UNIVERSITI PUTRA MALAYSIA

ROLE OF LABOR MOBILITY AND COMPETITION IN ECONOMIC DEVELOPMENT

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FEP 2015 6

ROLE OF LABOR MOBILITY AND COMPETITION IN ECONOMIC DEVELOPMENT

By

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Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

November 2015

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

ROLE OF LABOR MOBILITY AND COMPETITION IN ECONOMIC DEVELOPMENT

By

TAN BOON YEE

November 2015

Chair : Wan Azman Saini bin Wan Ngah, PhD
Faculty : Economics and Management

This dissertation consists of two independent essays, both of which are empirical assessments of economic impacts of foreign direct investment.

The first essay tests the role labor mobility play in mediating the growth-effect of FDI , A panel of 120 countries plus Hong Kong across 13 years from 2000 to 2012 is analyzed using GMM panel estimator. The results show that FDI has no direct impact on output growth, but the positive and significant interaction between FDI and labor mobility show that labor movement facilitate the externalities gained from FDI. Domestic investment and population growth are both very significant in the growth regression, with positive and negative effect respectively.

The second essay investigates the relationship between FDI inflow and R&D expenditure conditional on product market competition level in a cross country setting. Generalized Method of Moments (GMM) estimator is used to estimate the relationship among the key variables. A sample data consists of 61 countries spanning from 2000 to 2011 is being analyzed in this study. This study finds that FDI has a positive direct effect on R&D, but its effect manifest negatively conditional on competition level. However, the positive direct effect of FDI on R&D is not very robust. The finding contradicts conventional wisdom regarding merits of competition and provides evidence on how competition undermines the effect of FDI on domestic R&D.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PERANAN MOBILITI BURUH DAN PERSAINGAN DALAM PERTUMBUHAN EKONOMI

Oleh

TAN BOON YEE

November 2015

Pengerusi : Wan Azman Saini Wan Ngah, PhD
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Tesis ini mengandungi dua karangan bebas, dimana kedua-duanya merupakan penilaian empirical terhadap impak ekonomi pelaburan langsung asing (PLA) dengan menggunakan kaedah sistem *Generalized Method of Moment* (GMM) dalam analisis data panel.

Esei pertama menguji impak kemasukan PLA ke atas pertumbuhan ekonomi di samping mobiliti buruh. Esei ini menggunakan kaedah GMM untuk menganalisis data panel yang merangkumi 120 negara dan Hong Kong, dalam tempoh 13 tahun dari 2000 hingga 2012. Hasil analisis menunjukkan PLA tidak menpunyai impak secara terus terhadap pertumbuhan ekonomi, tetapi impaknya adalah melalui pergerakan pekerja. Interaksi antara PLA dan tahap mobiliti buruh adalah positif dan bererti dalam statistik. Ujian saintifik juga menunjukkan pelaburan domestic membawa impak positif manakala pertumbuhan populasi membawa impak negative terhadap ekonomi.

Esei yang kedua mengkaji impak kemasukan PLA ke atas perbelanjaan penyelidikan (R&D) dalam 61 negara dari tahun 2000 hingga 2011, berinteraksi dengan tahap pertandingan dalam pasaran produk. Berdasarkan kepada kaedah GMM, analisis data panel menunjukkan kemasukan PLA menggalakkan aktiviti R&D di negara penerima tetapi keputusan ujian ini tidak teguh. Interaksi antara PLA dan tahap pertandingan menunjukkan kesan negatif. Kajian ini selari dengan pandangan bahawa tahap persaingan yang diwujudkan oleh PLA menggalakkan syarikat dalam negara penerima mengimport teknologi dan bukan membuat belanja dalam aktiviti R&D.

ACKNOWLEDGEMENTS

This thesis will not have been completed without the support and guidance from people that I would like to express my gratitude. First of all, I wish to express my sincere appreciation to my supervisor Associate Professor Dr. Wan Azman Saini Bin Wan Ngah and Associate Professor Dr. Law Siong Hook for their helpful guidance, motivation and continuous encouragement throughout the development of this thesis.
I would also extend my appreciations to all lectures, supporting staffs and fellow friends who have helped and inspired me during this research journey at Universiti Putra Malaysia (UPM). I also appreciate the MYBRAIN15 scholarship which provides some financial support to my study.

Finally, I want to thank my family especially to my beloved parents, Tan Kok Tiew and Law Hau Loon for their endless support and encouragement since I begin my study in UPM. The sacrifices, helps and motivations during my study will be always remembered.

