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Motivation and Human Behaviour

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Economic incentives and other motivations

Economics has a straightforward and well worked out theory of human behaviour. Individuals are taken to be influenced by both preferences (normally represented by an egoistic utility function) and constraints (most importantly the budget and time). As economists find preferences to be rather elusive and hard to measure independent of the behaviour in question, they assume preferences to be constant, and thus take changes in constraints systematically to determine behaviour¹ (Becker, 1976; Frey, 1992).

This model of human behaviour can be used immediately for policy purposes. Individuals act differently when the constraints are manipulated. An individual is confronted with changed relative prices for the opportunities available and quickly adjusts to them. If, for instance, the compensation for an activity is raised *ceteris paribus*, the person in question is given an incentive to switch his or her use of time in its favour. Similarly, when an activity becomes more time-consuming (for example a mode of traffic), there is an incentive to switch to a less time-consuming activity. This straightforward incentive theory has been used to derive optimal incentive schemes. In particular, principal-agent theory relies on wages to be aligned as closely as possible to the desired output (taking into account transaction costs). On this basis, pay-for-performance is the ideal compensation system.

This 'economic approach to human behaviour' has had considerable success and has been introduced into other disciplines, most notably into political science (where it is called 'Public Choice'), sociology (where it is called the 'Rational Choice Approach'), or law (where it is called 'Law and Economics'). Thus economic analysis has far transgressed

the boundaries of the economy and has been used with considerable success to study aspects of the family, crime, sports, religion and art. Some scholars therefore consider economics to be the 'Queen of the Social Sciences' while others speak of 'economic imperialism' (Stigler, 1984; Hirshleifer, 1985).

Traditional social sciences, in particular sociology, political science, but also law and psychology, acknowledge the incentive effects of material (economic) incentives. They hasten, however, to add non-material incentives such as power, fame, recognition or love. Economists do not, in principle, object to add these motivating forces (they can subsume them under a particular type of 'price') but deep down in their hearts they are convinced of the power of material incentives.²

But the traditional social sciences go further. They posit quite a different kind of force shaping behaviour, *intrinsic motivation*. It designates those activities which are undertaken 'for their own sake' (Deci, 1971). The reward thus lies in the activity itself and does not come from outside as is the case with extrinsic motivation. But again, economists are not shaken; they subsume it as an additional, and independent, part of total incentives influencing human behaviour. Consider the supply of an activity by an individual as shown in Figure 3.1.

Intrinsic motivation simply means that this individual is prepared to offer the amount q^{IM} of the activity without payment. Supply can be further increased by raising price (say from 0 to p_1) which leads to a

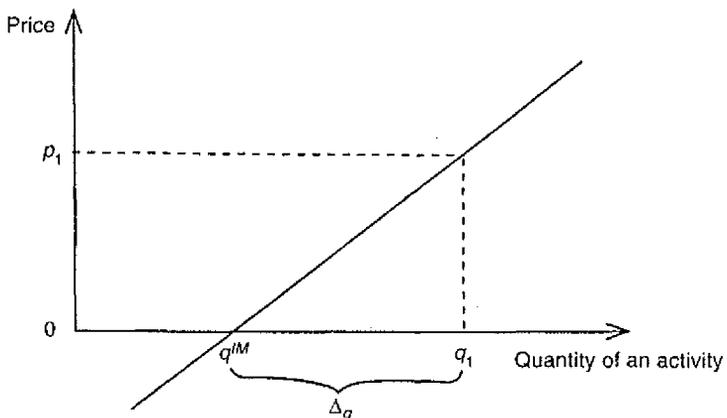


Figure 3.1 Conventional supply theory

total supply q_1 . This reasoning is totally accepted in economics, so far so that economists are unable to even see an alternative. This has, for instance, been evidenced in the discussion about the supply of blood where two famous economists (Arrow, 1972, and Solow, 1971, who both received the Nobel Prize) were incapable or at least unwilling to question this approach. They could not even imagine why to pay people for giving blood should not increase the total quantity of blood supplied.

Yet the crucial aspect of differentiating intrinsic and extrinsic motivation consists in their *dynamic interaction*. The *Crowding-Out Effect* leads to a decrease in intrinsic motivation when an extrinsic reward is applied. Figure 3.2 shows that the Crowding-Out Effect leads to a shift of the supply curve to the left, from S to S' and S'' .

A rise in price reduces supply from q^{IM} to points C and D . Only when intrinsic motivation has been completely crowded out (indicated by point D), a rise in price leads again to a rise in supply along the (now stable) supply curve S'' .

