Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.
TRADE COST AND ITS IMPACT ON AGRI-FOOD TRADE GROWTH AMONG CHINA, EU AND ASEAN

Submitted by
Fang, Ling
Institute of Agriculture and Environment

In partial fulfilment of the requirement for the degree of
Master of AgriCommerce
Massey University
Palmerstone North, New Zealand
September 2017

Supervisor: Dr. Shamim Shakur
ACKNOWLEDGEMENT

I would first like to thank my thesis supervisor Shamim Shakur of School of Economics and Finance at Massey University. The door to Dr. Shakur’s office was always open whenever I had a question about my research. He consistently allowed this paper to be my own work, but steered me in the right direction whenever he thought I needed it. Particularly, I would like to appreciate his understanding and support during the period that I was facing challenges from both study and life. Without his trust and help, I probably would struggle alone for a longer time and could not finish my study as I expected.

I would also like to thank Dr Thanh Ngo of School of Aviation, who kindly provided help anytime I needed. For many times, I dropped by his office and asked for advice about econometrics. He was always patient and made me feel welcomed.

Besides, my sincere thanks go to Jamie Hooper, Logan Tate, and the whole crew of International Student Support Office of Massey, and the New Zealand Aid Program. Their diligent work supported me all along during the time I stayed in New Zealand.

Last but not the least; I would like to thank my parents and my friends for supporting me spiritually throughout writing this thesis and my life in general. There is an end of my research while our love and support lasts forever.
ABSTRACT

Trade cost is broadly defined to include all costs incurred in getting a good to a final user other than the marginal cost of producing the good itself. According to Anderson and van Wincoop (2003), a rough estimate of the tax equivalent trade costs for industrialized countries is 170 percent. While compared to industrial products, agricultural goods suffer more from trade cost due to its low value to volume ratio and perishable characteristic as well as high protection in both developed and developing economies.

By using the trade cost index developed by Dennis Novy (2013), this study examines the trade costs and its relationship with trade growth among China, EU, and ASEAN in agricultural sector. The results indicate that first, although the bilateral agricultural trade among these three economies have been growing steadily over last fifteen years, their trade costs are still high. In particular, the average trade cost between China and EU is about 633 percent tax equivalent. Secondly, economic growth is still the key driver of trade expansion. The contribution of trade cost reduction varies among trading pairs. In the case of China & ASEAN and EU & ASEAN, its impact is limited. But, in the case of China and EU, it contributes over half of the overall trade growth. Combined with the fact that China now has converted from a net exporter to a net importer of EU’s agricultural products, a further trade liberalization between these two could possibly increase bilateral trade significantly. Thirdly, the reduction of multilateral trade barriers diverts large amount of bilateral trade. The trade diversion effect of regional trade agreement is one possible reason. Finally, compared to distance, which is a static number, the trade cost index has a better explanatory power. It is time sensitive, more comprehensive, and not hard to compute.
List of Figures

Figure 1: The Share of Agricultural Products Export in Global Total Export

Figure 2: The Bilateral Agricultural Trade between EU and China during 2001 and 2015

Figure 3: The Bilateral Agricultural Trade between China and ASEAN during 2001 and 2015

Figure 4: The Bilateral Agricultural Trade between EU and ASEAN-5 during 2001 and 2015

Figure 5: The Bilateral Agri-Product Trade Between China &EU, China & ASEAN and EU&ASEAN

Figure 6: Total Trade VS. Trade cost (China-EU, 2001-2015)

Figure 7: Total Trade VS. Trade cost (China-ASEAN, 2001-2015)

Figure 8: Total Trade VS. Trade cost (EU-ASEAN, 2001-2015)

Figure 9: Contributions of bilateral trade growth between China and EU

Figure 10: Contributions of bilateral trade growth between China and ASEAN

Figure 11: Contributions of bilateral trade growth between EU and ASEAN
List of Tables

Table 1: Export and Import of Agricultural Products of China (in Thousands of dollars $)

Table 2: The Expected Signs of Gravity Model

Table 3: The Bilateral Agricultural Product Trade Cost Index among Three Trading Partners

Table 4: The Comparison between Yu Miaozhi’s Study and Mine

Table 5: Comparison of The Intra-National Trade Value of China’s Agricultural Product in Two Papers

Table 6: The Intra-National Trade & The International Trade of Agricultural Product

Table 7: Regression Results for Eq. (9)

