

I. Anthropological Origins of "Organizations," Governance, and Collective Choice

- A. Insofar as all group choices are collective choices, it is clear that the original ideas about collective decision making methods are ancient.
- i. Every family, band, tribe, town, city, state, country, alliance, etc. uses some form of collective decision making to choose particular courses of action.
 - ii. This is partly tautological.
 - ◆ A group of individuals does not share the fundamental hardware of choice, a central nervous system, essentially by definition.
 - ◆ So there cannot be a truly group "decisions" except jointly through the individual arguments and decisions by the group members..
 - iii. Only a very limited portion of decisionmaking can be attributed to the biological necessities that groups provide their members.
 - ◆ Evidently, until fairly recently most people on earth associated with one another in relatively small bands (a few dozen people), who used a form of consensus based decision making (Diamond, 1999).
 - iv. This suggests that there are survival advantages to being affiliated with such small groups.
 - ◆ And insofar as groups "do things together," group members would have long have devised methods for collective decision making--some of these could be "hard wired" but most likely they are essentially cultural in nature.
 - ◆ (See Paul Rubin, 2003, for a very interesting discussion of this.)
 - v. It may also be the case that organized groups, those with formal procedures for making decisions and for solving team production problems are more effective than unorganized groups for many purposes, including the provision of law and order.
- B. Organized groups have to adopt a formal method of collective decisionmaking.
- i. It is clear that decision making rules are an important input into the productivity (survival advantage) of particular groups.
 - ◆ A group that could not make decisions, would not have an advantage over individual decision making. (A group that could never choose a restaurant or method of hunting would starve.)
 - ii. The procedures of successful villages were doubtless developed by trial and error, and by copying other successful villages--insofar as this was possible.
 - ◆ Similarly, the procedures and constraints of larger communities extended and revised the village procedures to larger groups, many of whom will be strangers to one another.
 - ◆ And, so on up to kingdoms, nation states, and empires.

- iii. Consequently, there are reasons to expect that this "technology" of collective decision making has been evolving for far longer than written language has been--as long as groups have existed.

II. Rational Choice, Evolution, and Organizational Design

- A. It seems clear that improvements in collective decision making methods might have been more or less understood by the persons who proposed and implemented them.
- i. However, it seems unlikely that the individual contributions of the whole array of institutions and constraints were fully understood.
 - ◆ There are a wide variety of institutional interdependencies that are difficult to fully grasp from intimate knowledge of only a single institutional setting (name the one the policy maker's work in).
 - ◆ Even the long run effects of changes that appear desirable in the short run may be far better or far worse than initially believed.
 - ◆ There are many "levels" at which the functions of a particular set of decision making procedures and constraints can be understood.
 - ii. On the otherhand, it is often possible to judge the relative performance of different institutional arrangements, even when one does not fully understand them.
 - ◆ Consider, for example, the usual consumer's evaluation of the merits of automobiles or computers.
- B. This course attempts to understand how democracy can emerge through a mixture of accident and experiment.
- i. To avoid the complexity that real world governments exhibit, we will begin with what might be called analytical histories: models that capture some essential features of governments.
 - ii. To do so, we begin by trying to understand some general features of "similar" decision making procedures.
 - ◆ This technique can be used to think about normative issues, however, rather than positive issues for the purposes of this course.
 - ◆ It is often useful analytically to begin with the assumption that unaffiliated individuals find themselves in a setting of anarchy where no groups exist and no collective choice mechanism are employed.
 - iii. This technique has been used many times before.
 - iv. For example, political theorists often useful analytically to begin with the assumption that unaffiliated individuals find themselves in a setting of anarchy where no groups exist and no collective choice mechanism are employed.

III. The application of analytical histories has been used by scholars and theorists at least far back as Aristotle's *Politics*.

