

Negotiating Free Trade

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Main Question

- The Regionalism vs. Multilateralism question is lucidly posed by Krugman (1993):

“Should the rise of regional trading arrangements be welcomed, as a step on the road that will ultimately reinforce global free trade? Or should regional trading blocs be condemned, as institutions that undermine the multilateral system? Or, yet again, should they perhaps be accepted more or less grudgingly, as the best option we are likely to get in an age of diminished expectations?”

Background

First wave of regionalism: 1960s. It failed because the U.S. supported a multilateral approach

Starting in the 1980s, the U.S. has favored regional trade agreements.

This led to a second wave of regionalism, which has been successful in forming a multitude of agreements.

The gradual enlargement of the European Union, the U.S.-Canada Free Trade Agreement, NAFTA and MERCOSUR are examples of this trend.

Between 1958 and March 2004, the GATT/WTO secretariat received notification of 203 agreements.

Background (Cont.)

Economists disagree on whether preferential trade agreements are “building blocs” or “stumbling blocs” on the way to trade liberalization.

Bhagwati (1991, 1993): stumbling blocs. Even when preferential trade agreements generate static welfare gains they can reduce the incentives to seek further trade liberalization. The “dynamic path” is inefficient.

Background (Cont.)

Summers (1991) and Baldwin (1996): building blocs.

- Consolidation of a large number of countries into a small number of trading blocs facilitates multilateral negotiations.
- A deepening of integration between a subset of countries raises the incentives of outside countries to seek accession to the free trade area.

Approach

Another way to pose the question of regionalism versus multilateralism is to ask:

- Is multilateral or sequential bargaining more likely to lead to global free trade?

This is the approach we take in this paper towards the evaluation of alternative negotiation strategies.

Approach (Cont.)

We develop a dynamic bargaining model of coalition formations, where a coalition consists of a preferential trade agreement.

A leading country decides endogenously whether to sequentially negotiate with only a subset of countries in every round or simultaneously with all the countries at once.

We adopt the view that the U.S. has been the leading country in the post World-War II period, i.e., the agenda-setter.

Preview of Results

We show how the structure of coalition externalities shapes the choice between sequential and multilateral bargaining.

We identify circumstances in which the grand coalition is the equilibrium outcome.

We use a model of international trade to illustrate equilibrium outcomes and how they depend on the structure of trade and protection.

We show how the model may generate both “building bloc” as well as “stumbling bloc” effects of preferential trade agreements.

The Model

We consider a transferable-utility game between three countries: a , b , and c .

