1. Introduction to Political Economics

Economic policies differ widely across countries and – within the same country – even over time. In 2014, within developed countries – in particular among those belonging to the OECD (Organization of Economic Cooperation and Development) – government expenditure ranged from less than 40% in the US to almost 60% in Finland. Large differences also emerged in the size of welfare transfers, with social benefits below 15% in the US, but almost 30% in France. Economic investments by the public sector were between 4% and 6% of GDP in most OECD countries, but below 3% in Spain. Further large differences may be appreciated in economic policies related to the welfare state, such as the generosity and the design of the unemployment insurance system, the degree of employment protective legislation (EPL) (which regulates the obligations relating to employees' rights, and the size and the design of social security systems. Among the economic policies not directly related to the welfare state, large variations can be found across countries and over time in monetary policies and public debt management.

The many tools provided by economic theory generally fail to offer a complete and satisfactory explanation for these wide differences. Particularly in public economics, the aim is often to provide normative statements. The aim is to design the most efficient policies for different economic contexts in order to enhance the economic welfare of society. Economic theory is less successful at presenting positive explanations for the observed economic policies and their differences across countries.

Yet, a recent stream of economic literature has devoted a large attention to the analysis of these differences and to the decision-making processes behind public policy. This new stream of literature goes under the name of *political economics*. Its distinctive aim is to provide an explanation of the observed public policies – particularly economic policies, and to evaluate how these policies are influenced by political factors. Its starting point is to recognize that economic policies do not need to be efficient to be adopted. In other words,

economic policies need not to increase the economic well-being of every individual in society, but rather to obtain enough political support to be adopted by the policy-makers and by the legislative body. Hence, labor market reforms need not to increase the well-being or the employment prospects of all current or potential individuals in the labor market. Rather, they have to be supported by crucial political players, such as voters, lobbies or "veto" players – for instance, trade unions and firms' representatives. This political support makes their implementation expedient for elected policymakers, such as the Ministries of Labor and of Finance, who seek re-election.

This chapter describes this new *political economic* approach, by exploiting its similarities with the economic approach. Individuals are examined in a double role: they are both economic and political agents. Hence, they have preferences over economic outcomes, which guide their economic decisions but also on political outcomes. These individual preferences determine their political behavior. Methodological tools are introduced to explain how the political process converts the individual preferences of each agent over a given public policy – for instance, the level of redistribution – into aggregate preferences. These aggregate preferences characterize the will of society as a whole, and eventually lead to an outcome, consisting of the implementation of a public policy. In this chapter, particular emphasis is placed on political institutions, where individual preferences are aggregated. The most common mechanism that aggregate preferences are elections. As we will discuss in later chapters, the specific characteristics of elections, such as electoral rules, will be crucial in determining political aggregation and hence public policy.

The goal of this book is to apply the *political economic* approach to the analysis of redistributive policies in several OECD countries. We aim to provide a positive explanation of the differences observed in the size, design and development of the programs that compose the welfare state systems in OECD countries. Why, for example, do Spain and the UK protect their workers against the risk of being unemployed using different combinations of employment protective legislation and unemployment benefits? Why is the Italian welfare state composed almost entirely of pension benefits, whereas Scandinavian countries dedicate a much larger amount of public resources to active labor marker policies? These are the type of questions we aim to answer in the following chapters by adopting the political economic approach, and introducing specific methodological tools. The initial analysis will be based on political institutions – simple majority voting elections or lobbying – to aggregate individual preferences into a policy outcome. We shall examine whether differences in the economic and demographic scenarios induce different preferences in the electorate of the OECD countries, which translate into different economic policies. At a later stage, we shall argue that the unexplained differences in the size and the design of the welfare states in these countries, having ac-

counted for the demographic and economic differences, may be due to the existence of different political institutions.

1.1 The Political Economic approach

Individuals make economic choices. Every day, they select goods to consume and services to use, they choose how much to save for future consumption, they select asset holdings in their portfolio or perhaps they decide to delegate these portfolio decisions to an economic advisor or a financial institution. Indeed, several economists – notably the Nobel Prize winner Gary Becker – suggest that economic motives are so pervasive in families' lives to be behind such important decisions as who to marry, how many children to have, where to live, whether to migrate or not, and whether an individual becomes a criminal, a drug deal or a suicide bomber (Becker, 1981).

