



Anomalies in Political Economy*

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Abstract. Results in cognitive psychology and experimental economics indicate that under identifiable conditions individuals do not act in an economically rational way. These results are important for Political Economy. Anomalies appear in the behaviour of voters, politicians and administrators. Economic markets do not fully eliminate anomalies in the aggregation process. It is shown that political aggregation by democracy, bargaining or bureaucracy may weaken or strengthen such individual anomalies. Moreover, institutions can partially be interpreted as endogenously emerging as a result of individuals' demands to cope with anomalies.

1. What are anomalies?

In order to intuitively convey what is meant by 'anomalies in individual behaviour' the following examples may be helpful.

Example 1

- **Problem 1:** Choose between alternatives A and B, where A (4000, 0.80) [this means that the payoff of 4000 is received with a probability of 80%] and B (3000, 1.0) [i.e., the sum of 3000 is received with a probability of 100%, or with certainty]. In an experiment (Kahneman and Tversky, 1979: 266) it turns out that 20% of the respondents prefer alternative A, and 80% prefer alternative B.
- **Problem 2:** In the same experiment, the participants had to choose between C (4000, 0.2) and D (3000, 0.25). It turns out that 65% of the respondents preferred alternative C, and 35% alternative D.
- **Comment:** Alternative B being preferred to alternative A ($B > A$) implies

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$u(3000) > \frac{4}{5} u(4000)$, or $\frac{u(3000)}{u(4000)} > \frac{4}{5}$. On the other hand $C > D$ implies $\frac{1}{5} u(4000) > \frac{1}{4} u(3000)$, or $\frac{u(3000)}{u(4000)} < \frac{4}{5}$. There is a contradiction.

Example 2

- **Context:** Imagine that the US is preparing for the outbreak of an unusual Asian disease which is expected to kill 600 people. Two alternative programs to control the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

Problem 1: *preferred by*

If program A is adopted,
200 people will be saved (72%)

If program B is adopted, there is a
 $\frac{1}{3}$ probability that 600 will be saved, and a
 $\frac{2}{3}$ probability that no people will be saved (28%)

- **Problem 2:**

If program C is adopted,
400 people will die. (22%)

If program D is adopted, there is a
 $\frac{1}{3}$ probability that nobody will die, and a
 $\frac{2}{3}$ probability that 600 will die. (78%)

- **Comment:** Programs A and C, and programs B and D are logically identical. In programs A and B the outcomes are stated in positive terms (lives saved), whereas in programs C and D outcomes are stated in negative terms (lives lost). The framing and wording of problems has an influence on judgement and choice.

(Source: Tversky and Kahneman, 1987: 76).

Example 3

- **Context:** Imagine you are faced with the decision of adopting one of two economic policies.

– **Problem 1:**

	<u>Work force unemployed (%)</u>	Rate of inflation (%)	Preferred by
Program J	10	12	(36%)
Program K	5	17	(64%)

– **Problem 2:**

	<u>Work force employed (%)</u>	Rate of inflation (%)	Preferred by
Program L	90	12	(54%)
Program M	95	17	(46%)

(Source: Quattrone and Tversky, 1988: 727).

- **Comment:** People react differently to identical economic programs when labour market conditions are formulated in terms of unemployment than when they are formulated in terms of employment, a type of behaviour inconsistent with rational decision theory.

After this presentation of some illustrative examples, Section 2 applies selected anomalies to individual politico-economic behaviour. The following Section 3 considers the social dimension as affected by individuals' anomalous behaviour and the political aspects of these aggregate effects are discussed. Section 4 looks at anomalies as a so far neglected cause for the emergence of institutions and Section 5 offers concluding remarks.

