_t + \mu_{cjt} \end{aligned} \quad (6)$$

where Exp_{cjt} denotes Chinese exports in current US dollars, GDP is Gross Domestic Product, D is the geographic distance between capital cities, N is the size of the population in persons, and I is the absolute value of the GDP per capita difference between two countries. X represents a set of dummy variables, including common land border and participation in WTO and APEC. If China shares a common border with country j , it will be assigned the value 1. Otherwise, it will be labelled as 0. If China's trading partner is a member of APEC, it will be assigned the value 1, and 0 if otherwise. Likewise, if it belongs to WTO, it will be assigned the value 1, and 0 if not. If it is a member of both APEC and WTO, it will be assigned the value 2. V denotes diplomatic visits of Chinese leaders to 175 trading partners. c stands for China, j is China's trading partners, and t is the specific year. δ_t is a full set of year-specific fixed effects, and ε_{cjt} is a stochastic error term. In this equation, $GDP_{ct}GDP_{jt}$, $N_{ct}N_{jt}$, and I_{cjt} are expected to be positively correlated with export flows, while D_{cj} is expected to be negatively correlated with export flows.

However, there is a time lag between diplomatic visits and export flows. The effects of diplomatic visits on trade are not able to be shown immediately. Therefore, three models will be

applied to deal with the problem caused by time lag. In the first model, whether there was a diplomatic visit in the last year would be considered. Specifically, if there was a visit paid by Chinese leaders to its trading partners that year, V in that year and the following year will be assigned the value 1, and 0 if otherwise. In this way, the coefficient of V is able to measure the average effect in a two-year window phase. Likewise, a three-year time lag and a five-year time lag will be respectively applied in the same way in the second and the third model. The equation of the models is formulated as equation (6) above.

3.1.1.2 Choice of model

Regression is a powerful method to test variables (Ewing, 1974: 83). In statistics, Ordinary Least Squares (OLS) regression is one type of linear least squares method which has been widely used in a linear regression model (Franses & Paap, 2001: 36). The gravity model of trade is a particular model which can be solved by linear regression analysis (Ewing, 1974: 83). However, whether OLS is an appropriate method to deal with the gravity model remains to be evaluated. It depends on the following assumptions. Firstly, it has a requirement upon the level of measurement of variables. The dependent, independent and control variables have to be measured as ratio data or interval data. If an independent variable is nominal or ordinal, it should be therefore measured as a dummy variable in the model. Secondly, the regression model must be linear. It means that any non-linear relationship between the dependent and independent variable cannot satisfy the assumption. Thirdly, the error term should be normally distributed. This assumption could be tested through a standard probability plot. Fourthly, there should be enough amount of data involved in the model. More specifically, the number of observations ought to be more than the number of independent variables (Graddy & Wang, 2008: 468). Fifthly, the independent variable cannot be perfectly linear with each other. Because OLS is not able to tell the differences between independent variables. If one independent variable has a high correlation with another variable, they will move in unison. Sixthly, the error term for a given observation must not be systematically correlated with the error term of other observations (Graddy & Wang, 2008: 468). If the observations of the error term do not satisfy this assumption, it will be marked as serial correlation or autocorrelation. Finally, the last assumption is that the error term should have constant variance for all observations. It means that the variance will not fluctuate with

another observation or other groups of observations. The error term should meet the homoscedasticity. The change of variance is called heteroscedasticity. Overall, whether OLS is a suitable model, seven assumptions mentioned above should be satisfied.

It is worth mentioning that Pooled OLS is the one which specifically implemented to analyse linear regression in the model. Apart from OLS, there are two other models in statistics: Fixed Effects model and Random Effects model. Fixed Effects model is a model where the model parameters are fixed or non-random variables, while Random Effects model is a model in which the model parameters are random variables (Borenstein et al., 2010). Even though there are still plenty of models dealing with linear regression, OLS, Fixed Effects model and Random Effects model are the most commonly applied in economic research. This research, therefore, concentrate on these three models. More details should be discussed to assess which model is more corresponding to this research. Between Pooled OLS and Fixed Effects model, it is common to apply an F-test. An LM test is often used to make a comparison between Pooled OLS and Random Effects model. While the Fixed Effects model and Random Effects model are evaluated by a Hausman test. These tests will be addressed by using STATA. The assessment of different models will be discussed in more details in Chapter 4.

3.1.2 Sample

China became a member of WTO on December 11th, 2001. Hence, the data on diplomatic visits and state visits start in 2002. Furthermore, the data cover a time span of 15 years. The time span of diplomatic visits of Chinese leaders and state visits of Chinese Presidents thus ranges from 2002 to 2016. The data of the dependent and control variables correspondingly ranges from 2002 until 2016. Moreover, this research focuses on China. It aims to find results about the relationship between diplomatic visits of Chinese leaders and China's export flows, as well as the relationship between state visits of Chinese Presidents and exports of China. To attain this goal, this paper tries to include all Chinese trading partners in its sample. However, in order to preserve the integrity and consistency of data, the data of each variable from selected countries need to be available throughout the whole time span. In this way, the final sample consists of 175 countries. In particular, Hong Kong SAR, China and Macao SAR, China are excluded from the sample. Although their economic data are separately listed in the international stage, Hong Kong and Macao are two particular administrative

regions of China. It is also complicated to define whether they share a common land border with China. Overall, using annual panel data that covers 175 countries and a time span of 15 years, the sample of this research should contain a total of 2625 (175 times 15) observations. A list of all countries that have been included in the sample can be found in the Appendix.

3.2 Operationalisation

In order to statistically explore the relationship between the dependent variable and the independent and control variables, each variable ought to be specifically operationalised. This section will discuss each variable in greater details and the measures used to operationalise each variable. At last, a summary table will be presented, including all these variables and their measures.

3.2.1 Dependent variable

The dependent variable of this research is China's annual export flows to its trading partners. Export in this research refers to trade in goods, including total of all Harmonised System (HS) commodities provided to the rest of the world. The data comes from the United Nations International Trade Statistics Database (UN Comtrade Database) and are presented in current US dollars. UN Comtrade is the largest depository of international trade data. Over 170 reporter countries and regions provide the United Nations Statistics Division (UNSD) with their annual international trade statistics data detailed by commodities and service categories with their partner countries. This variable is measured on a ratio scale because zero points of export flows are still meaningful. Plenty of previous research related to this topic chose this source of data (Vieira, 2014; Lin, Yan, & Wang, 2017; Wang & Tian, 2017). Therefore, this source of data related to China's export flows to its trading partners between 2002 and 2016 has been chosen because of the availability of sufficient data and the authority of data source.

3.2.2 Independent variables

The independent variables of this research are diplomatic visits of Chinese leaders and state visits of Chinese Presidents. The two variables are operationalised as the number of diplomatic visits paid by Chinese leaders and the number of state visits paid by Chinese Presidents. The measure of the independent variables is ratio, as a non-arbitrary zero point of diplomatic visits and state visits still

have its meaning. Due to the fact that there is no official database collecting data related to diplomatic visits or state visits. Corresponding data are therefore mainly from the official website of *the Ministry of Foreign Affairs of the People's Republic of China* (<https://www.fmprc.gov.cn/web/>). However, the information from government official website is still incomplete. Thus, for data integrity and accuracy, this research will also collect the information about diplomatic visits and state visits according to the government news from the official website of *the State Council of the People's republic of China* (<http://www.gov.cn>) between 2002 and 2016. The two official websites are respectively operated by the Ministry of Foreign Affairs of China and the State Council of China, which guarantee the authenticity and security of data transmitted.

