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1. Introduction

In economic science most attention has always paid to the analysis of the functioning of firms, markets and market economies. The strong growth of the government in Western Economies after World War II however, has pressed economists to pay more attention to causes and effects of government interference.

The analysis of the effects of taxes and government expenditures has always been a main part of 'public finance'. But the last 10 to 15 years there is a growing attention for the determinants of government behaviour or, in other words, for the problem of the endogenization. This new approach is indicated as 'public choice', 'new political economy' or 'economics of politics'. The main goal is to analyze, in the same way as economics did and do for the behaviour of private subjects, the functioning of government agencies, the government bureaucracy as a whole and the democratic structure of the political sector as a whole.

Originally the study of the functioning of the political sector was reserved for political scientists. Political science must be considered as a conglomerate of economics, sociology and psychology applied to the political sector. A big problem, however, is the lack of an integrated economic-sociological-psychological paradigm as a fruitful basis for steady growth of scientific knowledge. A growing group of political scientists considers the new political economy as a most promising development. The main advantage of this approach is the hard core underlying economic theories. The other side of the picture, however, is that such a hard core implies an abstraction of factors which play especially

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1. A. Downs was a pioneer in this field: A. Downs, An Economic Theory of Democracy, New York, 1957. Buchanan, Tullock, Arrow and Sen have done a lot of theoretical work. Frey has done not only theoretical, but also much empirical work.


3. 'Hard core' in the sense of Lakatos.
in sociology and psychology an important role. If this criticism is taken serious (as the authors of this article do), there are two research strategies to be chosen. The first possibility is to consider the economic paradigm as unacceptable and continue in the old way. The second possibility is to consider the application of the economic paradigm as a useful first step, to be followed by a necessary second (sociological) and third (psychological) step. We opt for the second strategy, not at least inspired by our own, economic, background. The ultimate results of this research programme shall be compared by the results of existing political theories. Then we can judge about the question whether some progress has been made.

In this article we try to develop an integrated behaviour theory which will be applied to voter behaviour. In the next paragraph we will go into the relation between economics, sociology and psychology. In a third paragraph we will work this out for voter behaviour. In a fourth paragraph we test the theory with material related to the popularity of the most important Dutch political parties in the period 1970-1980. The article ends with some conclusions.

2. A Behaviour Theoretical Approach

We will give a short sketch of the disciplines economics, sociology and psychology. Thereafter, we will try to sketch the relationship between these three fields of study.

2.1 Economics

Adam Smith is considered to be the founder of economic science. In his famous books 'The Wealth of Nations' and 'The Theory of Moral Sentiments' he does not make a sharp distinction between economics, sociology and psychology. And neither did other familiar political economists as Ricardo and

Malthus. Just when neoclassical economics, characterized by his axiomatic-deductive methodology gained ground, economists clearly defined their own domain. Robbins had much influence in defining economic science as a theory of choice. Every subject is assumed to act in a rational way, that is, given his preference-ordering and his scarce resources he or she chooses that resource allocation that leads to a maximum level of utility (homo economicus). It appears from this definition that economics views the preference-ordering as an exogenous entity, which has to be explained by sociologists and psychologists. Subjects are considered to behave rationally, given the information they possess about their own preferences, their scarce resources and their relevant surroundings. To avoid a tautology, one must assume something about the information subjects have at their disposal. A test of an economic theory always implies a test of the information hypothesis which has been used. This rationality-concept was applied especially in the analysis of those sectors of society where efficient behaviour was presupposed: firms, markets, investors, consumers. Through the increasing use of quantitative methods the focus on the money economy was strengthened, because money appears to be a suitable numéraire. Other sectors, such as a family, corporate life, government, church, where feelings, customs and values are considered to play a role, were left to sociology and psychology. Neoclassical methodology has played a dominant role for a long time. But since two decades there is a development going on, which crosses over the traditional neoclassical demarcation lines. On the one hand the number of sectors economists analyze has extended. New subjects are the economics of politics, the economics of love, the economics of tradition,


2 Testing of theories always implies a testing of a whole series of hypotheses, through which it is always difficult to detect the actual causes of a bad explanation.
etc.\(^1\). On the other side, the perfect information hypothesis was adapted. If information gathering is a costly business and people have imperfect information about relevant matters, expectations are going to play a role. But expectations may be wrong. This means that subjects have to take risks. Risks are partly calculable and rational behaviour remains possible. Sometimes risks are not calculable and then uncertainty is going to play a role. People fall back on their 'animal spirits' and their feelings of optimism and pessimism. In this way economics has been transformed into psychology\(^2\). A combination of both developments, to wit an explanation of all human behaviour, including group behaviour, from a psychologically satisfying starting point, must be the ultimate goal.