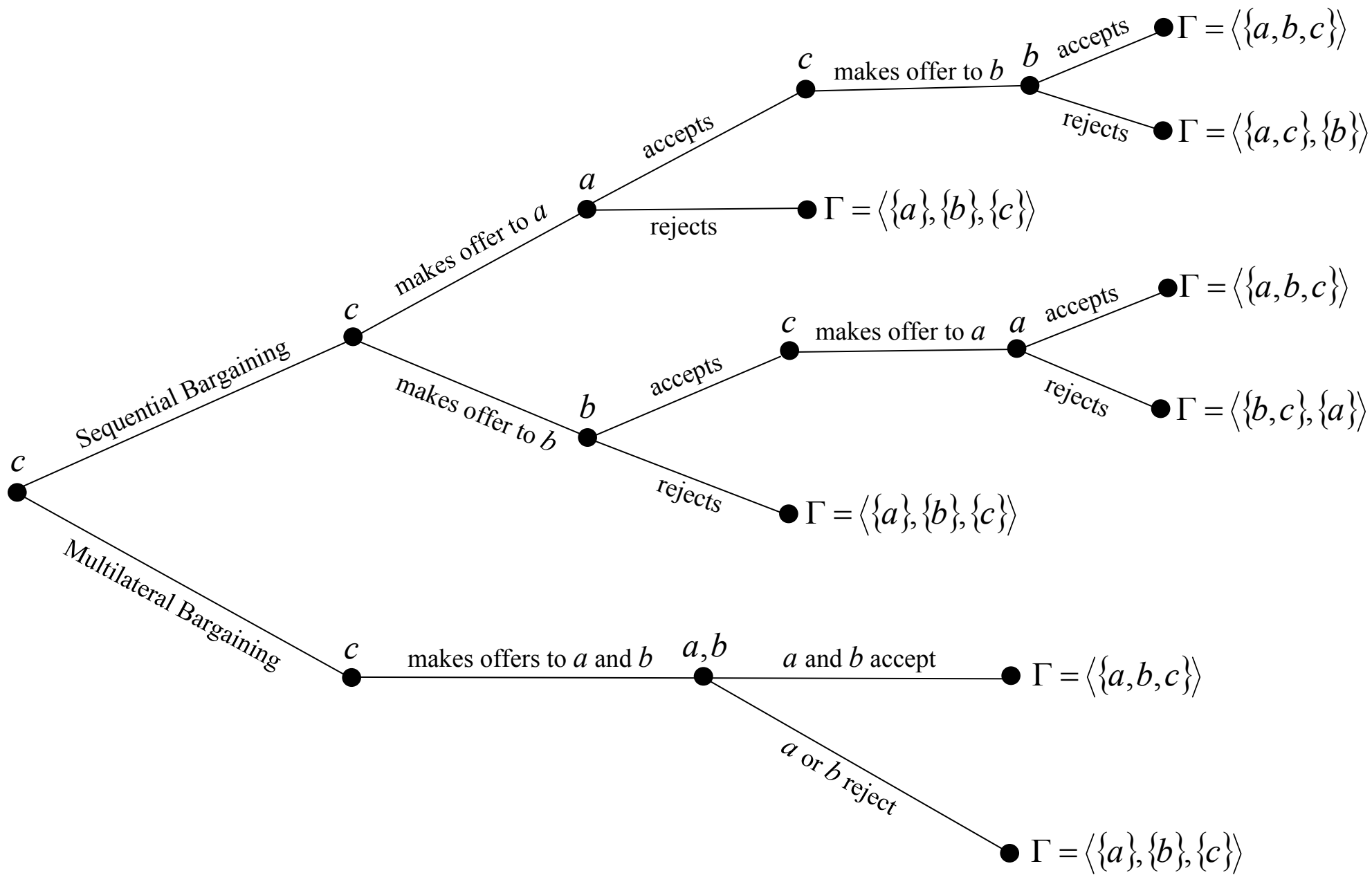
We describe the game in partition form.

A *coalition structure* is a partition Γ of $\{a, b, c\}$.

A coalition is a free trade area (FTA) in which member countries trade at zero tariffs.

For every partition Γ and every coalition $C \in \Gamma$ the value function $v(C; \Gamma)$ assigns a payoff to C .

Example: $\Gamma = \langle \{a\}, \{b, c\} \rangle$, $v(a; \{a\}, \{b, c\})$, $v(bc; \{a\}, \{b, c\})$.



The Model (Cont.)

In order to simplify the notation, we define the following functions:

$$W(j) \equiv v(j; \{a\}, \{b\}, \{c\}),$$

$$W_F(j) \equiv v(j; \{j\}, \{k\ell\}),$$

$$W(k\ell) \equiv v(k\ell; \{j\}, \{k\ell\}),$$

$$W(abc) \equiv v(abc; \{a, b, c\}).$$

The Model (Cont.)

Definition: Coalition Externalities *There are positive coalition externalities in country j when $W_F(j) > W(j)$, negative coalition externalities when $W_F(j) < W(j)$, and no coalition externalities when $W_F(j) = W(j)$.*

Definition: Grand-Coalition (GC) Superadditivity *There is GC superadditivity if*

$$W(abc) > W(a) + W(b) + W(c), \text{ and}$$

$$W(abc) > W_F(j) + W(k\ell) \text{ for all } j \neq k, j \neq \ell.$$

Benchmark

Benchmark Proposition *If there are no coalition externalities in the follower countries and there is GC superadditivity, then:*

(i) the leader is indifferent between multilateral and sequential bargaining; and

(ii) the grand coalition forms and there is global free trade.

