I. Some Weaknesses of the Median Voter Model

A. To this point, we have tried to explain the logic and strengths of the median voter model.

i. Now we will examine some of its minor and major weaknesses.

ii. The first several that we focus on are really refinements or extensions of the median voter model to settings where voting, itself, and information about policies or candidates is costly.

II. Should Anyone Vote?

A. Most of the above models have assumed that all eligible people will cast votes in elections. But we have not really examined whether or not this makes sense for the typical voter. *Should anyone vote*?

i. This largely depends upon the reasons why a voter casts votes.

ii. If voters cast votes simply in order to affect outcomes, the "rational" median voter model suggests that very few people will vote.

a. Let C be the opportunity cost of voting. Let B be the benefit that a particular voter gets from having his program adopted or his preferred candidate in office.

b. Let P be the probability that this particular voter will influence the outcome.

c. *The expected net benefits of voting is just* N = PB - C

d. *Note that the probability that a particular voter is decisive is very small!* (It is essentially the probability that the result would have been a tie without that person's vote.)

e. Consider some numbers. Let C be fairly small, say $10, and let B be fairly large, say $20,000. The probability of a tie in a large election is pretty small, say 1/10,000. So the expected net benefit of voting in this cases is N = (20,000)/(10,000) - 10 = - $8. This rational voter should not vote!

iii. (Many in political science are surprised that so *few* people vote. Public choice theorists are surprised that *so many* people vote!)

iv. Evidently, voters cast votes for other reasons as well as to affect the outcome.

a. They may vote because voting itself makes them feel good, as if they are responsible persons, or because they like talking about who they voted for with their friends etc.

b. (In that case, the various costs and benefits discussed above would still matter at the margin--might affect turnout--but would miss a significant part of B that does not depend on the outcome of the election. Turn out tends to be lower in bad weather.)

v. This problem may be reduced a bit in PR systems relative to plurality systems because a single is more likely to matter (e.g. change the number of seats held by one's perferred party).

a. We do observe higher turnout in PR elections than in plurality elections.

b. On the other hand, a single vote may not be any more likely to affect the policy choice of the government.

III. Rational Ignorance

A. Another problem with the median voter model developed to this point is that it has *ignored information costs* faced by all voters which tends to cause them to be less than perfectly informed.

i. Voter's will tend to be *rationally ignorant* of many details of public policy. That is to say, they will only gather information up to the point where the expected benefit of the information equals its marginal cost. [Diagram.]

ii. In the case where the median voter's expectations are unbiased in spite of economizing on information, he/she will still on average get what he/she wants.

B. In cases where *rational ignorance* implies biased expectations about the consequences of policies (as for example when one remains entirely ignorant of some policy detail or implication) then the median voter may not even get what he/she *truly* wants.

C. Fiscal Illusion

i. Since voters have weak incentives to be well informed on policy issues, there is a chance that because of Rational Ignorance they will mis-estimate the costs and benefits of government programs.

ii. Both Anthony Downs and Gordon Tullock argued that there are reasons to expect **systematically biased expectation** of the costs and benefits of government programs (although they reach somewhat different conclusions).

a. Downs argues that the benefits of government programs are often fairly indirect and diffuse, so that people tend to under estimate the benefits of many programs.

b. Tullock argues that tax payments are similarly often indirect and difficult to assess (remember tax burden is not the same thing as direct tax payments). It is difficult for most voters to assess their true tax burden, and most times indirect taxation will cause voters to under estimate the cost of government services.

iii. The effects of fiscal illusion on voting can be represented with a diagram.

iv. Fiscal illusion can cause voters to vote for overly large or overly small programs. It causes voters to make mistakes and vote against their own true interest.

v. In the end, the extent of this bias probably varies by program insofar as the benefits and costs of particular programs are especially easy or hard to measure.

D. It bears noting that rational ignorance by itself does not necessarily imply that voters have fiscal illusion.

i. Voters could base their expectations (estimates) of the consequences of government policies on unbiased samples of information and so on average predict the right thing.

ii. Do you think that voter's, think about your self, have biased expectations about the costs and benefits of government programs?

iii. Note that "Condorcet's Jury Theorem" suggests that if voters have unbiased estimates of policies or candidates, even is based on very little data, the choice can be very "well-informed."

iv. This follows because the **median estimate may be extremely accurate** even if it is based on very limited (but unbiased) information.

