

I. A Digression on Principal-Agent and Delegation Problems

- A. The case of the roving bandit that settles down is a quite different theory of government than that based on social contract.
 - i. However, it turns out that both forms of government face many similar problems.
 - ii. For example, both dictators and participants at a constitutional convention face the problem of designing an organization that will advance their goals.
 - iii. This requires solving a variety of principal-agent problems and delegation problems.
- B. A dictator can solve many of these problems through coercion or threats of coercion: that is by crafting suitable punishments for “non performance.”

Solving a Free Rider Problem with Coercive Threats (Payoffs in “Utils”)		
	Agent B Works	Agent B Shirks
Agent A Works	3, 3	1, 4-P
Agent A Shirks	4-P, 1	2-P, 2-P

- i. Note that in the above free-rider setting, in the absence of punishments, both team members will “shirk.”
 - a. By suitably imposing penalties on “shirkers,” the dictator can solve the shirking problem
 - (E.g. here $P > 1$ is sufficient to induce work by both team members.)
 - b. Consequently, a hierarchical state based on coercion can use well crafted PD games to induce obedience and avoid revolts.
 - c. How extreme the threats should be depends on the payoffs of the work-shirk cells and also the cost of imposing large penalties.

- d. (Large penalties may not only reduce the dictator’s workforce, but also induce exit to other polities.)
- C. In cases in which governments are based on contracts rather than dominance by an individual or small group, the process for choosing policies tends to be more complicated, but these organizations also have to align the interests of their members with the organizations general objectives.
 - i. For example, if a group want to build a bridge over a river, some method of controlling free riding (inducing team production) will be necessary.
 - ii. Thus, voluntary private organizations and contract-based governments will use similar “artificial” incentive structures to solve their own internal free riding and coordination problems.
 - a. However, insofar as voluntary organizations usually have lower barriers to exit (e.g. membership in them tends to be freer to exit, their ability to use threats is more limited than force-based dictatorships and other “domination-based” organizations.
 - b. Note, however, that shirking problem can also be solved with conditional side payments (with $B > 1$).
 - c. Whether bonuses make sense depends on the productivity of team production or the magnitude of the public goods - externality problem being addressed.

Solving a Free Rider Problem (with Exit Options) with Bonuses and/or Coercive Threats (Payoffs in “Utils”)			
	Agent B Works	Agent B Shirks	Agent B Exits
Agent A Works	3+B, 3+B	1+B, 4-P	1,1
Agent A Shirks	4-P, 1+B	2-P, 2-P	1,1
Agent A Exits	1, 1	1, 1	1, 1

**II. Standing Procedures for Making Policy Decisions (Delegation)
Create Constitutional Governments for Organizations**

- A.** In large private organizations and contract-based governments, there is also the problem of delegation. That is to say, some agents will be given the authority to make policies and/or some discretion about how a policy will be implemented.
- i. In large organizations, (most) responsibilities for policy making are delegated to “persons” and “team(s)” of one kind or another.
 - ii. As in ordinary principal-agent problems, those persons and teams have to be motivated to choose policies that generally advance the interests of the organization (entrepreneurs or shareholders, rulers or citizens).
 - iii. A common approach is to create procedures in which the authority for making policy choices are divided among several persons and teams, rather than concentrated in a single person.
 - iv. Firms often have CEOs (chief executive officers) and a Board of Directors. Governments often have parliaments and prime ministers, legislatures and presidents, etc.. Even dictatorships normally have a “leader” and a council of advisors (kings and councils).
- B.** Such divided governments combine many of the advantages of a single CEO noted in the first lecture and in most theories of the firm (encompassing interest, partial residual claimancy), with those of majority rule to be developed in the next several lectures (information aggregation, risk aversion, reduced rent-seeking losses).
- C. The institutions and standing procedures for choosing both long-term and day-to-day policies can be regarded as an organization’s “constitution.”**
- i. Note that nearly all large, durable, organizations have constitutions in this sense.
 - ii. It is useful to remember that constitutions tend to be “**designed**” (in the sense that someone or some group chooses them) and “**evolutionary**” (in that those choosing them robust templates and past experience to choose among alternative methods for making policy decisions).
 - iii. In this course, we will focus for the most part on political institutions, but keep in mind that similar procedures are used by many other forms of organizations.