Coalition Externalities: An example

Countries a and c import a good from b , with $\tau_a > \tau_c > 1$. An FTA between a and c \rightarrow producers in c might want to sell in a .

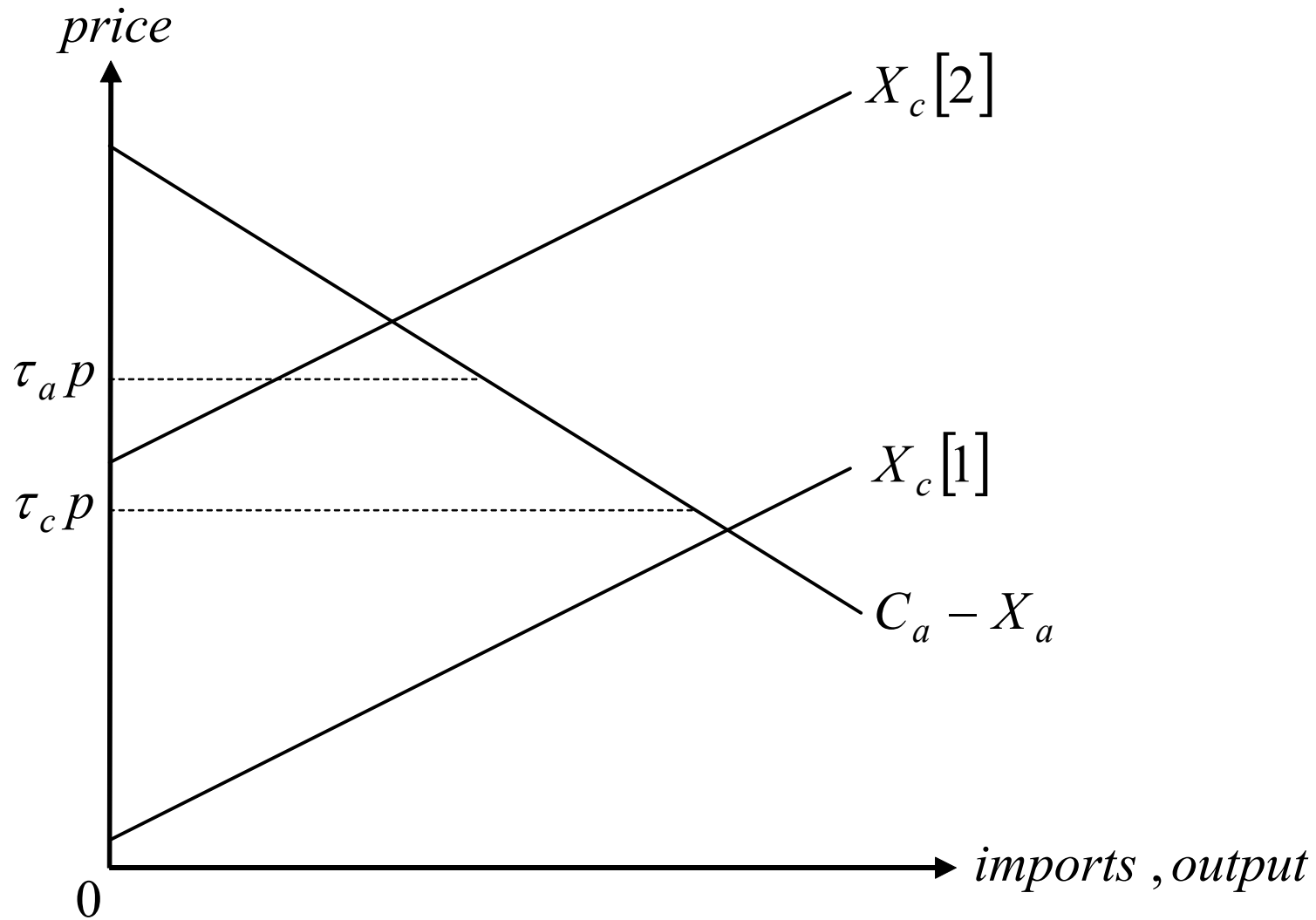
If Supply X_c in c is large so that $X_c(\tau_cp) > C_a(\tau_cp) - X_a(\tau_cp)$, then c will still sell in c , and the producer price will stay at τ_cp .

