

International Trade I

Political Economy of Trade Policy

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Spring 2025

Outline of the Lecture

- 1 Introduction
- 2 Grossman and Helpman (1994)

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Why a Political Theory of Trade Policy?

- Observed policies do not seem to be optimal
 - ▶ Import tariffs in small country
 - ▶ Export subsidies used in many countries
 - ▶ Second best? Perhaps, but not obviously so
 - ★ Why prevalent protection of agriculture?
 - ★ Protection of apparel and textiles? Antidumping provisions?
- What explains **structure of protection**: Political factors besides inverse elasticities seem to play a role
- Why so difficult to conclude trade agreements? Why don't these agreements call for universal free trade?

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Economic Environment

- We consider a simplified version of Grossman and Helpman ('94)
 - ▶ Endowment rather than specific-factor model
- To abstract from TOT considerations, GH consider a SOE
 - ▶ If governments were welfare-maximizing, trade taxes would be zero
- There are $n + 1$ goods, $i = 0, 1, \dots, n$, produced under perf. comp.
 - ▶ Good 0 is the numéraire with domestic and world price equal to 1
 - ▶ p_i^w and p_i denote the world and domestic price of good i , respectively
- Individuals are endowed with 1 unit of good 0 + 1 unit of another good $i \neq 0$
 - ▶ We refer to an individual endowed with good i as an i -individual
 - ▶ α_i denote the share of i -individuals in the population
 - ▶ Total number of individuals is normalized to 1

Economic Environment (cont.)

- All individuals have the same quasi-linear preferences

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

- Indirect utility function of i -individual is therefore given by

$$V_i(\mathbf{p}) = 1 + p_i + t(\mathbf{p}) + s(\mathbf{p})$$

where

$t(\mathbf{p}) \equiv$ government's transfer [to be specified]

$$s(\mathbf{p}) \equiv \sum_{i=1}^n u_i(d_i(p_i)) - \sum_{i=1}^n p_i d_i(p_i)$$

- Note: Quasi-linear preferences \Rightarrow de facto a partial equilibrium model

Political Environment: Policy Instruments

- For all goods $i = 1, \dots, n$, the government can impose an ad-valorem import tariff/export subsidy t_i

$$p_i = (1 + t_i)p_i^w$$

- We treat $\mathbf{p} \equiv (p_i)_{i=1, \dots, n}$ as the policy variables of our government
- The associated government revenues are given by

$$t(\mathbf{p}) = \sum_{i=1}^n (p_i - p_i^w) m_i(p_i) = \sum_{i=1}^n (p_i - p_i^w) [d_i(p_i) - \alpha_i]$$

- Revenues are uniformly distributed to the population so that $t(\mathbf{p})$ is also equal to the government's transfer, as assumed before

Political Environment: Lobbies

- An exogenous set L of sectors/individuals is politically organized
 - ▶ We refer to a group of agents that is politically organized as a **lobby**
- Each lobby i chooses a schedule of contribution $C_i(\cdot)$: $(\mathbb{R}^+)^n \rightarrow \mathbb{R}^+$ in order to maximize the total welfare of its members net of the contribution

$$\max_{C_i(\cdot)} \alpha_i V_i(\mathbf{p}^0) - C_i(\mathbf{p}^0)$$

subject to $\mathbf{p}^0 = \arg \max_{\mathbf{p}} G(\mathbf{p})$, where $G(\cdot)$ is the objective function of the government [to be specified]

Political Environment: Government

- Conditional on the contribution schedules announced by the lobbies, government chooses the vector of domestic prices in order to maximize a weighted sum of contributions and social welfare

$$\max_{\mathbf{p}} G(\mathbf{p}) \equiv \sum_{i \in L} C_i(\mathbf{p}) + aW(\mathbf{p})$$

where

$$W(\mathbf{p}) = \sum_{i=1}^n \alpha_i V_i(\mathbf{p}) \quad \text{and} \quad a \geq 0$$

- Comments:
 - ▶ GH (1994) model has the structure of common agency problem
 - ▶ Multiple principals \equiv lobbies; one agent \equiv government
 - ▶ We can use Bernheim and Whinston's (1986) results on menu auctions

