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How Can US Law Support Longer Product Lifespans?

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Abstract: This research sought to identify the parts of the legal system in the United States directly influence the lifespans and capacity for repair of manufactured consumer hardgoods. For this, we sorted through the network of statutes and regulations on the federal level and in the fifty states, noting unique characteristics of the US legal system from an international perspective. We also identified the actors that make US statutes and standards. Our secondary research reviewed the statutes, standards and correlated economic and legal literature, and our primary research surveyed lawyers who provide counsel to manufacturers that sell consumer products in the United States. That research revealed the longstanding acceptance of planned obsolescence in mainstream economic theory and a well-established range of product warranties. The work brought into focus the powerful role that product warranties take in US commerce that can be leveraged to support longer product lifespans and greater product repair. In the near-term, consumer-friendly state legislatures are the most probable part of the government that would create new regulations on product lifespans. More proactive antitrust enforcement could also reduce collusion between competing companies to lower product lifespans.

Context

Over a century ago, Henry Ford rolled out the Model-T automobile with the moving assembly line, his highly efficient manufacturing method. Ford Motor Company grew to be the largest and most profitable manufacturing enterprise of its time. Don Norman conveyed an anecdote about Henry Ford. Ford bought broken Ford automobiles to disassemble and sort failing parts from still-functioning parts. His goal was not to redesign the failing parts so that they would last longer. Instead, his goal was to save money by redesigning the functioning parts so that they would fail earlier.

This story tells an unsettling truth about unregulated commercial markets. Because selling products with shorter lifespans is more profitable than selling products with longer lifespans, businesses will find a way to sell products with shorter lifespans. In unregulated markets, manufacturers will carefully design products to malfunction far earlier than is technically required (Slade 2006).



Figure 1. The Model-T Ford automobile: a nascent example of planned obsolescence.

Planned obsolescence increases the economic burden on consumers and puts a growing stress on the Earth's dwindling natural habitats and the tenuous existence of many thousands of living species in those habitats.

Most economists in the US have prioritized increasing per capita consumption of materials and energy. The goal of resource consumption was not to serve basic human needs for food, shelter, education and healthcare, but instead, to fuel the economic engine. Depression-era marketers promoted 'consumer engineering,'

where companies use intensive advertising to convince people to buy goods (Shelden & Arens 1932). This program foretold the current ubiquity of television advertising, with the average US viewer watching 45 minutes of commercial ads each day. Over a 75-year lifetime, one could watch TV ads for more than four continuous years (Boradkar 2010).



Figure 2. TV viewers in the US watched an average of 45 minutes of ads each day. © J. Bui.

Mainstream economic theory has not characterized planned obsolescence as a fringe doctrine plagued with ethical conflicts. To the contrary, it is a common practice, so it deserves attention, if not justification. Jeremy Bulow, in *An Economic Theory of Planned Obsolescence* (1986), noted, “A monopolist (a company that dominates a market) desires uneconomically short useful lives for their products. . . . An oligopolist (one of many company companies in a market) can generally gain by colluding (with competing companies) to reduce durability.” Most economists embrace planned obsolescence as valid practice from the perspective of the business, but not necessarily from a macro-economic perspective (Fethke & Jagannathan 2002, Orbach 2004). In this business model, a company that manufactures and sells non-perishable goods will secure a degree of higher market demand for its products in the future by:

- 1) Stimulating sales by adding features and functions, *regardless of whether users need the features and functions* (authors’ assertion in italic),
- 2) Designing the goods to be less durable than is possible, given the market and technological constraints,
- 3) Convincing customers through a variety of means of the necessity to purchase the new goods, and
- 4) Selling the goods at high prices compared to competitors.

Many people have disparaged planned obsolescence, the promotion of consumption as a goal, and the subsequent waste of finite natural resources. Victor Papanek projected that the enlightened societies of the future would give: “a greater emphasis on quality, permanence and craftsmanship in designed products” (1971, 1995).

The circular economy is a comprehensive approach that could end planned obsolescence. According to Ken Webster, the circular economy “aims to keep products, components, and materials at their highest utility and value, at all times” (2015). Maximizing product lifespans and enabling product repair are among the core circular economy design strategies (Bakker 2014, White 2017).

