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South Asia Economic Journal 2009; 10; 1
DOI: 10.1177/139156140901000101

The online version of this article can be found at:
http://sae.sagepub.com/cgi/content/abstract/10/1/1

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Adverse Selection Effect for South Asian Countries in FTA Formation: An Empirical Study on the Determinants of FTA among the Bilateral Trading Partners

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This study examines the economic and non-economic factors governing the decision of forming Free Trade Agreements (FTAs) between two non-zero trading partners by estimating a Probit model using 9,178 country pairs having 705 active and operational bilateral FTAs. This study works on the implied hypothesis that FTA is an endogenously determined variable dependent on a number of economic and non-economic factors which are usually omitted from gravity type trade models. The study finds economically important and statistically significant evidences that the likelihood of forming an FTA by a pair of countries is positively related to the economic mass of the partners, similarity in economic size, differences of relative factor intensity, political stability, past import tariffs and the existence of FTAs in the close neighbourhood, whereas it is negatively related to the distance, economic remoteness and geographic continuity. Based on these findings, this study provides a good explanation as to why South Asian Association for Regional Cooperation (SAARC) countries are still far behind the FTA negotiation process and how SAARC countries are subject to adverse selection effect by rest of the world.

(JEL: F14, F12, C25, D40) **Keywords:** Free Trade Agreements, International Trade, Probit Model, Adverse Selection.

Acknowledgements: The views expressed in this paper are the authors' personal views and do not necessarily reflect those of the Institute of Policy Studies or the University of Ruhuna. The authors of this paper welcome comments and suggestions to the authors' email addresses. Authors are grateful to referees of this journal for useful comments.

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South Asia Economic Journal, 10:1 (2009): 1–30
SAGE Publications Los Angeles ■ London ■ New Delhi ■ Singapore ■ Washington DC
DOI: 10.1177/139156140901000101

1. Introduction

Historically, trade and Free Trade Agreement (FTA) have been, and will continue to be, important gateways for improving world trade, given that the world trading system is substantially hampered by man-made barriers. There are over 300 Regional Trading Agreements (RTAs) currently in force with most countries in the world participating in at least one of them and around 80 per cent of RTAs are FTAs. For example, by 2005 North American Free Trade Area (NAFTA), European Free Trade Area (EFTA), Association of South East Asian Nations (ASEAN) and European Union (EU) countries had an FTA network of 18, 19, 9 and 27 respectively. Nevertheless, SAARC countries[1] are still behind the process, possessing only a few FTAs, namely, India–Sri Lanka (1998), India–Singapore (2005), India–Thailand (2003) India–Chile (2005) and Sri Lanka–Pakistan (2007). SAARC envisaged the South Asian Preferential Trading Agreement (SAPTA) in 1995 as the first step towards intra-bloc trade liberalization. Despite the poor achievements in SAPTA, the agreement for the South Asian Free Trading Area (SAFTA) was signed in 2004 with the view to liberalize regional trade fully by year 2016. Despite all these attempts South Asian Association for Regional Cooperation (SAARC) is still far behind the FTA movement compared to the other regional trading blocs.[2]

Policy makers often regard these trade initiatives as a positive effect of a more 'globalized' world. Within the economics profession, however, there remain significant disagreements about the consequences of 'regionalism'. Small nations fear that FTAs with larger and richer nations will erode their industrial bases. Though forming an FTA itself is a political decision by country leaders, there should be certain economic and non-economic factors that lead policy makers to negotiate for FTA. This study in general attempts to identify the factors determining FTAs, their relative importance and in particular, the causes explaining the sluggish growth of FTAs in SAARC and their future potentiality.

However, this is not the first attempt to analyze the economic determinants of FTAs. The first systematic empirical analysis of the economic determinants behind the likelihood of FTAs came from Baier and Bergstrand (2004). Their goal was to motivate an empirical model of endogenous selection into Preferential Trade Agreements (PTAs) depending on intra- and inter-continental trade costs, country size and relative factor endowment differences. Their study developed

[1] The SAARC was established on 8 December 1985 by the states of Pakistan, Bangladesh, Bhutan, Nepal, Maldives, India and Sri Lanka.

[2] Estimating a Gravity model using 1996–97 data Hassan (2001) also shows the insignificancy of SAARC as a regional bloc.

an econometric model based upon a general equilibrium model of world trade with two factors of production, two monopolistically competitive product markets and explicit intra-continental and inter-continental transportation costs among multiple countries on multiple continents.

Baier and Bergstrand (2004) show that the chance for an FTA is higher (i) the closer are two countries in distance; (ii) the more remote a pair of continental trading partners from the rest of the world (ROW); (iii) the larger and more similar in economic sizes the two trading partners; (iv) the greater the difference of capital–labour ratios between two partners, while the smaller the difference of the members' capital–labour ratios with respect to the ROW's capital–labour ratio. The said study correctly predicts, solely based upon economic characteristics, 85 per cent of the 286 FTAs that existed in 1996 among 1,431 pairs of countries and 97 per cent of the remaining 1,145 pairs without FTAs. However, negotiation for an FTA necessarily depends on some other economic and political factors which have been neglected in the model of Baier and Bergstrand (2004).

Peter and Mario (2006) extend the study of Baier and Bergstrand (2004) by testing three hypotheses regarding inter-dependence of FTAs. First, the formation of foreign PTAs generates an incentive to lower tariffs preferentially for a country-pair to reduce the welfare loss from trade diversion. Second, this incentive declines in the distance to foreign PTAs since the associated trade diversion is then lower. Finally, the incentive is stronger for joining other countries in a PTA (inter-dependence within PTAs) than it is for forming a PTA with other outsiders (inter-dependence across PTAs).

In the present study, we extend the analysis of Baier and Bergstrand (2004) and Peter and Mario (2006) in several directions. Notwithstanding the excellent work by Baier and Bergstrand (2004) where they identify four major determinates of FTA, we believe that there are some other factors influencing FTA which still remain unidentified and unquantified. For example, given all the other economic factors are very conducive to an FTA, political instability may adversely affect a country to get the desired counter-parties' consent to form an FTA. In that sense, the present study is not a substitute to, but supplementary to the former. First, the study improves the above stated empirical model in such a way that the probability of an FTA depends on economic and geographical fundamentals plus the political stability, border effect, import tariffs, the number of existing FTAs among the neighbouring countries, common-language effect and post-colonial effect between two trading partners. These factors have been proven to have significant impacts on international trade and therefore, not necessarily but very likely, might influence the decision to form FTAs as well. Second, we provide different interpretations for remoteness and to the factor intensity differentials. Third, this study puts forward empirical results ascertaining the chances for

(a) SAARC countries to form FTAs with their major trading partners and (b) SAARC major trading partners to prioritize SAARC countries depending on their preferences to form bilateral FTAs with each SAARC country.

The study is organized as follows. Section 2 is devoted to the literature review while Section 3 presents the data and methodology. Section 4 assesses the empirical hypotheses and test results, while Section 5 presents the potentiality of FTA configuration among the major trading partners of SAARC countries. Summary and conclusion of the study are discussed in Section 6 followed by the limitations of the study in the last section.

2. Literature Review

There has been a growing body of literature that examines several effects of socio-economic and political factors on free trade. The gravity model, in its basic form, predicts that trade from one region/country to another is directly proportional to the product of the two regions' Gross Domestic Products (GDPs) and inversely proportional to the distance between them. In general, physical distance negatively affects trade flows due to increasing transportation and transaction costs. Although international trade-related costs are gradually falling with the development, Antonin and Coeurdacier (2007) found that distance, which acts as proxy information asymmetries, is surprisingly a very large barrier to cross-border asset trade. The distance as a proxy for transport cost has been remarkably successful in almost all trade studies and perhaps it has been the most robust estimator across different studies. The concept of distance, which is crucial in economic geography, is not only operationalized in physical terms, but also in cultural and institutional terms.