2. Applications to individual politico-economic behaviour

2.1. *Anomalies affect people*

Behavioural paradoxes or anomalies play an important role in politically relevant behaviour – an aspect which has so far been neglected in Public Choice theory.¹ This theory is based on the rational choice approach, i.e., it is assumed that people behave in a way to maximize their (own) utility. The anomalies presented above, as well as many other biases² in behaviour, violate this assumption: There exist identifiable – and it is argued, important – instances in which people deviate from the axioms of rationality as established by von Neumann/Morgenstern (1947), and/or used in models of political economy (e.g., Becker, 1976; McKenzie and Tullock, 1975; Brunner, 1987). They may thus act against their own interests under certain conditions. It should be noted

that many of the anomalies have been subjected to extensive empirical tests. However, the common argument that stronger incentives for rational behaviour and learning would reestablish the classical results can, in general, be ruled out on the basis of existing evidence (see Thaler, 1987; Frey and Eichenberger, 1989).

This section discusses some behavioural anomalies relevant in political economy relating to voters, politicians and public officials. They are meant to be illustrative, but not exhaustive. In fact, many of the instances of paradoxical behaviour may also obtain for other actors.

2.1.1. Voters

(a) *Framing effect.* In Section 1, an experiment was presented which shows the effect of how alternatives are phrased on the way they are evaluated. With the rate of inflation being always the same but substituting 'rate of employment' for 'rate of unemployment' (which, of course, describe *identical* features), the evaluation of programs by the test persons changes dramatically. Provided these experimental results can be transferred to actual decision situations, it is possible that referenda outcomes, as well as results of representative surveys, are systematically affected by how the alternatives are presented. In the unemployment/inflation example, program K is considered to be better because it suggests that a 'bad', namely the rate of unemployment, is only one half compared to program J (10% in program J, 5% in program K, respectively). In the formulation using rates of employment, programs L and M look more similar with respect to employment, in one case being 90%, in the other 95%. (This 'psychophysical' effect has been called *ratio-difference principle*, see Quattrone and Tversky, 1988: 728).

It is easy to see that such framing effects may be of importance in political economy, particularly for the study of popularity and election functions (see, e.g., Paldam, 1981; Kirchgässner, 1986; Hibbs, 1987; or for a recent survey Schneider and Frey, 1988). As long as the frames stay constant, there is no problem in this respect. If, however, the frame changes partially or totally,³ the government's evaluation function may exhibit shifts which are not related to the state of the economy. The same holds in cross section analyses, if the figures portraying economic conditions are framed in ways which differ between the various groups in society. Moreover, if the frames employed by the citizens in the case of surveys may differ from those relevant in actual voting, popularity indices are not necessarily powerful predictors for election outcomes.

It is not difficult to imagine that there may be many other instances in which such framing effects may intervene in a way not presently taken into account in political economy.

(b) *Reference point effects*. Individuals tend not to evaluate economic and political considerations in an absolute way but always with respect to some standard (see Quattrone and Tversky, 1988). Often, the *status quo* is the most natural reference point (Samuelson and Zeckhauser, 1988), but in other cases it may be expectations formed on the basis of past experience.

In the research on popularity and election functions the reference point effect has for a long time been taken into account by explicitly estimating the impact of deviations of economic variables from some norm, mostly some declining weighted average of their past values. However, another psychological bias has been rather disregarded, namely that *some* experiences gained in the past may loom much larger in the memory than more recent ones. An example may be the fear of inflation among Germans who have experienced the inter-war period, and who tend to attribute the following depression and the rise of political extremism to this factor. Such *availability effects* (Tversky and Kahneman, 1973) may not be adequately captured by some mechanical econometric device, but an effort must be made to study precisely what promotes, and what hinders the availability of factors relevant to people's current judgement.

