

BRUNO S. FREY

MODELS OF PERFECT COMPETITION
AND PURE DEMOCRACY

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I. INTRODUCTION

Economists have only recently become interested in what is now called the 'Economic Theory of Politics'. Professor JACQUES STOHLER was one of the first to see the importance of this new approach to political problems and started himself early to work in this area in between economics and politics (STOHLER 1964, 1965, 1967). The present author has been strongly influenced by his thoughts.

This article does not intend to give a general survey on the present state of the 'Economic Theory of Politics'; this has been attempted elsewhere (FREY 1970). It concentrates rather on one specific topic: on the models developed in economic theory on *perfect competition* and in the economic theory of politics on *pure democracy*. It will be shown that these 'ideal'-models correspond closely to each other. Both guarantee the attainment of an efficient allocation of resources. This result is of considerable importance for the choice of decision-mechanisms used to allocate scarce resources. DAHL and LINDBLOM (1953) have given an excellent classification scheme which has also been discussed by STOHLER (1964) and extended by SHUBIK (1970). The *basic* decision of a society is to choose for each branch of activity between one of the following idealized decision-mechanisms:

- (i) price system;
- (ii) political system;
- (iii) hierarchical system;
- (iv) bargaining system.

Further could be added

- (v) traditional system;
- (vi) random system;
- (vii) bidding system;
- (viii) fraud and deceit system.

It is only a *secondary* decision which decision-rule should be used

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within the political system, e.g. the majority rule. (There remains, of course, the logical problem of what decision-mechanism or decision-rule is used for the choice between the system.) The selection of the 'best' decision-rule in a democratic society has been studied in a pioneering work by BUCHANAN and TULLOCK (1962). It is now one of the objects of the mathematical theory of voting (see e.g. RAE 1969, and TAYLOR 1969). This problem is not considered here, but rather the *prior* choice between decision-mechanisms.

Up to now, it has been widely believed that only the price system under perfect competition is able to allocate resources efficiently, while there has been much reluctance to leave economic decisions to the political mechanism, even in a democracy. One of the major reasons for this view has probably been that voters are assumed not to act rationally, but that they are open to demagogical arguments of ambitious politicians. This is even SCHUMPETER's (1947, pp. 261/2) view: '... the typical citizen drops down to a lower level of mental performance as soon as he enters the political field ... He becomes a primitive again.' Under modern conditions, however, it is difficult to maintain that social beings act rationally in the economic sphere, but unreasonably in the political sphere, especially as the two cannot be clearly separated at all. If utility-maximizing behaviour of the consumer is assumed both for spending and voting (together with additional assumptions, as discussed subsequently), efficiency can be achieved *either* by the perfect price system *or* by pure (two-party) democracy. From the point of view of efficiency, these 'ideal'-type models thus show that there is no *a priori* reason for preferring either decision-mechanism, i.e. one is free to choose between the two e.g. on grounds of welfare distribution (or anything else). Of course, many additional factors (such as rigidities, imperfections, speed of adjustment, etc.) must be taken into consideration before society decides to allocate any specific activity to either decision-mechanism. In any case, however, it is necessary to enquire about the deviation of reality from the models discussed below for *both* the price system *and* democracy, and not for only one of them. These reasonings may be of special importance for the theory of public goods, where the well-known free-rider problem exists if the allocation is left to the market, but where the democratic mechanism might well overcome the difficulty.

The first part of this paper (*Section II*) presents and discusses the two 'ideal'-models of the market and democracy. In the second part (*Section III*) the model of democracy is extended and modified in various directions, such as multi-party systems and variable and induced preferences of the voters. Income (welfare) distribution is considered in *Section IV* as a central connection between the economic and political models of competition presented.

II. THE MODELS OF ECONOMIC AND POLITICAL COMPETITION

A. General Remarks

'What is perfect competition in economics is pure democracy in politics.' This statement can be regarded as one of the founding stones of the Economic Theory of Politics. It rests on the idea that any kind of competition increases welfare because it opens possibilities for choice and therewith makes monopolistic exploitation impossible. In the following the model of perfect economic competition is assumed to be known (see e.g. DEBREU 1959, LANCASTER 1968). Its features and assumptions are in fact used to discuss the model of pure democracy.