According to the literature, the difference of language among trading partners has been considered as one of the major impediments to trade, as exchange of goods may be impeded by costs associated with surmounting language barriers. The religious difference sometimes might prohibitively decrease trade, say for example, trading beef between the USA and India. On the other hand, a close trade relationship between the colonizer and the colonized country may persist even after post-colonial freedom. Thus, cultural factors such as language, religion and colonial experience must play an important role in international trade as well as in FTA negotiation platforms.

A large number of studies empirically investigate the effect of cultural ties on merchandize trade, by introducing some dummy variables into a gravity equation (Boisso and Ferrantino 1997; Foroutan and Pritchett 1993; Guo 2004; Havrylyshyn and Pritchett 1991; Noland 2005). In these studies, a positive relationship has been consistently obtained between cultural ties and merchandize trade. The recent study of Rocco (2007) addressed that the cultural factors are also as important as

geographic ones in determining trade openness and prosperity. Melitz (2008) has followed the practice in the field of trade of viewing all indicators of a common language and linguistic diversity in foreign trade as slow-moving variables that can be regarded as fixed.

The concept of 'border effect' has been central to many of the literatures in international trade and has been formalized by the celebrated gravity model which trade economists have seemingly borrowed from Physics. Anderson (1979), Bergstrand (1985), McCallum (1995) and more recently Engel and Rogers (1996, 2000, 2001), Parsley and Wei (2001), Anderson and van Wincoop (2003), and Gorodnichenko (2005) have contributed substantially to the literature on bilateral trade patterns using the gravity model or extensions to it.

Alessandro and Raimondi (2008) use a gravity model to investigate the level of trade integration among different OECD (Organization for Economic Co-operation and Development) country 'blocs' through the border-effect approach. Frankel and Rose (2002) using gravity-based cross-sectional evidence claim that currency union stimulates trade up to the extent that a country belonging to a currency union trades more than triple the amount the other members of the zone do. Yeyati (2003) found that the link between a common currency and bilateral trade flows is significantly stronger for common currency pairs comprising of unilaterally dollarized countries rather than for the members of a multilateral currency union.

Bagwell and Staiger (1997a, 1997b), in a couple of papers, study the interactions between the formation of free trade associations and customs unions and multilateral trade liberalization. Ludema (1996) focuses on the effect of regional trade agreements on multilateral trade negotiations. The study found that customs unions are generally more effective bargainers than free trade areas because of their commitment to common external tariffs. The author also demonstrates that the possibility that regional trade agreements could be reached has a profound effect on the outcome of multilateral trade negotiations.

Nitsch (2007) found that membership in the G7/G8 is consistently associated with a strong positive effect on trade. This study also found that regional FTA, currency union, distance, real GDP, real GDP per capita, common language, land border, number landlocked, product land area, common colonizer and currently colonized also significantly affect trade.

However, to negotiate an FTA is eventually a political discussion. Will an FTA between these countries be politically viable? And if so, what form will it take? Grossman and Helpman (1995) address these questions using a political economy framework that emphasizes the interaction between industry special interest groups and an incumbent government. They describe the economic conditions necessary for an FTA to be an equilibrium outcome, both for the case when the agreement must cover all bilateral trade and for the case when a few politically sensitive sectors can be excluded from the agreement.

Table 1 summarizes some of the common variables used to explain bilateral trade in different studies related to trade, mostly gravity type studies.

TABLE 1
Common Variables Used to Explain Trade in Gravity Models

Variable	*Research Paper*
Common Border	Aitken (1973), Montenegro and Soto (1996), Bergstrand (1985), Freund (2000), Rose (2000), Frankel and Rose (2002) Soloaga and Winters (2001), Feenstra et al. (2001) Frankel and Romer (1999) Thursby and Thursby (1987), Frankel and Wei (1993), Frankel and Wei (1995), Frankel and Wei (1996) and Toshihiro Okubo (2004)
Difference in GDP per Capita	Donny (2003)
Remoteness	Soloaga and Winters (2001), Feenstra et al. (2001) and Rose (2000)
Common Language	Rose (2000), Soloaga and Winters (2001), Frankel and Wei (1995), Frankel and Wei (1996), Montenegro and Soto (1996), Feenstra et al. (2001) and Frankel and Rose (2002)
Colonial Relationship	Rose (2000), Frankel and Rose (2002) and Freund (2000)
Common Currency	Rose (2000) and Frankel and Rose (2002)

Source: Authors' compilation.

Even though extensive research has been done on the determinants of trade in general, there is little work done on FTAs. On theoretical ground, Richardson (1993) shows that governments tend to reduce external tariffs to minimize the tariff revenue losses caused by the shift of imports from outsiders to FTA partners. Bagwell and Staiger (1999) assert that changing terms of trade in the presence of an FTA generates an extra force to lower external tariffs. On the contrary, Cadot et al. (1999) argue that countries entering in an FTA may also have reasons to raise their non-preferential tariffs.

On the empirical side, Baier and Bergstrand (2007) is the only published paper systematically analyzing the effect of FTA. In a study considering ASEAN countries' FTAs with USA, Naya and Michael (2006) conclude that an important motivation for ASEAN countries to seek FTAs with the United States is the need to 'reclaim' most-favoured-nation (MFN) status in the US market, which has been eroded due to US FTAs with other countries.

Almost all the literature reviewed in the foregoing, driven by many other objectives, treated FTAs as exogenously determined and therefore as orthogonal to the other variables present in the model. Our claim is that FTAs are not necessarily exogenous; there are economic and non-economic determinants pushing countries into FTAs or pulling countries out of FTAs.

3. Data and Methodology

To explain the determinants of FTA among the bilateral trading partners, this study uses the Probit model which was introduced by Chester Ittner Bliss in 1935. The Probit model is an estimation technique for equations with dummy dependent variables that avoids the unboundedness problem of the linear probability model by using a variant of the cumulative normal distribution(Studenmund 2006).

$$P_i = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{z_i} e^{-s^2/2dt} \tag{1}$$

$$\begin{aligned} &P_i = \text{the probability that the dummy variable } D_i = 1 \\ &Z_i = \Phi^{-1}(P_i) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots\ldots\ldots + \beta_n X_{ni} \\ &s = \text{a standardized normal variable} \end{aligned} \tag{2}$$

where, Φ^{-1} is the inverse of the normal cumulative distribution function. Probit model is typically estimated by applying maximum likelihood techniques to the model in the form of equation (1), but the results are presented in the format of equation (2).

This study uses Probit model with a dummy dependant variable that takes the value 1 if two countries have an active FTA in year 2005, and 0 otherwise, followed by a set of explanatory variables described in the following.

$$\begin{aligned} P(FTA = 1) = Z_i(&\beta_0 + \beta_1 natural + \beta_2 remox\_02 + \beta_3 remoy\_02 + \beta_4 pppgdp2005 \\ &+ \beta_5 dpppgdp2005 + \beta_6 dkl2002 + \beta_7 sqdkl2002 + \beta_8 psx\_2002 \\ &+ \beta_9 psy\_2002 + \beta_{10} border + \beta_{11} tax2\_4 + \beta_{12} langue \\ &+ \beta_{13} colony + \beta_{14} fxneib7 + \beta_{15} fyneib7 + \beta_{16} Xinten2) + \varepsilon_{ij} \end{aligned} \tag{3}$$

where, *natural* denotes the natural logarithm of the inverse of the distance between two countries. *pppgdp2005* denotes sum of the logs of purchasing power parity (PPP) adjusted GDPs of both countries in 2005 and *dpppgdp2005* stands for the absolute difference between the log values of the PPP adjusted GDPs of both countries in 2005. Here, *remox_02* and *remoy_02* are index numbers representing relative economic remoteness of country *x* and *y* respectively. These two indexes were calculated using 2002 data as follows.[3]

[3] See Nandasiri (2007) for more details of this index and the weaknesses of the alternative remoteness indexes used historically.

$$remox\_02 = \sum_{\substack{n=1 \\ n \neq x}}^{5} \frac{D_{xn}}{PPPGDP_n} \qquad remoy\_02 = \sum_{\substack{n=1 \\ n \neq y}}^{5} \frac{D_{yn}}{PPPGDP_n}$$

The index always produces a positive number which is negatively dependent on the economic masses of the five geographically nearest countries and positively dependant on the direct distance to each of the five countries. There is no upper limit for the index and it is also sensitive to scaling differences. The index calculated for any year ranks the countries according to their *relative remoteness*. Nothing prevents anyone else using any number of countries instead of the nearest 'five' used in this study; still the index produces *relative remoteness* without loss of generality.

