

# Crowding Out and Crowding In of Intrinsic Preferences

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## Standard Microeconomics: Homo Oeconomicus

The fundamental idea of modern microeconomic theory is that individuals act rationally—that is, consistently—and are subject to external constraints. This model of humans has often been called the “homo oeconomicus,” and it provides clear and empirically testable predictions about how individuals will react to changes in relative prices, controlling for income changes induced. The “price effect” when applied to demand states that a price rise reduces the quantity demanded; the demand curve is negatively sloped. Applied to supply the price effect predicts that a higher price induces an increase in supply; price and quantity are positively related. Paying a higher compensation unequivocally raises the effort and quantity of work.

This simple theory of human behavior has been extremely successful<sup>1</sup>. What has become known as “economic imperialism” (Stigler 1984, Hirshleifer 1985, Lazear 2000), or the “rational choice approach,” is based mainly on the application of the price effect to a large number of issues and problems, as pioneered by Gary Becker (1976). The more traditional applications have been implemented in education, health, the natural environment, and politics; more unorthodox ones can be seen in such realms as the family, the arts, crime, sports, and religion. It has also been applied to global public goods such as those involving international environmental problems or issues of war and peace (see Frey 1984). This imperialism has not been without controversy both inside and outside of economics. One of the major points of criticism has been that this theory of behavior is too simplistic and does not account for human behavior especially outside the area dominated by explicit prices (e.g., Sen 1977; Lane 1991). In these applications outside the market, the term *price*—used in its broad sense as a cost—is often difficult to observe as

it takes the form of opportunity cost. As the large literature on the non-market applications demonstrates, a skilful use of the price effect yields fascinating and non-trivial insights (McKenzie and Tullock 1975; Radnitzky and Bernholz 1987; Kirchgaessner 1991; Frey 1992, 2001).

Economic imperialism has had a substantial impact on other social sciences and beyond. In political science, the corresponding field is called “public choice” or “political economics”; in sociology “rational choice,” in legal studies “law and economics,” and in historical studies “cliometrics.”

In the field of GPG provision, non-market motivations also play an important role. Therefore the simple homo oeconomicus model of man cannot account for the complex motivations that lead individuals to contribute to GPG. However, as will be seen in the other chapters of this volume, many GPG policies still very much depend on this particular economic model, because they are targeted mainly to influencing self-interest-related motivations, whether through monetary incentives or sanctions in the context of direct state regulation. To bridge the gap, this chapter reviews new models that have been developed in economics, and provides experimental evidence for a broadened approach to human behavior that underlies the analysis of intrinsic preferences and social norms in GPG provision in the subsequent chapters of this volume. Therefore, in spite of a lack of direct contribution to models of reflexive governance, it lays the groundwork for the analysis in this book of the alignment and misalignment between concepts of GPG and the complex preferences and motivations of the actors contributing to their provision. Overall, this chapter shows that new developments in behavioral and experimental economics provide a set of operational models that can be used to analyze complex preferences and thereby enrich our toolbox of institutional analysis beyond a focus on monetary incentives and sanctions only.

### A Broader Set of Motivations

There has been a dramatic change over the past few years in how motivation is seen to affect behavior (cf. the contributions by Gächter, Meier, Bohnet, Benz, and Oberholzer-Gee in Frey and Stutzer [2007]). Based on results originally found in experimental social psychology (Deci 1971), an effect of a price change on behavior has been identified. This predicts the exact *opposite effect* on behavior. In particular, a price increase is predicted to *decrease*, rather than increase, the supply of work offered. This is a remarkable result; it goes much beyond the many “behavioral

anomalies”<sup>2</sup> identified in other parts of what today constitutes “psychology and economics”<sup>3</sup> (sometimes also called “behavioral economics”<sup>4</sup>). This “crowding-out effect” is part of a larger theory including a neutral and a “crowding-in effect.” As will be argued, the crowding effects lead to a generalization of the relationship between motivation and behavior; it certainly does not substitute for the price effect. Rather, the price effect is taken to always work in the way suggested by standard theory, but an additional type of motivation is added, *intrinsic motivation*, which under identifiable conditions leads to dramatically different behavioral responses to price changes.

The crowding-out effect may be illustrated by an example:

A boy on good terms with his parents willingly mows the lawn of the family home. His father then offers to pay him money each time he cuts the lawn.

The crowding-out effect suggests that the boy will lose his intrinsic motivation to cut the lawn (he may go on doing so, but now he does it because he is paid), but he will not be prepared to do any type of housework for free. The example shows that the price effect, on which economics is founded, is not valid for all conditions and under all circumstances, and that the connection between a monetary reward offered and its supply must be analyzed in a wider perspective.

