Griliches Lecture 3: Political Economy

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Political Economy: Alternative Approaches

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$$v(\mathbf{p}) = \ell + \sum_{i=1}^{n} \Pi_i(p_i) + \sum_{i=1}^{n} S_i(p_i) + \sum_{i=1}^{n} (p_i - \pi) m_i(p_i).$$

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  - Since there is no good result on voting in multidimensional policy spaces, he used a two-sector HO model in which there is one import tariff on which people vote.
  - The distribution of capital per person in the population determines every individual's optimal tariff.
  - The equilibrium tariff is the median voter's optimal tariff (note the special conditions under which the median voter theorem applies).

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- A voter with the ownership share γ of the sector-specific input in sector i most prefers the price p_i :

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- Then the equilibrium tariff is:

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- This has the counterfactual implication that in industries with high concentration of ownership imports are subsidized.

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  - In this event the equilibrium tariff is:

$$p_i - \pi_i = \frac{b_i X_i \left(p_i \right)}{\left[-m_i' \left(p_i \right) \right]},$$

    i.e., there is protection, and it is higher the higher the weight of the industry in the political support function, the larger the industry, and the less elastic the import demand function is.

Alternative Approaches (continued)

- **Tariff formation function:** Findley and Wellisz (1982). Here the tariff level depends directly on the levels of contributions of supporting and opposing groups, i.e., $t_i = T_i\left(C_i^S, C_i^O\right)$. For general tariff formation functions this theory has no clear predictions. The question is where do these functions come from and who is represented in the two groups?

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- **Electoral competition in reduced form:** Magee, Brock and Young (1989). Here the tariff is determined in electoral competition between two parties, each one committed to a policy.
    - The parties receive contributions that influence the probability of winning the election, and trade policies also influence these probabilities.

- The objective function of SIG j is to maximize

$$\max_{C_j^A \geq 0,\ C_j^B \geq 0} q\left(\sum_{i=1}^{2} C_i^A, \sum_{i=1}^{2} C_i^B, \mathbf{t}^A, \mathbf{t}^B\right) W_j\left(\mathbf{t}^A\right) + \left[1 - q\left(\sum_{i=1}^{2} C_i^A, \sum_{i=1}^{2} C_i^B, \mathbf{t}^A, \mathbf{t}^B\right)\right] W_j\left(\mathbf{t}^B\right) - C_j^A - C_j^B,$$

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- This implies that a SIG contributes to only one party, which is counterfactual.
- It also has no clear predictions about the sectoral structure of protection.

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  - The formulation of the government's objective function can be justified by a model of probabilistic voting.

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  - There is a continuum of voters. Voter i's utility is $v_i\left(\mathbf{p}^K\right) + \eta_i^K$ if K wins the election. Informed voters can asses this utility, where $v_i(\cdot)$ is derived from the economic model and η_i^K is a preference for party K.

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  - As a result, party A receives the fraction

$$s_I = \frac{1}{2} - b + f\left[v\left(\mathbf{p}^A\right) - v\left(\mathbf{p}^B\right)\right]$$

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    of votes of the informed group, where v is the mean of v_i.
  - It is also possible to think about b as being random (a valence shock).
- If there were only informed voters, party K would choose $\mathbf{p}^K$ to maximize $v\left(\mathbf{p}^K\right)$, which raises its probability of winning the elections when b is random, or which raises its expected plurality.

Electoral Competition (continued)

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$$\begin{aligned} s &= \sigma s_I + (1-\sigma)\left[\frac{1}{2} - b + h\left(C^A - C^B\right)\right] \\ &= \frac{1}{2} - b + \sigma f\left[v\left(\mathbf{p}^A\right) - v\left(\mathbf{p}^B\right)\right] + (1-\sigma)\,h\left(C^A - C^B\right). \end{aligned}$$

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- In this case K maximizes $\sigma f v\left(\mathbf{p}^K\right) + (1-\sigma)\,hC^K$, and the relative weight on welfare is

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  - Evidently, this relative weight is higher the larger the fraction of informed voters, the higher the density of η is, and the less efficient money is in buying votes of the impressionable voters.