I certify that a Thesis Examination Committee has met on 11 November 2015 to conduct the final examination of Tan Boon Yee on her thesis entitled "Role of Labor Mobility and Competition in Economic Development" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

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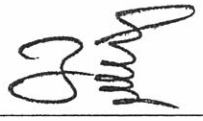

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This is to confirm that:

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Name of Chairman of Supervisory Committee: Wan Azman Saini bin Wan Ngah, PhD

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Name of Member of Supervisory Committee: Law Siong Hook, PhD

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LIST OF ABBREVIATIONS

FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
EF	Economic Freedom
GERD	Gross research and development expenditure
MNCs	Multinational Corporations
OECD	The Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
R&D	Research and Development
UIS	UNESCO Institute for Statistics
UNCTAD	United Nation Conference on Trade and Development

CHAPTER ONE

INTRODUCTION

1.1 Overview

> *The quantity of the industry, therefore, not only increases in every country with the increase of stocks which employs it, but, in consequence of that increase, the same quantity of industry produces a much greater quantity of work. Such are in general the effects of the increase of stock upon industry and its productive powers.*
>
> *Wealth of Nations, Book II, Introduction, p.277*

Ever since the publication of "*An Inquiry into the Nature and Causes of the Wealth of Nations"* by Adam Smith, economists have been interested to study the determinants of growth which extend beyond the increase in production inputs labor, capital and land. Throughout history, economists and governments have explored in depth on the causes of growth and on the public interventions which can sustain and promote it. For example, Malaysia is undergoing the Vision 2020- Economic Development policy to maintain average annual growth of 7% to transform Malaysia into high income country by 2020.[1] However, it is a complex matter to define why some countries grow faster and longer than others as literature on this convergence subject is filled with controversies theoretically and empirically. Growth regression has been examined extensively over the years in conjunction with ongoing development and establishment of new growth theories, which inevitably yield an overwhelming number of explanatory variables corresponding to distinct growth theories as presented in Durlauf et al. (2005)[2]. For instance, in the context of our study concerning the impact of foreign direct investment (FDI) on economic growth, there is a fierce debate amongst researchers, despite a strong theoretical prediction that FDI inflow contributes to economic growth directly through increase in capital and indirectly through the transfer of advanced technologies. There is however generous support for the view that innovative activities such as research and development (R&D) have a positive impact on productivity and economic growth in long run (Coe and Helpman, 1995). Thus it is crucial to study the factors that contribute to R&D activities for sustainable growth.

Since the era of globalization which is consistent with technological progress, there is rising interest in the studying the impact of FDI on economic performance. Such increase in emphasis is perhaps best manifested in policy makers' shift in economic outlook towards attracting more FDI by lifting restrictions on cross border capital flows. Table 1.1 shows a summary of the regulatory changes made by countries during the 2000-2013 periods. In general, most of the changes were introduced to stimulate FDI inflow. For example, there are substantially more regulatory changes that promote FDI inflows (142) than restrict FDI inflows (20) in year 2004. The data also suggests that at least 60 countries introduce regulatory changes from 2003 to 2006 which implies that there were substantial competitions among countries in attracting more

[1] A high-income economy is defined by the World Bank as a country with a gross national income per capita above US$12,735 in 2014, calculated using the Atlas method.

[2] Refer to Appendix 2 in Durlauf et al. (2005) for a complete list of 145 regressors and 43 growth theories.

foreign capital. These changes are aimed at promoting FDI by providing incentives to foreign investors and creating a favorable business environment for them to operate in. These include fiscal incentives such as tax and tariff exemption, corporate tax reduction and expatriates' tax reduction; financial incentives such as loan and land subsidies and investment grants; and others incentives such as lower labor standards, infrastructure subsidies, and preferential government contracts. These FDI promoting incentives implemented by governments over the years contribute to global FDI inflows which rose from $57 billion in 1982 to $1450 billion in 2013. It is no surprise that in recent times of 2013 growth rate of world FDI (9%) exceeded the growth rates of both world trade (3.6%) and GDP (3%) (UNCTAD, 2014).Policy makers are motivated to enhance their efforts in encouraging FDI due to expectation of long term benefit from FDI arises from productivity gains through increased efficiency; diffusions of new technology; demonstrations of processes, management techniques, and know-how in the local market; human capital investment such as employees' training and finally export opportunities with international production networks (UNCTAD).

Table 1.1: National Regulatory Changes, 2000-2013

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of countries that introduces change	**44**	**60**	**80**	**78**	**71**	**50**	**41**	**47**	**55**	**29**	**54**	**59**
Number of regulatory changes	**94**	**125**	**164**	**144**	**126**	**79**	**68**	**88**	**121**	**80**	**86**	**87**
Promotion	79	113	142	118	104	58	51	61	80	59	61	61
Restriction	12	12	20	25	22	19	15	23	37	20	20	23
Neutral	3	-	2	1	-	2	2	4	4	1	5	3

Source: UNCTAD, World Investment Report 2014

Although most economic theorists predict that FDI inflows have significant role in economic development, statistical evidence on the FDI- growth regression is however far from conclusive. A discussion paper by Gorg and Greenway (2004) shows contradicting studies with some researchers who find FDI exert positive effect on host economy, while others find no evidence or even a negative effect. The neglect of contingency effects in FDI-growth nexus is probably responsible for this mixed finding. To account for such effects, some economic models propose, for instance, that the relationship between FDI and growth may depend on absorptive capacity, which dictates the degree of technological spillovers from developed to developing countries. The models presented by Cohen and Levinthal (1989) and Griffith *et al*.(2003)highlight that R&D investments not only generate new knowledge or product, but also enhance the firms' (hence countries') ability to acquire and integrate existing knowledge and technologies developed by others. These analyses imply that FDI spillovers are not a granted consequence of the presence of foreign capital, which may explain why some countries benefit from FDI while others are not. Sufficient absorptive capacity such as some degree of technologies available in host countries is a prerequisite for successful spillovers. Several elements of absorptive capacity have been suggested in the literature, including human capital, financial markets, economic freedom and trade policy.