"The proof that the state is a creation of nature and prior to the individual is that the individual, when isolated, is not self-sufficing; and therefore he is like a part in relation to the whole. But he who is unable to live in society, or who has no need because he is sufficient for himself, must be either a beast or a god: he is no part of a state. A social instinct is implanted in all men by nature, and yet he who first founded the state was the greatest of benefactors. For man, when perfected, is the best of animals, but, when separated from law and justice, he is the worst of all; since armed injustice is the more dangerous, and he is equipped at birth with arms, meant to be used by intelligence and virtue, which he may use for the worst ends."

- A. The modern use of "anarchy" as an initial state has been used as a normative analytical technique at least since Thomas Hobbes in 1651 and John Locke in 1690, but has since been used as an analytical tool by many constitutional theorists--especially those who are referred to as contractarians.

On the nature of anarchy: from Thomas Hobbes, *Leviathan* (1651)

"Whatsoever therefore is consequent to time of Warre, where every man is Enemy to every man; the same is consequent to the time wherein men live without other security than what their own strength, and invention shall furnish them withal. In such condition .. the live of man [will be] solitary, poor, nasty, brutish and short.

From John Locke, *First Tract on Government* (1660)

"'Tis not without reason that tyranny and anarchy are judged the smartest scourges [that] can fall upon mankind, the plea of authority usually backing the one, and of liberty inducing the other...All the remedy that can be found is when the prince makes the good of the people the measure of his injunctions, and the people...pay a ready and entire obedience."

From Mancur Olson, "Anarchy, Autocracy and Democracy" (1991)

Olson argues that it is roving bandits that create a Hobbesian jungle, rather than individuals. Better forms of government may emerge from the jungle, not because of contracts, but because "The conqueror of a well defined territory has an encompassing interest in that domain given by the share of any increase in the territorial income that he collects in taxes. This encompassing interest gives him an incentive to maintain law and order and to encourage creativity and production in his domain. Much of the economic progress since the discovery of settled agriculture is explained by this "incentive."

From James Buchanan, *Limits to Liberty*, 1975.

"The state serves a double role, that of enforcing constitutional order and that of providing "public goods." This duality generates its own confusions and misunderstandings. "Law," in itself, is a "public good," with all the familiar problems in securing voluntary compliance. Enforcement is essential, but the unwillingness of those who abide by law to punish those who violate it, and to do so effectively, must portend erosion and ultimate destruction of the order that we observe. These problems emerge in modern society even when government is ideally responsive to the demands of citizens. When government takes on an independent life of its own, when Leviathan lives and breathes, a whole set of additional control issues come into being. "Ordered anarchy" remains the objective, but ordered by whom? Neither the state nor the savage is noble, and this reality must be squarely faced.

IV. This course begins with an analytical history: an abstract and general discussion of the nature of governance and the decisions making institutions of government, but it does not end there. It also attempts to apply the models and logic developed to understand Western democracy.

V. Governments can best be thought of as particular kinds of organizations, and as such have to solve a wide range of problems common to all organizations.

- A. Essentially all organizations have to solve a variety of coordination, team production and decision problems, because most organizations meet at particular places and times
- ◆ Most meet at particular times and places.
 - ◆ All produce services that are more effectively produced as a team than as independent individuals.
 - ◆ These may take the form of pure public goods or private goods produced with economies of scale over some range of interest.
 - ◆ Thus all organizations have to decide when to meet, what to produce, and how to produce it.
- B. For the purposes of this course, it is the latter--the decision making process--that is of most interest, but we begin by examining the team production problem.
- ◆ This allows us to illustrate some fairly general principles of reward systems.
 - ◆ Some of these will apply to decision making as well as to the production of "ordinary" goods and services.
 - ◆

C. An Illustration of the team production problem

Table 1

	Team Member B			Team Member B	
	Work	Shirk		Work	Shirk
	Work (A)	3, 3		1, 4	Work (A)
Shirk (A)	4, 1	2, 2	Shirk (A)	4-P, 1+R	2-P, 2-P
Exit (A)	1.5	1.5	Esit (A)	1.5	1.5

The cell entries are utilities, the rank order of subjective payoffs for the team members (A, B). The dilemma in the "natural case" is that both team members shirk rather than work.