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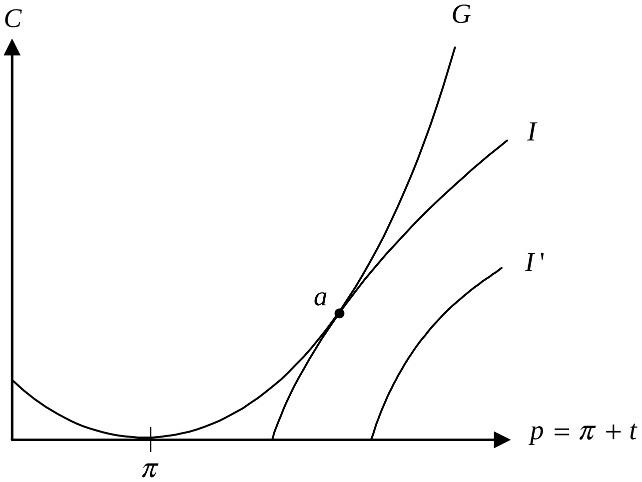
- The model can be solved by considering a standard principal-agent setup, in which SIG is the principal and the policy maker is the agent, and (p, C) are the SIGs instruments to influence the agent.
- After finding the solution, we will show how to implement it with a contribution function $C(p)$.

One Policy Instrument and One SIG

The following figure depicts the solution:



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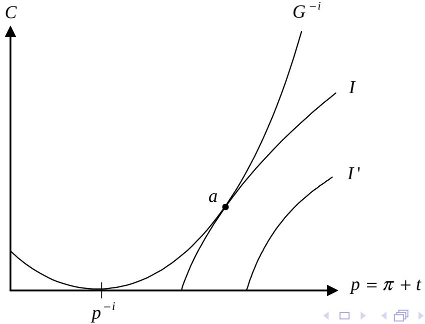
- If SIG i offers no contributions, the policy maker maximizes $G^{-i}(p)$. This results a policy p^{-i} and an indifference curve G^{-i} in the figure below, defined by

$$G^{-i}(p) + C = G^{-i}\left(p^{-i}\right).$$



Many Policy Instruments and Many SIGs

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- The resulting equilibrium policy vector is

$$\mathbf{p}^o = \arg\max_{\mathbf{p}} = aW(\mathbf{p}) + \sum_{j \in L,} W_j(\mathbf{p}),$$

and the equilibrium contributions are

$$C_i^o = \max\{W_i(\mathbf{p}^o) - k_i^o, 0\}.$$

One Policy Instrument and One SIG (continued)

- k_i^o is SIG i's best response to the other SIGs' choices. That is:

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subject to

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Protection for Sale: Quasi-Linear Model

- The politician maximizes a weighted sum of aggregate welfare and the welfare of the individual lobbies:

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$$W_i(\mathbf{p}) = \ell_i + \Pi_i(p_i) + \alpha_i \sum_{j=1}^{n} (p_j - \pi_j) m_j(p_j) + \alpha_i \sum_{j=1}^{n} S_j(p_j),$$

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- The weight in the social welfare function is 1 for an individual who is not represented by an interest group and $1 + a$ for a represented individual.

Determinants of Protection

- Solving for the equilibrium trade tax then delivers:

$$p_i - \pi_i = \frac{I_i - \alpha_0}{a + \alpha_0} \frac{X_i}{(-m_i')}, \quad \text{or} \quad \frac{p_i - \pi_i}{p_i} = \frac{I_i - \alpha_0}{a + \alpha_0} \left(\frac{1}{\mu_i \varepsilon_i} \right),$$

where I_i is an indicator variable that equals 1 when $i \in L$ and 0 otherwise, $\alpha_0 = \sum_{i \in L} \alpha_i$ is the fraction of people represented by SIGs, $\mu_i = m_i / X_i$ is the import penetration ratio and ε_i is the import demand elasticity.

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  - Protected sectors are afforded larger protection when fewer people belong to SIGs and the policy maker places lower weight on welfare. When $\alpha_0 = 1$ there is no protection.
  - Among the protected sectors, sectors with a smaller import penetration ratio and smaller import demand elasticities are more heavily protected.

Empirical Implementation

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- The estimates imply $\alpha_0 \approx 85\%$ and $a \approx 50 - 70$ (very high).

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    they argue that:

    1. The data do not reject the hypothesis that β is the same for what in previous studies was taken to be organized and not organized sectors.
    2. Kolmogorov-Smirnov tests of the distribution of the LHS variable do not reject the hypothesis that the distribution is the same in the two groups of sectors.