The variable *dkl2002* measures the absolute difference of the log values of the per capita GDP in 2002, which is a proxy for factor intensity differentials in the two countries jointly with *sqdkl2002* which measures the square of *dkl2002* used to approximate the quadratic functional form in factor intensity differentials. The underlying assumption is that differences in GDP per capita reasonably represent differences in K/L ratios of the countries. For instance, given the same value for GDP for two countries, a high GDP per capita of one country implies that a relatively small number of people have contributed to the GDP, thus production should be capital intensive. On the other hand a low GDP per capita of the other country implies that a relatively large number of people have contributed to GDP, thus production should be labour intensive. This will be a better explanation when the portion of human capital embodied in GDP is also accounted for capital stock of the country. Nevertheless, using *dkl2002* as a proxy for factor intensity differentials is not totally free from errors. As pointed out by an anonymous referee, it could stand as a proxy for several other things; for example, the differences in consumer demand patterns. In absence of a reliable proxy, using *dkl2002* will help at least to keep other estimates free from omitted variable bias.

Here, *psx_2002* and *psy_2002* are index numbers that vary from –2.5 to 2.5 denoting the degree of political stability/instability of two countries coupled in pairs. The variable *border* is a dummy variable equal to 1 if both countries share a common border and 0 otherwise. Variable *tax2_4* represents the average import tariffs of the destination country for the period 2002 to 2004. *Langue* is a dummy variable equal to 1 if at least 30 per cent of the population of one country shares a common language with the partner country and 0 otherwise. This is more realistic than taking official language of the country as traditionally used in gravity models. The variable *colony* is also a dummy which is equal to 1 if one is a colony of the other or both countries had been colonized by the same colonizer and 0 otherwise.

The variables named *fxneib*7 and *fyneib*7 measure the sum of already in progress FTAs belonging to the seven nearest countries, which is defined as the neighbourhood. Variable *Xinten2* measures the export intensity between country *i* and *j* where the exports of country *j* is taken as a percentage of total imports of country *i* for year 2002.

$$Xinten2 = \frac{X_{2002}^{ji}}{\sum_{p=1}^{n} X_{2002}^{pi}}$$

The underlying argument is that countries tend to select highly integrated trading partners as potential candidates for FTAs. ε is the disturbance term.

This study uses several data sources covering 184 countries which include 9,178 pairs of non-zero trading partners having 705 active and operational bilateral FTAs. Information to establish FTA dummy was directly taken from the World Trade Organization (WTO) official website.[4] The list of countries and the FTAs considered in this study are given in Table A1 and Table A2. Great circle distances between the two countries (capital to capital) are authors' calculations using the geographical coordinates from Central Intelligence Agency (CIA) *World Fact Book*.[5] The CIA *World Fact Book* was also used to obtain qualitative data to create dummy variables such as common language and common border. Country population was taken from the United States Census Bureau[6] and political stability index was based on Kaufmann et al. (2003). This political stability index ranges from around –2.5 to around +2.5 and higher or positive values indicate greater political stability in 2002. PPP converted annual GDP series was taken from the International Monitory Fund (IMF) World Economic Outlook Database[7] in April 2006. Average import tariffs between years 2002 and 2004 in both countries were obtained from the United Nations Conference on Trade and Development (UNCTAD) Trade Analysis and Information System (TRAINS) database.

4. Empirical Hypotheses and Test Results

This section summarizes the eleven hypotheses which are related to interdependency in FTA negotiation and the estimated results. However, the first five hy-potheses are directly borrowed from the study of Baier and Bergstrand (2004) and Peter and Mario (2006). The estimated empirical results for standard Probit model (3) are shown in Table 2. The estimates supporting the first five

[4] http://www.wto.org/

[5] https://www.cia.gov/library/publications/the-world-factbook/index.html

[6] http://www.census.gov/ipc/www/idb/

[7] http://www.imf.org/external/pubs/ft/weo/2006/01/data/index.htm

TABLE 2
Probit Results for the Probability of an FTA (Model 1 to 6)

	Specification											
Variable	*1*		*2*		*3*		*4*		*5*		*6*	
Constant	1.548[a]	(9.54)	1.334[a]	(8.10)	0.771[a]	(3.82)	–0.004[a]	(–0.02)	–0.010[a]	(–0.04)	0.186	(0.78)
Natural	0.362[a]	(18.41)	0.322[a]	(15.90)	0.347[a]	(16.52)	0.306[a]	(14.23)	0.296[a]	(13.43)	0.287[a]	(12.68)
remox_02			–0.107[a]	(–5.01)	–0.116[a]	(–5.38)	–0.120[a]	(–5.39)	–0.122[a]	(–5.44)	–0.087[a]	(–3.88)
remoy_ 02			–0.133[a]	(–5.69)	–0.133[a]	(–5.72)	–0.138[a]	(–6.01)	–0.136[a]	(–5.92)	–0.117[a]	(–5.10)
pppgdp2005					0.061[a]	(4.87)	0.136[a]	(9.48)	0.135[a]	(8.81)	0.095[a]	(5.86)
dpppgdp2005							–0.184[a]	(–15.22)	–0.186[a]	(–12.93)	–0.167[a]	(–11.17)
dkl2002									–0.079[a]	(–2.68)	–0.055[b]	(–1.77)
sqdkl2002									0.011[a]	(3.18)	0.009[b]	(2.37)
psx_2002											0.217[a]	(7.82)
psy_2002											0.137[a]	(5.46)
Area under ROC curve	0.7077		0.7229		0.7298		0.7957		0.7986		0.8134	
Pseudo R^2	0.5665		0.5812		0.586		0.6433		0.645		0.6582	
Log likelihood	–2,368.24		–2,330.81		–2,318.69		–2,173.26		–2,169.18		–2,093.05	
Number of observations	9,832		9,832		9,832		9,832		9,832		9,178	

Probit Results for the Probability of an FTA (Model 7 to 13)

