International Journal of Disaster Risk Reduction 14 (2015) 312–321

Contents lists available at ScienceDirect

International Journal of Disaster Risk Reduction

journal homepage: www.elsevier.com/locate/ijdrr

Determinants of foreign direct investment in Thailand: Does natural disaster matter?

Chaiyasit Anuchitworawong, Kannika Thampanishvong *

Thailand Development Research Institute, 565 Ramkhamhaeng 39, Ramkhamhaeng, Wangthonglang, Bangkok 10310, Thailand

ARTICLE INFO

Available online 28 September 2014

Keywords:
Foreign direct investment
Determinants
Natural disaster
Simultaneous equations

ABSTRACT

Thailand has experienced unprecedented increase in foreign direct investment (FDI) over the past few decades, while there has been an increasing trend of natural disaster occurrence. Yet, the effect of natural disaster on FDI is unclear. The inconclusive findings can be reconciled by exploring the effect of natural disaster on FDI by applying the simultaneous equation approach to account for endogeneity between variables. Our results show that natural disaster does matter for FDI flows. Higher severity of natural disaster, captured by our constructed composite index, tends to lower FDI flows into Thailand, other things being equal.

1. Introduction

During the 1970s, the Thai economy went through the period of transformation as its development strategies shifted from agricultural-led strategies to strategies that supported export, foreign direct investment (hereafter, FDI) and industrialization. Among other factors that contributed to the transformation and take-off of Thailand's economy, this paper devotes attention to FDI.

While we have witnessed the trend of unprecedented growth in FDI inflows to Thailand, we have observed that the occurrence of natural disaster in Thailand has becoming more frequent. Basing on the Emergency Events Database (EM-DAT) maintained by the Centre for Research on the Epidemiology of Disasters (CRED), the number of natural disaster that struck Thailand increased quite considerably during 1970–2012. Given that investment decisions are based on evaluation of expected risks and returns, the question that arises is whether FDI decisions are influenced by occurrences of natural disasters.

A number of studies have looked at the determinants of FDI inflows and found that there exist relationships between FDI and several macroeconomic variables. Previous works have found the connections between FDI flows, the size and growth potential of the host country's market, economic stability of the host country, the degree of openness of the host country, the income level, the level of development as well as the quality of institutions of the host country [1]. Although the literature on FDI determinants is quite rich, flourished with a number of empirical papers that looked at relationships between FDI, macroeconomic and institutional variables, it is interesting to highlight that none of these papers address the influence of natural disaster occurrence on FDI decisions, with an exception to Escaleras and Register [2]. By conducting an empirical study that analyzes the relationship between FDI and the number of disasters that struck the 94 countries, Escaleras and Register found that natural disasters have negative and statistically significant effect on a country's FDI.

Given that this paper attempts to study the connection between FDI inflow and the natural disasters that struck the country, it is important that we begin by understanding how the bunching of disaster events can affect the attitudes of investors who make FDI decisions in a

* Corresponding author.
E-mail addresses: chaiyasit@tdri.or.th (C. Anuchitworawong), kannika@tdri.or.th (K. Thampanishvong).

http://dx.doi.org/10.1016/j.ijdrr.2014.09.001

particular time period since attitudes determine the way in which risk is perceived and the tolerance to disaster events. According to White and Fan [3], the same risk environment can be perceived very differently to different people and this can be attributed to a number of reasons, including how the investors perceived about the likelihood of disaster occurrence and the potential impacts caused by natural disasters. Some investors could perceive the disaster events as being irrelevant or their probability of occurrence is very low so they end up not internalizing the risk associated with disaster occurrence in their investment decisions. Other investors may perceive that the disaster events may impose impacts and interrupt the operation of the firms; yet if they perceive that the impacts of disaster are temporary or their occurrence is infrequent, the occurrence of natural disaster might not affect their FDI decision. On the contrary, if the investors perceive that disaster events have long term and continuing impacts, they might reduce their investment, relocate their investment to other destinations or choose to take action by undertaking disaster risk mitigation measures.