3.2.3 Control variables

3.2.3.1 GDP of China and its trading partners

The GDP of China and its trading partners represent the sizes of their economies in current US dollars. More specifically, the data come from the World Development Indicators Database of the World Bank. Gross Domestic Product represents “*the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products*”, and “*the value of all final goods and services produced in a given country in a given year*” (The World Bank, 2019a). The GDP is a ratio measure.

Moreover, data have been used in current US dollars, which means that the data of GDP used in this research are converted from domestic currencies using single year official exchange rates (The World Bank, 2019a). The purpose of this measurement is to provide a reference or benchmarking measurement of the GDP of the US, as this research covers a time span of 15 years. The GDP of current US dollars is also used in the researched of Nitsch (2007), Rose (2007), Bergeijk (2010), Afman and Maurel (2010), Head and Ries (2010), Yakop and Bergeijk (2011), Yeo and Lee (2009), Kunychka and Raneta (2016), and Lin et al. (2017).

3.2.3.2 Population of China and its trading partners

The data of the size of the population in persons comes from the World Development Indicators Database of the World Bank. Total population is based on the de facto definition of population, which

counts all residents in the country (The World Bank, 2019b). However, it has to be noted that in developing countries, errors may exist because of limits in the transport, communications, and other resources required to conduct and collect that data for a full census. In this research, the size of the population in persons from each country will take the data from the World Bank as a standard. In addition, this variable is measured as a ratio scale as well, since the population is a number with conventional numeric meaning.

3.2.3.3 Differences in GDP per capita between China and its trading partners

Furthermore, this research has applied the differences in GDP per capita between the two countries from 2002 to 2016 in current US dollars. Per capita means that the total GDP of a country has been divided by the size of its population. In order to avoid multicollinearity, this research applies the differences in GDP per capita instead of GDP per capita to measure the effects of the economic gap on bilateral trade between the two countries. This variable has been measured on a ratio scale. GDP per capita from each country comes from the World Development Indicators Database of the World Bank. The absolute value of differences will be calculated and applied in the model.

3.2.3.2 Geographic distance between China and its trading partners

As mentioned above, the distance could influence the transport costs, and thus bring impacts on bilateral trade. To measure the geographic distance between China and its trading partners, this research uses data from the CEPII database. The CEPII is the leading French centre for research and expertise on the world economy. It provides geodesic distances for 225 countries in the world between 1948 and 2015. Because the distance is a fixed value, the data available from CEPII ending up in 2015 has no effect on the research, and the data in 2015 will be used. Moreover, this research chooses the geographic distance of capitals as the distance between the two countries. This variable has been measured on a ratio scale as well. Concerning the data, this research uses the same source of geographic distance as other previous studies related to this topic (Head & Ries, 2010; Kunyehka & Raneta, 2016; Lin, Yan, & Wang, 2017; Wang & Tian, 2017).

3.2.3.4 Other control variables

Other control variables are operationalised by information on whether the trading partner is a member

of WTO or APEC, and whether China and its trading partner share a common land border. As mentioned in Chapter 2, these are dummy variables labelled as 0, 1, and 2, separately represent neither a member of WTO nor APEC or no common land border with China, either a member of WTO or APEC, and both a member of WTO and APEC. Hence, these two dummy variables have to be measured as nominal data. Binary data on the participation of the Chinese trading partner in the WTO or APEC between 2002 and 2016 are obtained from the official webpage of the WTO (<https://www.wto.org/>) and APEC (<https://www.apec.org/>). Additionally, binary data on the common border are obtained from the CEPII database. The land border is also a fixed value. This research, therefore, uses the latest data available of the land border from the CEPII database in 2015.

3.2.4 Operationalisation table

Table 2 is the operationalization table of an overview of all dependent, independent and control variables and their measurements.

Dependent variable	Measure	Level of measurement	Time span	Source
Export	China's export flows to its trading partners in current US dollars	Ratio	2002-2016	UN Comtrade Database – the United Nations
Independent variables	Measures	Level of measurement	Time span	Sources
Diplomatic visits	Diplomatic visits paid by Chinese leaders to its trading partners	Ratio	2002-2016	Official website of Ministry of Foreign Affairs of the People's Republic of China; Official website of the State Council of the People's Republic of China
State visits	State visits paid by Chinese Presidents to its trading partners	Ratio	2002-2016	Official website of Ministry of Foreign Affairs of the People's Republic of China; Official website of the State Council of the People's Republic of China
Control variables	Measures	Level of measurement	Time span	Sources
Size of economy	GDP of China and its trading partners in current US dollars	Ratio	2002-2016	World Development Indicators Database – the World Bank

Differences in GDP per capita	Differences in GDP per capita between China and its trading partners in current US dollars	Ratio	2002-2016	World Development Indicators Database – the World Bank
Population	Size of population in persons	Ratio	2002-2016	World Development Indicators Database – the World Bank
Geographic distance	Geodesic distances between capital cities of China and its trading partners	Ratio	2015	CEPII – French: Institute for Research on the International Economy
WTO/APEC member	Whether China’s trading partner is a member of WTO or APEC	Nominal	2002-2016	Official website of the WTO and APEC; CEPII – French: Institute for Research on the International Economy
Common land border	Whether China and its trading partner share a common land border	Nominal	2015	CEPII – French: Institute for Research on the International Economy

Table 3: Operationalisation

3.3 Reliability and validity

In order to guarantee the quality of the research, it is significant to evaluate the reliability and validity of the research method, research design, and operationalisation of variables.

Reliability has a close association with the validity of the measurement, as reliability represents the quality, coherence, and representativeness of a measure (Brymann & Bell, 2011: 41). It mainly concentrates on the possibility of re-implementation of the research. It means if one research reached the same outcomes after repeating the same research process, it would initially satisfy the requirement of reliability. It is vital to meet the reliability of research, which guarantees the stability of the measurement of each variable (Brymann & Bell, 2011: 41). The data of this research mostly come from authoritative and officially-recognised international databases. For example, China’s export flows are from the UN Comtrade Database belonging to the UN. GDP, GDP per capita, and population of China and its trading partners come from the World Development Indicators Database. The World Development Indicators Database is the primary database of the World Bank on development-related issues on development-related issues (The World Bank, 2019c). The sample of these variables consistently cover the data of 175 countries of each year from 2002 to 2016. This research, therefore,

satisfies the reliability due to its consistency and stability of each measure. Moreover, the database used in this research is available to anyone and is consistent and stable over time. This corresponds to the feature of repeatability in reliability. Because the database provides an assess, for anyone who would like to conduct this research again is able to reach the same data applied here. The data of geographic distance and land border from the CEPII database are also reliable. The official websites of the Ministry of Foreign Affairs and the State Council of China, WTO, and APEC are all renown and reliable sources.