Producer and consumer price in a will fall to τ_cp . With upward sloping supply in b , p will rise \rightarrow **Positive** externality for b .

If Supply X_c in c is low so that $X_c(\tau_ap) < C_a(\tau_ap) - X_a(\tau_ap)$, then c will sell all its output in a , and the producer price will

go up to τ_ap . Consumer prices remain unchanged. With upward sloping supply in b , p will fall \rightarrow **Negative** externality for b .

Coalition Externalities (Cont.)



Coalition externalities

Free Trade Proposition

Free Trade Proposition *If there is GC superadditivity, then:*

- (i) the leader is indifferent between multilateral and sequential bargaining if and only if there are no coalition externalities in the follower countries;*
- (ii) the leader strictly prefers sequential bargaining when there are negative coalition externalities in at least one of the follower countries;*
- (iii) the leader strictly prefers multilateral bargaining when there are positive coalition externalities in both follower countries; and*
- (iv) the grand coalition forms and there is worldwide free trade.*

Free Trade Proposition (Cont.)

Multilateral bargaining yields

$$P_{multi}(c) = W(abc) - W(a) - W(b) > W(c).$$

Sequential bargaining yields

$$P^{a,b}(c) = W(abc) - W(a) - W_F(b) > W(ac) - W(a),$$

$$P^{b,a}(c) = W(abc) - W(b) - W_F(a) > W(bc) - W(b).$$

Implications of the Free Trade Proposition

Consider a neoclassical world in which production sets are convex, there are no distortions other than tariffs, and there is competition in all markets. Also suppose that the payoff of every country is represented by the aggregate welfare of its residents.

Then GC superadditivity holds, because global free trade is Pareto-efficient.

Under these circumstances the proposition applies, stating that trade negotiations lead to global free trade.

Implication of the Free Trade Proposition (Cont.)

It follows from this proposition that in the presence of GC super-additivity there is no need to restrict countries to multilateral bargaining in order to safeguard free trade.

It is not in the interest of the leading country to choose sequential bargaining *unless* it leads to free trade.

When this happens, one follower country — with the largest negative coalition externalities — prefers multilateral bargaining.

Extensions and Generalizations

- Many countries
 - Many agenda setters in a predetermined order
 - Random agenda setters

The Economic Model

We construct the payoff functions $W(\cdot)$ and $W_F(\cdot)$.

The utility function of country j is

$$U_j = y_j + u_j(x_j).$$

Good y is the numeraire; its price is one and it is not protected by tariffs.

$$x_j = C_j(q_j)$$

and

$$V_j = I_j + S_j(q_j).$$

The Economic Model (Cont.)

y produced with labor, one-to-one coefficient $\rightarrow w = 1$.

x produced with labor and sector specific input. Income of this input is $\Pi_j (q_j)$.

τ_j is one plus the MFN tariff rate on imports of x . Then $q_j = \tau_j p$ is the consumer and producer price.

If x is exported by country j we set $\tau_j = 1$.

Tariff revenue is distributed to country j 's residents.

Under these circumstances

$$V_j = L_j + \Pi_j (\tau_j p) + (\tau_j - 1) p [C_j (\tau_j p) - X_j (\tau_j p)] + S_j (\tau_j p) .$$

The Economic Model (Cont.)

