Political analysis and public choice
K. Dowding
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Undergraduate study in Economics, Management, Finance and the Social Sciences
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Introduction

Introduction to the guide

108 Political analysis and public choice is a ‘300’ course which is available on a number of BSc degrees and the Diplomas for Graduates in the Economics, Management, Finance and Social Science (EMFSS) awards offered by the University of London International Programmes. If you are taking this course as part of a BSc degree, you must have already taken course 02 Introduction to economics or 114 Democratic politics and the State.

This course is particularly useful for students wanting a career in politics, policy analysis, the civil service, local government, any career in management or anyone with an interest in these subjects. It is particularly useful for those wanting to further study politics, economics, public administration, policy analysis, public policy or management. It requires a high level of analytical thought and dedication. Sometimes students tell me they find some of the material hard. I reply: ‘So do I, that's because truly understanding the world is hard’. Indeed I believe that if you do not find the material difficult you are probably missing something, and what you will be missing is a deeper understanding of the political world around you.

What this course is about

This course introduces you to the analytic techniques of public choice theory. The topic of the course goes under many different names: public choice, rational choice, political economy, analytic politics, political economics. Essentially it involves a technique for studying political institutions and processes in order to understand better the structural forces that lead to public policy outcomes that different types of institutions lead to. To that end it involves abstracting from those institutions and processes those elements the analyst considers are the most important. Representing those elements in simple models the analyst is able to manipulate the conditions of those elements and see what we should expect to happen. The simple models produce implications usually called predictions or hypotheses. We see how far the real world departs from those predictions using qualitative or quantitative evidence. In that way we can begin to see whether or not our simple models do map fundamental structural forces. The techniques involve going under the surface of politics and political institutions to analyse the structural and causal forces that lead to types of outcomes. For example, veto player theory replaces institutional actors such as president, parliaments and prime ministers with the idea of ‘agenda-setters’ and ‘veto players’ who help structure outcomes. Presidents, parliament and prime ministers are then argued to affect outcomes by the manner in which they take on the agenda-setting and veto player roles. We go under the surface structure of the institutional descriptions to see the forces lurking beneath.

I hope that you enjoy studying this course and it inspires you to delve much more deeply into the techniques described here. The basic idea of the course is to bring to your attention a simple set of techniques. It should show you how very simple ideas and models can illuminate political processes and demonstrate the underlying features of political institutions that might otherwise appear complex and mysterious. In this course we study many of the most fundamental aspects of liberal democracies. We examine the nature of parties, and party competition. We examine the formation and break-up of coalition governments. We examine legislatures and their relationship with the executive. We examine the bureaucracy and its relationship with elected
politicians, and take a brief look at the relationships between different tiers of government. We also examine the basis of politics, the way in which individuals may get together to form groups with common interests that they wish to promote.

Public choice can be a highly technical subject. It can involve advanced mathematical techniques, and is used in tandem with advanced statistical methods. In this course I try to avoid all mathematics, though a few very basic elements of the building blocks are introduced that will allow you to read some of the more difficult material. Rather than using mathematics I try to explain the models using figures and diagrams. You will be required to replicate these figures in your examinations. The only way to learn and understand them is to draw them. So get used to having pencil and paper ready when you are reading this subject guide. I shall explain the intuitions underlying the formal models and arguments rather than delving into all the details. The early chapters of the course introduce elements of the public choice toolkit, including some simple game theory, spatial modelling and one of the most compelling but simplest theorems in public choice. Black's median voter theorem is very simple, but it is an important result we turn to again and again in the course. Later chapters further apply the techniques we have learned to institutions and processes in liberal democracies. The course is exclusively concerned with democratic politics, though the techniques we describe here can be used to study tyranny as well as the relationships that exist between non-democratic social groups, such as families or social gatherings.

While this guide is non-technical, some of the readings do contain more technical material. In reading this material you should not be frightened by the mathematics. Look carefully at the definitions and assumptions. Examine the conclusions and the verbal arguments. If you do this you will come to understand the intuitions behind the models even if you do not fully grasp the proofs.

**Aims**

The aims of this course are to:

- have a working knowledge of public choice theory – its assumptions, ‘tools’ and limitations
- understand some of the core arguments of public choice and their application to political institutions and processes
- be able to apply these arguments and principles to new political situations, institutions and complex political processes in liberal democracies.

**Learning outcomes**

At the end of this course, and having completed the Essential reading and activities, you should be able to:

- show how rational choice models can be applied to political institutions and processes in order to understand their mechanisms
- demonstrate how essentially the same processes may work in entirely different institutional settings
- show how the rational actor model can be applied to any situations involving human action
- explain the function of the important institutions in modern liberal democracies.
Reading and studying advice

Essential reading

The guide is designed to be read and used carefully by the student. Each chapter is self-contained and should provide all the basic elements required for the student to understand the topic and also to be able to answer the questions provided at the end of the chapter, and be able to answer examination questions. Each chapter also contains two types of reading. The Essential reading will provide more detail of the topic. With the exception of Chapter 1, Essential reading always includes some pages or a chapter from:


I recommend that you buy this book as the subject guide has been written with this textbook in mind. It is a comprehensive textbook written by an economist. It is long, at times difficult and covers far more material than is required for this course. However if you read the pages recommended together with this course guide you will be in a good position to understand public choice theory and be able to answer examination questions. I recommend that you do not try to read Mueller from cover to cover, but rather dip into topics as recommended in the suggested reading and also through using its excellent subject index. Note however, that this guide is structured entirely differently from Mueller and not all topics are approached in the same manner as Mueller.

Detailed reading references in this subject guide refer to the editions of the set textbooks listed above. New editions of one or more of these textbooks may have been published by the time you study this course. You can use a more recent edition of any of the books; use the detailed chapter and section headings and the index to identify relevant readings. Also check the virtual learning environment (VLE) regularly for updated guidance on readings.

Further reading

Please note that as long as you read the Essential reading you are then free to read around the subject area in any text, paper or online resource. You will need to support your learning by reading as widely as possible and by thinking about how these principles apply in the real world. To help you read extensively, you have free access to the VLE and University of London Online Library (see below).