The validity of measurement, as mentioned above, has a close relation to reliability. It is “*the degree to which a test measures what it claims, or purports, to be measuring*” (Cronbach & Meehl, 1995: 281), and measurement validity “*(has) to do with the question of whether or not a measure that is devised of a concept really does reflect the concept that it is supposed to be denoting*” (Brymann & Bell, 2011: 42). It means that an incoherence and unreliable measure is not able to provide an effectual and valid measure of the concept (Brymann & Bell, 2011: 42). A reliable measure is the premise to be valid. In this way, all measures of this research are evaluated to be valid. The chosen measure for China’s export flows is widely used to indicate trade in the world. As for diplomatic visits and state visits, the selected measure has already been used in previous research on China (Lin, Yan, & Wang, 2017; Wang & Tian, 2017). In addition, GDP, population, and geographic distance are often used to separately control the effects of national economic, national demand, and transport costs on trade while trying to measure the relationship between dependent and independent variables. The application of the differences in GDP per capita provides a view of the actual economic situations and the differences between China and its trading partners. These measures all contribute to the correct concept of validity. Whether the country is a member of WTO or APEC and shares a common land border are measured as dummy variables. Dummy variables are useful, in which way the research is able to use a single regression equation to measure multiple observations. This also adds the validity of measurement.

Furthermore, the internal and external validity of the research has to be assessed as well. Internal validity pays attention to causality and whether it is possible to attribute the variations in the dependent variable to the independent variable (Bryman & Bell: 2011: 42). In a cross-sectional research design applied alone, it is hard to present the causality of the research, as it only measures

the observations at a single time. Causality, however, tries to demonstrate not only the correlation between the dependent and independent variables but also whether independent variable influences the dependent variables. If the variables are measured on at a single point in time, it is difficult to satisfy the causality. Although a reliable way for causality is to conduct an experimental research design, the implementation of a panel-data research design can also solve the problem to some degree by adding multiple times and time lag in the research. The inclusion of various control variables can bring positive impacts on internal validity as well. In order to explore the relationship between the dependent and independent variables, this research applies multiple control variables in the model to try to eliminate the influence of other factors on the dependent variable. This research contains six different control variables, which are selected based on the existing research related to this topic. Therefore, it has reasons to believe the internal validity of this research.

External validity focuses on the generalisability of results (Bryman & Bell, 2011: 43). It helps to answer the question: can the research be applied to other cases or the “real world”? This empirical research focuses specifically on China. From this perspective, it is kind of difficult to generalise the results of China directly to other countries. On the other hand, as one of the representatives of rising powers in the international stage, the research on China can provide some references for other rising powers. In addition, the expanded gravity model of trade used in this research can be generalised to the studies related to other political factors and international trade. In total, this research tries to meet a higher external validity.

4. Analysis

Chapter 4 will answer the third sub-question. As mentioned above, a panel regression analysis will be conducted. Before performing the regression analysis, it will present the descriptive statistics to evaluate the data distribution of various variables.

The third sub-question relates to the statistical model, analysis and its results. According to the panel-data research design, the thesis will add all diplomatic visits of Chinese leaders, state visits of Chinese Presidents and other control variables into the traditional gravity model of international trade. Before carrying out the regression analysis, this research will first use the method of descriptive statistical analysis to verify the data distribution of variables. Then, it is necessary to test whether the assumptions of linear regression analysis hold. In order to guarantee freedom from the interference of multicollinearity, VIF (variance inflation factor) will be applied to the model. After the assessment above, the final model will be determined. Subsequently, the analysis will be conducted, and the results will be interpreted to answer the last sub-question.

4.1 Descriptive statistics

Before performing a linear regression analysis, the descriptive statistics of various variables will be addressed. It is a common practice using descriptive statistical analysis to get some general knowledge on the variables applied, such as the mean, the standard deviation, and the minimum, middle and maximum value of variables, in order to observe whether there is any outstanding abnormal value, i.e. outliers. Considering that variables are applied in different ways in the model, the descriptive statistics, therefore, tests each variable in the way they are used in the equation. Table 3 provides an overview of this information on the variables of this research.

VarName	Obs	Mean	SD	Min	Median	Max
Exp_{cjt}	2625	6.94×10^9	25.86×10^{10}	2596	7.47×10^8	4.30×10^{11}
GDP_{ct}GDP_{jt}	2625	2.17×10^{24}	1.07×10^{25}	2.27×10^{19}	1.29×10^{23}	2.38×10^{26}
D_{cj}	2625	9095.07	3812.51	955.65	955.65	19297.47
N_{ct}N_{jt}	2625	4.03×10^{16}	1.34×10^{17}	1.23×10^{13}	9.88×10^{15}	1.86×10^{18}
I_{cjt}	2625	10557.04	16001.33	0.23	4159.67	111140.15
Diplomatic visit	2625	0.595	0.832	0	0	10
State visit	2625	0.053	0.225	0	0	1
Member	2625	0.983	0.472	0	1	2
Border	2625	0.074	0.262	0	0	1

Table 4: Descriptive statistics

The first summary statistic is the number of observations in this research. After the stage of data collection, 175 China's trading partners have been chosen, covering a time span of 15 years. Therefore, there are 2625 (175 times 15) groups of observations in total in this research.

The second summary statistic is the *Mean*, a central tendency of the data. In this research, for instance, the mean of I_{cjt} is 10557.041. This represents that, in the used dataset covering 175 countries and a time span from 2002 to 2016, the average difference in GDP per capita between China and its trading partners is \$10557.041.

Thirdly, *SD* means the standard deviation, which is a measure of dispersion. A low standard deviation means that the values have a concentrated distribution, which a high standard deviation shows that the distribution of value is divergent. From Table 3, it can be stated that the values of this research are relatively concentrated.

Fourthly, *Min* is the minimum value of a variable. It means there is no value of each variable from sample countries is lower than that. For example, the *Min* of D_{ci} is 955.651, which represents the minimum distance between China and its trading partner is 955.651 kilometres. It means that no sample countries have had a value lower than 955.651 between 2002 and 2016.

Fifthly, *Median* means the middle value of a variable. The middle value of a variable is addressed by ranging the observations in ascending order and then adopting the middle observation (Chavda, 2008: 348). The median values, together with the mean values, are significant to evaluate whether the variables have a normal distribution. If the mean value of a variable is the same as its median value, it means this variable is in a symmetrical distribution. If not, it means that the variable has a skewed distribution. In addition, a variable can be skewed either to the right or to the left (Mo, 2008: 381).

Lastly, *Max* represents the maximum value of a variable. Likewise, this means that none of the sample countries has a higher value. The minimum and maximum value together show the range of the values of a particular variable. For example, the value of *Visit* range from 0 to 10. This means that the maximum number of diplomatic visits paid by Chinese leaders to one particular country in one year between 2002 and 2016 is 10 (to Poland in 2008), and none of the countries has had visits more than 10 times a year between 2002 and 2016.

