



The Economics of Planned Obsolescence of Manufactured Goods: A Case Study of Ceramics and Leather Products

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Abstract. One of the developments that trailed the evolution of technology and industrialization at the turn of twentieth century is the policy or theory of planned obsolescence. Professionals were given the power to determine the lifespan of products as they so wish. To achieve this, the third requirement for standardized products which is durability must be compromised resulting to products with inbuilt assigned life circle which must end at an appropriate time deemed fit by the manufacturers. It was argued that product durability constitutes economic paralysis preventing economies from consuming the abundant raw materials, limiting the space for constant reproduction to create employment for millions of job seekers. This research aimed to examine the economic impact that this policy has on leather and ceramic products. The objective is to investigate the conditions that surround the obsolescence of leather and ceramic products and other variables that correlates the economic implication and the degradation technology or mechanism behind this planned obsolescence of leather and ceramic products. The methodology focuses on three main areas which are: influence and impacts of demand side, the supply side, the environmental side and lastly, the one sided and two sided markets. Findings reveal that increase in demand and production motivated producers to implement the policy of planned obsolescence thereby arresting the shift in preference to other products of manufacture. Equally, the manufacturers understood the technicalities of product grading thereby using this device to influence or manipulate consumers to abandon some products in preference for others. It also revealed that, this policy of induced purchase and periodic change of dysfunctional or obsolete goods impact negatively on

the economy of consumers. More, all abandoned and unused products end up as waste and are the causes of environmental degradation. Lastly, findings also blamed the depletion of our natural resources on the policy of planned obsolescence of products of which leather and ceramic products are included. The article concludes by noting that, businesses thrive on account of this policy, but it induces wasteful spending and increased environmental waste and degradation.

Keywords: Obsolescence, ceramics and leather products, economy.

1. Introduction

The need to revolutionize the economic thinking of producing nations gave birth to the policy of planned obsolescence. The concept Planned Obsolescence has been defined as “the production of goods with uneconomically short useful lives so that customers will have to make repeat purchases” (Bulow, 1986). As products saturate the market, offering multiple choices or preferences to users, the need for creative science in product development and manufacture becomes imperative.

According to Bernard (1932), *the theory of planned obsolescence asserts that people must not wait until the last bit of use has been expended from every commodity before replacement. Bernard suggested “I would have the government assign a lease of life to shoes, homes and machines, to all products of manufacture, mining and agriculture when they are first created and they would be sold and used within the terms of their existence known to the owner after*

the allotted time had expired and these products will become legally dead”

According to this principle, if a machine has been functioning for five years, it should be fairly considered dead-dead to the owner who paid for it—because he has had all the use of it during five year years and it will have paid for its life within that five year period allotted to it.

There are basically three dimensions to the issue of the design and production. The first is the aesthetic appeal of an object which could be said to be twofold. First is its outward appearance which attracts attention and gives pleasure that good viewing generates (Morakinyo and Alkali 2018). The second is the joy which effectiveness of an object generates to the user. This includes the mechanical effectiveness as well as aesthetic appeal. Thirdly, the moral dimension to it, which is the durability of a product. For a product to be a standard product, it must fulfill all the three requirements. These are qualities that every manufacturer is expected from the onset to put into his product and these are qualities that morality demands should be maintained by developed and developing technologies.

The manufacturing industry as at today has become morally decadent as technology attains its peak. Industries are deliberately adopting all measures within their power to sustain their existence in the face of competitive manufacture of products as well as maintain the western affluence in lifestyle that advanced nations have become used to, as well as settle the demand for higher wages by industry workers due to increased standard of living. A way out of this is to lower standard of durability to ensure repurchase of items more often by consumers. According to (Kim, 2021), planned obsolescence was introduced as act of inducement by manufacturers for replacement of products with inbuilt short lifespan. This was equally observed by (Gregory, 1947).