- i. Note that the upper four cells of the left hand game is a normal PD (prisoner's dilemma) game interpreted here as a team production problem.
- ii. The upper four cells of the righthand game is that game with a reward system introduced. Here is assumed that the organization (its leaders) can change the payoffs of the game by adding rewards for working and penalties for shirking.
 - ◆ The new supplemental reward for work be R and the new penalty for shirking be P .
- iii. Note that both players work to advance team goals if $3 + R > 4 - P$ and $1 + R > 2 - P$. Note that any system of rewards with $R > 1$ and $P > 1$ will solve the team production problem.
 - ◆ If costs increase with rewards and penalties, "organizers" will choose to set R just a bit above 1 or set P a bit greater than 1.
 - ◆ If punishments are less costly than rewards, the formateur will be inclined to use penalties rather than rewards to encourage productive effort.
- iv. However, if team members are "volunteers" in the sense that they are free to exit and join other organizations or work alone, the formateur faces a PDE (prisoner dilemma with exist) rather than PD problem.

- ◆ In this case, the exit option limits the extent to which penalties can be imposed on team members. In the example, exit implies that the formateur cannot use penalties greater than 0.5 without risking exit by some or all team members.
 - ◆ In this case, a combination such as $P=0.5$, $R = 0.5$ might well be the best solution for the formateur, a mixture of "sticks and carrots."
- v. In general, the least cost pattern of rewards and penalties will include nonpecuniary rewards (approval, status, etc.) as well as pecuniary ones (wages, bonuses, and promotions).
 - ◆ In some cases, the "organizer" (or "formateur") can partially rely upon incentives provided by the culture in which he or she operates.
 - ◆ For example, the culture may include a work ethic.
 - ◆ In others, the formateur may attempt to create an organizational culture if that will solve the incentive problems at lower cost.
 - ◆ The formateur may also attempt to attract members that are easier to motivate, more skilled, or already demonstrating an "internalized" work ethic.
 - vi. When designing a decision making procedure for the organization, "formateurs" may also use a combination of money, status, and selection to create an effective system of organizational governance.
 - ◆ Note that this tends to be true of small voluntary groups as well as larger coercive groups such as pirates and some forms of government.
 - ◆ It also tends to be true of governments formed via social contract insofar as those outside government have an interest in minimizing the overhead cost of governance.

VI. Governments differ from most organizations because their members and their citizens are not as free to leave as in smaller less encompassing organizations.

- A. This allows government to produce some kinds of activities that voluntary clubs, firms, and religious organizations will find difficult or impossible to undertake.
- B. It also allows them to use greater use of coercion (significant penalties) to control the game because exit tends to be unavailable or a less attractive alternative.
 - i. Because of the latter, governments will be able to exercise more control over their members and over those "served" than other organizational forms.
 - ◆ None the less, it remains the case that someone (the formateur?) benefits from governmental organizations
 - ii. In some extreme cases, only a single person, the dictator or emperor, may be better off.
 - ◆ Others in society may gain as well, but only because this in some way increases the welfare of the dictator, by encouraging loyalty, the production of security services, or the production of additional tax base.

- ◆ For example, the government may provide goods and services, but only insofar as such policies advance the interests of the dictator.
- iii. In other cases, it may be argued that government advances the interests of a small elite, an aristocracy of some kind.
- iv. In still others, it can be argued that essentially everyone in the society governed is better off.
 - ◆ Under social contract and popular sovereignty theories of the state, the entire citizenry is considered to be the "formateurs."
 - ◆ Governments formed by contract can solve a wide variety of public goods and coordination problems for those within the community of interest
 - ◆ They may also discourage externality generating behavior that makes people worse off as with public health and many environmental regulations.
 - ◆ (How to contrive such governments is by no means an easy task, but modern theories of constitutional governance attempt to understand how it can be done.)
- C. It bears noting, however, that the enterprise of governance is broadly similar in all these cases (and those in between).
 - i. All types of government create and enforce laws through threats of one kind or another.
 - ii. Most governments also adopt systems of reward and punishment that govern the behavior of those employed by governments itself (within its "organization" or bureaucracy).
 - iii. All governments have routines for making policy decisions.
 - ◆ In a democracy, those inside and outside of government are subject to the same laws.
 - ◆ In an aristocracy, members of the ruling elite are not normally above the law, but often subject to a somewhat different law than others.
 - ◆ In dictatorships, the dictator may be formally placed "above" the law of governance.
 - iv. Laws that determine how decisions are to be made, what decisions have to be made, and which cannot be made are **a nation's constitution**.

