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Lobbying, Group Size and the Strength of Groups

Becker model

two homogeneous groups $k = s, t$

n_k is the size of the group

a_k are per capita expenditures on influence by group k

R_s per capita transfers to s and R_t per capita transfers to t

a_k per capita expenditures on influence

Influence

initial income per person: Z_k^0 before transfers; after transfers and expenditure: $Z_s = Z_s^0 + R_s - a_s$, $Z_t = Z_t^0 - R_t - a_t$

taxes on t are $S = n_t F(R_t)$ where $F(R) \leq F$, $F' \leq 1$ and $F'' \leq 0$

$n_s G(R_s) = S$ where $G(R) \geq R$, $G' \geq 1$, $G'' \geq 0$

p_s, p_t pressure exerted, x other variables $p_k(a_k n_k, n_k)$ where a_k are per capita expenditures on influence – increases in size initially raises efficiency then eventually reduces it

influence functions: $S = -I_t(p_s, p_t, x)$; $S = I_s(p_s, p_t, x)$

“market clearing”: $I_s + I_t = 0$

assumption about group behavior: they behave as a single individual without incentive constraints, so maximize Z_k with respect to a_k , look for Nash equilibrium

assume a “stable” equilibrium exists plus some other assumptions

Comparative Statics

- a group becomes more efficient at applying pressure: raises its subsidy or lowers its taxes
- relative efficiency not absolute efficiency in applying pressure matters
- increase in inefficiency of redistribution reduces redistribution
- ceterus paribus policies that raise efficiency are more likely to be adopted than those that lower it

“Since an increase in the number of persons taxed... reduces the deadweight cost of taxation an increase in the number of taxpayers reduces their production of pressure”

so politically successful tend to be small relative to the size of the groups taxed to pay their subsidy

Evaluation

true: it costs a small group paying a tax more than a large group paying the same total tax as the distortion is bigger

- not true for recipients

in any case, a small group has fewer resources so cannot pay as much

- can tax 300 million non-farmers enough to pay each of 6 million farmers \$100,000 each
- cannot tax 6 million farmers enough to pay each of 300 million non-farmers \$100,000 each

empirical observations

- the many Nazi's imposed a high tax on the few Jews

Acemoglu Robinson Model

- two group: farmers and manufacturers
- two periods
- initially there are farmers and manufacturers, but after the initial play manufacturers can become farmers and vice versa
- group strength: assume if there are too few farmers no farm subsidies, after a point adding more farmers does not increase the subsidy
- initial farmers decide how to divide taxes between a beginning and end of period subsidy
- by setting a high end of period subsidy farmers can draw in more farmers and get a better deal for themselves, but only up to a point
- not sure that lobbying groups really choose lobbies to encourage more people to join/leave their group

Hillman and Riley All-Pay Auction Model

two bidders $i = 1, 2$

each bids a level of spending x_i

the highest bidder wins a prize of value V_i where $V_2 \leq V_1$

split the prize if there is a tie

Equilibrium

1 enters

2 enters with probability V_2/V_1

conditional on entry both randomize uniformly on $[0, V_2]$

expected total spending is $\frac{V_2}{V_1} \frac{V_1+V_2}{2}$

Willingness to Pay

single collusive group with N

each provides resources $\mu \geq 0$

prize worth V to the group, $v = V/N$ to each member

collusion requires a per member fixed cost c per member

if the group pays $W = N\mu$ utility of each member $Ev - \mu - c$

or the group provide zero resources and everyone gets Ev

Fungible versus non-Fungible Prizes

each group member is endowed with a single unit of the resource

prize fungible: monetary prize or easily converted into money – the prize money can be used to pay for the prize $0 \leq \mu \leq 1 + v$

prize non-fungible: only the endowments may be used for the prize $0 \leq \mu \leq 1$

reasons for non-fungibility

- relaxation of gun control laws benefits members of the NRA (versus farm subsidies)
- human rights; note strange nature of efficiency
- legal restrictions may force a bribe to a politician to be in the form of free campaign labor
- prize is prevention of a loss

Willingness to Pay and Group Size

effort level μ and prize is won utility is $V - N\mu - Nc$ versus no effort and no prize

