

STRATEGIC TRADE POLICY

WHAT MAKES A GOOD OR SECTOR STRATEGIC?

Usual answers:

- [1] High value added per worker. But this is usually just a high K/L ratio.
- [2] Importance for defense, survival. This is better handled by subsidy, storage.
- [3] “Linkages” with other goods / sectors. But linkages are everywhere, and we expect markets to handle them. General equilibrium is Pareto efficient. Need more – market failure – and have targeting principle to guide policy, e.g. external economies in production better exploited using subsidies.

So these usual answers don't give economic justification for trade policy.

Better answers:

- [1] Industries where world markets are imperfectly competitive:
pure profit of monopoly or oligopoly can be seized for our exporters.
Policy may have a role if individual producers can't exert this market power.
- [2] Industries where external economies of scale cause market failures

OLIGOPOLY EXAMPLE: ENTRY-DETERRENCE, BOEING VERSUS AIRBUS

Development of a new plane.

Development cost: \$6 billion

Profit from sales if monopoly: \$9 billion

Profit from sales if duopoly: \$4 billion

		Boeing	
		Develop	Not
Airbus	Develop	-2 , -2	3 , 0
	Not	0 , 3	0 , 0

Game has two Nash equilibria: (Develop,Not) and (Not,Develop).

Each firm prefers the equilibrium where it develops and the other stays out.

This is a game of Chicken. A firm can “win” (get its preferred outcome)

if it can make a credible commitment to develop. But this may be difficult.

The government may be able to create credibility through its policies.

Simple setting: ignore consumer surplus, e.g. if sales are to third markets only.

Consider export subsidies.

Suppose the EU subsidizes \$3 billion of Airbus's development cost.
 Payoffs in firms' duopoly game change:

		Boeing	
		Develop	Not
Airbus	Develop	$-2+3 = 1$, -2	$3+3 = 6$, 0
	Not	0 , 3	0 , 0

Develop becomes the dominant strategy for Airbus;

given this, Boeing's optimal strategy is to stay out (**Not** develop)

Airbus's profit = 6, EU's welfare gain = Airbus profit – Cost of subsidy = $6 - 3 = 3$

EU has achieved the preferred outcome (equilibrium) of the Chicken game!

But if both play the game:

		Boeing	
		Develop	Not
Airbus	Develop	$-2+3 = 1$, $-2+3 = 1$	$3+3 = 6$, 0
	Not	0 , $3+3 = 6$	0 , 0

National welfare in both = $1 - 3 = -2$; both lose. (Prisoners' Dilemma for gov'ts)

STRATEGY IN A DUOPOLY

If entry deterrence does not work, seek advantage for home firm in duopoly

Would like foreign firm to produce less or charge higher price

Seize first-mover advantage (Stackelberg leadership) and
move foreign firm along its reaction (best-response) function

If home firm cannot do this on its own, home government
can give it the advantage using strategic trade policy

Under output-setting (Cournot) duopoly, reaction function downward-sloping

If home firm commits to export more, foreign will respond by producing less

Strategic policy to achieve this is an export subsidy

Under price-setting (Bertrand) duopoly, reaction function upward-sloping

If home firm commits to higher price of exports,

foreign will respond with higher price of its own

Strategic policy to achieve this is an export tax

Details in next week's precepts

LIMITATIONS OF STRATEGIC TRADE POLICY

- [1] Estimates of national gain in specific industries are generally small (~ \$1bn) autos (Dixit, Goldberg), semiconductors (Baldwin and Krugman, Irwin and Klenow), aircraft (Baldwin)
- [2] The gain is further reduced (and can turn into a loss) if others retaliate
Countries should recognize Prisoners' Dilemmas of strategic trade policies and negotiate to reduce / eliminate such subsidies.
Such attempts are made with varying degrees of success.
- [3] Deterring one competitor may not deter others:
Japan's attempt to seize RAM chips failed as Korea, Taiwan etc. entered.
- [4] Desirability of subsidy not valid under all conditions of oligopoly
True for Cournot duopoly; but with Bertrand optimal strategic policy is a tax.
- [5] Even when justified, calculating the optimal level of subsidy and ensuring gains requires complex and detailed information. Risk of getting it wrong, and incentives for industry insiders to misrepresent.

STRATEGIC POLICY FOR INDUSTRIES WITH EXTERNAL ECONOMIES

Two prominent instances:

- [1] Infant industries in less-developed countries (learning, labor skill spillovers, capital market imperfections)
- [2] High-tech industries in advanced countries (knowledge spillovers)

Qualifications:

- [1] Properly targeted domestic policies better than trade protection
- [2] Empirical relevance of technological external economies
hard to measure open to misrepresentation
Performance of protected infants is often poor
But some small subsidy for frontier technology industries probably justified
- [3] Important that spillovers are confined within our country:
if they are worldwide, other countries will benefit from our policy

“CAPITALIZATION” OF POLICY BENEFITS

Import barriers raise returns to specific factors in the protected sector
Expectation of continued protection raises the value of specific assets
People make long-term investment decisions based on these expectations
Therefore specific factors accumulate in the protected sectors
Then they become special interests supporting continued protection,
and participate in the political process to preserve their benefits
Therefore protection, once started, becomes harder to remove
even if the initial economic justification (if any) is no longer relevant
and even if the costs of the policy increase beyond initial estimates

Examples:

- [1] US sugar quota led to development of high-fructose corn syrup manufacture
This is now a lobby supporting continuation of sugar protection
- [2] Textile protection initially intended for NE US led to new investments in SE

Similar problem exists with other policies:

- [1] Rent control and taxicab medallions in NYC
- [2] Building in areas threatened by hurricanes, floods
- [3] Strategic helium reserve

EFFECTIVE PROTECTION

When intermediate inputs are traded, the tariff rate on the final good does not measure the protection that is given to the “downstream” activity of adding value to the intermediate.