Books and articles under Further reading come into two categories. Some are additions to the Essential reading which are especially good or helpful. These are marked with an asterix *. Secondly, suggested Further reading includes all articles and books referred to in the chapter (where these are especially useful they may also be marked with an asterix). Often these are ‘classic texts’ of public choice theory. You are not expected to read all the books and articles under suggested reading, rather they are provided to guide further reading should you want to go further in understanding any given topic.

Where possible articles, rather than chapters from books have been suggested, since through the Online Library they may be more readily available to you. However, the nature of the material, and the need for textbook style simple explanation means that there are many references to book chapters and relatively few to articles. Articles in this field tend to be research-oriented rather than designed for students.
In addition to Mueller – which can be considered the course text – I recommend two textbooks. Both could be read with profit from cover to cover prior to studying this course book.


This book is a good short introduction that can be read from beginning to end with profit. Kenneth Shepsle is one of the leading political scientists in the field.


An even simpler introduction by another leading political scientist and sometime collaborator of Shepsle.

Another useful book is:


It is somewhat idiosyncratic and more philosophical than required for this course, but has useful boxes and definitions for the beginner.

There are other textbooks on the market and wide reading – rather than re-reading the same material over and over – is much to be preferred. It is perfectly possible to fruitfully study this course without using any of the recommended texts. Students should also make use of the internet. All of the technical terms used in this guide and many of the topics can be fed into the Google (or similar) search engines and you will be taken to sites that will define and discuss them. Some sites are more authoritative and accurate than others but triangulating (trying several such sites) usually allows you to be able to estimate which sites are best. Furthermore, several good economics and political science dictionaries exist online and I have found the wikipedia dictionary (http://en.wikipedia.org/wiki/) generally to be good with accurate definitions and interesting discussions.

I have been teaching public choice for many years. Often, early on in the course, politics students struggle to get to grips with the material. They find public choice abstract and sometimes, early on in their course of study, fail to see its relevance to the real world of politics around them. However, by the time the student has reached the end of the course, they are able to see the relevance of the techniques, and are not only able to apply them to the topics on the course, but see their relevance to other topics in politics and in their own social life. Many students have told me that studying public choice has been revelatory to them and, after finishing the course of study, they view the world in a completely new light, with a much greater and deeper understanding of events around them. In part this revelation comes by taking on the public choice or analytic mind set by looking through events and institutions to see the constraints upon people and mechanisms which structure events and outcomes. So if you do struggle through the first few chapters of the subject guide and associated reading, persevere, for the rewards will only arrive by the end of the course of study.

**Journals**

There are a number of political science journals that publish articles that mostly use public choice techniques. These include:

- Economics and Governance
- Economics and Politics
- Journal of Theoretical Politics
Public Choice
Quarterly Journal of Political Science
Rationality and Society

Many of the leading political science journals also carry many articles using public choice and analytical techniques including:
American Journal of Political Science
American Political Science Review
British Journal of Political Science
European Journal of Political Research
European Union Politics
Journal of Politics
Political Organisation

Some economics journals also carry political economy articles relevant to this course of study (although they often use more advanced modelling techniques than those in political science journals).
American Economic Review
European Journal of Political Economy
Journal of Political Economy
Public Economics
Quarterly Journal of Economics

Online study resources

In addition to the subject guide and the Essential reading, it is crucial that you take advantage of the study resources that are available online for this course, including the VLE and the Online Library.

You can access the VLE, the Online Library and your University of London email account via the Student Portal at:
http://my.londoninternational.ac.uk

You should have received your login details for the Student Portal with your official offer, which was emailed to the address that you gave on your application form. You have probably already logged in to the Student Portal in order to register! As soon as you registered, you will automatically have been granted access to the VLE, Online Library and your fully functional University of London email account.

If you forget your login details at any point, please email uolia.support@london.ac.uk quoting your student number.

The VLE

The VLE, which complements this subject guide, has been designed to enhance your learning experience, providing additional support and a sense of community. It forms an important part of your study experience with the University of London and you should access it regularly.

The VLE provides a range of resources for EMFSS courses:

• Self-testing activities: Doing these allows you to test your own understanding of subject material.

• Electronic study materials: The printed materials that you receive from the University of London are available to download, including updated reading lists and references.
• Past examination papers and Examiners’ commentaries: These provide advice on how each examination question might best be answered.

• A student discussion forum: This is an open space for you to discuss interests and experiences, seek support from your peers, work collaboratively to solve problems and discuss subject material.

• Videos: There are recorded academic introductions to the subject, interviews and debates and, for some courses, audio-visual tutorials and conclusions.

• Recorded lectures: For some courses, where appropriate, the sessions from previous years’ Study Weekends have been recorded and made available.

• Study skills: Expert advice on preparing for examinations and developing your digital literacy skills.

• Feedback forms.

Some of these resources are available for certain courses only, but we are expanding our provision all the time and you should check the VLE regularly for updates.

Making use of the Online Library

The Online Library contains a huge array of journal articles and other resources to help you read widely and extensively.

To access the majority of resources via the Online Library you will either need to use your University of London Student Portal login details, or you will be required to register and use an Athens login: http://tinyurl.com/ollathens

The easiest way to locate relevant content and journal articles in the Online Library is to use the Summon search engine.

If you are having trouble finding an article listed in a reading list, try removing any punctuation from the title, such as single quotation marks, question marks and colons.

For further advice, please see the online help pages: www.external.shl.lon.ac.uk/summon/about.php

Examination advice

Important: the information and advice given in the following section is based on the examination structure used at the time this guide was written. Please note that subject guides may be used for several years. Because of this we strongly advise you to check both current Regulations for relevant information about the examination, and the current VLE where you should be advised of any forthcoming changes. You should also carefully check the rubric/instructions on the paper you actually sit and follow those instructions.