It is important to see that there are two effects at work simultaneously: the Relative Price Effect gives an incentive to supply more of the activity along the supply curves, and the Crowding-Out Effect which undermines the existing intrinsic motivation and reduces the supply. The net outcome depends on the relative size of the two effects. The conventional economic theory of behaviour is correct if the Crowding-Out

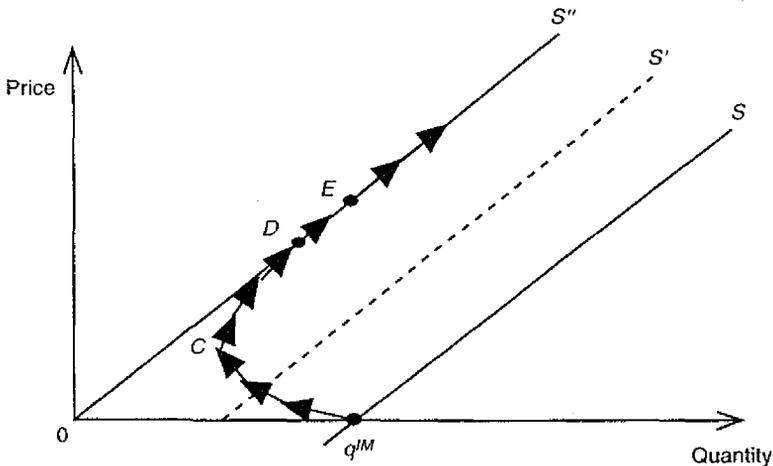


Figure 3.2 Supply including crowding-out effect

Effect is comparatively small or non-existent, but it is mistaken if the Crowding-Out Effect dominates the Relative Price Effect.

This dynamic interaction between intrinsic and extrinsic motivation can be generalized in two dimensions:

- 1 The external intervention affecting intrinsic motivation may not only consist in monetary or other material rewards but also in *regulatory interventions* such as commands. What matters is whether the individuals perceive the outside intervention to be *controlling*, i.e. reducing their sphere of self-determination and self-esteem.
- 2 An external intervention *crowds-out* intrinsic motivation when it is felt to be controlling but *crowds-in* intrinsic motivation when it is perceived to be *supporting* self-determination and self-esteem.

The conditions under which an intervention is perceived to be controlling or supporting have been carefully studied in controlled experiments by psychologists. The Crowding-Out Effect has been found to be the stronger (Deci and Ryan, 1987, pp. 1026–7):

- the more the rewards are expected. Unexpected rewards have a weaker or no negative effect on intrinsic motivation;
- the more salient the reward is;
- the more contingent the reward is on the task or on performance;
- the more deadlines and threats are used;
- the more intensive the surveillance is.

These psychological conditions have been placed in the context of identifiable (institutional) conditions (Frey, 1997a). It is thus possible to state under which empirical circumstances an external intervention crowds-out or crowds-in intrinsic motivation. Obviously, the Crowding-Out Effect is only relevant if the persons concerned have some amount of intrinsic motivation (see, for example, Brockner, Tyler and Cooper-Schneider, 1992). For economics, the undermining version of the Effect is of great importance because it puts into doubt the conventional, and so far undisputed, Relative Price Effect. Indeed, it is the only effect which systematically works in the *opposite* direction to the Relative Price Effect on which modern economics, and its policy advice, is based³.

This paper deals with the consequences for economic policy of intrinsic motivation and the Crowding Effects. Section II discusses the extensive experimental evidence available from social psychological research. The following section considers the Crowding Effects at the constitutional level of policy making where the fundamental rules governing the economy and society are determined. Section IV looks at

Crowding Effects in the current politico-economic process (within the rules of the game). The last section offers concluding remarks.

Crowding-out and crowding-in intrinsic motivation

The crowding-out effect

This relationship posits a systematic and a theoretically and empirically well-established negative relationship between intrinsic and extrinsic motivation. Under identifiable conditions, employees' work ethic (as a specific form of intrinsic motivation in the firm) is undermined when they are subjected to an external intervention, be it rewards or commands. In particular, employees' work ethic may be reduced when they receive monetary incentives that are contingent on their performance.

Rewards thus crowd out intrinsic motivation under particular conditions. This effect is known in psychology as 'hidden costs of reward' (Lepper and Greene, 1978) or 'the corruption effect of extrinsic motivation' (Deci, 1975).

The fact that rewards could, under non-trivial conditions, undermine intrinsic motivation fits well with modern cognitively-oriented theories in psychology. Examples are goal orientations (Ames, 1984), reactance (Brehm, 1966), activity engagement (Higgins and Trope, 1990), personal causation (deCharms, 1968) or action identification (Vallacher and Wegner, 1987). Crowding-Out Theory has been the subject of such a large number of laboratory experiments that it is impossible to summarize their results here. Fortunately, there have already been not less than five formal meta-analytical studies of crowding theory.

