Summary of Public Policies, Pressure Groups, and Deadweight Costs

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1 The Model

If n_s identical persons are subsidized and n_t identical persons are taxed, this political budget constraint can be written as

$$S \quad = n_s \sigma \quad = n_t \tau = T$$

$$
\begin{aligned}
S &= \text{Total subsidies} \\
T &= \text{Total taxes} \\
\sigma &= \text{Subsidy per member of } s \\
\tau &= \text{Taxes per member of } t
\end{aligned}
$$

Taxes/subsidies are influenced by the pressure of taxpayers and recipients who exert pressure on voters, legislation, and etc. Then, the influence function, I by members of the society can be defined as

$$
\begin{aligned}
S &= T = I(p_s, p_t, \frac{n_s}{n_t}, x) &&(1) \\
p_i &= \text{Pressure by group } i \\
n_s/n_t &= \text{Relative number of recipients} \\
x &= \text{Political system and other relevant consideration}
\end{aligned}
$$

Since selfish taxpayers only exert pressure to lower taxes, and selfish recipients only exert pressure to raise subsidies, pressure from selfish groups would be positive only in region where

$$\frac{dS}{dp_s} = \frac{dI}{dp_s} = I_s \gtreqless 0 \quad \text{and} \quad \frac{dT}{dp_t} = \frac{dI}{dp_t} = I_t \lesseqgtr 0$$

The influence is presumably depends on ratio of recipients to taxpayers because increase in that ratio would raise number of votes in favor of subsidies to s. That is,

$$\frac{dI}{d(n_s/n_t)} \quad \gtreqless \quad 0$$

- This does not guarantee that an increase in the relative number of s raises subsidies because pressure exerted by s is negatively related to their relative number of members

If payoffs from political activities do not distinguish between identical members of s and identical members of t, subsidies and taxes would be public goods. Recipients(and payers) then have strong incentives to share costs by exerting pressure collectively. The pressure production function for group i is model as follow

$$p^i = p^i(m_i, n_i) \text{ with } m_i = a_i n_i$$

$$\frac{dp^i}{dm_i} = p^i_m \geqq 0 \text{ and } p^i_n \leqq 0$$

$$m_i = \text{Total expenditure of money, time and effort by group } i \text{ on lobbying and other political activities}$$

- Free riding and shirking increase cost of producing pressure. If the incentive to free ride increases with the number of members, the pressure produced by a given total expenditure would decline as members increased

The utility function of each person depends on his tax or subsidy, and expenditure on production of pressure

$$U^s = U^s(\sigma, \tau, a_s) \quad \text{with} \quad \frac{dU^s}{da_s} = U^s_a < 0 \text{ and } \frac{dU^s}{d\sigma} = U^s_\sigma > 0$$

$$U^t = U^t(\sigma, \tau, a_t) \quad \text{with} \quad U^t_a < 0 \text{ and } U^t_\tau < 0$$

With altruism towards other group, U^t also depends positively on σ and U^s also depends negatively on τ; with envy, these signs would be reversed. In equilibrium, we have

$$\frac{dU^t}{da_t} = 0 = U^t_a + U^t_\tau \frac{d\tau}{dp_t} p^t_m n_t$$

$$\frac{dU^s}{da_s} = 0 = U^s_a + U^s_\sigma \frac{d\tau}{dp_s} p^s_m n_s$$

or

$$-F(\tau, \sigma a_t) = -\frac{U^t_a}{U^t_\tau} = I_t p^t_m$$

$$G(\tau, \sigma a_s) = -\frac{U^s_a}{U^s_\tau} = I_t p^s_m \tag{2}$$

The optimal amount of pressure is determined by (2). Then, the equilibrium level of taxes and subsidies is determined by (1)

- Optimal expenditures on pressure by a group would be zero, and the group would not organize politically, if gain in lower taxes or higher subsidies were less than cost of exerting pressure.

The RHS of (2) measures the effect on influence of additional expenditures on pressure, while the LHS is determined by the monetary value of change in utility from changes in taxes and subsidies respectively.

- If s and t were both selfish, and if taxes and subsidies adversely affected the allocation of resources, the monetary value of the utility cost of taxes would exceed the amount paid ($F < 1$), and the monetary value of subsidies would be less than the amount received ($G > 1$).

- If taxes or subsidies improve the allocation of resources-perhaps by reducing pollution or t were sufficiently altruistic toward s-then either $F > 1$, $G < 1$, or both.