At the time of writing this subject guide, in the examination you will be required to answer three questions from 13 set in a three-hour examination. Each answer will require you to write an essay in response to the question posed. The questions are directly concerned with the topics discussed in the course guide, though they are designed to make you think about the topics and techniques and apply them in ways not necessarily directly discussed in the course guide.

While you do not need to understand each topic in depth for your examination, you should prepare for more than three topics. It is quite
Introduction

It is possible that you will not want to attempt to answer the particular question set on each topic, even if you have thoroughly revised for it. Therefore you need to revise more than three topics. Furthermore, sometimes questions might require you to have knowledge of more than one chapter of the course guide. This course of study is integrated and many of the topics are inter-related.

There are many figures and diagrams in this course guide. You are strongly advised to reproduce the relevant figures and diagrams when giving your answers since the figures illustrate and explain more simply, easily and quickly than verbal statements. In order to be able to reproduce these figures under examination conditions you need to practise drawing them on paper both when you read the course guide and during your revision time.

In some examination questions you may be asked to provide empirical evidence or to illustrate your answer with empirical evidence. This course is theoretical and is about modelling political processes and institutions in order to better understand them. We do not require detailed empirical evidence, either quantitative or detailed descriptions. Rather, when asked to provide empirical evidence, you are merely asked to apply the models to some real examples and need only provide the information about those examples sufficient to show that you are capable of applying the models. You may use your own comparative advantage and use examples from your own country or the institutions and politics you have studied on other courses as well as examples drawn from the literature on the reading lists.

When sitting down to do your examination, I advise you to plan all three questions you intend to answer before attempting the first question. Your mind will subconsciously be thinking about your second and third answers even as you are writing your first answer. You should give yourself, say, 15 minutes to plan your three answers, then 55 minutes to write each answer. If you have not finished the first question after 70 minutes (15 + 55 minutes), stop writing and start your second answer (leaving some room to complete the answer). Similarly, stop writing your second answer after a further 55 minutes to start your third answer. If you have time at the end you can go back and complete your first and second answers. The first marks are the easiest to pick up, the marginal (last marks) the hardest. Hence it is best to not spend too long on your first answer even if it is your favourite topic.

Make sure you attempt all three questions.

Remember, it is important to check the VLE for:

- up-to-date information on examination and assessment arrangements for this course
- where available, past examination papers and Examiners' commentaries for the course which give advice on how each question might best be answered.

Revision

When revising for your examination you should look at the sample questions, the sample examination paper, and previous years' examination papers (if any are available). You should then structure your entire revision schedule around answering these questions. Revision should be active and not passive. Simply reading the subject guide, the books and articles, and your own notes will not be sufficient. As you attempt to answer questions when actively revising you will realise there are gaps in
your knowledge. Then is the time to re-read the guide and other materials – in that way you seek out information rather than allowing it to simply glide through your mind. You are much more likely to remember material through this active revision process. Similarly, when first reading the material, draw the figures for yourself, think about applying the arguments to organisations and political situations you know about, and so actively engage in the subject guide rather than simply passively reading it.

**Essay writing**

You are expected to write essays in the examination. An essay should not simply describe what you have read, but engage with the question posed. You need to give your own answer to the question, marshalling the material into a coherent, analytic and logical answer. In order to do that effectively you need to know in advance what your argument is going to be, hence planning is essential. Any marker of your essay or examination will want to know what you are trying to argue immediately and not to have to work it out. Essays are not ‘whodunnits’ or ‘murder mysteries’, you do not have to reveal your answer in the final paragraph. State early on what you intend to show, and then marshal all the material towards producing that conclusion – though of course you might need to discuss countervailing arguments and consider positions at variance from that you wish to demonstrate along the way.

Marks are given for originality but on this course demonstrating a good understanding of the techniques, models and arguments of others is of prime importance.
Chapter 1: Rationality and models

1.1 Reading

Essential reading


Further reading


1.2 Introduction

In this chapter we will examine the role of rationality in analytic public choice. We see that the rationality assumption allows us to produce predictions about human behaviour. Whereas other assumptions might also allow predictability, these assumptions seem generally to be the most efficient ones available. That is why we are able to explain a great deal with relatively simple models. A model is a description of the relationships in which we place our rational actors.

1.3 Aims

This chapter explains the rationality assumption of public choice analysis and the explanatory force of modelling.

1.4 Learning outcomes

By the end of this chapter, and having completed the Essential reading and activities, you should be able to:

- explain what ‘rationality’ means in analytical public choice and apply this definition to specific situations
- explain the role of prediction in explanation
- explain what a model is and the role they play in social scientific explanation
- explain the terms ‘weak preference’, ‘indifference’ and ‘strict preference’
- explain the meaning of a few simple symbols which will be used throughout this text.
1.5 Rationality

A very simple model for understanding someone’s behaviour says that if you witness someone in a situation, and you know their beliefs and desires (and thus the situation as they see it) you can accurately predict their behaviour. Similarly, if you see their behaviour and know their desires then you can predict their beliefs. If you see their behaviour and know their beliefs you can predict their desires. So as shown in Figure 1.1, we have a predictive trilogy of belief-desire-action. Davidson (1963) is the source, but see also Elster (1986).

![Figure 1.1: Predictive triology of belief - desire - action](image)

Beliefs and desires together give us ‘reasons for action’. In analytic public choice they also give us preferences. In revealed preference theory, a person’s actions reveal their preferences. They do so by the belief-desire-action model of prediction. But we need a little more apparatus. We define the following terms and symbols:

**Weak preference**: An individual $i$ weakly prefers $x$ to $y$ when she considers $x$ at least as good as $y$. We represent this relationship by the symbol $\succeq$. So individual $i$ is represented as weakly preferring $x$ to $y$ by $x_i \succeq y_i$.

**Indifference**: An individual $i$ is indifferent between $x$ and $y$ when she weakly prefers $x$ to $y$, and weakly prefers $y$ to $x$: $(x_i \succeq y_i$ and $y_i \succeq x_i)$. This is represented by $x_i \approx y_i$.