With the aforementioned background in mind, the key hypothesis that will be tested in this paper is that the occurrence of natural disaster is expected to have negative impact on FDI inflows to Thailand. In this paper, we attempt to explore the effects of natural disasters on FDI by including the constructed composite index for natural disaster in the FDI equation.

By mean of simultaneous equation method, we explore whether natural disaster reduces FDI, while addressing the issue of endogeneity that arises between variables.[1]

The results obtained from our empirical estimation show that natural disaster has a statistically significant impact on FDI. A higher degree of severity associated with natural disaster, measured by number of people affected by disaster, frequency of occurrence and the amount of financial damages, tends to lead to a reduction in FDI inflows.[2] The other result indicates that FDI and level of economic development are important determinants of each other, which is consistent with the literature on FDI and economic growth.

The rest of the paper is structured as follows. The next section provides a review of related literature. Section 3 gives an overview on factors that fueled the surge in FDI inflows into Thailand in the past and a brief account of natural disaster trends in Thailand. Section 4 provides a description of data and the empirical methodology. Section 5 presents the empirical results and the discussion of results and Section 6 contains the concluding remarks.

2. Related literature

By considering the existing literature on FDI and growth, we find that some papers found that FDI is more conducive to long-run growth and level of economic development, while other papers find that the positive impact of FDI on economic growth is conditional on some requirements being satisfied. The papers, which founds a positive effect of FDI on growth, argue that FDI usually brings with it foreign technology and management skills, which can be subsequently adapted by the host countries to their domestic contexts. According to Hansen and Rand [7], there was some evidence in favor of the hypothesis that FDI has an impact on the GDP via knowledge transfers and adoption of new technology. Borensztein et al. [8] found that FDI is an important vehicle for the transfer of technology, and contribute to growth. However, the higher productivity of FDI holds only when the host countries has a minimum threshold stock of human capital. Basing on their empirical analysis using cross-country data, Alfaro et al. [9] found that FDI alone plays an ambiguous role in contributing to economic growth. Their findings show that countries with well-developed financial markets can gain significantly from FDI. The empirical results of Nair-Reichert and Weinhold [10] show that there is some evidence that FDI has an efficacy in raising future growth rates. However, the effect of FDI on future growth rates is heterogeneous across different countries, with stronger effect for the more open economies.

Some papers in the literature examine the causal relationship between FDI and economic growth, such as Chowdhury and Mavrotas [11], which focused on three developing countries, namely Chile, Malaysia and Thailand. Their results show that in the case of Chile it is GDP that caused FDI, while for Malaysia and Thailand, there was an evidence of a bi-directional causality between FDI and economic growth.

In addition to the literature that focuses on the relationship between FDI and growth, there is the other strand of literature that explores the determinants of FDI. At the micro level, several researchers attempted to understand why corporations want to affiliate their production in the foreign markets through FDI. Did foreign corporations try to capitalize on lower wages and other costs of production? Or were they interested in supplying goods and services in country with large potential demand? According to Dunning [12], four typical motives of corporations for affiliating their production in a foreign market include accessing the resources, accessing the markets, achieving efficiency gains and acquiring strategic assets.

Previous works on determinants of FDI at the macro level studied the relationship between FDI and several macroeconomic variables. Examples of variables that might have connection to FDI flows include the size and growth potential of the host countries′ market, economic instability, the degree of openness of the host economy, the income level, the quality of institution and the level of development [1].

With regards to the market size and growth potential aspects, previous studies found that larger markets in the

[1] Cavallo et al. [4] attempted to undertake empirical test of the impact of natural disaster on growth. They found that only very large disasters have an impact on GDP growth in the affected countries. Loayza et al. [5] applied the GMM panel estimator to a 1961–2005 cross-country panel and found that natural disasters affect economic growth, but the impact is not always negative. In addition, they found that, for developing countries, their economic growth is more sensitive to natural disasters.

[2] See Ruxanda and Muraru [6] for the use of simultaneous equation methods in analyzing whether FDI has impact on economic growth of Romania.