VII. That laws are for the most part purposely adopted have a number of implications.

- A. The laws adopted generally advance the aims of the rulers be they a dictator, aristocracy, or broad cross section of the citizenry (a majority in well-functioning democracies).
 - i. Laws will be revised as those interests change through time.
 - ii. They will also be revised as mistakes are discovered, or new better theories of the effects of law come to be widely accepted.
- B. Insofar as the interests served remain constant, laws and institutions *tend* to **"improve"** through time.

- i. As legal experiments are made, new laws may be found superior to old laws.
- ii. The laws in place are the **most efficient** ones that the "rulers" **know of**.
 - ◆ Old laws will be replaced by new laws whenever new laws are expected to better serve the interests of those in power.
 - ◆ Thus, changes in information can lead to new legislation and improvement.
 - ◆ Laws in general and laws governing governance (constitutions), thus, have an evolutionary character that reflects accepted historical experiences.
- C. History is "piecemeal" rational, but not necessarily globally so.
 - i. Generally, the choice is among a subset of possible laws, namely those that other societies have already tried out.
 - ◆ This body of experimental evidence is increased by new experiments and new results through time
 - ◆ Thus, successive laws tend to more effectively promote the interests of the rulers, whoever they might be.
 - ii. However, the best of all possible laws or institutions is unlikely to be in place.
 - ◆ The set of laws considered by policy makers tends to be a subset of laws and institutions that already exist, rather than all possible laws and institutions.
 - ◆ Since only a subset of the set of all possible laws is evaluated by rulers (and their staffs), the law will not be the "most" effective laws possible, only the most effective laws that are known.
 - iii. To say that laws are purposely adopted and/or left in place, is not the same as claiming that "the law" is fully understood by those controlling government.
- D. Moreover, if the interests of the ruler change through times, laws will change for reasons having nothing to do with increased effectiveness or efficiency.
 - ◆ It also bears noting that the interest of "the government" may differ from the general interest of its citizenry.
 - ◆ Thus, increased governmental efficiency *may actually make the average citizen worse off* rather than better off in cases in which the interests of rulers differ from those of its citizens.
- E. Overall, however, purposeful behavior thus has some clear implications for the types of performance of different kinds of governments through time.
 - i. There should be a general tendency toward more effective governance in the sense that the "rents" (social surplus) should tend to be more and more concentrated in the hands of those that have the power to write new laws (to govern).
 - ii. There should be a general tendency toward more security, in the sense that those in power are increasingly likely to retain power through time.

- iii. The first of these implications suggests that wealthy "elites" should emerge under dictatorships and aristocracies, but not within well-functioning democracies.
- ◆ Evidence of this can be seen in the physical architecture, music, and art of aristocratic-royal Europe as opposed to modern Europe or the contemporary republican and more representative governments of the Netherlands (1600-1800) and USA (1700-present).
 - ◆ However, unfortunately for future tourists and historians, not every elite spends its "rents" on durable forms of amusement (architecture, music and art).

