Journal of International Economics 90 (2013) 107–122

Contents lists available at SciVerse ScienceDirect

Journal of International Economics

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

What determines BITs?

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ARTICLE INFO

Article history:
Received 4 February 2011
Received in revised form 15 October 2012
Accepted 7 November 2012
Available online 15 November 2012

JEL classification:
F1
F2

Keywords:
Bilateral investment treaties
Foreign direct investment
Multinational firms
Free trade agreements
International trade

ABSTRACT

Similar to bilateral or regional preferential trade agreements (PTAs), bilateral investment treaties (BITs) have proliferated over the past 50 years. The purpose of this study is to provide the first systematic empirical analysis of the economic determinants of BITs and of the likelihood of BITs between pairs of countries using a qualitative choice model, in a manner consistent with explaining PTAs. We develop the econometric specification for explaining the two based upon a general equilibrium model of world trade and foreign direct investment with three factors, two products, and trade and investment costs among multiple countries in the presence of national and multinational firms. The empirical model for BITs and PTAs is bivariate in nature and supports a set of hypotheses drawn from the general equilibrium model. Using the preferred empirical model for a sample of 12,880 country-pairs in the year 2000, we predict correctly 88% of all pairs with a BIT and a PTA, 81% with a BIT but no PTA, and 84% with a PTA but no BIT.

1. Introduction

> "*The primary problem for researchers wishing to assess the impacts of policies to promote FDI is that policy adoption is endogenously determined.*" (Aisbett, 2009, p. 396)

> "*The literature on BITs is limited, making it difficult to truly understand the determinants for signing.*" (Tobin and Rose-Ackerman, 2005, p. 15)

One of the most notable economic events since World War II is the proliferation of preferential trade agreements (PTAs), including predominantly free trade agreements (FTAs) and some customs unions (CUs). However, the proliferation of bilateral investment treaties (BITs) has been significant as well. For instance, in 2010 the U.S. government had 40 BITs in force while it had only 17 PTAs in force. Fig. 1 presents the numbers of BITs in existence in the world in every year from 1980 to 2007. Moreover, Table 1 indicates the numbers of country-pairs with BITs and with PTAs (including those with both) in the year 2000 for 161 countries. Table 1 shows, for this sample of 12,880 country-pairs, 923 pairs with a BIT but no PTA, 1478 pairs with a PTA but no BIT, and 556 pairs with both.[2]

Yet in contrast to the vast international trade literatures on the theoretical net benefits and costs of FTAs and CUs and on the empirically-estimated effects of FTAs and CUs on trade flows, the literature on BITs is not only considerably smaller but dominated by legal and political science scholars rather than economists (cf., Salacuse, 1990;

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http://dx.doi.org/10.1016/j.jinteco.2012.11.004

[2] We note that, since 1990, many PTAs have introduced substantive investment provisions; such agreements are more accurately "preferential trade *and investment* agreements" (or PTIAs). However, the number of PTIAs still is fewer than 10% of the number of BITs (cf., Sauvant and Sachs, 2009) and this issue will be discussed later in a sensitivity analysis.

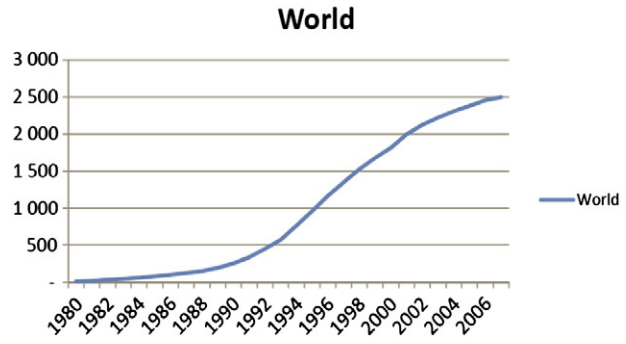

Fig. 1. Number of BITs in the world by year, 1980–2007.

Vandevelde, 1998, 2000; Tobin and Rose-Ackerman, 2005; Buthe and Milner, 2009).[3] Consequently, none of these papers address factors explaining BITs' formations using formal theoretical economic models, and few provide econometric empirical analyses. Also, relative to the trade and PTA literature, there are very few papers – some by economists and some by legal/political scholars – that have looked systematically and econometrically at the impact of BITs on foreign direct investment (FDI). Hallward-Driemeier (2003), Tobin and Rose-Ackerman (2005), Gallagher and Birch (2006), and Aisbett (2009) find little economically and statistically significant effect of BITs on FDI flows. By contrast, Egger and Pfaffermayr (2004a), Salacuse and Sullivan (2005), Neumayer and Spess (2005), and Buthe and Milner (2009) find economically and statistically significant effects.[4] Furthermore, there is *no study* trying to systematically explain empirically the economic determinants of BITs — much less one motivated by a formal general equilibrium model. This paper addresses this shortcoming.[5]

