

# The Political Economy of Service Trade Agreements

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# Motivation and Research Question

Theoretical investigation of the reasons why countries sign trade agreements in the context of **trade in goods**

- terms-of-trade (TOT) motive (Johnson / Mayer / Bagwell & Staiger / Grossman & Helpman)
- commitment motive (Staiger & Tabellini / Maggi & Rodriguez-Clare)
- delocation motive (Ossa)

The same mechanics and results may not apply to **trade in services** (*Francois and Hoekman JEL 2010*)

## Questions:

- Why countries sign service trade agreements?
- What are the welfare properties of service trade agreements?

Focus on the political aspects (vs purely economic motives)

# Research Strategy

## Construction of a theoretical **trade policy framework**

- with special interest groups (domestic and foreign lobbies)
- embedding the specificities of **services production**
  - imperfect competition
  - services as intermediate inputs
- and the specificities of **trade in services**
  - proximity burden
    - ⇒ provision through a foreign affiliate / GATS *mode 3*
    - ⇒ trade policy variable: # of affiliates to foreign service MNEs allowed to contest the domestic mkt

# Preview of the results. . .

## Why countries sign service trade agreements?

The **commitment motive** for service trade agreements

- services are relevant intermediate inputs
- protected service sectors imply **higher price** of services (oligopolistic structure)
- ⇒ the anticipation of protection distorts decisions of the sectors that use services as intermediate inputs
- ⇒ potential inefficiencies / gvt time inconsistency problem
- ⇒ incentive to commit

**Intuition:** a gvt signs an agreement to tie his hands vis à vis a special interest group when the political game inefficiency is higher than foregone contributions (*Maggi and Rodriguez-Clare, JPE 1998*)

## ... Preview of the results

### What are the welfare properties of service trade agreements?

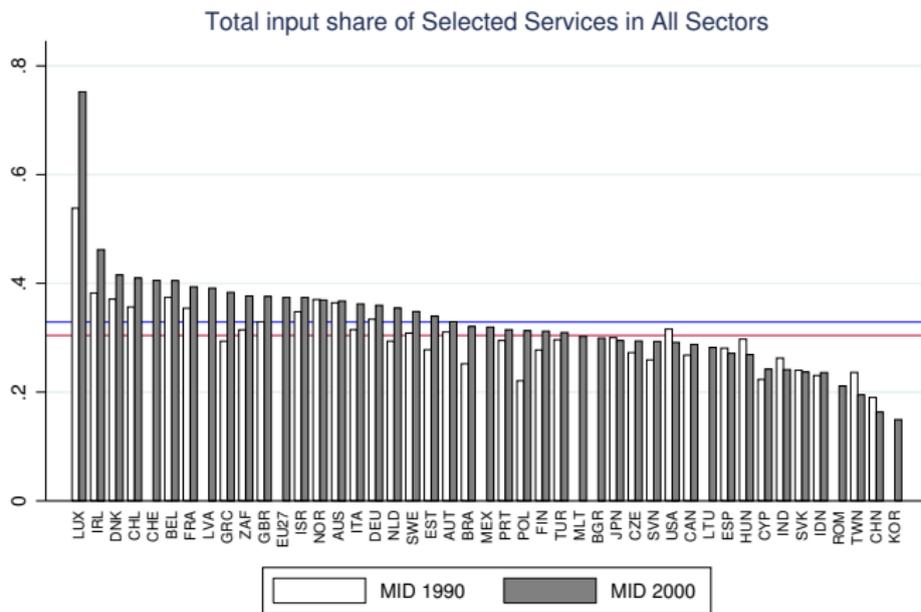
Welfare effects depend upon **key parameters**:

- degree of **foreign lobbying** (FL) (*Gawande et al REStat 2006*)
- the **responsiveness** of governments to contributions
- **size** of domestic service sector (**power** of the domestic lobby)

### Main result:

- 1 With no FL trade agreements (trade talks) are welfare improving (with respect to trade wars) only when the domestic sector is large
- 2 Under FL, a trade agreement leads to a less restrictive policy and is welfare improving only when the domestic sector is large and governments are not too responsive to FL