Nevertheless, according to the descriptive statistical analysis above, most variables do not have a normal distribution. Therefore, in order to get normal distributions, this research takes logarithms of most variables, as all other authors did in the gravity model of trade (Lederman, Olarreaga, & Payton, 2006; Rose, 2007; Nitsch, 2007; Gil, Llorca, & Serrano, 2008; Yeo & Lee, 2009; Davis & Meunier, 2011; Kunychka & Raneta, 2016; Lin, Yan, & Wang, 2017).

VarName	Obs	Mean	SD	Min	Median	Max
Ln(Exp_{ijt})	2625	20.168	2.614	7.862	20.432	26.788
Ln(GDP_{ct}GDP_{jt})	2625	53.171	2.628	44.570	53.211	60.736
LnD_{ej}	2625	9.008	0.504	6.862	9.032	9.868
Ln(N_{ct}N_{jt})	2625	36.559	2.087	30.144	36.829	42.065
Ln(I_{ejt})	2625	8.307	1.487	-1.450	8.333	11.619
Diplomatic visit	2625	0.595	0.832	0	0	10
State visit	2625	0.053	0.225	0	0	1
Member	2625	0.983	0.472	0	1	2
Border	2625	0.074	0.262	0	0	1

Table 5: Descriptive statistics of logarithms of most variables

From Table 5, it is clear that all variables are distributed close to normal values now. A regression analysis, therefore, can be conducted.

4.2 Correlation analysis and VIF multicollinearity test

In order to perform the regression analysis, the underlying assumptions should be satisfied. It means that the problem of multicollinearity must not occur among variables. If there is an issue of multicollinearity, it means that explanatory variables are related to each other, and causality is not possible to be achieved. Therefore, it is important to test for multicollinearity in the first place. A practical way to assess whether there is multicollinearity is to explore the correlations between the multiple independent and control variable (Alm & Mason, 2008: 443). Table 4 provides an overview

of these correlations.

Variable	1	2	3	4	5	6	7	8
Ln(Exp_{ctj})	1							
Ln(GDP_{ct}GDP_{jt})	0.42	1						
LnD_{ctj}	-0.25	-0.17	1					
Ln(N_{ct}N_{jt})	0.32	0.39	-0.18	1				
Ln(I_{ctj})	0.38	0.47	-0.10	0.03	1			
Visit	0.21	0.22	-0.01	0.13	0.10	1		
Member	0.44	0.38	-0.08	0.37	0.18	0.09	1	
Border	0.10	0.02	-0.52	0.20	-0.52	0.00	0.06	1

Table 6: Correlation analysis

Based on Table 4, it can be seen that there are certain correlations between dependent, independent, and control variables. Export has positive correlations with GDP, diplomatic visits, population, differences in GDP per capita, member of WTO/APEC and common land border. While export is as expected, negatively correlated to the distance between China and its trading partners. Meanwhile, the correlation coefficients between independent variables shown in Table 4 are all below 0.50, which represent a weak correlation. It is therefore understandable that the data of the sample has no problem of multicollinearity.

In order to eliminate further interference of multicollinearity, this research uses the VIF method to test for the multicollinearity of the model. It provides an index that measures how much the variance (the square of the estimate's standard deviation) of an estimated regression coefficient is increased because of collinearity. In general, when the value of VIF remains below 10, there is no risk of multicollinearity. From Table 5, we can see that the variance inflation factors of this model are all smaller than 10.

Variable	VIF	1/VIF
Ln(GDP_{ct}GDP_{jt})	4.07	0.24571
LnD_{ctj}	1.44	0.693077
Ln(N_{ct}N_{jt})	3.25	0.307289
Ln(I_{ctj})	1.79	0.558396
Visit	1.06	0.945729
Member	1.21	0.827845
Border	1.49	0.671309
Mean VIF	2.04	

Table 7: VIF multicollinearity test

All in all, it can be concluded that the data meets the assumption of no multicollinearity.

4.3 Model selection

In section 3.1.1.2, the multiple assumptions of pooled OLS have been discussed. Whether the data meets the different assumptions of OLS should be tested in the first place. The first assumption states that the variables should be measured on a ratio or interval level. As can be read from Table 2 in section 3.2.4, however, this assumption is not satisfied. There are two dummy variables in this research, namely whether country j is a member of WTO or APEC and whether China and country j share a common land border. The dummy variables will be assigned the value 0, 1 or 2 as nominal data. In this way, a pooled OLS is therefore not the best linear unbiased estimate for this research.

Then, the research will now select the model between a Fixed Effects and Random Effects model. In order to verify which is the more appropriate model for this research, a Hausman test has been conducted. By comparing the fixed effects and random effects via a Hausman test, the results show that both the fixed effects and random effects are consistent. However, the individual effects are not correlated with the other regressions in the model, and the distance is small. According to Eom et al. (2008: 589), a rejection of the null hypothesis points towards a Fixed Effects model, while a Random Effects model is preferred in case the null hypothesis is not rejected. Based on the results of the Hausman tests, the null is not rejected, and the Random effects model is more efficient. The assumptions show that a Random effects model is preferred. Therefore, the research has decided to go with a Random Effects Model.

4.4 Results

In order to demonstrate the relationship between visits and trade, this research has constructed three models. Each model contains two tests. One concentrates on the relationship between diplomatic visits of Chinese leaders and China's export flows, and the other is related to the relationship between state visits of Chinese Presidents and China's trade flows. Table 6 presents the regression results of the three models in this research, including the coefficients of each variable in the models, the significance levels of each variable, the standard errors, and R-square values. In the table, (1) shows the regression results of diplomatic visits, while (2) presents the results of state visits. The coefficients in the table mainly describe the correlation between the explanatory variable and independent

variables. More specifically, the coefficient shows how the dependent variable will change following the changes in explanatory variables. According to Graddy and Wang (2008: 460), when an independent variable increases by one unit, the dependent variable will correspondingly increase or decrease by the number of units coordinate with the coefficient as long as all other variables are controlled for. In addition, the significance level demonstrates to what extent the coefficient is significant to the dependent variable. Besides the coefficient and the significance level, the R-square value is also important in the model. R-square value, which is regarded as the coefficient of determination, presents at what level a model is able to predict the variability in the dependent variable (Cirincione, 2008: 422).

Based on what mentioned above, more details about the regression results will be addressed. Firstly, we will have a look at the R-square. In the first model, the R-square values of the models are respectively 0.8267 and 0.8266. It means that regarding the diplomatic visits of Chinese leaders, the independent and control variables are capable of predicting about 82.67% of the variability in the dependent variable. When it comes to state visits of Chinese Presidents, the independent and control variables can predict about 82.66% of the variability of the dependent variable. Therefore, the first model strongly fit the data. In addition, according to the R-square values of the other two models, they fit the data as well.