Product durability is seen as economic paralyses which prevent our economy from consuming the abundant raw materials and manufacture of products. “Miracles do happen however, they must be planned in order to occur. Similarly in this time of economic crises, we must work out our salvation” Bernard 1932. Product life span has to be shortened to give space for constant reproduction in order to create employment for millions of job seekers. One of the leading causes of unemployment today is the manufacture of durable products. This economic disease has to be treated with the cure known as planned obsolescence. If new wealth is to be created, the supply lines must be drained so that fresh goods

will flood the market. If there are stale goods left in the supply chain, new products will not come and when new products are not manufactured, there is absolutely no need retaining the workforce of that factory. There is little demand for new products when people keep their stale and worn out things longer than stipulated. This was the economic sense behind the formulation of the theory of planned obsolescence.

In line with this principle, leather products, ceramics (lead/earthenware), furniture, clothing and other products must have a lifespan as humans have. When used according to their allotted time, should be retired and replaced with new products “Engineers, Economist and Mathematicians were given the power to determine the lifespan of products as they so wish. So for example, a shaving blade that could last for months are made disposal. This is becoming the common norm of almost all products including cars, electronics and has affected ceramic and leather products as well. The popular phrase “The Germany mistake” often used in describing a particular brand of Mercedes Benz due to its efficiency and durability is a foregone issue. The Germans and of course all industrialized nations will never make the mistake of making cars, electronics, clothing, furniture, ceramics, leather products etc. that can last for ages. Who returns to buy more when you have a product that can last for your entire life span? According to Loewy Raymond, one of the proponents of this philosophy, “if you design something too well, you don’t get another job for the next 30 years”. This principle has gained universal acceptance and applicability even among indigenous manufactures. This technology can and has been applied in the production of ceramics and leather products with all its attendant economic and ecological consequences which is the subject of investigation by this paper.

Leather and ceramic products, just like every other product are designed with a shelf life. These are designed to be replaced after a set period or lifespan of the product. The degradation technology or mechanism behind this planned obsolescence of leather and ceramic products bothers very much on the deliberate choice of materials, chemicals and the technology or methods of production. The leather product starts originate from raw materials sourced from different categories of livestock. The ceramics originates from, earthen raw materials from different rocks. However, products derived from this raw materials are currently facing a serious challenge of quality compromise due to stiff market competition, it is therefore recommended that a government-backed and research-enabled processes be instituted

to ensure that yield of these products from the global markets is attractive (Pasquali & Marchi, 2022).

Leather products includes: footwear for fashion and therapeutic uses, Military (boots) and Fashion accessories such as, Ladies hand bags, Wallets. Also included in the list of products are Interior decoration pieces like Puffs, Conference bags, Interior decoration pieces etc. Ceramic products mostly affected by this policy include tiles, table wares, bio-ceramics, military ceramics, industrial ceramics, electronic ceramics (home theaters, smartphones components, TV and electrical components), flower vases and other decorative wares.

2. Related Work on The Impact of Planned Obsolescence.

Proske and Finkbeiner (2020) in their study, noted that it is very necessary to investigate the conditions surrounding the planned obsolescence of a products with respect to its economic, technological and environmental effects. The Authors approached their study by investigating the adverse impact of obsolescence based on environmental, product supply, and product demand perspective. Their analysis showed that obsolescence has some environmental degradation impact. On the other hand, they also noted that reduction of the obsolescence of a product might also contribute to an increased production. The outcome from the study showed that existing legislative procedures for mitigating obsolescence in the industry is not enough though these legislation seems to address demand, supply, consumption and the environment. Malinauskaite & Erdem, (2021) on the other hand, investigated the implication of purposeful obsolescence on products on the welfare of the consumers. The study noted that the attempt to boost supply of a producer who wants to monopolize the market has often promoted the adaptation of purposeful obsolescence resulting to economic losses on the part of the buyer. Miao (2011), says whereas the producer is making profit from increase supply, there is an adverse welfare issue on the part of the consumer.

