

## **SHANDRE MUGAN THANGAVELU**

**Present Appointment:** Associate Professor

**Date of Joining Department:** 1 July 1997

**Email:** [ecssmt@nus.edu.sg](mailto:ecssmt@nus.edu.sg)

**Nationality:** Singaporean

### **Degrees:**

- A. PhD, Queen's University, Canada, 1997  
Area of Specialization: Macroeconomics, Trade and International Finance,  
Macroeconomics and Financial Markets
- B. MA Queen's University, Canada, 1991  
Area of Specialization: Macroeconomics and Economic Development
- C. BA (Honors), University of Winnipeg, Canada, 1990

### **Awards:**

- A. Queen's Graduate Award, 1993-96, Queen's University
- B. Simon Fraser Graduate Award, 1991, Simon Fraser University
- C. Queen's Graduate Award 1990, Queen's University
- D. Gold Medal for Economics, 1990, University of Winnipeg

### **Administrative Appointments**

- A. Assistant Dean – January 2005 to May 2006  
Faculty of Arts and Social Sciences  
National University of Singapore
- B. Director, June 2005 – present  
Singapore Centre for Applied and Policy Economics (SCAPE)  
Department of Economics  
Faculty of Arts and Social Sciences  
National University of Singapore
- C. Graduate Chairman 2001-2003  
Department of Economic  
National University of Singapore

- D. Joint Graduate Chairman 1998-2000  
 Department of Economics  
 National University of Singapore

**Employment and Experience:**

<u>Period</u>	<u>Employer</u>	<u>Title</u>
1. July 2004 to present	Ministry of Manpower	Consultant
2. July 2003 to June 2004	Ministry of Trade and Industry/ Ministry of Manpower (No-Pay-Leave for one year)	Head, Economics Unit
<p>Duties: Lead a team of Economist to study manpower related issues in the Singapore economy. The Economics Unit has completed studies on wage flexibility, output and wage dynamics, the impact of foreign labour in the domestic labour market, aging and productivity growth, impact of wage adjustments on labour demand, etc.</p>		
3. Aug 1996 to April 1997	Queen's University, Canada	Lecturer
4. July 1992 to July 1996	Queen's University, Canada	Research Associate
5. Aug. 1991 to July 1992	Simon Fraser University, Canada	Research Associate
6. Aug. 1990 to July 1991	Queen's University, Canada	Research Associate

**Research**

**Current Research Interest**

- A. Trade, Financial Markets and Growth
- B. Aging, Education and Endogenous Growth
- C. Productivity Growth, Technology Adoption and Welfare
- D. Immigration and Economic Growth
- E. Macroeconomic Policies for Sustainability in ASEAN countries

## Publication List:

### A. Refereed Articles and Book Chapters

#### Articles

1. 'Bilateral "WTO-Plus" Free Trade Agreements: The WTO Trade Policy Review of Singapore 2004', (with Toh Mun Heng), *World Economy*, 28(9), 2005.
2. 'Technology Adoption, Education, and Immigration Policies', (with Chander P.), *Journal of Development Economics*, 75, 2004, 79-94.
3. 'The Link of Bank Behaviour and Non-Performing Loans in China', (with Ding Lu and Qing Hu), forthcoming in *Journal of Development Studies*, 2005.
4. 'Economic Reform and Productivity Growth in India: Interaction between Technical Change and Scale Economies', (with S. Pattnayak), forthcoming in *Economic Modelling*, 2005.
5. 'Is there an export-led or import-led productivity growth in rapidly developing Asian countries? A multivariate VAR analysis', (with G. Rajaguru), *Applied Economics*, Vol. 36, No. 10, pp. 1083-1093, 2004.
6. 'Financial Development and Economic Growth in Australia: An Empirical Analysis', (with Ang Beng Jiunn), *Empirical Economics*, 29, pp. 247-260, 2004.
7. 'The impact of export growth and scale economics on productivity in Singapore's manufacturing industries', (with Owyong David), *Journal of Economic Studies*, vol. 30, no. 6, pp. 623-635, 2003.
8. 'Singapore's Beveridge Curve: A Comparative Study of the Unemployment and Vacancy Relationship for Selected East Asian Countries', *Economic Survey of Singapore*, Second Quarter, 2004.
9. 'The Complementary Role of Foreign Labour in Singapore (with Toh Mun Heng and Benedict Chia)', *Economic Survey of Singapore*, First Quarter, 2004.
10. 'Towards Unitary Economics: Valuation of Environmental Capital for Environmental Stewardship', (with Thampapillai, J), forthcoming in *International Journal of Social Economics*, 2004, 31(3-4), 430-42.

