URBAN SERVICES GROWTH:
INFLUENCING FACTORS AND ITS EFFECT ON
REGIONAL GROWTH IN CHINA

GAO YUAN

DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
April, 2015
URBAN SERVICES GROWTH:
INFLUENCING FACTORS AND ITS EFFECT ON REGIONAL
GROWTH IN CHINA

By
GAO YUAN

Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy
CERTIFICATION OF THESIS WORK

I declare this thesis is my own account of my research and contains work which has not previously submitted for a degree at any tertiary education institution.
PERMISSION TO USE

In presenting this thesis in fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my thesis. It is understood that any copying or publication or use of this thesis or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my thesis.

Request for permission to copy or to make other use of materials in this thesis in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
ABSTRACT

Urban economic success depends on the growth of its services and there are various factors influencing urban services growth. However, earlier studies mostly focus on the demand and supply factors. Factors, such as the institutional environment and services spatial agglomeration, although are important in the context of urban services growth in China, are practically less emphasized. Thus, this study analyzed the contributions of demand, supply, institutional environment, and services spatial agglomeration as factors significance for urban services growth, using the hierarchical multiple regression. The Panel Unit Root Test, Panel Co-integration Model and Panel Vector Error Correction Model were used to examine the short-run and long-run effects of urban services growth on regional economic growth in China. The findings of the present study show that the demand, supply and services spatial agglomeration contributed significantly to urban services growth. However, the institutional environment had relatively smaller contributions, compared to other factors. The Error Correction Model indicated a short-run relationship, while the Panel Co-integration Model revealed the existence of a long-run relationship between urban services growth and regional economic growth in China. In conclusion, the government should implement strategies towards a more balanced urban services growth with specific priority on strategies to expand the demand and supply for urban services, improving residents’ income, to promote urbanization, and deepen division of labor as well as to increase the quality and quantity of factor inputs in urban services. Indeed, future strategies should focus more on measures to promote urban services agglomeration, while improving the urban services marketization and their openness level.

Keywords: demand, supply, institutional environment, services agglomeration, regional growth
ABSTRAK


Kata kunci: permintaan, penawaran, persekitaran institusi, perkelompokan reruang, pertumbuhan wilayah
ACKNOWLEDGEMENT

The journey to complete this doctoral thesis was filled with obstacles and challenges, and at times forced me to evaluate the cost and benefit of completing it. Intense works, travelling needs, the responsibility to raise a family, a suddenly lost of my beloved dad (22/06/2011), were among the obstacles that often marred my pace. Finally, the passion for learning and the desire to complete the long journey prevailed.

First and foremost my deepest gratitude to Lt Kol Professor Dr. Abdul Razak bin Chik, my Supervisor who has been a beacon of light in directing me to the correct path filled with patient guidance, motivation and soothing pressure. Without him, I would have never been able to complete this journey. His dedication and wisdom were inspirational, and I will never be able to thank him enough. Furthermore, my great appreciate to my mother university, Hebei University. Thanks her for providing the opportunity for my overseas study.

To my Mum and late Dad, I thank them for the understanding and support rendered to me for these years of study, thanks for their cares to my son in the absence of my family responsibilities. My thanks to caring husband who always support and encourages me! Thanks to my son, the best gift of my life—it is him that gave me courage to face challenges!

Thank you and God Bless!
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE PAGE</td>
<td>i</td>
</tr>
<tr>
<td>CERTIFICATION OF THESIS</td>
<td>ii</td>
</tr>
<tr>
<td>PERMISSION TO USE</td>
<td>iv</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>vi</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>vii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>viii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xii</td>
</tr>
<tr>
<td>LIST OF APPENDIX</td>
<td>xiii</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xiv</td>
</tr>
</tbody>
</table>

### CHAPTER ONE: INTRODUCTION

1.1 Problem Statement                        | 3    |
1.2 Research Question                        | 5    |
1.3 Research Objective                       | 6    |
1.4 Significance of Research                 | 6    |
1.5 Scope and Limitation of the Study        | 7    |
1.6 Organization of the Study                | 10   |