Azi and Priscilla (2017), in their paper titled Rebranding Selected Leather Products From NILEST Zaria Towards Enhancing Their Design Aesthetics & Economic Viability suggested that there is need to grow the Institution's mandate as well as review aspects of its production process in terms of: aesthetic standards of beauty, style and appearance ,design & functional parameters, structural, creative and utilitarian attributes, peripheral qualities ,social

class, durability, effectiveness , pleasure and cultural meanings. On the other hand, Morakinyo and Alkali (2018) advanced that, consumers are the key actors in planning and implementation of human creativity. To successfully remain relevant and satisfy the consumer, there is need to deliberately research at all times on the needs of the consumers and the market trend. Meanwhile, compelling ceramics brand of all time is not an option; because a product can penetrate market yet a strong and reliable brand keeps a product beyond the five (5) life cycles (manufacture, growth, maturity, decline and death) of a product. These if done will deliberately checkmate the adoption of planned obsolescence policy on ceramics and leather products.

In their work, Iizuka showed that a deliberate obsolescence is been engendered among book publishers with the aim of profiting from consumers. Though it was noted that intellectual concerns might as well have influenced revision of books in the markets, but the need to render useless existing editions of books to promote profit could as well be the motivation. The study drew their deduction after a considerable analysis of data collected from books sales (Iizuka, 2007). Barros and Dimla considered the problem of planned obsolescence in the context of circular economy and asserted that the strategy being deployed is to foster the practice for economic benefit of producers. The authors mentioned that producers leverages on the desires of consumers by adding some aesthetics to product with the aim of eliminating existing version from the markets. While the producers gain much profit from this act, the common man faces the challenge of this practice in undesirable economic losses. Barros & Dimla (2021) understudying their work using data sourced from sales of mobile devices, investigated product obsolescence by looking at how products of architecture and smartphones are being used to achieve planned obsolescence. Findings from the study suggest that circular economy must be sustained and the means to achieve it is planned obsolescence. The authors argued that the need to advance technology and increase innovation are strong underlying factors for some observed obsolescence in many short-lived and uneconomically designed products. They noted that slowing the deterioration of products might not support the attainment of significant innovation.

Fishman, Gandal and Shy (1991), looked into the ethicality of product obsolescence across some selected industries. The aim of their study is to understand the factors promoting the practice among manufacturers. Further, the study investigated the manner that planned obsolescence thrives even in a

very competitive market. Findings from the study showed that either product obsolescence or technology of obsolescence holds some adverse environmental effects if it is not adequately addressed (Aladejebi, 2013). Also, Park *et al*, investigated the problem of obsolescence of products with specific emphasis on market competition of the product. Using a model which allows for integrating possibility for non-surviving organization. The study aimed to find if such producers will adopt planned obsolescence to survive in the market. Findings from the study revealed the use of planned obsolescence in a competitive market, the aim of which is to overcome the challenge of lack of salability, (Park & Grout, 2005).

In another study, Hartl, Kort & Wrzaczek (2023), sought to understand the implication of balancing the trade existence between seeking product durability and increasing demand. While the need to increase durability can boost confidence and trust among consumers, on the contrary, it has the potential of dragging down the demand curve. As a result, planned obsolescence is often introduced to balance this. Findings from their study showed that low demand curve effect is obtained due to lengthy warranty period and frequent malfunctioning of products. In addition, their studies revealed that longer warranty period label on product have triggered increased product life time – instigation to the use of planned obsolescence. Findings from their study showed that the determined variable have significant effect on some sector of manufacturers in the introduction of planned obsolescence (Erdil & Taçgin, 2021).