2.2 Sociology

The object of sociology is to explain group behaviour\(^3\). A group is defined as a set of individuals with common values and norms. Values refer to what is considered to be good and desirable. Norms and rules structuring social life in a way leading to proposed targets. The whole of norms and values together is called culture. All members of society fill some social positions, which are called statuses. The status of a

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2. The importance of uncertainty has been recognized already by Keynes and his followers. The notions of information costs, risks, and (rational) expectations has become important since the work of Stigler, Phelps and others. See for instance: G.J. Stigler, *Information in the Labor Market*, *Journal of Political Economy*, vol. 72, p. 94-105, and E.S. Phelps, *Money Wage Dynamics and Labour Market equilibrium*, *Journal of Political Economy*, vol. 76, pp. 678-711.
3. This definition and the short exposition thereafter is in harmony with a whole range of familiar sociological textbooks. See for instance: M. Haralambos, *Sociology, Themes and Perspectives*, University Tutorial Press, 1980.
person can be defined in terms of sex, race, age or profession. To each status or position belongs a set of norms expressing the expectations of society with respect to the behaviour of persons in that position. These sets of norms belonging to certain positions are called 'roles'. The whole set of relations between positions persons have filled is called 'structure'. Sociology analyses especially the relation between culture and structure. The most important message of sociology is the proposition that behaviour is always learned behaviour. The so-called 'homo sociologicus' is a man whose behaviour is completely defined by the norms and values of the group to which he or she belongs. With respect to economics, sociology has always distinguished itself as a science of irrational behaviour. Sociologists lacked an unambiguous theoretical basis. As a consequence there was no consensus about the question what is sociology all about and what must be considered as quality and scientific progress. Some sociologists are of the opinion that traditional sociology has accomplished its task, because most people have accepted her message that behaviour is learned behaviour. A new, explanatory sociology is needed to explain the way rational subjects develop values and norms and adapt them to changed circumstances, including new information. Or, to formulate it in the words of Opp: 'The basic idea of the Individualistic Research Programme (IRP) in the social sciences is that social phenomena can and should be explained by applying general individualistic propositions, i.e. propositions that explain the behaviour (in a broad sense) of individual actors. If general individualistic propositions are

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1 The first sentence of Haralambos' textbook runs as follows: 'Man learns his behaviour and uses its intelligence whereas animals simply act on instinct'.


the starting-point, it is essential, as is the case for economics, to choose for propositions which are psychologically justifiable. This implies a rejection of the truncated model of the homo sociologicus or at least a replenishment of that model on essential points.

2.3 Psychology

Psychology is the science of individual behaviour, especially concentrated on the relation between that behaviour on the one hand and the characteristics of the psyche of the individual on the other hand. The concept 'psyche' is defined as the world of thoughts and feelings, not observable by others. We can distinguish two parts of the psyche, to wit the mind and the emotional part. The mind is the rational, cognitive part in which at every moment flows of information are stored in a cognitive way. The other is the emotional part in which at every moment flows of information are stored in a non-cognitive way. The ordination in the mind happens via language and logic. Non-cognitive ordained information leads to feelings of delight or pain, satisfaction or dissatisfaction, optimism or pessimism.

Atkinson c.s. distinguish between five approaches in psychology, to wit the neurobiological (1), the behaviouristic (2), the psycho-analytical (3), the cognitive (4) and the phenomenological approach (5). Every approach stresses one expect that is of importance in psychology. In general however, it can be postulated that in every concrete action all aspects play a role. Which approaches are the most important, depends on the characteristics of the relevant persons and situations. For a psychologically realistic model of man, being a general starting point for a behavioural theory, none of the

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mentioned aspects can be ignored beforehand. In figure 1 we have tried to picture this general model of man.

![Diagram](image)

Figure 1: general model of man

The neurobiological approach focuses itself on the influence of impulses going from the (human) body via the brains to the mental part, determining behaviour in that way. The behaviouristic approach postulates the cognitive and emotional parts as black boxes, because these entities are not observable in a scientifically acceptable way. This implies a direct relationship between the information impulse on the one hand and behaviour on the other hand. The psycho-analytic approach presupposes the storage of much cognitive and emotional information related to past experiences in the unconsciousness. In that way past experience can influence actual behaviour significantly. The cognitive approach focuses itself on the influence of cognitive stored information (memory) on behaviour, while the phenomenological approach stresses the significance of the non-cognitive stored information and its influence on human behaviour.

