The relationship between an improved transportation system and FDI inflows into a country

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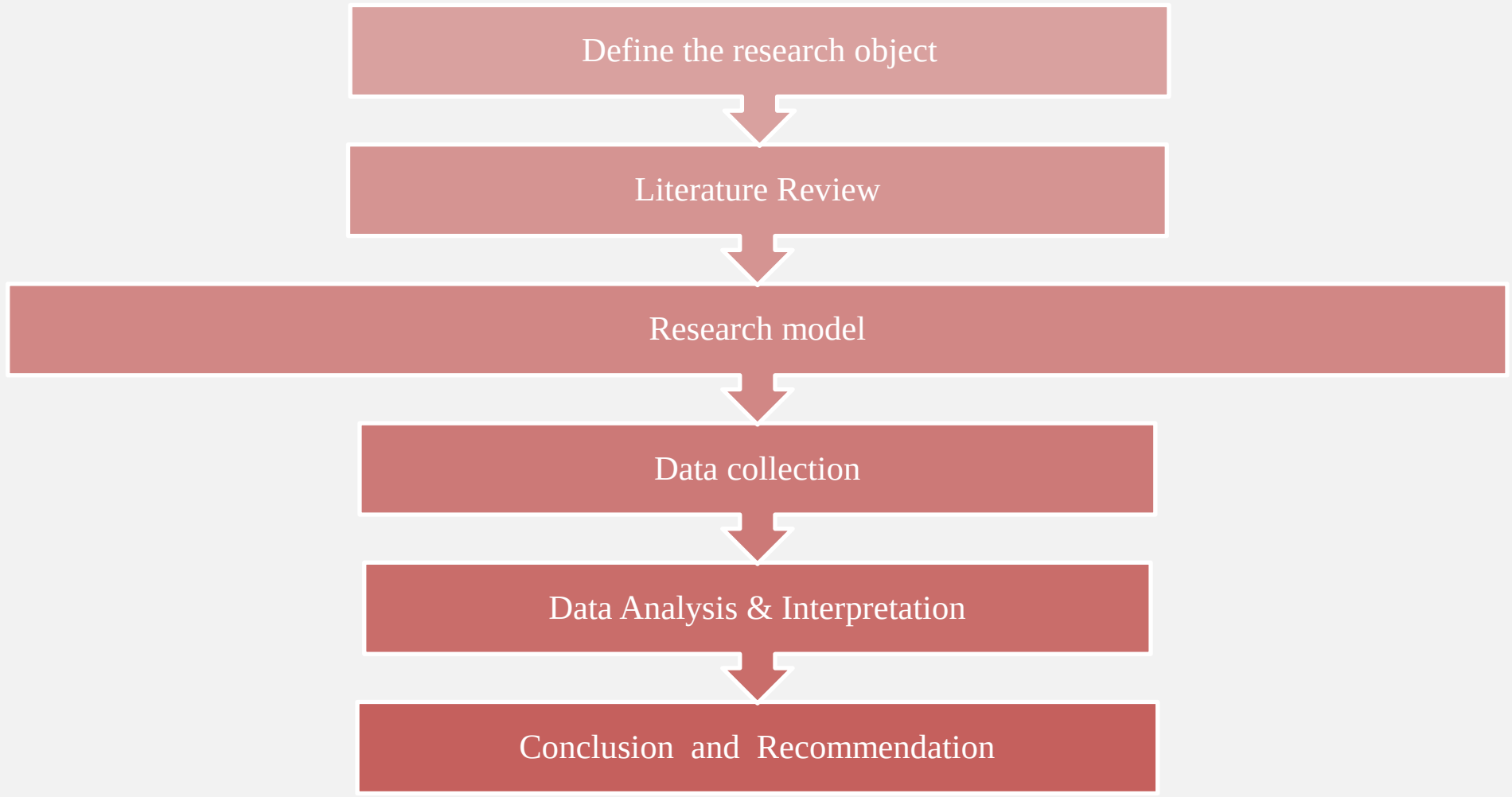
Research background

- The importance of FDI attraction to economic growth
- FDI inflows into ASEAN countries
- Transportation infrastructure as a determinant of FDI inflow into a country
- FDI capitals as the driving force for the development of a country's transport infrastructure

Research motive

- There exist only a limited number of researches exploring the role of transport infrastructure in FDI attraction
- There are even fewer researches focusing on ASEAN nations
- It is important to carry out a research to determine the relationship between an improved transportation infrastructure system and the FDI inflow into a country, and whether this relationship is simultaneous