Meanwhile, Pantano, Iazzolino, & Migliano (2013) investigated the role of addition of innovation and embracing technology to product manufacturing to the inculcation of obsolescence. Though the aesthetics addition to product promotes the retailing chain and processes, unfortunately, it was discovered that this often promote the use of planned obsolescence to achieve business profitability. Using an explorative framework, their study aimed to evaluate this risk resulting from the manufacturers focusing on addition of innovation and aesthetics to their products. Similarly, Lilley, Smalley, Bridgens, Wilson, & Balasundaram, (2016), proposed that the use of aesthetics to product often results from consumers demanding for such features in products. Using a semantic differential scales (SDS) on data containing mobile device products with components drawn from bamboo, walnut, cork, leather, brushed titanium, plastic and rubber, findings from their study was deduced. Findings from their study showed that

consumer's conflicting requirements for aesthetic products and durable products have a motivating factor for the use of planned obsolescence.

Lilley, *et al* (2016) and Brun & Ciccullo (2022), on the other hand noted that the use of aesthetic and innovation as a means for coercively maintaining sustained supply chain must be controlled. Looking at the leather industry, the authors noted that the sustainability-oriented innovation (SOI) has been understood as strategic in sustaining supply to the market, and as result, it presents a kind of planned obsolescence. Findings from their study revealed that manufactures must seek to control the desire to soar supply and the need for eliminating obsolescence in the process (Brun & Ciccullo, 2022). Whereas Morakinyo and Alkali (2018), believe that remaining in the market by upgrading and supply the actual demanded ceramics products is utmost, if ceramist would remain in the market and be relevant circle.

The work of Milios is a study motivating the consideration of circular economy as a solution to the increasing occurrences of planned obsolescence. Using taxation framework, the study carried out an analysis to understand how the life cycle of products relates with other factors to sustain circular economy. Their analysis of the framework centers on analyzing waste hierarchy tax, material resource tax, and repair relief tax (Milios, 2021). Hernandez Miranda, & Goñi, (2020), presented a discussion around the use of law to moderate the right to repair of products by consumers. The aim of this study is to motivate the consumers to have some control to managing planned obsolescence by producers. The authors noted that different approximations such as circular economies, green economy, sustainable design and cleaner production have been used mostly on production law whereas the laws empowering the consumers could as well help to eliminate planned obsolescence (Hernandez, *et al* 2020).

Alkali (2022) in his lecture note observed the use of planned obsolescence by Ghanaian, Nigerian and Chinese ceramic potters who use low temperature glazes and low firing temperatures to produce their works. He also noted the excessive use of aesthetics and ornaments in embellishing their works to stimulate appeal and desire to possess thereby promoting product sales. A personal investigation from a market survey clearly shows that many of the ceramic products imported particularly into Northern Nigeria and some locally produced, the producers either consciously or unconsciously adopt the theory of planned obsolescence in their production technology. These compromises on glaze formulation

technology, low temperature firing and deliberate violations on body composition formulas that yield undesirable properties will lead to compromised thermal strength, abrasion resistance, body density and durability thereby leading to reduced permeability, increased fragility and less economic necessary value.

The summary of the review of the related studies in this section shows that different studies have investigated the use of planned obsolescence in several sectors of production. However, little has been reported on the practice of the same planned obsolescence in the leather and ceramic industry. The growing use of products in the industry and the wide deployment of planned obsolescence by producers is a need for investigating the impact of this on the durability of such products and discuss its impact on the circular economy of our nation. In this study, we

proposed to discuss the role of planned obsolescence in the leather and ceramics sectors.

3. Methodology

In this section, we present the discussion on the existence of planned obsolescence in the ceramics and leather industry. The part two of this research will cover more areas than what is discussed. The central point of the discussion is focused on the influences and impacts of the demand side, the supply side, the environmental component, the market role from the perspectives of a one-sided and two-sided markets. In Figure 1, an illustration of the execution of planned obsolescence in the ceramic and leather industry is presented. The figure shows how the industry transforms products through phases of grades for attraction of the interest of the consumer, and also through the influence of the market players.