Industry governance in the US

Government institutions write most of the policies and regulations in the US. Federal and state governments, known as “hard law,” or legally enforceable statutes and regulations. Trade industries, Non-governmental Organizations (NGOs), and other corporate stakeholders self-regulate by creating “soft law,” that take the form of industry standards and certifications.

A legislative branch (either the U.S. Congress or a state legislature) create both national (federal) statutes and state statutes. Legislatively empowered federal agencies (like the US EPA) promulgate Federal regulations. Likewise, legislatively empowered state agencies (like the California Department of Environmental Quality) make state regulations. The federal judicial branch interprets Federal hard law, while each state’s judicial branch interprets that state’s hard law.

Any number of non-government groups make soft law. Examples include standards created by independent non-trade organizations (like Underwriter’s Laboratory (UL) or Southwest Research Institute (SwRI)) or a professional trade association (like the Institute of Electrical and Electronics Engineers (IEEE)).

National law often sets forth a general outline, and state legislators then create state laws following the framework. For example, § 5 of the Federal Trade Commission (FTC) Act of 1914, the statute that created the FTC, prohibits “unfair or deceptive acts or practices in or affecting commerce.” While this act gave the FTC the authority to enforce actions against companies that engaged in unfair

practices against consumers, it provided no relief for harmed consumers. In response, most of the 50 states passed their versions of the act that allow consumer lawsuits to be brought (Nat. Cons. Law Center 2009).

A unique aspect of U.S. industry governance is the class-action lawsuit that allows many people who have been harmed by a well-funded organization to join a 'class' that challenges the harming party in court. For example, the Magnuson-Moss Warranty Act (MMWA) of 1975 is a core statute governing consumer product warranties. Class actions lawsuits delegate the regulation of consumer product warranties to private citizens, eliminating the need for the complexities of enforcement by hard law (Marcus 2013).

Since the 1950s, US civil courts law have increasingly found any entity that admits to having caused damages to be guilty. The fear of being prosecuted makes companies and individuals avoid speaking publicly about the effects of products because prosecutors can interpret such statements as admitting to guilt.

Commercial guarantee frameworks

After someone purchases a product, she or he may realize that the price paid was much greater than the value that the product provides. Commercial guarantee frameworks, which can be policies or statutes, were designed to remedy such discrepancies.

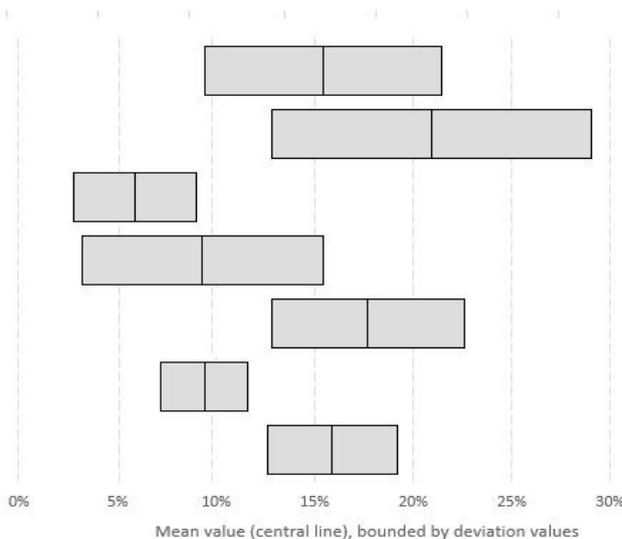
Modern US commercial transactions use three types of these guarantee frameworks (DiMatteo & Wrbka 2019).

- 1) Legal guarantees, also known as statutory guarantees,
- 2) Integral commercial guarantees, also known as warranties, and
- 3) Paid-for commercial guarantees, also known as extended warranties service contracts (EWSCs).

The MMWA's ban on a warranty that negates a common warranty expectation is an example of a statutory guarantee. The bumper-to-bumper warranty of three years or 36,000 miles on most new cars is an example of an extended service contract, while a seven-year or 100,000-mile warranty on a used vehicle is an example of an extended warranty contract. A fourth legal remedy, an 'Implied Warranty', can also be applied to any product sold in the US with clear evidence of not delivering basic amenities that are expected by a product of its type.