B. The Main Features of a 'Pure' Model

In economics, the following assumptions concerning 'social states' are usually made:

- (i) complete information about prices in the market;
- (ii) immediate adjustment;
- (iii) no rigidities or constraints due to organization of any kind.

In principle, these postulates have no connection with reality, but rather serve as conditions to guarantee the optimality properties of perfect competition. However, in many circumstances the ensuing model also gives a good picture of some features of reality, but only as a first approximation.

In the model of 'pure' democracy, a similar assumption must be made with regard to information: the party programs and their

effects must be known by social actors. Assumptions (ii) and (iii) stay the same.

C. Conditions for the Optimality of Democracy

In addition to the ‘social-state’ assumptions there are even more important assumptions necessary with regard to the actors. The goal is to reach a set-up in which the democratic mechanism yields a *Pareto-Optimum* (or efficiency) *where the position of no voter can be improved without hurting any other voter*. Optimality conditions have been worked out for democracy by several writers, each one concentrating on different aspects: SHUBIK (1968) specifically proves Pareto-Optimality, while DAVIS and HINICH (1966, 1967) and HINICH and ORDESHOOK (1970) prove the equivalence of the outcome with a *beneficent* dictator’s policy. No proofs are given in this paper and the formal reasoning is restricted to a minimum; the objective is rather to show the *general nature* of models of pure democracy and their *common results*.

There are two actors in the model: *parties* and *voters*, which will be discussed subsequently:

(a) *Parties*

Four assumptions are necessary to guarantee Pareto-Optimality:

(i) *Behaviour*. Parties must seek power and no coalitions are admitted. This can be reached by restricting the model to two parties, thus constructing a zero-sum game in which there are no coalitions. Under these circumstances the resulting behaviour follows the rule of ‘vote maximization’ (if the total number of votes is constant), or ‘maximization of vote majority’ (if vote abstention is allowed). (For these behavioural assumptions see KRAMER 1966; FREY and LAU 1968.)

(ii) Each party must have a specific position *on each political issue* Z_j ($j = 1, 2, \dots, m$) which may arise. Party P ’s program is thus a collection of positions on each issue, which can be written as a vector

$$Z_P = (Z_{P1}, Z_{P2}, \dots, Z_{Pm})'$$

This consideration of *many* issues is an important generalization of the basic work of HOTELLING (1929) and DOWNS (1957). Their

approach with only one issue was rightly criticized to be 'false to the realities of the two-party systems' (STOKES 1963, p. 370). Empirical studies proved indeed that the dimensions of voters' attitudes are independent in a statistical sense (CAMPBELL, CONVERSE, MILLER, STOKES 1960, pp. 197/8) such that the extension of the analysis to many issues is indeed justified.

(iii) *The program advanced must be put into reality.* This is a reflection of the assumed state of knowledge: voters would immediately notice when a party makes promises which it cannot and will not honour. This also means that the parties must advance a program *on* the transformation curve. This curve or possibility frontier defines those combinations of issues Z_j which can at best be attained. Its position and shape depends primarily on the underlying economic conditions, but also on general social and administrative constraints. If any party advanced a program *inside* this frontier, it would certainly not be vote-maximizing, because at least one voter could be put in a better position without harming any other voter. If it were *outside* this frontier, it would be discovered to be impossible. Thus there is a relationship

$$f(Z_{P1}, Z_{P2}, \dots, Z_{Pm}) = 0$$

between party P 's position on the various issues.

(iv) There are *continuous elections*, i.e. the parties are always competing for votes. This assumption also makes (iii) more acceptable because there is no period in which the governing party may deviate from voters' wishes.

(b) *Voters*

Three assumptions are used here in order to guarantee Pareto-Optimality of democracy:

(i) *Voting Rules.* In this 'ideal'-model, each actor (consumer-voter) has *one* vote, i.e. political resources are distributed equally. This points to an important difference to the model of perfect economic competition in which the initially given resources are not necessarily distributed equally. The (ideal) price system only guarantees the attainment of *some* point on the Pareto-optimal surface which need not be optimal with respect to distribution. If equality is considered a desirable outcome of the allocation of resources, it can *a priori* be conjectured that pure democracy is superior to perfect competition

with regard to distribution, because the former already *starts* by assumption with an egalitarian set-up, while the latter does not in general.