	Specification													
Variable	*7*		*8*		*9*		*10*		*11*		*12*		*13*	
Constant	0.426	(1.72)	0.284	(1.13)	0.332	(1.30)	0.290	(1.15)	0.338	(1.32)	–0.856[a]	(–2.84)	–0.881[a]	(–2.89)
Natural	0.319[a]	(13.02)	0.324[a]	(13.19)	0.325[a]	(13.22)	0.328[a]	(13.15)	0.329[a]	(13.18)	0.216[a]	(7.59)	0.211[a]	(6.95)
remox_02	–0.085[a]	(–3.81)	–0.086[a]	(–3.84)	–0.085[a]	(–3.81)	–0.086[a]	(–3.85)	–0.085[a]	(–3.82)	–0.059[b]	(–2.45)	–0.060[b]	(–2.49)
remoy_02	–0.114[a]	(–4.97)	–0.124[a]	(–5.35)	–0.123[a]	(–5.32)	–0.124[a]	(–5.34)	–0.123[a]	(–5.32)	–0.048[b]	(–2.05)	–0.047[b]	(–2.02)
pppgdp2005	0.099[a]	(6.05)	0.106[a]	(6.45)	0.103[a]	(6.24)	0.108[a]	(6.50)	0.105[a]	(6.29)	0.074[a]	(4.29)	0.068[a]	(3.31)
dpppgdp2005	–0.167[a]	(–11.14)	–0.171[a]	(–11.49)	–0.170[a]	(–11.33)	–0.171[a]	(–11.49)	–0.170[a]	(–11.33)	–0.155[a]	(–10.06)	–0.154[a]	(–9.89)
dkl2002	–0.060[c]	(–1.94)	–0.069[b]	(–2.25)	–0.071[b]	(–2.33)	–0.068[b]	(–2.23)	–0.071[b]	(–2.31)	–0.076[b]	(–2.43)	–0.076[b]	(–2.42)
sqdkl2002	0.009[b]	(2.50)	0.011[a]	(2.99)	0.011[a]	(3.01)	0.011[a]	(2.98)	0.011[a]	(3.00)	0.010[b]	(2.55)	0.001[b]	(2.47)
psx_2002	0.208[a]	(7.48)	0.204[a]	(7.31)	0.201[a]	(7.18)	0.204[a]	(7.31)	0.201[a]	(7.19)	0.173[a]	(5.60)	0.172[a]	(5.56)
psy_2002	0.132[a]	(5.22)	0.173[a]	(6.08)	0.172[a]	(6.03)	0.174[a]	(6.09)	0.172[a]	(6.04)	0.109[a]	(3.68)	0.110[a]	(3.70)
border	–0.401[a]	(–3.40)	–0.398[a]	(–3.39)	–0.381[a]	(–3.22)	–0.382[a]	(–3.20)	–0.365[a]	(–3.04)	–0.232[b]	(–1.93)	–0.233[b]	(–1.98)
tax2_4			0.012[a]	(3.26)	0.012[a]	(3.28)	0.012[a]	(3.26)	0.012[a]	(3.28)	0.014[a]	(3.76)	0.013[a]	(3.68)
langue					–0.128	(–1.24)			–0.126	(–1.22)				
colony							–0.078	(–0.84)	–0.076	(–0.81)				
fxneib7											0.002[a]	(2.95)	0.002[a]	(2.98)
fyneib7											0.007[a]	(8.64)	0.007[a]	(8.64)
Xinten02													–0.075	(–0.51)
Area under ROC curve	0.8157		0.8136		0.8138		0.8133		0.8134		0.8203		0.8204	
Pseudo R^2	0.6607		0.6628		0.6631		0.6629		0.6632		0.6796		0.6796	
Log likelihood	–2,086.93		–2,081.71		–2,080.92		–2,081.35		–2,080.58		–2,039.90		–2,039.77	
Number of observations	9,178		9,178		9,178		9,178		9,178		9,178		9,178	

Source: Authors' calculations.

Notes: a and b are significant at the 0.01 and 0.05 level, respectively; Data in brackets are *z* value.

hypotheses are similar in sign and closer in magnitude to Baier and Bergstrand (2004) except the sign for factor intensities differences. In addition hypotheses 6 to 10 are new additions to the Baier and Bergstrand (2004) model.

Hypothesis 1: The likelihood of forming an FTA between two countries increases as the distance between them decreases. The logic behind this is that the transport cost of international trade becomes lower as the pair of countries gets closer. This consequentially stimulates higher trade volume between the pair of countries and very close countries thus become *natural trading partners*. In order to capture motivation among natural trading partners to form an FTA, this study uses the variable of *natural* that measures the log of the inverse of the greater circle distance between two trade partners' capitals. By taking the inverse of the distance, it is expected to make shorter distances more sensitive to FTA than longer distances. Therefore, the expected sign of this variable is positive. Specification in column 1 of Table 2 reveals that the first hypothesis is supported. Thus, the countries that are closer to each other geographically, perhaps located in the same continent, exhibit a higher probability of FTA negotiation, given all else being equal.

Hypothesis 2: Exporter's willingness to form an FTA with the importer will decrease as the remoteness of importer increases and analogously the importer's willingness to form an FTA with the exporter will decrease as the remoteness of exporter increases. This two-way consideration makes it less likely for FTA to occur between too remote countries. Thus the expected signs for both *remox_02* and *remoy_02* are negative. Recall that our remoteness index is totally different from that of Baier and Bergstrand (2004) and therefore opposite in expected sign. Column 2 in Table 2 shows that both the exporter's and importer's willingness to form an FTA will decrease as the remoteness increases and findings comply with the expected results.

Hypothesis 3: The likelihood of forming an FTA between a pair of countries increases depending on their economic size. Intuitively, the likelihood to form an FTA between a pair of countries increases when each sees that the potential market size of the other is larger. Every country prefers to have an FTA with a country having a bigger market potentiality measured up by GDP. Therefore, expected sign of this variable is positive. Column 3 in Table 2 shows that pairs of countries with larger average PPP GDPs have a higher probability of an FTA and thus support Hypothesis 3. This implies that the probability of forming an FTA between a pair of countries is higher; the larger the economic sizes of trading partners, after accounting for distance and remoteness.

Hypothesis 4: The third hypothesis implied that bigger countries are always preferred by others and small countries are less preferred. This idea leads to the

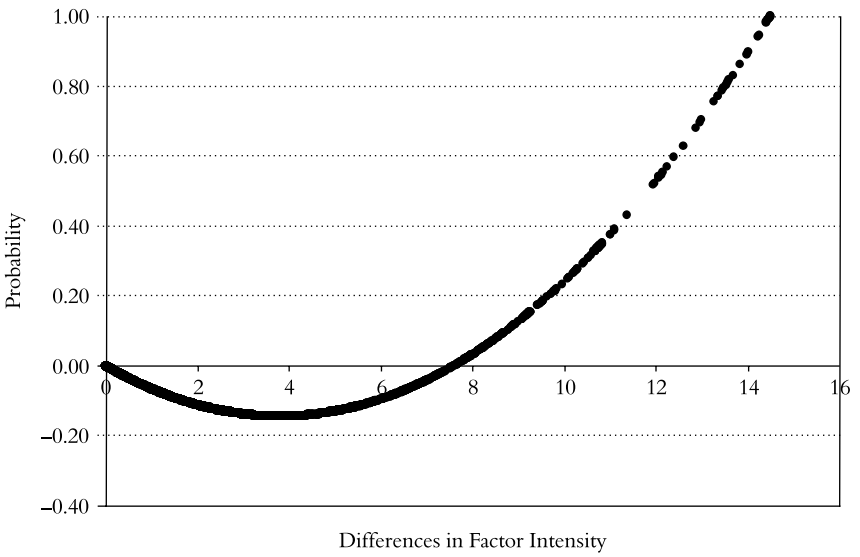
fourth hypothesis that the countries of similar economic size are more likely to form FTAs than the countries of dissimilar economic sizes. Variable *dpppgdp2005* measures the absolute value of the difference between the logs of PPP adjusted GDPs of the two countries in 2005, which is a proxy for market size similarity/dissimilarity. The probability of an FTA is to be lesser as the market disparity increases and thus, the expected sign is negative for this variable. Column 4 in Table 2 demonstrates that pairs of countries with smaller differences in PPP adjusted GDPs have a higher chance to form an FTA supporting the hypothesis that countries of similar size tend to form FTAs among themselves than those of dissimilar sizes do.

Hypothesis 5: Possibility of FTA is higher, the larger the difference between two countries' relative factor intensities, but it happens only if the difference is large enough. Differences in relative factor intensities always stimulate trade based on comparative advantage. Thus, the larger the factor intensity differences are the higher the probability of FTA between them. However, a slight marginal difference in factor intensity might not be adequate motivation to form an FTA. Therefore, this idea always needs to be supported by a sufficiency condition. Thus the necessary condition is that there should be a difference in factor intensity. Sufficiency condition is that the observed factor intensity difference should be large enough. To formalize necessary and sufficient conditions, we expect *dkl2002* be negative and its quadratic form *sqdkl2002* to be positive.