Rummel and Feinberg (1988) used 45 experimental studies covering the period 1971-85; Wiersma (1992) 20 studies covering 1971-90; and Tang and Hall (1995) 50 studies from 1972-92. These meta-analyses essentially support the cognitive evaluation theory developed by Deci and his co-workers according to which intrinsic motivation is undermined if the externally applied rewards are perceived to be controlling by the recipients. This by now 'conventional' view was challenged by Cameron and Pierce (1994) and Eisenberger and Cameron (1996) who on the basis of their own meta-analysis covering studies published in the period 1971-1991 (the two studies are based on a virtually identical set of studies) concluded that the undermining effect is largely 'a myth' and that cognitive evaluation theory should therefore be abandoned. These studies attracted a great deal of attention, and many scholars on that basis seem to have concluded that no such thing as a Crowding-Out

Effect exists. Deci, Koestner and Ryan (1998) in a very extensive study were able to show that these conclusions are unwarranted and that the Crowding-Out Effect is a robust phenomenon of significant size under the conditions identified. This most recent meta-analysis includes all the studies considered by Cameron, Pierce and Eisenberger as well as several studies which have appeared since then. The 68 experiments reported in 59 articles span the period 1971–97, and refer to 97 experimental effects. It turns out that tangible rewards undermine intrinsic motivation for interesting tasks (i.e. tasks for which the experimental subjects show an intrinsic interest) in a highly significant and very reliable way, and that the effect is moderately large. Tangible rewards, in particular monetary compensations, are obviously perceived to be controlling by the experimental subjects and therefore tend to crowd out intrinsic motivation⁴. It is important to see that the experimental studies look at the net effect of a reward while we argue that the conventional Relative Price Effect should be separated from the Crowding-Out Effect, and that it is important to consider their relative size under various conditions.

The Crowding-Out Theory has also received strong support in field studies. A case study refers, for example, to the so-called 'token economies' where people living in old-age asylums were induced to undertake certain tasks (such as making their bed) in exchange for vouchers. As a consequence, after some time, these people were only willing to do anything at all if they received a compensation. The intended activation of the aged proved to be a failure (Kazdin, 1982). Crowding-out has also been the subject of econometric studies. For example, in an econometric study of 116 managers in medium-sized Dutch firms, Barkema (1995) found that the number of hours worked in the company decreased with the intensity of personal control effected by the superiors.

The Crowding-Out Effect may be attributed to two major psychological processes.

1. Self-determination is reduced

When people perceive an external intervention as a restriction to act autonomously, intrinsic motivation is substituted by these external interventions. The locus of control shifts from inside to outside the person (Rotter, 1966). The person in question no longer feels responsible but makes the outside intervention responsible instead. However, this shift in the locus of control only takes place when the intervention is considered to be controlling. In contrast, when the intervention is perceived to be informing about one's competence, internal control

is strengthened. Intrinsic or extrinsic motivation is raised depending on which aspect is more prominent.

Self-determination is reduced mainly by the following two conditions:

- Pay-for-performance and bonus rewards that are contingent on individual output crowd out intrinsic motivation when the perceived controlling effect of rewards is stronger than the perceived informing effect. In such a situation, employees feel that their self-determination is curtailed. The crowding-out effect thus provides a possible explanation for the overwhelming empirical evidence that there is no significant connection between pay and performance (Lawler, 1990, p. 58). This also applies to managerial compensation (for example Güth, 1995; Jensen and Murphy, 1990).
- Commands restrict the perceived self-determination of the affected persons more strongly than the price system in the form of pay-for-performance or bonuses. Commands tend to disregard the motives of the recipients. In contrast, the price system provides more flexibility to the persons concerned as one has the option to reject a monetary incentive.

2. Reciprocity is violated

The implicit contract based on mutual acknowledgement of one's engagement is violated when a task undertaken by intrinsic motivation is rewarded extrinsically (Gouldner, 1960; Rousseau, 1995). Conversely, maintaining norms of reciprocity causes a higher willingness to perform and reduces shirking of work.

The crowding-in effect

This effect is also well supported by experimental (see again Deci, Koestner and Ryan, 1998) as well as field evidence. For example, an econometric analysis documents the positive effect of political participation possibilities on intrinsic motivation in the form of civic virtue (Frey, 1997b): Keeping all other influences constant, the citizens in those cantons of Switzerland with more developed institutions of direct democracy have a higher level of civic virtue resulting in a lower level of tax-cheating.

Intrinsic motivation is bolstered by the following factors:

1. Personal relationships foster intrinsic motivation

Mutual acknowledgement of one's obligations and responsibilities is appreciated among friends, colleagues and family members. Thus, team-based structures provide motivational benefits (Grant, 1996, p. 118).

2. Principals and agents communicate with each other

Communication is a precondition for reciprocity via learning about, and acknowledging the duties and responsibilities of other people. Experiments show that communication systematically raises the intrinsic motivation to cooperate (for example, Dawes, van de Kragt and Orbell, 1988; Frey and Bohnet, 1995).

3. Employees participate in decision-making

The greater the possibility to co-determine, the more the employees would adopt them as their own. Participation thus raises self-determination and is a precondition for reciprocity.

4. The work content is interesting on its own

Self-determination is supported when employees are aware of the results of their input, when they are responsible for the outcome, and when they consider their work to be meaningful (Hackman and Oldham, 1980).

Consequences for policy at the constitutional level

Market versus command

The market

The basic principle of the price system is that output and compensation correspond to each other. In a perfectly competitive economy, the wage rate is exactly equal to the marginal product. Thus, an extreme form of 'pay-for-performance' is realised.