Human beings differ from each other exactly in the way the surrounding is perceived and their perception is strongly in
fluenced through the content of the non-cognitive "memory".
The construction of such a general model of man does not imply that all behavioural theories must contain all these aspects. Abstracting from factors which are supposed to be of minor importance is fundamental in science. But when the builder of a theory leaves out some generally spoken relevant parts, he has to justify why these elements can be ignored in his specific theory.

2.4 Towards an integrated behavioural theory.

In developing a psychologically justified theoretical basis for the behavioural and social sciences, it is useful to consider the neurobiological processes as exogenous for the time being. We restrict our analysis to the piling up of social and economic information in a rational-cognitive and a non-rational-emotive way. Moreover, it is not necessary for the individual to be aware of the processes of information operations. Cognitive learning processes occur for example if subjects discover a real inflation rate of 10 while they expected a rate of 6%. Then, they try to retrace the reasons for this difference between expectation and realisation. The answers found influence the way the expectations are adapted. Non-cognitive learning processes occur for example in reiterating situations of uncertainty. If a subject in such situations chose for a riskful solution every time and the result was always positive, this will have led to the building up of large amounts of self-confidence. With large inventories of self-confidence people will look forward future situations of uncertainty with confidence and optimism. It is not necessary to be aware of this feelings of optimism or pessimism, of anger or fear.

For example, many Germans are hardly aware that the enormous inflation rates of the twenties play a role in determining the opinion of the German people that inflation is a major social bad.
Such traumas are sunk deeply, but from the unconscious part they can play a major role. The same relationship could possibly play an important role in the decision-making of many employees who went through the unemployment of the thirties, to strike or not to strike at a certain moment. These learning processes determine the dynamics between the preferences of people on the one hand and capacities and possibilities on the other hand. The preferences reflect the values and with that the culture to which a subject belongs. In the process of allocation of scarce resources preferences of people play an essential role. Would the information about preferences and scarce resources be perfect, preferences would be the only determinant of the allocation, given the distribution of resources. However, perfect information is a fiction. People use norms, rules of thumb, which can be considered to lead to an efficient allocation. A potential rule of thumb in attracting new personnel would be: prefer persons without unemployment intervals in their career above persons who were unemployed for some time. The allocation of scarce resources influences the social structure, that are the positions, filled by people in society. The processing of information flows in turn leads to an adaptation of values and norms and with that to an adaptation of preferences. It is also conceivable that new information has got about the real relations between values, norms, preferences and allocation. In figure 2 we have pictured this learning process. This process is ultimately directed on the development of all capacities and potentialities present in every human being, of which every man is aware of more or less.

In the next paragraph we shall apply all these elements to voter behaviour.
3. An application of the behavioural-theoretic approach to voter behaviour.

The theory developed in the last paragraph can be summarized as follows:
- Every subject has formulated consciously or unconsciously several goals which are ranked in order of priority.
- These goals are derived from a series of values, ranked in order of priority.
- Every subject accomplishes his goals maximally given the information available with respect to goals and means, leading to an optimal allocation of scarce resources (utility maximization theories).
- The structure (the whole of positions people fill with respect to each other) is influenced by the allocation of scarce resources via entities like education, profession and ownership of means of production.
- The experiences acquired by subjects change, if there are alterations in allocation and structure. This gives an extra information flow.
Every subject processes new information in a cognitive and a non-cognitive way. The non-cognitive way of learning can take place consciously, but also via the unconscious.

Information processing can lead to changes in practiced values and norms and can exercise an influence on the perceived relations between values, goals, norms, allocation and structure.

Applications of this theoretical framework to voter behaviour leads to the following statements:

- Every voter has formulated consciously or unconsciously several politically relevant values, ranked in order of priority. Familiar examples are equality, freedom and peace.

- A series of political goals are derived from that range, also priority ranked. For many people the value "freedom" means as little redistribution policy as possible and only government production of goods with a pure collective character, desired by nearly everybody. For some people the achievement of peace means the building up of a nuclear power, for others the breakdown of the existing military power.

- The voter achieves his goals by voting that political party that leads to an optimal allocation of scarce resources, as perceived by him. This axiom is a straight application of the economic man model of economics with his maximizing behaviour of subjects as his starting point.

- A particular government policy influences the allocation of scarce resources. With respect to profession, education and the ownership of productive means a change in the allocation can have an important influence on the structure. Also an increase in unemployment means a change in the structure, because of the sociological relevance of the distinction between the group of unemployed and the group of employed.

Voter behaviour was based on expectations with respect to allocation and structure as far as relevant for politics. If the real developments deviates from the expectations, this discrepancy creates a new information flow. This flow must be processed by the voter in order to decide to change his behaviour.
or not. In this way unexpected developments in education possibilities, employment and armament can drastically change the opinion of the voter.