**Strict preference**: An individual $i$ strictly prefers $x$ to $y$ when she weakly prefers $x$ to $y$ and does not weakly prefer $y$ to $x$: $(x_i \succeq y_i$ and $\neg (y_i \succeq x_i))$. This is represented $x_i \succ y_i$.

Why do we define ‘weak preference’ first? Think of trying to interpret someone's preferences from very little information. We see individual $i$ choosing $x$ from the opportunity set $\{x, y\}$. If we see this just once, all we can conclude is $x_i \succeq y_i$.

Now suppose an individual is choosing between three alternatives – say a voter choosing between three political parties – $x$, $y$ and $z$. The axioms of rational choice under certainty are:\(^1\)

- **Reflexivity**: For any alternative $x$, $x \succeq x$.
- **Completeness**: For any two alternatives $x$ and $y$, either $x \succeq y$, or $y \succeq x$, or both.
- **Transitivity**: If $x \succeq y$ and $y \succeq z$ then $x \succeq z$.

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\(^1\) These axioms are sometimes given different names and slightly different constructions.
Chapter 1: Rationality and models

- Continuity. For any alternative \( x \), we define a set \( A(x) \) as the ‘at least as good as’ set of alternatives, and \( B(x) \) as the ‘no better than \( x \)’ set. Sets \( A \) and \( B \) are ‘closed’ – which means they include everything in their boundaries. Then if \( x \) is strictly preferred to \( y \) and \( z \) is an alternative close enough to \( x \), then \( z \) must be strictly preferred to \( y \).

We can define individuals’ preference orderings over alternatives when conditions 1–3 hold. When conditions 1–4 hold we can represent their preferences by a utility function unique up to a positive monotonic transformation. What does this mean?

Roughly speaking it means that two different mathematical functions can both represent the same choice behaviour as long as one increases whenever the other one does. Thus any utility function constructed by conditions 1–4 can represent an individual maximising their utility.

It is important to recognise here what these conditions mean and what they do not mean. Utility in this formulation is a completely empty concept. It does not represent anything ‘experienced’ such as ‘happiness’, or ‘satisfaction’ or ‘desire’. It simply represents the behaviour of the person. We assume that the behaviour is going to be consistent – that is when a person strictly prefers \( x \) to \( y \) (written as \( x \succ y \)) then they will always choose \( x \) from the opportunity set \( \{x, y\} \). In other words ‘utility’ does not provide a reason for choosing \( x \) over \( y \). Someone might vote for a conservative party over a radical one for allsorts of reasons – they fear radicalism, they trust the conservative leader and distrust the radical leader and so on. These are the person’s reasons for voting for the conservative party and not the radical one. But the fact they have those reasons means that when they vote conservative (they choose \( x \) over \( y \)) they maximise their utility. A person’s reasons for choosing \( x \) over \( y \) are arguments in the person’s utility function, the function itself simply represents the conclusion of those arguments.

In order to fully use the simple model of belief-desire-action we need to use the axioms of rational choice. They are the consistency requirements needed to be able to interpret someone’s actions in the belief-desire nexus. This is a difficult problem to grasp, but Davidson (1999) and Dowding (2002) discuss this.

1.6 Prediction and explanation

I have been using the term ‘prediction’ in the text above. What does this mean? In the usage here it really means something akin to ‘implication’. When trying to explain some political outcome we describe the situation – that is the set of relationships that actors find themselves in – and use our rationality assumptions to imply some outcome. ‘Prediction’ does not mean ‘prophecy’, though if the causally important aspects of a real world situation are correctly described by a simple model then the model’s implications should tell us what will happen, even if the outcome is in the future. How far we are able to prophasise is something we discuss in the final chapter of this guide.

Explanation and prediction are not the same thing. However, if there are no predictions in a purported explanation then it is not an explanation. Any explanation must make the claim that if the elements held to be explanatory are absent, then that which is being explained would be different in some way. This is another way of saying that any explanation predicts the outcome in the sense of prediction used here.
1.7 What is a model?

I have been using the term ‘model’ so far. In analytic public choice one tries to explain by using simple models. What is a model? It is a representation of something else in the world (think of a toy car). Models in the social sciences are simplified representations of social processes and institutions. They are not usually thought of as being ‘true’ or ‘false’ but rather less or more useful in helping us to understand the world. (A toy car may be used to show a child how real cars can move along a roadway, but not the principles of mechanical engineering that actually drive the wheels as opposed to a gigantic hand pushing it. Furthermore the toy car may or may not be a good replica of a real one, but either way the toy car, itself, is not false.) The simplified representations of the world are designed to abstract (some) important features so we may examine some of their causal effects in theory and try to examine them more closely in reality. We begin to model when we try to put together information into a set of propositions. We start by collecting information about the world and conjecturing about how it fits together in terms of identity and causal relationships. In other words we start to make descriptive and causal inferences. The former is about using observations about the world to draw conclusions about non-observed features of the world. The latter is about explaining the causes of features of the world. We begin to model when we fit these together more precisely.

Models become formal when we represent features of the descriptive model by symbols which we are able to manipulate in order to deductively draw conclusions. When formalising models we face hard choices. We cannot include all the complexity of non-formal models nor the complexity of the full descriptions of reality, let alone the complexity of the world itself. We are forced to simplify and even to assume that relationships between aspects of the world are not as we know them really to be. But in doing so we are forced to back our hunches and layout, in ways that can be inspected, analysed and tested by others, the descriptive and causal inferences we think are important (note, not necessarily the most important, but perhaps in the past given less importance by others than we think they deserve). In doing so we produce models with definite predictions which we can then test in one way or another against data gathered from the actual world. These predictions can be true or false (in the same way that the lessons about how real cars move along a road from a toy car might be true or false).

