International Trade: Lecture 6

Political Economy of Trade Policy

Sifan Xue
NSD, Peking University

Fall 2024

Introduction

- In analyzing trade policy, we can draw a distinction between the following questions:
  - What are the effects of trade policies on prices and quantities? (Positive economics)
  - What should a country's optimal trade policy be to maximize social welfare? (Normative economics)
  - Why do we observe trade policies? (Political economy of trade policy)
- So far we have been concerned largely with the first two questions
- Now we turn to the political economy of trade policy
- We explicitly take into account that:
  - The government need not be a benevolent social planner maximizing social welfare
  - Trade policy typically has consequences for the distribution of income

Alternative Approaches

- Direct Democracy (Mayer 1984)
  - View trade policy as the outcome of majority voting (median voter)
  - In a representative democracy, policy outcomes should be reasonably close to what is supported by a majority of voters

- Political Support Function (Hillman 1982)
  - View the choice of trade policy as the solution to an optimizing problem in which the government trades off political support from industry interests against the dissatisfaction of consumers
  - Posits a reduced-form political support function for trade policy

Alternative Approaches (cont'd)

- Tariff Formation Function (Findlay and Wellisz 1982)
  - View the choice of trade policy as reflecting the outcome of a contest between interest groups on opposing sides of the issue
  - A reduced-form tariff formation function specifies the level of protection given to an industry depending on the amount of resources devoted to lobbying by supporters and opposers of protection
- Electoral Competition (Magee, Brock and Young 1989)
  - Interest groups give contributions to political parties and candidates to improve their chances of being elected
  - Political contributions are not given to directly influence policy choices
  - Each party commits to a policy choice before the choice of contributions by special interests, though the party chooses policy in anticipation of future campaign contributions

Protection for Sale

- Grossman, G. and E. Helpman (1994) "Protection for Sale," *American Economic Review*, 84(4), 833-850.
- Political Influence Approach
  - Political contributions to influence policy rather than election outcomes
  - There are typically many contributors with the contribution of each being small relative to the total, so that each contribution has a marginal effect on the election outcome
- The political influence approach of Grossman and Helpman (1994) provides rigorous micro-foundations for the political support function approach
- The theory identifies the structural economic determinants of protection and provides guidance on how the determinants of protection can be estimated empirically

Assumptions

- Consider a Specific Factors model, in which there is a large number of sectors $i = 1, \ldots, n$; each of which uses labor and a specific factor
- In addition, there is a numeraire good 0, for which $p_0 = 1$, and which is produced using labor alone
- The economy is assumed to be small so that the prices of all goods are exogenously determined on world markets
- Both the numeraire good and goods $i = 1, \ldots, n$ are produced under perfect competition
- An individual owns L units of labor and at most one type of specific factor
- Denote by α_i the fraction of people who own specific factor i
- In some of the sectors, the owners of specific factor are able to form a lobby, which can pay campaign contributions to political parties to influence their trade policy choices
- Other sectors remain unorganized

Utility and Demand

- There are N consumers with identical and quasi-linear preferences:

$$U = c_0 + \sum_{i=1}^{N} u_i(c_i)$$

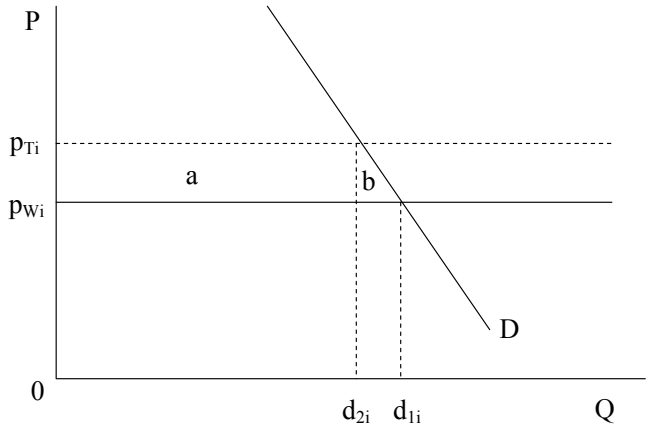
- Utility can therefore be written as a function of a consumer's income and their consumer surplus from consuming goods $i = 1, \ldots, n$

$$U = E + s(p) = E + \sum_{i=1}^{N} s_i(p_i)$$

- The impact of trade protection in sectors $i = 1, \ldots, n$ on consumer welfare can be illustrated using the concept of consumer surplus
- Consider the impact of introducing a tariff in an import-competing sector i

Consumer Surplus

The tariff unambiguously reduces consumer welfare by areas a and b.