Every voter processes new information in a cognitive and a non-cognitive way. It comes to cognitive processing if for example a strong increase in government expenditures is consciously evaluated to have only a slight effect on the level of employment. It comes to non-cognitive processing if because of a lack of cognitive information, people can interpret facts only in an emotive way. Some events create positive feelings and other events negative ones. For example, the prime-minister presented his or her policies several times on television. His analysis was not understood, but he looked well and active and his impression creates non-cognitive information flows in the form of feelings.

Voters' information processing can lead to changes in practised values and norms. If a levelling policy implemented by a socialist government year by year, has increased unemployment strongly and has led to only a slight decrease of the income differences between individuals, this could be a reason for people to start questioning the desirability of more equality. In the same way people can attach more value to peace, if they become aware of the very high costs of war.

It is also conceivable that more information leads to a change in the norms and not to a change in the values. If, for example, confessional voters behold a socialist government, translating the Christian message into political terms, some of them can start doubting the usefulness of the norm "a believer ought to vote for a confessional party".

Additional information can also influence the perception of people about the relations between the values, norms, goals, allocation and structure. By way of an example of a perceived relation the following: a voter attaches much value to individual freedom. This opinion is also suggested by the fact that some family relations are entrepreneur of their profession and point our voters always out the enormous negative effects of
government interference in the actual welfare state. As a norm our voters used the rule: freedom is guaranteed at best through a right-wing, liberal party and as a matter of fact he accepted that in the Netherlands the VVD is the most important right-wing liberal party. But if this party becomes the ruling party for a long time and unemployment raises year by year and the private consumption decreases every year, this events can possibly change voter's perception of the relation between values, norms and allocation. The value "freedom" is not realized by the norm "freedom = right-wing liberal".

The relations between goals and allocation can also be influenced if the voter discovers that an anti-inflation policy increases the unemployment stronger than conjectured. The relation between allocation and structure plays a role in the sense of a change in the allocation having an impact on the position of people in the social pattern. This change gives new information and eventually a new look at social developments.

- The positions people fill in society (structure!) and their scarce resources (allocation!) determines in a way the content of the information flows they receive every day.

- The way information is processed can also be influenced by new information flows. If a particular population has a low level of education, and possessed of old a small interest in and knowledge about political affairs, the main way of information collection and processing will be non-cognitive. The information can refer to the situation of the voter, but also can be related to the politicians. Absence of relevant information implies a situation of uncertainty.

It appears from psychological experiments that people are inclined to prefer a guaranteed small gain to a situation with a chance of a large gains with the risk of a particular loss. In other words, in this situation people avoid risks. But in a situation of a choice between a guaranteed small loss on the one hand and an uncertain large loss with a chance of a particular gain, people are inclined to a risk lovers' attitude. For a voters' judgement of government policy this could mean a
positive valuation for the ruling parties in case of a moderate positive economic and social development, while in a situation of a moderate negative development a negative valuation of the ruling parties is not necessarily the case.

For lack of cognitive information about goals and resources voters can resort to impressions they have from politicians. In uneventful times with rather positive developments most voters want politicians who radiate to continue a careful, safe course: friendly, quiet, inconspicuous team leaders. In turbulent times however, most voters want politicians who radiate to be men of action. Political parties which are sensible for psychological climate and have the right personalities at their disposal, will have more success than parties who try to inform the electorate in a more cognitive way. But some kinds of education, for example scientific education, can bring about a shift from a more non-cognitive way of information processing to a more cognitive way. This shift can have tremendous consequences for the way people react on impulses from their surrounding.

The analysis leads to the following as determinants of choice behaviour of voters:

1. The political values of the voters. If the value-orientation of a voter changes and the orientation of the party who got his vote the last time remains the same, the voter will submit a change.

2. The political norms of the voters. If the practiced norms in the search process for the best political party change, the voter will submit a change.

3. The relative costs of the policy-options. Given this values and norms, a voter will maximize his utility if he chooses that policy which leads to a maximum of difference between costs and benefits for the voter. His preferences determine the amount of

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benefits. The relative prices of the several policy options determine the costs. Optimal behaviour means an equality between marginal utility and relative prices. The influence of relative costs can be illustrated easily with an example. An income tax system with a strong progressive tariff can lead to more equality and solidarity. The costs must be borne especially by people with high incomes.

4. **The psychological asymmetries in the judgement of positive and negative developments.** The content and amount of the relevant variables are always influenced by the way voters perceive things. This is the consequence of an enormous lack of information about relevant things. Uncertainty leads to a non-cognitive way of decision-making. Ruling parties get the benefit of the doubt if there is no clear worsening of the situation.