VIII. Transitions between radically different types of government is difficult to model.

- i. Insofar as those in power tend to be made worse off by changes in governmental form (changes in the division of policy making power and/or range of interests represented), we would expect to see relatively few transformations.
- ii. Insofar as such transformations take place gradually and peacefully, we would expect to see changes in either the interests or opportunities of those in power.
- ◆ That is to say, new gains from institutional exchange among those inside government or between those inside and outside government must emerge.
 - ◆ This is the story that I sketched out in the first lecture for the peaceful democratization of Western Europe in the 19th century.
 - ◆ (We will spend most of the course exploring this scenario, first analytically and then using historical examples.)
- iii. Violent **democratic revolutions are unlikely** because they require organizations.
- ◆ There are many "team production problems that have to be solved to coordinate the efforts of revolutionary.
 - ◆ It is difficult for those outside a well functioning governments to organize an army without being detected and punished for it.
 - ◆ Moreover, because war tends to require organizations with a hierarchical structure analogous to that of a dictatorship, and the natural governmental form during a revolutionary war tends to be a dictatorship.
 - Insofar as this "war government" looks after its own interests, it is likely to retain power after the war as well as during the war.
 - (Here, one may note the end results of the French, Russian, and Chinese revolutions.)
- iv. This is not to say that a democratic revolution is impossible, only unlikely.
- ◆ Several more or less revolutionary wars have been organized by pre-existing organized by representative governments, as the Revolutionary war of the United States and United Provinces of the Netherlands.

- ◆ These tend to promote their own interests during and after the war.
 - ◆ These interests, "naturally" favor continued representative governance by those presently in power.
 - ◆ (The provinces of the Dutch Republic and the States of the United States remained in control after their successful wars of succession.)
- v. However, that revolutionary wars will be difficult to engineer in well-functioning governments and also unlikely to yield democratic rule.
- vi. Thus, this course (and my new book) focuses its attention on peaceful transitions--which are also for some reason thought to be unlikely.
- vii. Will begin analysing institutions that allow the possibility of a gradual and peaceful transition next week.

IX. A Digression: Two Reductionist (Essentialist) Theories of the Origin of the State

- A. There are essentially two "pure" theories of the origin of government, and these theories also represent the two polar visions of the "exploitative" and "productive" state. .
- i. One postulates a state that emerges out of skill in organized force. Such a state is created when one party conquers all those within a given territory. The rulers of such a state, simply impose their will on all those within its domain. In the limiting case, the ruling group is a single individual, a dictator, who finds it in his interest to form a state as a method of enjoying the fruits of power. (Olson, Tullock)
- ii. The other pure theory of the state conceives a state as emerging out of voluntary agreement. That is to say, individuals find it in their interest to create a state as a means of advancing common ends that can best be accomplished with collective means. Under this theory, any coercive means used by the state to collect taxes and assure national defense are grounded in an agreement that in the absence of such methods, free rider problems would prevent the state from advancing the interests of all that agree to the social compact. (Locke, Rawls, Buchanan)
- B. Mancur Olson has pioneered work on the productive, but coercive state. He demonstrated that any dictator has an encompassing interest in the welfare of his "citizens" insofar as by increasing their welfare the coercive regime may secure greater tax revenue or security.
- C. James Buchanan has extended the social contract theory of Hobbes by applying modern tools of economic analysis and game theory to the design problem of social contracts.
- i. His concept of social contracts is more optimistic than that of Hobbes (although less optimistic than Rawls) in that he believes that leviathan can be constrained by a constitution.
- ii. The contractarian theory of the state suggests that combination of property rights and a state (property right enforcer) can allow groups to escape from the dilemma of the thieves in a manner that potentially make all better off (net of the cost of the state).

iii. That is to say, there are at least occasionally mutual gains that can be realized by agreeing to be "coerced" by a third party--rule enforcing government or tax collector.

D. (These two theories of the state **may both operate simultaneously**. Note that an invading army can be a very strong reason to join forces under a social compact. Defense alliances are often voluntary agreements to repel a dictatorial invader! Moreover, Pirates and other organized groups of roving bandits often create formal agreements.)

X. Olson's Model of the Policies of a Secure Dictatorship

A. Democracies have historically been a very small minority of the governments in existence.

i. Thus dictatorships are an important type of government to analyze and also, as it turns out a fairly easy one to examine.

ii. (In spite of this, surprisingly little work has been done on dictatorship. Wintrobe, Tullock, and Olson have recent books and papers on dictatorship which account for most of the literature.)