Figure 1: An illustration of planned obsolesces in the ceramics and leather industry

The following discussion is centered around the component in Figure 1 for the examination of the economic impact of the use of planned obsolescence in the leather and ceramics industry.

This article addresses planned obsolescence from a holistic approach, positioning it into three main areas, namely unfair competition and consumer protection, competition law, and environmental law, which traditionally are underpinned by economic considerations respectively from the demand side, the supply side and the environmental side concerning their impacts on the market.

3.1 Demand Side

The increasing need of demand from the consumers' perspective have often motivated producers to implement some measure of planned obsolescence. For instance, the impact of market economy where

consumers might shift interest and attention to a particular product leaving out a similar product from the same industry have resulted in the use of planned obsolescence in the industry. This demand curve as demonstrated among consumers is often driven by availability of wide range of products in the market, thereby leaving the consumer to choose from such products with the same functionality. This is assumed to drive the unappealing demand thereby forcing some other manufacturers to implement planned obsolescence for better profitability. For instance, the major players in the leather industry can use the consumer preference to orchestrate product manipulation in a manner as to draw increased purchase on the choicest products which the consumers are mostly patronizing. As result, this theory of consumers driven the economy to availability of choices on products serving the same purpose is a strong force in the entire chain of events

promoting planned obsolescence. This economic influence can destabilize a healthy market-products-consumer pipeline.

3.2 Supply Side

On the other hand, the manufactures have also understood the technicality of producing different grades and standards in the same product to influence purchase in the market. These graded products allows for the producer or manufacturer to manipulate the consumers to abandon some of the products coming from the same employer to go for some other products similar in functionality, but different in grades. Another strategic implementation of planned obsolescence by manufacturer is observed when they engage in a deliberate campaign and advertisement for a product to entice the consumers in a manner as to make them increase their purchasing power on a product while leaving out another product which is coming from the same manufacturer. This is an evidence of a planned obsolescence aiming at eliminating a product either through propelled advertisement or through product grade ranging. This speaks into the economy of the sector considering that the increasing use of the two factors destabilizes the expected healthy curve of market in these industries.

3.3 Environmental Side

The challenge of planned obsolescence is that all abandoned product by the consumers and the unsold product from the side of the producers all end in the environment. Degradation of leather products emits chemicals into the environment in a very unfriendly manner. Ceramics products emit chemicals into the environment and serve as land shells affecting plant growth in a very unfriendly manner. These processes break down useful biological processes thereby contributing to the global environmental damage. Another perspective to the impact of planned obsolescence to environmental degradation is that resources being used for leather and ceramics production are often drawn from animals and the plant respectively based living organism. The plant based system helps to maintain an ecology suitable for the sustenance of all living things. Similarly, the animals contribute their quota to the sustenance on environment in diverse manner. Increasingly implementation of planned obsolescence will definitely leads to natural resource depletion coming from animals, plants and all other source that ceramics and leather products are generated from. It is therefore important that the use of planned

obsolescence be censored to eliminate the adverse impact.

3.4 One-sided Markets

Another important player in the execution of sustenance from the perspective of the market is when there is a single producer for a product highly demanded by the consumers. This economic situation describes a single monopoly market where the single producer determines what gets sold in the market and what should be withdrawn from the market at any time. We understand that some existence of this kind of market exist in the leather industry as well in the ceramics industry; thereby bring a deliberate execution of sustenance by such a single producer. Again, having these players in the industries in bringing about a continuous cycle of abandoned products which are no longer in use by the consumer because the single producer is subtly manipulating their taste. Unfortunately, the economic impact of this is devastating to the sector considering that the single manufacturer will deter prospective producers from entering the market in other to keep the purchase power under his control.

