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Analysis

Environmental policy when pollutive consumption is sensitive to advertising: Norms versus status

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ABSTRACT

A theoretical model is developed to analyse optimal environmental policy when consumer preferences are endogenous. It captures that pollutive consumption is sensitive to consumption by others and commercial advertising. This is conceptualized through a consumption norm. An increase in this norm means that consumers will become dissatisfied with a given consumption level and try to raise it, which will cause an increase in pollution. The model is particularly relevant for the study of conspicuous consumption which generally is subject to concentrated advertising efforts while it generates considerable pollution. The model can accommodate the cases of an externality created by advertising being positive or negative. We also show that using different functional specifications for the norm function one can address either conformity or status seeking. We derive optimal rules for a pollution tax, a subsidy or tax on advertising, and information provision by the government. The results not only contribute to more realism in environmental policy theory but also extend public policy with new instruments.

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1. Introduction

The standard economic theory of environmental policy assumes that individuals make decisions about consumption given fixed preferences and in isolation of what others consume. In the presence of environmental externalities this gives rise to the standard economic theory of optimal environmental policy with a Pigouvian tax as the basic result (Baumol and Oates, 1988). Although this may be a logical first approximation, and a sufficiently accurate approach for certain types of goods and services, a more realistic model for many other types of consumption needs a richer structure. Notably, certain types of consumption are conspicuous and associated with an intensive commercial advertising effort as well as considerable pollution during the life-cycle of the good or service involved. However, the traditional policy model neglects the social context of individual behaviour and strategies by firms and governments to influence individual preferences. In other words, feedback from the system as a whole to individuals, apart from market or price information, is absent, causing individuals in the model to be sort of “isolated”.

The objective of this paper is to develop a model of environmental policy that includes interactions between individuals through a consumption norm and the impact of advertising on consumption through this norm. This captures the idea that consumption is socially conditioned. The norm is not necessarily a social norm in the sense that it directly and only depends on others' consumption. It can also be motivated by information about products as provided by advertising. As such information affects everyone, or a sizeable social group, one might see it as a social norm as well. In addition, our model will be shown to be able to accommodate an alternative interpretation of

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advertising impact, namely fostering the seeking of social status through the purchase of conspicuous goods and services.[2]

Advertising messages in various media — television, radio, newspapers, magazines, and increasingly internet — are an integral part of modern life and stand in stark contrast with the scant attention advertising has received in general economics, including environmental economics. Notable exceptions are formal approaches by Dixit and Norman (1978), Becker and Murphy (1993) and Brekke and Howarth (2002, chapter 4).[3] The neglect of advertising in economic theory and textbooks is surprising given that it relates to imperfect information and information asymmetry which generally have received much attention in economics. A possible explanation is that since advertising operates under the assumption of variable and even endogenous preferences, economic analysis has been unable to fit it within the standard model of consumer behaviour.

Behavioural economics offers various social interaction models which provide a good basis for studying the individual and social welfare effects of advertising. Past empirical and experimental research has provided strong evidence that welfare is affected by social context variables (Easterlin, 2001; Fehr and Fischbacher, 2002). This may take various forms, related to concepts like relative welfare, status, imitation, conformism, altruism and norms. Relative welfare denotes that the utility of individuals depends on their relative income position, that individuals compare their economic situation with that of others, seek conspicuous consumption, and are sensitive to status (Duesenberry, 1949; Frank, 1985; Hirsch, 1976; Veblen, 1899; Weiss and Fershtman, 1998). Related notions are conformity bias and imitation behaviour which denote that some individuals will (sometimes) conform to choices made by the majority of people in a peer group (Henrich and Boyd, 1998). The widespread nature of customs fashions testifies to the strong desire in humans to imitate others and conform to the most common consumption behaviour of the group. This supports the view that consumption norms matter for consumer choices, that is, the value of a product is a function of the number of other consumers consuming it. A consumption norm may determine not only what to consume (e.g., norms about dress codes) but also how much of certain products and services should be consumed (e.g., food portions, possession of household appliances, frequency of holidays).

Corneo and Jeanne (1997) show in a theoretical model that consumption norms generated by private firms are not always socially optimal, despite generating private profits. They note that consumption norms are mediated by marketing strategies like penetration pricing. This is the charging of a low price at market entry in order to create a positive consumption externality. This works through stimulating consumer conformity, which then ultimately results in a positive impact on firms' profits (Amaldoss and Jain, 2005).