B. The Olsonian model assumes that a dictator exists and models the fiscal policies that a profit maximizing dictator would adopt.

i. The assumed rationale for political power is analogous to that of a slave holder in the old south, except that the plantation can not be sold.

ii. It turns out that a revenue maximizing dictator's interest in tax revenue leads him to provide public goods that increase national wealth (taxable wealth) and to tax at less than 100%.

iii. The latter implies that his subjects share in any prosperity induced by the dictator's public policies.

iv. And, moreover, insofar as the dictator can not fully capture the fruits of his subjects' labor, the "ruled" are made better off by the dictator, at least relative to what they would have realized under Hobbesian anarchy. That is to say, the conquered parties realize greater net of tax income than required for subsistence. (Of course, their alternative state might not have been the Hobbesian jungle.)

C. (Note that security interests may make a dictator less interested in the interests of groups whose support is difficult to obtain at the margin or if he has a short time horizon.)

D. The simplest model is one where the dictator acts as an **income maximizing Leviathan** (as assumed in Brennan and Buchanan, and in Olson and McGuire).

i. A secure dictator, whose rule is unchallenged by potential rivals or invaders, will select tax and expenditure policies to maximize his income:

$$\circ Y = tNy(G,t) - c(G)$$

ii. where y a function representing *average* or per capita national income and N is the number of subjects within the kingdom. Average income rises as G increases and falls as t increases. t is the tax rate and G is a national service that costs $c(G)$ to provide.

iii. First order conditions of ii characterize t^* and G^* for the dictator.

◆ $Y_t = t + tN y_t = 0$ at t^* e. g. given G^* set t to maximize tax receipts

◆ $Y_G = tNy_G - c_G = 0$ at G^* e. g. given t^* set G to maximize tax receipts

◆ Because the tax base can be increased by services, and the dictator has an interest in the tax base, he can be said to have an encompassing interest in the wealth of his subjects. After all that is where his taxes come from.

iv. On the other hand, this is not a complete encompassing interest. Note that G tends to be *underprovided* by the dictator insofar as he receives less than the complete marginal benefit from the service. The national income maximizing level of government services requires

$$\circ Ny_G - c_G = 0 \text{ not } tNy_G - c_G = 0$$

○ the marginal benefits from government programs should be set equal to the marginal cost of G .

E. Practice Problems

i. It bears noting that two dictators can be worse than one.

ii. To see this consider the case of two toll collectors on the Rhine.

iii. Each knows that the shipping along the river increases as public services are provided and falls as tax rates (tolls) increase other things being equal.

iv. Let shipping be simply $S = K - b(t_1 + t_2) + c(G_1 + G_2)$ and net tax revenue be $T_i = t_i S - c(G_i)$

v. Holding public services constant ($G_i = k$) determine each river baron's optimal tariff rate. (Assume that neither river baron knows what the other is doing.)

vi. Compare this rate with that under a single ruler.

vii. Now, hold taxes constant, and determine the public service levels that will be forthcoming under the two vs. single river baron cases.

XI. Philosophical Puzzle: Constrained Dictatorship?

- A. It is possible that a group of individuals would agree to use a dictatorial (one man rule) collective decision making procedure--especially in times of war (supreme commander) or on occasions when that person could be removed from "office" very easily (as with a CEO or town manager). Hobbes' *Leviathan* suggests this solution as an escape from the endless war that he believes will be associated with anarchy.
- B. On the other hand, if a group decides to use one man decision making for ordinary collective decision making, it is clear that they would prefer that the ruler abide by a variety of constraints. For example:
- i. Some method of aligning the interests of the ruler and the ruled might be adopted.
 - ◆ (Elections: perhaps surprisingly many, perhaps most, kings in Northern Europe were formerly elected to office.)
 - ii. There might be guarantees of property rights and due protection. (Rule of Law)
 - iii. The domain of policy might be constrained. (Rights)
 - ◆ Only tax instruments with a relatively high deadweight loss might be permitted, or veto power over such policies may be retained. (Parliament and Tax Councils)
 - ◆ (In fact, the power to impose new taxes were reserved for parliaments rather than kings throughout Western Europe during until around 1600, when "absolutist" kings came to power. However, this institutions continued in place in much of Europe even during the "age of absolute monarchy," as in the constitutional monarchies of England and Sweden.)
 - iv. Many of the features of modern states with elected governments can be thought of as the result of gradual institutional innovations that came to be adopted over the centuries to address the problems associated with delegating authority to "the crown."
 - ◆ In that sense, constitutional design is a very old field of research and social engineering.
- C. However, it bears noting that explicit design of written constitutions is a relatively new (rediscovered) activity.
- i. The oldest **written constitution** in the world is presently the US constitution which is just over 200 years old.
 - ◆ Constitutional law and constitutional theory can be said to be older than the modern constitutions.
 - ◆ For example, the Magna Charta of England was signed in 1215, however very little of the constitutional law of England is incorporated into written constitutional documents.
 - ◆ On the other hand, many Greek city states all had formal constitutions. Aristotle's *the Politics* includes a broad overview of the relative merits of alternative constitutions.

