Politics and Trade Policy
Economics 266

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Explaining Trade Distortions

- Free trade is efficient, but affects income distribution
- Countries distort trade flows
- Trade policies are used by governments to *transfer* income to privileged groups

Approaches:

- Direct Democracy (Meyer 1984)
- Political support function (Hillman 1982)
- Tariff Formation Function (Findlay and Wellisz 1982)
- Electoral competition (Magee, Brock and Young, 1989)
- Influence Driven Contributions (Grossman and Helpman, 1994)

Surveys:

- Hillmann (1989)
- Rodrik (1994)
- Helpman (1997)

Protection for Sale(GH 1994)

- Contributions designed to *influence policy* rather than to *influence election outcomes*
- Evidence (Magelby and Nelson 1990):
  1. In 1988 in the US PAC gave 3/4 of total contributions to incumbent politicians
  2. Not counting elections for open seats, incumbents received over 6 times as much as challengers
  3. over 60 % of PAC contributions occurred in first half of political cycle
  4. PAC switch contributions to the winner, even if previously supported other candidate

The Model

- Home is a small country
- N agents have identical preferences

$$u = x_0 + \sum_{i=1}^{n} u_i(x_i)$$

where:

1. x_0 is consumption of a numeraire good
2. $u_i(x_i)$ is differentiable, increasing and strictly concave

- Each agent supplies labor and at most one sector specific input k_i

- Notice:

$$x_i = d_i(p_i)$$

given expenditure E,

$$x_0 = E - \sum_i p_i d_i(p_i)$$

Indirect utilty is

$$V(\mathbf{p}, E) = E + s(\mathbf{p})$$

Consumer surplus is

$$s(\mathbf{p}) = \sum_i u_i[d_i(p_i)] - \sum_i p_i d_i(p_i)$$

Production technology:

- $y_0 = L_0$
- $y_i = f_i(L_i, k_i)$, with f_i exhibiting CRTS and k_i is a sector specific input, $i \in I = \{1, 2, ...n\}$

Prices:

- Normalize $p_0 = 1 \Rightarrow w = 1$
- $r_{k_i} = \pi_i(p_i)$

Lobbies:

- In $L \subseteq I$ sectors the specific factors owners are organized

Policy Formation Game

Agents play a non-cooperative *menu auction* (Bernheim and Whinston, 1986)

- First stage: Lobby presents government with contribution schedule $C_i(\mathbf{p})$
- Second stage: Government sets domestic price vector $\mathbf{p} \in \mathbf{P}$ and collects contributions

Payoffs

- Sector i's joint *gross* welfare

  $W_i(\mathbf{p}) = \ell_i + \pi_i(p_i) + \alpha_i N[r(\mathbf{p}) + s(\mathbf{p})]$
  where

  1. ℓ_i is total labor supply of owners of sector specific factor k_i
  2. α_i is the share of the population that owns the sector specific factor k_i
  3. $r(\mathbf{p}) = \sum_i (p_i - p_i^*)[d_i(p_i) - \frac{1}{N} y_i(p_i)]$ is per capita revenue from tariffs and subsidies

- Government

  $G = a \sum_{i \in I} W_i(\mathbf{p}) + \sum_{i \in L} C_i(\mathbf{p})$

Equilibrium Policy

Lemma (BW 1986) $(\{C_i^0(\mathbf{p})\}_{i\in L}, \mathbf{p^0})$ is a subgame perfect Nash equilibrium for the policy formation game if and only if:

i) $C_i^0(\mathbf{p})$ is feasible $\forall i \in$ Ł,

ii) $\mathbf{p}^0 \in$
$\arg\max_{\mathbf{p}\in\mathbf{P}} \quad a\sum_{k\in I} W_k(\mathbf{p}) + \sum_{k\in L} C_k^0(\mathbf{p})$,

iii) $\mathbf{p}^0 \in \arg\max_{\mathbf{p}\in\mathbf{P}} \quad a\sum_{k\in I} W_k(\mathbf{p}) +$
$\sum_{k\in L} C_k^0(\mathbf{p}) + W_i(\mathbf{p}) - C_i^0(\mathbf{p}) \quad \forall i \in L$,

iv) $\forall i \in L, \exists \ \ \mathbf{p}^i \in \mathbf{P}$ that maximizes
$a\sum_{k\in I} C_k(\mathbf{p}) + \sum_{k\in L} C_k^0(\mathbf{p})$ such that
$C_i^0(\mathbf{p}^i) = 0$.