Such compensation may, however, provoke a substitution of intrinsic by extrinsic motivation: If individuals who (at least partly) enjoy doing their work because they are interested in it are paid in exact correspondence to how they perform, their intrinsic motivation becomes superfluous. Maintaining their intrinsic motivation in this circumstance would mean that they are over-motivated for the particular task. It can therefore be expected that their intrinsic motivation is reduced. Their overall performance is thereby not necessarily reduced. Whether the employees affected work more or less depends on the relative size of the Relative Price and of the Crowding-Out Effect.

The extent to which work is performed by intrinsic or extrinsic motivation, however, affects the value of the work to the recipient as well as how it is performed. It often makes a difference, for example, if one receives a service from people who do a particular work for intrinsic

reasons such as out of love rather than because they are paid. Most people would agree that this holds for sexual services but it is also true for a much wider range of services and even for some goods. The mixture of motivations also affects innovative activity. While monetary incentives are crucial for what might be called 'institutional' creativity, intrinsic motivation is of great importance when it comes to 'personal' creativity.⁵ This is particularly true for the transfer of tacit (i.e. non-codable) knowledge within organizations (Osterloh and Frey, 1998). Principal-agent theory has extensively worked out that monetary payments are not efficient when either the necessary measurement and monitoring is costly, or when such activity differs between the various components of output. In the latter case, employees shift their work effort away from those tasks which cannot be adequately measured and compensated. This is another case in which intrinsic work motivation may be superior to monetary incentives.

Command

When individuals are forced to work by threat of punishment, intrinsic motivation is also crowded out. If they like to do the job for its own sake, a command leads to over-motivation. Indeed, commands undermine work morale more strongly than pay because the addressees are left with fewer choices. The total effect on work effort again depends on the comparative size of the Relative Price Effect (based on the cost of not obeying the command) and the Crowding-Out Effect. But as the latter effect tends to be systematically larger than with the price system, it can be expected that the application of commands in an economy often produces low work morale and initiative. More generally, citizens' civic virtue will be low and a cynical attitude towards the state and society will be widespread. These predictions are well borne out by the practical experiences of Soviet-type command economies. Thus, Lane (1986, p. 105) reports that the 'centralised Soviet economic system makes people lazy and immoral ... Labour is ... prone to a combination of cynicism, apathy and largency'. There was a pervasive 'middle class pessimism and cynicism' (Bushnell, 1979, p. 9). Another scholar states 'The observation that workers' efforts and morale tend to be poor in the USSR today is familiar enough. So is the perception that the economic system itself fosters shoddy work, idleness and dishonesty' (Hanson, 1984, p. 85).

According to this analysis, the virtual breakdown of the Soviet political and economic system is not only due to the lack of institutions

(an aspect now fully appreciated by economists, see for example Shleifer, 1997), nor to the lack of monetary incentives (which was treated extensively by economists; see for example Murrell, 1991; Sachs and Woo, 1994; Blanchard, 1996), but also to the destruction of intrinsic motivation in the form of low work morale, civic virtue, social capital and trust.⁶

Table 3.1 lists social capital measured as trust ('Generally speaking, would you say that most people can be trusted, or that you cannot be too careful in dealing with people?') or as intensity of participation in a variety of civic activities such as social services for the elderly and deprived; education, art and cultural activities, local community affairs; activities related to conservation, environment and ecology; and work with youth. The data reported for various groups of countries were collected by the *World Values Survey* of 1000 people in each of the 40 countries from 1991–3 (World Values Study Group, 1991).

Group 1

Group 1 comprises Sweden, Norway, Finland, Denmark, Netherlands, Canada, United States, Ireland, United Kingdom, Iceland, Switzerland, Japan, Germany, Italy, Spain, Belgium, Austria, France and Portugal.

Group 2(a)

Group 2(a) is formed by Poland, Czech Republic and Belorussia. 2(b) includes Russia, Lithuania, Bulgaria, Estonia, Hungary, Latvia, and Slovak Republic. In 2(c) China is included as well.

Group 3(a)

Group 3(a) consists of Mexico, Argentina, Chile and Brazil. Group 3(b) includes India, South Korea and Turkey. 3(c) includes South Africa and Nigeria.

Table 3.1 compares social capital for three groups of countries. Both indicators for social capital are much lower in Post-Soviet Transition Economies than in Developed Economies: the index for trust is 29.3 in the Post-Soviet countries compared to 44.5 in the developed ones; the index for the intensity of civic participation is 3.4 compared to 11.4. While trust in the Post-Soviet countries is slightly higher than in Developing Countries (29.3 compared to 24.2), the rate of participation – arguably a more suitable indicator of civic virtue – is much lower (3.4 compared to 5.9, i.e. only somewhat more than half as large).

