How the Balance of Economic Interests Explains the Pattern of Subsidy Restrictions

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Overview: Explaining International Subsidy Restrictions

- Goal: develop positive theory of international subsidy restrictions
- Why is a positive theory of subsidy restrictions important?
 - Importing subsidized products creates trade conflict, especially with China today
 - Modeling preferences such that countries dislike such subsidies is far from obvious
 - As I will argue, this is less of a settled topic than many realize
- · Approach: find an explanation for subsidy restrictions that
 - aligns well with their multilateral negotiating history
 - requires minimal restrictions on policy preferences and state capacity

Settled vs. Open Debates in Theory of Subsidy Restrictions

- · Motives to restrict subsidies that undercut exporters are well understood
 - Subsidies for import-competing sectors (Bhagwati and Ramaswami, 1963)
 - Subsidies for competition in third markets (Brander and Spencer, 1985)
- · Contrast: cooperative limits on export-promoting subsidies are criticized
 - Microeconomic intuition: cheaper imports are a gift, expand consumption possibilities
 - Runs counter to WTO purpose to increase trade volumes (Janow and Staiger, 2003)
 - No need to cooperate; countries bear costs of their own bad policies (Rodrik, 2011)
 - Among "least economics-informed agreements in the WTO" (Mavroidis et al. 2008)
- · Still recent discussion presumes "unfair" China-subsidized output in US/EU is bad
 - Examples: Bown and Hillman (2019), European Commission (2020)

Challenges in Rationalizing Export Subsidy Restrictions

- · A seemingly straightforward explanation is consistent with 1980s negotiating history
 - Consumers and purchasers of subsidized imports like lower import prices ("gifts!")
 - Import-competing industries dislike lower import prices ("unfair!")
 - Import-competing industries have greater political power
- But can this explanation fit with workhorse models of trade cooperation?
 - Problem: the same political power prevents tariffs from falling in the first place
 - Export subsidies have positive cross-border externalities at cooperative outcome (e.g. Bagwell and Staiger, 2006, 2010, 2015)
 - So literature declares this to be a puzzle and looks to other explanations
- But I show that the straightforward, consistent explanation can still hold

My approach

- · In workhorse trade models with plausible political economy forces I show that
 - Foreign export subsidies are always welcomed around noncooperative tariff levels
 - Foreign export subsidies are plausibly disliked at cooperative tariff levels
- Key restriction: some limit to solving domestic problems with domestic policy
 - Trade policies and negotiations become second-best solutions (like reality)
 - Countries trade off tariff cuts in negotiations to pursue exporter market access
 - So countries prefer to restrict export subsidies when exporter political power is strong
- Some appeals about this explanation
 - Robust to a variety of market structures or political preferences
 - Consistent with timing of subsidy cooperation across major sectors, and other facts

Related Literature Explaining Subsidy Restrictions

- · Informal discussion of producer interests and subsidy rules
 - Grossman and Mavroidis (2004), Grossman and Horn (2012)
- · Market structures with price-increasing subsidies (Metzler Paradox)
 - Bagwell and Staiger (2011), Bagwell and Lee (2020)
- Motives for domestic political commitment
 - Brou and Ruta (2013), Potipiti and Suwanprasert (2019)
- · Theories of negotiating over import policies rather than export policies
 - Mrázová (2011), Beshkar and Lashkaripour (2020)
- · Profit-shifting externalities and subsidies
 - Collie (1991, 1993, 2000)

Motivation from the History of Subsidy Negotiations

- GATT Secretariat (1987) clarifies goals of pre-WTO subsidy negotiations
 - "The Agreement on Subsidies and Countervailing Measures has provided some disciplines as to the effects in the sense that signatories are obliged to seek to avoid causing, through the use of any subsidy, adverse effects to the interest of another signatory. It also established a procedure to determine the existence of adverse effects and to take a remedial action."
- Interpretation of the primary source
 - Remedies address international externalities not commitment motives
 - Adverse effects (any harm to producers) provokes remedies
 - So history fits well with a theory of producer interests driving subsidy restrictions
- · Grossman and Mavroidis (2004) agree the rules reflect producer interests
 - "Evidently, the signatories meant to discourage certain policy actions that would harm competing producer interests in the importing country."