The international price p is determined by the market clearing condition

$$\sum_{j=a,b,c} [C_j(\tau_j p) - X_j(\tau_j p)] = 0.$$

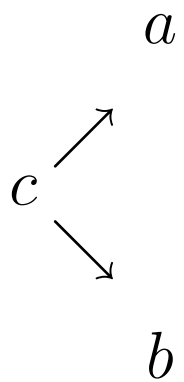
$$W(j) = V_j \quad \text{and no FTAs,}$$

$$W(jk) = V_j + V_k \quad \text{and FTA between } j \text{ and } k,$$

$$W_F(j) = V_j \quad \text{and FTA between } k \text{ and } \ell,$$

$$W(abc) = V_a + V_b + V_c \quad \text{and global free trade.}$$

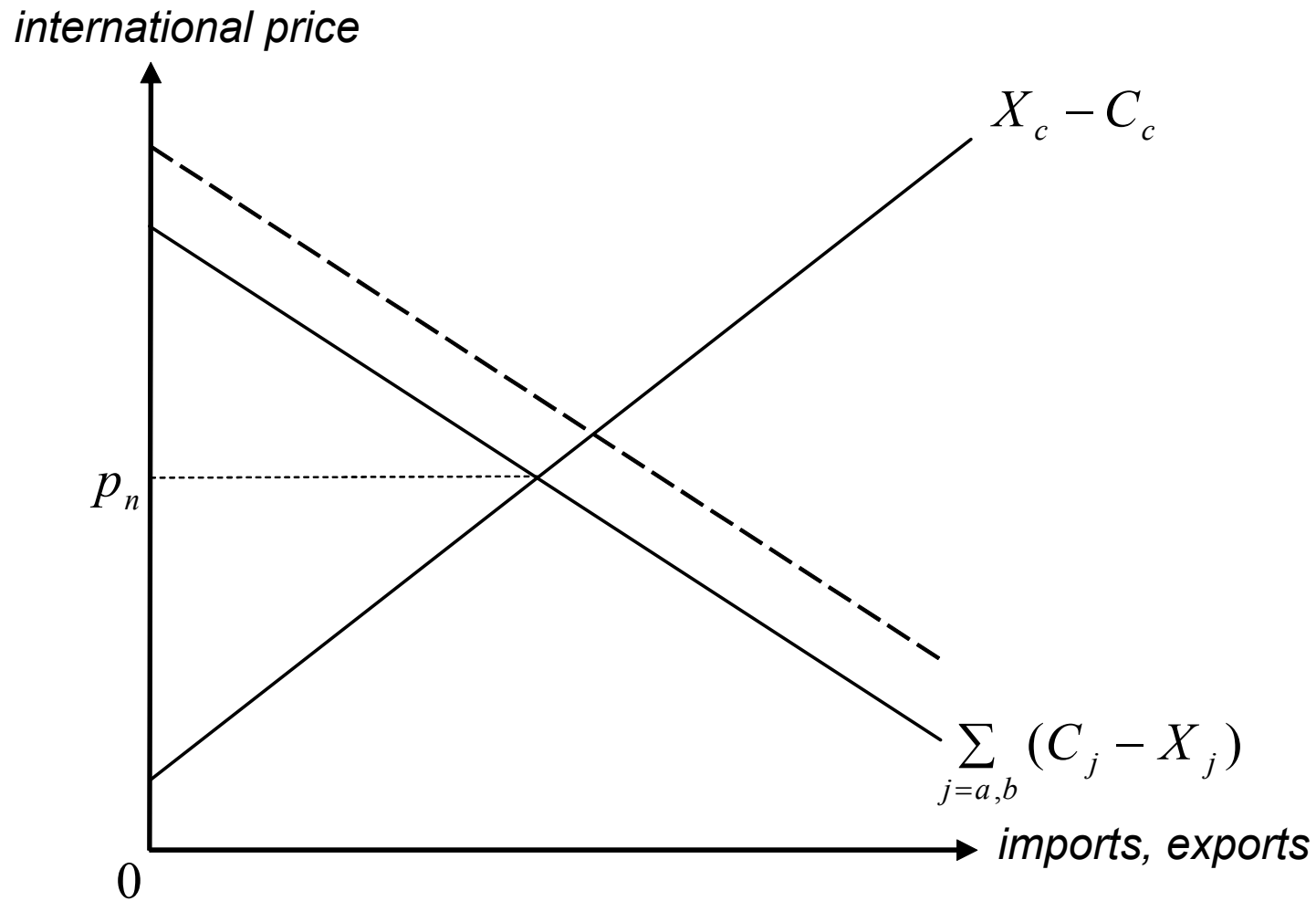
Equilibrium Sequential Bargaining

Country c exports x while a and b import it: 

a and b impose tariffs $\tau_a > 1$ and $\tau_b > 1$.