(c) *Hindsight bias*. It has been demonstrated in a series of studies that people who know the nature of events falsely overestimate the probability with which they would have predicted it (Fischhoff, 1980; see also Dawes, 1988). In one study, people were asked to predict whether a particular event would happen (e.g., Nixon's visit to China) before it occurred. After that event became history, they were asked to recall what they had predicted. The recollection tended to be biased strongly in the direction of having predicted what actually happened. Thus people find it difficult to see *ex post* why somebody should have been surprised by what had happened. This hindsight bias may again be relevant for citizens' evaluation of the government's actions. If politics leads to unfavourable results, people wrongly believe that this was foreseeable. Therefore they blame government for having committed a grave mistake. This may be one explanation for the finding that voters tend to support the government as long as economic conditions are favourable, but tend to punish it when economic conditions worsen, quite irrespective of whether the government can be held responsible for this decline.

(d) *Endowment effect*. Objects are valued more highly because they are in one's possession. One would not be willing to sell such an object at a particular price, though one would never think of buying it at the same price (Thaler, 1980). The endowment effect is well supported by experimental evidence (Knetsch and Sinden, 1984, 1987). It may moreover often be observed in the political sphere. One instance are colonial possessions which people do not want to relinquish, but which if these did not already belong to them they would not even dream

of acquiring. The Falklands might be a good example for the case of Britons. The endowment effect also regularly works in the case of art treasures which are in danger of being sold abroad. They quickly become considered part of the 'national heritage', though this attribution is rather doubtful (as in the case of a picture by Goya showing a Spanish Lady which hangs in the Louvre and is therefore considered part of France's [and not Spain's] national heritage). Few people would, however, be willing to spend the (often enormous) sums to buy such objects from abroad (see Frey and Pommerehne, 1989).

2.1.2. *Politicians in power*

Individuals in governmental positions are also subject to various anomalies resulting in behaviour which does not accord with, and is sometimes even in marked contrast to, their own interests.

(a) *Sunk cost effect*. Politicians often stick to policies which are disadvantageous to them as they lead to a loss of popularity and votes, and prevent a reelection, because they mistakenly think that past losses constrain them to do so. It is important to note that such individually irrational behaviour (Thaler, 1980; Arkes and Blumer, 1985) is not automatic but that the conditions under which it is likely to appear must be carefully analyzed. Thus, Emperor Hirohito did not honour past cost when he said on 15 August 1945: 'The war situation has developed not necessarily to Japan's advantage . . . in order to avoid further bloodshed . . . we shall have to endure the unendurable, to suffer the insufferable', nor did General Charles de Gaulle when he withdrew the French from Algeria in 1956, nor did President Reagan when he called back the Marines from Lebanon in 1983 (see Dawes, 1988: 140, 230).

(b) *Biased use of information*. Politicians tend not to use information in a way most advantageous to them. When considering imminent problems they concentrate on bits of evidence which happen to occur to them because they are easy to remember (*availability bias*), they incorrectly generalize from single typical observations (*representativeness bias*), and in many instances they overrate recent evidence while neglecting underlying conditions (*base rate fallacy*, Tversky and Kahneman, 1974; Bar-Hillel, 1983).

A recent example of the inappropriate use of information in political decision making is the analysis of the accident of the space shuttle Challenger in January 1986. The investigating Commission⁴ placed great weight on a memorandum by an engineer which explicitly warned that the O-rings, which caused the disaster, would not function. It was, however, not investigated how often such a warning was uttered without an accident occurring afterwards. Also, NASA's decision making was severely criticized without taking into account that the *same* type of decision making was successful with other launches

inside NASA, and other programs outside NASA. (It may, of course, be argued that everybody involved knew that such a comparative procedure was in order, but that it was in the government's interest to find a culprit, irrespective of the truth).

(c) *Opportunity cost bias*. Politicians do not undertake all actions from which they could profit. There is thus no full rent-seeking, indeed unused opportunities abound. One reason for such behaviour is a sense of fairness which, e.g., also prevents entrepreneurs from raising prices in an excess demand situation as much as they should in order to maximize profits (see the experiments by Kahneman, Knetsch and Thaler, 1986, with Canadian subjects, and with Swiss and German subjects, Frey, 1988). An important instance of such a resistance by politicians is the adherence to constitutional principles (Buchanan and Tullock, 1962), even if they could get away with violating them. (The argument is not that the constitution is never violated, but that this happens less often than someone believing in full scale rent-seeking would expect.)