A formal model has a number of stated assumptions. These may be very difficult to empirically evaluate or may be known to be false, but stating them at least allows for empirical evaluation of both the assumptions, and what is supposed to occur were they true. The implications are deductively produced and hence, if the deduction is formally correct, are known to be valid. Thus one element of debate or conflict is not open to issue. Another theorist may produce a rival model, with different assumptions, and different implications. The derivation of the implications is clear in each case, and the two models may be pitted against each other in empirical tests. Of course, translating the formal model into a statistical test, or testing through the systematic collection of qualitative evidence, is not straightforward. Formal models are determinate in the sense that they produce predictions. Determinate here does not mean that they produce point predictions – many models are stochastic, that is they produce predictions governed by some probability distribution. If a descriptive model is to explain anything it must also produce some predictions.
Appropriate statistical techniques may analyse the relationships between the variables to test the model's predictions, but will always have unmeasurable, exogenous elements. Which model produces predictions most in accord with reality may be open to dispute. This may be because both models have captured some correct descriptive and causal aspects of reality. We may then attempt to capture the weight of the variables in the two models. This may be difficult, but we do have a clearer idea of what we are looking for. Sometimes models are just rivals. They produce different predictions from different assumptions. However, we can learn what we need to look for in a model that has false assumptions. Models of complete information tell us what we can expect to occur if individuals had complete information. Discovering what we can expect to occur if we relax this assumption in different ways tells us which direction we should go in order to find out more about what is happening in the real world.

With formal models the degree to which the assumptions are true, the degree to which the model displays descriptive and causal inference may then, perhaps, be studied through quantitative analysis, or questions may be derived to give us a handle on the causal process through qualitative research. Non-formal models have many unstated assumptions, and because they are unstated they are impossible to empirically evaluate, and it is more difficult to draw out definite predictions. Thus it is much more difficult to choose between competing non-formal models, indeed it is often difficult to decide whether they are competing. If two different models produce different predictions then we know they are competing. But if we are not sure what the predictions are from two models we do not even know if they are competing. They might be the same model. Hence there are advantages to formalising models.

### 1.8 Activities

1. Define rationality as used in analytical public choice.
2. If \( x_i \geq y_i \) and \( y_i \geq z_i \), does individual \( i \) weakly or strongly prefer \( x \) to \( z \)?
3. Buridan’s ass starved to death because he could not choose between two bundles of hay. Why is it wrong to say he was indifferent between them? Assuming the ass did not want to starve, in what sense was his preference ordering irrational?
4. What makes a good social science model? What elements define a model as public choice?

### 1.9 Conclusion

This chapter has set up some simple concepts that we will use later, and explained the basic theory behind what analytic public choice is all about. It has not had much to do with politics. We will get to the politics soon.

### 1.10 A reminder of your learning outcomes

At the end of this chapter, and having completed the Essential readings and activities, you should be able to:

- explain what ‘rationality’ means in analytical public choice and apply this definition to specific situations
- explain the role of prediction in explanation
- explain what a model is and the role they play in social scientific explanation
• explain the terms ‘weak preference’, ‘indifference’ and ‘strict preference’
• explain the meaning of a few simple symbols which will be used throughout this text.

1.11 Sample examination questions

1. What is rational choice? Are most people rational in this sense?

2. What is the difference between utility maximisation and self-interested utility maximisation? Why do many rational choice models use the second assumption despite its obvious falsity, rather than the first?
Chapter 2: The median voter theorem and Condorcet problems

2.1 Reading

Essential reading

Median voter theorem

Condorcet problems

Further reading

Median voter theorem

Condorcet problems

2.2 Introduction

The end of the last chapter discussed simple models. This chapter begins by explaining a theorem which is used in many simple models. There are not many theorems in political science. The easiest and most useful is Black’s median voter theorem. Like all theorems, its proof relies upon its assumptions.

• I state the theorem.
• I then discuss its assumptions.
• I then illustrate the proof.
• I then give some examples of the theorem in application.
• I will then consider what happens when some of the assumptions are relaxed.
2.3 Aims
This chapter explains a simple theorem and applies it to a simple model of party voting.

2.4 Learning outcomes
By the end of the chapter, and having completed the Essential readings and activities, you should be able to:
- demonstrate the median voter theorem, show its limits in specific situations, and illustrate your explanation with appropriate diagrams
- explain the importance of its assumptions
- explain the Condorcet cycle, and illustrate your explanation with appropriate diagrams
- construct cycles in two-dimensional issue space
- demonstrate just how powerful even simple models can be.

2.5 Median voter theorem
Black’s median voter theorem. If all voters’ preferences are single peaked on a single dimension then the bliss point\(^1\) of the median voter is a Condorcet winner.

Comment. The theorem tells us that, given its conditions, there is a unique majority winner of the voting game and that winner is the median voter.\(^2\) The median voter is the person in the middle of the distribution on the single dimension.

First what is a ‘Condorcet winner’? Named after the Marquis de Condorcet (1743–94) a Condorcet winner is the alternative that beats all others in pairwise majority votes. If there are only two alternatives then the winner is always a Condorcet winner. We’ll see what this means when we work through the theorem.

Second we will consider the assumptions: All voters preferences are single peaked on a single dimension.

Single dimension. In spatial modelling, there might be multiple dimensions. It is easiest to first think of one dimension. Think of it in traditional political terms of a Left-Right ideological dimension. This can be represented by a single line pictured as in Figure 2.1. On the line representing the Left-Right ideological dimension, five points (a–e) have been marked. Consider these to be the ideal or ‘bliss’ points of five voters. The theorem tells us that \(c\) is going to win.

![Figure 2.1: Preferences in one dimension](image)

All voters’ preferences are single peaked. We can represent these ideal points as the top preference of each voter. In Figure 2.2 we represent the bliss points of voters \(V_i\) and \(V_j\). We can see their bliss points marked on the \(x\) axis again, but their utility for each of the alternatives is shown on the \(y\) axis. The utility of each voter descends from their bliss point. We can

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\(^1\) An agent’s bliss point is her ideal point in policy space. To move away from the bliss point is to move to a less preferred policy.

\(^2\) Strictly speaking my definition of the median voter theorem is only true where there is an odd number in the electorate. Where the number is even there is a range of winning points between the \(n/2\) and \((n + 2)/2\)th voter’s ideal points.
see that this gives a single ‘peak’ for each voter. Hence they have single-peaked preferences.