Model Setup and Reduced-Form Structure

$P_{Hw}(t, t^*, s, s^*)$	Terms of trade of home exports / foreign imports	
$P_{Fw}(t, t^*, s, s^*)$	Terms of trade of foreign exports / home imports	
$P_{Hf}(t^*, P_{Hw})$	Consumer price of home exports / foreign imports	
$P_{Fh}(t, P_{Fw})$	Consumer price of foreign exports / home imports	
$V(P_{Hf}, P_{Fh}, P_{Hw}, P_{Fw}; \gamma_H, \gamma_h)$	Indirect utility of home government	
$V^*(P_{Hf}, P_{Fh}, P_{Hw}, P_{Fw}; \gamma_F^*, \gamma_f^*)$	Indirect utility of foreign government	

Standard Restrictions

$rac{dP_{Hf}}{dt^*}>0;rac{dP_{Fh}}{dt}>0$	Consumer prices increasing in tariffs
$rac{dP_{Hf}}{ds} < 0; rac{dP_{Fh}}{ds^*} < 0$	Consumer prices decreasing in subsidies
$rac{dP_{Hw}}{dt^*} < 0; rac{dP_{Fw}}{dt} < 0$	Tariffs abroad worsen terms of trade (ToT)
$rac{dP_{Hw}}{ds} > 0; rac{dP_{Fw}}{ds^*} > 0$	Subsidies abroad improve terms of trade (ToT)
$rac{dV}{dP_{Hw}} > 0; rac{dV^*}{dP_{Fw_*}} > 0$	Benefit from higher export world prices (ToT gain)
$rac{dV}{dP_{Fw}} < 0; rac{dV^*}{dP_{Hw_*}} < 0$	Loss from higher import world prices (ToT loss)

Stronger but Not Uncommon Restrictions

$$\frac{dV}{dP_{Hf}} > 0; \frac{dV^*}{dP_{Fh}} > 0 \qquad \text{State motive to promote export industries}$$

$$\frac{d^2V}{d\gamma_H dP_{Hf}} > 0; \frac{d^2V^*}{d\gamma_F^* dP_{Fh}} > 0 \qquad \text{Export promotion motive amplified by externalities}$$

$$\frac{d^2V}{d\gamma_h dP_{Fh}} > 0; \frac{d^2V^*}{d\gamma_f^* dP_{Hf}} > 0 \qquad \text{Import protection motive amplified by externalities}$$

- Presuming a state motive to promote export industries is crucial
- Promotion motive could be addressed through optimal subsidies...
- · But today we focus on small deviations from institutions with limited subsidies
- · So states negotiate tariff reductions to promote exports (Bagwell and Staiger, 2016)

Motivation to Model Trade Agreements Solving Domestic Problems

- Bhagwati's targeting principle: use domestic policies to solve domestic problems
- Reality: trade policy and negotiations are often used to solve domestic problems
- · U.S. Trade Representative and Ambassador Katharine Tai on 15 April 2021
 - "As we have so often seen with labor issues, there is a certain refuge in arguing that [environment] is all a question of domestic policy and that we need not tackle the daunting task of building international consensus around new rules. But that dated line of thinking only perpetuates the chasm that exists between the lived experiences and expectations of real people on the one hand and trade experts on the other."

Implementing Trade Agreements That Solve Domestic Problems

- · A government with enough policies has a limited role for trade policy/negotiations
 - But as we've just argued, in practice trade policies are used to promote industry
 - So logically there must be some limitations on domestic policies
- This talk will not provide explicit microfoundations for limitations, but I'll note
 - The US executive has more control over trade policy than domestic policy
 - Clearly, in practice we do not observe first-best domestic policies
 - Information and political constraints likely prevent first-best political objectives
 - One possibility is financing constraints (Collie, 2000; Ederington and Minier, 2006)
- Modeling approach: restrict the policies, rather than assuming they're perfect
 - Follow Ossa (2011, 2014), Maggi and Ossa (2020), Grant (2020)

Institutional Setup

- I take as given that countries
 - initially set noncooperative trade policy (like 1930s)
 - then gradually cooperated on reducing trade barriers
 - I defer to other literature for gradualism and tariffication
- What I evaluate
 - Was there limited motive to constrain export subsidies under high tariffs?
 - Was there stronger motive to constrain export subsidies as tariffs fell?
 - And do tariff bounds and export subsidy bans implement efficient policy?

Cross-Border Export Subsidy Effects Under Noncooperative Tariffs

· Home's first-order condition for noncooperative tariffs

$$0 = \frac{dV}{dt} = \frac{dV}{dP_{Fh}} \frac{dP_{Fh}}{dt}^{(+)} + \frac{dV}{dP_{Fw}}^{(-)} \frac{dP_{Fw}}{dt}^{(-)}$$

- We can derive $\frac{dV}{dP_{Fh}}^{(-)}$ i.e. states set import-competing prices "too high"

First-order effect of foreign export subsidies

$$\frac{dV}{ds^*} = \frac{dV}{dP_{Fh}}^{(-)} \frac{dP_{Fh}}{ds}^{(-)} + \frac{dV}{dP_{Fw}}^{(-)} \frac{dP_{Fw}}{ds}^{(-)} > 0$$

- So countries welcome export subsidies at noncooperative levels!
- Analogous to result in Collie (1991)

Permissiveness of Export Subsidies at Noncooperative Tariffs

Proposition

If tariffs are at noncooperative levels, then export subsidies abroad have positive externalities.