In the first model, we can see that the coefficient of diplomatic visits of Chinese leaders is 0.028. It indicates that a diplomatic visit of Chinese leaders is associated with larger export flows by about 2.8 per cent ($=\exp[0.028] - 1$), holding other things constant. Also, the significance level is 0.01. After applying a three-year and five-year time lag, one diplomatic visit of Chinese leaders is associated with higher exports by about 4.1 per cent and 3.8 per cent respectively. Therefore, it can be stated that an increase in diplomatic visits of Chinese leaders leads to an increase in China's trade flows. However, there is no significant relationship between state visits of Chinese Presidents and China's export flows in all three models. In the meantime, the regression results also show the relationship between control variables and dependent variables. GDP and population of China and its trading partners, the differences in GDP per capita between China and its trading partners, and whether a member of WTO or APEC are all positively correlated with China's export flows. Whereas the geographic distance between China and its trading partners is negatively correlated with China's

export flows. And whether one country shares a common land border with China does not have a significant relationship with China's export flows.

Dependent \ Independent	Two-year		Three-year		Five-year	
	(1) Ln(Exp _{cjt})	(2) Ln(Exp _{cjt})	(1) Ln(Exp _{cjt})	(2) Ln(Exp _{cjt})	(1) Ln(Exp _{cjt})	(2) Ln(Exp _{cjt})
Diplomatic visits	0.028*** (0.011)		0.041*** (0.012)		0.038*** (0.011)	
State visits		0.026 (0.039)		0.104 (0.134)		0.033 (0.041)
Ln(GDP_{ct}GDP_{jt})	0.718*** (0.011)	0.722*** (0.011)	0.761*** (0.012)	0.768*** (0.012)	0.762*** (0.011)	0.766*** (0.011)
LnD_{cj}	-0.458*** (0.177)	-0.455*** (0.176)	-0.431** (0.176)	-0.427** (0.175)	-0.430** (0.176)	-0.428** (0.175)
Ln(N_{ct}N_{jt})	0.163*** (0.042)	0.159*** (0.041)	0.131*** (0.041)	0.127*** (0.041)	0.130*** (0.041)	0.126*** (0.041)
Ln(I_{cjt})	0.051*** (0.012)	0.050*** (0.012)	0.054*** (0.013)	0.052*** (0.013)	0.052*** (0.013)	0.050*** (0.012)
Member	0.519*** (0.171)	0.520*** (0.170)	0.498*** (0.170)	0.498*** (0.169)	0.487*** (0.169)	0.486*** (0.169)
Border	0.115 (0.342)	0.119 (0.340)	0.191 (0.341)	0.199 (0.339)	0.194 (0.340)	0.199 (0.339)
Constant	-20.749*** (2.128)	-20.868*** (2.116)	-22.186*** (2.119)	-22.408*** (2.109)	-22.215*** (2.121)	-22.406*** (2.112)
Observations	2625	2625	2625	2625	2625	2625
R-Square	0.8267	0.8266	0.8301	0.8298	0.8300	0.8298

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 8: Regression results

Overall, according to the results of the analysis, it is clear that diplomatic visits of Chinese leaders have a positive effect on China's export flows, while there is no significant relationship between state visits of Chinese Presidents and China's export flows. Hence, the first hypothesis formulated in Chapter 2 is empirically proved to be correct, while the second one is invalid. Additionally, the results show the relationship between the control variables and dependent variable. The effects of GDP, geographic distance, population, and whether a member of the WTO/APEC on China's export flows are in line with the expectations. The difference in GDP per capita is positively correlated with China's exports, which runs contrary to previous expectation. Also, whether China

and its trading partners share a common land border has no significant impact on China's export flows.

5. Conclusion

To conclude the research, the final chapter intends to answer all sub-research questions, and the main research question stated in Chapter 1. Firstly, it will give the answers to the three sub-questions and address the results of the analysis. Then, the central research question will be answered. Furthermore, it will also discuss the limitations of this research. Finally, it will try to show the implications for future research, as well as the policy implications of the results.

5.1 Answers to the sub-questions and main research question

In order to answer the main research question, this research raised three sub-questions. The first sub-question focused on the existing knowledge on the effects of diplomatic visits on international trade. In Chapter 2, the answer to this question was widely discussed. The literature review concentrated on two main vectors related to this topic: the effects of diplomatic and non-diplomatic representations, and the effects of the alleged high-level diplomacy. Among the existing research related to this topic, plenty of studies have found a positive relationship between diplomatic visits and international trade in both developed and developing countries (e.g. Nitsch, 2007; Yeo & Lee, 2009; Vieira, 2014; Kunychka & Raneta, 2016; Lin, Yan, & Wang, 2017). However, there is still some research reaching the conclusions that no significant results have been found in specific countries (e.g. Head & Ries, 2010; Davis & Meunier, 2011; Adit & Gassebner, 2010). Moreover, China's strategies in economic diplomacy were introduced to show the theoretical importance of diplomatic visits for its trade. Based on the results of existing research, the data of diplomatic visits of Chinese leaders, state visits of Chinese Presidents, and China's export flows have been analysed. In this way, the hypotheses were formulated, and the conceptual model was constructed.

The second sub-question was concerned with the choice of an appropriate research design and the operationalisation of the variables. Chapter 3 was devoted to answering this question. After a detailed evaluation, a panel-data research design was selected, and the gravity model of trade was applied to deal with the data. Additionally, the sample of this research was decided to cover 175 countries and a time span of 15 years. At the end of the chapter, the operationalisation of dependent, independent and control variables was stated. In order to operationalise the variables, data from the

UN, the Ministry of Foreign Affairs of the People's Republic of China, the State Council of the People's Republic of China, the World Bank, French Institute for Research on the International Economy, WTO, and APEC were used.

The third sub-question was related to the analysis of the models and their results. In order to carry out the regression analysis, Chapter 4 firstly conducted descriptive statistical analysis to verify the data distributions. Then, after evaluating each assumption, a Random Effects model was selected. The model was operated in STATA. By analysing the statistical results, the first hypothesis was proved to be correct, while the second hypothesis was invalid. It also found that the relationship of most control variables and the dependent variable was in line with the expectations.

Based on these findings, the research will try to answer the central research question:

How do diplomatic visits of Chinese leaders affect China's export flows to its trading partners?

After performing the results of the analysis, it becomes clear that the diplomatic visits of Chinese leaders are positively associated with China's export flows. In addition, no significant results have been found related to the state visits of Chinese leaders and China's trade flows.

5.2 Limitations of the research

This research has considered multiple factors to try to reduce its limitations. However, it is not possible to eliminate them all. Hence, this section will attempt to explain the shortcomings of this research. Firstly, according to the research by Lebovic and Saunders (2016), US Presidents tend to visit its trading partners more. As a result, it is uncertain that whether a diplomatic visit leads to an increase in export flows or more trade cooperation leads to a diplomatic visit. In this research, in order to test the effects of diplomatic visits of Chinese leaders on its export flows, it might be more rigorous to explore the determinants and motivations of diplomatic visits by Chinese leaders. Secondly, the data of diplomatic visits of Chinese leaders and state visits of Chinese Presidents were collected by artificial statistics according to the news on the official website of the Ministry of Foreign Affairs of China and the State Council. Due to the lack of an official database related to the data, it is therefore difficult to show the accuracy of the data by official recognition. Thirdly, as mentioned above, to ensure the integrity and consistency of data, the data of each variable from selected countries needs to be available throughout the entire time span. In this way, some countries were omitted from the

research. For example, the Democratic People's Republic of Korea was excluded from the sample, because the data of its GDP are unavailable from the selected indicator database, the World Development Indicator Database of the World Bank. Whether this will influence the results of the research is impossible to know at present. Fourthly, the external validity of this research is relatively weak. Because it mainly focuses on China. The results of this research cannot be directly generalised to other countries. In the meantime, however, China is one of the representatives of rising powers. The results of this research related to China can contribute to the studies on emerging economic powers.

