Planned Obsolescence

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Summary

This paper shows that large companies in competitive markets have a strong incentive to apply the strategy of planned obsolescence to boost profits. Planned obsolescence means reducing the expected useful life of products so that customers will have to make earlier replacement purchases. It is a strategy of hidden product deterioration or hidden price increase. It works only if markets are not transparent, especially if consumers have no information about the total cost of ownership. Most consumer markets of durable goods suffer from a lack of transparency and information. The impact of planned obsolescence on society and environment is considerable: Consumers lose approximately 7% of their purchasing power, energy and resources are wasted and additional garbage is produced. Main beneficiaries of this strategy are the few owners of large companies. This paper shows that the existing economic theory of planned obsolescence is based on unrealistic assumptions and hence leads to unrealistic results, impeding the introduction of appropriate legislation to this day. The paper recommends the mandatory introduction of a product label indicating key product information, an extension of the warranty period, the introduction of a minimum storage period for spare parts and reducing advertising by law.

The economic logic

Under planned obsolescence we understand the targeted, undisclosed reduction of the useful life of a product by the manufacturer, with the aim of triggering **earlier replacement purchases** by the customer. It is one form of **hidden product deterioration**. Related terms are built-in obsolescence, planned lifespan, planned life cycle or expected useful life.

If a customer buys a product, he is usually purchasing the use of the good for a certain period of time in the future. If the manufacturer reduces the life of the product without the price being lowered accordingly, the effective price of use goes up. Such a **hidden price increase** has the advantage that it is not as easily recognised by the buyer as an open price increase, because it often takes years before one notices it.

Suppose in the market for electric razors there are two major suppliers that dominate the market, Supplier A and Supplier B. Since virtually every man in Germany who wants to dry shave already has an electric razor, the market is largely saturated and there is little room for potential growth. The average lifespan of the electric razors is about ten years. Sales hardly grow, profitability and profits are under pressure due to strong competition.

To increase the return on capital employed, Supplier A comes up with the idea of developing a new model to cut costs by using cheaper materials and/ or poorer workmanship, resulting in a slightly shorter life span of about nine years instead of ten. What is important with regard to sales policy is that the reduction in product life remains below the threshold of perception of the buyer, and thus remains **hidden**.

Supplier A benefits in two ways from this development and marketing strategy:

1. **Cost savings** from the cheaper materials and poorer workmanship, leading to an immediate increase in profits and return on capital employed.

2. After a few years sales go up as the shorter product life comes into play. Profits and return on capital increase again and the market share goes up.

A numerical example: Suppose an electric razor costs 100 euros and will run for 2,000 shaves, each shave will cost 5 cents. If the useful life, however, is reduced by 20% to 1,600 shaves, the price per shave goes up by 25% to 6.25 cents – a considerable amount. At constant or even lower production costs, this represents a significant increase in profits.

Supplier B notices the success of Supplier A, the financial superiority of this strategy and becomes aware of the risk of losing market share. So he adopts the same strategy. He, too, decides to save costs by using inferior materials and poorer workmanship and also reduces the expected useful life of his razors, maybe to eight years.

Now Supplier A can further accelerate this success strategy and the game starts all over again, with the result that over decades the lifespan of the product continuously decreases imperceptibly, until e.g. after a period of 20 years it has effectively been halved.

The strategy of steady hidden deterioration in quality is **rewarded** by the market in the given example in the form of lower costs, increasing revenues and thus increasing profits rather than being **punished** by customers turning away. Manufacturers who do not "play the game" will be punished by the market in the form of both lower profits and sales.

Repairs made more difficult or more expensive

Another aspect of planned obsolescence is to make products more difficult or impossible to repair. Examples of this include the use of non-replaceable rechargeable batteries in electrical appliances, reduced availability of spare parts, increasing the cost of spare parts, service and maintenance, or deliberately designed incompatibility (see Heckl, 2013 p.51 ff.). These measures can lead to repairs becoming uneconomical, instead inciting the consumer to purchase new products.

Lack of transparency and information

The strategy of planned obsolescence only works provided that the reduction in quality or gradual deterioration of the product remains **hidden**, i.e. below the threshold of perception of the customer. This matter was highlighted in an article by the journal "Absatzwirtschaft": "How fast may product quality fall without disappointing the purchaser?" (Reischauer, 2011, p.19). The risk of damage to a manufacturer's image or reputation is only to be feared if the drop in quality is too large, too obvious or too easily perceptible.

Lack of transparency and information for the customer prior to purchase is thus of particular importance. Can we answer the following questions concerning the product at the point of sale:

1. What's the expected lifespan? How often can it be used?
2. Can it be repaired (glued, screwed construction)?
3. Are there spare parts available after three years?
4. How much will these spare parts cost?
5. How expensive will it be if the product has to be repaired by a technician after three years?
6. What is the **usage price** (price per usage)?

None of this information is usually available to the customer prior to purchase. Key product information is **missing** when buying in most cases. Thus when purchasing products, customers are not in a position to decide rationally which is the best or the cheapest, since the total costs of ownership over the total life time of the product in most cases is unknown (see Kreiss, 2014 p.64ff.).