Table 3.1 Social capital according to the World Values Survey (%: averages 1990-3)

Country groups	Trust	Participation
Group 1: Developed economies	44.5	11.4
Group 2: Post-Soviet transition economies	29.3	3.4
a) where participation not stated	29.3	n.a.
b) including countries with information about participation	26.5	3.4
c) including also China	29.3	3.4
Group 3: Developing countries	24.2	5.9
a) South America	21.5	4.9
b) Asia (including Turkey)	26.5	10.6 ⁽⁷⁾
c) Africa	26.1	n.a.
Mean	35.3	6.9

Source: World Values Survey (1991), own calculations.

This evidence is consistent with the proposition that the Soviet command system resulted in a crowding out of intrinsic motivation which still exists under present conditions as reflected in high crime and Mafia activities. Frye and Shleifer (1997) found in a survey undertaken in March and April 1996 that 39 per cent of 55 shop managers in Moscow were 'contacted by rackets in the last six months'. As a result, the transactions cost of doing business is high. Seventy-six per cent of the shop managers said that 'one needs a roof (i.e. a paid private security agency) to operate'. The situation may be better in some of the other post-Soviet economies (Shleifer, 1997, pp. 392-3) which may reflect the less stringent command systems (for example in Hungary).

We can observe a basic asymmetry. The price system can be, and has been, introduced by a 'sudden jump' (Sachs, 1993; Goldman, 1994) which individuals quickly adjust to. In contrast, the civic virtue crowded out by the preceding command system is difficult to build up again. As a consequence, the price system does not work better due to the high transaction costs entailed.

National planning and commands which were undertaken in Soviet economies were far from fulfilling a supportive function and thus did not crowd-in intrinsic motivation. Efforts to establish all sorts of non-monetary rewards such as orders ('hero of the Soviet Union', etc.) and rankings ('Most productive worker of the province', etc.) were unable to compensate for the undermining effects on work morale of rigid planning.

Our analysis suggests that a command economy is at a clear disadvantage relative to the market as the guiding decision-making system.

Command economies are not only less efficient but also more damaging to work morale and civic virtue than the price system. The same type of analysis undertaken here for the market and for commands could be done for other social decision making systems such as decisions by bargaining, tradition, or random mechanisms (lotteries). In all these cases, one would have to consider intrinsic motivation as an endogenous and dynamic factor in addition to the traditional efficiency aspects.

Discipline versus trust

Discipline

Constitutional rules serve to prevent 'knaves' from exploiting the other members of society. They should be strict enough to deter rational and egoistic individuals from acting as free riders or to take advantage of co-citizens. Individuals are generally assumed to act in an opportunistic way 'seeking their self-interest with guile' (as Williamson, 1985; 1993 puts it). This assumption is not claimed to be realistic but serves to construct institutions which are able to restrain the activities of the worst members of society.

This concept has been the foundation of constitutional economics beginning with Hume (1742) and John Stuart Mill (1861), to the modern formulations in Buchanan (1987), Brennan and Buchanan (1985), or Mueller (1995). It has become part of the theory of economic policy and need not be spelled out further here.

Trust

A different approach to constitutional economics puts faith in the citizens. They are not only assumed to be capable of making reasonable decisions. More importantly, citizens are assumed to have in principle good will. While they dislike being exploited by others, they are considered to have a good measure of civic virtue.

This view of human nature has been championed by scholars such as Cooter (1984), Kelman (1987), Dryzek (1992) or Mansbridge (1994). It has been concluded that in order to support the existing civic virtue, and to help to raise it further, the constitution should be benevolent towards the citizens. The constitution should put trust in the citizens (this is a different type of trust from that discussed above which was the trust citizens had towards government and society). This trust is reflected by giving individuals many direct participation rights. Citizens should not only be given the right to elect their representatives but also to participate directly by voting on issues (Frey, 1997b).

There exists considerable empirical evidence that this view of human nature is realistic and not overly optimistic. Individuals do not always seize any opportunity to take advantage of others as a large number of experiments indicate (see Bohnet, 1997, and Bohnet and Frey, 1997 for surveys, Frey and Bohnet, 1995 for specific experiments). Econometric studies for Swiss cantons and cities reveal that the more developed the institutions and the higher the participation possibilities for the citizens are, the lower is tax evasion and the greater is fiscal responsibility (i.e. the less likely is the budget to be in deficit), and the higher is *per capita* income, all *ceteris paribus* (see the survey by Feld and Kirchgässner, 1997, and the specific study by Feld and Savioz, 1997). The assumption that a significant amount of civic virtue exists among citizens, and that it is crowded-in by a constitution that puts faith in its citizens is thus warranted.

This does not mean that constitutions should only consider participation rights. As experimental evidence (Public Good and Prisoner's Dilemma experiments are especially relevant here, see for example Hey, 1991, chapter 11; Kagel and Roth, 1995, chapter III(A); Fehr and Gächter, 1998; see also experiments in the Ultimatum Game setting, for example Güth *et al.*, 1982) as well as everyday observations clearly indicate it is important to prevent individuals from being perceived to be systematically exploited by others. If they have this feeling, they would quickly start behaving in an egoistic way in an attempt to guard their position. A good constitution balances these two considerations.

