

# Does a bilateral FTA pave the way for free trade?

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# Outline

## **1. Motivation**

Recent Trend of PTA, Related literature

## **2. Brief Summary**

Our main purpose, Our main conclusion

## **3. Model**

Set-Up, Analysis

## **4. Results**

Propositions, Their intuitions

## Recent Trends of PTA

- Bilateral PTAs account for 76% of all PTA notified and in force.
  - North-South PTAs (PTA between dissimilar countries) account for 37% of all PTA notified and in force.
  - FTA account for 82% of all PTA notified and in force.
- (Fiorentino, Crawford, and Toqueboeuf (2009))

## Question

Are bilateral FTAs **building blocs** or **stumbling blocs** for multilateral free trade(MFT)?

## **Two Type of FTA**

### **Expansion Regime**

Suppose that a bilateral FTA between country  $X$  and  $Y$ . The third country  $Z$  participates in the FTA as a new member.

### **Overlapping Regime**

Suppose that a bilateral FTA between country  $X$  and  $Y$ . Either of them (e.g. country  $X$ ) forms another FTA with the third country  $Z$ .

## Related Literatures

	Symmetric Countries		Asymmetric Countries	
	Exogeneity	Endogeneity	Exo.	Endo.
External Tariff				
Expansion Regime	Krishna (1998) Mukunoki and Tachi (2006)	Ornelas (2005a)		Ornelas (2005b) Ours (2010)
Overlapping Regime	Mukunoki and Tachi (2006)			<b>Ours (2010)</b>

### Note

- All articles except for Ornelas (2005a) construct "three country model" where each country's firm sells its product in each country's segmented market.
- Ornelas (2005b) assume countries  $X$  and  $Y$  are symmetric!
- Krishna (1998) and Ornelas (2005a,b) consider political bias.

## Main Purpose

Suppose that market size of each country is different. Are FTAs in overlapping regime **building blocs** or **stumbling blocs** for multilateral free trade(MFT)?

## Main Conclusion

Suppose that large country  $L$ , medium country  $M$ , and small country  $S$  exist, and that there are no FTAs.

Then, either FTA between  $L$  and  $M$  or between  $M$  and  $S$  may be formed. The former FTA may become **a building bloc**, and the latter is **a stumbling bloc**.

## Set-Up

- 3 different countries named  $L$ ,  $M$ , and  $S$  have their segmented markets, each of which has a linear demand function:  $P^i = 1 - d^i Q^i$ , where  $d^i$  is a market size parameter.  $d^L = 1$ ,  $d^S = 2$ , and  $d^M \in (1, 2)$ .
- Country  $i (= L, M, S)$ 's firms, whose production costs are null, sell homogeneous goods in each of markets.
- If a bilateral FTA between country  $i$  and  $j$ , then country  $i$ 's tariff rate on country  $j$ 's product is zero.
- Country  $i$ 's welfare is defined as a sum of consumer surplus (CS), firm  $i$ 's profit in domestic market (PDM), firm  $i$ 's profit in foreign markets, and tariff revenue (TR).
- External tariff rate is endogenously determined.
- Political bias is not included in our model.

## Analysis

- Our model consists of three rounds.
- Each round consists of three stage game.

### **Round 1: No bilateral FTAs has not formed.**

(1st. stage) Countries  $i$  and  $j$  simultaneously determine whether they agree a bilateral FTA between countries  $i$  and  $j$  or not.

(2nd. stage) If the FTA is formed, then country  $i$ 's tariff rate on country  $j$ 's product is zero and then country  $i$  determines its external tariff rate in order to maximize its welfare; Otherwise, then each of all countries its tariff rates in order to maximize its welfare.

(3rd. stage) Given tariff rates, each firm behaves in a Cournot fashion.

## **Round 2: A bilateral FTA has formed.**

Given the FTA between  $i$  and  $i$ , we examine whether a FTA between country  $i$  and  $k$  is formed or not by using the similar three-stage game as one at Round 1.

## **Round 3: Two bilateral FTAs have formed.**

Given the FTA between  $i$  and  $j$ , and the FTA between  $i$  and  $i$ , we examine whether a FTA between country  $i$  and  $k$  is formed or not.

