WTO and E-commerce Diffusion in Developing Countries: The Case of China’s Coastal Urban Area

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DECLARATION

I certify that this thesis is my own original work. It does not contain any material previously published or written by another person where due reference is not made in the text.

Wei Guo
ACKNOWLEDGEMENTS

Many people contributed to this thesis in innumerable ways, and I am grateful to all of them.

First and foremost, I would like to express my sincere gratitude to my principal supervisor Dr. Dennis Hart, associate supervisor Prof. Shirley Gregor, and advisor Prof. Eugene Clark for their indispensable guidance, feedback and encouragement. Without their generous support, this thesis would not have been possible.

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I am appreciative to my fellow postgraduate students from University House at the Australian National University and other friends for making my PhD a more enjoyable experience.

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Thank you all!
ABSTRACT

The increasing use of Internet and the potential of e-commerce give rise to important policy issues relating to both national economic policy and multilateral rules of international trade. Motivated by the argument that the liberalization commitments made at the World Trade Organization (WTO) may have a major impact on the e-commerce development, this research aims to investigate the relationship between WTO commitments and e-commerce diffusion in developing countries by using China’s coastal urban area as a case study.

Taking critical realism as the underlying philosophy, the research develops two process models to answer the research questions. The model at the lower level focuses on the single process of how the WTO commitments can affect an individual infrastructural sector related to e-commerce. It was developed by analyzing the four most important e-commerce input sectors: telecommunications, banking, logistics and express delivery, and information technology (IT). The model at the higher level is a network combining the processes at the lower level, examining the overall effects of WTO commitments on e-commerce diffusion. Nine propositions were made from the higher-level model.

Conclusions are drawn from outcomes in verifying these propositions. The WTO commitments are found to have indirect effects on liberalization in telecommunications, banking, and logistics and express delivery services. Improvements in these sectors have made information infrastructure and commercial services less important barriers to e-commerce than other issues. In addition, the WTO commitments have directly boosted Chinese enterprises’ interest in e-commerce adoption and positively affected the taxation policy on e-commerce. All these have positively influenced e-commerce diffusion in China, while the effects of the WTO commitments on IT product imports, computer and related services, intellectual property rights (IPRs) protection, and educational services have not been evident.
This research is the first study to use a specific case to examine the WTO rules in the context of e-commerce diffusion. It has implications for both research and practice. First, by examining the interactions between the external pressure from multilateral agreements and internal forces of domestic institutions, the research investigates the actual process of how the impacts of the WTO rules can be materialized. Second, the thesis confirms the argument that while the socio-economic challenges to e-commerce are difficult to surmount, the path to reducing regulatory barriers is clearer and the benefits quicker to observe. Government action is critical to removing these impediments to electronic commerce.
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LIST OF ABBREVIATIONS