An FTA between c and a leads to reduced protection.

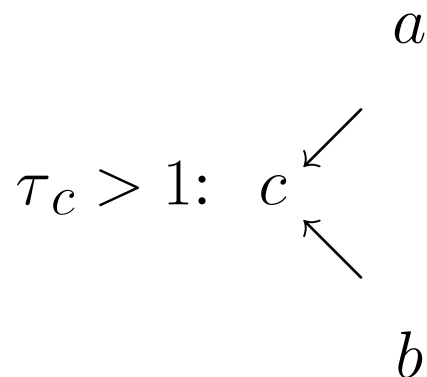
Equilibrium Sequential Bargaining (Cont.)



FTA(ac) raises b 's import price

Equilibrium Multilateral Bargaining

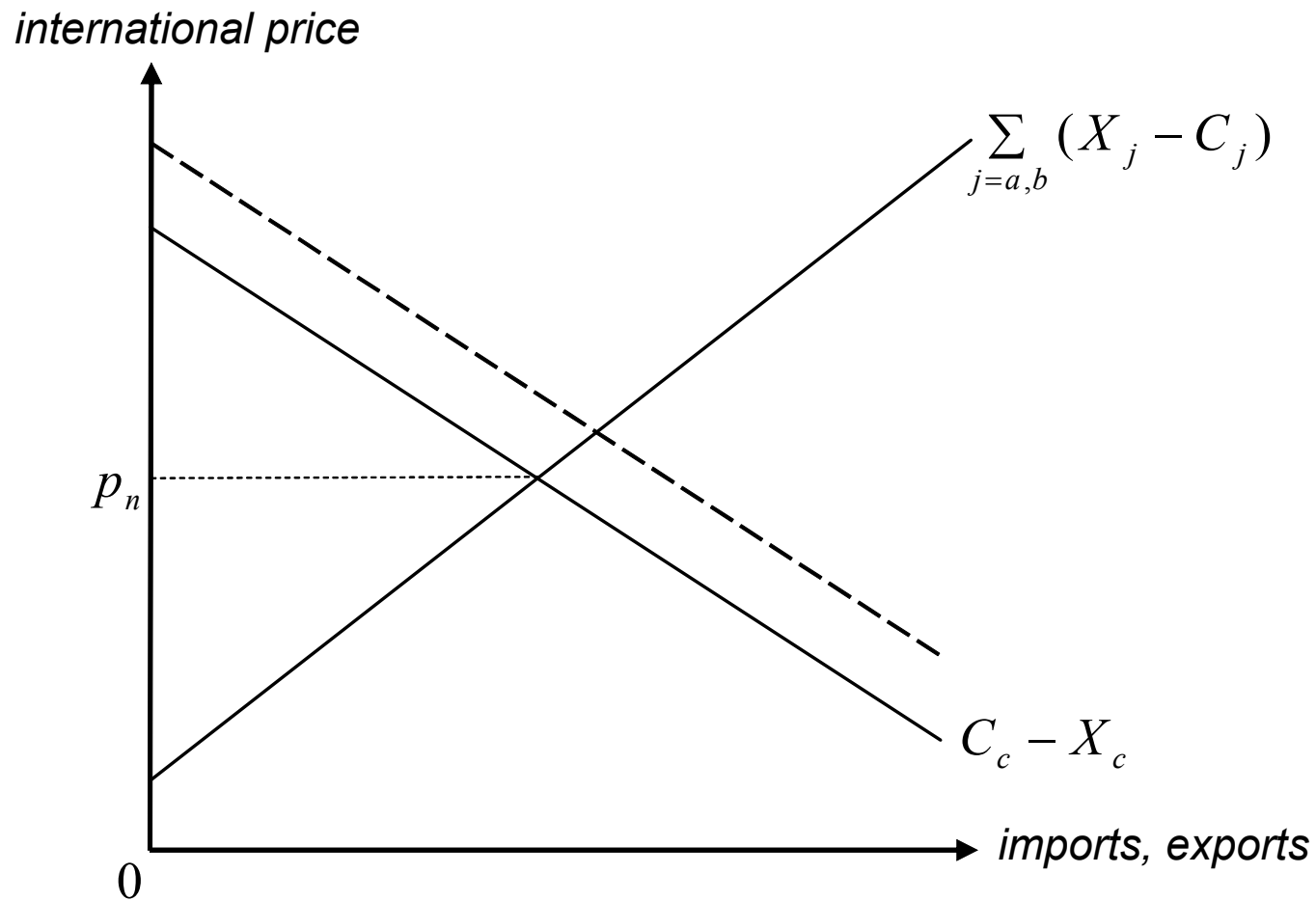
Country c imports x from each one of the follower countries and