For the purposes of this section, the relevant aspect to highlight is that most of these economic decisions are affected by public policies. Consider an individual deciding how to allocate his resources among different assets. Clearly, this agent will consider economic factors in selecting his portfolio, such as the risk profile of different assets, their expected returns, their duration and the co-variance among these assets, and with his own level of human capital. All these elements are determined in the financial markets, and the government – or the public sector at large – does not need to influence the working of these markets. Typically, however, the returns from these assets are taxed. The public sector intervenes by imposing a capital income tax on these returns, often distorting portfolio decisions. For instance, assume that among these assets there is a government bond, whose returns are not taxed. Clearly, this bond would be more attractive, and would hence be in demand thanks to its special fiscal status. Economic decisions are thus influenced by public policy. In this particular example, fiscal policy matters.

Analogously, retirement decisions are strongly affected by the pension system's design. Generous pensions for individuals who retired before reaching normal retirement age were very common in many European countries. Several studies – for example, Gruber and Wise (1999 and 2004) – show that individuals reacted rationally to incentives provided by the pension system, and retired as soon as they were entitled to. Again, a public policy – the design of the retirement incentives in the pension system – had a large impact on individuals' economic decisions.

Public policies may modify individuals' well-being even when agents do not change their economic decisions. A policy awarding a monetary transfer to people living in a particular geographical area increases the resources of its in-

habitants, whose economic well-being will hence improve, but it does not produce relevant changes in their economic choices.[1]

These examples suggest that, as public policies influence individuals' well-being and may modify their economic decisions, individuals will care about these policies. To put it differently, they will form an opinion and have preferences over these public policies. For instance, low income workers will welcome redistributive policies that provide them with additional resources, whereas high income workers will oppose policies from which they stand to lose.

A crucial message of political economic literature is that the adoption of public policy depends on the preferences of individual agents. As suggested before, and displayed in Figure 1, economic agents form their preferences over a public policy according to the policy's impact on their economic well-being. This information becomes clear in the markets. When selecting portfolios, for example, individuals evaluate the net return – after taxes – from different assets, and assess how the existence of a tax-shielded bond affects their economic well-being.

Typically, individual preferences for a public policy differ depending on the impact of the policy on each individual's (economic) well-being. Indeed, even policies that unambiguously enhance economic efficiency may have redistributive effects.

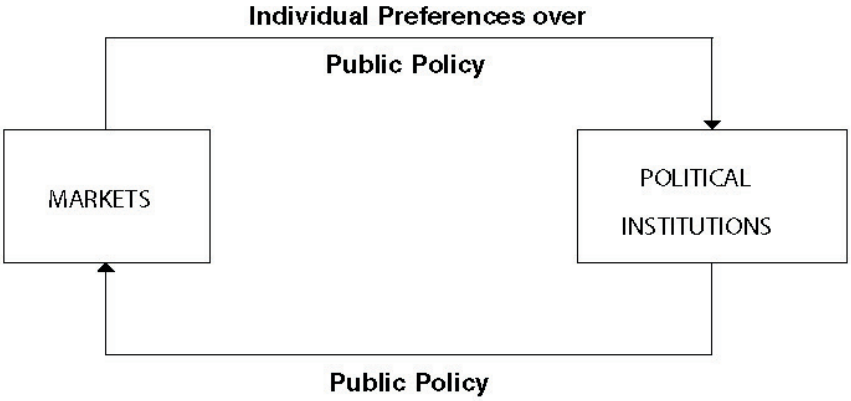
How are these individual preferences converted into a public policy? According to the political economic literature, there are several political institutions through which individual preferences are converted into aggregate (or societal) preferences, and eventually into public policies. In this chapter, we shall concentrate on elections, although several others political mechanisms have been studied in the literature. Individuals convey their preferences in elections, either directly through referenda (e.g., in Switzerland and in California), or by appointing their political representatives. Public policies will depend on the outcome of the election, and will coincide with the winning proposal, in the case of referenda, or with the policy decided by the winning candidate in a representative electoral system.

