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## Positional Concerns, Advertising Expenses and their Externalities

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# Positional concerns, advertising expenses and their externalities

*"What is, is wrong"*

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## Abstract

Since Veblen's "The Leisure Class" was published in 1899, a considerable amount of literature on conspicuous consumption has been produced; while much has been said from a demand viewpoint, its supply side and social consequences rest largely undetermined. This paper aims at highlighting the highly conflictual interests between firms and the generality of consumers in a market characterized by conspicuous consumption. It also has in view to take a step forward towards the formalization of conspicuous consumption, to accelerate his admittance in the broadly accepted microeconomic theory. Starting from an analysis of the past literature and the state of the art in demand theory, I will first include positional concerns in an individual utility function. I will then examine the adverse economic and socio-psychological externalities that similar behaviors entail. I will eventually turn to the analysis of the supplier's responsibility in shaping the phenomenon. Through an advertising augmented Lerner index I will investigate the role of a firm's advertising expense in both raising markups and increasing conspicuous consumption' negative effects. After an empirical analysis aimed at supporting my thesis, I will finally suggest a few remedies.

JEL Code: D01, D62, D91

Key words: Conspicuous consumption, Positional concerns, Utility function, Profit function, Lerner index, Advertising externalities, Advertising tax

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# 1 Introduction

According to Edited – a leading data company providing market analytics and insights in the retail industry – the prices of luxury goods have grown by 25% since 2019, and in the same time frame, despite predictions, also the sell outs have raised by 21%<sup>1</sup>. A traditional approach to the consumer’s utility and demand, deliberately ignoring interdependent behaviors such as a quest for status, would define a similar consumption pattern as paradoxical. Nonetheless, the leading role of positional concerns in human motivation, the existence of interdependent behavior patterns and the effects of interpersonal comparisons have long been recognized in social sciences other than economics. For instance, Abraham H. Maslow in “A theory of human motivation” affirms that a subject’s conduct is almost always situationally determined<sup>2</sup>. While Robert H. Frank, in “Choosing the right pond”, mentions several sociopsychological research that have proven how moves in social interactions are strongly linked to imitation and status<sup>3</sup>.

The formalization of interdependent behaviors completes the neoclassical configuration of, not only the individual’s utility and demand functions, but also the firm’s profit and markup curves, rationalizing behaviors otherwise defined as paradoxical, to eventually reflect the complexity of the real world.

This paper is structured as follows. In the second section of the paper, I examine the past literature and the state of the art, highlighting the causes that led to an independent textbook utility function. In section three I formalize ostentatious consumption behaviors from a consumer standpoint. In section four, I inspect the adverse economic and socio-psychological externalities entailed in an ostentatious conduct. In section five, I turn to the analysis of a profit maximizer firm’s behavior. Through an advertising augmented Lerner index I show how the advertising expense permits to levy a positive and growing markup while enhancing conspicuous expenditures and its negative effects. In section six, I conduct a polynomial regression over a panel of public owned luxury goods suppliers in order to investigate the relationship between their advertising expenses and markups. In section seven, I analyze five possible public policy’s approaches to diminish the distortionary effects on consumption. First from a demand viewpoint – namely, a prohibition approach, a behavioral approach and a fiscal approach. Then, from a supply viewpoint – namely, a steeply progressive advertising tax and the development of a deeper sensibility on CSR topics in academia. In conclusion, I remark the necessity to rethink microeconomics utility and profit functions and the need to re-microfound macroeconomics on these new bases.

## 2 The consumer’s positional concerns

### 2.1 Past literature

One of the most effective examples of interdependent behaviors is offered by Thorstein Veblen in “The theory of the leisure class” published in 1899. There Veblen defines *conspicuous consumption* as an act of displaying ostentatious visible goods as a symbol of the purchaser’s spending capacity – which, in turn, is a signal of his wealth and ability<sup>4</sup>.