The effect of taxes and subsidies on the allocation of resources is

$$F = 1 - d^t(\tau, \sigma) \qquad G = 1 + d^s(\sigma, \tau) \tag{3}$$
$$d^i \;=\; \text{Marginal deadweight or social cost to group i}$$

Note that d^i can be positive or negative. Substitution of (3) into (2) shows that:

- Expenditure on political pressure by taxpayers tend to be greater when the social cost of taxes is greater. This is because pressure by taxpayers is assumed to reduce tax collections, the effect of additional pressure on the utility of selfish recipients depends on the effect of lower taxes on their, which is positively related to deadweight loss of taxation.

- Optimal expenditures on pressure even by selfish recipients are smaller when social cost of subsidies is greater because the effects of subsidies on the utility of recipients depends negatively on the deadweight cost of subsidies.

- Since marginal social costs of subsidies tend to rise, and any marginal social benefit tend to fall, as subsidies increase, recipients would be discouraged exerting additional pressure when subsidies increased, even without reactions by taxpayers

- Increased subsidies and taxes would encourage taxpayers to exert additional pressure by raising marginal social cost of taxes

- If all taxes and subsidies adversely affect efficiency, taxing and subsidizing each group would involve inefficient "cross-hauling" because both group could be made better off by equal reductions in their taxes and subsidies until one group were only subsidized while the other taxed

- A group has an incentive to reduce cross-hauling because the incentive to exert pressure to lower taxes tends to exceed that of raising subsidies. This is because the monetary equivalent of a dollar reduction in taxes

paid exceeds a dollar because of the deadweight cost of taxes, whereas the monetary equivalent of a dollar increase in subsidies received is less than a dollar because of deadweight cost of subsidies

- Cross-hauling could remain only if pressure by both groups were more productive in obtaining subsidies than in reducing taxes

- Aggregate efficiency can be defined by expenditures on production of political pressure since this expenditures are "rent-seeking" inputs into determination of policies. Therefore, efficiency could be raised if all groups agree to reduce their expenditure on political influence

2   The Compensation Principle and Public Policy

Assume taxes are positive without s or t exerting any pressure and both groups must decide whether to exert pressure to change tax by \$100. Clearly, s and t would not be willing to spend more than $\frac{100}{1+d_0^s}$ and $\frac{100}{1-d_0^t}$ respectively because these amounts measures their monetary gain respectively. Hence, the maximum that s would spend would exceeds, equal, or is less than the maximum t would spend is

$$\frac{100}{1+d_0^s} \gtreqless \frac{100}{1-d_0^t} \quad \text{or as} \quad d_0^s + d_0^t \lesseqgtr 0$$

- If both taxes and subsidies were socially costly (d_0^s and $d_0^t > 0$), gainers could not compensate losers, and the maximum expenditure by losers to block an increase in taxes would exceed the maximum expenditure by gainers to support the increase

- If both taxes and subsidies were socially beneficial, gainers could compensate losers, and the maximum expenditure by gainers would exceed that by losers

The maximum expenditure by gainers to support a policy would exceed the maximum expenditures by losers to oppose the policy iff the sum of monetary equivalents of gains and losses to all persons are positive. An increase in the sum of these monetary equivalents will be called an increase in "social output".

- If productivity of s and t in producing influence were equal, only policies that raised social output would be support by pressure of s and t, although some policies that raised social output might be blocked by the countervailing pressure of t.

- Effect on social output of some implemented policies could be negative net of the supporting and opposing expenditures of s and t.

- Some policies might raise social output because altruism by taxpayers and envy by recipients.

- Redistribution are Pareto-improving when altruistic taxpayers also benefit. Although altruists would be harmed by redistribution beyond Pareto-efficient point, social output would increased as long as the monetary gains to beneficiaries exceed monetary value of the loss to altruists.

- Policies with high social cost would not survive competition among pressure groups unless those benefiting were exceedingly powerful politically. Generally, public goods with large benefits such as protection against crime, tend to survive among competition among pressure groups

- Systematic evidence indicate that public and regulate enterprises are less efficient than private enterprises producing the same products. However, these enterprises may only appear to be less efficient because they are used to raise the income of employees. Redistribution should be included among the measured "outputs" of public and regulated enterprises before one can conclude that they are less efficient than private enterprises

3 Regulation and Deregulation

- Workers and firms with sizable specific investment(inelastic supply) tend to have relatively large gains from lobbying for government protection against temporary and unexpected declines in demand because deadweight cost of subsidies to them is small. This is consistent with increase of tariffs and other import restrictions in times of recession

- At the same time, workers and firms with specific investments are more vulnerable to taxes due to the relatively low deadweight cost of taxes on factors with permanently inelastic supplies. However, they are as likely to be subsidized as other firms

- Since the deadweight cost to countries imposing tariffs or export taxes is greater when these elasticities are greater, industries and consumers who benefit from tariffs and export taxes should have less political power in small open economies than in large self-sufficient economies.