This study looks at technological transmission mechanism introduced by FDI via local labor mobility channel to local industries. The labor mobility channel discussed in this study focuses on labor mobility among firms in host countries but not across national

border. Higher labor mobility should increases the transfer of technology from MNCs to local firms as workers can move freely to firms that pay higher wages. Hence, overall productivity will be increased and it can be reflected in output growth. This study does not aim to explain the transmission mechanism of technology from MNCs to local firms in detail but is targeted to examine the spillover effect through labor mobility on overall output growth.

Meanwhile, economic theory predicts that innovative activity such as R&D activity is one of the most important sources of productivity growth. However, only a few developed countries are being responsible for a large fraction of world's total R&D expenditure. The major players in the world R&D activity are concentrated in the OECD countries. In 2005, North America accounted for 35% and OECD accounted for 78% of R&D activities in the world (Gaillard, 2010). Understandably, most studies conducted on the effect of FDI on R&D took the setting in OECD countries (Wang 2008), (Coe and Helpman, 1995). In high income countries most R&D effort is undertaken by business enterprise; however, in developing world, government and higher education institutions often has a more pronounced role in contributing to R&D activities (Gaillard, 2010).

The underlying different characteristic between developed and developing countries proposes question on ability to extend findings in OECD countries to context of low and middle income countries. Wang (2008) stated that his study on FDI and R&D was based on 26 OECD countries, thus "validity of application to other economies, particularly to developing economies, merits further investigation" (p.115). In addition, research interests have flourished in developing world especially over the past decade. Share of world R&D expenditure has risen over the years in developing countries from year 2002-2009 (UNESCO, 2010).Thus, it is important to have an inclusive study on effect of FDI on R&D. Cross country regression may be a good answer to gather all developing and developed countries in a sample to exploit all available information.

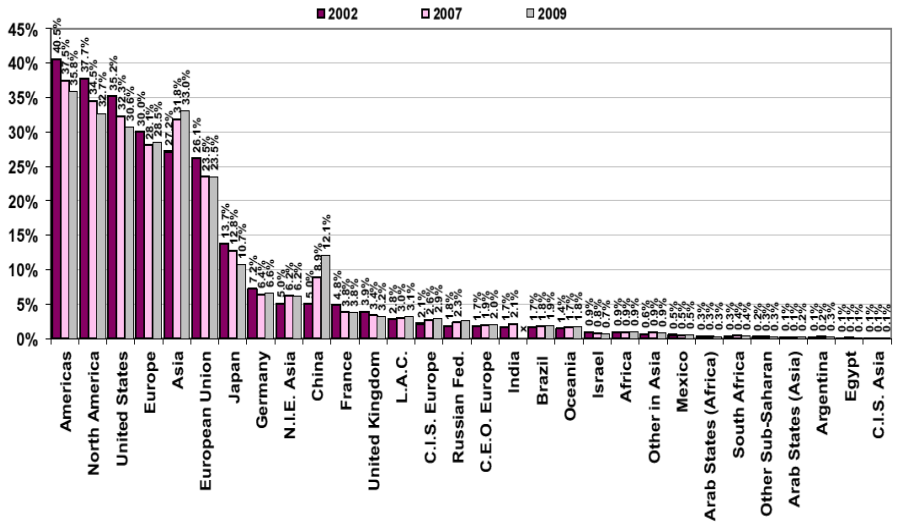

Figure 1.1: Where are R&D Investments made?
(Source: "A Snapshot of R&D Expenditure", UNESCO Institute for Statistics)

The effect of FDI on R&D may not be direct. Therefore, previous studies conducted had yield contending results, which will be explored in detailed in next section. The reason to suspect that competition will affect FDI and R&D is that foreign presence will increase product market competition directly as MNCs compete with local firms in product market and factor market (Sasidharan & Kathuria, 2011). Barrios, Gorg and Strobl (2004) show competition effect from foreign presence deter domestic firms' in term of entry. Degree of competition in market has a substantial effect on innovation as suggested in Aghion, Bloom, Blundell, Griffith and Howitt (2005). Consequently, this will then affect firms' decision to invest in new technology in response to higher degree of competition. Thus, by interacting degree of competition with FDI we can test explicitly whether competition amplifies or diminishes effect of FDI on R&D.

In an effort to further understand the nature of the FDI and its impact on economic activity, this study takes its cue from the recent literature that emphasizes the important role of institutions in the development process. Specifically, this study aims:

1) to examine the role of labor regulation strength in moderating the growth-effect of FDI
2) to investigate the effect of FDI on R&D activity, conditional on product market competition.

In order to test the hypotheses, this study relies on a generalized method-of-moment panel estimator which has several advantages over other estimators. Specifically, the estimator is able to control for country-specific effect and also simultaneity bias caused by the possibility that some of the explanatory variables may be endogenous.

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