## **Note**

- Each country behaves myopically in the sense that it does not maximize a present value of a sum of its welfare level at each round, but maximizes its welfare level at each round.
- Once a FTA is formed, the FTA is assumed to be maintained even if one of member country's welfare reduces due to another FTA formation.

## Results

### Proposition 1: Result at Round 1

- (i) Unless market size between  $d^L$  and  $d^M$  (resp. between  $d^M$  and  $d^S$ ) is quite different, then a bilateral FTA between  $L$  and  $M$  (resp. between  $M$  and  $S$ ) is formed.
- (ii) The FTA enhances the third country's welfare through a decrease in external tariff rate.

### Proposition 2: Result at Round 2

Overlapping FTAs can be formed only when an L-M FTA is formed initially.

-Proposition 2 shows that M-S FTA becomes **stumbling blocs** for multilateral free trade(MFT).

## The Intuition behind Proposition 1

- Firm  $i$ 's profit in foreign markets (PFMs) consist of its profit in partner's market (PPM) and that in non-members market (PNM).
- The "tariff extinction" caused by FTA decrease *indirectly* PDM and increase *directly* PPM. The external tariff reduction decrease *indirectly* PDM.

### L-M FTA case

	$\Delta CS$	$\Delta TR$	$\Delta PDM$	$\Delta PPM$	$\Delta PNM$	$\Delta PFM_s$	$\Delta W$
$L$	+	> -	-	> +	0		(+)
$M$	+	> -	-	< +	0		+
$S$	0	0	0			+	+

### M-S FTA case

	$\Delta CS$	$\Delta TR$	$\Delta PDM$	$\Delta PPM$	$\Delta PNM$	$\Delta PFM_s$	$\Delta W$
$L$	0	0	0			+	+
$M$	+	> -	-	> +	0		(+)
$S$	+	> -	-	< +	0		+

## **The Intuition behind Proposition 1 (cont.)**

-*Allocation Effect (AE)*: A FTA formation increases CS of the member, and decreases TR. The former increase dominates the latter decrease.

-*Rent Shifting Effect (RSE)*: It also increases PPM of the member, and decreases PDM. The former increase dominates (resp. is dominated by) the latter decrease in its member with smaller market size (resp. larger market size).

-In FTA's member with smaller market size, both effects are positive; in its member with larger market size, positive allocation effect (AE) dominates negative rent shifting effect (RSE), as far as the difference in market size is not large. Thus, both countries may have incentive to form FTA.

## The Intuition behind Proposition 2

-Consider whether M-S FTA is formed given L-M FTA.

	Allocation Effect(AE)	Rent Shifting Effect (RSE)	$\Delta W$
$M$	+	$> -$	+
$S$	+	$(>)-$	$(+)$

-Suppose that market size difference between  $M$  and  $S$  is quite large. AE in  $S$  is small; RSE is not small due to tariff extinction and external tariff reduction. Thus, AE is dominated by RSE.

-Note that since  $AE > RSE$  in both countries  $L$  and  $S$ , L-S FTA can be formed given L-M FTA.

-Consider whether other bilateral FTA (L-M FTA or L-S FTA) is formed given M-S FTA. Country  $L$  disagree the FTA because  $AE < RSE$  in  $L$ .

### **Proposition 3: Result at Round 3**

Suppose that L-M FTA is formed initially. If M-S FTA (resp. L-S FTA) is formed at Round 2, then, at Round 3, L-S FTA (M-S FTA) can be formed.

-Proposition 3 state that L-M FTA becomes a **building bloc** for free trade (MFT).

-The intuition behind Proposition 3 is as follows. Suppose that two FTAs are formed. If a country is a member of two FTAs, then it becomes a *hub*; otherwise, then it becomes a *spoke*. Both *spoke* countries (e.g. *L* and *S*) has incentive to form FTA because  $AE > RSE$ .

## Summary

-(Proposition 6) Suppose that there are no FTAs. If L-M FTA is formed initially, then MFT is invoked through the formation overlapping FTAs; if M-S FTA is formed initially, then MFT is not invoked through them.

-Whether MFT emerges or not through bilateral FTAs is *history (path)-dependent!*

**Thank you very much!**