Equilibrium Contributions

- We denote by $\{(C_i^0)_{i \in L}, \mathbf{p}^0\}$ the SPNE of the previous game
 - ▶ We restrict ourselves to interior equilibria with differentiable equilibrium contribution schedules
 - ▶ Whenever we say “in any SPNE,” we really mean “in any interior SPNE where C^0 is differentiable”
- **Lemma 1:** In any SPNE, contribution schedules are locally truthful

$$\nabla C_i^0(\mathbf{p}^0) = \alpha_i \nabla V_i(\mathbf{p}^0)$$

- **Proof:**

- 1 \mathbf{p}^0 optimal for government $\Rightarrow \sum_{i \in L} \nabla C_i^0(\mathbf{p}^0) + a \nabla W(\mathbf{p}^0) = 0$
- 2 $C_i^0(\cdot)$ optimal for lobby $i \Rightarrow$
 $\alpha_i \nabla V_i(\mathbf{p}^0) - \nabla C_i(\mathbf{p}^0) + \sum_{i' \in L} \nabla C_{i'}^0(\mathbf{p}^0) + a \nabla W(\mathbf{p}^0) = 0$
- 3 1+2 $\Rightarrow \nabla C_i^0(\mathbf{p}^0) = \alpha_i \nabla V_i(\mathbf{p}^0)$

Equilibrium Trade Policies

- **Lemma 2:** In any SPNE, domestic prices satisfy

$$\sum_{i=1}^n \alpha_i (l_i + a) \nabla V_i(\mathbf{p}^0) = 0$$

where $l_i = 1$ if i is politically organized and $l_i = 0$ otherwise

- **Proof:**

- ① \mathbf{p}^0 optimal for the government $\Rightarrow \sum_{i \in L} \nabla C_i^0(\mathbf{p}^0) + a \nabla W(\mathbf{p}^0) = 0$
- ② 1+ Lemma 1 $\Rightarrow \sum_{i \in L} \alpha_i \nabla V_i(\mathbf{p}^0) + a \nabla W(\mathbf{p}^0) = 0$
- ③ Lemma 2 follows from this observation and the definition of $W(\mathbf{p}^0)$

- **Comment:** In GH (1994), everything is as if governments were maximizing a social welfare function that weighs different members of society differently

Equilibrium Trade Policies (cont.)

- **Proposition:** In any SPNE, trade policies satisfy

$$\frac{t_i^0}{1+t_i^0} = \frac{l_i - \alpha_L}{a + \alpha_L} \left(\frac{z_i^0}{e_i^0} \right) \quad \text{for } i = 1, \dots, n, \quad (1)$$

where $\alpha_L \equiv \sum_{i' \in L} \alpha_{i'}$, $z_i^0 \equiv \alpha_i / m_i$, and $e_i^0 \equiv d \ln m(p_i^0) / d \ln p_i^0$

- **Proof:**

- 1 Roy's identity + definition of $V_i(\mathbf{p}^0) \Rightarrow$

$$\frac{\partial V_{i'}(\mathbf{p}^0)}{\partial p_i} = (\delta_{i'i} - \alpha_i) + (p_i^0 - p_i^w) m'(p_i^0)$$

where $\delta_{i'i} = 1$ if $i' = i$ and $\delta_{i'i} = 0$ otherwise

- 2 1+Lemma 2 \Rightarrow for all $i' = 1, \dots, n$

$$\sum_{i'=1}^n \alpha_{i'} (l_{i'} + a) [\delta_{i'i} - \alpha_i + (p_i^0 - p_i^w) m'(p_i^0)] = 0$$

Equilibrium Trade Policies (cont.)

• Proof (cont.):

③ 2+definition of $\alpha_L \equiv \sum_{i' \in L} \alpha_{i'} \Rightarrow$

$$(l_i - \alpha_L)\alpha_i + (p_i^0 - p_i^w)m'(p_i^0)(\alpha_L + a) = 0$$

④ $3 + t_i^0 = (p_i^0 - p_i^w)/p_i^w \Rightarrow$

$$t_i^0 = \frac{l_i - \alpha_L}{a + \alpha_L} \left(-\frac{\alpha_i}{p_i^w m'(p_i^0)} \right) = \frac{l_i - \alpha_L}{a + \alpha_L} \left(-\frac{z_i m(p_i^0)}{p_i^w m'(p_i^0)} \right)$$

⑤ Equation (1) directly derives from 4 and the definition of z_i^0 and e_i^0

GH's (1994) Main Insights

- According to Proposition:
 - 1 Protection only arises if some sectors lobby, but others don't: if $\alpha_L = 0$ or 1 , then $t_i^0 = 0$ for all $i = 1, \dots, n$
 - 2 Only organized sectors receive protection (they manage to increase price of the good they produce and decrease the price of the good they consume)
 - 3 Protection decreases with the import demand elasticity e_0 (which increases the deadweight loss)
 - 4 Protection increases with the ratio of domestic output to imports (which increases the benefit to the lobby and reduces the cost to society)