The next section of this chapter develops crowding theory, discusses its basis in social psychology, integrates it into economics, and analyzes the conditions under which the crowding-out effect takes place. After that, the empirical evidence of crowding effects is explored. Conclusions are drawn in the final section: both economic theory and policy are strongly affected by the existence of crowding effects. More care should be taken when applying incentive payments in firms, or in the public sector (for example, when following new public management ideas), or when using incentive instruments in economic policy (for example, with respect to the environment).

## Crowding Theory

### Psychological Background

Social psychologists have empirically identified that external intervention, in the form of a reward, reduces individuals’ intrinsic incentives. This relationship has been termed alternatively the “undermining effect,” “overjustification effect,” “the hidden costs of reward” (Lepper and

Greene 1978), “corruption effect” (Kruglanski 1978), or “cognitive evaluation theory” (Deci and Ryan 1985; Deci and Flaste 1995) by the psychological scholars involved.

The hidden costs of rewards rest on the distinction between internal and external motivation: “One is said to be intrinsically motivated to perform an activity when one receives no apparent reward except the activity itself” (Deci 1971, 105). Three psychological processes have been identified to account for the hidden costs of rewards:

- The *loss of self-determination* shifts the locus of control from the inside to the outside of the person affected. When individuals perceive the external intervention to be controlling, in the sense of reducing the extent to which they can determine actions themselves, intrinsic motivation is replaced by extrinsic control.
- Outside intervention undermines the actor’s intrinsic motivation, if it carries the notion that the actor’s intrinsic motivation is not acknowledged. The person affected feels that his or her competence is not appreciated, which leads to *impaired self-esteem*, resulting in reduced effort.
- A person acting on the basis of his or her intrinsic motivation is deprived of the chance to exhibit this intrinsic motivation to other persons. As a reaction, the persons affected exhibit “altruistic anger” and will in turn relinquish the inner motivation and behave according to external motives.

### Conditions

Whether rewards affect intrinsic motivation negatively or positively is determined by the following conditions:

- External intervention *crowds out* intrinsic motivation if the individuals affected perceive the intervening individuals to be *controlling*. Self-determination, self-esteem, and the possibility for expression suffer, and the individuals react by reducing their intrinsic motivation in the activity controlled.
- External intervention *crowds in* intrinsic motivation if the individuals concerned perceive it as *supportive* (or informative in a positive way). Self-esteem is fostered, and individuals feel that their self-determination is increased, which, in turn, raises intrinsic motivation.

### Integration into Economics

Crowding effects *generalize* the hidden costs of reward in three important ways (Frey 1997):

1. Intrinsic motivation is potentially affected by *all kinds of intervention* coming from outside the person considered. Thus, not only rewards, but also *commands*, may crowd out intrinsic motivation.
2. Intrinsic motivation may be *reduced* or *raised* (crowding out and crowding in). Thus, there may not only be hidden “costs” but also hidden “gains.”
3. External intervention affects the *internally held values* of individuals. Hence, they affect not only narrowly defined intrinsic motivation, but also *norms* internalized by individuals. Moreover, external intervention may induce a shift from other-regarding or group-regarding to *more selfish* preferences and behavior.

These three generalizations greatly increase the scope and applicability of crowding theory.

To successfully apply crowding theory to issues pertaining to economics, it is necessary to simultaneously take into account the price effect normally considered in economics. Here, attention is focused on crowding out, because it affects behavior contrary to the price effect.

Consider a normal, positively inclined supply function ( $S$  in figure 4.1) for an activity. At zero price, the individuals considered are prepared to supply the quantity  $q^{IM}$ . That means individuals are assumed to