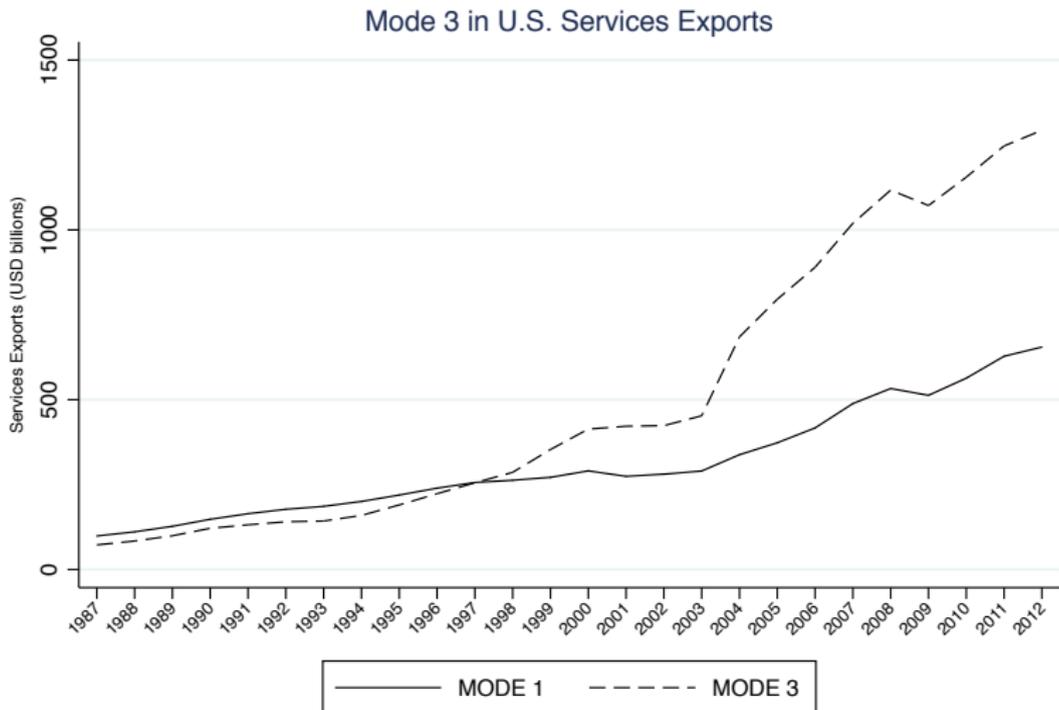
# Services as intermediate inputs



RED line: MEAN MID 1990 | BLUE line: MEAN MID 2000  
 Selected Services: Wholesale and retail trade / Transport and storage / Post and telecommunication / Finance and insurance / Other business activities  
 Note: Total Shares are computed as the ratio between the sum, across all output sectors, of services inputs (both domestic and imported) and the sum, across all output sectors, of total intermediate consumption  
 Source: STAN-OECD IO Matrices

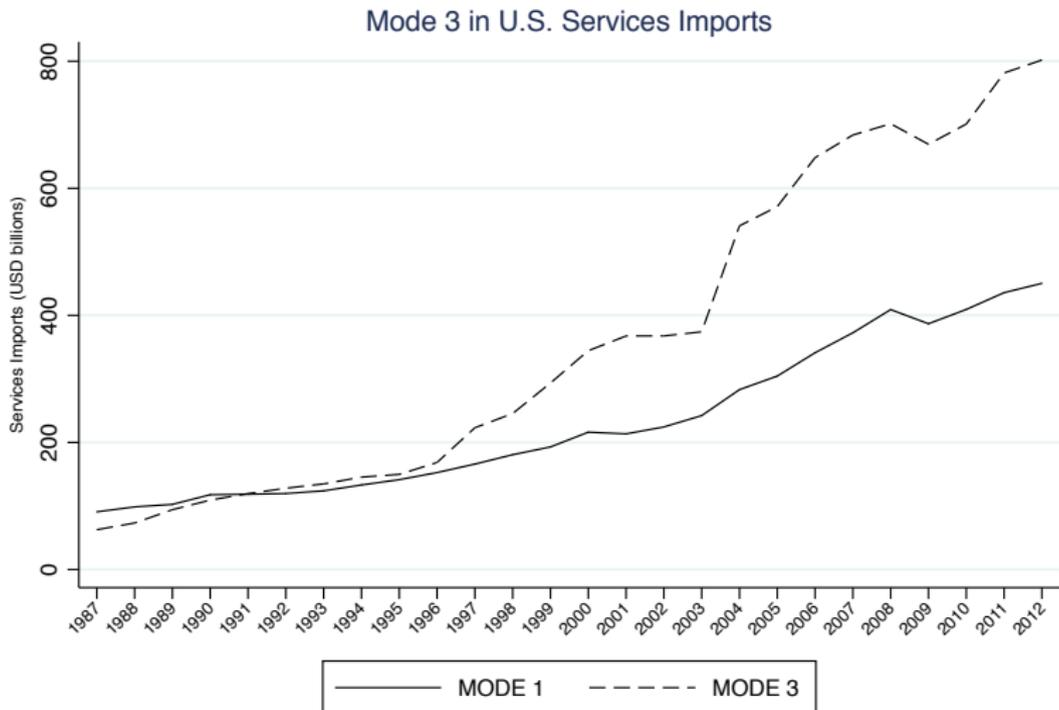
Positive effect of services liberalisation on **manufacturing industries** that rely on services inputs (*Arnold et al JIE 2011 / Fernandes and Paunov JDE 2012*)