An FTA between c and a leads to reduced protection.

An FTA between c and b leads to reduced protection.

Equilibrium Multilateral Bargaining (Cont.)



FTA(*ac*) raises *b*'s export price

Equilibrium Multilateral Bargaining

The equilibrium bargaining method depends not only on the patterns of trade and protection, but also on finer details of supply and demand.

To see why, reconsider Example 2 (multilateral bargaining).

We assumed that an FTA between c and either one of the follower countries leads to reduced protection.

Now suppose instead that the formation of an FTA between c and a leads to enhanced protection.

In this event there are negative coalition externalities in b , and our proposition implies sequential bargaining in equilibrium.

Political Economy

GC superadditivity is central to the benchmark and main propositions.

Free trade is not necessarily the unique equilibrium outcome when GC superadditivity fails.

We argued that GC superadditivity holds when aggregate welfare of a country's residents is used as its payoff, there are no distortions other than tariffs, production sets are convex, and there is competition in all markets.

We examine lack of GC superadditivity that stems from political economy considerations.

Political Economy (Cont.)

Following Grossman and Helpman (1994) we think about this political objective function as a function of aggregate welfare and contributions.

Then, the interaction of a government with special interest groups leads to a decision making process that maximizes a weighted average of aggregate welfare and the welfare of special interests.

We adopt this perspective in order to illustrate lack of GC superadditivity and its implications for the desirability of restrictions on bargaining.

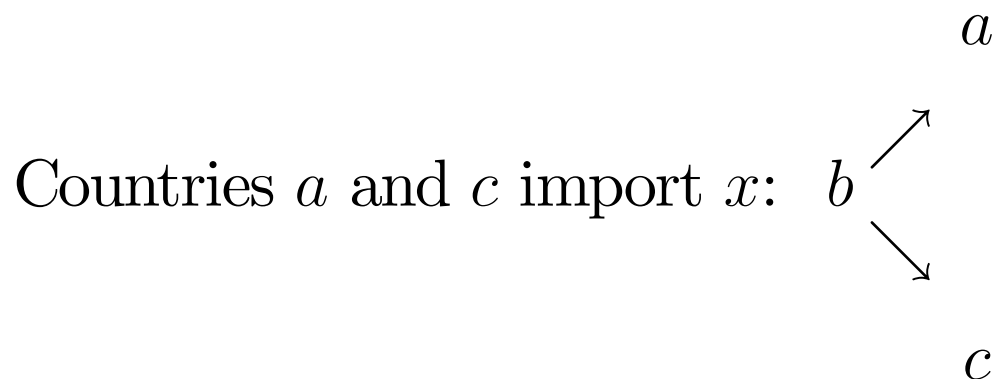
Stumbling Bloc and Building Bloc Equilibria

Our first example constructs a world in which multilateral negotiations lead to free trade while sequential negotiations lead to an FTA between two countries only. Nevertheless, the leader prefers sequential negotiations.