Figure 2.2: Single-peaked preferences

Now we can illustrate the theorem. Taking the three voters in Figure 2.2, imagine pairwise votes between the bliss points of each voter. We can see that $c \succeq b$ because $V_j$ and $V_k$ strictly prefer $c$ to $b$ and $c \succeq d$ because $V_j$ and $V_i$ strictly prefer $c$ to $d$. We represent their votes in Table 2.1.

<table>
<thead>
<tr>
<th></th>
<th>$V_i$</th>
<th>$V_j$</th>
<th>$V_k$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Preference</td>
<td>$b$</td>
<td>$c$</td>
<td>$d$</td>
</tr>
<tr>
<td>2nd Preference</td>
<td>$c$</td>
<td>$d$</td>
<td>$c$</td>
</tr>
<tr>
<td>3rd Preference</td>
<td>$d$</td>
<td>$b$</td>
<td>$b$</td>
</tr>
</tbody>
</table>

Table 2.1: Single-peaked preferences

Thus we can see that the bliss point of the median voter beats all the others in pairwise votes when there is a single ideological dimension. That is why it is the Condorcet winner. Figure 2.2 shows this for three voters, but you can easily see how to extend this for the five voters in Figure 2.1. It is easy to show for any odd number of voters. (Question: What would happen if there were an even number of voters?)

How interesting is this result? One might feel that the assumptions are so strong that the theorem never applies anywhere. And it is true that in the real world the theorem often only applies ‘roughly’. But as we shall see the theorem is used again and again in this subject guide in many different contexts. It is used, for example in the Hotelling-Downs model of party competition (Chapter 3); in the context of the structure of decisions in legislatures (Chapters 5–6); in coalition theory (Chapters 4 and 6); and in executive-legislative-bureaucratic relations (Chapters 12–14). How important you find the theorem will depend on how interesting and useful you find those models.

2.6 Relaxing the assumptions

The context. The demonstration of the theorem relies upon the alternatives being pitted against each other in pairwise votes. What if we simply have a plurality vote for each alternative? Our three voters would each vote for their most preferred alternative. $V_i$ would vote for $b$, $V_j$ for
c and $V_i$ for $d$. There would be a tie. In real life such a tie might lead to a coin toss so any of the alternatives might win. However, the Condorcet winner is often seen as the compromise. After all, if $V_i$ so feared the possibility of $d$ should a tie result, he might vote for $c$. Similarly for $V_j$ fearing $b$. Indeed, if we ignore the median voter $V_j$ the equal compromise position between $V_i$ and $V_j$ is still point $c$. We see this in Figure 2.3.

**Figure 2.3: Splitting the contract curve**

The line between point $b$ and point $d$ is the contract curve between $V_i$ and $V_j$. A contract curve exists between a set of deals where it is not possible to improve one bargainer’s pay-off without reducing the other’s pay-off. Where we represent bargainers preferences in Euclidean space as in these figures, the contract curve is the shortest line between the bliss points of two bargainers. Other things being equal any agreement will lie on that contract curve. So if $V_j$ and $V_j$ needed to compromise to reach an agreement and neither can sustain a strategic advantage, their equal division point lies at point $c$.

**Non-single peakedness.** The median voter theorem also may not hold if voters do not have single-peaked preferences. In that case a Condorcet cycle might result and the median voter theorem would not hold. Consider Figure 2.4.

**Figure 2.4: Non-single-peaked preferences**

Here one voter, $V_i$, does not have single-peaked preferences. The preference ordering is given on the right of the figure. We can see that in pairwise votes, $a$ beats $b$; $b$ beats $c$; and $c$ in turn beats $a$. This gives the social choice cycle: $a \succ b \succ c \succ a$. This breaks one of the consistency axioms of rational choice – transitivity – defined in Chapter 1. For that reason such results are sometimes described as collective irrationalities. Note however, that each of the individuals is rational according to our definition. Their preference orderings are all transitive. It is better to say that when a Condorcet cycle occurs, we are not able to predict the outcome.
There is a general result Arrow’s Theorem (from its author Kenneth Arrow), which shows because of such Condorcet problems any way of aggregating preferences – such as a voting mechanism – can be unpredictable or arbitrary in this manner. We do not delve further into that result in this subject guide (but see Riker 1984, Dowding 2007) for further discussion.

In Chapter 3, we see how other institutional conditions might not hold leading to deviations from the median voter theorem.

**Multiple dimensions.** Once we move away from a single ideological dimension into multiple issue dimensions then the median voter theorem becomes inapplicable. Consider Figure 2.5.

![Figure 2.5: The Pareto set of X, Y and Z](image)

Here we have two issue dimensions: foreign policy and social policy. We mark the bliss points of three agents (say political parties) X, Y and Z. We have drawn three contract curves between each of the parties which might lead them to a majority compromise at point $X_Y$ for parties X and Y; $Y_Z$ for parties Y and Z; and $Z_X$ for parties Z and X. Each of those three majority compromise positions might sustain an agreement within the legislature. However each is unstable as shown in Figure 2.6.

![Figure 2.6: Winsets of ZX](image)

In Figure 2.6 we have marked the bliss points of the three parties once more and assume that $ZX$ is the compromise majority which has formed between party X and party Y. The three circular lines are indifference curves. An agent’s indifference curve marks the possibilities between which the agent is indifferent. Hence each party is indifferent between point $ZX$ and all the points on their indifference curve in the two dimensional issue. The curves are circular around the points $X$, $Y$ and $Z$ because we assume the preferences in issue space are Euclidean – meaning
that a movement of the same distance in any direction is of equal value to
the agents. Any point between the indifference curve and the agent’s bliss
point (usually said to be ‘inside’ the indifference curve) is preferred by the
agent to any point on it or outside it. The two hatched ellipses therefore
show points in issue space that \( X \) and \( Y \), and \( Y \) and \( Z \) respectively prefer
to \( zx \). The ellipses are called ‘win sets’ with respect to \( zx \), since the points
inside them beat \( zx \). Thus point b is one possible deal that party \( Y \) could
offer to party \( X \) to break up coalition \( zx \).