Voters are not allowed to form coalitions: they are 'passive vote casters' (SHUBIK 1968) in that individually they cannot change the programs offered by parties, though they can do so as an entity. There is a complete analogy here to the atomistic consumer who is confronted with given market prices (consumers as 'price takers'). In the 'pure' models of economic and political competition there is no room for interest-groups. As soon as they are introduced, another type of decision-mechanism becomes relevant, namely the 'bargaining-system'. There can be little doubt that the inclusion of interest-groups into the analysis may yield quite different results.

(ii) *Preferences*. Voters have given and unchanging preferences with respect to the political issues. Each voter i has a position X_{ij} on each issue j . This forms again a vector

$$X_i = (X_{i1}, X_{i2}, \dots, X_{im})'$$

In general, each voter has a different view on each subject. The distribution of voters' views on some issue is generally assumed to be normal though it can be proved that the results are quite insensitive to the type of distribution chosen (see DAVIS and HINICH 1967).

(iii) *Loss function and utility maximization*. Each voter is required to compute the loss suffered due to the difference between his own preferences and the party program offered. The loss of voter i as a function of party program Z_P is

$$V_i(Z_P) = (X_i - Z_P)' G_i (X_i - Z_P)$$

G_i is a diagonal matrix of the weights given to the different issues by voter i . This loss function can be derived from a quadratic utility function. Each voter chooses that party which corresponds (in the average) best to his own wishes, i.e. for which the aggregate loss to him is smallest or which is 'nearest' to him. CONVERSE (1966) has shown that the notion of a voter's (psychological) distance from a party can indeed usefully be employed as it can be identified by empirical analysis. This approach of cardinal and interpersonally comparable utilities of voters is taken by DAVIS, HINICH and

ORDESHOOK; it leads to an optimum equal to a beneficent dictator's policy, implying also distributional optimality. SHUBIK (1968) is able to prove Pareto-Optimality by assuming only ordinal preferences of voters. This corresponds more closely to the modern analysis of the utility-maximizing consumer in the market.

D. The Equilibrium of Pure Democracy

The model of pure democracy is in equilibrium in perfect rest. Under the assumption made it is *stable*, i.e. any deviation from the equilibrium point mobilizes forces bringing it back to the equilibrium. If any of the two parties offers a program different from the equilibrium, at least one voter suffers a loss and therefore decides to vote for the other party which does not propose such a loss to him. The defecting party notices the loss of at least this one vote and realizes that it fails to occupy its best position. It corrects its political program such as to capture again the maximum number of votes which brings it back to the equilibrium.

The *existence* of the equilibrium is of considerable importance for the theory of public choice: it gives the conditions under which individual preferences can be transformed into social decisions or equivalently into a social welfare function. It thus deals with the basic problem of democracy. ARROW's (1951) and BLACK's (1958) celebrated contributions inquired solely into the 'pure' logic of aggregating individual preferences. They found that under the assumptions made this is not generally possible. Much of the subsequent work followed this line of establishing logical connections between individual and social preferences with a minimum of material content. TULLOCK, however, asked the interesting question whether ARROW's result was relevant at all. He concludes that when the number of voters is much larger than the number of issues, 'the General Impossibility Theorem is generally irrelevant' (TULLOCK 1967), while in small groups of voters the probability of a cyclical majority is neither large nor small (TULLOCK and CAMPBELL 1970). The work presented in this paper follows yet another route. Though also based on precise arguments, it seeks to derive the conditions for the aggregation by specifying a more *realistic* model in which there are behavioural relations and identifiable groups such as parties and

voters. It seems that this kind of work contributes more to the understanding of the political world around us than most of the exercises in pure logic.

The equilibrium of a two-party democracy has two main features:

(a) *Same program offered by both parties.* As has already been pointed out by HOTELLING (1929) and worked out by DOWNS (1957) for a single issue, the competition of two parties for voters is analogous to the spatial competition of two firms for consumers which are geographically situated along a line. Imagine two mobile ice-cream vendors along a beach. As they offer identical products and have no preferences with regard to the sellers, everybody will buy from the vendor nearest to him. Each seller gains by moving towards his competitor: though each one moves away from the buyers situated at the extreme ends of the beach, none loses, because he is still nearer to them than his competitor.