Once public policies are implemented, economic agents react by adjusting their economic behavior, and hence the market equilibrium may change. As displayed in Figure 1, this behavior closes the circle from economic markets to political institutions and back to economic markets.

Thus, the novelty of the political economic approach is to consider every individual in a double role as an economic and political agent. As economic agents, individuals take consumption, labor, saving – that is, economic – decisions, while considering the public policy as exogenously given.

[1] Clearly, this policy may induce other individuals to move to this region to cash in on the transfer.

Figure 1: The political economic approach

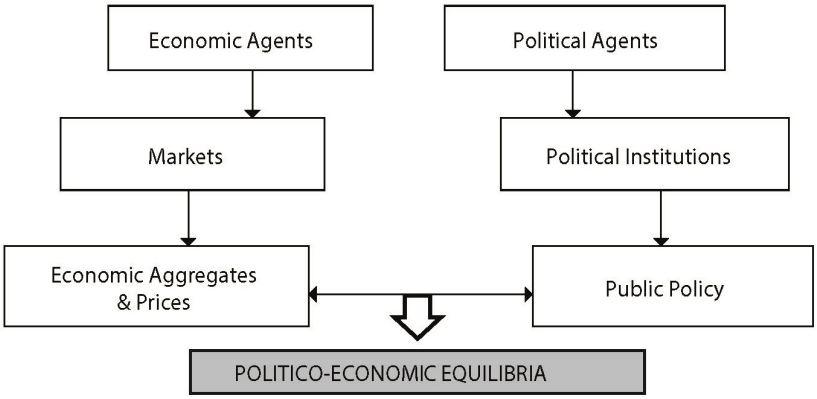


As political agents, they express their preferences to determine those public policies, which they had regarded as exogenous given, when they took their economic decisions.

The economic behavior in this two-sided analysis is displayed on the left of Figure 2. In choosing their optimal economic actions, agents understand that their individual action does not modify the existing economic and political situation, which has to be taken as given. Hence, in their economic behavior, tax payers do not try to change the tax system. Instead, they try to take advantage of any loophole to reduce their tax bill. Analogously, middle-aged individuals do not question, or try to amend, the design of the pension system. At most, they attempt to calculate when it is optimal – from their individual viewpoint – to retire. They calculate whether it is convenient to work one more year to increase their pension benefit, or to retire and enjoy a generous early retirement pension as well as leisure time. All these individual economic decisions, which create the demand and supply, determine the equilibrium prices and quantities in economic markets for exogenously given public policies. The individual behavior of the tax payers will thus determine the total amount of fiscal revenues. The interaction of the labor demand – by each single firm – and of the labor supply – by each worker –determines the equilibrium wage and employment rate, given the labor market policies, such as the level and duration of unemployment benefit, the degree of employment protective legislation, the tax rate on labor income and the payroll taxes levied to finance the welfare state.

The political behavior in this two-sided analysis is displayed on the right of Figure 2. As political agents, individuals express their preferences over public policies. Individuals' preferences depend on how the policy affects their utility or well-being.

Figure 2: Politico-economic equilibria



Low income workers, who are the net winners from redistributive policies, clearly express their support for this type of policies, whereas high earners oppose them. Individuals' preferences over public policy are characterized by the indirect utility function. This indirect utility function is obtained in two steps. In the first stage, corresponding to the left side of the analysis, an individual optimizes with respect to the economic variables. The utility function is therefore maximized with respect to the economic variables (such as savings and labor supply), and the optimal values of these economic variables are obtained as a function of the public policy. In the second stage, the indirect utility function is obtained by substituting these optimal values back into the original utility function. The indirect utility function thus depends on the public policy only. Its interpretation is straightforward. The indirect utility function expresses the individual preferences over public policy when the economic decisions at the individual level have already been taken. Hence, in expressing their views over the public policy in the political arena (e.g. in elections or through lobbying), individuals will first determine their most preferred public policy by maximizing their indirect utility function with respect to this policy.