### CHAPTER TWO: LITERATURE REVIEW

2.1 Concept and Classification of Services   | 11   |
CHAPTER THREE: RESEARCH FRAMEWORK

3.1 Theoretical Framework 85

3.2 Hypotheses Development 87

   3.2.1 Demand Factors and Urban Services Growth 89

   3.2.2 Supply Factors and Urban Services Growth 94

   3.2.3 Institutional Environments and Urban Services Growth 97

   3.2.4 Services’ Agglomeration and Urban Services Growth 100

   3.2.5 Urban Services and Regional Economic Growth 100

3.3 Summary 102

CHAPTER FOUR: DATA AND RESEARCH METHODOLOGY

4.1 Data and Measurement of Variables 103
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Services Quartering Classification Method</td>
<td>14</td>
</tr>
<tr>
<td>2.2 Present Classification of Services in China</td>
<td>15</td>
</tr>
<tr>
<td>2.3 China: Types of Prefecture Level and Above Cities</td>
<td>18</td>
</tr>
<tr>
<td>2.4 Type of Employees with Different Levels of Education</td>
<td>56</td>
</tr>
<tr>
<td>3.1 Research Hypotheses</td>
<td>88</td>
</tr>
<tr>
<td>4.1 Variables for Analysis</td>
<td>112</td>
</tr>
<tr>
<td>4.2 Hierarchical Steps in Multiple Regression</td>
<td>114</td>
</tr>
<tr>
<td>4.3 The Estimation Procedures for Panel Data</td>
<td>119</td>
</tr>
<tr>
<td>5.1 Descriptive Result of Urban Services During 2006-2010</td>
<td>124</td>
</tr>
<tr>
<td>5.2 Summary of Hierarchical Regression Estimations: Model 1- Model 4</td>
<td>134</td>
</tr>
<tr>
<td>5.3 Co-integration Estimation of Model 5</td>
<td>144</td>
</tr>
<tr>
<td>5.4 Result of Error Correction Estimation</td>
<td>146</td>
</tr>
<tr>
<td>5.5 Summary of Research Findings</td>
<td>149</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Map of China</td>
<td>9</td>
</tr>
<tr>
<td>2.1 China: The Structure of Prefecture Level and Above Cities</td>
<td>17</td>
</tr>
<tr>
<td>2.2 Distribution of City Types: 2011</td>
<td>19</td>
</tr>
<tr>
<td>2.3 The Proportion of Urban Sectoral Output Value to Urban GDP</td>
<td>21</td>
</tr>
<tr>
<td>2.4 The Proportions of Urban and National Services to GDP</td>
<td>25</td>
</tr>
<tr>
<td>2.5 Share of Urban Services in National Services</td>
<td>26</td>
</tr>
<tr>
<td>2.6 Structural Changes of Urban Employment: 1990-2010</td>
<td>27</td>
</tr>
<tr>
<td>2.7 Proportion of Physical Capital Investment in Urban Services</td>
<td>29</td>
</tr>
<tr>
<td>2.8 The Proportion of FDI in Urban Services: 1990-2010</td>
<td>30</td>
</tr>
<tr>
<td>2.9 The Proportion of Regional Urban Services to Total Urban GDP</td>
<td>31</td>
</tr>
<tr>
<td>2.10 The ‘Smiling Curve’ of Manufacturing Sectors Basing on Value Chain</td>
<td>48</td>
</tr>
<tr>
<td>3.1 Theoretical Framework</td>
<td>85</td>
</tr>
<tr>
<td>3.2 Division of Labor in Manufacturing Industry and Services Growth</td>
<td>93</td>
</tr>
<tr>
<td>5.1 Outline of Research Finding</td>
<td>123</td>
</tr>
<tr>
<td>5.2 Urban Services Performance</td>
<td>124</td>
</tr>
<tr>
<td>5.3 Regional Distribution of High Performance Urban Services</td>
<td>126</td>
</tr>
<tr>
<td>5.4 Distribution of High Performance Influencing Factors</td>
<td>128</td>
</tr>
<tr>
<td>5.5 Regional Distribution of High Performance Demand Factors</td>
<td>221</td>
</tr>
<tr>
<td>5.6 Regional Distribution of High Performance Supply Factors</td>
<td>222</td>
</tr>
<tr>
<td>5.7 Regional Distribution of High Performance Institutional Factors</td>
<td>223</td>
</tr>
<tr>
<td>5.8 Regional Distribution of High Performance Services Agglomeration</td>
<td>224</td>
</tr>
</tbody>
</table>
# LIST OF APPENDIX