The geographical situation of business firms corresponds to the ideological position of parties along some scale. With the assumption made, a two party democracy has its equilibrium reached when the two competing parties (say *A* and *B*) offer exactly the same programs:

$$Z_A^* = Z_B^*$$

BUCHANAN (1968) has shown that this equality of programs only holds in a *multi-dimensional* issue space if there are a large number of voters.

The *equilibrium* in which the two parties offer identical programs is clearly very 'dull'; with features which one would not usually associate with a sound democracy:

(i) From the point of view of a practical politician there does not *seem* to be any competition at all. It rather looks from the outside as if the two parties formed a tight coalition, as they do not differentiate from each other.

(ii) It is of no consequence whatsoever, which of the two parties is in power, as they offer, and put into action, the same programs. In fact, *chance decides* which of the two parties is in government: each one governs with a probability of fifty percent.

The parties themselves are also indifferent as to whether they are 'reigning' or not: they must completely follow voters' wishes as any

deviation would make them lose elections. There is, in other words, no monopoly power which makes it worthwhile to occupy a certain position. There is a complete analogy to perfect economic competition in which no firm makes any (pure) profit and therefore is exactly indifferent as to whether it should stay in business or not.

(iii) Citizens are only (individually) rational to vote if it makes any difference to them which of the two parties wins the election and thus puts its program into action. Voting participation is thus a function of the *program differential*, between the two parties (see DOWNS 1957, chapter 3; TULLOCK 1967, chapter VII). As in equilibrium the parties offer the same programs, there is no need for citizens to vote. In the full *equilibrium of pure democracy* there is thus *the curious result that nobody votes!*

This logic corollary of the model seems to have been overlooked in the literature so far. HINICH and ORDESHOOK (1969) manage to get around this result by assuming a different determinant of voting abstention. According to their model it is the difference between one's own preferences and the position of the preferred party which decides the degree of participation: the larger the difference, the higher abstention. It follows that even in full equilibrium citizens vote. Only empirical analysis can show which assumption is more realistic. It seems, however, that the program differential should in no case be disregarded: If e.g. both parties offer the same program, the voters have no choice to make, and as voting involves costs, they would be irrational to vote. The voting behaviour stipulated by the two authors does not seem consistent with the utility maximizing assumptions used elsewhere in their paper.

The conclusion that nobody votes in equilibrium of pure democracy strongly contradicts the ideology of democracy according to which citizens are strongly urged to vote in order to preserve democracy. The present model suggests that it would be quite sufficient to appeal to voters' *own* selfish interests, i.e. to maximize their *own* utility: If they do so, parties are (again in their own interest) forced to follow an action which is best for all. Democracy thus seems to be stable also in the sense that it does not require social actors (citizens and parties) to sacrifice anything for it, but it works best if everybody acts selfishly. The analogy to the perfect market and its 'invisible hand' is obvious.

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It must be stressed again that while there is no voting in full equilibrium, it has a *central role* in disequilibrium situations.

(b) *Democracy is Pareto-Optimal.* This second feature of the equilibrium of pure democracy is true simply because the features of the model have been chosen such as this will be the result. It can be proved (SHUBIK 1968) that the urge of parties to maximize votes and of voters to minimize the loss suffered yields a situation in which no voter's position can be improved without harming any other voter. Assume that party *B* is indeed on the utility-possibility frontier Z^* , but that party *A* offers some other policy:

$$Z_A^* \neq Z_B^* = Z^*$$

This is no equilibrium because party *A* can move closer to Z^* , thus increase the utility of at least one voter (without harming any other) and therefore is able to win at least one vote. This process will end only when a Pareto-Optimum is reached.

In principle, democracy can thus *efficiently* substitute for the market. In both pure democracy and perfect economic markets there is an 'invisible hand' leading to overall efficiency. The aversion against functions taken over by 'the state' seems to be unfounded in a well functioning democracy.

III. EXTENSIONS AND MODIFICATIONS

The models presented of competition and democracy are based on assumptions which were chosen such as to yield the desired optimality results. In order to relate the models more closely to actual problems, the underlying assumptions can be changed to correspond better to conditions of reality. The goal is to see whether the results established for the original model still hold true and to what extent they are altered (sensitivity analysis). Only if the assumptions of the model approximate reality sufficiently well, conclusions should be drawn about the appropriate decision mechanism for the allocation of resources. It is especially interesting to enquire whether there exists an equilibrium at all and whether it is stable. Due to lack of space, no profound analysis of any specific extension (or generaliz-

ation) can be undertaken, but rather some hints for possible future work are given.