There is a clear asymmetry in the economic and political behavior of individuals. In their economic decisions, agents understand that their individual action will not modify the existing economic and political scenario, which is therefore taken as given. This is because each individual is too small – too atomistic – to affect the economic aggregates. But in the political arena, individuals can be more powerful. If an individual is pivotal in an election – that is, he is among the few voters who determine the outcome– he may expect his most preferred public policy to be adopted by politicians, who seek to secure his pivotal vote to win the election. In this situation, the pivotal voter will act as a

"monopolist" of the public policy. In choosing his most preferred policy, he will consider that, if his policy is chosen and implemented by the politicians, it will modify the economic and political context for everyone. For instance, if a low income worker is the pivotal voter in an election, he may expect politicians to implement a highly redistributive policy. This policy will affect all workers, including those with a high income, and the whole economy, as a distortion due to taxation will emerge.

After markets have aggregated individual economic decisions, and political institutions have aggregated individual preferences over public policies, a complete description of the economic and political scenario emerges. It is this combination of economic choices and political decisions over public policy that represents the distinctive mark of the political economic approach.

1.2 Political Institutions

The political behavior illustrated in the right part of Figure 2 depends on the behavior of political institutions. Suppose that, after individual preferences over a public policy are formed, all political institutions generate the same policy outcome. In other words, suppose that – given individuals' preferences – the public policy would be invariant to the type of political institution used to aggregate these preferences. As such, the political institution would be neutral. It would have no impact on the process of preferences aggregation and ultimately in determining the public policy. We would not need to examine political institutions, as they would play no role.

Yet, things are not so simple. Political institutions do play a role. In fact, – for a given set of individuals' preferences – the political institution used to aggregate these preferences shapes policy outcomes.

This is an old result. In 1951, in his famous 'Impossibility Theorem', Ken Arrow showed that political institutions are not neutral, as no desirable political mechanism is able to aggregate individual preferences consistently. More specifically, Arrow's 'Impossibility Theorem' stated that there is no democratic mechanism that allows individual preferences to be aggregated in a consistent way, that is, so that the properties of (i) Rationality; (ii) Unrestricted Domain; (iii) Weak Pareto Optimality; and (iv) Independence are satisfied.

The first property – rationality – requires aggregate preferences to be complete and transitive. The political mechanism has to able to compare and rank all possible outcomes of the public policy; this raking has to be transitive so that if A is preferred to B, and B is preferred to C, then A has to be preferred to C.

The second property demands that the political institution can accommodate any individual preference. Hence, for any configuration of individual

preferences over a policy – however irrational they may seem – the mechanism has to be able to produce an aggregate decision: a policy outcome.

The third requirement is highly intuitive: if every individual weakly prefers A to B – that is, if individuals either prefer A to B, or they are indifferent between A and B, and no individual prefers B to A – then the mechanism has to rank A over B.

Finally, the fourth property requires the mechanism to concentrate on the issues at stake. If the decision is between alternatives A and B, the individual ranking (or preference) over a third alternative C should not matter in determining the policy outcome between A and B. For example, the ranking between social security and health spending should not depend on how individuals rank these two expenses relatively to a third alternative – say, defense spending.

As we shall see in the next section, to comply with the 'Impossibility Theorem', the political economic literature typically drops the unrestricted domain feature, as individual preferences are often required to be single-peaked.

As an example of this theorem, we examine the policy outcome under different – albeit relatively similar – political institutions, for a given set of individual preferences over a public policy. The aim of using this simple example is to show that, for a given initial set of individual preferences, different policy outcomes can arise, depending on the political institution that aggregates individual preferences. We concentrate on a simple class of political institutions: elections. We exploit different timing of votes and types of vote-counting in elections. We begin with a simple majority voting election. We then compare its result – in terms of policy outcome – with an agenda setting election, in which the sequence of voting over different alternatives is a factor, and with a "Borda" election, in which each individual can vote for more candidates, assigning a different number of votes to each one. This allows individuals to express the intensity of their preferences.