Another interpretation of why beneficial possibilities are disregarded, or opportunity cost weighted less heavily than out of pocket cost (Thaler, 1980) may be that such opportunities often do not come under the politicians' consideration. They do not enter their minds, and therefore are not relevant in decision making. It may be useful to distinguish between an objective opportunity set (as seen by an outside observer) and an *ipsative opportunity set* referring to what the politicians in question consider to be relevant *for themselves* (see Frey and Foppa, 1986; Frey, 1989).

(d) *Endowment effect*. Politicians, in a similar way to voters, also often fall prey to placing a greater value on what they possess than they would actually be willing to pay. An important example are dictators (see Tullock, 1987) who cling to their position though they risk their life in doing so and though they have moved sufficient funds abroad to enable them to lead a most agreeable life there. It is, of course, true that some people (and probably especially dictators) value power more dearly than money and a quiet life. However, if such a type of person living in comfortable and agreeable conditions were asked whether he would be prepared to step in as a dictator seriously risking to be deposed and killed, he would most likely refuse, which would be evidence for an endowment effect so far not considered by economic theory.

(e) *Biased attribution*. There exists a strong tendency for learning *wrongly* from experience (see Dawes, 1988: 100–120). An individual who has succeeded by just plain luck tends to attribute his success to his superb capabilities and repeats his behaviour – with disastrous results. Extraordinarily lucky people

easily conclude from their 'experience' that they are invulnerable and as a result court disaster by failing to monitor their behaviour and its implications. This almost reads as the normal history of dictators who were correct in one or two crucial decisions out of pure luck, therefore came into power, and then inevitably made major mistakes. An example is Hitler who pursued a successful military strategy when attacking France and therefore came to believe that he was a great general (a belief which was supported by his surroundings, but rather ridiculed by the population which accorded him the acronym GROEFAZ, i.e., 'Grösster Feldherr Aller Zeiten'). This belief led him to commit gross mistakes in the later war years.

2.1.3. *Parliamentarians*

Members of parliament often succumb to the *illusion of control*, i.e., they think that they are able to influence society and in particular the economy when in fact they are not. They tend to systematically underestimate the countervailing factors, be they on markets or in the public bureaucracy. It could be argued that parliamentarians like to live under this illusion because they have no alternative, and that they thus behave rationally. However, there is more to it than this. Experimental evidence (see Langer, 1975) confirms that people have the impression of being in control even when they must know that the process they seemingly influence is purely random. They thus do not simply *choose* to believe that they are in control. As a consequence, they look too little for conditions and instruments where they can indeed exert control.

2.1.4. *Administrators*

Individuals find it in general impossible to start from scratch but rather have a marked tendency to start their cognition from a given point which has been called an '*anchor*' (Slovic and Lichtenstein, 1971; Tversky and Kahneman, 1974). Depending on where this anchor is set, people proceed quite differently, i.e., their evaluation of the alternatives is not independent from (irrelevant) third alternatives. This violates one of the von Neumann-Morgenstern axioms. In the administrative sphere one such anchor is of central importance, namely that the budget is always fixed relative to what was allocated in the previous period (incremental budgeting, Wildavsky, 1964). However, public officials have many other such rules, many of which may no longer be to their own advantage but which nevertheless serve as anchors.

2.2. *Strategic exploitation of anomalies*

When individuals are subject to irrational behaviour to their own disadvantage there is an incentive for others to profit on their account. It often serves to even

strengthen such anomalies in order to better reach one's own goals. The following three examples are meant to serve as an illustration.