5. **Social economic indicators.** Because of very incomplete information voters develop indicators for the judgement of policies. Trends in net income, inflation and unemployment can be considered as indicators for the general social and economic developments.

6. **Personality of party leaders.** The personality of party leaders can also function as an indicator for the judgement of the policies to be pursued by that party. In uneventful times most people dislike drastic changes and the personality of a politician must radiate that. In bad times a politician must radiate the opposite.

In the next paragraph we shall describe these six variables more carefully and try to operationalize them for the Dutch situation.

The theory, as developed in the foregoing part of this paper leads to four groups of variables that determine the level of popularity of a political party. These groups are values, norms, relative costs and benefits and psychological factors. In this section we will describe these variables more precisely and report some preliminary empirical tests we have executed.

We start with the description of the variables. In the appendix to this paper, data sources are given.

The first group of variables consists of the values of the voters and the political parties. To make these values operational, we followed a method developed by P.K. Keizer in his dissertation 1). Keizer has done research in political standpoints of various political parties in order to measure the ideology of the different parties. All Dutch parties are given so called ideology scores. These scores are based on a careful examination of the views taken in the general political and economic debates. Moreover, Keizer calculate an ideology score for the government, which is influenced by the ideology of the opposition parties, labour unions and employers' organization, because of electoral reasons. This government ideology score is used as an approximation of the ideology of the voters. For our estimates we assume that the values of the political parties and of the voters can be measured by their ideology. We call these ideology resp. ID(party), whereby party stands for PVDA, CDA, VVD, D66 and IDV, the ideology of the voters. We then defined an ideology difference as the absolute value of ID(party)-IDV. We now hypothesize that the popularity of a political party is a function of the ideology difference, not only from the party itself, but also from the difference of the other parties.

* We are grateful for the help of M. Leysen, F. Marcelis and G. Wrencken for their assistance in collecting parts of the data.

With regard to the norms, we tried two variables that could be managed by
the voters in their vote-decision. The first one is secularization. Secular-
arization has had an enormous influence on Dutch political relations 1). Reli-
gious and political split has always been one of the main characteris-
tics of the Dutch society 2). However, this pillarization has decreased in
the post war period and we hypothesize that this has influenced political
relations.

Especially, if church membership is used as a rule of thumb in the sense
that being a member of a denomination implies voting for a christian party,
then secularization will harm the popularity of the CDA and benefit the po-
pularity of the other parties. The second variable we used, is union-mem-
bership. We hypothesized that union membership is used as a norm for voting
for the labour party 3).

The relative costs and benefits of the policy options of the different par-
ties can be approximated in the following way. Assume that voters try to
maximize their utility. This utility depends on the relative costs and be-
nefits for the voters of the different policy options that parties can exe-
cute. To calculate these costs and benefits, voters should have informa-
tion about all possible policy options and information about the effects of
the different measures on their position in society. However, this infor-
mation is not available for the voters. They only can try to construct in-
dicators, with which they can measure the performance of the government.

1) G.A. Irwin, Patterns of Voting Behaviour in the Netherlands, Griffith
   (ed.), The Economy and Politics in the Netherlands since 1945, Martinus
2) See : J. Windmuller, Labour relations in the Netherlands, Cornell
3) Because of the existence of one, although relatively small, union that
   heavily leans on a confessional basis, the relation may not be very
   significant. However, available data did not permit us to split up
   union membership into membership of the different unions.
If we then assume that this performance is measured in economic terms, then economic indicators measure the relative costs and benefits of the policy options. Following mainstream empirical literature on this topic, we tried to use inflation and unemployment as economic indicators.

However, whereas the type of economic indicators is more or less agreed upon in the literature, not much agreement can be found with regard to at least two problems. Firstly, there is the problem concerning the time horizon of the voters. In the various theories about popularity functions no clear assumptions about this phenomenon are made, nor does our theory. Just like other researchers in this field, we will test in our estimates several possibilities. The same will be done for the problem concerning whether the level or the change in the level (first order difference) of an economic variable is perceived by the voters.


Secondly, there is no agreement about the effects of the (development of the) economic situation on the popularity of the opposition parties. Two hypotheses can be made:

1) A good economic situation favours government parties and harms the opposition parties and

2) A good economic situation favours government parties and has no effect on opposition parties.

We chose to try both possibilities in our estimates and see which gives the best results.

The psychological asymmetries can be approximated by variables that represent the election cycle. To measure this cycle, we used some simple dummy variables, based on a method proposed by Goodhart and Bhansali. Following this method, three psychological factors, influencing the popularity of a political party can be distinguished:

1) Depreciation effect. This means that when a party is in power, voters can become disappointed in the results of the party because of the fact that pre-election promises cannot be fulfilled. This effect is measured by a dummy taking the value 1 in the first month after the installation of a cabinet and rising by 1 per month until the next general election. The regression coefficient is thus expected to be negative.