# Services provision: MODE 3 Exports



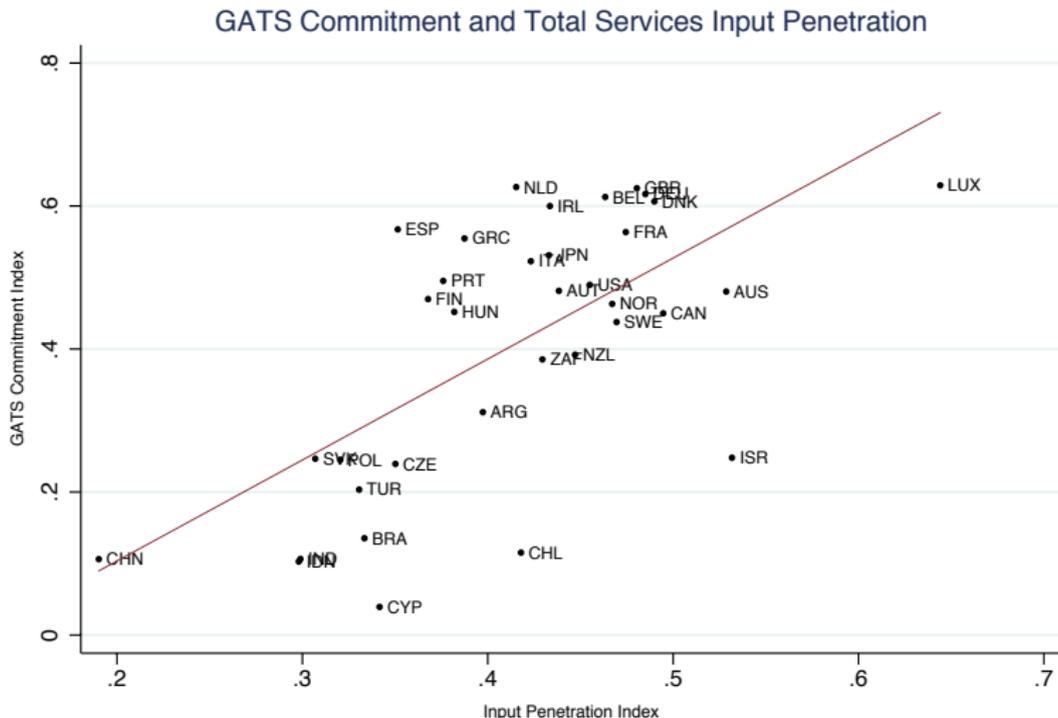
Source: US Bureau of Economic Analysis  
MODE 1: cross border exports as in the BOP  
MODE 3: services supplied by majority-owned foreign affiliates of U.S. MNEs

# Services provision: MODE 3 Imports



Source: US Bureau of Economic Analysis  
MODE 1: cross border exports as in the BOP  
MODE 3: services supplied by majority-owned U.S. affiliates of foreign MNEs

# Commitment and services input share



GATS Commitment Index: Egger-Lanz weighted coverage ratio. Data from Egger and Lanz (2008)

Input Penetration Index: total share of services in total intermediate inputs consumption. Authors computation from OECD STAN IO Tables, mid 1990s

# Commitment and services input share

Table : Input Penetration and GATS Commitment

	(1)	(2)	(3)
IPI	2.883*** (0.51)	2.794*** (0.43)	2.224*** (0.47)
GDP		0.177* (0.09)	0.113 (0.12)
Full Egger-Lanz	No	No	Yes
Countries	35	35	35
$R^2$	0.434	0.510	0.807

Statistical significance: \* 0.1, \*\* 0.05, \*\*\* 0.01.