5.3 Research implications

This research and its results could bring some implications for the research in the future. Firstly, a positive result was found. More specifically, this research comes to the conclusion that diplomatic visits of Chinese leaders are positively correlated with its export flows. It means the positive result of this research can add to the existing research related to the relationship between diplomatic visits and international trade in specific countries. Also, this research provides one piece of contribution to the studies on the effects of political factors on international trade.

In addition, as one of the representatives of rising powers, the research on China is of significance. On the one hand, it provides more information about China for the rest of the world, as well as a new perspective to learn more about rising powers. This could lead to further research. On the other hand, it could provide a piece of evidence for more research in the future concerning rising powers, such as Brazil, India, Saudi Arabia, *etc.* Studies related to rising powers are still limited, especially compared with those focusing on the developed countries. Therefore, more encouragements have been given for further research.

Moreover, international trade refers to the exchanges of goods and services between countries. This research only focuses on the exports of goods. It would be interesting to dig the relationship between diplomatic visits and other aspects of international trade. Also, the independent variable of this research is the diplomatic visits paid by Chinese leaders. Whether diplomatic visits paid by other countries to China would bring impacts on China's trade remains to be answered. Also, whether diplomatic visits paid by Chinese leaders would influence the exports of China's trading partner are

also worthy of being studied.

Additionally, this research also found that state visits of Chinese Presidents do not have any significant correlation with China's trade flows. However, this result is not in line with previous research (Nitsch, 2007; Yeo & Lee, 2009; Kunychka & Raneta, 2017; Lin, Yan, & Wang, 2017). A preliminary reason for this result is that the number of state visits of Chinese Presidents is minimal. There are 2625 observations in this research, while Chinese Presidents have only paid 123 state visits to its trading partners from 2002 to 2016. Therefore, more research on the relationship between state visits of Chinese Presidents and China's export flows could be conducted by covering a larger time span, which may correspondingly covering more state visits.

Furthermore, as stated in Table 2, there are other various control variables besides those in this research which have been tested to have impacts on exports. Hence, further study could contain more control variables in the model to eliminate the effects of other factors on trade.

5.4 Policy implications

Besides the implications for more research in the future, the results of this research can also provide some implications for policies. As diplomatic visits of Chinese leaders has been found to be positively correlated with China's export flows, it is clear that more diplomatic visits paid by Chinese leaders would bring benefits to its trade. Therefore, it is a wise idea to reasonably increase diplomatic visits of Chinese leaders, especially to the countries with more trade potential.

In addition, it can be seen from the models that the geographic distance between China and its trading partners is negatively correlated with trade. Because longer distance would increase transport costs. Although it is impossible to change the distance between two countries, more measures are capable to be taken to reduce the transport costs. One of the most important measures is to enhance the cooperation in logistics between the two countries. During diplomatic visits, more attention should be paid to coordinate the logistic network between the two countries in order to lower the transport costs. Moreover, the models show that if a country is a member of WTO or APEC, more exports of China will be found. International organisations could provide platforms for more cooperation between countries, and bring benefits to international trade. More broadly, regional organisations are also important to trade. Therefore, it is possible for the Chinese government to seek

more opportunities in the regional organisations.

References

- Afman, E., & Maurel, M. (2010). Diplomatic relations and trade reorientation in transition countries. In Bergeijk, P., & Brakman, S. (eds). *The Gravity Model in International Trade: Advances and Applications* (pp. 278–295). Cambridge: Cambridge University Press.
- Alm, L.R., & Mason, S.G. (2008). Linear Correlation and Regression. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 427-453). Boca Raton, London, New York: CRC Press.
- Belt and Road Portal. (2019). *Big data analysis*. Retrieved June 1, 2019, from https://www.yidaiyilu.gov.cn/info/iList.jsp?tm_id=513
- Bergeijk, P. (2010). *On the brink of deglobalization: An alternative perspective on the causes of the world trade collapse*. Cheltenham, U.K.: Edward Elgar.
- Bergeijk, P., & Brakman, S. (2010). *The gravity model in international trade: Advances and applications*. Cambridge: Cambridge University Press.
- Borenstein, M., Hedegs, L.V., Higgins, P.T., & Rothstein, H.R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods*, 1, 97-111. doi: 10.1002/jrsm.12
- Bryman, A., & Bell, E. (2011). *Business Research Methods (3rd ed.)*. Oxford: Oxford University Press.
- Chaney, T. (2018). The gravity equation in international trade: An explanation. *Journal of Political Economy*, 126(1), 150-177. doi:10.1086/694292
- Chavda, K. (2008). Introduction to Data Analysis. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 343-360). Boca Raton, London, New York: CRC Press.
- Cheng, J. (2013). China's regional strategy and challenges in East Asia. *China Perspectives*, 2, 53-65. Retrieved from <https://journals.openedition.org/chinaperspectives/6182?file=1>
- Cirincione, C. (2008). Analysis of Variance. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 405-426). Boca Raton, London, New York: CRC Press.
- Cronbach, L.J., & Meehl, P.E. (1955). Construct validity in psychological test. *Psychological Bulletin*,

- 52(4), 281-302. doi:10.1037/h0040957
- Daintith, J., & Oxford University Press. (2009). *A dictionary of physics (6th ed.)*. Oxford: Oxford University Press.
- Davis, C., & Meunier, S. (2011). Business as usual? economic responses to political tensions. *American Journal of Political Science*, 55(3), 628-646. doi:10.1111/j.1540-5907.2010.00507.x
- Der Bundespräsident. (2019). *State visit, role in the international arena*. Retrieved June 1, 2019, from <http://www.bundespraesident.de/EN/Role-and-Functions/RoleInTheInternationalArena/StateVisits/state-visits.html>
- Eom, T.H., Lee, S.H., & Xu, H. (2008). Introduction to Panel Data Analysis: Concepts and Practices. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 575-594). Boca Raton, London, New York: CRC Press.
- Ewing, G.O. (1974). Gravity and linear regression models of spatial interaction: a cautionary note. *Economic Geography*, 50(1), 83-88. doi: 10.2307/143008
- Franses, P., & Paap, R. (2001). *Quantitative models in marketing research*. Cambridge: Cambridge University Press.
- Garnaut, R., & Song, L. (2012). *China : New engine of world growth*. Acton, A.C.T.: ANU E Press. doi:10.26530/OAPEN_459889
- Ge, J., & Hu, A. (2018). *China's belt and road initiatives : Economic geography reformation* (W. Liu, Ed.). Singapore: Springer. doi:10.1007/978-981-13-0101-8
- Gil, S., Llorca, R., & Serrano, J. (2008). Measuring the impact of regional export promotion: the Spanish case. *Papers in regional science*, 87(1), 139-146. doi:10.1111/j.1435-5957.2007.00155.x
- Graddy, E.A. & Wang, L. (2008). Multivariate Regression Analysis. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 457-488). Boca Raton, London, New York: CRC Press.
- Head, K., & Ries, J. (2010). *Do trade missions increase trade? (Cepr discussion paper, no. 7609)*. London: Centre for Economic Policy Research.
- International Monetary Fund. (2019a). *World Economic Outlook Database*. Retrieved June 1, 2019, from <https://www.imf.org/external/pubs/ft/weo/2019/01/weodata/weoselgr.aspx>