Assumption: $C_i(\mathbf{p})$ is differentiable for all $i \in L$.

Condition (iii) requires that

$$\nabla W_i^0(\mathbf{p}^0) - \nabla C_i^0(\mathbf{p}^0)$$

$$+ \sum_{k \in L} \nabla C_k^0(\mathbf{p}^0) + a \sum_{k \in I} \nabla W_k(\mathbf{p}^0) = 0 \quad \forall i \in L \quad (1)$$

Condition (ii) requires that

$$\sum_{k \in L} \nabla C_k^0(\mathbf{p}^0) + a \sum_{k \in I} \nabla W_k(\mathbf{p}^0) = 0 \qquad (2)$$

Combining (1) and (2), we have

$$\nabla C_i^0(\mathbf{p}^0) = \nabla W_i(\mathbf{p}^0) \quad \forall i \in L \qquad (3)$$

Summing (3) over $i \in L$ and substituting in (2), we have

$$\sum_{k \in L} \nabla W_i(\mathbf{p}^0) + a \sum_{k \in I} \nabla W_i(\mathbf{p}^0) = 0 \qquad (4)$$

$$\frac{\partial W_i(\mathbf{p})}{\partial p_j} = (\delta_{ij} - \alpha_i) y_j(p_j) + \alpha_i (p_j - p_j^*) m_j'(p_j) \quad (5)$$

where the indicator $\delta_{ij} = \begin{cases} 1 & \text{if} \quad i = j \\ 0 & \text{otherwise.} \end{cases}$

and $m_j(p_j) = N d_j(p_j) - y_j$ is the net import demand.
Then

$$\sum_{i \in L} \frac{\partial W_i}{\partial p_j} = (I_j - \alpha_L) y_j(p_j) + \alpha_L (p_j - p_j^*) m_j'(p_j)$$

where the indicator $I_j = \begin{cases} 1 & \text{if} \quad j \quad \textit{lobbies} \\ 0 & \text{otherwise.} \end{cases}$

$$\sum_{i \in I} \frac{\partial W_i}{\partial p_j} = (p_j - p_j^*) m_j'(p_j)$$

and substituting in equation (4) and after a few manipulations we have

$$\frac{t_i^0}{1 + t_i^0} = \frac{I_i - \alpha_L}{a + \alpha_L} \frac{z_i^0}{e_i^0} \tag{6}$$

where

1. $t_i = \frac{p_i - p_i^*}{p_i^*}$
2. $z_i^0 = \frac{y_i(p_i)}{m_i(p_i^0)}$ is the equilibrium ratio of domestic output to imports
3. $e_i^0 = -\frac{m_i'(p_i^0) p_i^0}{m_i(p_i^0)}$

Interpretation:

1. Modified Ramsey rule: the higher the elasticity of import demand (export supply) the smaller ad valorem deviations from free trade
2. All sectors that are lobbying obtain protection, while for all sectors that are not lobbying imports (exports) are subsidized (taxed)
3. For lobbying sectors, protection is increasing in the relevance of the domestic production
4. Protection is decreasing with the weight attached by the government to aggregate welfare (a) and with α_L.

Extensions

- Empirical analysis:
  1. Goldberg and Maggi (1999 AER): 1983 US manufacturing data: the pattern of protection is consistent with the model
  2. McCalman (2000) the model is supported also using Australian data
  3. Eicher and Osang (2000): compare different PE approaches, GH works well.
- Multicountry setting:
  -Grossman and Helpman (1995 JPE) "Trade talks and Trade wars"