Production and Specific Factor Rents

- In this Specific Factors Model, the income of the specific factor in sector i depends on p_i
- Denote the total return to the specific factor in sector i by $\pi_i(p_i)$

$$\pi_i(p_i) = r_i K_i = p_i y_i - w l_i,$$

where K_i is the quantity of the specific factor in sector i and r_i denotes its price

- Since output is chosen to maximize profits in sector i, the following relationships hold:

$$\frac{\partial \pi_i}{\partial p_i} = y_i + p_i \frac{\partial y_i}{\partial p_i} - w \frac{\partial l_i}{\partial p_i},$$

which using the envelope theorem implies

$$\frac{\partial \pi_i}{\partial p_i} = y_i$$

Production and Specific Factor Rents

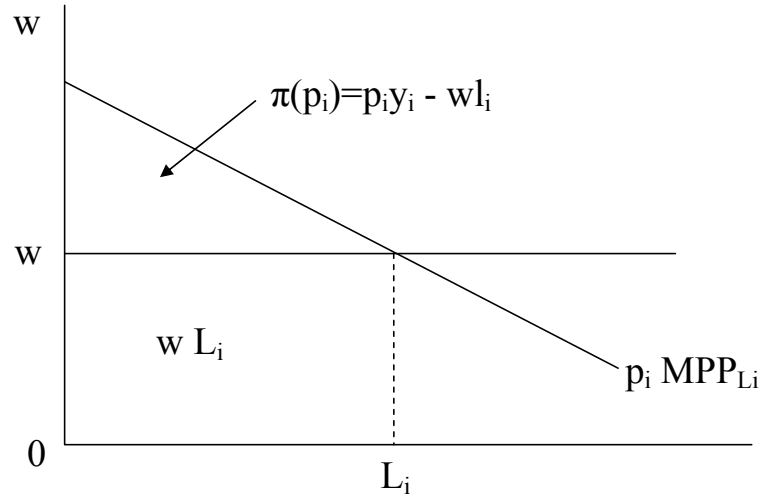
- The impact of trade protection in sector i on the total return to a specific factor $\pi_i(p_i)$ can be shown with the standard specific factors diagram
- The numeraire good 0 is produced using labor alone

$$y_0 = l_0$$

$$w = p_0 = 1$$

- Therefore the impact of trade protection on the income of a specific factor $\pi_i(p_i)$ can be analyzed separately for each sector

Specific Factor Rents



Government's Objective and Lobbies

- The government is assumed to value both social welfare and campaign contributions
- The government values campaign contributions because they can be used to finance campaign spending and they may also provide other direct benefits to the office holders
  - Campaign contributions paid to incumbents to influence policies rather than election outcomes
  - Implicitly assumes that the government is entrenched or at least that every elected government will respond to lobbying in the same way
- The government maximizes a weighted sum of social welfare and campaign contributions

$$G = \sum_{i \in \Lambda} C_i(p) + aW,$$

where a is the relative weight placed on social welfare, Λ is the set of sectors that are organized into lobbies, and C_i is the campaign contribution of sector i which depends on the price vector p

Timing of the Game

- Consider the political equilibrium of a two-stage non-cooperative game
- In the first-stage, the lobbies simultaneously choose their *political contribution schedules*, taking as given the contribution schedules set by the other lobbies and the anticipated political optimization of the government
  - Political contribution schedules are the value of campaign contributions the lobby will pay to the government as a function of domestic prices
- In the second-stage, the government sets trade policy to achieve a domestic price vector that maximizes the government's objective, taking the political contribution schedules as given
  - Trade taxes introduce a wedge between domestic and world prices, $p_i = p_i^* + t_i$
  - Tariffs are a positive trade tax, while subsidies are a negative trade tax
  - The government redistributes the net revenue from trade taxes equally in lump-sum payments

Revenue from Trade Taxes

- The net revenue per capita from trade taxes is:

$$r(p) = \sum_{i=1}^{N} (p_i - p_i^*) \left[d_i(p_i) - \frac{1}{N} y_i(p_i) \right],$$

where $d_i(p_i)$ is per capita demand and the term in brackets is per capita net imports.