- International Monetary Fund. (2019b). *IMF DataMapper*. Retrieved June 1, 2019, from <https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEOWORLD/CHN?year=2019>
- International Trade Administration. (2019). *Free Trade Agreements*. Retrieved June 1,2019, from <https://www.trade.gov/fta/>
- Jiang, R. (2009). The opportunities and challenges of China's economic diplomacy. *Foreign Affairs Review*, 26(5), 40-55. Retrieved from <http://www.cnki.com.cn/Article/CJFDTotal-WJXY200905009.htm>
- Jiang, W. (2006). China makes "great leaps outward" in regional diplomacy. *International Journal*, 61(2), 329-340. Retrieved from <https://heinonline-org.eur.idm.oclc.org/HOL/Page?handle=hein.journals/intj61&id=337&collection=journals&index=>
- Justice, J.B. (2008). Purpose and Significance of Research Design. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 75-92). Boca Raton, London, New York: CRC Press.
- Kuiper, M., & Van Tongeren, F. (2005). *Growing together or growing apart? : A village level study of the impact of the Doha round on rural China (Policy research working paper, 3696)*. Washington, D.C.: World Bank, Development Research Group, Trade Team. Retrieved from <https://openknowledge.worldbank.org/handle/10986/8595>
- Kunychka, M., & Raneta, L. (2016). Do state visits affect research and development after crisis in selected countries? *World Economy and International Economic Relations*, 160(7-8), 24-26. Retrieved from <https://doi.org/10.21003/ea.V160-04>
- LaFleur, R. (2003). *China : A global studies handbook (Global studies. Asia)*. Santa Barbara, Calif.: ABC-CLIO.
- Landale, J. (2017). The politics behind the pomp of state visits. *BBC news*. Retrieved from <https://www.bbc.com/news/uk-38808647>
- Lebovic, J.H., & Saunders, E.N. (2016). The diplomatic core: the determinants of high-level US diplomatic visits, 1946–2010. *International Studies Quarterly*, 60(1), 107-123. Retrieved from <https://doi.org/10.1093/isq/sqv008>

- Lederman, D., Olarreaga, M., & Payton, L. (2006). Export Promotion Agencies: What Works and What Doesn't. World Bank Policy Research Working Paper. *The World Bank*. Retrieved from <http://federation.ens.fr/ydepot/semin/texte0809/OLA2008EXP.pdf>
- Li, C., Guo, Z., & He, C. (2018). Analysis of FTA's potential economic effects on China. *China Economist*, 6, 49-61. Retrieved from <http://www.cqvip.com/QK/89849X/20186/7000900013.html>
- Li, W. (2018). China's economic diplomacy since its reform and opening-up. *The Contemporary World*, 439(06), 24-28. doi:CNKI:SUN:JSDD.0.2018-06-007
- Lin, F., Yan, W., & Wang, X. (2017). The impact of Africa-China diplomatic visits on bilateral trade. *Scottish Journal of Political Economy*, 64(3), 310-325. doi:10.1111/sjpe.12128
- Linder, S.B. (1961). An essay on trade and transformation. *Journal of Political Economy*, 1, 171-172. Retrieved from <http://www.jstor.org/stable/41796414>
- Linnemann, H. (1966). *An econometric study of international trade flows (Doctoral dissertation, 1966)*. Amsterdam: North-Holland Publishing Company.
- Liu, G., & Li, Z. (2007). Public diplomacy: the fundamental way of realising normalization of relations between China and Japan. *Northeast Asia Security*, 2, 90-94. doi: 10.3969/j.issn.1003-7411.2007.02.017
- Liu, X. (2016). China and its neighbours: a delicate balance. *The National Interest*. Retrieved from <https://nationalinterest.org/feature/china-its-neighbors-delicate-balance-18577>
- Lu, C. (2011). Paths and objectives of China's participation in the reform of the International Financial System in post-financial crisis period. *Around Southeast Asia*, 8, 87-91. doi: 10.3969/j.issn.1003-2479.2011.08.019
- Marrewijk, J., & Bergeijk, P. (1993). Endogenous trade uncertainty why countries may specialise against comparative advantage. *Regional Science and Urban Economics*, 681-694. doi:10.1016/0166-0462(93)90042-D
- Mattoo, A., Ng, F., & Subramanian, A. (2011). The Elephant in the "Green Room": China and the Doha Round. *Peterson Institute for International Economic: Policy Brief*, 11(3), 1-12. Retrieved from <https://www.piie.com/sites/default/files/publications/pb/pb11-03.pdf>
- Ministry of Foreign Affairs, the People's Republic of China. (2019a). *Diplomatic Agenda*. Retrieved

- June 1, 2019, from https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/wsrc_665395/
- Ministry of Foreign Affairs, the People's Republic of China. (2019b). *Opening-up leads to prosperity, and innovation creates the future*. Retrieved June 1, 2019, from https://www.fmprc.gov.cn/web/ziliao_674904/zyjh_674906/t1549414.shtml
- Ministry of Foreign Affairs, the People's Republic of China. (2019c). *China's relationship with the United States*. Retrieved June 1, 2019, from https://www.fmprc.gov.cn/web/gjhq_676201/gj_676203/bmz_679954/1206_680528/sbgx_680532/t25477.shtml
- Ministry of Foreign Affairs, the People's Republic of China. (2019d). *President speech in 2014*. Retrieved June 1, 2019, from <https://www.fmprc.gov.cn/id897657997&67898>
- Mo, C. (2008). Univariate Analysis. In K. Yang & G.J. Miller (Eds.), *Handbook of Research Methods in Public Administration* (pp. 375-383). Boca Raton, London, New York: CRC Press.
- Nitsch, V. (2007). State visits and international trade. *The World Economy*, 30(12), 1797-1816. doi:10.1111/j.1467-9701.2007.01062.x
- Pöyhönen, P. (1963). A tentative model for the volume of trade between countries. *Weltwirtschaftliches Archiv*, 90, 93-100. Retrieved from <https://www-jstor-org.eur.idm.oclc.org/stable/40436776>
- Rose, A. (2007). The foreign service and foreign trade: Embassies as export promotion. *The World Economy*, 30(1), 22-22. doi:10.1111/j.1467-9701.2007.00870.x
- Ruan, C. (2001). China's entry into WTO: from a political point of view. *Jiangnan Tribune*, 4, 60-69. doi: 10.3969/j.issn.1003-854X.2001.04.014
- Saner, R., & Yiu, L. (2003). *International economic diplomacy: Mutations in post-modern times*. *Discussion Papers in Diplomacy No. 84*. The Hague: Netherlands Institute of International Relations 'Clingendael'.
- Steckler, A., & McLeroy, K. (2008). The importance of external validity. *American Journal of Public Health*, 98(1), 9-10. doi: 10.2105/AJPH.2007.126847
- Stewart, J.Q. (1948). Demographic gravitation: Evidence and applications. *Sociometry*, 11(1-2), 31-58. doi:10.2307/2785468
- Tang, Q. (2013). The type and level of diplomatic visits. *Global People*, 28, 55. Retrieved from