The quadratic relationship among the two variables *dkl2002* and *sqdkl2002* is shown in Figure 1. The figure was developed based on the estimated coefficients shown in the column 6 of Table 2. It demonstrates that a small difference in relative factor intensity between the two countries will not motivate for an FTA but as the difference gets larger, the chance to form an FTA is also getting higher. Technically, when a quadratic form is present in the Probit model, simply the estimated coefficient does not produce probability instead one needs to use calculus to derive the exact marginal effect. So, Figure 1 shows only the directions but is not that meaningful in terms of magnitude. The estimated results support the fifth hypothesis that the probability of an FTA is higher the larger the difference between two countries' relative factor intensity and it could happen only if the difference is large enough.

Hypothesis 6: The likelihood of forming an FTA between a pair of countries increases with greater political stability. The interactions between the countries are higher when the countries are highly politically stabilized. For that reason, the possibility of forming an FTA is higher for a politically stabilized pair of countries rather than politically destabilized pair. Therefore, both the variables *psx_2002* and *psy_2002* are expected to have positive signs. The results shown in the column 6 of Table 2 are supportive of this hypothesis. Therefore, countries

FIGURE 1
Probability of FTA versus Factor Intensity Differentials



Source: Authors' calculations.

having higher degree of political stability then tend to show higher probability in negotiating an FTA among each other.

Hypothesis 7: Possibility for an FTA between two adjoining countries is relatively less. The explanation comes from all gravity models where common border effect was found to be positively significant suggesting adjoining countries are already trading above the expected *natural level*. This is always true except when they are separated by natural barriers or man-made barriers where the adjoining country is *natural enemy* rather than *natural friend*. Since they are already trading more than required, there would be a lesser motivation for adjoining countries to form an FTA. Thus the expected sign of the *border* variable is negative and column 7 of Table 2 shows that there is a higher probability not to form an FTA between adjoining countries.

Hypothesis 8: Possibility of FTA is higher if the pair of countries had higher rate of average import tariffs in the past. Reduction of tariffs or tariff concessions, among many others, is the main target of FTA. If the import tariff level is already low, there is almost nothing more to gain from an FTA. On the contrary, it gives incentives for the other countries to negotiate for an FTA with a country where import tariffs are relatively high. Thus, the expected sign of the *tax2_4* variable is positive. As shown in the column 8 of Table 2, the possibility of forming an

FTA is greater among the countries experiencing higher average tariffs against each other and the results are supportive to the eighth hypothesis.

Hypothesis 9: The likelihood of forming an FTA by a pair of countries increases when the pair of countries share a common language and have colonial relationship. The sharing of a common language and having colonial relationship have been proven to have positive impacts on trade. This study is intended to investigate whether there are any positive impacts on forming an FTA by using *language* and *colony* dummies. The expected signs of these two variables are positive. However, the columns 9–11 in Table 2 denote that for pairs of countries, sharing a common language and/or having colonial relationship are not significant factors to determine FTAs. Consequently, the results are not sympathetic to this hypothesis.

Hypothesis 10: The higher the probability of FTA, the larger the number of FTAs already present in the neighbourhood. The variables named *fxneib7* and *fyneib7* measure the sum of already–in–progress FTAs belonging to the seven nearest countries, which is defined as the neighbourhood. Peter and Mario (2006) were the first to show that this relationship is significantly important. Most of the researchers' pre-mindset is that FTAs are formed to maximize the gains from trade. Nevertheless, there could be situations where countries form FTAs not to maximize the gains but to minimize the possible losses caused due to other countries forming FTAs with their potential markets depriving them of the favourable position so far enjoyed. In short, it follows the idea that one country's decision to form a new FTA is dependent on the number of FTAs other countries already have. Therefore, both *fxneib7* and *fyneib7* are expected to be positive in signs. The results in the column 12 of Table 2 justify that the number of FTAs in the close neighbourhood enhances motivation to form an FTA for the country encircled.

Hypothesis 11: The likelihood of forming an FTA by a pair of countries increases as export trade intensity increases. The rationale behind the hypothesis is to see whether countries prefer to form FTAs with the countries with which they are currently trading substantially. Thus, the expected sign for *Xinten02* is positive. Unexpectedly, there is no significant relationship between current level of trade and the FTA formation as shown in the column 13 of Table 2.

Having estimated the model, it is important to see the percentage of correctly predicted country pairs as having FTA. Final Probit model comes from 9,178 country pairs, out of which 705 pairs have an FTA and 8,472 pairs do not have an FTA. Using the rule described, it is amazing to note that the model correctly predicts 700 out of the 705 FTAs. In other words, the model has been 99.29 per cent specific. Moreover, 8,458 of the 8,472 pairs without an FTA are also predicted correctly. Technically, the model has been 99.83 per cent specific. In both scenarios,

model failures are well below 1 per cent. Thus, the last model appears to have plausibly a better fit.

The estimated coefficient of the distance reveals that the 1 per cent increase (decrease) in the inverse of the greater circle distance increases (decrease) the probability of having an FTA between two trade partners by 33 per cent, holding other variables constant. This could happen not only because the transport cost between the two countries increases with the distance but also it trims down familiarity of the two nations, and causes information asymmetries and weaker political ties that in turn affect FTAs.

The probability of forming an FTA increases (decreases) by 11 per cent when the PPP adjusted GDPs of two trade partners improved (declined) by 1 per cent. This implies that countries are concerned about the size of the market into which they get access via FTA. If the market size is smaller, countries have lesser interest to form an FTA as the gains arising from economies of scale necessarily depend on the potential market share.

Coefficient of the *dpppgdp2005* shows that the probability of forming an FTA is decreased (increased) by 17 per cent by 1 per cent increase (decrease) in the absolute difference between the logs of PPP adjusted GDPs of both countries. This indicates that the FTAs require coincidence of needs of both parties in terms of market size. In other words it is not enough for one of the two markets to be big; both markets need to be equally large to gain mutual benefits for the pair form an FTA.

In general, *remox_02* shows that the 1 per cent rise (fall) in remoteness will reduce (enhance) the probability of exporter's willingness to form an FTA by 9 per cent. For the importer, this probability is approximately 2 per cent higher. This happens because relatively more remote countries tend to be marginalized in international trade as trade by nature occurs as a network.

The estimated coefficients of the political stability reveal that the one unit increase (decrease) in the exporter's or importer's political stability will increase (decrease) the probability of having FTA by 20 per cent and 17 per cent respectively,[8] holding all other factors constant. FTAs are usually not signed for one or two years. They are by nature long-term agreements which have time bound for liberalization but do not have year of expiration for liberalization. Therefore, the parties entering into an FTA are always concerned about its continuation,

[8] Though political stability (*psx_2002* and *psy_2002*) and remoteness (*remox_02* and *remoy_02*) was introduced separately for both the exporter and the importer, one can argue that there could not be any marked asymmetry. That means the respective estimated coefficients for country *x* cannot show large variation from that for country *y*. However, the magnitude of the estimates itself is not much informative to understand indeed if there is an asymmetry or not. When H_0; $\beta_2 - \beta_3 = 0$ was tested against H_1; $\beta_2 - \beta_3 \neq 0$ followed by H_0; $\beta_8 - \beta_9 = 0$ tested against H_1; $\beta_8 - \beta_9 \neq 0$ it was revealed that the observed variations are not statistically different from zero.

regardless of the internal ruling party changes. Thus, political stability becomes a decisive factor for FTAs.