Lobby Contribution Schedules

- In the equilibrium of the Grossman and Helpman model, each lobby's contribution schedule must be truthful, in the sense that the lobby's contribution varies with tariffs in the same way that the lobby's objective function varies with tariffs
- In particular, the contribution schedule of lobby i equals its welfare $W_i(p)$ minus a constant B_i:

$$C_i(p) = W_i(p) - B_i$$
$$W_i(p) = \pi_i(p_i) + \alpha_i N\left(r(p) + s(p) + L\right)$$

  where lobby i welfare equals lobby income plus lobby consumer surplus
- Lobby income equals income from the labor owned by the lobby, $\alpha_i wNL = \alpha_i NL$, plus income from the specific factor owned by the lobby, $\pi_i(p_i)$, plus the income from government transfers, $\alpha_i Nr(p)$

Simplifying Special Case

- Suppose each lobby is small relative to the economy as a whole, so that α_i is approximately zero; In this case, lobby i's political contributions and welfare simplify to:

$$C_i(p) = \pi_i(p_i) - B_i$$

$$W_i(p) = \pi_i(p_i)$$

Simplifying Special Case (cont'd)

- Social welfare equals income from labor, $wNL = NL$, plus income from the specific factors, plus income from government transfers, plus consumer surplus

$$W(p) = \sum_{i=1}^{N} \pi_i(p_i) + N\left(r(p) + s(p) + L\right)$$

- Substituting lobbies' political contributions and social welfare into the government's objective function for our special case where $\alpha_i \simeq 0$, we obtain the following expression for the government's objective function:

$$G = aN\left(r(p) + s(p)\right) + a\sum_{i \notin \Lambda} \pi_i(p_i) + (1+a)\sum_{i \in \Lambda} \pi_i(p_i) + \text{CONSTANTS},$$

where the income of specific factors in organized sectors receives a higher weight, $(1+a) > a$, in the government objective function due to their lobbying activity.

Government Trade-off

- The government chooses trade taxes, t_i, to maximize its objective function
- With a small open economy that faces exogenous prices on world markets, p_i^*, we can equivalently think of the government as choosing domestic prices, p_i, to maximize its objective function
- On the one hand, there is a social welfare cost of protection (the deadweight welfare loss from the distortion of consumption and production decisions)
- On the other hand, protection that increases the rent to the specific factor in a protected sector leads to higher political contributions
- The government trades off the social welfare cost of protection against the political benefit of higher campaign contributions
- The parameter $a > 0$ determines the relative weight the government places on social welfare

Equilibrium Structure of Protection

- In the general case in which $\alpha_i \neq 0$, Grossman and Helpman (1994) show that the equilibrium structure of protection is as follows:

$$\frac{t_i}{1+t_i} = \frac{I_i - \alpha_L}{a + \alpha_L}\left(\frac{z_i}{e_i}\right)$$

  - I_i is a dummy variable which is equal to 1 if a sector is organized and zero otherwise
  - $\alpha_L = \sum_{i \in \Lambda} \alpha_i$ is the fraction of the population that are represented by a lobby
  - $z_i = \frac{y_i(p_i)}{m_i(p_i)}$ is the ratio of domestic output to imports, which is negative for export sectors
  - $e_i = -\frac{\partial m_i}{\partial p_i}\frac{p_i}{m_i}$ is the elasticity of import demand

- Therefore, in the political equilibrium of the model, all sectors that are represented by lobbies are protected by tariffs in import sectors and export subsidies in export sectors