- Basic intuition
 - Countries set import-competing prices "too high" in pursuit of terms-of-trade gains
 - Lower prices and terms-of-trade gains from export subsidies are mostly welcomed
- Implications
 - Aligns with historic looseness on subsidies prior to tariff cooperation
 - The result holds regardless of behavior imposing export subsidies

Result Aligns with Historical Pattern of Subsidy Conflict

Subsidy restrictions broadly follow trade cooperation by major economic sector

Year	Description	Agreement
1947	Subsidy discouragement, but no binding restrictions	GATT
1995	Prohibition of export-contingent manufacturing subsidies	WTO (Marekkesh)
2015	Prohibition of agriculture export subsidies	WTO (Nairobi)
2020	EC white paper calls for restrictions on services subsidies	???

Boeing-Airbus



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European Commission



Source: europa.eu

Price Preferences Given Cooperative Tariffs

- Consider cooperative outcome based on reciprocity rules
 - Reciprocity implies exchange of tariff cuts
 - For symmetric case, we keep cutting tariffs 1-for-1 until we want to stop
 - These conditions imply Pareto efficient outcomes
- The Home reciprocity condition

$$\frac{dV}{dP_{Fh}}\frac{dP_{Fh}}{dt}^{(+)} + \frac{dV}{dP_{Hf}}^{(+)}\frac{dP_{Hf}}{dt^*}^{(-)}\frac{dt^*}{dt}^{(+)} = 0$$

- We can derive $\frac{dV}{dP_{Fh}}^{(+)}$ which has opposite sign from noncooperative case!
- Notice sign of $\frac{dV}{dP_{Hf}}^{(+)}$ matches sign of $\frac{dV}{dP_{Fh}}^{(+)}$
- So motive to promote exports is crucual for motive to increase import prices

Cross-Border Export Subsidy Effects Under Cooperative Tariffs

Proposition

If tariffs are at cooperative levels, then export subsidies abroad have negative cross-border externalities, if government's preferences to promote exports are strong enough.

· At cooperative tariffs, the effect of foreign export subsidies on home is

$$\frac{dV}{dP_{Fh}}^{(+)}\frac{dP_{Fh}}{ds}^{(-)} + \frac{dV}{dP_{Fw}}^{(-)}\frac{dP_{Fw}}{ds}^{(-)} = \frac{dV}{ds^*}^{(?)}$$

- But we have allowed larger $\gamma_H \Rightarrow \text{larger } \frac{dV}{dP_{Fh}}^{(+)} \Rightarrow \text{larger } \frac{dV}{dP_{Hf}}^{(+)} \Rightarrow \frac{dV}{ds^*} < 0$
- There is a minimum export promotion γ_H such that states prefer subsidy restrictions
- · Notice with no export promotion motive in trade negotiations,

-
$$\frac{dV}{dP_{Hf}} = 0 \Rightarrow \frac{dV}{dP_{Fh}} = 0 = \frac{dV}{ds^*} > 0$$
 which had usually been found

Example

Consider a simple partial equilibrium model

- Follows Bagwell and Staiger (2001), Bown (2004)
- Two countries, two mirror-image industries
- Supply q = p/2 in each country's stronger sector
- Supply q = p/4 in each country's weaker sector
- Demand q = 1 p in each country-industry
- Parameter γ_M amplifies import sector profits
- Parameter γ_E amplifies export sector profits
- · Focus on case where free trade is joint optimum

- Restriction:
$$2(\gamma_M - 1) = (\gamma_E - 1)$$

Results: subsidy restrictions are desired

- If $\gamma_E > 4/3$ then $\frac{dV}{ds^*} < 0$



Institutional Efficiency

- · Can trade institutions with export subsidy bans facilitate efficient outcomes?
- Note that negotiations can achieve the same trade volumes in either case
 - Negotiating over tariffs and export subsidies
 - Negotiation over just tariffs and eventually export bans
- · Tariff bounds and export subsidy bounds can preserve efficient policies
 - Arguably, it requires simpler contracting, following Horn, Maggi, and Staiger (2010)
- This point contrasts with large literature critical of export subsidy restraints

Empirical Facts Consistent With This Framework

- Timing and pattern of restrictions
 - Results align with promotion occurring by major sectors as they liberalize
- · Political influence on multilateral trade enforcement
 - Key export subsidy disputes were filed in Presidential re-election years
 - U.S. dispute against Airbus in 2004; U.S. dispute against Chinese car parts in 2012
- Red-tape barriers
 - Cooperative equilibrium with $\frac{dV}{dP_{Fh}}^{(+)}$ explains red-tape protection
- Export taxes
 - Absence of export taxes in trade agreements (exception: China)
- · Test in modern quantitative trade models (work in progress)
 - Suppose we estimate political economy parameters consistent with cooperative tariffs
 - Do countries would want to restrict subsidies at these parameters?

Conclusions

- Countries will want to restrict export subsidies at trade agreement outcomes, provided they are using trade negotiations to expand export industries
- · Countries have no motive to restrict export subsidies absent tariff cooperation
- Results are robust to a variety of preferences and market structures
- Outcome aligns with pattern of subsidy restrictions by major sector

Thank you for your attention!