Example: Steel and Autos. World prices P_s^* , P_a^*

Ad valorem tariff rates t_s , t_a . Domestic prices $(1+t_s) P_s^*$, $(1+t_a) P_a^*$

Auto manufacture: Input coefficient for steel in autos = A

Value added at world prices: $V^* = P_a^* - A P_s^*$

Value added at domestic prices: $V = (1+t_a) P_a^* - A (1+t_s) P_s^*$

Effective rate of protection for auto manufacture: $t_e = (V - V^*) / V^*$

Suppose $P_s^* = 1$, $P_a^* = 1$, $t_s = 0.1$, $t_a = 0.2$, $A = 0.5$

$V^* = 1 - 0.5 = 0.5$, $V = 1.2 - 0.55 = 0.65$, $t_e = 0.3$

More generally, $t_a > t_s$ implies $t_e > t_a > t_s$ (Exercise: prove this)

This is often a problem in less-developed countries.

Also the problem has increased in recent years as vertical supply chains have become longer and more complex (“disintegration of production”)

This magnifies the effects of protection; important issue in a recession

POLITICAL ECONOMY OF TRADE POLICY

Normative view of policy:

Objective: An agreed-upon social welfare function with
trade-off between (Pareto) efficiency and equity

Instruments: tax, expenditure, regulation

Constraints: resource availability, technological possibilities

Policy process: choose instruments to maximize social welfare subject to constraints

Positive view of policy:

Objective: None centrally agreed; participants (politicians, bureaucrats, consumers, producers, organized groups ...) have their own objectives: politicians have ideologies and want to get elected / re-elected, bureaucrats are concerned about their incomes and careers, citizens about their own economic well-being + some concern for others ...

Instruments: Government's as above, private sector's voting, lobbying, ...

Constraints: Constitution, organizations, laws, norms, international treaties, ...

Policy process: Strategic game involving all players;
policy is (equilibrium) outcome of this game

Types of political game:

- [1] Referendum type voting; outcome is the median voter's most preferred policy
But median voter theorem requires single-peaked preferences;
may not apply, especially with multiple issues
Individual voters rarely pivotal in the process, therefore
may not participate, may not trouble to become informed

- [2] Indirect democracy. Voters elect legislature and/or executive.
These then play the policy game for many different situations.
Possibly constrained by past promises, also forward-looking to next election
Process may not produce optimal outcomes: usual problems of delegation,
principal-agent problems between citizens and politicians / bureaucrats

- [3] Lobbying: influencing politicians and bureaucrats / government agencies
Money – for campaign contributions, simple bribery
Information – policymakers may have limited time and resources,
interested parties can provide them (selected) facts and arguments
Money can serve to obtain access and facilitate information-provision

Two broad models or perspectives of political process.

ADDING-MACHINE MODEL (VOTING)

Factors conducive to success of a group of voters with common interest:

- [1] Large size, but enough organization to inform and motivate members
- [2] Intensity of importance of this issue relative to others
- [3] Geographic dispersal (up to a point)
- [4] Labor intensity of an industry
- [5] Declining industries (emerging industries don't have the votes in place yet)

PRESSURE GROUP MODEL (LOBBYING)

Factors conducive to success:

- [1] Small numbers, to solve free-rider problems in participation, contributions
- [2] Large stake per capita
- [3] Stability of membership
- [4] A large member within the group who exercises leadership
- [5] Geographic concentration

For trade policy, the pressure group model seems more relevant:

Organized groups of producers prevail over large numbers of citizen-consumers
They influence politicians / bureaucrats; also misinform / mislead voters

RENT-SEEKING

Most trade policies (and other policies) favor some at the expense of others:
transfer some economic rent from one group to another (often with some DWL)
People and groups have incentives to spend to create such transfers,
and to capture rent that already exists: "rent-seeking"
The resources may be used up (lawyers, lobbyists, entertainment)
or may be merely transfers to politicians / bureaucrats
But even if the initial effect is a mere transfer, that creates incentives
for the recipients to expend real resources to get in the position
where they can receive such transfers: that is a true resource cost.
e.g. politicians' campaign expenditures; competition for positions in bureaucracy
If the "industry" of rent-seeking has constant returns to scale,
the whole rent gets eaten up in the seeking activity
For example, the shadow value of a quota gets dissipated in the
resource costs that the importers will incur to acquire the quota

Estimates of rents associated with trade policies are large (for US, > \$10 billion)
Known / identifiable costs of rent-seeking are small (5-6% of the rents)