- Majority rule, committees, executives, divided authority, etc. are not simply for making political decisions.
 - Committees, for example, are used throughout for profit and non profit organizations, even ones that are not “democratic.”
- iv. Procedures for making policy decisions are important in the long run, because the environment in which organizations operate is not static.
 - This implies that adjustments in the methods and goals of organizations have to be matters of routine, if the organization is to survive and prosper in the long run.
 - It also implies that the “rules for making rules” are an essential feature of organizational success, not simply an invention of enlightenment philosophers.
- D.** Governments have long had standing procedures for making public policies, although they were not always written down.
- The “constitutionalism” of enlightenment philosophers normally called for procedures that constrained the authority of the “king,” often by increasing the authority of the parliament and courts.

III. Constitutional Political Economy

- A.** The area of public choice that focuses on the properties of alternative methods for making public policy decisions is called constitutional political economy (CPE).
- B.** Although analyzing alternative procedures for making policy decision is clearly an ancient field, the first modern, analytical, examination of constitutional design was developed in *The Calculus of Consent*, by James M. Buchanan and Gordon Tullock.
- i. Buchanan and Tullock did not invent constitutional analysis, which is at least as old as Aristotle's the Politics.
 - ii. Rather, they showed how the rational choice approach together with the tools of game theory can shed light on constitutional design issues.

- iii. They explored the effects of a variety of common (and somewhat novel) institutions for making public policy decisions.
 - iv. For example, they noted that a variety of voting rules can be (and are) used to make public policy decisions: minority rule, majority rule, super majority rule, unanimous agreement.
- C.** Buchanan and Tullock, evaluated decision rules by focussing on two general kinds of decision costs.
- i. The cost of reaching the necessary agreement, in time and lost opportunities, (which rises with the size of the majority required)
 - ii. The expected cost of being in the minority (which falls as the size of the majority increases)
 - iii. Buchanan and Tullock show, for example, that majority rule is often a good compromise between the high decision costs of unanimous agreement and the high risk of being exploited under minority rule.
 - Illustration
 - iv. They also show that there are times when super majorities should be required (when risks of exploitation and error are high) and ones in which minority rule can be efficient (in cases in which the risk of exploitation is small or there are high returns to rapid decisionmaking).
 - v. In addition to this utilitarian approach to evaluating alternative decisionmaking rules, they also proposed decisionmaking from behind a “veil of uncertainty,” a concept very similar to Rawls’ “veil of ignorance.”
 - From this perspective, a rule is “good” if essentially everyone would agree to it, given their uncertainty about the final decisions that would be reached using it.
 - Uncertainty makes agreements of this sort more likely by reducing distributional conflict.
 - vi. As noted above, however, that one can have constitutional governance without a Contractarian foundation.
 - Indeed, very few political constitutions are products of unanimous agreement.
- However, constitutions that have (essentially) unanimous support clearly have greater normative appeal than ones that are imposed on unwilling subjects from both the contractarian and utilitarian perspectives.
- D.** A substantial literature on the positive and normative properties of alternative procedures for government decisionmaking emerged during the decades following the *Calculus of Consent*.
- It has been one of the most rapidly expanding areas of research for the past two decades.
 - For the most part the constitutional literature focuses on existing Western institutions, although a bit of work has been done on dictatorships (Wintrobe 1998).
- E.** The CPE research program is clearly an important one insofar as constitutional design conceptually may be a method by which a broad range of policy decisions can be simultaneously improved.
- i. To advance this research agenda, requires
 - a. understanding how the “rules of the games” (or rules for making rules) affect policy outcomes
 - b. and also some systematic method of appraising the relative performance of alternative outcomes.
 - (See Congleton and Swedenborg 2006 for an overview of the state of positive research on the effects of alternative constitutional designs for democracies.)
 - ii. Indeed, the goal of improving government can be used to motivate the entire Public Choice research program.
 - iii. The CPE literature began with attempts to assess the relative merits of alternative voting procedures.