In this paper, we examine theoretically and econometrically the economic determinants of BITs — in a manner consistent with understanding the economic determinants of PTAs. While BITs have been examined much less in the international economics literature, the motivation for such agreements for FDI is actually quite similar to that for PTAs for trade. While "Friendship, Commerce and Navigation" treaties surfaced as early as the 18th century, modern BITs were effectively created in the late 1950s in response to numerous expropriations of FDIs as well as the limitation of the General Agreement on Tariffs and Trade (GATT) to trade only; (West) Germany concluded the first modern (post-World War II) BIT with Pakistan in 1959. The first modern BITs were intended to reduce for home countries the relative cost of FDI outflows by reducing the risk of "expropriation" by host countries' governments. Hence, the likelihood of a BIT should be positively related to the degree of expropriation risk, other things equal. More recently, BITs have addressed FDI-related issues beyond expropriation risk to promote investment liberalization. UNCTAD (2007) notes that many of the existing BITs guarantee foreign investors fair-and-equitable, non-discriminatory, and "national" treatment. Consequently, more recently BITs have been spurred by host countries as "instruments" of investment liberalization to encourage capital exporting countries to provide FDI inflows to developing and developed capital importing countries, much as PTAs have proliferated as instruments of trade liberalization among and between developed and developing countries.

Table 1
Bilateral investment treaties (BITs) and preferential trade agreements (PTAs) across 12,880 country-pairs in the year 2000.
Sources: WTO and UNCTAD.

		PTAs		Sum
		Yes (1)	No (0)	
BITs	Yes (1)	556	923	1479
	No (0)	1478	9923	11,401
	Sum	2034	10,846	12,880

Notes: There are 161 countries (12,880 pairs) in the sample.

Since the fundamental purpose of a BIT is to encourage FDI flows between country-pairs by reducing the relative cost of FDI and that of a PTA is to encourage trade between country-pairs by reducing the relative cost of trade, economic determinants of BITs may well share many similarities to those of PTAs. Since there has been no previous formal theoretical or econometric model of the determinants of BITs, our starting point is the new literature on the economic determinants of PTAs. This literature, surveyed in Freund and Ornelas (2009), starts with Baier and Bergstrand (2004), or BB, who developed a qualitative choice econometric model of the likelihood of a pair of countries having a PTA in a given year.[6] Motivated by a general equilibrium model of world trade with two factors, two monopolistically-competitive markets with national exporting firms, and explicit intercontinental and intracontinental trade costs among multiple countries on multiple continents, the BB model suggests that country-pairs are more likely to have a PTA: (1) the closer together they are; (2) the more remote they are from other markets; (3) the larger their joint economic size; (4) the more similar their economic sizes; and (5) the larger the difference in the pairs' relative factor endowments (up to a point). BB showed that all these economic factors were economically and statistically significant (with expected signs) in explaining cross-sectional variation in country-pairs' probabilities of having PTAs with a pseudo-R^2 of 73%. Using a larger sample of 10,585 pairs in the year 2000, Egger and Larch (2008) predicted correctly about 781 of the 1263 pairs with PTAs (or 62%). Their pseudo-R^2 was considerably lower at 27% (as expected) due to their much larger and less selective sample.

However, the economic determinants of BITs are not likely to be explained by the same econometric model, due to several considerations. First, BITs potentially influence FDI flows. Consequently, while economic size and similarity help to predict PTAs, they may not simultaneously predict BITs; as mentioned, most BITs are between developed and developing countries (and the latter tend also to be economically smaller than the former). Other factors – such as bilateral trade and investment costs and relative factor endowments – are likely to have differing effects on explaining BITs relative to PTAs.[7] Since FDI is generated by multinational enterprises (MNEs), a theoretical framework should incorporate MNEs' behavior; consequently, a simple Helpman–Krugman–Heckscher–Ohlin general equilibrium model of trade as in BB is insufficient. An extension of the BB framework to include MNEs, FDI flows, and foreign affiliate sales (FAS), in the spirit of the "Knowledge–Capital" (KC) models of Markusen (2002) and Markusen and Maskus (2001, 2002), is a natural direction. Fortunately, Bergstrand and Egger (2007), or BE, extended the $2\times2\times2$ KC model

[3] An excellent edited volume of recent studies on the effect of BITs (and double taxation treaties) on foreign direct investment, including many of the papers noted in this paragraph, is Sauvant and Sachs (2009).

[4] Moreover, only one paper – Aisbett (2009) – provides a formal game-theoretic model of BIT formation based upon expropriation risk. We refer to this model later for motivating the inclusion of a measure of expropriation risk in our empirical analysis. However, that model does not address how factors such as economic size and similarity, trade and investment costs, relative factor endowments, and their interactions can help explain the likelihood of a BIT between a country-pair, which is our focus.

[5] The only empirical study close to ours is Swenson (2005), who provides an econometric analysis that explains the number of BITs across countries in terms of per capita incomes, expropriation risk, and pre-existing levels of FDI stocks. However, the study is not motivated by a formal economic model and does not address the economic determinants emphasized in our study.

[6] Recent extensions of the model include, for example, Egger and Larch (2008), Chen and Joshi (2010), and Baldwin and Jaimovich (2012), who examined the role of "third-country PTAs" for explaining subsequent PTA formations and enlargements, and Bergstrand et al. (2011), who examined the role of several economic variables for the "timing" of PTA formations and enlargements.

[7] For instance, a dummy variable for common land border can – and does – have differential effects, since this variable tends to be positively correlated with trade flows but negatively correlated with FDI flows.