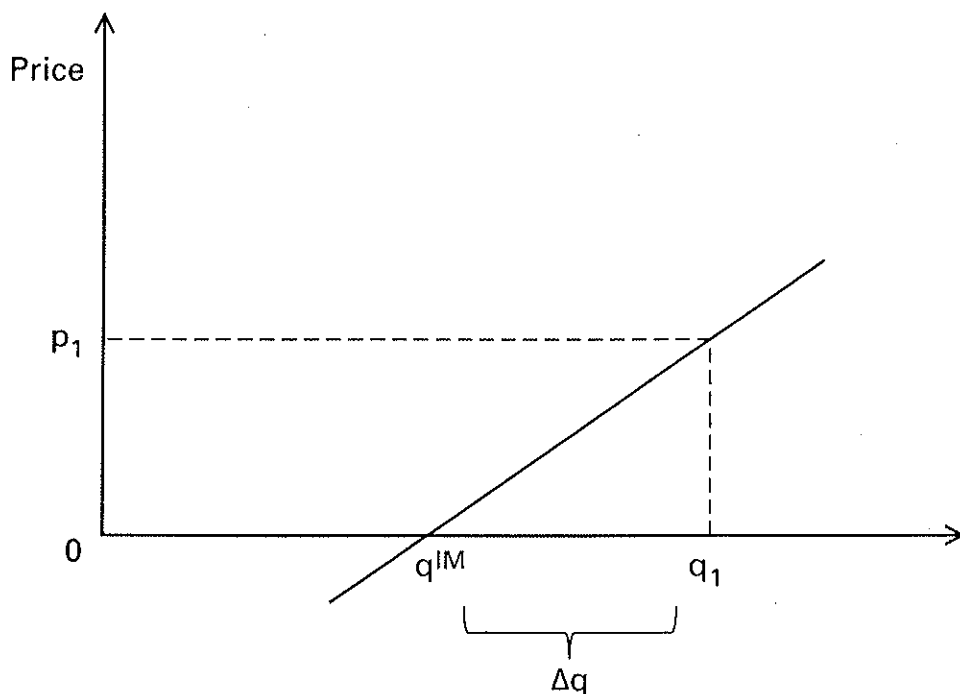


Figure 4.1  
Conventional supply theory

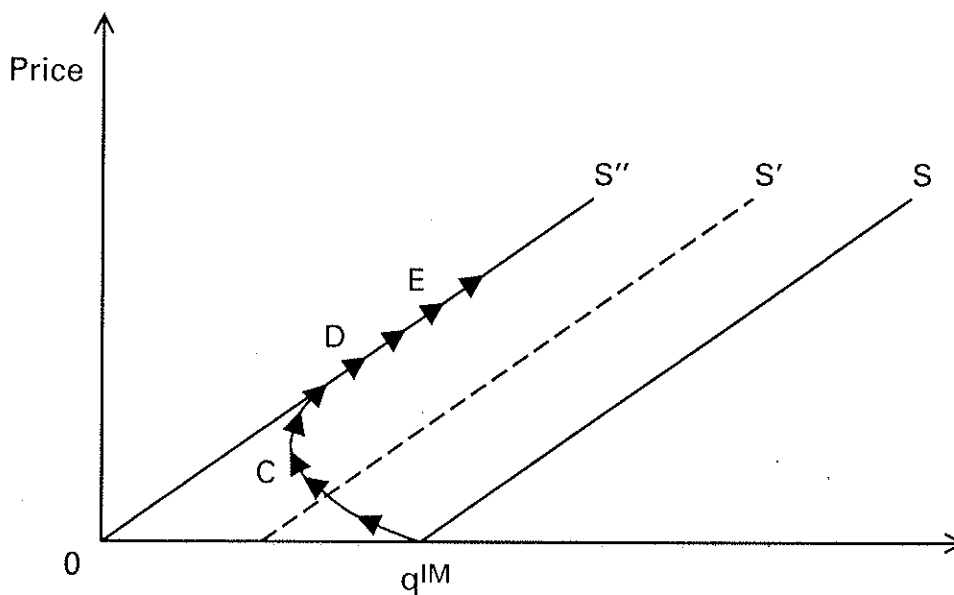


Figure 4.2  
Supply including crowding-out effect

undertake the activity for its own sake, or be intrinsically motivated. Such behavior is perfectly consistent with economic theory. Following the price effect, conventional economic theory predicts that a price rise (from 0 to  $p^1$ ) raises supply from  $q^{IM}$  to  $q^1$ , moving along the supply curve.

The extrinsically induced supply increase  $\Delta q$  is perfectly *additive* to the intrinsically supplied quantity  $q^{IM}$ , thus  $q^1 = q^{IM} + \Delta q$ . In contrast, the crowding-out effect induces a shift in the supply curve to the left (figure 4.2).

The supply curve moves to the left (from  $S$  to  $S'$ ), until intrinsic motivation is completely crowded out (at  $S''$ ) when a positive price is offered. More precisely, each supply curve is associated with a given *stock* of capital of intrinsic motivation. Once this capital stock is exhausted, or at most constant, supply only moves along  $S''$  as the price effect exists.

The supply response moves quite differently than is suggested by conventional economic theory. In the figure, it is assumed at first that the crowding-out effect prevails over the price effect, and supply *falls*: the individuals concerned reduce the extent of their activity. Beginning at point C, the price effect dominates. Only when point D is reached does the quantity supplied exceed the amount previously intrinsically supplied. At point D on supply curve  $S$ , the stock of intrinsic capital is constant (and possibly exhausted), so that the price effect determines supply behavior exclusively.

Obviously, the crowding effect also has important consequences for policy. Thus, many seemingly “modern” compensation systems have to be reconsidered. Pay-for-performance schemes negatively affect performance, in so far as they negatively affect work morale, a specific kind of intrinsic motivation. Under certain conditions, for example with volunteers who are essentially intrinsically motivated to work, it may be a mistake to introduce monetary compensation at all.