Consequences for policy in the current process

Moral suasion and direct intervention

Moral suasion

On the basis of Crowding Theory, the role of moral suasion as an economic policy device must be reconsidered. The major function of psychological appeals is to support the intrinsic motivation of those persons who act according to the principles of civic virtue. This point has eluded economists who only deal with extrinsic incentives. It was appreciated long ago by legal scholars who argued that laws may be valuable even if they cannot be monitored and obeyed because they still indicate what is 'right'. Once a wider perspective on human motivation is adopted, moral suasion has a role to play in economic policy. Obviously, this instrument must be used with care and is no substitute for other policy actions. In particular, moral appeals lose their motivating force if they are used too often or under circumstances where

following them would mean risking one's position. But moral suasion has been empirically shown to affect people's behaviour in a significant way in times of crisis (see for example Baumol and Oates, 1979).

Direct intervention

One of the insights gained by Crowding Theory is that government interventions are less effective than expected following the Relative Price Effects when intrinsic motivation is thereby induced to fall. This effect is particularly relevant in two policy areas.

Environmental policy

Direct interventions are still the most prominent instrument used to influence the quality of the natural environment (Hahn, 1989; OECD, 1994). Empirical evidence confirms that individuals display a measure of environmental responsibility especially if the corresponding costs are not high (for example Diekmann, 1995). The use of commands then risks crowding-out that intrinsic motivation if the persons concerned perceive that their own efforts to safeguard the environment are not appreciated by the policy makers. In that case, the same effect must be expected if market instruments such as environmental taxes, incentives and tradable licenses are used. But for the reasons given above the Crowding-Out Effect is likely to be less pronounced.

The Crowding-Out Effect may help to explain why environmental policy is often less effective than economists expect on the basis of the relative price effect and at the same time that the environment sometimes improves without much government intervention.

Regulatory policy

Government interventions via regulations can be seen as a generalization of most environmental policies. It can be applied to a very large range of areas, for instance, with respect to work conditions.

The economic approach evaluates the extent to which regulations are followed by using the model of expected utility maximization. In the economics of crime (Becker, 1968), individuals are assumed to be rational egoists and to observe regulations to the extent only that it is to their own benefit. Careful empirical work has established, however, that this approach is unable to explain the *level* of the disregard for the law in a satisfactory way. The level of tax evasion, for example, cannot be accounted for by the expected utility approach (as championed by Allingham and Sandmo, 1972; for surveys see Pommerehne, 1985; Roth, Scholz and Witte, 1989; Cuccia, 1994): the size of the

expected punishment is simply too low even if individuals are quite risk averse.⁸ After an extensive and careful analysis of the American IRS Taxpayer Compliance Measurement Program, Graetz and Wilde (1985, p. 358) were forced to conclude that 'the high compliance rate can only be explained either by taxpayers' ... commitment to the responsibilities of citizenship and respect for the law or lack of opportunity for tax evasion'. The same authors (with Reinganum and Wilde, 1986) do attribute the observed falling tax compliance to the erosion of tax morale (see also Reckers, Sanders and Roark, 1994; Kaplan, Newberry and Reckers, 1997).

The expected utility model neither fares all too well with respect to explaining *marginal* effects on tax evasion. A large number of econometric studies has found that the partial coefficients of the probability of detection and the penalty rate while often having the expected negative sign are not statistically different from zero (see for example Pommerehne and Weck-Hannemann, 1996, for Switzerland and the references on p. 164 to other countries and time periods).

The discussion suggests that intrinsic motivation in the form of civic virtue has an important systematic effect on how government regulations work. Moreover, the corresponding state interventions may crowd-out, and sometimes crowd-in, this motivation depending on whether the addressees perceive them to be controlling (which is normally the case) or supporting. Empirical research in the area of work, environmental and health regulations (see for example Bardach and Kagan, 1982) are consistent with these conclusions.

Subsidies, volunteering and infrastructure

Agricultural subsidies

The support of farmers via guaranteed high food prices undertaken in many countries has led to huge distortions. A large oversupply of agricultural goods was produced but the hard work on the farms nevertheless induced many peasants to move to more suitable occupations often located in cities. The policy thus resulted in a considerable waste of human resources (as well as in negative effects on the environment through the pollution of the soil by chemical products) and did not reach the officially proclaimed goal of maintaining the traditional rural way of life.

In view of this failure, and based on efficiency theory, economists have long argued that price support should be substituted by direct income support of farmers. Some countries such as Switzerland have heeded this advice and now hand out direct income transfers to their farmers.

There can be little doubt that this policy prevents the production of excess supply because price distortions are reduced and, at least ideally, completely removed. From the point of view of Crowding Theory the policy looks less favourable. The transfer of money just for being a farmer may well undermine the extrinsic motivation of being a farmer. The subsidy for 'being like a farmer' is likely to affect their self-perception negatively: they now behave like farmers because they are paid for that. Many people will argue that this removes the essential reason for supporting people working in this sector. At the same time, keeping individuals and families on the farms will become more and more expensive in tandem with the speed with which the farmers lose their former intrinsic motivation. They now expect a compensation according to the inconveniences of the 'job' (for example having to work long hours during the day and night). Over the long run, voters and politicians will realise that this policy tends to destroy what it originally claims to support. Together with the large cost increases this may well lead to such strong political resistance that the direct support programme has to be scrapped. This analysis helps us to explain why the agricultural lobbies tend to oppose the switch from price to income supports. They possibly sense that such a development might take place and try to prevent it because it also undermines their own position as an interest group.