2) Benefit-of-the-doubt effect. This means that a new cabinet is expected to gain some support after their installation, to give them a "start credit". This effect is measured by a dummy taking the value 12 in the month after a new party has won office and declining by one per month thereafter till zero was reached, and taking the value 6,6,4,2 (zero thereafter) in the four months after a party has retained office at an election. If we hypothesize that this effect lasts about a year for a new party and about four months for a "re-elected" party, the regression coefficient is expected to be negative.

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1) See for some possibilities the literature quoted under footnote 3, page 19.

2) Goodhart and Bhansali, o.c. page 61. See also B.S. Frey, Modern Political Economy, Robertson, Oxford, 1978.

3) Because economic performance is accounted for in separate variables, these results are of another kind e.g. abortion plans, nuclear-energy policies, environmental programs, etc.
3) fear-of-change effect. This effect means that, at the approach of elections, the popularity of the government parties may increase because voters know what they vote for and doubt if the opposition parties are able to do it better. This effect is measured with a dummy variable taking values rising from 1 to 6 in the six months preceding each election (otherwise zero). The expected sign of the regression coefficient then is positive.

Another psychological factor, distinguished in the foregoing section, concerns the personality of the party leaders. Unfortunately, systematic collection of data about this variable started in the Netherlands just after our sampling period, so due to data availability this variable could not be tested.

Summarizing, the following equation will then be tested:

\[
\text{POPPARTY} = X_1 |\text{IDPARTY} - \text{IDV}| + X_2 |\text{IDOP} - \text{IDV}| + X_3 \text{SEC} + X_4 \text{NUM} \\
+ X_5 \text{PI} + X_6 \text{UNEM} + X_7 \text{DEP} + X_8 \text{BD} + X_9 \text{FC} + \text{Constant (1)}
\]

POPPARTY = Popularity of a party. Parties are PVDA, CDA, VVD, D66.
IDPARTY = Ideology of the party, which popularity is estimated.
IDV = Ideology of the voters.
IDOP = Ideology of the other three parties.
SEC = Secularization.
NUM = Non-union membership 1).
PI = Inflation.
UNEM = Unemployment.
DEP = Depreciation-effect.
BD = Benefit of the doubt effect.
FC = Fear of change effect.

Notice that \(X_2\) represents 3 coefficients. For example if the popularity of the PvdA is estimated, the ideology difference variables read:

\[
\text{POPPVDA} = X_1 |\text{IDPVDA} - \text{IDV}| + X_{21} |\text{IDCDA} - \text{IDV}| + X_{22} |\text{IDVVD} - \text{IDV}| \\
+ X_{23} |\text{IDDD6} - \text{IDV}|
\]

1) From our data source, this figure was more easily calculated than union membership, so we used this variable.
Estimation results

Empirical tests have been executed for four main parties in the Netherlands to wit the PVDA (labour party), the CDA (Christian Democratic party), the VVD (Liberal party) and D66 (Centrum-left party, they like to call themselves left-liberal). In the observed period (1970-1980) these parties together gained on average 87% of the votes in the popularity surveys 1).

Moreover, each party was at least once involved in a government coalition. The sampling period is 1970.1 - 1980.12, this means that monthly data were used and the number of observations thus is 132.

From the specification of equation (1) it follows, that the estimates are of a linear kind and the method used is ordinary least squares. In executing the first tests of equation (1), two problems arised. Firstly, the ideology differences of the PVDA and the VVD showed perfect correlation, so estimates where these two variables were simultaneously involved, could not be made. Secondly, the results showed low Durbin-Watson statistics thus indicating strong serial correlation in the residuals. Therefore we added another variable to our equation, viz. the popularity of the party, with a lag of one period (POPPARTY-1).

Table 1 shows the results of these efforts.

From table 1 it follows that values of the voters, as measured by their ideology difference, has some influence on voter behaviour. However, their influence seems to differ between the various parties. For the PvdA and D'66 the signs of the coefficients relating to the ideology difference of these parties themselves are as expected (if e.g. the ideology difference of the PvdA increases, a decrease in the popularity of the PvdA can be expected).

The relevant coefficients of the CDA and the VVD show to be significant but are positive. If we then look at the coefficients relating to the ideology difference of the other parties (so in case of the PvdA, the coefficients of CDA, D'66 and VVD are now considered) we can again come to the conclusion that some influence proceeds from the ideology variables but firm

1) For the reader who is not familiar with the Dutch political situation, we notice that these votes are not equally divided. The average percentages are for the PvdA 33%, the CDA 34%, the VVD 14% and D'66 6%.
conclusions cannot be drawn. Note that, e.g. in the case of the CDA, IDPVDA and IDD66 are expected to be positive. If the ideology difference of the PvdA increases, voters may leave the PvdA and vote for one of the other parties.