However, if parties \( X \) and \( Y \) do agree a coalition at \( a \), then that is subject to
the same instability we saw with point \( zx \). In other words, we have created
a cycle in two dimensions. We will come across these cycles again in later
chapters and learn more about them. We will also see that we might be
able to resurrect the median voter theorem to defeat them.

2.7 Questions and activities

The only way to understand figures such as Figures 2.4 and 2.5 is to draw
them.

![Diagram](image)

**Figure 2.7: What are the winsets at \( a \)?**

1. Draw Figures 2.5 and 2.6 for yourself until you understand what is
   happening in them.
2. Reproduce Figure 2.7 and show to your satisfaction how \( zx \) can be
   broken up by \( Y \) at point \( \alpha \).
3. Reproduce Figure 2.7 and show how \( zx \) can be broken up by \( Y \) at some
   point \( \beta \) (you decide where it goes) in the YZ winset.
4. Now show how \( \beta \) and \( \beta \) could be broken up by \( Z \) and \( X \) respectively.
5. Prove the median voter theorem.
6. Over three alternatives \( x \), \( y \) and \( z \) from left to right how many different
   ways could three voters’ preferences be non-single-peaked? (Write
   them out and show them graphically.)

2.8 Conclusion

This chapter has explained the median voter theorem. It has examined
some conditions under which it is inapplicable. It has explained how we
might represent politics in a single ideological dimension and in several
issue dimensions and the different consequences that might result. The
theorem will be used in later chapters, and we will also be returning to the
problems we have seen in multiple issue dimensions several times in this
subject guide.
2.9 A reminder of your learning outcomes

Having completed this chapter, and the Essential readings and activities, you should be able to:

- demonstrate the median voter theorem, show its limits in specific situations, and illustrate your explanation with appropriate diagrams
- explain the importance of its assumptions
- explain the Condorcet cycle, and illustrate your explanation with appropriate diagrams
- construct cycles in two-dimensional issue space
- demonstrate just how powerful even simple models can be.

2.10 Sample examination questions

1. Give a definition of single-peaked preferences where preferences are strong. Give an example where at least one person does not have single-peaked preferences and show, using diagrams, why your example has no equilibrium for two-party competition without abstention.

2. Explain the median voter theorem. Explain under three sets of different conditions why it might not hold for a particular voting situation.

3. Discuss the assumptions required for the median voter theorem to hold. Under what circumstances does a non-symmetric preference distribution imply a non-median outcome?

(Hint: You will need to have read and understood Chapter 3 before being able to fully understand and answer this question.)
Chapter 3: Two-party competition

3.1 Reading

Essential reading


Further reading


3.2 Introduction

This chapter explains two-party convergence in the Downs-Hotelling model. It examines conditions under which convergence may not take place. The model is one of the better known public choice models.

3.3 Aims

This chapter examines a simple model of two-party competition that has dominated the public choice literature. It explains why the policies of two parties in two-party competition are likely to resemble each other, and examines the conditions under which they might diverge.

3.4 Learning outcomes

By the end of the chapter, and having completed the Essential reading and activities, you should be able to:

• demonstrate under what conditions two parties will converge on the median voter, and illustrate your demonstration with appropriate diagrams

• demonstrate the various conditions under which two parties will not converge on the median voter and illustrate your demonstration with appropriate diagrams

• demonstrate the difference between abstention due to indifference and abstention due to alienation

• show how these principles can be applied to one-dimensional conditions not covered in this chapter

• demonstrate how these principles transform where knowledge is not certain.
3.5 The Downs-Hotelling model of two-party competition

Figure 3.1 represents a single ideological dimension along the $x$ axis. The $y$ axis represents the number of people whose bliss point is a particular point on the ideological dimension. The figure represents a normal distribution where the bulk of people cluster around the mid-point with left and right radicals tailing off at each end of the distribution. The position of the median voter(s) $m$ and that of the two parties: a left-wing party $P_L$ and a right-wing or conservative party $P_C$ have been marked. In this two-party system, with a plurality (or simple-majority vote) imagine that everyone votes and they vote for the party that is closest to them in ideological space. So the hatched region of voters will vote for $P_L$ and the dotted region for $P_C$. Each party will gain equal votes. By the median voter theorem, whichever party gets the vote of the median voter will win the election. We can see that if either party moves marginally towards the median voter (in the direction shown in the arrows), it will gain votes at the expense of the other party. If both parties locate at the median voter they will draw (or given the median voter can only vote for one of them who wins will be down to chance). However, if parties cannot locate precisely where the other locates then the party that locates itself precisely at $m$ first will win the election.

Figure 3.1: Convergence with normal distribution of APP curve

What happens if there is a bimodal distribution as in Figure 3.2? By the assumptions given here, the median voter theorem still operates and the two parties should locate at point $m$. This may seem counterintuitive. But that might be because in real life the assumptions of the theorem do not always hold. You might imagine the two parties should locate at the points $P_L$ and $P_C$. How might that happen?

Figure 3.2: Convergence with bipolar ADP curve
First there might be abstention due to indifference. If parties get too close together, they both converge on the median voter, and people might not think there is any point voting since both parties will have almost identical policies. Party convergence in real life may indeed be one of the causes of lower turnouts in elections in recent years. Second, there might be abstention due to alienation. Voters might not want to vote for a party that is ideologically ‘too far away’. In Figure 3.1, neither relaxation of the model assumptions affect party convergence on the median voter. But in Figure 3.2 it might do, as the parties may lose more votes as they move to the centre than they gain. But note: if one party could gain the median voter’s vote by edging just towards \( m \) from the peak of their natural supporters’ votes without losing any of their supporters, then they will win the election. In other words, even though there may not be median voter convergence, the logic of the median voter theorem still holds.

In real life parties may feel pressure to keep their ideological distance so as not to alienate their natural supporters. But they also feel the pressure to converge as explained in the median voter theorem.

3.6 Divergencies from the median voter

Look at Figure 3.3. Here a plurality voting system is represented, but now with three parties: the left and right parties \( P_L \) and \( P_R \), but also with a centrist ‘median’ party \( P_M \).