- ii. The Constitutional designers of the United States explicitly and self-consciously created a very new form of large scale government, based on elections, rights, the separation of powers and federalism.
- iii. In less revolutionary states, such as England, Sweden, Norway, Denmark, and so forth, the democracy emerged gradually through a series of constitutional reforms adopted over the course of the 19th century.

XII. Extension: The Median Voter Model and Representative Democracy

- A. The general sense that we in the West have that democracies are superior to dictatorships should be apparent in policies.
- ◆ One can observe, for example, that the western democracies have been wealthier places than anywhere else for the past century or two.
 - ◆ Thus, they must be doing something right.
- B. Although both dictatorships and democracies are complex institutions, in practice, it turns out that both can be modelled in a relatively straightforward fashion.
- ◆ A "lean" dictatorship model was developed above.
- C. We now develop a similarly **"lean" model of policy formation in a democracy**.
- i. The strong form of the median voter theorem implies that policies within well functioning competitive democracies tend to gravitate toward those that maximize the median voter's welfare.
 - ii. Consider the median voter's preferred fiscal package--combination of taxes and public services== is restricted to similar fiscal policies: proportional taxes and public goods and is interested in maximizing his own after tax income.
 - iii. Since the median voter cannot keep net tax receipts, she faces a balanced budget constraint.
 - ◆ (We assume this for now, but the ability to keep net receipts would tend to make "her" a voter with other than the median demand for tax rates and government services).
 - $c(G) = tNy(G,t)$ which implies that $t \approx c/Ny$
 - ◆ The median voter's after income is similar to that of the average voter's income although not necessarily identical unless the distribution of income is symmetric.
 - ◆ Let $v(G,t)$ be her pretax income.
 - (Note that $v(G,t)$ is implicitly a "reaction" function that describes how job opportunities or wage rates are affected by government policies and how her family income is then affected by the leisure-labor choice made.)
 - iv. The median voter's after tax income is:
 - $V = (1-t)v(G,t)$ which given the balanced budget constraint is

- $V = (1-c/Ny) v(G,t)$ or

- $V = v(G,t) - (c/N) (v/y)$

v. Differentiating yields:

- $v_G - c_G/N (v/y) - (c)[v_G/y - vy_G/y^2] = 0$

- and $v_t - (c/N) [v_t/y - vy_t/y^2] = 0$

vi. These first order conditions **describe both the level of taxation and public services adopted**, but also how taxation and public services **change** when the median voter's circumstances or tastes change

vii. An interesting **special case** of the median voter model is the case in which the median voter's income and tastes are approximately "average." (Recall that elementary statistics implies that the median of a distribution of voter demands for public services is usually a bit difference than the average of that distribution.)

- ◆ In that case, $V = v(G,t) - (c(G)/N)$.

- ◆ Notice that the median voter now sets G such that $Ny_G = c_G$
(sets G^* to **maximize** national income)

- ◆ while selecting the t that **minimizes** tax burden of providing G^* !
 $v_t = (c/N)$ with $t^*Ny = c(G^*)$

- ◆ This is one case where democracy will have broad appeal.