Volunteering

Psychological aspects such as Crowding Effects are of particular importance in the social area where intrinsic motivation can be expected to play a larger role than in many other sectors of the economy. For the sake of concreteness, I will consider only a specific activity, *volunteering*, which is responsible for about 40 percent of total work offered in the social service non-profit economy (Weisbrod, 1988, p. 131). Volunteering for charitable non-profit institutions has grown more rapidly than employment elsewhere (*ibid.*, p. 132) so that it is becoming an increasingly important activity.

Neo-classical economics based on the Relative Price Effect is able to make a number of sharp predictions (Menchik and Weisbrod, 1987; Weisbrod, 1988). With respect to the supply side, it hypothesizes that (i) the higher the wage rate or income, the less voluntary work is offered due to the higher opportunity cost; (ii) individuals either volunteer or donate money but not both. For people who are more productive on the market and are willing to help others, they should work more and donate the money to a charitable or non-profit institution;

(iii) a complete substitution is also expected to take place between husband and wife, i.e. either he or she, but not both, offer voluntary work. On the other side of the market, economists normally assume a perfectly elastic demand for volunteers by the respective institutions (hypothesis iv).

Menchik and Weisbrod (1987) find that these hypotheses are supported by the data for the United States. A very careful and recent study by Freeman (1997) with new data for the US, however, finds that they are clearly refuted. He generally concludes that the standard labour supply theory explains only a minor share of empirical reality. In particular, volunteers have a significantly higher personal and family income than non-volunteers, thereby contradicting hypothesis (i) (see also Vaillancourt, 1994 for Canada). Hypotheses (ii) is also rejected because a volunteer worker normally donates money at the same time. Neither is there substitution between husband and wife as hypothesis (iii) claims but both typically work as volunteers.

This does not mean that Relative Price Effects have no explanatory power but do so only at a secondary level. While a higher wage rate is associated with more volunteering such people put in fewer hours than those earning less on the market. Also, because there is no substitution between volunteering and donating, higher income families contribute relatively fewer hours and give relatively more in cash⁹.

These results (which have been gained using the state of the art theory and econometrics) strongly suggest that traditional economic theory misses something important. A good candidate for filling this gap is the concept of intrinsic motivation and its dynamization by Crowding Theory. The positive association between income and volunteering may be attributed to the fact that poorer people cannot afford to pursue their intrinsic motivation as easily as richer ones. This is exactly Bertolt Brecht's statement in the *Dreigroschenoper*: 'zuerst kommt das Fressen, dann die Moral' ('Food first, morals second'), which is supported by sound empirical evidence (for example Lane, 1991, part V). The positive association between volunteering and donating holds because the major underlying motivation for both actions is intrinsic motivation thereby rejecting any substitutive relationship. Rather, people who are intrinsically motivated to help others have an urge to help by all means. Actually, only economists and probably a few other people would even consider the relationship between volunteering and donating to be substitutive. Finally, the positive association of voluntary work by husband and wife can be explained by positive sorting with respect to intrinsic motivation and also by the person doing voluntary

work, educating and motivating the others to do likewise. Freeman (1997, pp. 159–65) offers a narrower explanation, namely, ‘the importance of being asked’ to volunteer. This explanation is not inconsistent with an explanation in terms of intrinsic motivation. It has been emphasised throughout this paper that intrinsic motivation is not exogenously given but can for example be triggered by being asked to act according to this motivation. On the other hand, Freeman is careful to admit that people do not simply volunteer when they are asked but only if they consider it a worthy cause, and if the demand comes from trustworthy people. Thus, being asked is perhaps a necessary but not sufficient factor to explain volunteering.

Empirical research on the demand side also suggests the importance of intrinsic motivation (see Duncombe and Brudney, 1995). There are considerable costs involved for organizations using volunteers and therefore do not exhibit a perfectly elastic demand as claimed by hypothesis (iv). The costs actually go far beyond recruiting and training; volunteers are different from paid workers because they are more difficult to steer according to the wishes of the management. The concept of intrinsic motivation is again helpful in explaining this phenomenon. As volunteers are (mainly or exclusively) motivated by *their own* concept of what has to be done, they are less willing to conform to the demands of management compared to paid staff. From the managers’ point of view ‘paid staff... may be more productive and provide higher quality service’ (Duncombe and Brudney, 1995, pp. 359–60). Consequently, the managers make an effort to have a suitable balance between paid workers and volunteers which is reflected in a statistically significant negative elasticity of demand for volunteers (*ibid.*, pp. 371; also Steinberg, 1990).