Survey of legal counsel

We prepared a survey to document current trade practices involving product lifespan and product repairability. We sent the survey with a confidentiality agreement to in-house lawyers in 43 companies that sold durable in many US market sectors, including housewares, home appliances, electronics, sporting/outdoor gear, and toys. Respondents were not paid or compensated for their participation. Twelve completed surveys returned to us, yielding a 28% response rate.



1. What percent of the products involved **statutory guarantees**?
2. What percent of the products had **warranties**?
3. What percent of the warranties guaranteed an **amount of service or time that the product delivers service**?
4. What percent of the warranties guaranteed the **ability to repair the product or replace non-functional components**?
5. What percent of the products **offered EWSCs**?
6. What percent of the EWSCs guaranteed a **minimum amount of service or time that the product delivers service**?
7. What percent of the extended warranty contracts guaranteed the **ability to repair the product or replace non-functional components**?

Figure 3. Percentages of products with warranties (central line is the mean value).

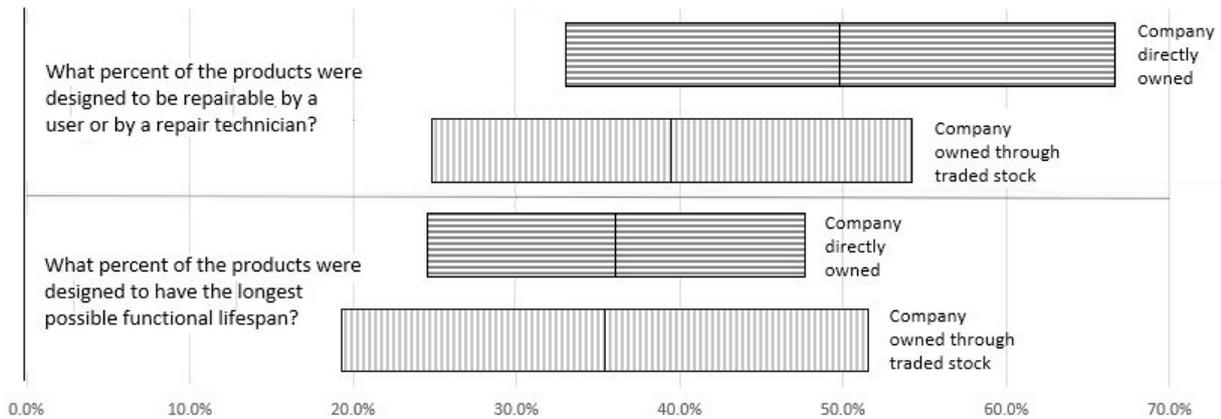


Figure 4. Percentages of products designed for desired characteristics (the central line is the mean value).

Figure 3 shows the next questions about warranties on the right and the answers on the left. For each question, the lawyer estimated the percentage of the total of all the kinds of products sold in the US. Each bar shows the mean value of all responses bounded by the deviation.

On average, 15% of the products had statutory guarantees, while 21% had warranties. Of the products that had warranties, 6% of the warranties guaranteed an amount of service or an amount of time that the product delivers service, while 9% of the warranties guaranteed the ability to repair the product or replace non-functional components. 18% of the products offered extended warranty contracts (EWSCs). Of the products that offered EWSCs, 9% of the contracts guaranteed an amount of service or time that the product provides service. 16% of the contracts guaranteed the ability to repair the product or replace non-functional components.

The data in figure 3 indicated that warranties are more common than extended warranty contracts, which, in turn, are more common than statutory guarantees. The results show that in both warranties and extended warranty contracts, guarantees of ability to the repair or replace worn parts were more prevalent than guarantees of maximized product lifespan.

Respondents next estimated the percentage of the products that the company had designed to have desired characteristics. The questions were, given the available technology and market structure: 1. "What percentage of the products were designed to be repairable, either by a user or by a repair technician?", and 2. "What percentage of the products were designed to have the longest possible functional lifespan?".

We sorted the responses in figure 4. according to those that are directly owned (3 firms), and those that have publicly traded stocks (9 firms). More of the products were perceived as being designed for repair than were perceived as being designed for the longest lifetime.

We asked the lawyers to indicate how much that kind of logic expressed in the following statement influenced the lifespan of their company's products: ***"One microeconomic theory of a durable goods posits that a firm will make non-perishable products to be less durable than they could be, given economic and technological constraints, and sell the products at relatively high prices compared to competitors, to increase some degree of higher market demand for the firm's products in the future"***.