The results of the variables SEC and NUM, representing norms, confirm more or less our expectations. Secularization harmed the popularity of the CDA, while the PvdA and D'66 gained in popularity from this development. An increase in non-union-membership shows to be especially important for the PvdA and the VVD, with opposite signs of the coefficients as could be expected.

The economic variables show bad results. Only for the CDA, the first order difference in unemployment confirms the expectations. These results were found under the assumption that economic developments do not influence the opposition parties. Psychological asymmetries seem especially important for the PvdA. The coefficients are significant and the signs are as expected. This means that the election cycle may play a role in the voting decision for the PvdA. For the other parties, the election cycle does not seem to play an important role.

The results that formed the basis of table 1 still showed some multicollinearity. To lessen the degree of multicollinearity, we estimated the equation again, with various combinations of dependent variables. Table 2 shows the results of these re-estimates.

With regard to the variables representing the norms and the psychological asymmetries, table 2 shows similar results as table 1. Note that the VVD-column is the same as in table 1, because again with this specification the best results for the VVD were reached. The ideology variables for the CDA and D'66 have now improved. For the VVD, the ideology variables still give a result that is contrary to our expectations.

With regard to the economic variables, again the "best" results were reached under the assumption that the economic situation has no influence on an opposition party. However, they still show no significant effect on the popularity of a political party. Although this is in accordance with
earlier research for the Netherlands 1), we decided to check this result by performing some other estimates. Therefore we split the sample period up into the different government periods mentioned in table 3 2) (see next page). We then estimated the popularity of the different parties over these periods. Again these results showed no systematic influence of inflation and unemployment on the popularity of the political parties. This result is contrary to what we expected. If we then for the present assume that the theory presented in the foregoing section is correct and that economic factors influence the utility of the voters and by way of the utility maximization principle, the popularity of a political party, then the cause of these disappointing results may either lie in the used variables or in the specification of these variables. With regard to the variables, it may be necessary to incorporate a variable measuring income developments in the model 3). The specification of the model gives rise to an interesting problem. As our estimates show, we only tested the so-called naive voter model 4). In this kind of model, the separate influence of both inflation and employment is tested. The trade off between these two variables is not reckoned with. It is therefore assumed that voters are not aware of such a trade-off.

As Renaud and Van Winden and Chappell show, however, this assumption need not be true. Especially in the results of Renaud and Van Winden this trade-off plays an important role. So, the insignificant results may be due to this assumption.

1) See: P.S.A. Renaud and F.A.M.H. van Winden, o.c., page 7; P.K. Keizer and A.P. van Veen, Voter reaction as a welfare state stabilizer, Research Memorandum 84-010, Limburg University.
2) Note that our sampling period is 1970:1-1980:12, so we could not exactly follow the division as indicated in table 3.
3) In the very first tests, we used the development of the average gross nominal wages as a variable, measuring income developments. This variable performed very bad, so we dropped it.
4) See: H.W. Chappell JR, o.c.
If we then summarize the empirical investigations, the results show:
1. The values of the voters and the political parties as represented by their ideologies seem to influence the popularity of the PvdA, the CDA and D'66. The same can be said for secularization and non-union membership.
2. According to our specification, inflation and unemployment show to have no significant effects on the popularity of a political party.
3. The existence of an election cycle could only be confirmed for the PvdA. The popularity of the CDA decreases as elections approach, whereas it increases slowly after the installation of a new cabinet. No benefit-of-the-doubt effect could be found for the CDA. For the VVD and D'66, the election cycle does not seem to exist. This could be due to the fact that they are in general minor coalition partners cf. table 3.

**TABLE 3**

<table>
<thead>
<tr>
<th>Period</th>
<th>Government parties</th>
<th>Number of ministers</th>
<th>Party of prime minister</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PvdA</td>
<td>D66</td>
<td>CDA</td>
</tr>
<tr>
<td>1967.4-1971.7</td>
<td>CDA, VVD</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>1971.7-1973.4</td>
<td>CDA, VVD</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>1973.5-1977.12</td>
<td>CDA, PvdA, D66</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>1977.12-1981.10</td>
<td>CDA, VVD</td>
<td>-</td>
<td>10</td>
</tr>
</tbody>
</table>

As table 3 shows, The CDA was in government during the whole period. Moreover, the PvdA and the CDA are the big parties in a coalition, whereas D'66 and the VVD are small or relatively small partners in the government.