Expected useful life: planned or coincidence?

How predictable is the life of products? Virtually all engineers agree that, thanks to excellent product data management software, the expected life of products can be planned and predicted very accurately. For example, electric drills can easily be designed for a service life of 100 or 10,000 hours, as required. "The designing engineer must achieve the planned service life as closely as possible," says, for example, the renowned design engineer Albert Albers from the Karlsruhe Institute of Technology (Stiftung Warentest 9/2013, p. 60). Technical expert Edbill Grote puts it in a nutshell: "Manufacturers can calculate design life down to the week" (FAZ 04.12.2013). Since design life is one of the most important characteristics of a product, it is usually planned by the manufacturer **extremely precisely**.

Prevalence and impact

According to a survey by the Swiss Consumer Protection Association (SKS, 2013), while predominantly technical products are affected by the phenomenon of planned obsolescence, they are not the only ones. Besides electrical goods, where the short product life is particularly often criticized by consumers, textiles, shoes, furniture and other consumer goods also receive complaints.

One of the foremost design engineers of the United States in the 1950s, Brooks Stevens, made this statement as early as 1958: "Our whole economy is based on planned obsolescence" (Slade, 2007, p. 153) – at a time when the phenomenon was still largely unknown in Europe (see Packard, 2011, p. 109). German consumers are currently losing about 100 billion euros or

7% of their purchasing power per year by shortened product life. Furthermore the damage to the **environment** in the form of unnecessary waste and **increased use of resources** is considerable: in Germany the energy-equivalent of 16-18 large-scale power plants is wasted and we turn out over 10 million tons of additional garbage; 5-7 waste incineration plants (out of 70) could be switched off in Germany without planned obsolescence (see Kreiss, 2014, p. 114 ff.).

The role of advertising

One widespread form of planned obsolescence is obsolescence of desirability or stylistic obsolescence – the kind that is the result of short fashion and model cycles. Stylistic obsolescence is largely driven by advertising, but the customer has to play along. Many manufacturers claim that consumers **want** a rapid succession of new products and that they gladly buy the new products even though their existing product works perfectly well. The assumption that consumers decide to replace an item of their own free will before they have to shifts the responsibility for this practice from industry to the consumer.

However, what shapes the demands of customers? What is the role of advertising in this context?

Martin Lindstrom, one of the world's most knowledgeable experts on marketing writes: “At the age of 66, most of us will have seen around two million TV adverts in our lifetime. That equals eight hours of advertising every day, seven days a week, for six years.” (Lindstrom, 2009 p.47). Every day, we are hit by around 3,000 advertising messages. According to the German Society of Pediatrics and Adolescent Medicine (DGKJ), a child TV viewer sees between 20,000 and 40,000 TV adverts every year. Consumers are targeted by a very one-sided flood of product presentations from the earliest age.

Standard scientific textbooks have shown that the majority of advertising is not informative but emotional, and they provide detailed instructions on how to shape advertising messages in such a way that they have an emotional rather than informative impact. So instead of informing, advertising generally misinforms and **decreases market transparency** instead of increasing it.

The many variants of many technical products continuously launched on the market make it difficult for, say, consumer magazines to collect and provide objective information to consumers. This policy of launching a never-ending series of new models, coupled with a constant onslaught of expensive advertising, creates consumer confusion while encouraging them to throw away their existing products and buy new ones. Furthermore it becomes more difficult for consumers to find adequate spare parts, since most new models are not compatible with earlier models (so-called **planned incompatibility**) (see Heckl 2013).

Manufacturers do the utmost to create artificial demand, shape consumer behaviour and encourage throwaway mentality from early childhood by advertising campaigns and then pretend to meet exactly this demand. This is a very one-sided and hypocrite argumentation that unfairly shifts responsibility to consumers.

Who benefits?

Through planned obsolescence, as explained above, the return on the capital employed is increased. The **beneficiaries** of this marketing strategy are thus the shareholders of large

companies. However, ownership of such companies is very unevenly distributed. For example, only 10% of the German population has any company assets, only about 11% of German households own shares (German Bundesbank, Monthly Report, June 2013, p. 35). The concentration of ownership at the top is particularly pronounced. Thus 7,700 households in Germany, i.e. 0.02% of all German households, control over half of the German capital employed (Wehler, 2013, p. 74). In the United States of America the top 1% of the population own 62% of total business equity. Similarly uneven wealth distribution is found in almost all other countries in the world.

Since the main motive for secretely shortening product life is profit maximisation, this strategy is mainly used by **big international corporations** because they are highly market-driven and profit-oriented. By contrast, complaints against medium-sized, owner-managed family businesses are comparatively rare (see Reuss/ Dannoritzer 2014).

The role of the economic sciences

The leading scientific paper on the subject, *An Economic Theory of Planned Obsolescence*, written by the renowned US economist Jeremy Bulow, was published in 1986 in the *Oxford Quarterly Journal of Economics*. In his paper, Bulow comes to the conclusion that planned obsolescence is only a problem where monopolistic markets or cartels exist. Politicians only have to ensure there is enough **competition** in the markets, then planned obsolescence is not a problem (see Bulow, 1986, p. 730).