In important cases, external intervention through monetary means can transform the nature of a good or relationship fundamentally. Sometimes, the offer of a monetary reward completely destroys the existing commodity in question. Romantic love is an example: it simply cannot be bought, and if an attempt were made to buy it, the good can no longer be called unselfish love but rather, taken to the extreme, prostitution. The same is true for trust, admiration, or friendliness, which change their intrinsic nature when they are bought.

## **Empirical Evidence on Motivation Crowding Effects**

### **Experiments**

The hidden costs of reward have been extensively studied in laboratories by social psychologists. The number of laboratory experiments on the crowding effect is so large that it is impossible to summarize the results. Fortunately, there already have been done several formal meta-analytical studies of crowding theory. The most extensive and recent study by Deci, Koestner, and Ryan (1999) shows that the crowding-out effect is indeed a robust phenomenon of significant size under the specified conditions. Experimental economic research has also identified various crowding effects on motivation in the economic setting (for a survey, see Frey and Jegen 2000). Crowding effects have not only been identified in experiments, but also are of great importance for practical, real world problems.

### **Case Studies**

Day care centers provide a striking example of how monetary intervention can achieve the opposite of what would be expected on the basis of the price effect. Such institutions are confronted with the problem that parents sometimes arrive late to pick up their children, which forces the employees to stay after the official closing time. To remedy the situation, economists would typically suggest imposing a monetary fine for collecting children late. Such punishment is expected to compel parents to be

on time. A study on a day care center in Israel revealed a completely different outcome (Gneezy and Rusticchini 2000a, 2000b). After the introduction of a rather hefty fine, the number of parents arriving late *increased* substantially, which is in line with the crowding-out effect. Introducing a monetary fine transforms the relationship between parents and day care employees from a mostly personal to a more monetary relationship. As a result, the parents' intrinsic motivation to keep to the time schedule was reduced or crowded out altogether, the perception being that the employees were now "paid" for the inconvenience of having to stay longer. Being late to pick up the children was no longer associated with any feeling of guilt.

### Econometric Studies

Work motivation is an area where crowding theory is particularly relevant and where several econometric studies have been undertaken (Frey and Osterloh 2002, 2005; Osterloh and Frey 2000, 2004, 2006; Osterloh 2007).

### Motivational Transfer Effect

External intervention may have an *indirect* damaging effect on intrinsic motivation. The crowding-out effect may spread to other areas, even into such areas where no external intervention has been applied. If intrinsic motivation is crowded out in areas where it is a major (or even the only) behavioral incentive, the overall outcome of an external intervention tends to be even more strongly against the principal's interest. There may thus be an indirect "motivational transfer effect," which has to be added to the direct crowding-out effect. Policy instruments, such as effluent charges or tradable permits, provide an additional example. They work efficiently where they are applied, but an induced substitution of environmental ethics by monetary incentives may then lead people to protect the environment less in areas for which no external incentives exist. This undesired motivational transfer effect not only takes place when monetary incentives are used, but also when rules and regulations are applied.

### Conclusions

Crowding theory introduces a (thus far) disregarded but crucial and empirically well-supported psychological effect into economics. Its integration into economics shows that it certainly does not replace the conventional price effect, but rather amends it.



Crowding theory has important implications for economic theory. In particular, a systematic relationship between intrinsic and extrinsic motivation is established; a negative relationship designates the crowding-out effect, a positive relationship the crowding-in effect. Both effects are well supported by laboratory experiments under carefully controlled conditions. In order to show the relevance for current social issues, crowding theory has also been applied to pressing policy problems.

The social sciences and, in particular, economics should pay more attention to intrinsic motivation as an important incentive, and as a viable instrument for policy making. This applies to current policy, as well as to policy at the level of the constitution. It is an essential task to establish institutions, to make constitutional choices, which support individuals' own initiatives.

## Notes

This chapter draws in part upon the discussion of crowding theory in Frey 2001; chapter 5.

1. However, the empirical application is not always easy especially as all other factors, except the price change, must be controlled for. For small price changes, and when only a small part of total expenditures is spent on the respective goods and services, the income effect can be disregarded because of its insignificance. This helps to identify the price effect.
2. Such as the endowment, reference point, opportunity cost, anchoring, availability, representativeness, overconfidence effects, and biases (e.g., Kahneman, Slovic, and Tversky 1982; Dawes 1988; Thaler 1992; Frey and Eichenberger 1994).
3. Important forerunners are Hirschman 1970; Scitovsky 1976; Leibenstein 1976; Schelling 1980; Akerlof 1984; Frank 1988; Schlicht 1998; Brennan and Pettit 2004. An effort to develop a "psychological economics" *independent* of neoclassical economics has, for example, been undertaken by Furnham and Lewis (1986) and Lea, Tarpy, and Webley (1987).
4. This is a misnomer because the "behavioral" school in psychology posits a mechanistic response to outside interventions which is, of course, in clear contrast to what psychological economics stands for.