11. 'Impact of Public Capital on the Manufacturing Productive Performance of Japanese Industries', (with Owyong David), *Applied Economics*, 2000, 32, 1515-1520.
12. 'An Empirical Study on Public Capital Spillovers from United States to Canada', (with Owyong David), *Applied Economics*, 2001, 33, 1493-1499.
13. 'Do Poor Countries Grow Faster than Rich Countries', (with Bhanoji Rao), *Applied Economic Letters*, 2000, 7, 629-623.
14. 'TFP Growth in the Electronics Industry of Singapore', (with Bhanoji Rao), *Singapore Economic Review*, 1999, October 56-68.

#### **Refereed Book Chapter**

15. 'Technology Spillovers, Ownership Structures and Productivity Growth in Singapore', (with Toh Mung Heng), in *Sustaining Economic Competitiveness in the New Global Economy: The Singapore Experience*, Edward Elgar, 2004.
16. 'The New Economy: Sources of Regional Growth – The Case of Korea, Singapore and Taiwan', (with Toh Mung Heng), in *The New Economy: Challenges for East Asia and the Pacific*, Peter Drysdale (editor), Routledge Curzon, London, 2004.
17. 'Aging and Productivity Growth for Japanese Manufacturing Industries', (with Abe Shigeyuki), in *State, Market, Society, and Economic Cooperation in Asia*, Shigeyuki A. and Bhanupong Nidiprabha (editors), Center for Southeast Asian Studies, Kyoto University, 2004.
18. 'Survey on Determining Factors of TFP Growth: Singapore', in *Survey of Total Factor Productivity Growth*, Asian Productivity Organisation, 2004.
19. 'A Cross Country Study of Technology Transfer: Vehicles, Conditions, Spillovers, and Policy Challenges', (with Koh Ai Tee), in *Encyclopedia of Life Support Systems (EOLSS)*, 2004.
20. 'The Productivity Challenge', (with Owyong David), in *The Singapore Economy in the Twenty-First Century*, McGraw Hill, 2002.
21. 'TFP Growth in Manufacturing Industries in ASEAN: A Study on FDI Intensive and Other Industries in Singapore (with a note on other ASEAN Nations)' (with Bhanoji Rao). In *Papers and Proceedings of International Symposium on Foreign Direct Investment in East Asia*, pp. 231-266. Tokyo: Economic Research Institute, Economic Planning Agency, Government of Japan, 1998.

22. 'Singapore's Electronics Industry: Foreign Direct Investment and TFP Growth' (with Bhanoji Rao). In papers and Proceedings of International Symposium: Foreign Direct Investment in Asia, pp. 473-502, Tokyo: Economic Planning Agency, Government of Japan, 1999.

### **B. Articles Submitted to Journals**

23. 'Choice of Monetary and Exchange Regimes in ECOWAS: An Optimum Currency Area Analysis', submitted to *World Economy*, 2006.
24. 'Labour Market Dynamics in Singapore and Selected Asian Countries: Unemployment and Vacancy Relationship, submitted to *Journal of Labour Research*, 2006.
25. 'Backward Linkages and Technology Spillovers in the Presence of Foreign Firms: Evidence from the Indian Pharmaceutical Industry', (with Sanja S. Pattnayak), submitted to *Journal of Applied Econometrics*, 2005.
26. 'Estimation of Total Factor Productivity Growth for Selected Indian Manufacturing Industries: A Panel Co-integration Approach', (with Sanja Pattnayak), submitted to *Applied Economics*, 2006. (revised and re-submission)
27. 'Institutional Investors, Financial Sector Development and Economic Growth in OECD Countries', (with Kuhan Harichandra), submitted to *Applied Economics*, 2006.
28. 'Trade and Productivity Growth: Dynamic Panel VAR Analysis', (with G. Rajaguru), submitted to *Southern Economic Journal*, 2005.
29. 'Productivity Growth and Concentration of Real Cost Reduction in the Singapore Manufacturing Sector: Ownership and Industry Effects', (with Foo Suan Yong) re-submission to *The World Economy*, 2005.