IV. Alternatives to Majoritarian Decisionmaking Rules

- A.** Every group that attempts to advance common interests, faces the problem of identifying those interests and choosing particular means for advancing them.

- B.** A wide variety of decisionmaking rules can be used.
- i. The simplest spectrum involves the number of votes necessary to change the status quo.
 - a. Unanimity
 - b. Super Majority Rule
 - c. Majority Rule
 - d. Minority Rule
 - ii. There are also a broad range of other voting rules that can be and have been used.
 - a. Weighted voting: give some "worthy" individuals "more" votes than others.
 - For example, for a decade or so at the end of the nineteenth century, Belgium used a voting system in which every adult male got one vote, educated men got an additional vote, and wealthy men also got an additional vote (for a maximum of three votes).
 - b. Approval Voting [cast "yes" votes on as many options as one wishes, outcome is determined by the option with the maximum number of yes votes (S. Brahm)].
 - Under this system, if you like two candidates, you can voter for both of them. The winner is simply the candidate with the most votes, e.g. the broadest "approval."
 - c. One can also use somewhat more complex decisionmaking rules such as the "demand revealing process" (Tullock and Tideman, JPE 1976).
 - d. See Mueller's *Public Choice III* or Tideman's *Collective Decisions and Voting* (2006) for more on alternative voting systems.
- C.** For the purposes of this part of the course, we will focus for the most part on majority rule, because it is the most widely used voting method.
- i. Under majority rule, there are still a broad range of possible rules for "counting" votes, of rules for deciding who is eligible to vote, and for using votes to make policy decisions.
 - ii. Once the electorate is determined, and the weights given each voter, there are issues involving single and two stage voting (direct democracy vs. representative democracy) that have to be addressed.
 - iii. In addition, there are issues concerning the extent to which policy making authority will be concentrated in a single governmental body or divided up among a series of such bodies (unitary governments vs federalism, centralized vs. decentralized rule making).
 - iv. Moreover, establishing the "proper" domain for collective decisionmaking is also an issue of interest for both governments and large private organizations.
 - v. In practice, a wide range of majoritarian procedures are used by the world's democracies, and within a single national governments.
 - Switzerland is one of the more interesting cases of the latter, because it is small, quite decentralized, and uses a mixture of direct and representative democracy that varies canton by canton.
 - Federal systems are a boon for CPE research because they allow the effects of a subset of institutions to be examined, holding most other variables constant. (Thus there are many studies using state level data in the US and Canton level data in Switzerland.)
- D.** The procedures for adopting public policies are not themselves completely static. Most contemporary constitutions include formal and informal procedures for amending their constitutions
- i. For example, the US constitution was negotiated and written by representatives of more or less independent states, and ratified by state legislatures or state constitutional conventions elected for that purpose.
 - It has since been amended 27 times over the course of two hundred years.
 - It was amended many more times through supreme court decisions and informal shifts of authority between the Congress and the President and between the states and the central government.
 - ii. Amendment procedures are included by constitutional designers in large part as an act of humility. They recognize that their "rules for making rules" may need to be adjusted as circumstances change or as theories of governance improve (or at least change).

iii. We'll analyze amendments towards the end of the course if there is time.

V. Majority Rule

A. Majority rule is one of the most widely used procedures for making collective decisions within organizations and within democratic polities.

- i. Committees of various kinds are commonplace within organizations, and in cases in which a consensus does not exist, majority rule provides a systematic way to take account of the balance of opinion.
- ii. Majority rule has also long been used as a method for making decisions within parliaments and for selecting members of parliaments.
- iii. Governance based on majority rule and universal suffrage, however, is a far more recent invention.

B. In many, perhaps most cases, voter preferences can be mapped into a left-right spectrum of some kind.

- i. It turns out that, in such cases, voters at or near the middle of that spectrum are very important.
- ii. Indeed, the **median voter** (the voter at the exact center of the distribution of voter preferences in such a one-dimensional spectrum) (nearly) always votes for candidate or policy that wins.
 - In this sense, the median voter determines the outcome.
- iii. Duncan Black (JPE 1948) worked out both the median voter theorem and limits to it (e.g. the single peaked preference requirement).
 - Both were major advance to political science.