The personality of their leaders may be a better approximation of the psychological factors explaining the popularity of these minor coalition partners.

**Postscript**

This article is about voter behaviour and must be considered as a first attempt. Up until now most research is the field of voter behaviour was pure economic in their theoretical basis. We tried to build a behaviour-theoretical foundation. Starting from the economic analysis we added a sociological and a psychological analysis. The 'traditional' economic determinants of voter behaviour has been most of the time unemployment,
inflation and sometimes variables like the net income growth rate. The addition of sociology led to new variables like values and norms. In our research we have operationalized these factors in terms of ideology differences, secularization and union membership. The addition of psychology implied new determinants like the election cycle (in economic research often introduced ad hoc) and the personality of party leaders.

Lack of data led to a leave out of the personality-factor. Our empirical research, which must be considered as preliminary, shows that the ideology factor may influence voter behaviour. Economic factors showed not to be significant in our specification. Psychological factors could be confirmed for one party. A lot of research has to be done, theoretically and empirically. The integration of the various disciplines of social science is a difficult but challenging task. We hope this article is a valuable contribution to that.
<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Popularity functions</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>PvdA</td>
</tr>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
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<tr>
<td></td>
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</tr>
<tr>
<td>Poparty -1</td>
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</tr>
<tr>
<td></td>
<td>(14.3)</td>
</tr>
<tr>
<td></td>
<td>IDCDA-IDV</td>
</tr>
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</tr>
<tr>
<td></td>
<td>IDPVDA-IDV</td>
</tr>
<tr>
<td></td>
<td>(-1.91)</td>
</tr>
<tr>
<td></td>
<td>IDD66-IDV</td>
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<td>IDVVD-IDV</td>
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<td></td>
</tr>
<tr>
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<tr>
<td></td>
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<tr>
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</tr>
<tr>
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<tr>
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<tr>
<td>PI</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>FOD/UNEM</td>
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</tr>
<tr>
<td></td>
<td>(0.07)</td>
</tr>
<tr>
<td>DEP</td>
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<tr>
<td></td>
<td>(-2.07)</td>
</tr>
<tr>
<td>BD</td>
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<tr>
<td></td>
<td>(-1.6)</td>
</tr>
<tr>
<td>FC</td>
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<tr>
<td></td>
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<tr>
<td><strong>F-stat.</strong></td>
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<tr>
<td>DW</td>
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<tr>
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<td>TABLE 2</td>
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<tr>
<td>Poparty -1</td>
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</tr>
<tr>
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<td>(14.07)</td>
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<tr>
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<td>IDPVDA-IDV</td>
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<td>IDD66-IDV</td>
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<tr>
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<tr>
<td>IDVVD-IDV</td>
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<tr>
<td>UNEM</td>
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<tr>
<td></td>
<td>(1.95)</td>
</tr>
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<td>FODUNEM</td>
<td>-0.04</td>
</tr>
<tr>
<td></td>
<td>(-1.07)</td>
</tr>
<tr>
<td>DEP</td>
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</tr>
<tr>
<td></td>
<td>(-3.17)</td>
</tr>
<tr>
<td>BD</td>
<td>-0.19*</td>
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<td></td>
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<tr>
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<td>F-statistic</td>
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<tr>
<td>adj. $R^2$</td>
<td>0.84</td>
</tr>
<tr>
<td>Number of obs.</td>
<td>131</td>
</tr>
</tbody>
</table>
Method: Ordinary Least Squares. TSP-programs were used. 
t-values are given between parentheses. An * means that the t-value exceeds 
t 0.95, so the variable is significant at 95% level. DW gives the Durbin- 
Watson Statistic on serial correlation. 
POD means that the first order difference of a variable was used.

Appendix

DATA SOURCES

Popularity of political parties: derived from the weekly NIPO (Netherlands 
institute for public opinion) inquiries. Monthly figures were calculated by 
calculating the average of the weekly results. The figures are answers to 
the question: if today were elections, on which party would you vote? No 
amer and don't know is corrected for. The ideology variables are based 
upon P.K. Keizer; Inflatie, een institutionele benadering, Leiden 1982, 
table 8.5.3, pag. 211 and table 10.3.9 (IDREGC 8), pag. 265. From the 
yearly figures we constructed monthly figures. Besides we extrapolated the 
figures for 1979 and 1980. Secularization and non union membership derived 
from the NIPO inquiries. The rate of inflation: CBS, Maandstatistiek van de 
prijzen, januari 1985, table 1.6 C. A survey of the number of unemployed on 
a monthly basis during the period 1970-1980 was sent to us by the CBS. 
The used numbers are seasonally adjusted.