### **C. Conference Papers**

30. 'Lessons from 'Benchmark': Ireland & Korea', World Bank Conference on "Investment Climate in Asia: Management of Appropriate Skills in Fast Growing Economy with Technical Change", November 2005, Kuala Lumpur, Malaysia. Accepted for publication as book chapter in the World Bank publication.

31. 'Singapore Information Sector: A Study using Input-Output Table" (with Toh Mun Heng). Paper presented at 2006 International Input-Output Association Meeting at Sendai, Japan.
32. 'Manufacturing Productivity and Public Capital: The Panel Study of Selected Manufacturing Industries in Singapore' (with Toh Mun Heng). Paper presented at the NUS-Melbourne University Conference, October, 2004.
33. 'An Introductory Environmental Macroeconomic Framework for China: Implications for West China Development', Paper presented at the International Conference on West China Development: Domestic Strategies and Global Implications, (with Dodo J. Thampapillai and E Quah), University of Victoria, B. C. Canada, March 2003.
34. 'Taxation for Environmental Efficiency and Issues of Income Distribution', Paper presented to the NUS-University of Tokyo Workshop, (with P. Mukhopadaya, Dodo J. Thampapillai and E Quah), Faculty of Arts and Social Sciences, NUS, Singapore November 2002.
35. 'Internalization of Environmental Capital in Keynesian Model of Income Determination: Revised Approaches to Public Policy', Paper presented to the NUS-University of Nottingham Workshop on Current Economic Policy Issues in Asia and Europe, (with Dodo J. Thampapillai and E Quah), Singapore April 2002.
36. 'Trade and Productivity Growth: Dynamic Panel Study on Selected Asian Countries,' (with G. Rajaguru), presented in the 8<sup>th</sup> International Convention of the East Asian Economic Association, November 2002, Kuala Lumpur, Malaysia.
37. 'Economic Reform and Productivity Growth in Indian Manufacturing Industries: An Interaction of Technical Change and Scale Economies,' (with S. Pattnayak), presented in Australasian Meeting of the Econometric Society, Adelaide, Australia, 2002.
38. 'Is There An Export or Import-Led Productivity Growth in Rapidly Developing Asian Countries? A Multivariate VAR Ananalysis"', (with G. Rajaguru), presented in Canadian Economic Association Meeting, Montreal, Canada, 2001.
39. 'Causality Between Trade and Productivity in Rapidly Developing Asian Countries: A Multivariate VAR Analysis', (with G. Rajaguru), Paper presented in the 7<sup>th</sup> International Convention of the East Asian Economic Association, November 2000, Singapore.

40. 'Infrastructural Spillovers Between United States and Canada: An Empirical Study', (with Owyong David), paper presented at the Canadian Economic Association Meeting held at Toronto, May 1999.
41. 'Singapore and India: Cooperation and Collaboration in Regard to Capital Flows', (with Bhanoji Rao), paper presented at Singapore-India Colloquium: The Management of Globalisation, National University of Singapore, August 1999.
42. 'Determinants of Income Inequality Based on Cross-Country Regressions', (with Bhanoji Rao), paper presented at Far Eastern Econometric Society Meeting, Singapore, June 1999.
43. 'TFP Growth in Manufacturing Industries in ASEAN: A Study on FDI Intensive and Other Industries in Singapore', (with Bhanoji Rao), paper presented at International Symposium on 'Foreign Direct Investment in East Asia', Economic Research Institute, Economic Planning Agency, Tokyo, Japan, March 1998.
44. 'The Impact of FDI on the Electronics Industry in Singapore: Understanding the Transfer of Technology and Trends in Total Factor Productivity Growth', (with V.V. Bhanoji Rao), paper presented at 2nd International Symposium on 'Foreign Direct Investment in Asia', Economic Research Institute, Economic Planning Agency, Tokyo, Japan, October 1998.
45. 'Productivity Growth, Technology Adoption, and Government Intervention in a Vintage Human Capital Model', presented in Canadian Economic Association Conference, June 1996.