Three worthwhile extensions suggest themselves, namely

- (A) the introduction of 'impurities';
- (B) more than two competing parties;
- (C) variable preferences of voters.

A. Introduction of 'impurities'

One such 'impurity' is certainly the existence of *sizable adjustment periods* between equilibria. The study of disequilibria is important because there may be quite different relationships between variables compared to the equilibrium configuration.

Another 'impurity' which would be important to consider is the *limited state of information of all social actors*. This not only corresponds obviously to reality—see e.g. STOKES (1963)—but it is [as has e.g. be shown by DOWNS (1957) and TULLOCK (1967a)] a necessary result of the assumption of utility maximization, provided information is not completely costless (which, of course, it is not). On the one hand *voters* do not know the programs of parties and how likely it will be put into practice; they are not able to evaluate how well the action will serve to achieve a certain outcome, and how much they are affected by it. *Parties*, in the other hand, do not know the preferences of voters with any certainty, and also the relationship between the actions proposed and the likely results.

B More than two competing parties

The analysis of the equilibrium of a *multi-party democracy* is much more difficult than of a two-party system because there is now the possibility of coalition-formation. Taking the Hotelling-Downs-model of the distribution of parties ideological position, SELTEN (1969) gives the necessary and sufficient conditions for an equilibrium of many competing parties ($n \geq 2$). The necessary conditions are (among others) that

- (i) no position is occupied by more than two parties and
- (ii) that the *extreme* positions are occupied by two parties.

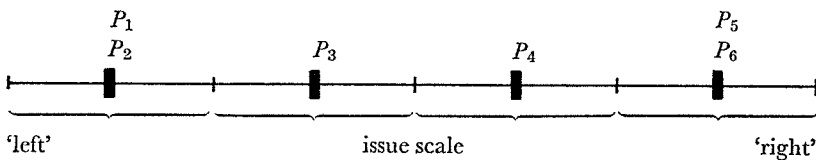
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For the two-party case it follows immediately that the parties must concentrate on the same ideological position in the middle. Curiously enough, an equilibrium cannot be attained in a *three-party* democracy ($n = 3$), because the necessary conditions mentioned above cannot be satisfied: because of condition (i) there would have to be two different positions of parties, which according to (ii) would *each* one have to be occupied by two parties, because they are extreme positions. For four or more parties, however, there always exists an equilibrium.

The equilibrium positions of e.g. six parties are as shown in *Figure 1*.

Figure 1

Equilibrium for a six party system



The equilibrium distribution of parties along the ideological scale is rather counter-intuitive, as one would rather expect that any position *in the centre* (and not the extremes) is occupied by several parties at once. The outcome does not seem to correspond to what can be observed in multi-party systems: In Switzerland, e.g. there is clearly a concentration of about six parties around the centre.

Future research has the interesting task to enquire *why* the model of spatial political competition does not in general conform to reality. A great many different grounds may account for it. Nevertheless, the model gives an *excellent representation of reality for the two-party case*. This is all the more important, as many political scientists and political sociologists consider the competitive two-party system to comprise the essence of democracy (see CURRY and WADE 1968, p. 86).

C. Variable preferences

The models of economic and political competition presented so far assume that the consumer-voter has exogenously *given* and *unchanging* preferences. The firms and parties are simply reacting passively to these wishes. Such a view overlooks a central feature of modern

society: preferences are strongly shaped by both entrepreneurs and political leaders.

In economics, there are but a few scholars stressing the importance of varying and induced preference changes. The most expressive of them is without doubt BOULDING (1966, 1968), but the names of VEBLEN (1899), SCHUMPETER (1913), HIRSCHMAN (1963), and GALBRAITH (1958), should also be mentioned. Recently, PESTON (1967) has attempted to introduce explicitly changing utility functions.

A previous attempt by MCKENZIE (1955) to add dependent consumer preferences to a model of perfect competition does not improve much our knowledge about preference changes because of its exceedingly abstract nature.