3G: third generation
3PL: third party logistics
ABC: The Agricultural Bank of China
ADBC: The Agricultural Development Bank of China
ADFA: The Australian Defense Force Academy
ADSL: asymmetric digital subscriber line
AN: access network
ANU: The Australian National University
APA-FT: Australian Public Affairs – Full Text
AQSIQ: The General Administration for Quality Supervision Inspection and Quarantine (of China)
ARPU: average revenue per user
ATM: automatic teller machine
B2B: business-to-business
B2C: business-to-consumer
B/L: bill of lading
BOC: The Bank of China
BOCOM: The Bank of Communications (of China)
CA: certificate authorization
CAAC: The Civil Aviation Administration of China
CAE: China Air Express
CATV: cable television
CBRC: The China Banking Regulatory Commission
CCB: China Construction Bank
CCF: Chinese-Chinese-foreign
CD: compact disc
CDB: China Development Bank
CDMA: code division multiple access
CMB: China Merchants Bank
CNNIC: The China Internet Network Information Center
COSCO: China Ocean Shipping Corporation
CRE: China Rail Express
CRM: customer relationship management
DSB: The Dispute Settlement Body
DSU: The Understanding on the Dispute Settlement
EJV: equity joint venture
EMS: express mail service
ERP: enterprise resources planning
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>EU</td>
<td>The European Union</td>
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<tr>
<td>FDI</td>
<td>foreign direct investments</td>
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<td>FIE</td>
<td>foreign investment enterprise</td>
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<td>FITIE</td>
<td>foreign-invested telecommunications enterprise</td>
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<tr>
<td>GAO</td>
<td>(The United States) General Accounting Office</td>
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<td>GATS</td>
<td>The General Agreement on Trade in Services</td>
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<td>GATT</td>
<td>The General Agreement on Tariffs and Trade</td>
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<td>GDB</td>
<td>Guangdong Development Bank</td>
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<td>GDP</td>
<td>gross domestic product</td>
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<td>GPRS</td>
<td>general packet radio service</td>
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<td>GSM</td>
<td>global system for mobile communications</td>
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<td>HP</td>
<td>Hewlett-Packard</td>
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<tr>
<td>HREC</td>
<td>The Human Research Ethics Committee</td>
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<tr>
<td>HS Code</td>
<td>Harmonized System Code</td>
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<tr>
<td>IBSS</td>
<td>International Bibliography of Social Sciences</td>
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<td>IC</td>
<td>integrated circuit</td>
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<td>ICBC</td>
<td>The Industrial and Commercial Bank of China</td>
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<td>ICT</td>
<td>information and telecommunications technology</td>
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<td>IDC</td>
<td>International Data Corporation</td>
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<td>IDN</td>
<td>Internet domain name</td>
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<tr>
<td>ILO</td>
<td>The International Labor Organization</td>
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<tr>
<td>IN</td>
<td>interconnecting network</td>
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<td>IP</td>
<td>Internet protocol</td>
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<td>IPR</td>
<td>intellectual property right</td>
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<td>IS</td>
<td>information system</td>
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<td>ISDN</td>
<td>integrated services digital network</td>
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<td>ISP</td>
<td>Internet service provider</td>
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<td>IT</td>
<td>information technology</td>
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<td>ITA</td>
<td>The Information Technology Agreement</td>
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<td>ITU</td>
<td>The International Telecommunication Union</td>
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<td>JV</td>
<td>joint venture</td>
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<td>LAN</td>
<td>local area network</td>
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<td>L/C</td>
<td>letter of credit</td>
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<td>MEI</td>
<td>The Ministry of Electronics Industry (of China)</td>
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<td>MEP</td>
<td>The Ministry of Electrical Power (of China)</td>
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<td>MFN</td>
<td>most favored nation</td>
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<td>MII</td>
<td>The Ministry of Information Industry (of China)</td>
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<td>MOC</td>
<td>The Ministry of Communications (of China)</td>
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<td>MOFCOM</td>
<td>The Ministry of Commerce (of China)</td>
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<td>MOFTEC</td>
<td>The Ministry of Foreign Trade and Economic Cooperation (of China)</td>
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<td>MOR</td>
<td>The Ministry of Railways (of China)</td>
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<td>MPT</td>
<td>The Ministry of Post and Telecommunications (of China)</td>
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<td>NCD</td>
<td>(The United States) National Council on Disability</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<td>NPL</td>
<td>non-performing loan</td>
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<td>NSP</td>
<td>network service provider</td>
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<td>OCS</td>
<td>Overseas Courier Service (of Japan)</td>
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<tr>
<td>OECD</td>
<td>The Organization for Economic Cooperation and Development</td>
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<td>PBC</td>
<td>The People’s Bank of China</td>
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<tr>
<td>PC</td>
<td>personal computer</td>
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<tr>
<td>PHS</td>
<td>personal handy phone system</td>
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<td>POS</td>
<td>points of sale</td>
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<td>PTO</td>
<td>public telecommunications office</td>
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<td>PTTNS</td>
<td>public telecommunications transport networks and services</td>
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<tr>
<td>R&amp;D</td>
<td>research and development</td>
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<tr>
<td>RMB</td>
<td>Renminbi (Chinese currency, or yuan)</td>
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<td>SAFE</td>
<td>The State Administration of Foreign Exchange (of China)</td>
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<td>SARS</td>
<td>The Severe Acute Respiratory Syndrome</td>
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<td>SCM</td>
<td>supply chain management</td>
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<td>SDB</td>
<td>Shenzhen Development Bank</td>
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<td>SEZ</td>
<td>special economic zone</td>
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<td>SIC</td>
<td>(China) State Information Centre</td>
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<tr>
<td>Sinotrans</td>
<td>China National Foreign Trade Transportation Corporation</td>
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<tr>
<td>SME</td>
<td>small- and medium-sized enterprise</td>
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<tr>
<td>SOE</td>
<td>state-owned enterprise</td>
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<tr>
<td>TPRM</td>
<td>The Trade Policy Review Mechanism</td>
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<td>TRIPS</td>
<td>The Agreement on Trade-Related Intellectual Property Rights</td>
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<tr>
<td>UNCTAD</td>
<td>The United Nations Conference on Trade and Development</td>
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<tr>
<td>USAID</td>
<td>The United States Agency for International Development</td>
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<tr>
<td>USDOC</td>
<td>The United States Department of Commerce</td>
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<tr>
<td>USITC</td>
<td>The United States International Trade Commission</td>
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<tr>
<td>USTR</td>
<td>The United States Trade Representative</td>
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<tr>
<td>VAT</td>
<td>value-added tax</td>
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<td>VIP</td>
<td>very important person</td>
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<td>VoIP</td>
<td>Voice over Internet Protocol</td>
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<td>VSAT</td>
<td>very small aperture terminal</td>
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<tr>
<td>WAP</td>
<td>wireless application protocol</td>
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<tr>
<td>WIPO</td>
<td>The World Intellectual Property Organization</td>
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<tr>
<td>WOFE</td>
<td>wholly-owned foreign enterprise</td>
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<td>WTO</td>
<td>The World Trade Organization</td>
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<td>Description</td>
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