#### **D. Working Papers**

46. 'Singapore's Beveridge Curve: A Comparative Study of the Unemployment and Vacancy Relationship for Selected East Asian Countries', (with Edward Teo and Elizabeth Quah), SCAPE working paper, 2005.
47. 'Manufacturing Productivity and Public Capital: The Panel Study of Selected Manufacturing Industries in Singapore', (with Toh Mun Heng), Working Paper, Department of Economics, National University of Singapore, 2004.
48. 'Educational Subsidies and Immigration', (with Chander P.) mimeo, 2003.

49. 'Immigration, Labour Market, and Productivity Growth in OECD countries', (with Chander P.) mimeo, 2003.
50. 'Productivity Convergence in Manufacturing Industries of Japan, Taiwan, and Singapore', 2001, mimeo.
51. 'Ownership Structure, Productivity Growth, and Technology Spillovers in Singapore, 2002, mimeo.
52. 'Impact of R&D on Productivity Growth in East Asia: The Case of Korea, Singapore and Taiwan', (with Toh Mung Heng), mimeo, 2002
53. 'The Impact of R&D on the East Asian Economies of Korea, Singapore and Taiwan', (with Toh Mung Heng), mimeo, 2001.
54. 'Effects of Aging on Productivity Growth in Singapore', 2001, mimeo.
55. 'Returns to Scale, TFP Growth, and Export Performance of FDI-Intensive and Other Manufacturing Industries in Singapore: An Econometric Analysis', (with Bhanoji Rao), mimeo, 1999.
56. 'Matching, Human Capital Investment, and Technology Adoption in a Vintage Human Capital Model', 1997, mimeo.
57. 'Technology Adoption and Growth in a Two Period Model with Human Capital', 1997, mimeo.
58. 'Government Infrastructure and Manufacturing Productivity Growth in Korea, Singapore and Malaysia', 1997, mimeo.
59. 'FDI Driven TFP Growth: The Case of Two-Key Manufacturing Industries in Singapore', (with V.V. Bhanoji Rao), 1998, mimeo.
60. 'A Cross-Country Study of Determinants of Technology Inflow and Technology Output', (with Koh Ai Tee), mimeo, 1999.
61. 'Inward FDI, Exports and Growth in Korea: An Empirical Analysis', (with Chow Hwee Kwan), mimeo, 2000.
62. 'Short and Long Run Relationships Between Outward FDI, Output and Export Growth in Korea: An Empirical Analysis', (with Chow Hwee Kwan), mimeo, 2000.
63. 'Determinants of Income Inequality Based on Cross-Country Regressions', (with Bhanoji Rao), mimeo, 2000.



**E. Member of Professional Association**

Vice-President, 2005 - present  
Singapore Economic Association

**F. Service as a reviewer**

Occasional Referee for Singapore Economic Review, Pacific Economic Review,  
Asian Economic Journal, Applied Economics, Journal of Trade and Development,  
World Development

**G. Teaching:**

A. Department of Economics, National University of Singapore, Singapore  
Courses taught from July 1997 to July 2004: Money and Banking II (EC4332),  
Macroeconomics Theory (EC1102), Economic Theory (EC3201),  
Macroeconomics II (EC2122), Money and Banking 1 (EC2204), Money and  
Banking (EC3224), Money in Macroeconomics (EC4204), Technology and  
Innovation (EC4213).

B. Department of Economics  
Queen's University, Canada  
August 1996 to April 1997  
Course taught: Macroeconomic Theory

C. Graduate Thesis Supervision at National University of Singapore:  
1997 to present: 9 Masters and 4 PhD students