C. The Median Voter Theorems. Suppose that three individuals: Al, Bob and Charlie are to make a decision about how much to spend on lunch based on majority rule. Al prefers to spend \$5.00, Bob wants to spend around \$10.00 and Charlie around \$20.00.

- i. For convenience assume that, given any two options, each will prefer the lunch that is closest to their preferred expenditure.
 - This assumption is often made in “spatial voting models.”

ii. Now consider some elections:

- \$10 vs 20\$ A: 10 B: 10 C: 20 10 MP 20
- \$5 vs \$20 A: 5 B: 5 C: 20 5 MP 20
- \$5 vs \$16 A: 5 B: 5 C: 16 5 MP 16
- \$10 vs \$5 A: 5 B: 10 C: 10 10 MP 5

iii. Note that Bob always votes in favor of the outcome that wins the election.

iv. Note also that exactly the same number of individuals prefer a more expensive dinner as prefer a less expensive dinner than Bob. *Bob is the median voter.*

D. The **weak form** of the *median voter theorem* says the median voter always casts his vote for the policy that is adopted.

E. The **strong form** of the *median voter theorem* say the median voter always gets his most preferred policy. [Note that in the example above \$10 will defeat any other policy.]

F. In countries with two major political parties, there is a tendency for party platforms to converge toward the median voter's ideal point.

- i. Illustrate electoral competition between candidates generating the median voter's ideal point. [See notes from class.]
- ii. This result allows the median voter model to be used as the core model of democratic decision making in the U. S., much as the neoclassical model of competitive equilibrium is used as the core model of decisionmaking in markets.
 - Both the median voter and competitive market theories have many limitations, but serve as a useful first approximation to the real world.
- iii. The median voter theorems can also be generalized a bit and shown to apply for policies selected both direct democracy and for PR-based forms of representative democracy under a variety of plausible procedures.
 - Under proportional representation systems (PR systems), the party that the median voter votes for is likely to be a member of the ruling

coalition in parliamentary systems. Thus, at least the weak form of the median voter theorem should apply.

- G.** It bears noting that conditions sufficient to assure that a median voter exists requires some fairly severe assumptions.
- i. Voter preferences over policies must be single peaked and symmetrically distributed about a particular policy (which will be the multi-dimensional median). [See CR Plott, *AER* 1967.]
 - In spatial voting models, it is sufficient that voter preferences can be summarized with a single ideological dimension.
 - Illustrate a majority cycle in a two dimensional policy space in which voters are not symmetrically distributed using win sets.
 - ii. Fortunately, these fairly restrictive assumptions seem to be fairly realistic, at least as a first approximation.
 - KT Poole and H. Rosenthal (1997) demonstrate that more than 85 percent of all roll-call voting in the US House of Representatives can be explained with a single ideological dimension for the entire 200+ year history of the United States.
- H.** An alternative model of electoral equilibrium, the **stochastic voting model**, was worked out during the 1970s and 1980s, which requires fewer assumptions to assure the existence of majoritarian equilibria.
- That theory allows voters to make mistakes about the candidates that they vote for, but assumes that voters are more likely to vote for the candidate nearer to them (in policy space) than the ones farther away.
 - At the Nash equilibrium, candidate platforms converge to a weighted mean of voter policy positions. (The weights are determined by voter sensitivity to small changes in candidate platforms.)
 - [See Mueller (2003) or Coughlin (1992) for overviews of that theory.]
- I.** In policy settings in which the strong form of the median voter theorem seems relevant, it is possible to model a wide variety of policies as those which maximize the welfare of the median voter.
- i. This allows government decisionmaking to modeled as the result of a single person's optimization choice.

- ii. In this respect, the median voter model is analogous to that of dictatorship models.
 - However, the median voter has much less ability to make transfers to herself.
 - At some point, transfers will change the distribution of voter ideal points and so produce a new median voter.
- iii. The electoral models the produce median voter results usually assume that persons vote, but can still be applied (within limits) in cases in which organizations, states, or countries make decisions through majority rule.