To what extent was the lifespan of your client's products influenced by this logic?



Figure 5. Influence of the theory that shorter product lifespans are more profitable.

Figure 5 shows that five respondents indicated that the firm was "not influenced at all," four thought that the company was "somewhat influenced," one thought that the firm was

“moderately influenced” and two thought that the firm was “heavily influenced” by the logic of planned obsolescence.

Next, we asked: “*What’ would motivate the company to maximize or significantly increase the lifespan of its products?*” and “*What would motivate the company to maximize or significantly increase product repairability and the replaceability of product components?*” All respondents (12, 12) marked “New statutory regulations on product lifespan - repairability.” Some (5, 6) marked “Industry standards such as the FTC Green Guides with new product lifespan - repairability requirements.” A handful (1, 2) marked “Voluntary Ecolabels with product repairability requirements such as the EPEAT electronics ecolabel.”

Lastly, we asked, “*If the United States was to begin regulating planned obsolescence of durable goods, which branch of government do you expect would first make such regulations?*” Potential answers included:

- The US Congress, via omnibus legislation
- Federal agencies via command-and-control regulation
- Consumer-friendly state legislatures, such as Connecticut, Hawaii, Illinois, or Vermont
- Consumer-friendly state courts, such as Florida, California, St. Louis, Philadelphia, New Jersey, or Illinois

Which branch of US government do you expect would make the first regulations on the planned obsolescence of durable goods?

- The US congress
- Federal agencies
- Pro-consumer state legislatures
- Pro-consumer state courts

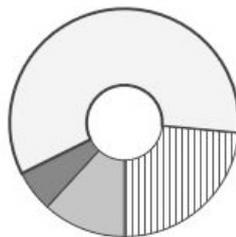


Figure 6. Branches of the US government that can regulate planned obsolescence.

Figure 6 shows that most respondents (11) thought that Pro-consumer state legislatures have the greatest probability of making the regulations, with some (5) indicating that pro-consumer state courts would make them. Two thought that the US Congress and one thought that Federal agencies would make the regulations.

Observations

- The long history of mass-manufactured products in the US parallels the long history of planned obsolescence in mass-manufactured products.
- Most economists accept planned obsolescence and the substantive environmental damage that it causes as a common and micro-economically beneficial business practice. We were surprised by how uniformly mainstream economic theories support planned obsolescence.
- Commercially established guarantee frameworks in the US offer a foundation for extending product lifespans and for increasing the capacity for product repair.
- A 28% response rate is strong for a survey sent via email to unfamiliar recipients, but a larger pool of responses would boost the statistical significance. Because our sample size was too small to be statistically significant, we interpret the data qualitatively.
- A substantial segment of products in the US market, 15-30% (figure 3) have some form of warranty.
- The complex questions in the figures 4., 5., and 6. required specialized knowledge and elicited more subjective answers. Ideally, we should evaluate these questions using more objective methods.
- Respondents indicated that approximately 46% of their products were designed to be repairable, and approximately 36% were designed to have the longest possible lifespan (figure 4.). Fear of negative repercussions from employers could explain the potentially exaggerated responses about current product lifespans (figure 4). Most respondents indicated that their products’ lifespans were “not influenced at all” or “somewhat influenced” by the theory planned obsolescence (figure 5.). A research method that would deliver more objective results, like that of Catherine Rose (2000), would independently determine product lifespans through physical tests.
- All respondents thought that mandatory measures (laws) would most motivate their firms to increase product lifespans. The firms were less motivated by industry standards, and even less by ecolabels. Most respondents also thought that state legislatures currently have the greatest

probability of regulating the lifespans of products. Confirming our assumptions, these replies reflect the current anti-regulatory stance of much of the US federal government.

Conclusions

We identified and thoroughly endorse several actions with strong potential to support longer product lifespans. These actions overlap those recommended by DiMatteo and Wrbka 538–43:

- The FTC could require manufacturers to label products with expected lifespans.
- Congress could add to the MMWA with a tripartite framework, *a la* The Netherlands and Finland, that classify products into expected minimum periods of usability.
- The FTC and the DoJ could increase enforcement of antitrust law and consumer protection raised by the more egregious examples of planned obsolescence, such as competitor collusion to reduce product lifespans.

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