The *Full Egger-Lanz* option includes other 6 regressors. Percentage of total population with completed tertiary education in 1995; FTA membership dummy; PTA membership dummy; number of anti-dumping cases filed by the country from 1970 to 1990; number of anti-dumping cases filed against the country from 1970 to 1990; EU membership before 1996 dummy. All the coefficients are qualitatively consistent with Egger Lanz (2008) analysis. Significance decreases substantially due to the reduced dimension of the sample.

# General structure and notation

## Countries

- $\mathcal{H}$  and  $\mathcal{F}^*$
- similar population, economic and political structures.

## Sectors

- final goods sector  $F$
- services sector  $S$ 
  - domestic providers
  - foreign providers

## Political structure

government / lobby

# The final goods sector

Measure 1 mass of **small firms** producing the final good

Perfect competition

Capital  $k$  and services  $q^S$  **complementary inputs** in the production function

$$F(k, q^S) = f(\min\{k, q^S\}) \quad (1)$$

with  $f(x) = 1 - e^{-\frac{x}{A}}$  and  $A$  positive constant

Exogenous price of capital  $\tau$  and unlimited domestic supply.

# Services sector

Finite number  $n$  of firms producing services  $q^S$

- $n_d$  providers with domestic nationality
- $n - n_d$  providers with foreign nationality

Oligopolistic competition à la Cournot

Each services provider chooses a supply  $q^S$  to maximise

$$\pi^S(q^S) = q^S P^S(Q_-^S + q^S) \quad (2)$$

# Demand

The utility function of the representative consumer is

$$U(q^F) = vq^F - q^F/2$$

with  $0 < v \leq 1$

Final good aggregate demand is given by

$$D^F(P^F) = v - P^F$$

Consumer surplus is

$$H(P^F) = \frac{(v - P^F)^2}{2}$$

# Political structure

## Government

- **Trade policy** consists in setting the number of foreign providers allowed to contest the domestic mkt
- Given  $n_d$  (exogenous), the government sets  $n$  maximising a weighted average of national welfare and contributions

$$W(n) + ac \tag{3}$$

$$\text{with } W(n) = \underbrace{H(n)}_{\text{consumer surplus}} + \underbrace{\Pi^F(n) + \Pi^I(n)}_{\text{producers surplus}}$$

## Lobby

- Services firms are able to coalesce in a lobby
- They value protection of the sector against foreign entry

**Intuition:** imperfect competition  $\Rightarrow \frac{d\pi^S(n)}{dn} < 0$

- The lobby offers contributions  $c$  to the gvt in order to obtain protection via trade policy  $n$ . Formally it maximises

$$n_d \pi^S(n) - c$$

# Timing and Benchmark equilibrium

## The timing

- $t = 0$ :  $n_d$  domestic service providers (exogenous)
- $t = 1$ : final goods sector borrows capital  $K$
- $t = 2$ : gvt chooses a trade policy  $n$  ( $n - n_d$  foreign service providers)
- $t = 3$ : Production of services and final goods / consumption / market clearing

## Proposition 1 (The benchmark equilibrium with no lobbying)

*The Nash equilibrium of the three-stages (1 – 3) game is*

$$E_0 := \{K_0, n_0, P_0^F, P_0^S\}$$

*with the trade policy:  $n_0 = -\ln(1 - v)$*

# Political game equilibrium

## Active lobby

- at  $t = 2$ , given investment into the final sector, the gvt and the lobby play a **cooperative bargaining game** over the vector  $(n, c)$ 
  - threat point given by the benchmark solution:  $n = n_0$  and  $c = 0$
  - gvt bargaining weight  $\sigma$  / lobby's weight  $1 - \sigma$
- The equilibrium  $(\tilde{n}, \tilde{c})$  is the argmax of Nash product

$$\left[ W(n|K) + ac - W(n_0|K) \right]^\sigma \times \left[ n_d \pi^S(n|K) - c - n_d \pi^S(n_0|K) \right]^{1-\sigma}$$