Define the research object
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- Determinants of FDI inflows

- Relationship between FDI and transport infrastructure

➢ Determinants of FDI inflows

- Three types of FDI: Market-seeking FDI companies, resource-seeking FDI companies, efficiency-seeking FDI companies. Each type of FDI looks for specific characteristics of host country (Dunning, 1993)
- Determinants of FDI inflows can be classified into main categories relating to financial, demographic, economic, political and social factors. previous FDI levels also have significant impact on a country's current FDI level (Ergogan and Unver, 2015)

➢ Determinants of FDI inflows

- Market size and infrastructure positively and significantly influence FDI inflows; labor cost and inflation rate negatively impact FDI inflows (Vijayakumar, Sridharan and Rao)
- GDP level, trade cost back to the home country, distance between home and host country positively and significantly affect FDI into ASEAN, whereas skill difference, investment cost, and trade cost to host country negatively influence FDI (Uttama)

➢ Relationship between FDI and transport infrastructure

- Natural resources, market size, trade openness, communication infrastructure, transport infrastructure boosts FDI inflow. The positive and significant lagged value of the dependent variable confirms the presence of dynamism and endogeneity in FDI modeling (Seetanah and Khadaroo)
- Transportation system improvement plays an important role in driving FDI to a region, with the West and Middle Region of China witnessing a greater impact than the East Region of China. The existence of transport infrastructure spillover effect indicates that the development of transport infrastructure in one province also benefits its neighbors (Lichao)

- The presence of a reliable transportation system in a country.
- The model has to reflect this simultaneous relationship
- A two-staged least squares technique will be employed to overcome simultaneity bias

Research model

- $FDI_i = \beta_0 + \beta_1 Trans + \beta_2 Res + \beta_3 Size + \beta_4 Trade + \beta_5 Education + \beta_6 Corruption + \beta_7 X + \varepsilon_i$ (Seetanah and Khadaroo, 2007)

  - FDI: FDI inflow to a country
  - Trans: Transportation quality
  - Res: Natural resource rent as a percent of GDP
  - Size: Market size
  - Trade: Trade openness

Research hypothesis

- $FDI_i = \beta_0 + \beta_1 Trans + \beta_2 Res + \beta_3 Size + \beta_4 Trade + \beta_5 Education + \beta_6 Corruption + \beta_7 Tax + \beta_8 X + \varepsilon_i$ (Seetanah and Khadaroo, 2007)

- Hypothesis 1: Transportation quality has a positive effect on FDI inflow
- Hypothesis 2: Natural resource has a positive effect on FDI inflow
- Hypothesis 3: Trade openness has a positive effect on FDI inflow
- Hypothesis 4: Education has a positive effect on FDI inflow
- Hypothesis 5: Market size has a positive effect on FDI inflow
- Hypothesis 6: Corruption has a negative effect on FDI inflow
- Hypothesis 7: Tax has a negative effect on FDI inflow

- Data collection
  - The dataset spans over the period of 10 years, from 2004 to 2013 for 10 ASEAN nations and Japan, China and South Korea (ASEAN + 3)
  - There are 130 valid observations for analysis.
- Data sources
  - The main source for the data used in this analysis comes from the World Economic Indicator compiled by World Bank.
  - The statistics for transport infrastructure for ASEAN, China, Japan, and South Korea are provided by AJTP Information Center.
  - Corruption index is developed by Transparency International

- Some interesting points from the data
  - Singapore is the most attractive destination for FDI among ASEAN nations.
  - Except for Singapore, FDI inflow and transport infrastructure variable tend to positively correlate.
  - Although the economic recession in 2008 hit the region quite hard, FDI inflows into most countries in the region recovered very quickly
  - Vietnam, Thailand, Malaysia, and Cambodia has the highest trade to GDP ratio
  - Singapore, Japan and Brunei having the highest GDP per capita.
  - Cambodia, Myanmar, Laos, Vietnam, and China are known for being highly corrupt. Singapore and Japan are the only two countries having a relatively good record of having low level of corruption.
  - Japan has the highest tax rate in the region; Singapore has the lowest one.