(a) *Framing*. When citizens and voters are prone to succumb to framing effects, politicians and public officials may use them for their own purposes (provided they are not subject to exactly the same framing effects, which is unlikely). This includes (political) advertising. According to Tullock (1989), 'almost all of advertising is built around a desire to frame choices appropriately'. Another instance has already been touched upon above: When unemployment increases, government politicians have an incentive to rephrase this in terms of a (small) decrease in the rate of employment. Anomalies like the one concerning a program on fighting the Asian disease presented at the beginning can also be exploited by politicians who have a better chance of having the program accepted which *they* prefer.

In a somewhat looser sense, framing plays an important role when it comes to imposing the cost of government activity. The same objective cost is perceived less if financing is by indirect rather than by direct taxation, and less if direct taxation is immediately deducted than if the income is first paid out and then taxes have to be paid (in the latter case, the full income enters one's endowment, and one suffers a greater loss when that endowment is thereafter reduced by taxes, see Thaler, 1980). Such fiscal illusion effects are, of course, well known and have been empirically supported (e.g., Pommerehne and Schneider, 1978), and indeed constitutional economics has made an effort to counteract this tendency to exploit the citizens by suggesting well visible and perceived taxes, but the role of framing and the empirical evidence collected in psychology has been insufficiently noted. Equally well known is the politicians tendency to undertake redistribution by regulation instead of by open income transfers even if the total cost of such activity to the voters is much higher.

(b) *Endowment effect*. Many voters fall prey to the endowment effect when it comes to national possessions, as noted above. Mrs. Thatcher exploited this anomaly when engaging in the Falkland war: Few Britons would be ready to acquire the island at the enormous price the war cost, but most were not willing to give it up at much lower cost (including a more than full compensation of the inhabitants). The strategy paid off handsomely, the election taking place shortly afterwards proving to be a resounding victory.

(c) *Sunk cost*. Public administrators are well versed in exploiting people's tendency to honour sunk cost. One of their time-honoured strategies to blow up public outlays and therewith to increase their own utility is to proceed bit by bit, first proposing an acceptable expenditure sum, knowing that once a begin-

ning has been made further expenditures may be brought about by using the sunk cost effect.

3. Politics and social anomalies

So far, this article discussed anomalies as they appear when individuals decide and act. This is the level of analysis to which the experimental evidence refers. While economics is based on individual behaviour, the focus of interest is not individual behaviour *as such* (as it is for psychologists). Rather, economists are concerned with aggregate phenomena.

In *traditional economics*, which investigates markets, several arguments have been brought forward suggesting that though anomalies *may* be relevant at the individual level, they are of no consequence at the aggregate level. But none of these arguments are convincing. Serious theoretical reasons and empirical observations exist for the belief that in economic markets *as they exist in reality*, individual level anomalies are not eliminated at the aggregate level (for evidence, see Frey and Eichenberger, 1989). There may (at best) be a general tendency to *weaken* individual level anomalies in well functioning markets. It follows that if elimination is claimed it must be proved for the specific market and time period in question.

Political Economy is not restricted to the analysis of markets but also studies other aggregation systems: democratic processes, bargaining by interest groups, and administrative decision making. The effect of individual anomalies on the aggregate level depends on how these anomalies are transformed and affected through the process of aggregation.

3.1. Democracy and the state

A fully competitive two-party democratic system with continuous elections and log-rolling to allow arbitrage leads under appropriate conditions to a Pareto-efficient outcome and eliminates anomalies at the aggregate level (see, e.g., Hinich and Ordeshook, 1971 and Riker and Ordeshook, 1973). The forces of *perfect* political competition thus lead to the same result as in the case of a *fully* efficient market, but this particular institutional setting is even more unlikely to obtain in reality.