In this chapter, we assume that individuals vote sincerely, according to their true preferences over the public policy.[2]

In our policy example, we consider 7 voters – we define them as voter 1, 2, … and 7 – and 4 alternatives, characterized by A, B, C and D. The voters could be seven ministers in a committee – each member with one vote. The alternatives may be the level of public spending in education or health care (and hence the tax revenue needed to finance public spending). In this case, A may represent no public spending, B low spending, C medium spending and D high spending. The ministers' individual preferences are displayed in Table 1; the alternative at the top represents the most preferred policy, while the alternative at the bottom the least preferred.

[2] In close, small elections, individuals may decide to vote strategically. For instance, they may choose to vote for their second best outcome, if they realize that their first best outcome will not gain enough votes to win, and they could end up with their third best option.

Table 1: Individual preferences

Alternatives	Agents	1	2	3	4	5	6	7
	best	A	A	A	B	B	C	C
		B	B	B	C	C	D	D
		C	C	C	A	D	A	A
	worst	D	D	D	D	A	B	B

1.2.1 Simple Majority Voting

Let us begin with a simple majority voting election. Every individual indicates his most preferred level of public spending – whether A, B, C or D – and the alternative receiving the most votes, that is, a simple majority of votes, becomes the policy outcome. In this case, ministers 1 to 3 prefer alternative A (no spending); ministers 4 and 5 vote for B (low spending); while ministers 6 and 7 vote for policy C (medium spending). None of the voters favors alternative D (high public spending). Accordingly, the policy outcome of this simple majority voting election is the alternative A, which receives three votes. Hence, there will be no public spending. In this case, the strong preferences of the first three ministers in favor of alternative A are sufficient for this policy to be adopted, despite opposition from the other ministers, who prefer at least two of the other alternatives to the winning policy (A).

1.2.2 Agenda Setting

Consider now a political institution that utilizes a different type of election to determine public policy. The seven ministers are still the voters; however, the aggregation mechanism for preferences now includes agenda setting, so that alternatives are voted in a pair-wise comparison in a pre-established order. This voting sequence is determined by the following agenda:

- AGENDA I A vs B - vs C - vs D
- AGENDA II D vs C - vs B -vs A
- AGENDA III A vs C - vs B - vs D

In agenda I, the pair-wise voting at the first stage is between alternatives A and B. A prevails five votes to two, thanks to the votes of ministers 1, 2, 3, 6 and 7. In the second round, policy A is matched with alternative C. Alternative C

wins by four votes (by ministers 4 to 7,) to three. In the third and last stage, alternative C competes against D and wins, as all ministers prefer C to D. Hence, alternative C (medium public spending) is the winner in this agenda setting election.

In agenda II, the voting sequence changes. At the first stage, the pairwise voting is between alternatives D and C and C clearly prevails. In the second round, C is challenged by policy B, which wins by five votes (ministers 1 to 5) to two (ministers 6 and 7). In the final stage, alternative B is defeated by policy A by five votes to two. Hence, alternative A (low public spending) is the policy outcome in the election with agenda II.

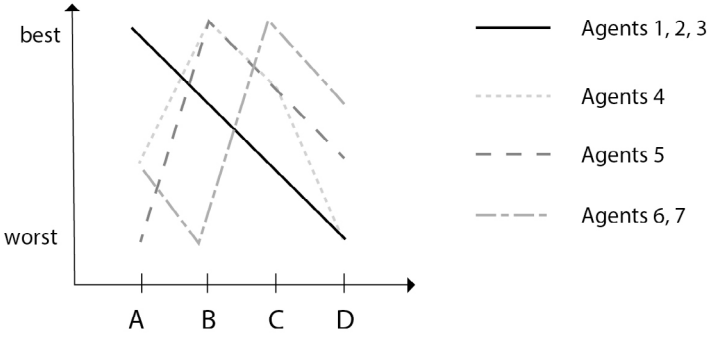
Finally, in agenda III alternative C prevails over alternative A in the first round by four votes to three, but is defeated by alternative B in the second round by five votes to two. In the third stage, alternative B wins over policy D by five votes to two, and becomes the policy outcome of this election with agenda III.