Our second example constructs a world in which multilateral negotiations are doomed to fail, i.e., they do not lead to free trade. Yet sequential bargaining does lead to global free trade, as the leader first offers an FTA to one follower country and afterwards induces the second follower country to join.

In both examples we use aggregate profits as a country's payoff.

Stumbling Bloc



$$\tau_a > \tau_c > 1$$

Global free trade leads to a higher international price of x , because the removal of tariffs raises import demand in countries a and c . Profits decline in countries a and c and rise in country b . Yet aggregate world profits rise.

Therefore multilateral bargaining leads to global free trade.

Stumbling Bloc (Cont.)

When c chooses sequential bargaining, its payoff is highest when it approaches country a first.

But an FTA between a and c leads to reduced protection.

The international price rises.

As a result profits rise in b and c and decline in a .

The resulting aggregate world profits exceed aggregate world profits under free trade.

In this event country c 's payoff is higher from forming a free trade area with a only than from forming a free trade area with a and b , a stumbling block.

Stumbling Bloc (Cont.)

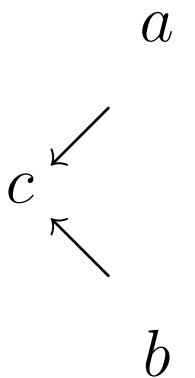
The general requirements for a stumbling bloc equilibrium in which c forms an FTA with a , are:

$$W(ac) + \min \{W(b), W_F(b)\} > W(abc) > \sum_{j=a,b,c} W(j),$$

$$W(ac) > W(a) - W(b) + \max \{W(bc), W(abc) - W_F(a)\}.$$

A large payoff $W(ac)$ and large and positive coalition externalities in the follower countries make this sort of stumbling bloc equilibrium more likely.

Building Bloc

Countries a and b export x and c has a tariff on imports of x : 

As in the previous example, free trade leads to an increase in c 's imports of x , thereby bidding up its international price.

As a result, profits rise in countries a and b and decline in c , and aggregate world profits decline.

Therefore multilateral bargaining does not lead to global free trade.

Building Bloc (Cont.)

In the sequential subgame c prefers to approach a first.

An FTA between a and c leads to enhanced protection.

This raises aggregate world supply of x and depresses its price.

The new aggregate world profits are lower from the profits under free trade. For this reason c has an incentive to bring b in into the FTA.

It follows that sequential bargaining leads to global free trade. Moreover, the equilibrium payoff to c exceeds in this subgame c 's payoff from multilateral bargaining, a building bloc.

Building Bloc (Cont.)

The general requirements for a building bloc equilibrium in which c forms an FTA with a , are:

$$\sum_{j=a,b,c} W(j) > W(abc) > \max \{W(ac), W(a) + W(c)\} + W_F(b),$$

$$W(abc) > W(a) - W(b) + \max \{W(bc), W(abc) - W_F(a)\} + W_F(b).$$

These conditions are more likely to be satisfied the smaller are $W(ac)$ and $W(bc)$ and the more negative the coalition externality in b are.

No such equilibrium exists when the coalition externalities are positive in the follower countries.

Summary

Superadditivity and coalition externalities are important determinants of the relative merits of multilateral and sequential trade negotiations.

Main findings:

1. Under GC superadditivity global free trade is the unique equilibrium outcome.
2. A leading country strictly prefers sequential bargaining when coalition externalities are negative in at least one country; otherwise it prefers multilateral bargaining.

Summary (Cont.)

3. In presence of special interests GC superadditivity may fail. If it fails, preferential agreements can be stumbling or building blocs of trade liberalization:
 - (a) building blocs when coalition externalities are negative;
 - (b) stumbling blocs when coalition externalities are positive.
4. Coalition externalities depend on the structure of trade and protection, demand and supply.

Extensions

Endogenous agenda-setters (role for economic size, technology, financial development).

Other sources of non-superadditivity (imperfect competition, distortions in labor markets, institutional constraints).

The contribution of factors that favor regional agreements.

What happens when individual countries can join more than one coalition?