Fungible Prize

willingness to pay as a function of group size

$$W(N) = \begin{cases} V - Nc & 0 < N \leq V/c \\ 0 & V/c < N \end{cases}$$

weakly decreasing as a function of N

willingness to pay as a function of the size of the prize is

$$W(V) = \begin{cases} 0 & 0 \leq V \leq Nc \\ V - Nc & V > Nc \end{cases}$$

weakly increasing in V

Non-Fungible Prize

willingness to pay as a function of group size

$$W(N) = \begin{cases} N & N \leq V/(1+c) \\ V - Nc & V/(1+c) < N \leq V/c \\ 0 & V/c < N \end{cases}$$

single peaked as a function of N : optimal group size, contrast with fungible

willingness to pay as a function of the size of the prize is

$$W(V) = \begin{cases} 0 & 0 \leq V \leq Nc \\ V - Nc & Nc < V \leq N(1+c) \\ N & V > N(1+c) \end{cases}$$

weakly increasing in V

Subgroups

a smaller group faces a smaller problem (less fixed cost) so why doesn't a larger group "act like a smaller group"

but a subgroup of size $M < N$ would only receive a share of the prize:
 $(M/N)V$

subgroup bids $M\mu$ then gets

$$(M/N)S - M\mu - Mc = (M/N)(V - N\mu - Nc)$$

for any given per capita bid exactly M/N of the group utility

subgroup is willing to make a per capita bid of μ if and only if the entire group is - in which case the subgroup bids $M\mu$ while the group makes the higher bid of $N\mu$

no subgroup is willing to submit a higher bid (or even the same bid) as the entire group.

Competing Groups

$N_S < N_L$ group size

same per capita resources to use in competing and same fixed cost of collusion $c > 0$

prize worth V to the larger group and βV with $c/(1+c) < \beta$ to the smaller group

$\beta < 1$ efficient for the large group to win the prize

$\beta > 1$ efficient for the small group to win the prize.

Note: only the relative size of the groups and the size of the prize relative to the size (of one of) the groups matters.

assume the group with the highest willingness to pay wins

Which Group Wins?

Inefficient Winning Proposition: *If $\beta < 1$ the small group may inefficiently win the prize regardless of fungibility. When $\beta > 1$ the large group may inefficiently win a non-fungible prize, but cannot inefficiently win a fungible prize*

General Case

Small group wins?	N_L	$N_L \leq V/(1+c)$	$0 \leq N_L \leq V/c$ $V/(1+c) \leq N_L \leq V/c$	$N_L > V/c$
N_S	WTP	N_L	$V - cN_L$	0
$N_S \leq \beta V/(1+c)$	N_S	no	$cN_L + N_S \geq V$	yes
$0 \leq N_S \leq \beta V/c$ $\beta V/(1+c) \leq N_S \leq \beta V/c$	$\beta V - cN_S$	no	$c(N_L - N_S) \geq (1 - \beta)V$	yes
$N_S > \beta V/c$	0	no	no	no bid

blue, bottom size for non-fungible only

Some Bargaining Mechanisms

second price sealed bid auction or equivalent first price oral auction

- group with the highest willingness to pay wins and pays what the loser is willing to pay

seller - knowing the values of the buyers and holding all the bargaining power - sets a take-it-or-leave-it offer

- group with the highest willingness to pay wins and pays the most it is willing to pay

A Bargaining Mechanism

group with the highest willingness to pay wins

pays amount the losing group is willing to pay plus fraction α of the additional amount they themselves are willing to pay

W_1 is the higher willingness to pay and $W_2 \leq W_1$ lesser willingness to pay

W_1 wins and pays $W_2 + \alpha(W_1 - W_2)$

$\alpha = 0$ this is the second price auction

$\alpha = 1$ this is the take-it-or-leave it offer by the seller

α as the bargaining strength of the seller: it is the fraction of the surplus $W_1 - W_2$ that the seller is able to claim.