## Proposition 2 (The political game with lobbying)

*The Nash equilibrium of the three-stage game with lobbying is*

$$\tilde{n} = -\ln\left(\frac{(1-v)(1-an_d)}{1-2an_d}\right) < n_0 \quad (\text{Protected sector})$$

# Underinvestment and Time inconsistency

## Final sector underinvestment:

$$K_0 - \tilde{K} = A \ln \left( \frac{1 - an_d}{1 - 2an_d} \right) > 0$$

- **Intuition:** at  $t = 1$ , the firms in the final sector expect higher price for their intermediate input due to anticipated protection. Given the complementarity between capital and services, the final firms borrow less capital
- Given the timing, the reservation utility of the gvt ( $W(n_0|K)$ ) cannot account for underinvestment
  - ⇒ time inconsistency problem (Maggi and Rodriguez-Clare, JPE 1998)

# Commitment motive

## Option to commit at $t = 0$

- **trade-off**: foregone rents from the lobby (cost of commitment) VS underinvestment in the final firms (cost of the political game)

Value of commitment

$$\Omega = G_0 - \tilde{G} = W(n_0, K_0) - W(n_0, \tilde{K}) - \sigma a n_d [\pi^S(\tilde{n}, \tilde{K}) - \pi^S(n_0, \tilde{K})]$$

## Proposition 3 (When does a country commit?)

- *Standard threshold result*:  $\exists! \bar{\sigma} \in (0, 1)$  such that  $\Omega(\bar{\sigma}) = 0$ .
- *When the government has a **weak bargaining power** ( $\sigma < \bar{\sigma}$ ) it benefits from commitment ( $\Omega(\sigma) > 0$ ); when instead the government has a **strong bargaining power** ( $\sigma > \bar{\sigma}$ ) it benefits from the political game ( $\Omega(\sigma) < 0$ )*

# More structure on the commitment device

Commitment motive: we assume  $\sigma = 0$  (no bargaining power)  
 $\Rightarrow$  strictly positive commitment value ( $\Omega(\sigma = 0) > 0$ ).

## Bilateral framework

**Ex-ante lobbying:** possibility for lobbies to exert pressure during the initial stage  $t = 0$

non cooperative game (trade wars) vs negotiation (trade talks)

## Foreign lobbying during the $t = 0$ political game

- each lobby aggregates
    - 1 the domestic profits of national providers ( $n_d$ )
    - 2 the profits of their affiliates in the foreign country ( $n^* - n_d^*$ )
  - each lobby offers
    - 1 contributions to its own government ( $c_d$ )
    - 2 contributions to the other government ( $c_{nd}$ )
- contributions to both gvts
- gvts differently value foreign lobby's contributions ( $b \leq a$ )

# Trade wars: the non-cooperative game at $t = 0$

Timing:

- 1 The two lobbies, simultaneously and non-cooperatively, present their (truthful) contribution schedules maximising

$$\mathcal{L}(c_d, c_{nd}) := n_d[\pi^S(n) + \frac{n^* - n_d^*}{n_d} \pi^{S^*}(n^*)] - c_d - c_{nd}$$

- 2 Given the contribution schedules the two governments set their trade policy **non-cooperatively** ( $0 \leq b \leq a$  and  $0 \leq b^* \leq a^*$ ):

$$\mathcal{G}(n) := W(n) + ac_d(n) + bc_{nd}^*(n)$$

Best reply functions:

$\forall n^*$ , the equilibrium trade policy  $n_{TW}$  maximises the joint surplus

$$J(n) = W(n) + a[n_d \pi^S(n)] + b[(n - n_d) \pi^S(n)]$$

## Proposition 4 (Trade Wars equilibrium)

*The equilibrium trade policy is uniquely defined as the solution of*

$$n_{TW} = -\ln\left(\frac{(1-v)(1+b-(a-b)n_d - bn_{TW})}{1+b-2(a-b)n_d - 2bn_{TW}}\right)$$

## Trade wars: results

- **No foreign lobbying** ( $b = b^* = 0$ ):  $n_{TW} = \tilde{n}$   
welfare does not change  $W(n_{TW}) = W(\tilde{n})$
- **Foreign lobbying** ( $b, b^* > 0$ )