In politics, the case for the introduction of induced preferences seems to be even stronger than in economics. Democracy should not *solely* be seen in terms of the derivation of parties or committee decisions from *given* preferences of voters, as seems to be done now e.g. by the mathematical theory of voting. *Democracy can only be satisfactorily captured in terms of an interaction between the politicians and the voters.* This includes the shaping of voter's preferences by the parties. A full formal treatment of this idea cannot be given here, but it can be shown that in even the two party-case the ideological positions do *not necessarily* converge to the centre and that there is no equilibrium *in general*.

To take a simple inducement mechanism, the hypothesis is advanced here that voters' opinions depend on the ideological position i.e. the programs of the parties. There is a constant information and propaganda flow from the parties designed to mould voters' preferences to their ideology. For voters of the follower-type it is sufficient that 'their' party takes a certain stand in order to make it their own opinion. Thus, when a party (P_A) moves e.g. to the right ideologically, the whole vote distribution is also drawn to the right, as pictured in *Figure 2*.

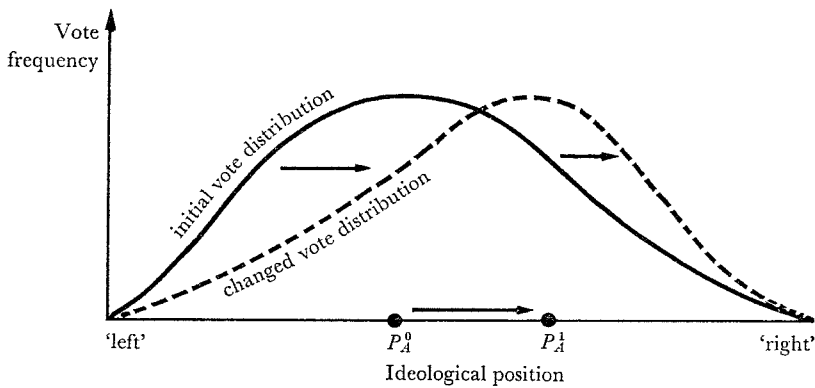
In order to see whether a vote-maximizing party would indeed undertake such a movement, the division of votes between the two competing parties (P_A , P_B) must be determined. Each party dominates a certain area around its ideological position, i.e. each voter with preferences within this domain votes for that party. In *Figure 3* the domains of party B and of party A before the ideological move,

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and after, are given by the tent-like constructions 1-2-3 (for P_B), 4-5-6 (for P_A^0) and 4-7-6 (for P_A^1 , i.e. after the move).

Figure 2

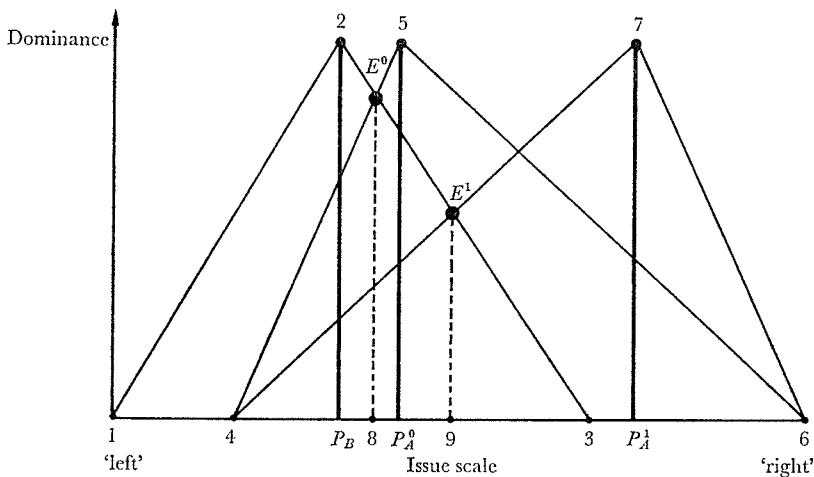
Preference changes induced by party position



The height of the 'tent' gives the relative strength of a party's ideology on voters with respect to the other party (it is taken to be equal in Figure 3). It also determines the degree with which the