Bulow's conclusions are based on **four** basic assumptions (Bulow, 1986, p. 729 ff.):

1. “Rational customers will pay for only the present value of the future services of a product.” As few people are familiar with the method of present value, this assumption seems rather unrealistic.

2. Full information is available to customers. In particular durability is observable prior to purchase, that is, customers always know the exact expected life of the product. This assumption strongly contradicts reality. The purchaser normally does not know the expected useful life of almost all longer-lasting products prior to purchase.

3. Firms have no cost incentive to produce shoddy goods. As numerous empirical studies have shown, this assumption is wrong.

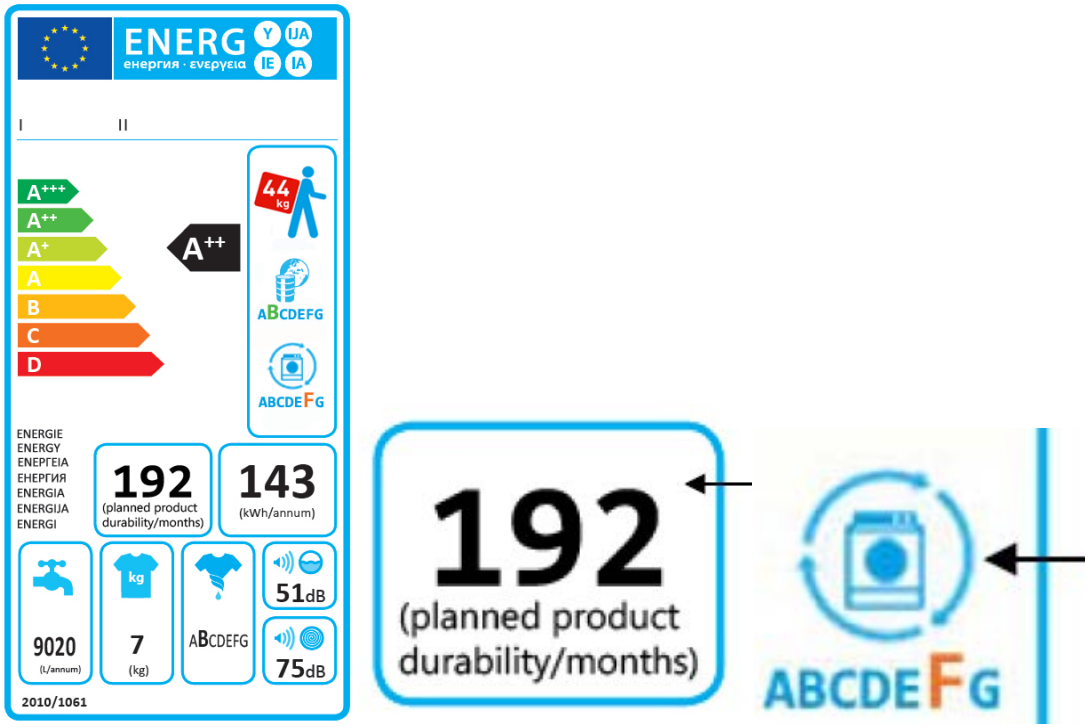
4. Customers assume that no low-durability products will be produced. As many studies show this assumption is unrealistic.

The statements of Bulow’s paper are thus based on unrealistic, empirically unsustainable assumptions. Hence, if the assumptions on which a model is based are unrealistic, the results of the model will also be unrealistic. False assumptions or axioms underlying a model lead to correspondingly false conclusions.

The unrealistic statements made by Bulow have led until today to a **misperception** of the term "planned obsolescence" which, despite strong evidence to the contrary, is again and again seen as a myth (see New York Times, 31.10.2013, “Planned Obsolescence, as Myth or Reality”). To this day, the unrealistic statements of Bulow continue to impede the introduction of appropriate legislation.

Policy Recommendations

1. A modified energy label for all kinds of household equipment could be introduced. This label could indicate the planned useful life of the product and how easy it is to repair and recycle (see figure below, enlarged details with black arrows - idea of Janis Winzer in: Schridde/ Kreiss, 2013). Thus consumers could get informed about important product data prior to purchase which today is either very difficult or impossible.



2. A legal extension of the warranty period of up to 5 years could be considered.

3. The reversal of the burden of proof after 6 months could be abolished. Today (in Germany) six months after purchasing a product, when defect, the buyer has to proof that he or she handled the product accurately. If the buyer can't proof this he has no more guarantee claims. If the reversal of the burden of proof were abolished the guarantee claims for the consumer would persist.

4. Introduce a legal minimum storage period for spare parts of e.g. four years.

5. Reduce advertising: Selective bans on advertising could be introduced, for example a ban on advertising campaigns for children under 12 like in Scandinavia; or a ban on advertisement on TV after 8 p.m. like in France; or a small maximum billboard size could be introduced by legislation like in Sao Paolo. Additionally we could tax advertising to raise its price and curb demand like in Portugal. By reducing advertisement obsolescence of desirability or stylistic obsolescence could be reduced.

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