Third-country effects on the formation of free trade agreements ☆

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ABSTRACT

The recent proliferation of free trade agreements (FTAs) has resulted in an increasingly complex network of preferential trading relationships. The economics literature has generally examined the formation of FTAs as a function of the participating countries' economic characteristics alone. In this paper, we show both theoretically and empirically that the decision to enter into an FTA is also crucially dependent on the participating countries' existing FTA relationships with third countries. Accounting for the interdependence of FTAs helps to explain a significant fraction of FTA formations that would not otherwise be predicted by countries' economic characteristics.

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1. Introduction

The international trading system has experienced a dramatic increase in the number of free trade agreements (FTAs) in recent decades. Fig. 1(a) shows that new FTAs went into force every year during the period of 1991–2005. In 2004 alone, eighteen new FTAs were established. A parallel development is the increasing number of FTA partners for each country (Fig. 1(b)). In 1991, each nation had on average 1.8 FTA partners. In 2005, the average had risen to 9.9.

In this paper, we examine how existing FTA relationships affect countries' incentives to form new FTAs. Previous studies have generally viewed the decision to enter into an FTA as a function of the participating countries' economic characteristics alone (e.g., market size, production cost, and distance), ignoring any potential effect of existing FTAs. Our analysis shows that a country pair's incentives to establish an FTA with each other depend crucially on their existing FTA relationships with third countries.

We first develop a three-country theoretical model to highlight the importance of third-country effects. In this model, we examine how

the incentives of a country pair to enter into an FTA with each other vary depending on whether the two countries already have existing FTAs with the third country. We begin with a benchmark "no-FTA" case in which neither country in the pair has an FTA with the third country. This benchmark case is then compared with two alternative scenarios: (a) a "one-FTA" case in which only one country in the pair has an FTA with the third country, and (b) a "two-FTA" case in which both countries in the pair have FTAs with the third country.[2] This comparison enables us to show how existing FTAs influence a country pair's decision to establish an FTA with each other and how the effect varies with the structure of existing FTA relationships.

Comparing the one-FTA case with the benchmark, we find that when only one country in the pair has a pre-existing FTA, that country has an unambiguously stronger incentive to form a new FTA with the other country in the pair. But the incentive for the other country (without a pre-existing FTA) to join the agreement is strictly lower. The theoretical results suggest that the country pair will jointly support an FTA only if the country with a pre-existing FTA offers a sufficiently attractive export market, which requires the country to have relatively large market size, a high-cost domestic firm, and low transport costs. Comparing the two-FTA case with the benchmark, we

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[2] As an example of the one-FTA case, consider the U.S., South Korea, and Mexico. The U.S. has an FTA with Mexico since 1994, while South Korea does not have FTA with Mexico. An example of the two-FTA case includes the U.S., Chile, and Mexico. As of 1999, both the U.S. and Chile had an FTA with Mexico even though the two did not have an FTA with each other until 2004.
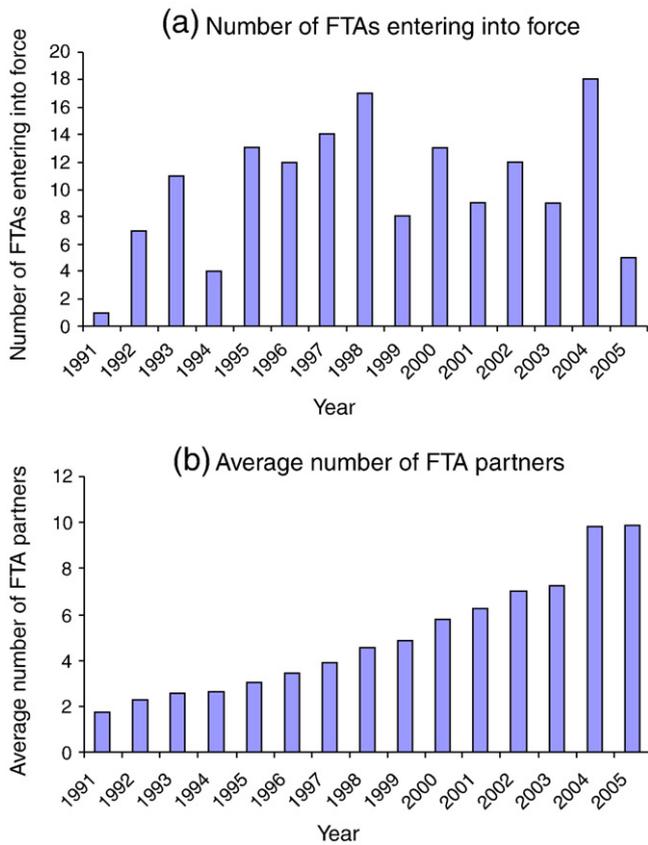
Fig. 1. (a)–(b) Time trends in free trade agreements.

both countries are symmetrically affected by the loss sharing and concession erosion effects. The net effect of the existing FTAs is to raise both countries' incentive to enter into an FTA with each other relative to the benchmark case.