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPENDIX A</td>
<td>Sample of 286 Cities in China: Prefecture Level and Above</td>
<td>204</td>
</tr>
<tr>
<td>APPENDIX B</td>
<td>The Regional Distribution of Five Types of Cities (2011)</td>
<td>206</td>
</tr>
<tr>
<td>APPENDIX C1</td>
<td>Share of Sectoral Output: Prefecture and Above Cities and National (1990-2010)</td>
<td>207</td>
</tr>
<tr>
<td>APPENDIX C2</td>
<td>Labor in the Three Sectors in Prefecture and Above Cities (1990-2010)</td>
<td>208</td>
</tr>
<tr>
<td>APPENDIX C3</td>
<td>Physical Capital Investment: Urban Services and Urban Total (1990-2010)</td>
<td>209</td>
</tr>
<tr>
<td>APPENDIX C4</td>
<td>FDI: National and Urban Services (1990-2010)</td>
<td>210</td>
</tr>
<tr>
<td>APPENDIX C5</td>
<td>Regional Urban Services Output (1990-2010)</td>
<td>211</td>
</tr>
<tr>
<td>APPENDIX D</td>
<td>Procedures for Panel Data Estimation</td>
<td>212</td>
</tr>
<tr>
<td>APPENDIX E1</td>
<td>Descriptive Results of Influencing Factors</td>
<td>217</td>
</tr>
<tr>
<td>APPENDIX E2</td>
<td>Regional Distributions of Cities with High Performance Influencing Factors</td>
<td>219</td>
</tr>
<tr>
<td>APPENDIX F</td>
<td>Figures of Regional Distribution of High performance Influencing Factors</td>
<td>221</td>
</tr>
<tr>
<td>APPENDIX G</td>
<td>Robust Estimation Results of Hierarchical Multiple Regression Model 1-Model 4</td>
<td>225</td>
</tr>
<tr>
<td>APPENDIX H</td>
<td>Results of Panel Unit Root Tests</td>
<td>229</td>
</tr>
<tr>
<td>APPENDIX I</td>
<td>Pedroni Panel Co-integration Test Results</td>
<td>234</td>
</tr>
<tr>
<td>APPENDIX J</td>
<td>Chow Test and Hausman Test to Select Panel Data Model</td>
<td>236</td>
</tr>
<tr>
<td>APPENDIX K</td>
<td>Long-Run Co-integration Estimations of Panel Data Model</td>
<td>237</td>
</tr>
<tr>
<td>APPENDIX L</td>
<td>Short-Run Error Correction Estimation of Panel Data Model</td>
<td>240</td>
</tr>
</tbody>
</table>
## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
<td>Augmented Dickey Fuller</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>CEI</td>
<td>Commercial Credit Environment Index</td>
</tr>
<tr>
<td>ECM</td>
<td>Error Correction Model</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
</tr>
<tr>
<td>VIF</td>
<td>Variance Inflation Factor</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organization</td>
</tr>
</tbody>
</table>
CHAPTER ONE
INTRODUCTION

Services are economic activities not directly associated with the production of tangible products, but activities providing intangible products with the characteristics of simultaneity in both production and consumption (OECD, 2000). Since 1970s, the proportion of services in developed countries has been continuously increasing, and the world’s economy has turned towards “servitization”, marking the coming stage of services economy (Hu, 2011; Liu et al., 2011).

China has made remarkable economic achievements since reform and opening up in 1978, and her economic structure has been gradually upgraded towards non-agricultural industries. As the republic entered the post-industrialization period since late 1990s, one important phenomenon was the increasing role of services in economic growth (Chen, 2011). For instance, the output value of services increased from RMB581.4 billion in 1990 to RMB13,888.6 billion in 2011. Services average annual growth rate was 11.0 percent, exceeding the GDP growth of 9.9 percent during the same period of 1990-2011. Meanwhile, the corresponding proportion of services to national GDP increased from 31.3 percent in 1990 to 43.3 percent in 2011 (China1, 2012).

One obvious characteristic of services growth is its high agglomeration, and urban
The contents of the thesis is for internal user only
REFERENCES


Fan, J. Y. (2008). Industrial Agglomeration and Regional Differences in Labor


Location, and Regional Growth. Cambridge: Cambridge University Press.


British Columbia.


Levin, A., Lin, C., & Chu, C.S. (2002). Unit root tests in panel data: Asymptotic and


Ministry of Trade and Industry. Finland: Studies and Reports.


Moulaert, F. G., & Gallouj (2000). The Location Geography of Advanced Producer
Muller, E., & Zenker, A. (2001). Business Service as Actors of Knowledge Trans
Formation: The Role of KIBS in Regional and National Innovation Systems.

for Localizing International Investment. Working Papers on Services, Space,
Society, School of Geography, Earth and Environmental Services, UK:
University of Birmingham.

Duckworth.

Nachum, L., & Keeble (2002). Neo-Marshallian Nodes. Global Networks and Firm

National Economy and Industrial Classification Standard (2011). National
Development and Reform Commission of China. Beijing, China.


Nie, Q. (2006). Research on Related Effects of Producer Services on Manufacturing
Industries. International Business Studies, 1, 6-12.

Research.


Oulton, N. (2001). Must the Growth Rate Decline? Baumol’s Unbalanced Growth


Environment, 21, 138-146.