The probability of negotiating an FTA between two adjoining countries is 4 per cent lower as compared to geographically separated countries. Being the natural trading partner, the adjoining countries may be already trading more than required. Motivation for FTA could be less as the additional gain arising from FTA could be very marginal.

The coefficient of the tax variable reveals that the one percentage point increase (decrease) in the average import tariffs will increase (decrease) 1 per cent chance to form an FTA in subsequent year. One-to-one relationship between import tariff rate and probability of FTA has a valid economic interpretation. The main target of an FTA is removal or diminishing of existing import tariffs. If the existing import tariff rate is zero per cent, trade is totally free and there is no need for an FTA at all! This idea is reflected in the estimated coefficient. If tariff rate is reduced by 100 per cent the probability of FTA becomes zero because there is no need for an FTA any longer.

The probability of forming an FTA for the exporter country increases by 7 per cent when the countries in the neighbourhood establish additional 10 FTAs with rest of the world. For the importer country this probability is close to 2 per cent. This can be explained in two ways. First is that international trade policies of the countries always tend to follow world trends meaning that countries usually observe and do what other countries do. This is some kind of herd behaviour. Second, some countries tend to form FTAs not to gain, but to minimize possible losses arising from other countries' decisions to form FTAs with their own potential markets.

Receiver Operating Characteristic (ROC) analysis is the standard approach to evaluate the sensitivity and specificity of diagnostic procedures.[9] Our study occupies the area under the ROC curve for each model and only the eleventh model is demonstrated in Figure 2 for brevity.

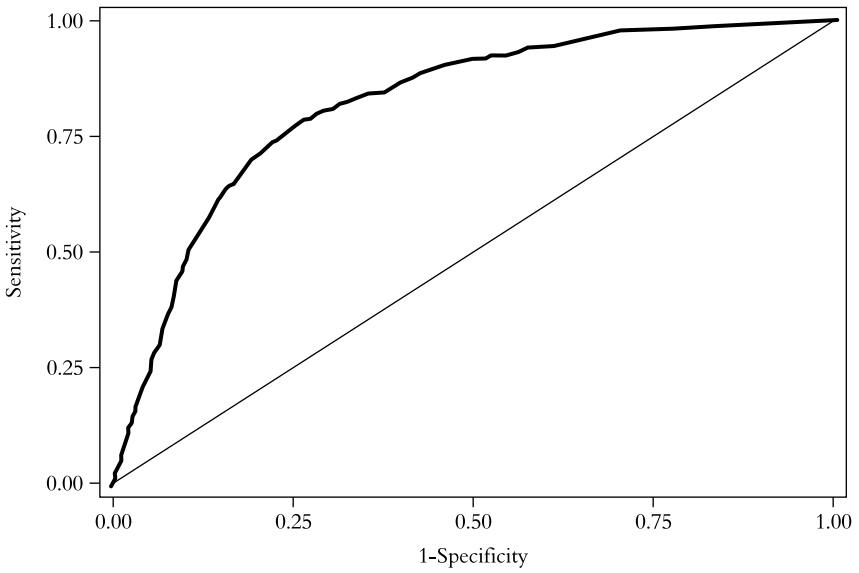
As shown in Figure 2 the y-axis captures the sensitivity which is the probability of correctly predicting pairs which have FTAs. The x-axis is 1-specificity, where specificity is the probability of correctly predicting pairs without having an FTA.

This can be easily done by defining $\gamma = \beta_2 - \beta_3$ and $\gamma = \beta_8 - \beta_9$, substituting into the original model as

$$\begin{aligned} P(FTA=1) = Z_i(&\beta_0 + \beta_1 natural + \lambda remox\_02 + \beta_3(remox\_02 + remoy\_02) + \beta_4 pppgdp2005 \\ &+\beta_5 dpppgdp2005 + \beta_6 dkl2002 + \beta_7 sqdkl2002 + \gamma\, psx\_2002 \\ &+\beta_9(psx\_2002 + psy\_2002) + \beta_{10} border + \beta_{11} tax2\_4 + \beta_{12} langue \\ &+\beta_{13} colony + \beta_{14} fxneib7 + \beta_{15} fyneib7 + \beta_{16} Xinten2) + \varepsilon_{ij} \end{aligned}$$

[9] Swets (1979) and Swets and Pickett (1992). See Hanley and McNeil (1982) for more details on ROC.

FIGURE 2
ROC Curve of the Eleventh Model



Source: Authors' calculations.

The 45 degree line indicates how a model with no covariates makes the trade-off between sensitivity and 1-specificity (sensitivity). The curved line (ROC curve) comes from the last model with covariates. Any point on this line indicates how the probability of correctly predicting pairs having an FTA is traded off against the probability of correctly predicting pairs without having an FTA. For example, if sensitivity = 0.75 (probability of correctly predicting a pair having an FTA is 0.75), then specificity = 0.77 (probability of correctly predicting a pair without having an FTA is 0.77). The specificity number here comes from the fact that when sensitivity = 0.75, then 1-specificity = 0.23 and so specificity = 0.77. The area under the ROC curve in this case is 0.8203, and thus the study might infer that the last model fits more efficiently to explain the determinants of FTA among the bilateral trading partners than the other models.

5. FTA Proximity among the Major Trading Partners of SAARC Countries

Table 3 shows the major trading partners of SAARC in the top row followed by the list of countries in chronological order of the predicted probability values for

TABLE 3
Order of Preferences of Major Trading Partners of SAARC Countries to form FTAs with Rest of the World (ROW)

Rank	*Australia*	*Canada*	*China*	*Indonesia*	*Iran*	*Japan*	*Malaysia*	*Mexico*	*New Zealand*
1	Netherlands	UK	Germany	Netherlands	Egypt	Germany	Germany	Morocco	Morocco
2	Germany	Netherlands	UK	Germany	Morocco	Italy	Denmark	Egypt	Algeria
3	UK	Germany	France	UK	Finland	UK	Portugal	Denmark	Belgium
4	France	France	Japan	France	Ukraine	France	Morocco	UK	Portugal
5	Spain	Spain	S. Korea	Egypt	Portugal	Netherlands	Ireland	Hungary	Ireland
6	Sweden	Ireland	Netherlands	Morocco	Tunisia	S. Korea	Egypt	Ukraine	Germany
7	Portugal	Portugal	Spain	Canada	Ireland	China	Netherlands	Romania	Ukraine
8	Ireland	Sweden	Morocco	Spain	Syria	Spain	Norway	Iran	Tunisia
9	Belgium	Belgium	Egypt	Portugal	Netherlands	Russia	Tunisia	Canada	Netherlands
10	Hong Kong	Switzerland	Sweden	Australia	Romania	Sweden	Sweden	Syria	Sweden
11	Switzerland	Norway	Portugal	Sweden	Denmark	Ireland	Hungary	Croatia	Norway
12	Austria	Russia	Ireland	Russia	Sweden	Canada	Libya	S. Arabia	Denmark
13	Norway	Austria	Italy	Austria	Norway	Portugal	Finland	Algeria	Spain
14	Denmark	Denmark	Poland	Ireland	Switzerland	Poland	Switzerland	Australia	Hungary
15	Morocco	Morocco	Belgium	Belgium	Poland	Belgium	Poland	Bahamas	Switzerland

(*Table 3 continued*)

(*Table 3 continued*)