VI. A Few Caveats

- A.** Median voter models are in some ways analogous to the dictatorship models of the first lecture, in that a single person's optimization problem can be used to model the choice of public policies. In this case, however, the median voter is "pivotal" rather than all powerful, and may change through time as demographics change or as economic circumstances change.
- B.** The median voter model is consistent with, and provides an explanation of, what George Stigler (1970, JLE) has called **Director's Law**. Namely, that "Public expenditures are made for the primary benefit of the middle classes financed with taxes which are borne in considerable part by the poor and rich."
- i. There are, however, limits to which a median voter can make transfers to a specific person or group without changing the distribution of voter preferences and producing a new median voter.
 - ii. Note also, that qualifications for suffrage and turnout both affect public policies, because the "pivotal" voter is just that: the median of the voters that actually turnout and vote.
 - The median voter is not the median person, nor the median person eligible to vote, rather she or he is the median person that casts a vote.
- C.** The median voter model (often implicitly) assumes rather complete information on the part of voters and candidates.
- It also tends to assume fixed suffrage laws and predictable turnout.

- As in most models of non-cooperative games and economic models of competition, it is assumed that voters cast their votes independently of one another.
- D.** There is **one nearly devastating weakness** to the median voter model, namely "the median voter" does not always exist in even an analytical sense.
- i. Duncan Black is the modern discoverer of the idea of electoral cycles in one-dimensional policy spaces.
 - a. In some, fairly unlikely, one dimensional arrays of voter preferences, the majority rule preference ordering may be non-transitive and no median voter would exist.
 - b. [*Single peaked* preferences are sufficient to guarantee the existence of a median voter in one dimensional issue spaces.
 - c. See also Arrow's generalization of this point in his well known Impossibility Theorem.]
 - ii. In 2-dimensional cases, a median voter exists **ONLY** in cases where voter tastes are symmetrically arrayed (see Plott, 1969).
 - a. In most plausible looking 2D policy space diagrams, cycles are endemic even if voter preferences are single peaked!
 - b. That is to say, in most cases, every policy has a non-empty *win set*.
 - (Def: The win set of policy z is the set of policies which could beat z in a majority rule election or referendum)
 - [See the two dimensional figure from the class lecture with three persons.]
 - iii. It turns out that the **dividing the pie game** via majority rule, a problem faced in many political decisions, always exhibits cycles (unless particular norms are very strong).
 - Note that a division \$3.00 between three people such as (1, 1, 1) can be defeated by a division (1.5, 1.5, 0), which can be defeated by a division like (0, 2, 1) and so forth.
 - Avoiding such cycles requires some restriction on the feasible divisions of the pie.
- iv. A sufficient condition for a median voter to exist is the possibility of mapping preferences into a single "ideological" dimension.
 - a. Fortunately for advocates of the median voter model, there is a body of evidence that suggests voter preferences over policies are (largely) of the sort which can be mapped into a single issue space while retaining "single peakedness"
 - b. See Poole and Rosenthal 1997, as noted above.
 - c. (Poole and Rosenthal's work also implies that "log rolling" affects a relatively small fraction of votes in Congress. Why?)
 - v. Moreover, the median voter model has a good empirical track record in Public Finance as a model of government program size across states and through time.
 - Thus in once sense the model is very frail, but in another appears to be quite robust.
 - [This does not imply that the median voter model is complete or the best that can be devised, but it does support its use as a point of departure, analogous to the perfect competition model in microeconomics.]
- E.** Just because we observe a good deal more stability in democratic governance than implied by the assumption of (more or less) rational decisionmaking alone does not imply that majoritarian cycles (or indecision) are impossible, only that institutional solutions have been worked out in the democracies that we observe or that the distribution of wealth and ideology are favorable for majoritarian stability.
- [See Tullock (1981), Shepsle and Weingast (1981), or Congleton (2003).]
- F.** Buchanan has argued that majoritarian cycles can, perhaps surprisingly, be a *good property* of majority rule systems insofar as it promotes equity. With cycling, everyone eventually gets to be a member of the majority coalition at some point and so will not be perpetually exploited.