Empirical Implementation (continued)

- Mitra, Thomakos and Ulubaşoğlu propose to estimate β and to trace the combinations of a and α_0 implied by this estimate:

TABLE 1
Estimation results for tariffs

	Only organized sectors									
$\hat{\beta}$	0.0182									
s.e.	0.0036	$N = 165$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.98
a	49.26	43.67	38.09	32.51	26.92	21.34	15.75	10.17	4.58	0.00
s.e.	9.83	8.74	7.65	6.55	5.46	4.37	3.28	2.19	1.09	0.20
	All sectors treated as organized									
$\hat{\beta}$	0.0164									
s.e.	0.0026	$N = 242$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.98
a	54.65	48.47	42.28	36.11	29.92	23.73	17.55	11.37	5.18	0.00
s.e.	8.71	7.74	6.77	5.80	4.88	3.87	2.90	1.94	0.97	0.16
	Only import-competing organized sectors									
$\hat{\beta}$	0.0303									
s.e.	0.0066	$N = 87$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.97
a	29.57	26.17	22.77	19.38	15.98	12.58	9.19	5.79	2.40	0.00
s.e.	6.47	5.75	5.03	4.31	3.59	2.87	2.16	1.44	0.72	0.21
	All import-competing sectors treated as organized									
$\hat{\beta}$	0.0263									
s.e.	0.0046	$N = 133$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.97
a	34.09	30.19	26.29	22.39	18.49	14.59	10.70	6.80	2.90	0.00
s.e.	5.92	5.26	4.61	3.95	3.29	2.63	1.97	1.32	0.66	0.17

TABLE 2
Estimation results for *NTBs*

Only organized sectors										
$\hat{\beta}$	0.0169									
s.e.	0.0034	$N = 165$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.98
a	53.09	47.08	41.07	35.06	29.05	23.04	17.03	11.02	5.01	0.00
s.e.	10.82	9.62	8.42	7.22	6.01	4.81	3.61	2.41	1.20	0.20
All sectors treated as organized										
$\hat{\beta}$	0.0188									
s.e.	0.0033	$N = 242$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.98
a	47.67	42.26	36.85	31.45	26.04	20.63	15.22	9.82	4.41	0.00
s.e.	8.34	7.42	6.49	5.56	4.64	3.71	2.78	1.85	0.93	0.18
Only import-competing organized sectors										
$\hat{\beta}$	0.0272									
s.e.	0.0063	$N = 87$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.97
a	32.95	29.18	25.40	21.63	17.86	14.09	10.32	6.54	2.77	0.00
s.e.	7.60	6.76	5.91	5.07	4.22	3.38	2.53	1.69	0.84	0.23
All import-competing sectors treated as organized										
$\hat{\beta}$	0.0304									
s.e.	0.0058	$N = 133$								
α_L	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.90	0.97
a	29.56	26.16	22.77	19.37	15.98	12.58	9.19	5.79	2.40	0.00
s.e.	5.63	5.01	4.38	3.75	3.13	2.50	1.88	1.25	0.63	0.19

Equilibrium Contributions

- Consider a compensating equilibrium. In this event:

$$\begin{aligned} C_i^o &= W_i\left(\mathbf{p}^o\right) - k_i^o \\ &= \left[aW\left(\mathbf{p}^{-i}\right) + \sum_{j\in L,\ j\neq i} W_j\left(\mathbf{p}^{-i}\right)\right] - \left[aW\left(\mathbf{p}^o\right) + \sum_{j\in L,\ j\neq i} W_j\left(\mathbf{p}^o\right)\right]. \end{aligned}$$

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- Case I: Suppose there is only one organized interest group, i.e., $L = \{f\}$. Then $\mathbf{p}^o \neq \boldsymbol{\pi}$. Moreover:
  - $k_f^o = W_f\left(\mathbf{p}^o\right) - \left[aW\left(\boldsymbol{\pi}\right) - aW\left(\mathbf{p}^o\right)\right]$ and $C_f^o = aW\left(\boldsymbol{\pi}\right) - aW\left(\mathbf{p}^o\right)$.

Equilibrium Contributions

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$$\begin{aligned} C_i^o &= W_i(\mathbf{p}^o) - k_i^o \\ &= \left[aW\left(\mathbf{p}^{-i}\right) + \sum_{j \in L,\ j \neq i} W_j\left(\mathbf{p}^{-i}\right) \right] - \left[aW(\mathbf{p}^o) + \sum_{j \in L,\ j \neq i} W_j(\mathbf{p}^o) \right]. \end{aligned}$$

- Case I: Suppose there is only one organized interest group, i.e., $L = \{f\}$. Then $\mathbf{p}^o \neq \boldsymbol{\pi}$. Moreover:
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