### Proposition 5 (Welfare under Trade Wars with FL)

- 1 If small domestic sector ( $n_d$ )  $\Rightarrow n_{TW}$  and welfare are decreasing in  $b$
- 2 If large domestic sector ( $n_d$ )  $\Rightarrow n_{TW}$  and welfare are increasing in  $b$

#### Intuition: Intensive vs extensive margin

- small (*large*)  $n_d$
- $\Rightarrow$  domestic lobby not powerful (*very powerful*) to gain protection from foreign entry
- $\Rightarrow$  high (*low*) market access
- $\Rightarrow$  foreign lobby pushes for a less (*more*) competitive environment in order to increase the individual profits / intensive margin (*to increase market access / extensive margin*)

# Trade wars: results

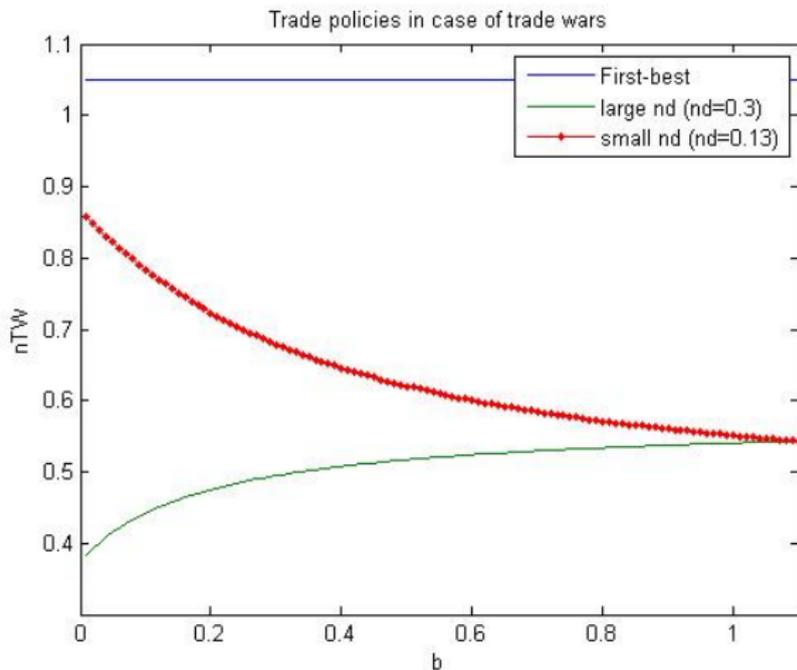


Figure : Trade policies  $n_{TW}(b)$  for different  $b$  with  $0 \leq b \leq a$ .

# Trade talks: efficient bargaining at $t = 0$

Governments now negotiate to sign an agreement

- given the contribution schedules the two governments set their trade policy **cooperatively** ( $0 \leq b \leq a$  and  $0 \leq b^* \leq a^*$ ):

$$\mathcal{G}(n, n^*) := W(n) + ac_d(n, n^*) + bc_{nd}^*(n, n^*)$$

$$\mathcal{G}^*(n^*, n) := W^*(n^*) + a^*c_d^*(n^*, n) + b^*c_{nd}(n^*, n)$$

- $(n_{TT}, n_{TT}^*)$  is the argmax of the joint surplus

$$J(n, n^*) = W(n) + W^*(n^*) +$$

$$+ a[n_d\pi^S(n) + (n^* - n_d^*)\pi^{S^*}(n^*)] + b[n_d^*\pi^{S^*}(n^*) + (n - n_d)\pi^S(n)] +$$
$$+ a^*[n_d^*\pi^{S^*}(n^*) + (n - n_d)\pi^S(n)] + b^*[n_d\pi^S(n) + (n^* - n_d^*)\pi^{S^*}(n^*)]$$

## Proposition 6 (Trade Talks equilibrium)

*The equilibrium trade policy is uniquely defined as the solution of*

$$n_{TT} = -\ln\left(\frac{(1-v)(1+(a+b) - (a+b)n_{TT})}{1+(a+b) - 2(a+b)n_{TT}}\right)$$

## Trade talks: results ...

**No foreign lobbying** ( $b = b^* = 0$ )

$$J(n, n^*) := W(n) + a[n\pi^S(n)] + W^*(n^*) + a[n^*\pi^{S^*}(n^*)]$$

### Proposition 7 (Welfare under Trade Talks without FL)

- 1  $n_{TT}(b=0) = n_{TW}(b=a)$ : *the trade policies under trade talks are the same as under trade wars in the particular case when the government is equally responsive to domestic and foreign contributions ( $b = a$ )*
- 2  $n_{TT}$  *decreases in the political responsiveness to domestic lobbying  $a$*