Table 8: Regression Results for Eq. (10)

Table 9: Contributions of bilateral trade growth among China & EU, China & ASEAN, EU & ASEAN

Table 10: Distance as Trade Cost Proxy

Table 11: Trade Cost Index as Trade Cost Proxy
# Contents

Contents ................................................................................................................................................. 1

Chapter 1: Introduction ........................................................................................................................... 3

1.1 Objectives ..................................................................................................................................... 4

1.2 Motivations ................................................................................................................................... 4

1.3 Structure ........................................................................................................................................ 5

Chapter 2: China, EU and ASEAN and their agricultural trade balances .............................................. 6

2.1 Global Agricultural Trade Performance .......................................................................................... 6

2.2 China’s Agricultural Trade Performance ....................................................................................... 9

2.3 EU’s Agricultural Trade Performance .......................................................................................... 10

2.4 ASEAN’s Agricultural Trade Performance ................................................................................... 11

2.5 The bilateral agricultural product trade among China, EU and ASEAN ......................................... 12

2.5.1 China and EU ............................................................................................................................... 12

2.5.2 China and ASEAN-5 .................................................................................................................... 14

2.5.3 EU and ASEAN-5 ........................................................................................................................ 15

Chapter 3: Literature Review ................................................................................................................ 17

3.1 Empirical Studies of Trade Cost ..................................................................................................... 17

3.1.1 Trade Cost Matters ......................................................................................................................... 18

3.1.2 The Trade Cost Factors ................................................................................................................ 19

3.2 Gravity Model in Agriculture Trade ............................................................................................. 23

3.3 The Measurements of Trade Costs ............................................................................................... 24

  Direct approach: ................................................................................................................................. 24

  Indirect Approach ............................................................................................................................... 25

3.4 Summary ..................................................................................................................................... 28

Chapter 4: Methodology ....................................................................................................................... 29

4.1 Trade Cost Index ............................................................................................................................. 29

4.2 The Specification of Gravity Model ............................................................................................... 33

4.3 The Decomposition of Trade Growth ............................................................................................. 34

4.4 Summary ..................................................................................................................................... 36

Chapter 5: Data Analysis and Results ................................................................................................... 37

5.1 Trade Cost Index ............................................................................................................................ 37
5.2 The intra-national trade VS. international trade ......................................................... 43
5.3 The impact of trade cost via the traditional gravity model approach ......................... 44
5.4 Summary ...................................................................................................................... 51

Chapter 6: Conclusion and Recommendations ..................................................................... 53
6.1 Main Findings ................................................................................................................ 53
   6.1.1 Main Findings on agricultural trade balance ......................................................... 53
   6.1.2 Main findings on trade costs .................................................................................. 54
   6.1.3 Main findings on trade growth .............................................................................. 55
6.2 Contribution to the Literature by This Research ........................................................ 56
6.3 Limitations of This Research ...................................................................................... 57
6.4 Directions for Future Research .................................................................................. 57

Reference ........................................................................................................................... 59

Appendices .......................................................................................................................... 64
   A.1 Production Description of HS 2-digit product categories chosen for this research ........ 64
   A.2 Product shares of bilateral trade between EU and China (2001 & 2015) ..................... 66
   A.3 Product shares of bilateral trade between China and ASEAN-5(2001 & 2015) ........... 68
   A.4 Product shares of bilateral trade between EU and ASEAN-5 (2001 & 2015) ............. 70
   A.5 Intra-National Trade of European Union’s agricultural product ............................... 72
   A.6 Intra-National Trade of China’s Agricultural Product ................................................ 72
   A.7 Intra-National Trade of ASEAN’s Agricultural Product ............................................ 73
   A.8 Listed below are the Trade Cost Index between China & EU (a), China & ASEAN (b), and EU & ASEAN (c) ......................................................................................... 74
      (a) Trade Cost Measure between China and EU .......................................................... 74
      (b) Trade Cost Measure between China and ASEAN ................................................ 75
      (c) Trade Cost Measure between EU and ASEAN ..................................................... 76
   A.9 Listed below are the decompositions of bilateral trade growth .................................. 77
      (a) China and EU ........................................................................................................ 77
      (b) China and ASEAN ............................................................................................... 78
      (c) EU & ASEAN ..................................................................................................... 79
   A.10 The Robust Test Results based on equation (9) and (10) ......................................... 80