In this situation party \( P_M \) is located closest to the median voter. Though both \( P_L \) and \( P_R \) will take votes from halfway between the position of \( P_M \) and their own positions. (Try drawing this on the figure for yourself.) Each party will gain votes equivalent to the area between the lines you have drawn. As drawn you will see that \( P_L \) will gain fewer votes than \( P_M \) but more than \( P_R \). However, the parties do not need to locate themselves here. Both \( P_L \) and \( P_R \), following the logic of the median voter theorem, can track towards the median voter squeezing the centre parties support. In theory we might well end up with a two-party system.

![Figure 3.3: Normal distribution with three parties](image)

Now imagine that the parties cannot shift their position relative to each other (that is the left-wing party cannot become more centrist than the median party, or the median party more right-wing than the conservative party). What will happen? If party \( P_M \) does not move, \( P_R \) cannot locate at \( m \) and \( P_L \) can move over to nestle against \( P_M \) ensuring a large majority at every election under that distribution of preferences.

Now consider Figure 3.4. It shows three separate electorates. The main figure is the general electorate. The two smaller electorates marked are
members of the two parties. Each party votes for a leader to take them into the general election. Again assume everyone who can vote, votes in those elections for which they are eligible and votes according to their bliss point.

![Figure 3.4: Party members within electorate](image)

In order to win their internal party battles, party leaders locate at the median of their party electorate. But this will ensure they are far from the median in the electorate as a whole. In order to ensure victory at the general election the leaders must shift their appeal more towards the median of the general electorate. For this reason it is not surprising that commentators often suggest that a new party leader is more radical (left, right, nationalist or whatever) than his predecessor, but then moderates having secured the leadership.

### 3.7 Probabilistic voting models

In all of the models considered so far the decision to vote for one party or another has been deterministic. That is, the spatial location of the policy position of the party and the spatial location of the individual voter themself is known to both the voter and the party. The parties can locate themselves to attract the median voter, and the voters are in no doubt about the spatial location of the parties in relation to their own preferred policies. In reality of course, neither location is so assured. Ideological spatial location is derived from issue location over a set of policy areas. Voters’ own position has to be reconstructed from the views they have on a basket of policies and they may not all locate themselves where a political scientist studying their views might place them. Similarly as Downs points out (see Chapter 11) the parties give out different signals to try to attract as many voters as possible. So, for example, the signals they give to people who care about the environment may not be the same as those who lobby government on behalf of road users. So it is difficult to precisely locate the policy position of any party. One implication from this lack of determinate position is that the parties may not converge in quite the manner Downs predicts.

In determinate models if one party moves slightly leftwards or rightwards then some voters will automatically switch their votes to another, closer party. Slight movements could cause massive switching of votes. However, if voters are unsure of party location, then slight movements in location might have little or no effect. Each voter will locate a party at a given point with some probability and movements of parties will affect their voting for each party only with some probability. The parties may not converge since they are unsure where the median voter is, and shifting their ideological position may not impact on expected voting immediately if at all. Figure
3.5 illustrates how parties may not converge for these reasons in a single dimension.

Figure 3.5 shows a range of possible locations for each of the two parties and a range of possible locations for a single (median) voter. The positions $P_L$, $P_R$ and $V_M$ marked on the horizontal axis give the true position of the left and right parties and the median voter respectively. Around that point is marked the range that each party and voter locates the others, with the normal curves above the range representing the probability that a voter will locate a party at that point on the range and thus the probability of voting for them. Although neither party is located at the median voter, we can see that the median voter could vote for either party, even if there was a party located at the median.

**Figure 3.5: Probabilistic location in one-dimension**

We will not study probabilistic voting models on this course. They have largely been developed in multi-dimensional settings with the aim of showing that the chaotic results of multi-dimensional deterministic models are less likely to occur with parties settling down at positions located efficiently. You should note however, that probabilistic voting does weaken the predictions of the median voter theorem in these contexts. Probabilistic voting means that parties may not converge, though the forces identified by the theorem (convergence on the median voter) still operate to ensure the parties do not ideologically distance themselves too far away from the median voter.

### 3.8 Questions and activities

1. Draw Figures 3.1 and 3.2 for yourself. Satisfy yourself that the parties will be drawn towards the median voter.

2. Draw figures with different types of aggregate distribution of preferences curves. Does any shape not lead to median voter convergence?

3. Now explain why different types of abstention may lead the parties not to converge in the manner you explained in the answer to question 1.

4. Explain how a centrist party can be squeezed by two other parties.
5. How does Downs explain the fact that the party that gains the median voter is not always 'squeezed' from the left and the right?

6. What will happen if parties can 'leap over' each ideologically? (That is left wing parties can become more right wing than right wing parties and vice versa.)

### 3.9 Conclusion

We have applied the median voter theorem to two parties competing in a single ideological dimension. Using also the Downs-Hotelling model, we see why there are pressures upon parties to converge on the median voter. We see that where the position of the median voter is uncertain, convergence may be imprecise and the parties stay apart. We also examined some other pressures on the median voter theorem due to different types of abstention.

### 3.10 A reminder of your learning outcomes

Having completed this chapter, and the Essential reading and activities, you should be able to:

- demonstrate under what conditions two parties will converge on the median voter, and illustrate your demonstration with appropriate diagrams
- demonstrate the various conditions under which two parties will not converge on the median voter and illustrate your demonstration with appropriate diagrams
- demonstrate the difference between abstention due to indifference and abstention due to alienation
- show how these principles can be applied to one-dimensional conditions not covered in this chapter
- demonstrate how these principles transform where knowledge is not certain.

### 3.11 Sample examination questions

1. Apply the Downsian model of two-party competition to a country of your choice.

2. Imagine a single-dimensional electoral battle between two parties. Explain why we might expect the parties to converge on the median voter. Explain the conditions under which different types of abstention will cause the parties not to so converge.

3. Explain the median voter theorem under certainty. Explain what might happen if the positions of the parties and the voters are uncertain.