## ... Trade talks: results

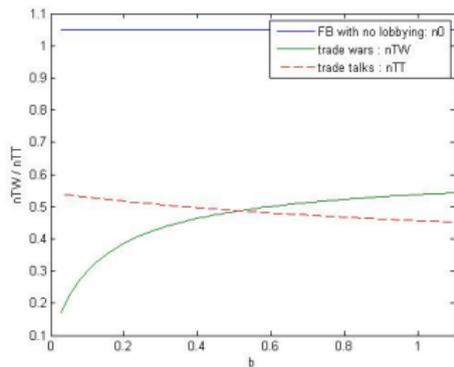
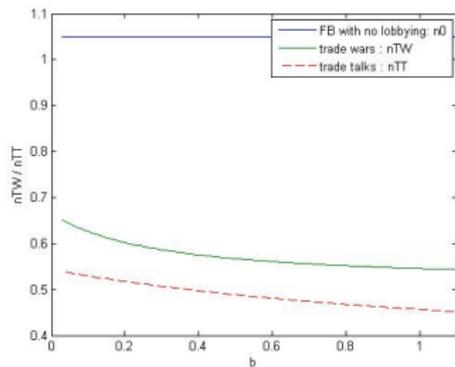
### Second: Foreign lobbying ( $b > 0$ )

$$J(n, n^*) := W(n) + (a + b)[n\pi^S(n)] + W^*(n^*) + (a + b)[n^*\pi^{S^*}(n^*)]$$

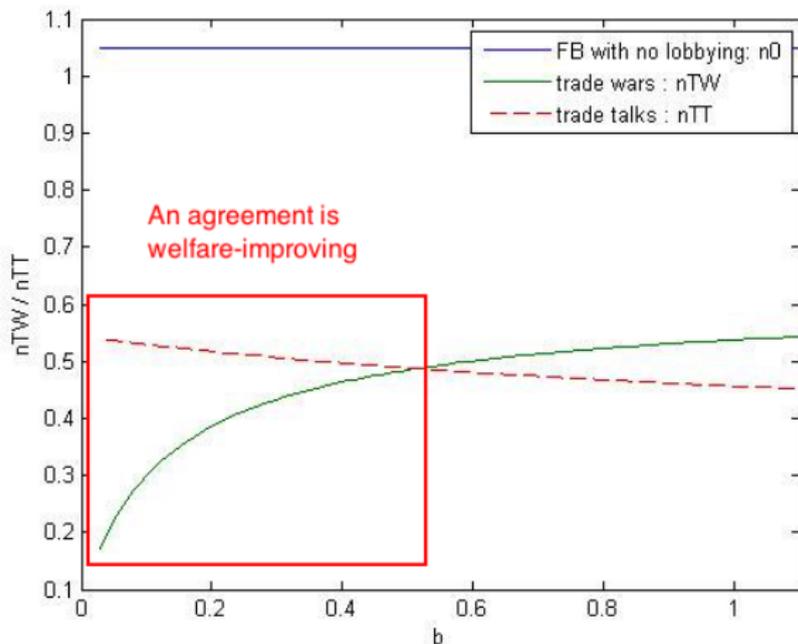
#### Proposition 8 (Welfare under Trade Talks with FL)

*A trade agreement leads to a less restrictive policy and is welfare improving with respect to trade wars ( $n_{TT} > n_{TW}$ ) only when the domestic sector is large and governments are not too responsive to non-domestic lobbying (low  $b$ )*

# Trade talks: small vs large domestic sectors



# Trade talks: the results for a large domestic sector



# Conclusions

## **Why do countries commit?**

- Mechanism: the expected protection of the intermediate sector creates distortions and leads to underinvestment in the final good.
- governments sign FDI agreements when their bargaining power is low

## **When is an agreement welfare-improving?**

A trade agreement leads to a less restrictive policy and is welfare improving only when the domestic sector is large and governments are not too responsive to non-domestic lobbying (low  $b$ ).

## **When is foreign lobbying welfare-improving?**

Foreign lobbying is welfare-improving only when it supports more entries for foreign affiliates (extensive margin - powerful domestic lobby).