Rank	*Norway*	*S. Korea*	*Russia*	*Singapore*	*Switzerland*	*Thailand*	*Turkey*	*UK*	*USA*
1	Switzerland	Germany	Germany	Germany	Netherlands	Netherlands	Cape Verde	France	Germany
2	Morocco	Netherlands	UK	Libya	Norway	Egypt	Belarus	Netherlands	UK
3	Luxembourg	UK	Netherlands	Ireland	Finland	Portugal	Malta	Germany	France
4	Ukraine	France	France	Portugal	Egypt	Sweden	Eq. Guinea	Belgium	Netherlands
5	Egypt	Spain	Sweden	Morocco	Libya	Morocco	Cyprus	Spain	Spain
6	Iceland	Portugal	Spain	Netherlands	Ukraine	Ireland	Moldova	Italy	Ireland
7	Libya	Sweden	Austria	Croatia	Russia	Poland	Slovenia	Sweden	Portugal
8	Algeria	Ireland	S. Korea	Denmark	Iceland	Belgium	Libya	Portugal	Sweden
9	Iran	Japan	Denmark	Norway	Syria	Switzerland	Lebanon	Denmark	Belgium
10	Syria	Belgium	Belgium	Sweden	Bosnia H.	Austria	Morocco	Ireland	Switzerland
11	Russia	Switzerland	Portugal	Finland	Saudi Arabia	Tunisia	Latvia	Austria	Italy
12	S. Arabia	Norway	Hungary	Hungary	Eq. Guinea	Germany	Ireland	Russia	Norway
13	Bosnia H.	Austria	Switzerland	Belgium	Algeria	Norway	Slovakia	Luxembourg	Russia
14	Canada	Algeria	Ireland	Austria	Albania	UK	Netherlands	Finland	Morocco
15	UAE	Denmark	Italy	Tunisia	Iran	Denmark	Romania	Poland	Austria

Source: Authors' compilations.

Notes: The major trading partners of SAARC in top row means the extra-bloc countries sharing a bigger portion of export and imports volumes in SAARC countries' external trade accounts. The hanging list of countries under each denotes the order of preferences for an FTA measured by the predicted probability values. For example, Australia in the top left corner is a major trading partner of SAARC but the model predicts that Australia's priority goes to Netherlands, Germany, UK, France, Spain, etc. in the event they consider for an FTA, and any SAARC country do not appear within top 15 potential candidates.

forming an FTA. The major trading partners of SAARC means the extra-bloc countries sharing a bigger portion of export and imports volumes in SAARC countries' external trade accounts. It can be seen that none of the SAARC countries are included within top 15 priorities of any of SAARC major trading partners in case they intend to form FTAs. This implies that there is less chance for a SAARC country to have an FTA with economically important partner in ROW. In other words SAARC countries are subject to 'adverse selection' by the ROW. This is a good explanation as to why SAARC countries are still behind the FTA process compared to the other regional trading blocs. Even though SAARC countries wish for FTAs with ROW, there would be a mismatch in 'double coincidence of needs'.

Table 4 shows the ranking for six SAARC countries[10] according to the predicted probability values which explain the likelihood of a bilateral FTA between a given SAARC member and any other country among the selected major trading partners. For example, the model predicts that the countries such as Canada, China, Japan, Russia, UK and USA have given relatively higher priorities to India than to the other countries in the event they intend to form an FTA with SAARC. Relatively bigger market size and larger factor intensity differentials are some of the major factors favouring India in this regard. In contrast, Afghanistan and Nepal seem to have least opportunity to become potential counterparty for an FTA with the selected out-region countries. Relatively poor political stability, relatively higher remoteness and small market size could be the major reasons behind the adverse position of those countries. Sri Lanka and Pakistan deserve moderate preference.

6. Summary and Conclusion

The main objective of this study is to identify the deterministic key factors of FTA negotiations among the bilateral trading partners. This study extends the determinants of FTA in several directions. The study tested 11 hypotheses regarding the inter-dependency of FTA on the economic and non-economic characteristics of the bilateral trading partners and the findings support 9 out of 11 hypotheses concluding the following. The likelihood of forming an FTA between a pair of countries is higher: (1) the closer in distance are two trading partners; (2) less remote a natural pair relatively to other countries; (3) economically larger the trading partners; (4) more similar the trading partners in economic

[10] Bhutan was omitted due to the lack of reliable data and Afghanistan was added even though it was not a SAARC member in 2005.

TABLE 4
Ranking of ROW Preferences to form FTA with SAARC Countries

SAARC Countries	*Australia*	*Canada*	*China*	*Indonesia*	*Iran*	*Japan*	*Malaysia*	*Mexico*	*New Zealand*	*Norway*	*S. Korea*	*Russia*	*Singapore*	*Switzerland*	*Thailand*	*Turkey*	*UK*	*USA*
Afghanistan	7	7	7	7	5	7	7	5	–	7	7	6	7	7	7	6	7	7
Bangladesh	1	2	2	1	1	2	1	1	1	1	1	2	1	1	1	2	2	2
India	2	1	1	2	4	1	5	3	5	3	2	1	6	3	3	7	1	1
Maldives	5	5	5	5	–	5	4	–	3	5	5	–	4	5	5	1	5	5
Nepal	6	6	6	6	–	6	6	–	6	6	6	5	5	6	6	5	6	6
Pakistan	3	3	3	3	2	3	3	2	4	2	3	3	3	2	2	4	3	3
Sri Lanka	4	4	4	4	3	4	2	4	2	4	4	4	2	4	4	3	4	4

Source: Authors' compilations.
Note: Bhutan was omitted due to the lack of data.

size; (5) larger the differences of relative factor intensity of the two trading partners; (6) greater the political stability; (7) more discontinued than connected by a common border; (8) higher the average import tariffs in the past; and (9) if the neighbourhood countries have already signed up for a larger number of FTAs. These factors have economically and statistically significant effects on the probability to form an FTA.

However, this study rejected the null favouring alternative that (10) sharing a common language and having colonial relationships has no influence to negotiate an FTA among the bilateral trading partners. Furthermore, our findings rejected (11) the null that countries having higher degree of export/import intensity tend to form FTAs, leading to the conclusion that the past trade or existing level of trade is not a good motivation to form FTA.

This study provides an economic benchmark for future political economic modules to enhance the explanation of FTA negotiations. To reach the above conclusion, the study focused on the inter-dependency of FTAs among the 184 countries. Using the Probit model, the study correctly predicted 700 of the 705 FTAs (or 99.29 per cent) and 8,458 of the 8,472 pairs without FTAs (or 99.83 per cent) among the total 9,178 country pairs.

Finally, with reference to SAARC countries, the study predicted that there is lesser chance for a SAARC country to have an FTA with economically important partner in ROW. Even though SAARC countries wish for FTAs with ROW, there would be a mismatch in 'double coincidence of needs' and SAARC countries are subject to 'adverse selection' by the ROW. The study provides a good explanation as to why SAARC countries are still behind the FTA process compared to the other regional trading blocs.

7. Limitations of the Study

Despite the good ROC exhibited by the model, several limitations of this study need to be pointed out. First, some caution has to be exercised in the normative interpretation of the results, especially that of cost of trade pertaining to the distance. The variable '*natural*' measures the great circle distance between partner countries' capitals and is used as a proxy for transport cost. Capital-to-capital distance is misleading particularly for big countries, and heterogeneous when natural barriers are present in the middle. This limitation is there due to the lack of good data for international trade transport cost.

Second, some variables having some potential relationships to the decision of negotiating an FTA are still omitted. For example, political friendship of the country leaders, political enemies, the power of trade unions and past success or

failures to gain from FTAs can play a major role in negotiating a new FTA. In addition, this study concerns only the factor intensity differences, but not the differences in factor endowment, which is a combination of countries' natural resources, climate, geographical location, geological factors, etc. Further, countries' level of specialization or self-sufficiency may be a decisive factor influencing FTA, which has not been taken to account in this study.

Third, the study used the FTAs which have been notified to WTO. A recent work by Roberto et al. (2007) reported that there are at least 70 FTAs yet to be notified to WTO. We have no evidence how accurately the estimated model might predict the presence for unreported FTAs.