Agenda Setting

one of the three parties - the smaller group, the larger group, or the seller - chooses V

generic assumption that $0 < \alpha < 1$ and $\beta \neq 1$

a fixed level of inefficiency of the transfer:

- if transfer is from the larger group to the smaller the cost to the larger group is V and the smaller group gets βV
- if the transfer is from the smaller group to the larger the cost to the smaller group is V/β and the larger group gets V

losing party pays the prize

- if the transfer is from the larger group to the smaller the cost to the larger groups $V \leq N_L$
- if the transfer is from the smaller group to the larger the cost to the smaller group $V/\beta \leq N_S$

Endogenous Fungible Prizes

If the large group controls the agenda no prize is awarded. If it is the seller, she chooses that the large group should pay and that $V = N_L$. If the small group controls the agenda: if $N_S/\beta \geq N_L$ no prize is awarded otherwise it chooses $V = \min\{N_L, cN_L\}$

note $c > 1$ means collusion costs more than effort

Seller Agenda Setting

seller agenda setting: the seller will choose a prize so large that both the larger and the smaller group would prefer a smaller prize

seems questionable that this is possible

alternative model of seller agenda: seller restricted to prizes that are not unanimously rejected by both groups

seller will choose the same prize as the smaller party

$$V = \min\{N_L, cN_L\}$$

assume $c < 1$ so $V = cN_L$

says that the prize is set equal to the cost to the large group of submitting a bid; consequently the large group will not submit a bid; seller gets $\alpha c(N_L - N_S)$

Farm Subsidies

2 million farms and 120 million households in the United States

U.S. budget farm subsidies run about \$20 billion per year, that is about \$170 per household.

annual per capita income in the U.S. is about \$50,000 per year

labor force about half the population

income per worker about \$100,000

hours worked per worker per year about 1700

hourly income per worker is about \$60

c the cost per person of organizing a group should be about 3 hours per year

Benefits to Politicians

depends on α

little bargaining power then α is small and they get little

lots of bargaining power should be able to get in the case of farm subsidies nearly \$20 billion per year

China

“The net worth of the 70 richest delegates in China's National People's Congress, which opens its annual session on March 5, rose to 565.8 billion yuan (\$89.8 billion) in 2011, a gain of \$11.5 billion from 2010, according to figures from the Hurun Report, which tracks the country's wealthy. That compares to the \$7.5 billion net worth of all 660 top officials in the three branches of the U.S. government.”

from Bloomberg

estimate of the annual value of bribes: increase in wealth - \$11.5 billion
China of similar size in total real GDP as the U.S.

\$11.5 billion is consistent with the idea that U.S. agricultural subsidies are commensurate with the overall size of favors paid by government officials - would imply a substantial α although much less than 50%

United States

increase in wealth among top U.S. officials taken to be commensurate with their lower wealth

estimate the value of bribes by top U.S. government officials at about \$1 billion

direct payments to U.S. politicians in the form of campaign contributions about \$1 billion is contributed to presidential campaigns

every four years, but there are also congressional, state and local elections - less costly but more frequent

take it as a ballpark estimate of the value of bribes accruing to U.S. politicians

suggests that in the U.S. α is quite small, less than 5%

Efficiency?

cost of inefficiency $(1 - \beta)cN_L$ depends on fundamentals and not bargaining power α

so much higher α in China than USA may not make much difference to efficiency

higher α in China than USA consistent with the idea that in with more extractive institutions politicians have more bargaining power

Endogenous Non-Fungible Prizes

prize positive for large group large group gets $V_L = V$ and small group suffers $(1/\beta)V$

prize positive for small group small group gets $V_S = \beta V$ and the large group suffers V

assume that size of the prize to the winner V_i is bounded above by \bar{V} large in the sense that $\bar{V} > N_L(1 + c)$

Theorem: *If the large group controls the agenda they choose the largest possible prize $V = \bar{V}$. If the seller controls the agenda it chooses the largest possible prize and is indifferent to which group the transfer is from. If the small group controls the agenda and $N_S/\beta \geq N_L$ no prize is awarded, while if $N_S/\beta < N_L$ it chooses either $N_L c$ or $N_L c + N_S$.*

Observations

- seller constrained not to choose prizes unanimously rejected by both large and small group will choose a transfer from small to large group - prediction is that the small group will pay a very high price to the large group. why majorities might deprive minorities of their rights, even though the benefit to the majority is smaller than the cost to the minority?
- generally think that c and N_S are pretty small, so both cN_L and $N_S + cN_L$ we expect are small. if the small group controls the agenda it will impose only a modest cost on the large group. why we should not expect minorities to deprive majorities of significant rights. however, have assumed equal per capita value of effort for both groups: in cases where large groups (slaves, women) have been deprived of rights they have also been deprived of resources, so cannot bid very much to get their rights back