Democracy has a crucial effect on the transfer process from quite a different point of view (apart from its efficiency property through political competition). Democracy can be looked at as that institutional setting which allows, and encourages, diversity of opinions: the same problem is looked at from many different angles or in terms of many different *frames* (to use Kahneman

and Tversky's word). The diversity of frames brought about by the democratic process helps to overcome one-sided views and therewith some of the individual level anomalies. In a constitutional system like the American one, the institution of checks and balances as well as the freedom of opinion and of the press further strengthens this tendency. The force of this elimination process becomes even more vivid if one looks at the opposite institutional setting. In an authoritarian system the political leadership *imposes* one particular frame, and the people are forced to follow and use this frame when social questions are discussed.

While there are *legal institutions* in democracies which serve to weaken the effects of individual level anomalies, there is no reason to assume that they completely eliminate them. Indeed, in the *current* politico-economic process of a democracy, as opposed to the constitutional or rules level (see Buchanan, 1977; Frey, 1983), there are strong forces tending to *strengthen* individual anomalies. A (democratic) government punishes successful individuals and firms by (partly very high) taxation, and supports unsuccessful individuals and firms, based on the solidarity principle, or because they have the stronger political arguments. If individuals and firms prone to anomalies or irrational behaviour have a higher probability of being poor and making losses, and the rational ones of being successful – which is, of course, related to the survival of the fittest in the market (Alchian, 1950; Friedman, 1953) – then this intervention by democratic governments blocks the anomaly reducing process by the competitive market: The effects produced by anomalous actors are strengthened, those by rational actors weakened. As this redistribution process through taxation and subsidies is of huge magnitude in modern societies, this strengthening of anomalies by the intervening effect of democratic institutions should not be disregarded.

To summarize, in a democracy a wide set of institutions exist which weaken anomalies in individuals' actions. On the other hand, current interventions of governments tend to strengthen already existing individual level anomalies at the aggregate level. As a result it may be concluded that a consideration of democratic institutions certainly is no reason to neglect individual level paradoxa but rather to take them seriously into account.

3.2. *Bargaining and interest groups*

The incentives to form stable interest groups with which to engage in the bargaining process is unequally distributed in a society. Producers (which in that case include the suppliers of labour) are represented by strong interest groups, while the consumers and tax payers are only weakly, if at all, active in the bargaining process (Olson, 1965; Moe, 1980). Anomalies among individual produ-

cers, which are also reflected within the corresponding interest group, are strengthened at the aggregate level by the intervening bargaining process. At the same time, rational behaviour on the part of producers also gets a higher weight at the aggregate level. In contrast, both types of behaviour are scaled down at the aggregate level in the case of individual anomalies among consumers and tax payers. The net outcome at the aggregate level is open; in any case there is no reason to believe that bargaining processes eliminate the anomalies existing at the individual level. More can be said about the endowment effect (Thaler, 1980; Samuelson and Zeckhauser, 1988). As old or long established interests tend to be better organized than newer ones (Olson, 1982) the endowment effect and its interpretation as a 'status quo bias' is strengthened, which gives this particular phenomenon greater aggregate weight.

3.3. Administration and bureaucracy

This particular aggregation process works by formal rules which are a special type of 'rationality' (quite different from the one based on the von Neumann-Morgenstern axioms). Administrative rationality functions with formal chains of command, but there is also considerable mutual interdependence between the various hierarchical levels due especially to informational requirements (Breton and Wintrobe, 1982).

Administrative processes tend to impose one (legalistic) 'frame' (in the sense of Kahneman and Tversky, 1984) on all problems, and thus achieve the opposite effect of what democracy does: Individual level anomalies tend to be strengthened. This may be exemplified by one instance, the treatment of opportunity cost. It has been found (Thaler, 1980) that individuals systematically undervalue the opportunity cost compared to out of pocket cost. This tendency is strengthened by the administrative process. Public (as well as private) bureaucracies are steered by budgets which only record monetary receipts and outlays. Opportunity costs do not (normally) appear in budgets and are therefore of little interest to bureaucrats (as long as they fall on people other than themselves). So it may be observed that a valuable plot of land or building in public property remains unused for long periods of time because the costs are not directly visible in the budget.