Regression results

TSLS, using 117 observations
Dependent variable: FDI inflows
Instrumented: Length of roads

	Coefficient	Standard error	P-value	
const	20.4285	10.0556	0.0422	**
Log of Length of roads	4.51333	2.40491	0.0606	*
Log of GDP per capita	−0.133615	0.824988	0.8713	
Log of area	−3.68488	2.47911	0.1372	
No. of Internet users	−0.0434666	0.0286922	0.1298	
Trade	0.00768752	0.00623628	0.2177	
Corporate tax	−0.117585	0.0610383	0.0541	*
Corruption	−1.27514	0.837893	0.128	
Secondary enrollment	0.0664721	0.031001	0.032	**
Natu Natural resource rent	0.0209227	0.0329769	0.5258	

- Transport infrastructure variable is statistically significant with the expected positive sign. Empirically speaking, improved transport infrastructure in a country associates with better higher FDI inflows; and higher FDI inflows also create the condition for stronger transport infrastructure development. This finding is consistent with previous research such as Asiedu (2006), Wheeler and Mody (1992).
- Corporate tax rate has a significantly negative impacts on FDI inflow, meaning that holding other things constant, countries with higher tax rate will attract fewer FDI capital.
- Education variable has the expected sign and is statistically significant. If everything else equals, countries with higher labor quality will receive more FDI.

Conclusion

- Countries with better transport system and transport infrastructure stand a better chance of attracting FDI.
- Corporate tax rate and education are also the determinants of FDI inflows into ASEAN plus three countries.

Implications

- Investing in improving the transportation infrastructure will help a country to bring in more FDI, which in turn helps to improve the existing infrastructure.
- Emphasis should also be placed on providing workers with better training and education.
- Tax incentives may provide a competitive edge, although there is no evidence that the advantage will last in the long run.

References

- [1] Aitken, Brian and Ann Harrison. "Do Domestic Firms Benefit from Foreign Direct Investment? Evidence from Venezuela." American Economic Review (1999): 605-618.
- [2] Aldaba, Rafaelita. "FDI Investment Incentive System and FDI Inflows: The Philippine Experience." International Symposium on “FDI and Corporate Taxation”. 2006.
- [3] Arrelano, M. and S. Bond. "Some Tests of Specification for panel data:Monte Carlo Evidence and an application to employment equations." Review of Economic Studies (1991): 277-297.
- [4] Asiedu, E. "“Foreign Direct Investment in Africa: The Role of Government Policy, Institutions and Political Instability." World Economy (2006): 63-77.
- [5] Canada, Transportation Association of. "Performance Measures for Road Networks:A Survey of Canadian Use." 2006.
- [6] Dunning, J. H. Multinational Enterprises and the Global Economy. Harlow, Essex: Addison Wesley publishing Co., 1993.
- [7] Erdogan, Mahmut and Mustafa Unver. "Determinants of Foreign Direct Investments: Dynamic Panel Data Evidence." International Journal of Economics and Finance (2015).
- [8] Goodstein, E. "Jobs and the Enviornment: The Myth of a National Trade-off." Economic Policy Institute (1994).
- [9] Johansson, Tulin. "The Interactions Between Economic Growth and Enviornmental Quality: A Comparison of the TVA Region with the United States as a Whole." TVA Rural Studies (2001).

References

- [10] Levinson, Arik. "An Industry-Adjusted Index of State Environmental Compliance Costs." National Bureau of Economic Research (1999).
- [11] Lichao, Zhu. The role of Transport Infrastructure in Attracting FDI in China: A Regional Analysis. 2011. <http://www.scholarbank.nus.edu.sg/bitstream/handle/10635/29522/Zhu%20Lichao.pdf?sequence=1>.
- [12] Scaperlanda, A. and L. Mauer. "The Determinants of US Direct Investment in the EEC." American Economic Review (1969): 558-568.
- [13] Seetanah, Boopen and Jamel Khadaroo. "Transport infrastructure and FDI: lessons from Sub-Saharan African. United Nations Economic Commission for Africa." United Nations Economic Commission for Africa, 2007.
- [14] Tsai, P. "Determinants of Foreign Direct Investment and its Impact on Economic Growth." Journal of Economic Development (1994): 137-163.
- [15] UNCTAD. World Investment Report 2014. New York; Geneva, 2014.
- [16] Uttama, Nathapornpan. "Foreign direct investment in ASEAN countries: an empirical investigation." 2005ETSG (European Trade Study Group) Conference. 2005.
- [17] Vijayakumar, Narayanamurthy, Perumal Sridharan and Kode Rao. "Determinants of FDI in BRICS Countries: A panel analysis." International Journal of Business Science and Applied Management 5.3 (2010).
- [18] Wheeler, D. and A. Mody. "International investment location decisions: The case of U.S. firms." Journal of International Economics (1992): 57-76.
- [19] Zheng, P. "A Comparison of FDI Determinants in China and India." Thunderbird International Business Review (2009): 263-279.