Figure 3

Domains of influence of parties A and B before and after an ideological move

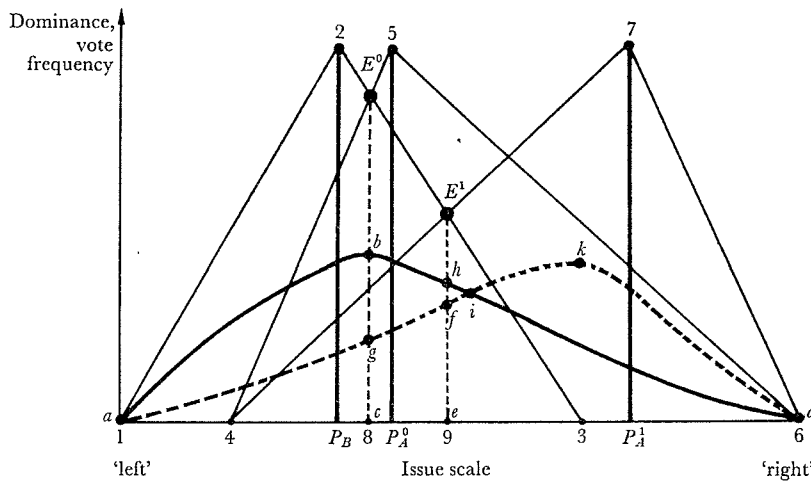


influence of the position on the voters diminishes with increasing distance. [The concept of the 'influence gradient' is used for other purposes in the theory of location, and in politology e.g. by BOULDING (1962) and TULLOCK (1967).] All the voters with preferences on the stretch 1-8 vote (in the initial situation) for P_B because P_B 's ideology dominates P_A 's ideology. On the stretch 8-6 they vote for P_A . After the move of P_A , the point of 'equi-dominance' E^0 moves to the 'right' (E^1), and now the voters on the stretch 1-9 vote for P_B and on 9-6 for P_A .

The overall effect of an ideological move can be evaluated by super-imposing *Figure 2* and *Figure 3*. This gives *Figure 4*.

Figure 4

Dominance and vote distribution before and after an ideological move of P_A



Initially, Party B receives all votes in area $a-b-c$, and Party A in area $c-b-d$. Due to the shift of the 'equidominance' point (E^0 to E^1) P_A wins the ideological stretch 8-9, which is now, however, occupied by less voters: P_A thus only wins $c-g-f-e$ votes. Due to the induced preference shift, P_A loses $a-b-g$ votes. It thus ends up with $a-f-e$ votes, which may be larger, equal, or smaller than its vote before the move of the other party. Party A loses votes because of the rightward movement of the equi-dominance point in the amount of $c-b-h-e$, but wins

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the votes in the area $i-k-d$. The *outward* movement of Party A may increase its total vote, which is now $e-f-i-k-d$. With variable preferences, two reasons for a change of vote must be differentiated. Citizens may switch their vote because

(i) They have *changed their preferences* and the party originally supported does no longer correspond best to the new views.

(ii) The party originally supported has changed its *ideological position* and does no longer fulfill best voters' (constant) preferences.

Thus, when induced preferences are allowed, the position of two parties on the centre is in *general no longer stable*. Neither, however, is the new position of Party A , because it may increase the vote of the opposing Party B if it moved towards P_A^1 . This movement increases its vote, if it does *not* induce voters' preferences in the same direction. Parties which are strongly moulding the *whole* preference distribution of voters are thus likely to win votes by moving away from the opposing party. Parties which are unable to have any effect on voters' preferences are likely to occupy a position in the neighbourhood of the other party. Of course, these results are only conjectural.

IV. INTERACTIONS BETWEEN PERFECT COMPETITION AND PURE DEMOCRACY

So far, we have enquired into the *formal* similarities and differences of the models of economic and political competition. It is equally interesting to study the connections between them with respect to their content. This is of course a vast area.

One topic immediately suggests itself from the previous discussion, namely *income distribution*. We have seen, that while perfect economic competition may or may not achieve a satisfactory distribution, pure democracy performs better because it starts from an equal distribution of political resources, i.e. votes. Despite the principle 'one man—one vote', in reality political resources are *not distributed equally* among citizens. A vast body of empirical studies (for a survey see e.g. MILBRATH 1965) show that the weight of one's vote is strongly correlated with one's economic position. The degree of information,

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of interest, and of actual political participation are clearly a function of income (and wealth).