Infrastructural policy

Everyone considers a good infrastructure to be an important prerequisite for economic development. However, the earthworks and buildings necessary for roads, railway tracks, airports, etc. as well as the risks involved with projects such as nuclear power plants and depositories and prisons normally meet with heavy resistance by the local communities affected. Such undertakings meet the criteria of NIMBY phenomena, i.e. the desire to have those projects ‘Not In My Back Yard’ (for example, Easterling and Kunreuther, 1995). Economists have a handy tool to solve this problem, namely to compensate those communities that are prepared to host such an infrastructural project (for example, O’Hare, 1977; Portney, 1991). The best way to determine the required

compensation efficiently is by auction (Kunreuther and Kleindorfer, 1986). Such a move is made possible because the projects by definition produce positive net benefits for society as a whole so that the winners can compensate the losers. Empirical evidence, however, shows convincingly that the compensation strategy does not work (for the United States, see Easterling and Kunreuther, 1995; Carnes *et al.*, 1983; for Switzerland, Oberholzer-Gee, 1998). Indeed, it has been found that the willingness to accept a nuclear waste repository in Switzerland fell from 50.8 to 24.6 percent of the population when a sizeable compensation was offered. This reaction which contradicts the relative price effect was attributed to the Crowding-Out Effect (Frey and Oberholzer-Gee, 1997).

The siting of infrastructural projects is another important instance where economic policies solely based on the relative price effect does not work, and may even worsen the situation. Rather, psychological elements such as the Crowding Effects have to be taken into account.

Concluding remarks

The intention of this paper is not to criticise existing economic theory and policy without presenting an alternative approach. What is proposed here is an extension of economic theory while completely accepting the crucial importance of the Relative Price Effect. An economic policy which takes the possibility of Crowding Effects seriously is less interventionist than present economics because it takes into account that adverse effects on intrinsic motivation occur under identifiable conditions. What is suggested here as a general policy rule is that individuals are reasonable human beings whose intrinsic motivation can be put to good effect and which should therefore be taken care of.

It would be a misunderstanding to assume that intrinsic motivation is always welcome. It is neither generally good nor bad. While intrinsic motivation in the form of work or environmental morale, solidarity in the private and civic virtue in the public domain are often most desirable, these same features are undesirable if they are put to bad use such as when working for a fraudulent firm, exerting nepotism or supporting a criminal political regime. It is crucial to face the issue *where* we need *what* motivation. So far, we have only limited knowledge in this regard. Hopefully what has been established here is that to disregard intrinsic motivation and Crowding Effects may lead to costly policy errors. At the same time an alternative to present policy design based on faith in human nature has been suggested.

Notes

- 1 This approach has been refined by considering 'basic' preferences depending on 'commodities' which in turn are 'produced' by other goods and time. This reformulation (due to Stigler and Becker, 1977; Becker, 1996) allows us to account for what is normally called 'preference change' by keeping the basic preferences constant, and attributing changes in behaviour to changes in the enlarged set of constraints.
- 2 This raises the question whether people who study economics become more materialistic, or whether more materialistically-minded persons tend to study economics. See Frank, Gilovich and Regan (1996) and Frey, Pommerehne and Gygi (1993).
- 3 The income effect *may* work in the opposite direction to the Relative Price Effect (for example when the wage is raised people have an incentive to work more, but because they therewith become richer, they may decide to enjoy more leisure time and to work less). But this opposite effect is *not systematic*. The behavioural anomalies recently identified (see for example Dawes, 1988; Thaler, 1992) tend to weaken but not to counteract Relative Price Effects.
- 4 See also the critique by Lepper, Keavny and Drake (1996), Kohn (1996) and Ryan and Deci (1996) of Eisenberger and Cameron (1996) as well as Eisenberger and Cameron's (1997) reply.
- 5 For a formal treatment see Frey (1998). A behavioural rationale for the emergence of a Crowding-Out Effect in the case of the voluntary provision of a public good has been formally developed by van Dijk and van Winden (1997). They argue that the public provision of a public good under some conditions leads to a decrease in total provision because it impedes the development of social ties. In Frey (1997b) personal relationships have indeed been identified as a crucial condition for supporting intrinsic motivation.
- 6 Important contributions to the analysis of trust are Gambetta (1988), Coleman (1990), Putnam (1993), Fukuyama (1995), Kramer and Tyler (1996), Nye, Zelikow and King (1997).
- 7 Refers to South Korea only. No data are available for Turkey and India.
- 8 Following Alm, McKee and Beck (1990, p. 24) calculations for empirical magnitudes for the US show that taxpayers would have 'to exhibit risk aversion far in excess of anything ever observed for compliance predicted by expected utility theory to approximate actual compliance'.
- 9 A staunch supporter of traditional economics might argue that this shows that the theory is correct after all provided it is correctly applied. This is a typical *ex post* argument and essentially states that the traditional theory is flexible and coherent enough to be adjusted to the empirical evidence. This is certainly a useful exercise (it allows us to determine where the theory works well and badly) but it is of little use for predictive purposes.