- <http://www.cnki.com.cn/Article/CJFDTotal-HQRW201328018.htm>
- The World Bank. (2019a). *GDP (current US\$)(NY.GDP.MKTP.CD)*. Retrieved June 1, 2019, from <https://databank.worldbank.org/reports.aspx?source=world-development-indicators>
- The World Bank. (2019b). *Population, total(SP.POP.TOTL)*. Retrieved June 1, 2019, from <https://databank.worldbank.org/reports.aspx?source=world-development-indicators>
- The World Bank. (2019c). *World Development Indicators*. Retrieved June 1, 2019, from <http://data.worldbank.org/data-catalog/world-development-indicators>
- The World Trade Organisation. (2019a). *What is the WTO?* Retrieved June 1, 2019, from https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm
- The World Trade Organisation. (2019b). *Members and observers?* Retrieved June 1, 2019, from https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm
- Tinbergen, J. (1962). *Shaping the world economy : Suggestions for an international economic policy*. New York: Twentieth Century Fund.
- Trade Map. (2019). *International Trade Centre*. Retrieved June 1, 2019, from <https://www.trademap.org/Index.aspx>
- Vieira, V. R. (2014). Is Politics Behind Trade? The Impact of International Trends and Diplomatic Action on Brazil's Exports during Globalization. *Bulletin of Latin American Research*, 33(2), 140-157. doi: <http://dx.doi.org/10.1111/blar.12105>
- Wang, X., & Tian, X. (2017). Trade creation effects of diplomatic visits: evidence from China. *International Trade Issues*, 6, 15-26. doi:10.13510/j.cnki.jit.2017.06.002
- Wang, Y. (2009). Transition of China's diplomacy and foreign relations. *China and World Economy*, 17(3), 93-101. doi:10.1111/j.1749-124X.2009.01152.x
- World Integrated Trade Solution. (2019). *China Exports by Country and Region 2017*. Retrieved June 1, 2019, from <https://wits.worldbank.org/CountryProfile/en/Country/CHN/Year/LTST/TradeFlow/Export/Partner/all/>
- Yakop, M., & Van, B. (2011). Economic diplomacy, trade and developing countries. *Cambridge Journal of Regions, Economy and Society*, 4(2), 253-267. doi:10.1093/cjres/rsr002
- Yang, J. (2008). China's diplomacy and its theoretical innovation for the three decades since the

- reform and opening up. *International Studies*, 6, 6-11. doi: 10.3969/j.issn.0452-8832.2008.06.002
- Yeo, T., & Lee, M. (2009). Presidential Diplomacy and International Trade: A Case of Korea. *Journal of Korea trade*, 13(4), 1-19. Retrieved from https://www.researchgate.net/publication/296773450_Presidential_Diplomacy_and_International_Trade_A_Case_of_Korea
- Zipf, G.K. (1946). The P1P2/D hypothesis: On the intercity movement of persons. *American Sociological Review*, 11(6), 677-686. doi:10.2307/2087063
- Zhang, L. (2010). *China's economic diplomacy to ASEAN in new times (Doctoral dissertation)*. Shanghai: East China Normal University Press. doi: 10.7666/d.y1743244

Appendix

List of China's trading partners included in the model

Afghanistan	Chile	Guyana
Albania	Colombia	Haiti
Algeria	Comoros	Honduras
Andorra	Congo	Hungary
Angola	Costa Rica	Iceland
Antigua and Barbuda	Côte d'Ivoire	India
Argentina	Croatia	Indonesia
Armenia	Cuba	Iran
Australia	Cyprus	Ireland
Austria	Czechia	Israel
Azerbaijan	Denmark	Italy
Bahamas	Djibouti	Jamaica
Bahrain	Dominica	Japan
Bangladesh	Dominican Rep.	Jordan
Barbados	Ecuador	Kazakhstan
Belarus	Egypt	Kenya
Belgium	El Salvador	Kiribati
Belize	Equatorial Guinea	Kuwait
Benin	Estonia	Kyrgyzstan
Bhutan	Ethiopia	Lao People's Dem. Rep.
Bolivia (Plurinational State of)	Fiji	Latvia
Bosnia Herzegovina	Finland	Lebanon
Botswana	France	Lesotho
Brazil	FS Micronesia	Liberia
Brunei Darussalam	Gabon	Libya
Bulgaria	Gambia	Lithuania
Burkina Faso	Georgia	Luxembourg
Burundi	Germany	Madagascar
Cabo Verde	Ghana	Malawi
Cambodia	Greece	Malaysia
Cameroon	Grenada	Maldives
Canada	Guatemala	Mali
Central African Rep.	Guinea	Malta
Chad	Guinea-Bissau	Marshall Islands

Mauritania	Portugal	Sweden
Mauritius	Qatar	Switzerland
Mexico	Rep. of Korea	Tajikistan
Mongolia	Rep. of Moldova	Thailand
Morocco	Romania	Togo
Mozambique	Russian Federation	Tonga
Myanmar	Rwanda	Trinidad and Tobago
Namibia	Saint Kitts and Nevis	Tunisia
Nepal	Saint Lucia	Turkey
Netherlands	Saint Vincent and the Grenadines	Turkmenistan
New Zealand	Samoa	Tuvalu
Nicaragua	Sao Tome and Principe	Uganda
Niger	Saudi Arabia	Ukraine
Nigeria	Senegal	United Arab Emirates
North Macedonia	Seychelles	United Kingdom
Norway	Sierra Leone	United Rep. of Tanzania
Oman	Singapore	Uruguay
Pakistan	Slovakia	USA
Palau	Slovenia	Uzbekistan
Panama	Solomon Islands	Vanuatu
Papua New Guinea	South Africa	Viet Nam
Paraguay	Spain	Yemen
Peru	Sri Lanka	Zambia
Philippines	Suriname	Zimbabwe
Poland		

Omitted:

Areas, nes	Eritrea	Montserrat
Aruba	Faeroe Islands	Neth. Antilles
Bermuda	Fmr Sudan	New Caledonia
Bonaire	French Polunesia	Norfolk Islands
British Virgin Islands	Gibraltar	Saint Pierre and Miquelon
Cayman Islands	Greenland	San Marino
Cook Islands	Holy See (Vatican City State)	Serbia
Curaçao	Iraq	Serbia and Montenegro
Dem. People's Rep. of Korea	Mayotte	Somalia
Dem. Rep. of Congo	Montenegro	South Sudan

State of Palestine

swaziland

Syria

Timor-Leste

Turks and Caicos Islands

Venezuela

Wallis and Futuna Islands

Western Sahara