Comparative Statics

- In contrast, import subsidies and export taxes are applied to all sectors that have no organized representation
- In other words, the organized interest groups collectively manage to raise the domestic prices of goods from which they derive rents and lower the prices of goods they only consume
- The equilibrium tariff in import sectors that are organized will be higher:
  - The smaller the weight a > 0 that the government places on social welfare
  - The smaller the share of the population organized as lobbies α_L
  - The larger the ratio of domestic output to imports (the more the specific factor has to gain from protection relative to the welfare cost of protection)
  - The lower the elasticity of import demand (the smaller the distortion of consumption and production decisions due to the tariff)

Two special cases

- When all voters belong to an interest group ($\alpha_L = 1$) and all sectors are organized ($I_i = 1$ for all i), there is free trade in all markets
  - The various interest groups neutralize one another, as one industry's demand for protection is matched by the bids of opposing interest groups' for a low domestic price
- If interest-group members account for a negligible fraction of the voting population ($\alpha_L = 0$), no trade taxes or subsidies will be applied to goods not represented by a lobby (for which $I_i = 0$)
  - Lobbies care only about the rents to the specific factor in their sectors

Empirical Evidence

- Goldberg and Maggi (1999) estimate the Grossman and Helpman (1994) model
- They estimate the structural equation implied by the model rather than the reduced form relationships considered in previous empirical studies
- The model's predictions are tested using U.S. data on non-tariff barriers (coverage ratios) across industries in the year 1983
- Non-tariff barrier data are used because tariffs are determined co-operatively in the GATT-WTO, and the model assumes that the domestic government chooses the level of protection non-cooperatively
- Political action committee (PAC) campaign contributions data are used to determine organized and non-organized sectors
- Sectors are classified as organized if they have PAC contributions above a certain threshold

Empirical Specification

- The empirical specification estimated by Goldberg and Maggi (1999) is:

$$\left(\frac{t_i}{1+t_i}\right) e_i = \left(\frac{I_i - \alpha_L}{a + \alpha_L}\right) \frac{y_i}{m_i} + \epsilon_i$$

$$\left(\frac{t_i}{1+t_i}\right) e_i = \gamma \frac{y_i}{m_i} + \delta I_i \frac{y_i}{m_i} + \epsilon_i,$$

  where $\gamma < 0$ and $\delta > 0$

- The main findings are as follows:
  - As predicted by the model, trade protection is higher in politically organized industries
  - There is weak evidence that, within organized industries, the level of protection is inversely related to import penetration (the coefficient on the inverse of import penetration is positive, but not statistically significant)

Empirical Findings

- None of the additional ad hoc variables from the reduced form relationships considered in the earlier empirical literature (employment size, sectoral unemployment rates, measures of unionization, changes in import penetration, buyer and seller concentration, etc.) improves the explanatory power of the strict Grossman and Helpman model, with the possible exception of employment size and the unemployment rate
- The weight on welfare in the government's objective function is estimated to be around 0.98, compared to around 0.02 for political contributions
  - One can reject the hypothesis that the government is pure welfare maximizing
  - Nonetheless, the relative weight placed on social welfare appears implausibly large

References

- Findlay, Ronald and Stanislaw Wellisz (1982) "Endogenous Tariffs, the Political Economy of Trade Restrictions, and Welfare," in Bhagwati, Jagdish (ed) *Import Competition and Response*, Chicago: University of Chicago Press.
- Grossman, Gene M. and Elhanan Helpman (1994) "Protection for Sale," *American Economic Review*, 84(4), 833-50.
- Goldberg, Pinelopi Koujianou and Giovanni Maggi (1999) "Protection for Sale: An Empirical Investigation," *American Economic Review*, 89(5), 1135-55.
- Hillman, Arye L. (1982) "Declining Industries and Political-Support Protectionist Motives," *American Economic Review*, 72, 1180-1187.
- Magee, Stephen, William Brock and Leslie Young (1989) *Black Hole Tariffs and Endogenous Policy Formation*, Cambridge: The MIT Press
- Mayer, Wolfgang (1984) "Endogenous Tariff Formation," *American Economic Review*, 74, 970-985.