Our empirical results are broadly consistent with the theoretical predictions. We estimate countries' decision to form an FTA with each other as a function of not only their economic characteristics but also their existing FTAs with third countries. The results provide strong evidence that existing FTA relationships significantly affect countries' incentives to establish new FTAs. Countries with similar economic characteristics but different FTA structures display strikingly different propensities to form new FTAs. Accounting for third-country effects significantly raises the predictive ability of the empirical model, increasing the number of successfully predicted FTAs by 31%.

Our paper builds on a large body of theoretical literature that examines the determinants of FTA formation (e.g., Baldwin, 1999; Bond et al., 2004; Bond and Syropoulos, 1996; Frankel, 1997; Furusawa and Konishi, 2007; Krugman, 1991; Yi, 1996).[3] Ethier (1998), Bagwell and Staiger (2004), and Goyal and Joshi (2006), in particular, have anticipated the "concession erosion" effect we identify here. Bagwell and Staiger (2004) show, for example, that the formation of trade agreements between two countries can erode the value of concessions to an outsider country because of adverse movement in the outsider's terms of trade.[4] This hypothesis has not been examined empirically and this study seeks to fill that gap.[5]

Our paper is also closely related to the growing empirical literature on FTA formation. Baier and Bergstrand (2004) and Magee (2003) are the first studies to estimate the economic determinants of FTAs. Both papers find that trade creation is a major motive for forming FTAs. They show that countries with relatively similar market size, similar factor endowments, and geographic proximity are more likely to have FTAs in place. A recent study by Egger and Larch (2008) extends the literature by estimating the spatial relationship of preferential trade agreements (PTAs) including both customs unions and FTAs. In particular, they focus on the enlargement of existing PTAs, such as the EU and NAFTA, and the formation of new PTAs between outsider countries. Our paper differs from Egger and Larch (2008) in three ways. First, we examine the effect of countries' existing FTAs on their incentives to establish new FTAs. Second, we allow the effect of existing FTAs to vary with the structure of FTA relationships. Finally, we offer evidence on third countries' potential loss sharing and concession erosion effects and investigate the conditions under which each type of FTA relationship generates a positive effect.

The paper is organized as follows. Section 2 develops a three-country theoretical model and derives the paper's main hypotheses. Section 3 describes the data to be used in the empirical analysis. Section 4 presents the econometric framework and empirical evidence. Section 5 discusses sensitivity analyses and Section 6 examines the predictive ability of the empirical model. Section 7 concludes.

find that the incentives to enter into an FTA with each other are unambiguously stronger for both countries when they both have pre-existing FTAs with the third country.

The theoretical results can be explained by examining the trade-offs involved from forming an FTA. When a country pair establishes an FTA, both countries experience gains in export profit and consumer surplus as well as reductions in home profit and tariff revenue. The country pair will jointly support the FTA only if the net welfare change is positive for each country. Our analysis shows that the magnitude of the net welfare change depends on whether the two countries already have pre-existing FTAs with a third country. Two third-country effects are particularly important in determining the net welfare change. The first effect is a *loss sharing* effect and applies to countries with a pre-existing FTA. When a country already has a pre-existing FTA, the fall in its home-market profit from forming a new FTA will be smaller because part of the profit reduction is deflected to its existing FTA partner. The second effect is a *concession erosion* effect. It applies to countries whose potential FTA partner has a pre-existing FTA. A pre-existing FTA of the potential partner reduces the export profit gain that a country can achieve from a new FTA.

In the one-FTA case where only one country in the pair has a pre-existing FTA, that country's firm will achieve the same gain in export profit as in the benchmark case when the country forms a new FTA. But the decrease in its home-market profit will be smaller due to the loss sharing effect. This raises the incentive of the country to form a new FTA relative to the benchmark case. In contrast, the incentive for the other country in the pair (without a pre-existing FTA) to join the agreement is strictly lower than the benchmark since its firm will experience the same loss in home profit but a smaller gain in export profit due to the concession erosion effect. In the two-FTA case where two countries both have pre-existing FTAs with the third country,

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[3] A thorough review of the theoretical literature is beyond the scope of this paper. We limit our discussion to studies that are particularly relevant to our paper. See Krishna (2004) and Baier et al. (2007) for excellent surveys of the literature.

[4] Bagwell and Staiger (2004) obtain the "concession erosion" effect using a perfectly competitive general-equilibrium model, while we show the same result in a standard Cournot setting (see Krishna, 1998; Freund, 2000; Ornelas, 2005; Saggi, 2006; Goyal and Joshi, 2006 for other FTA studies using Cournot models). This implies that concession erosion is a robust phenomenon that is not exclusive to a specific type of theoretical model.

[5] Our paper is also related to the theoretical work of Aghion et al. (2007), who address the potential externalities in sequential negotiation of FTAs. Their focus, however, is on how the structure of coalition externalities shapes countries' choices between sequential and multilateral bargaining. Their results indicate that the leading country strictly prefers sequential bargaining when the coalition externalities are negative in at least one of the follower countries and multilateral bargaining when the coalition externalities are positive in both follower countries.