On the basis of these considerations it would be difficult to argue that the administrative process is an effective eliminator of individual level anomalies; rather the opposite is true.

4. The emergence of institutions

Irrational behaviour in the sense of deviations from the von Neumann-Morgenstern axioms or from the existing model of behaviour à la Becker may lead

to cost for the individual concerned. These costs can be the cost of missed opportunities, or outright monetary cost. They provoke various kinds of consequences which are discussed in three hierarchical steps.

4.1. *When do people perceive the cost?*

For various reasons, the cost created by anomalous behaviour may not be taken into account by the individual acting. The alternatives offering better opportunities may simply be outside the considerations of the individual (they are outside the 'ipsative' possibility set; see Frey, 1989) and, therefore, no awareness of having missed an opportunity arises. Alternatively, an individual may know that superior alternatives are available, but he or she chooses not to evaluate the consequent cost. In both cases, individuals are not concerned with the cost of their anomalous behaviour. No reaction is, therefore, to be expected, and the individuals will pursue their irrational kind of behaviour.

Normally, however, individuals falling prey to anomalies become aware of the costs entailed, at least after some period of adjustment. This may happen either by the anomalously acting individuals *themselves* noting the cost, or they are made aware by *other* persons. In this context it is useful to distinguish two different kinds of anomalies:

- (1) There are anomalies to which (almost) all individuals fall prey. Examples are the tendency to miscalculate small probabilities or the certainty effect (Kahneman and Tversky, 1979). Another instance are framing effects. It has been shown (Slovic and Lichtenstein, 1971; Lichtenstein and Fischhoff, 1977; Tversky and Kahneman, 1971, 1974) that even experts fall prey to such anomalies.
- (2) Other anomalies are *only* relevant for those individuals acting, while outsiders are immune. This applies to two important anomalies often to be observed in daily life: The sunk cost effect and the endowment effect. In this second type of anomaly people standing outside are equipped to inform the individual falling prey to the anomaly about his or her irrationality. It remains open, however, whether the individual concerned accepts the information offered.

4.2. *When do people react?*

Even when an individual behaving in an anomalous way is aware of the cost entailed by his action, he or she may still not react but continue as before. The reason is that the cost of reacting (transaction and psychic cost) may be too

high compared to the possible cost reduction or the potential gain. The reluctance to act though one is aware that one's position is not 'optimal' has been stressed as an important feature of procedural rationality in Simon's (1957, 1978) 'satisficing', or 'bounded rationality', and in Leibenstein's (1976) concept of 'inert areas'. The consequence is again that the anomalies are transferred to the aggregate level.

In many cases, however, the transaction costs are not so high as to prevent action. Individuals then consider and compare alternative possibilities for action, depending on a cost-benefit calculus. Such action may be undertaken by the individual falling prey to the anomalies. In many cases, other decision makers who see the chance of reaping profits from the irrationality of others take action.

4.3. *How do people react?*

The reactions to the cost of anomalies may take place at the individual or collective level.

(a) On the *individual level* persons may resort to self-commitment, i.e., they may impose rules upon themselves designed to help them to evade anomalies. The individual may be regarded as a 'multiple self' (Elster, 1986) consisting of a planner who knows that there is a risk of irrational behaviour, and of a doer (Margolis, 1982) who tends to fall prey to the anomalies. This concept has been discussed as a resolution to 'akrasia', or weakness of will (Sen, 1979) but is perfectly applicable to the case of anomalies.

(b) Reactions to the cost of anomalies may also occur at the *collective level*. Irrationally acting individuals may look for help from outside. Such help may come from other individuals, in particular within the family, or from friends or colleagues. Another possibility is to resort to institutions: The endeavour to deal with individual anomalies thus constitutes one reason – among many other, well known, reasons – for the existence of institutions.

4.4. *Do institutions emerge?*

Institutions do not necessarily emerge even if the individuals are willing to pay for their establishment and functioning. These costs with the well known consequences (Olson, 1965) are reduced to the marginal cost, if an institution already existing takes over the additional function of dealing with anomalies.