This simple example shows that – in an election with agenda setting – the policy outcome hinges crucially on the role played by the agenda setter. Indeed, depending on the voting sequence selected by the agenda setter, one of three alternatives (A, B and C) can emerge as the policy equilibrium outcome.

1.2.3 Borda Voting

The last type of political institution we consider is called 'Borda' voting. Ministers can still express their preferences through an election, in which the alternatives are simultaneously voted upon. The peculiarity of this preferences aggregation mechanism, in relation to a simple majority voting election is that voters can express more than one preference, thereby conveying the intensity of their preferences. Consider a situation in which each of our ministers can give two votes to one alternative and one vote to another alternative. Clearly, each minister will give two votes to his most preferred policy and one vote to the second preference. If we sum up these preferences, alternative A will receive six votes – as the first choice for ministers 1 to 3 – alternative B will receive 7 votes – determined by two first places (ministers 4 and 5) and three second places (ministers 1 to 3) alternative C will gain six votes – two first choices (ministers 6 and 7) and two second places (ministers 4 and 5) – while alternative D will only receive two votes, as the second choice of ministers 6 and 7. In this Borda counting election, alternative B (low public spending) would be the adopted policy.

Figure 3: Single peakedness



Further examples[3] can be given to show that – for given a set of initial individual preferences over public policies represented in Table 1 – the aggregation of votes though different political institutions can lead to different policy outcomes. It is now convenient to examine the characteristics of voters' individual preferences – our ministers – which lead to different policy outcomes across these different types of elections.

Figure 3 displays the individual preferences of our seven voters over the four alternatives (A, B, C and D). A quick look at these preferences suggests that they are all single-peaked, except ministers 6 and 7; in other words, they have a single maximum. Voters 1 to 3, whose preferences are characterized by the continuous line, prefer no public spending and their well-being drops as spending increases. Minister 4 has an interior maximum for a low level of public spending; no spending or a medium level decreases his utility. Minister 5's preferences are also of this type: they peak for a low level of public spending, although – as a third choice – he prefers more spending (D) than minister 4 (who indicates A). Instead, the preferences of Ministers 6 and 7 are not single-peaked. In fact, their most preferred choice is to have a medium level of public spending or – as a second alternative – high spending. As a third alternative, however, they prefer no public spending to low spending. In terms of their preferences, this creates an additional peak (or local maximum) at alternative A (no spending). While not single-peaked, these preferences are far from being irrational. In our example, they may be associated with an individual who prefers a medium (or high) level of public spending (i.e. high quality of healthcare). However, if the level is low, he prefers to use private healthcare and thus to have zero public spending.

[3] For instance, we could consider another Borda voting election, in which voters may attribute three votes to an alternative, two votes to another alternative and one vote to a third alternative.

This lack of single-peakedness is what determines the different outcomes, depending on the electoral system. As our example suggests, individual preferences have to be smooth in order to be single peaked. By moving away for his ideal alternative, the voter has to prefer alternatives that are closer to the ideal point over alternatives that are further apart from the ideal point.

When individual preferences are not single-peaked, aggregate preferences may end up not to be transitive. As shown in the agenda setting voting system, aggregate preferences are not transitive in Table 1. In fact, A is preferred to B, and B is preferred to C, but A is not preferred to C.

In what follows, we shall restrict individual preferences to being single-peaked and will hence drop the second feature: the unrestricted domain in Arrow's 'Impossibility Theorem'. Fortunately, in most economic situations, individual preferences are single peaked (i.e. economic agents have smooth preferences), as shown in the following example. Yet, not always.

1.3 A simple Example: Indirect Utility Function, Single-Peaked Preferences and the Bliss Point

Consider an economy populated by three groups of individuals. They consume a private good (C) and a public good (G). Their preferences over these two goods are the following:

$$U_i(C, G) = C + \gamma_i \ln(G) \qquad (1)$$

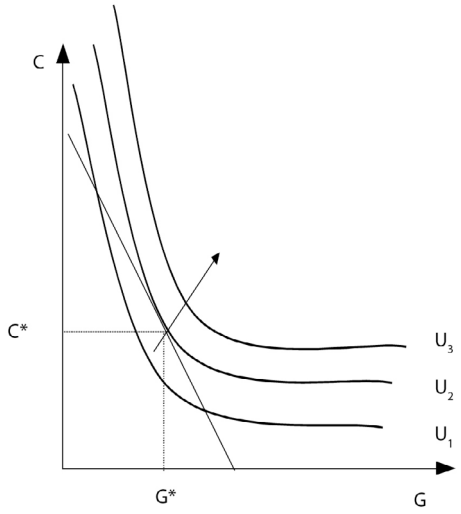
where the parameter γ_i of the utility function depends on the agent's income: $\gamma_i = A - Y_i$. Agents differ according to their income, Y_i. They can be Poor (P), Middle Income (M) and Rich (R). In particular, their income is respectively $Y_P = {}^1/_2$, $Y_M = {}^2/_3$ and $Y_R = 1$ and their proportions in the population are $\alpha_P = 45\%$, $\alpha_M = 30\%$, and $\alpha_R = 25\%$.

The public good is financed with a lump-sum tax (T), so that the government budget constraint is $G = T$. Finally, assume that $A = 1$.

In this simple case, individuals take no economic decision. They consume all their net income and the public good, G, received from the public sector. It is thus easy to obtain the indirect utility function of an agent i. Using the utility function of an individual i, where i represents his income type at equation (1), and substituting in the individual's and the government's budget constraints, respectively, $C = Y_i - T$, and G = T, and $\gamma_i = A - Y_i$, we obtain the following indirect utility function:

$$V(G) = [Y_i - T] + \gamma_i \, lnG = Y_i - G + (A - Y_i) \, ln(G) \qquad (2)$$

Figure 4: Individual preferences



Clearly, this indirect utility function depends only on the public policy, which in this example is summarized by the public good, *G*, or, analogously, by the lump-sum tax, *T*, given the government's budget constraint, *G*=*T*.

Individual preferences have graphical interpretations. If we consider the preferences over the consumption of private good, C, and public good, G, they are represented by the utility function, $U_i(C,G)$. The indifference curves between C and G associated with this utility function are shown in Figure 4, while the straight line represents the individual budget constraint: $C = Y_i - T$.

The preferences over the level of public good, as measured by the indirect utility function, *V(G)*, are displayed in Figure 5. Clearly, Figure 5 can be constructed from the data in Figure 4. For each value of *G*, the budget constraint determines the maximum amount of private consumption available, such that $C = Y_i - G$. The indifference curve passing for this point (C,G) defines the utility level associated with *G*. This information is reported in Figure 5, where for every value of *G* the indirect utility function, *V(G)*, measures the corresponding utility value. As shown in Figure 5, the indirect utility function is single-peaked and has a maximum at *G**.

To guarantee that preferences over *G* are single-peaked, we need to show that *V(G)* is a concave function of *G*. This is done by checking that the second derivate of *V(G)* with respect to *G* is negative: $V''(G) = d^2V(G)/dG^2 < 0$.
Since $V(G) = Y_i - G + (A - Y_i)\, ln(G)$, we have that:

$$V'(G) = dV(G)/dG = -1 + (A - Y_i)/G \qquad (3)$$

and thus:

$$V''(G) = d^2V(G)/dG^2 = -(A - Y_i)/\,G^2 < 0. \qquad (4)$$

A useful concept to summarize (single-peaked) individual preferences is the bliss point: it represents the policy level at which individual preferences are maximized. To calculate the bliss point for an agent *i*, we simply maximize the individual indirect utility function with respect to the level of public good, *G*.

$$\max_{\{G\}} V(G) \;=\; \max_{\{G\}} Y_i - G \;+\; (A - Y_i)\, ln(G) \qquad (5)$$

The first order condition (*FOC*) becomes:

$$-1 + \frac{A-Y_i}{G} = 0 \qquad (6)$$

and hence, the bliss point of a type-*i* individual is equal to:

$$G_i^* = A - Y_i \qquad (7)$$

Hence, $G_P^* = 1 - ½ = ½$, $G_M^* = 1 - ⅔ = 1/3$ and $G_R^* = 1 - 1 = 0$.

Figure 5: Indirect utility function