3.5 Two-sided Markets

On the other hand is a two-sided market where allows for cooperating marketers to jointly manipulate the market for their benefit through the introduction of planned obsolescence. In the industry, the unavailability of some raw materials for ceramics and leather production in some part of the country can motivate cooperating producers to ensure that the much needed raw materials from their base is restricted in a manner as to serve their industry. This relationship existing among them leads to a controlled market susceptible to the introduction of planned obsolescence, while depriving other players from entering the same market to shift the narrative.

In summary, the figure applied to demonstrate the existence of planned obsolescence in these industries as discussed above shows that the sectors is adversely regressing the economy of the nation. The deliberate use of influences and impact from the consumers side, producer side, natural resource harnessing, and market control are all economically disadvantaging the production and consumption of products.

4. Result and Discussion

The discussion of planned obsolescence as related to the ceramics and leather industries in the previous section suggest that the prolongation of what we

described as the coherent microeconomic theories of planned obsolescence are:

- An uncontrolled drive for the reach of obsolescence for a particular product.
- This ease at which the attractions and interests of consumers can be influenced to raise demand for new products.
- The use of strategy to push out low-graded products to motivate consumers to yearn for durable or high-grade products
- Marketers and producers low-keying the relevant information pointing to durable products among offers in the market so that only wasteful products are placed on the market supply chain.

In the midst of all these micro-economic confusion, the consumer is mostly at the receiving end because, the adverse economic outcome of the use of planned obsolescence rest on the personal budget of the consumer. Although when the deliberate use of planned obsolescence by a producer is understood by the consumer, it might shift the demand from that brand coming from the producer to another brand promising durability and longevity. In addition, the pace at which the environmental impact is felt might be slower than expected, but in the long run, each depletion is contributing to the attainment of green economy. The most important player in the use of planned obsolescence is the consumer and as a result, the role is pivotal is elimination of the practice for their personal, sectorial and national economic revitalization. In the following paragraphs, we outline some major problems of planned obsolescence in these industries.

While it may seem that producers seem to drawing much profit through the practice of planned obsolescence, it has been noted that there is a significant economic challenge faced by such manufacturers. This is readily possible considering the fact that products are substandard is often easily thrown away since they are being daily used for our domestic needs. This frequent throw-away and spoilage of the products will present an image to the consumer never to patronize their products again. The long term impact of this to the company is that their sales drop sharply and they therefore run the risk of bankruptcy.

The need to increasingly serve products with aesthetics and incorporation of new technologies is another driver of the problem of planned obsolescence. Because of the increase speed at which technology is changing, the use of high-level technology in producing or consisting products

means such products will soon be moved out of the market once a better technology evolves. It is therefore important to put control to the influence of the use of technology on the products. Further, the adaptation of products to continuous use of aesthetics needs some consideration for durability to avoid the occurrence of planned obsolescence. Therefore, planned obsolescence is not about making products better or prettier, but about differentiating those who can afford the latest models from those who cannot.

Products seem to either break down, become obsolete and useable when their warranty runs out, leading to the theory of planned obsolescence. Reducing the life-span of a product to achieve increase sales bring an untold hardship on the economy of the consumer. In the industry, this is very important because of the nature of their day-to-day usage.

There is also the repair and refurbishment economy where provision is made either by the supplier or the third-party to ensure that products do not easily go into unusable state by allowing for their repair. This is a very important factor in the control of planned obsolescence.

5. Conclusion

In conclusion, this paper, we have presented the existence of planned obsolescence in the ceramics leather industries. We made our discussion around the demand side, the supplier side, the environmental side, the market side with respect to one-sided market and two-sided markets. Furthermore, we made some clear discussion on the micro-economic theory of planned obsolescence, and emphasized the problem of using the planned obsolescence for sales of products. We note that as it has been widely discussed in literature, that planned obsolescence is a negative business strategy of intentionally creating inferior products that become obsolete after a certain time. Manufacturers use this strategy to push customers to upgrade in order to drive their sales. As a result, businesses thrive, but it induces wasteful spending and increases environmental waste. It also affects consumer decline in sticking to a brand that they like.

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