Combining environmental policy analysis with behavioural economics is receiving increasing attention (Brekke and Johansson-Stenman, 2008; Gowdy, 2008; Gsottbauer and van den Bergh, 2011; Shogren, 2002). Concrete policy suggestions have focused the attention on status-seeking behaviour, positional goods and rivalry in the consumption of goods whose production involves pollution externalities (Brekke and Howarth, 2000; Brekke et al., 2002; Howarth, 1996; Kallbekken et al., 2010). Three studies come closest to the approach presented here. Howarth (1996) develops a model which considers the combined effect of status seeking and environmental externalities on welfare. In the presence of status signalling, consumers understate the true social benefit of environmental quality. Howarth shows that consumption taxation is necessary to offset incentives to over-consume at the expense of environmental quality. He finds that environmental policy requires Pigouvian taxes to be adjusted upwards in the presence of status effects. However, no attention is given to the role of advertising. Ireland (1998) argues that pure taxes on status goods are not practical as the nature of status goods changes over time, and therefore he suggests an income tax to control status seeking behaviour. In a similar vein Frank (1999) proposes a strongly progressive income tax to reduce competition for status consumption.

We present here a first policy model of consumer behaviour that combines advertising by firms with the social context of consumption, i.e. satisfaction from pollutive goods being co-determined by social norms.[4] Some illustrative examples are cars, houses, and distant holidays.[5] In addition, advertising generates an information-related externality. The reason is that advertising affects the social norm to consume — a type of information available to all consumers — which then influences the utility of each individual. Since this effect operates outside the realm of markets, by definition it represents an externality. The model is used to analyse a policy package that includes environmental regulation (a pollution tax), regulation of advertising (an advertising tax or subsidy), and information provision by the government that counters the impact of advertising on the social norm. Note that our model adopts a general equilibrium format as is common in economic analysis of environmental policy, but like several of the earlier mentioned studies by Howarth and others we combine this approach with behavioural-economic elements, notably other-regarding and changing preferences. As a result, our approach means a move away from neoclassical economics in a narrow sense. The chosen format is needed to derive clear analytical policy insights. It does not mean we believe completely in utility and profit maximizing behaviour, but as a benchmark approach we feel this is acceptable. More importantly, we do not see any other framework around that allows us to do this while taking the intricate connections between demand, supply, income formation, government and markets into account. Policy rules that do not take these connections into account will not be of much value.

We should acknowledge that our static model represents a first, simplified approach to analyse this problem, as it neglects the typical dynamic context of the impact of advertising and more generally marketing. In effect these are aimed at encouraging future demand, which then will result in market (share) growth and more sales, revenues and profits. Past studies have mainly adopted game-theoretic approaches with the aim to understand the emergence of norms (Lindbeck et al., 1999; Young, 1998) or advertising allocation strategies (Friedman, 1958). Moreover a number of dynamic advertising models

[2] Conspicuous consumption is the use by consumers of socially visible goods to achieve and demonstrate social standing or status (Hirsch, 1976). Typical conspicuous goods are luxury cars, jewellery, fancy homes, furniture and holidays while certain types of clothes, food and beverage (e.g. wine) can also serve to display wealth and prosperity.

[3] A range of broader studies has devoted attention to notions like conspicuous consumption, status, "overconsumption", manipulation of perceptions and preferences, and dynamic preferences. In line with this the role of advertising in modern economies has been criticized by well-known economists like Galbraith (1958), Kaldor (1950), Hirsch (1976), Scitovsky (1976), Daly and Cobb (1989), Frank (1999) and Schor (1999). Other relevant studies are Nelson (1974), Ng (1987), Norton et al. (1998), Rubin (2008) and Witt (2011). None of these have, however, provided an in-depth, formal analysis of advertising.

[4] This focus does not deny that marketing can also be aimed at promoting the sales of greener (relatively less pollutive) products, such as hybrid and electric cars or solar PV panels. There is evidence that advertising affecting social norms and status influences the actual purchase of green products (Griskevicius et al., 2010; Allcott, 2011; Sexton and Sexton, 2013). However, this is not the focus of our paper, which instead is the interaction of negative environmental externalities and advertising. So we do not, as one reviewer suggested, deal with the net total effect of advertising pollutive and green products. We focus on how to regulate pollutive goods that are subject to social preferences (norms or status). This is consistent with the economic literature on environmental policy which focuses on goods generating environmental externalities without considering green goods (with no or less environmental externalities). One can treat the two types of issues and associated advertising as rather separable and in need of different policies. The fact that advertisement can be used to stimulate the purchase of pollutive and green goods does not mean that the "advantages" and "disadvantages" can be trade-off, because the advertisement of pollutive goods is distinct from that of green goods. This further means that they can be studied separately. But the pollution tax and potential regulation of advertisement of pollutive goods cannot be separated as they interact, that is, and they jointly determine the sales of these goods.

[5] With respect to car purchases, Johansson-Stenman and Martinsson (2006) find that most people are more concerned about the status value of a car than about its environmental performance.

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