- Rising deadweight costs curtail the power of firms and other subsidy recipients even when the political power of consumers and other taxpayers is unchanged

- Regulation and other public programs are moderated by their social cost in any political system where groups lobby for political influence. Particularly, trend in communist countries away from collective farms to private plots appears to be response to large social cost of collectivization and sharing. Even when farmers have no political power, incentive to exert pressure by bureaucrats and party members declines as social costs of their subsidies increases

- Deadweight costs of regulation and other policies often rise over time as labor and capital become more mobile, as substitutes develop for products that have been made more expensive, and as other costly methods of evading and avoiding the effects of particular regulations are discovered. For instance, the cost of regulating airline travel rose as airline travel expanded into new diverse market

4 Many Pressure Groups

- Cross-hauling of taxes and subsidies tends to increase as the number of distinct groups increases because a group may sometimes be subsidized along with other groups, and taxed along with still different groups. For instance, a subsidy to railroad conductors as a "by-product" of regulations that raise price of air travel, and the tax on conductors as a "by-product" of subsidies to build highways

- Even when cooperating with other groups, the gain to a group from additional pressure is greater when the deadweight cost of its subsidies is smaller and when the dead weight cost of its taxes is larger.

- Small groups might seem to have especially strong incentive to cooperate with others because they do not have enough members to support favorable referenda and legislation.

- If many voters are vulnerable to persuasion, the size of the group would be less important than its capacity to persuade others

- Advantages of small groups

  - They may control more easily free riding and shirking by members
  - If groups taxed to finance subsidies are much larger, those subsidized face less countervailing political pressure. An increase in the number of taxpayers lowers taxes per payer, and hence also lowers the marginal deadweight loss to each payer, which discourage countervailing pressure

- The relatively small groups are effective competitors for political influence is consistent with the evidence that farmers are more likely to be subsidized in countries where farming is less important, and more likely to be tax in countries where farming is more important. This also implies that rapid aging of Western populations will reduce rather than raise social security

- Fear of universal suffrage has essentially been a fear that the numerous poor will outvote the rich and middle class, tax away much of their income. However, number of poor is also a political handicap because large redistribution to them impose sizable excess burden on the less numerous middle class and rich.

- Wealth of rich is also a political handicap because a given amount collected in income or wealth taxes per person has a smaller deadweight cost to the rich

- Size of group are not necessary fixed as politically successful groups do attract more members

- Subsidized groups try to limit the entry of additional member because that dilutes the gains of established members

5   Summary and Discussion

- Redistribution in democracies would guided not by social welfare functions or other measure of social fairness, but mainly by the altruism, selfishness, envy and morality of the more powerful interest groups

- In democracies, a few pressure group cannot easily obtain very large subsidies since large subsidies stimulate countervailing pressure by those taxed to finance the subsidies. However, a few group can more readily use the state to raise substantially their well-being because other groups are not permitted to form effective opposition

- Growth in government are likely to be induced by the arguments and propaganda of many groups seeking public largesse

6   T/F/U Questions

1. Smaller countries have more advantages in international trade than large countries. **ANS:** Uncertain. Smaller countries have exports too little to be considered a threat to other nations, so they are not subject to as many barriers as those from large nations. In addition, small countries have little influence over the international prices of imports and exports. This reduces the ability of domestic producers to get politicians and voters to go along with their efforts to weaken competition from producers in other countries. Hence, only efficient firms would survive and this is beneficial to the economy. On the other hand, small countries may have less ability to specialize its workforce for economics of scale due to small population.

2. The increase of the number of old people would increase the expenditure on social security. **ANS:** Uncertain. For a fix social security payment, the increase in the number of old people would increase the tax burden per person on young people. If young people are selfish, this would increase the countervailing force of young people against taxing them to fund social security . If the young people were successful in lowering the taxes of them, expenditure on social security must decrease since government revenue has decreased. At the same time, when number old people increase, their

political influence may increase and they may use this influence to convince the government to increase expenditure on social security