E. To the extent that fiscal illusion may occur, Information problems open the door to interest groups and the bureaucracy who may manipulate voters by appropriately subsidizing various kinds of information to induce "fiscal illusion."

i. [The whole special interest group/rent-seeking literature is predicated on informational problems of these kinds in open democratic societies.]

ii. Rational ignorance also allows representatives and bureaucrats to "cheat" and escape detection or punishment.

a. This problem of monitoring what government really does may be substantial.

b. Because of this, rational ignorance indirectly encourages malfeasance (what many call agency costs) on the part of elected and unelected government officials which would be unlikely to be detected by rationally ignorant voters.

c. These "agents" of the electorate (median voter) will have more freedom to act than pure election models seem to imply. (That is they can do a few things that do not advance the median voter's interest without losing the next election or being fired.)

F. Fortunately, the rational ignorance problem is reduced by both the Condorcet Jury Theorem and the fact that voters have many private reasons to be well informed about public policy.

i. For example, voters may collect information about public programs because they affect their own private plans. A new road or train station may affect decisions to purchas a new car. A person's stock portfolio might be adjusted if a new airport or building program is to be subsidized, etc.

ii. People also enjoy talking about politics with their friends, which provides social support for being well informed (or at least as well informed as their friends).

IV. The Voting Paradox-Cyclic Majority--An Important Theoretical Problem with the Median Voter Model: Is there always a Median Voter?

A. There is one nearly devastating *theoretical* 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 (re) discoverer of the idea of electoral cycles in one dimensioned policy spaces. 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.

ii. [*Single peaked* preferences are sufficient to guarantee the existence of a median voter in one dimensional issue spaces, but not in two dimensional issue spaces. See also Arrow's generalization of this point in his well known Impossibility Theorem.]

B. Ilustration of the Cycling (Irrationality) Problem

i. **Consider** the following matrix of preferences (utilities) over issues:

Voter Prefrences

Issues \ Voters	Al	Bob	Cathy
I	1	3	2
II	2	2	1
III	3	1	3

ii. Note that in this case,

a. Policy I is majority preferred to policy II, (II gets Bob and Cathy's votes)

b. Policy III is majority preferred to policy II, (III gets Al and Cahty's votes)

c. Policy III is also majority preferred to policy I. (III gets Al and Cathy's votes).

iii. Policy III is the **Condorcet winner, it can defeat any other policy in a pairwise election.**

iv. In this case, as in the median voter case, there are no cycles, and political outcomes will tend to gravitate toward the policy III.

v. **Now consider** a slightly different matrix of voter preferences.

Voter Preferences

Issues\Voters	Al	Bob	Cathy
I	1	3	2
II	3	2	1
III	2	1	3

vii. In this case,
   a. Policy I is majority preferred to policy II (it gets Bob and Cathy's votes)
   b. Policy II is majority preferred to policy III (it gets Al and Bob'svotes)
   c. But, policy III is majority preferred to policy I (it gets Al and Cathy's votes)

viii. In this case, there is no condorcet winner, and **any policy can win!**

ix. Moreover, there can be a cycle among "winners" that never ends.
   a. That is to say, majority rule may fail to make a decision in this case!
   b. It can also be said to be **irrational** in this case, insofar as "majority preferences" are not transitive-- internally consistant.

x. (Such problems are ruled out if all voters have "single peaked preferences, as is the case for spatial voters.)

C. In 2-dimensional policy space, the cycling problem is far more likely.

i. In such cases, a median voter exists ONLY in cases where voter tastes are symmetrically arrayed (see Plott, 1969).

ii. In most plausible looking 2D policy space diagrams, cycles are endemic even if voter preferences are single peaked!

iii. See class notes for an illustration where, every policy has a non-empty *win set*.
   a. (Def: The win set of policy z is the set of policies which could beat z in a majority rule election or referendum)
   b. Recall that in a 2-dimensional spatial voting model each voter's indifference curves are perfect circles centered on their ideal policies.

iv. As an exercise:
   a. Show a two dimensional issue space where cycling is a problem.
   b. Then show a distribution of voter preferences in which cycling is not a problem (reduces to single dimension).

D. Fortunately for advocates of the median voter model, there is some empirical evidence that voter preferences over policies are (largely) of the sort which can be mapped into a single issue space as single peakedness preferences!

i. (Poole and Daniels find that around 80% of all votes cast in Congress can be explained with one policy dimension (a left/right political dimension)).

ii. The median voter model has a good empirical track record in state and local Public Finance research.

iii. Moreover, a bit of cycling, as suggested by James Buchanan, **may be a good thing** insofar as it allows everyone's ideas to be represented in government at one point or another.