Institutions may come about by *spontaneous* action of which the *market* is the most prominent case. Entrepreneurs offer devices which help individuals who are willing to pay the price demanded to overcome the anomalies they are

subject to. On the market, suppliers may in particular offer counselling services designed to overcome the anomalies.

Another kind of institution which may spontaneously emerge are *social norms* and *traditions*. The most important ones are in the context of the *family* or other small social groups. The family may prevent irrationalities by inducing individuals to take decisions in the context of a larger set of persons and a longer time horizon (more than one generation). The family setting is also important to reduce the costs of anomalies, be they monetary or psychic. Alcohol or drug addicts may turn to their families, as may those who go 'bankrupt' in business affairs.

Other institutions dealing with anomalies are *consciously designed* by human action. In present times, the *government* has emerged as one of the most important institutions for dealing with individual anomalies. At the *constitutional level* laws may be introduced which serve to restrict those members of society who are thought to be specially prone to act irrationally. Children, the mentally ill, and formerly women and the poor, are not given political rights, and do not have rights to contract. Laws may also serve to regulate those activities wherein people are specially prone to act anomalously. Examples are tight regulations with respect to credits and insurance. Thus, in many countries people have decided to force themselves to insure their houses against elementary risk (e.g., in some parts of Switzerland), and health and old age insurance is compulsory. (Obviously, other, and supplementary, explanations can be given for the existence of such laws, such as moral hazard or adverse selection.) But also in the *current politico-economic process* government provides for a great many institutions (organizations) which correct individual anomalies and mitigate their effects. An example is the support of the poor. Yet another institution designed to deal with individual irrationalities are (public but also private) *administrations*. They follow well established and specified rules of decision making and implementation which helps to reduce anomalies. This positive aspect of 'bureaucratic rationality' has been noted by writers on the topic such as Weber (1922, 1958) while it has been rather neglected by Public Choice analyses (e.g., Tullock, 1965; Niskanen, 1971).

5. Concluding remarks

Anomalies in individual behaviour, i.e., deviations from the von Neumann-Morgenstern axioms of rational behaviour, are shown to be important for Public Choice. Voters, politicians, parliamentarians and public officials tend to fall prey to anomalies of various sorts. Studies confirm that such irrationalities of individual behaviour are widespread and systematic in controlled experimental settings. But these anomalies are not restricted to the individual

level. Even in competitive economic markets anomalies have been shown to persist. Other social decision making systems besides the market may even strengthen the effect of individual level anomalies at the aggregate level. This holds in particular for political decisions in democratic and authoritarian systems.

This is only one reason why political economists should be concerned with anomalies. Another equally important reason is that the existence of irrationalities in individual behaviour throws new light on institutions. Anomalies lead to cost which gives people an incentive to create and extend institutions designed to mitigate the extent and negative consequences of anomalies.

Notes

1. A partial exception is Mueller's presidential address presented to the Public Choice Society in 1986 (Mueller, 1986) which is, however, devoted almost exclusively to explaining behaviour in a public good context.
2. For literature, see from the point of view of economics Allais (1953), Schoemaker (1980, 1982), Shapira (1986), Machina (1987), Hogarth and Reder (1987), Thaler (1987); from the point of view of psychology Slovic, Fischhoff and Lichtenstein (1977), Kahneman and Tversky (1979), Kahneman, Slovic and Tversky (1982), Arkes and Hammond (1986), Dawes (1988).
3. As will be argued below, this is not a fluke but may be deliberately brought about by the politicians in power, and by the press they are able to influence. If the rate of unemployment doubles, government politicians have a strong incentive to refer to a (small) drop in the rate of total employment. The politicians in opposition, on the other hand, will try to stick to the previous usage.
4. Rogers (1986). The account is taken from Dawes (1988: 117).

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