Finally, this study used a binary variable to represent all FTAs regardless of the depth of trade liberalization agreed under each FTA. FTA naturally goes beyond trade and investment liberalization, touching upon country's more sensitive areas, such as environment, natural resources, biodiversity, intellectual property rights, research and development and culture and health, that might result in irreversible and far-reaching effects on community as a whole for generations. This follows the idea that considering all FTAs are equivalent is a poor simplification, which is hard to improve.

Appendix

TABLE A1
Country Coverage (184 Economies)

No.	*Country*	*No.*	*Country*	*No.*	*Country*	*No.*	*Country*	*No.*	*Country*
1	Afghanistan	23	Brazil	45	Czech Rep.	67	Germany	89	Kazakhstan
2	Albania	24	Brunei Darussalam	46	Dem. People's Rep. of Korea	68	Ghana	90	Kenya
3	Algeria	25	Bulgaria	47	Dem. Rep. of the Congo	69	Greece	91	Kiribati
4	Angola	26	Burkina Faso	48	Denmark	70	Grenada	92	Kuwait
5	Antigua and Barbuda	27	Burundi	49	Djibouti	71	Guatemala	93	Kyrgyzstan
6	Argentina	28	Cambodia	50	Dominica	72	Guinea	94	Lao People's Dem. Rep.
7	Armenia	29	Cameroon	51	Dominican Rep.	73	Guinea-Bissau	95	Latvia
8	Australia	30	Canada	52	Ecuador	74	Guyana	96	Lebanon
9	Austria	31	Cape Verde	53	Egypt	75	Haiti	97	Liberia
10	Azerbaijan	32	Central African Rep.	54	El Salvador	76	Honduras	98	Libya
11	Bahamas	33	Chad	55	Equatorial Guinea	77	Hungary	99	Lithuania
12	Bahrain	34	Chile	56	Eritrea	78	Iceland	100	Luxembourg
13	Bangladesh	35	China	57	Estonia	79	India	101	Madagascar
14	Barbados	36	China, Hong Kong SAR	58	Ethiopia	80	Indonesia	102	Malawi
15	Belarus	37	Colombia	59	Fiji	81	Iran	103	Malaysia
16	Belgium	38	Comoros	60	Finland	82	Iraq	104	Maldives
17	Belize	39	Congo	61	France	83	Ireland	105	Mali
18	Benin	40	Costa Rica	62	French Polynesia	84	Israel	106	Malta
19	Bermuda	41	Côte d'Ivoire	63	FS Micronesia	85	Italy	107	Marshall Isds
20	Bhutan	42	Croatia	64	Gabon	86	Jamaica	108	Mauritania
21	Bolivia	43	Cuba	65	Gambia	87	Japan	109	Mauritius
22	Bosnia Herzegovina	44	Cyprus	66	Georgia	88	Jordan	110	Mexico

(*Table A1 continued*)

(*Table A1 continued*)

No.	*Country*	*No.*	*Country*	*No.*	*Country*	*No.*	*Country*	*No.*	*Country*
111	Mongolia	126	Palau	141	Saint Lucia	156	Sri Lanka	171	Uganda
112	Morocco	127	Panama	142	Saint Vincent and the Grenadines	157	Sudan	172	Ukraine
113	Mozambique	128	Papua New Guinea	143	Samoa	158	Suriname	173	United Arab Emirates
114	Myanmar	129	Paraguay	144	Sao Tome and Principe	159	Sweden	174	United Kingdom
115	Nepal	130	Peru	145	Saudi Arabia	160	Switzerland	175	United Rep. of Tanzania
116	Neth. Antilles	131	Philippines	146	Senegal	161	Syria	176	Uruguay
117	Netherlands	132	Poland	147	Serbia and Montenegro	162	Tajikistan	177	USA
118	New Caledonia	133	Portugal	148	Seychelles	163	TFYR of Macedonia	178	Uzbekistan
119	New Zealand	134	Qatar	149	Sierra Leone	164	Thailand	179	Vanuatu
120	Nicaragua	135	Rep. of Korea	150	Singapore	165	Togo	180	Venezuela
121	Niger	136	Rep. of Moldova	151	Slovakia	166	Tonga	181	Vietnam
122	Nigeria	137	Romania	152	Slovenia	167	Trinidad and Tobago	182	Yemen
123	Norway	138	Russian Federation	153	Solomon Islands	168	Tunisia	183	Zambia
124	Oman	139	Rwanda	154	Somalia	169	Turkey	184	Zimbabwe
125	Pakistan	140	Saint Kitts and Nevis	155	Spain	170	Turkmenistan		

TABLE A2
FTAs Coverage (75 Agreements)

No.	*Entry into Force*	*Agreement*	*No.*	*Entry into Force*	*Agreement*	*No.*	*Entry into Force*	*Agreement*
1	June 1905	India–Thailand	26	July 1999	Georgia–Kazakhstan	51	July 2002	FYROM–Bosnia and Herzegovina
2	June 1905	Singapore–Korea	27	August 1999	Chile–Mexico	52	November 2002	Canada–Costa Rica
3	May 1960	EFTA (Stockholm Convention)	28	December 1999	EFTA–Morocco	53	November 2002	Japan–Singapore
4	January 1973	EC–Switzerland and Liechtenstein	29	March 2000	EC–Morocco	54	January 2003	EFTA–Singapore
5	April 1973	EC–Iceland	30	June 2000	EC–Israel	55	February 2003	EC–Chile
6	July 1973	EC–Norway	31	July 2000	Israel–Mexico	56	March 2003	EC–Lebanon
7	July 1977	EC–Syria	32	July 2000	EC–Mexico	57	April 2003	Panama–El Salvador
8	August 1985	United States–Israel	33	September 2000	Turkey–Former Yugoslav Republic of Macedonia	58	June 2003	Croatia–Albania
9	April 1992	EFTA–Turkey	34	January 2001	Croatia–Bosnia and Herzegovina	59	July 2003	Turkey–Bosnia and Herzegovina
10	January 1993	EFTA–Israel	35	January 2001	New Zealand–Singapore	60	July 2003	Turkey–Croatia
11	March 1993	Armenia–Russian Federation	36	January 2001	EFTA–Former Yugoslav Republic of Macedonia	61	July 2003	Singapore–Australia
12	January 1994	NAFTA	37	March 2001	Guatemala–Mexico	62	January 2004	China–Hong Kong, China
13	May 1994	Georgia–Russian Federation	38	March 2001	El Salvador–Mexico	63	January 2004	United States–Singapore
14	January 1995	Costa Rica–Mexico	39	June 2001	Honduras–Mexico	64	January 2004	United States–Chile
15	October 1995	Kyrgyz Republic–Armenia	40	June 2001	EC–FYROM	65	April 2004	Republic of Korea–Chile
16	June 1996	Georgia–Ukraine	41	July 2001	EFTA–Mexico	66	June 2004	EC–Egypt
17	July 1996	Georgia–Azerbaijan	42	December 2001	India–Sri Lanka	67	December 2004	EFTA–Chile
18	December 1996	Armenia–Ukraine	43	December 2001	United States–Jordan	68	January 2005	Thailand–Australia
19	January 1997	Canada–Israel	44	January 2002	EFTA–Jordan	69	January 2005	United States–Australia
20	May 1997	Turkey–Israel	45	January 2002	EFTA–Croatia	70	April 2005	Japan–Mexico
21	July 1997	Canada–Chile	46	February 2002	Chile–Costa Rica	71	June 2005	EFTA–Tunisia
22	October 1997	Croatia–FYROM	47	March 2002	EC–Croatia	72	July 2005	Thailand–New Zealand
23	March 1998	EC–Tunisia	48	May 2002	EC–Jordan	73	July 2005	Turkey–Tunisia
24	July 1998	Mexico–Nicaragua	49	June 2002	Chile–El Salvador	74	August 2005	Jordan–Singapore
25	November 1998	Georgia–Armenia	50	July 2002	Albania–FYROM	75	September 2005	EC–Algeria

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