The influence of the economic status or political resources may formally be captured by weighting each vote by an appropriate factor which is a positive function of income. There is then a vote in 'natural' units (of which each citizen has one) and in 'augmented' units (depending also on income). It can be conjectured that the unequal distribution of initial political resources does not hamper the attainment of a Pareto-optimal outcome in a pure democracy. Its tendency towards an egalitarian distribution of rewards tends to vanish, however: The price-system with perfect competition *may* produce an unequal distribution of income which is then carried over into the political sphere through the augmentation factor. This results in a more unequal distribution *also* of those areas of allocation left to democracy.

Another rewarding and relevant topic would be to enquire whether the 'ideal'-systems of the market and of democracy condition each other, i.e. whether it is conceivable to have e.g. the price system with political dictatorship or democracy with a hierarchical allocation of economic resources. This must be left to another occasion.

*University of Basel, and
University of Constance*

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SUMMARY

In the 'Economic Theory of Politics' the model of pure democracy has the same importance as the model of perfect competition in economic theory. The author shows that both 'ideal' models use almost identical assumptions with respect to social actors (vote-, profit-, and utility-maximizers) and social states. Both guarantee a Pareto-optimal allocation of resources. In the equilibrium of a two party democracy the same programs are advanced and put into reality. It follows that in equilibrium (and only there) nobody votes. Extensions of the simple two-party model to include various parties and induced preferences of voters by the parties destroy some of the simple results: sometimes no equilibrium exists, it is unstable or does not conform to observations of reality. Finally, democracy's allocation with generally more equal distribution of income than through the price system, is destroyed when the declamatory assumption of 'one man—one vote' is given up and the inequality of political starting positions is taken account of.

ZUSAMMENFASSUNG

In der «ökonomischen Theorie der Politik» besitzt das Modell der reinen Demokratie die gleiche Bedeutung wie das Modell der vollständigen Konkurrenz in der Wirtschaftstheorie. Beiden «Ideal»-Modellen liegen fast die gleichen Annahmen in bezug auf die gesellschaftlichen Aktoren (Stimmen-, Gewinn- und Nutzenmaximierung) und Umweltsbedingungen zugrunde. Beide garantieren eine paretooptimale Allokation der Ressourcen. Im Gleichgewicht der reinen Zwei-Parteien-Demokratie werden die gleichen Programme angeboten und in die Wirklichkeit umgesetzt. Daraus folgt, dass im Gleichgewicht (und nur dann)

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kein Wähler stimmt. Die Erweiterung des einfachen Zwei-Parteien-Modells auf mehrere Parteien und die Einführung von durch die Parteien beeinflussbaren Wählerpräferenzen komplizieren einige dieser einfachen Ergebnisse: Je nach Annahme existiert überhaupt kein Gleichgewicht mehr, ist es instabil oder widerspricht es den Beobachtungen in der Wirklichkeit. Schliesslich ist die der Demokratie gegenüber dem Preissystem zugeschriebene Überlegenheit, die sich aus der im allgemeinen gleichmässigeren Einkommensverteilung ergibt, dann zu modifizieren, wenn von der deklamatorischen Annahme der Stimmengleichheit der Individuen abgegangen und die Ungleichheit der politischen Ausgangssituation berücksichtigt wird.

RÉSUMÉ

Dans la «Théorie économique de la Politique», le modèle de la démocratie pure a la même signification que le modèle de la concurrence pure et parfaite en théorie économique. L'auteur du présent article montre que les deux modèles types reposent à peu près sur les mêmes hypothèses quant aux partenaires sociaux (maximation des suffrages, du profit et de l'utilité) et à l'environnement social. Les deux modèles garantissent une répartition optimale des ressources selon PARETO. Dans une démocratie bipartite, à l'état d'équilibre, les mêmes programmes sont présentés et mis en pratique. Il s'ensuit qu'à l'équilibre – et uniquement dans ce cas précis – personne ne vote.

L'extension du simple modèle bipartite à un modèle à partis multiples et l'introduction de préférences électorales dues à l'influence des partis infirment certains des précédents résultats: il arrive que l'équilibre soit rompu, instable ou qu'il ne corresponde plus aux observations de la réalité. Enfin, la prépondérance, attribuée à la démocratie avec une répartition des revenus généralement plus équitable que celle découlant d'un système de prix, disparaît dans l'hypothèse de l'égalité des droits de vote et à condition que l'inégalité des situations politiques initiales soit prise en considération.