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<sup>1</sup>See Stanley, 2022

<sup>2</sup>See Maslow, 1943

<sup>3</sup>See Frank, 1984, Chapter 2

<sup>4</sup>See Veblen, 1899

However, Veblen's research on interpersonal comparisons and ostentatious consumption is not original. Already Plato, in "The Republic", affirms "Since ... appearance tyrannizes over the truth and is lord of happiness, to appearance I must devote myself". Many economists of the past have taken this matter under scrutiny. The most prominent ones are Bernard de Mandeville, the Physiocrats, Adam Smith, Karl Marx, John Stuart Mill and more recently, Alfred Marshall, John Maynard Keynes and Paul Samuelson.

Adam Smith, in the "Wealth of Nations", affirms that community standards decree which commodities are necessities: "By necessities I understand not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without"<sup>5</sup>. Bernard de Mandeville affirms that invidious comparison, which is a habit of mind common to all people, generates economic growth for the rule that private vices turn in public virtues<sup>6</sup>. Alternatively, John Stuart Mill, as the Physiocrats, highlighting the existence of ostentatious behavior, suggests to curtail the waste of resources caused by conspicuous consumption through taxation: "A great portion of the expense of the higher and middle classes in most countries is not incurred for the sake of the pleasure afforded by the things on which the money is spent, but from regard to opinion, and an idea that certain expenses are expected from them as an appendage of station; and I cannot but think that expenditure of this sort is a most desirable subject of taxation"<sup>7</sup>. Still regarding positional concerns, Karl Marx famously notes that: "A house may be large or small; as long as the neighboring houses are likewise small, it satisfies all social requirements for a residence. But let there arise next to the little house a palace, and the little house shrink to a hut". Thus, they all theorize that a subject's utility depends in some cases on relative rather than on absolute levels of consumption.

Alfred Marshall, despite recognizing the role of interpersonal comparisons and the possibility to face interdependent utility function, opts to keep these considerations aside to land to an easier diagrammatical treatment in his "Principles"<sup>8</sup>. John Maynard Keynes and Paul Samuelson will then do the same. The latter, acknowledging that external economies and diseconomies makes his welfare analysis more complicated, simply ignores the problem<sup>9</sup>.

These latter approaches, by disregarding the element of social comparison, have led to the current textbook formulation of the utility function which recognizes no roles to interpersonal comparisons in consumers' behavior.

## 2.2 State of the art

Despite the universal recognition of the role of relative concerns in human motivation, the current textbook formulation of the utility function does not feature interpersonal comparisons, relative positional concerns or emulative behaviors. The reason to a similar state of the art can be found in the greater ease of formulation of utility functions that rely entirely on the premise that consumption choices are independent from the decisions of others. Another motive might be the supremacy of the life cycle and the permanent income approaches to consumption formulated respectively by Franco Modigliani and Milton Friedman over James Duesenberry's alternative based on positionality. The dominion of

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<sup>5</sup>See Smith, 1776 as cited in Frank, 2008, p.1780

<sup>6</sup>See Mandeville, 1724

<sup>7</sup>Mill, 1848, p.672

<sup>8</sup>From Marshall's correspondence to Pigou and Cunynghame it is possible to acknowledge his awareness of the problem (Leibenstein, 1950, p.186)

<sup>9</sup>See Samuelson, 1947 as cited in Leibenstein, 1950, p.186

these theories has coincided with the quasi-universal belief that subjects' preferences are independent<sup>10</sup>. Thus, the neo-classical approach to a consumer's utility can be expressed as a function of the quantity of goods consumed by a subject  $i : C_i$ , with no relation to other subjects' consumption levels:

$$U_i = \bar{U}(C_i) \tag{1}$$

However, the coalescence of psychology and economics, leading to the birth of behavioral economics, rises new theories that challenge shared assumptions in the consumer's demand theory. For example, Angela Chao and Juliet B. Schor suggest that when two preconditions are met a subject's consumption is also directed at achieving a higher place in the status ranking. In that case, such aim must be included in the utility function. These preconditions are: "First, individuals must share some degree of commonality in their ranking of the relative desirability (or status) of products and brands. Second, consumption of the products must be socially, or publicly, visible"<sup>11</sup>. Considering Richard Layard and Robert H. Frank's research, postulating a positive relation between social interactions and the emergence of a quest for status<sup>12</sup>, a third precondition might be introduced: a certain degree of social interactions' frequency and subjects' proximity. When these three preconditions are satisfied, the consumer's utility function can be considered as interdependent and might be rewritten as a function of the quantity of goods consumed by a subject  $i : C_i$ , of the consumption level of subject  $j : C_j$  and of  $i$ 's inclination to interpersonal comparisons:  $\alpha$

$$U_i = \bar{U}(C_i, C_j, \alpha), 0 < \alpha \leq 1^{13} \tag{2}$$

### 3 The formalization of conspicuous consumption

As mentioned above, the textbook utility function does not entail any references to interpersonal comparisons and rely entirely on the premise of independence. But if the three overmentioned preconditions are respected, namely commonality of tastes, visibility of goods and frequency of social interactions, consumption might confer, beside a certain degree of functionality, also a precise position in the social rank. In this latter case positional concerns enter the utility function, eventually positing its interdependence<sup>14</sup>.

I now turn to the definition of this new element of the utility function and, further, I derive a demand function in a status-seeking context.

#### 3.1 The second element of the utility function

In 1899, Thorstein Veblen already notes the existence of two types of utility. The first one, in his opinion the only worthy of being pursued, is the utility that consists "in a net gain in comfort or in the fulness of life"<sup>15</sup> or the one achieved through the consumption of goods that "... furthers the life process taken impersonally ... (or that) ... serves directly to enhance human life on the whole"<sup>16</sup>. The second one is the utility that relies solely on interpersonal

<sup>10</sup>See Modigliani and Brumber, 1954; Friedman, 1957; Duesenberry, 1949

<sup>11</sup>Chao and Schor, 1998, p.111

<sup>12</sup>See Layard, 1985 and Frank, 1985, p. 75-77

<sup>13</sup>See Chao and Schor, 1998, p.110

<sup>14</sup>See (2)

<sup>15</sup>Veblen, 1899, p.100

<sup>16</sup>Veblen, 1899, p.99

comparisons: "... (on) the habit of making an invidious pecuniary comparison"<sup>17</sup>. If the former is naturally present in *productive goods*, the latter is predominant in *consumption goods*. He eventually adds that both types of utility are present in the two categories, although in variable ratios: "Consumable goods, and even productive goods, generally show the two elements in combination, as constituents of their utility; although in a general way, the element of waste tend to predominate in articles of consumption, while the contrary is true of articles designed for productive use"<sup>18</sup>.

In 1950, Harvey Leibenstein takes a step further towards the integration of positional concerns in the utility and demand function. Through a static analysis he defines the elements of a consumer's utility and shows their effects on the demand curve. First, he declines a consumer's demand in two categories: a *functional* demand and a *non-functional* demand. The former is due to the inner qualities and functions of the commodity. The latter is instead ascribed to *external effects on utility* (i.e. the effects on the utility due to other factors than the commodity's proper attributes). He clarifies: "... the utility derived from the commodity is enhanced or decreased owing to the fact that others are purchasing and consuming the same commodity, or owing to the fact that the commodity bears a higher rather than a lower price tag"<sup>19</sup>. Further, Leibenstein divides the external effects on utility in three sub-categories: the *bandwagon* effect, the *snob* effect and the *Veblen* effect. The first one refers to the degree to which the utility earned is *positively* related to the consumption level of others. The second one refers to the degree to which the utility earned is *negatively* related to the consumption level of others. The last one refers to the degree to which the utility earned is *positively* related to the price of the product. In the latter case, Leibenstein distinguishes two types of prices: the *real* price and the *conspicuous* price. With the second one being the sum that other people think the subject paid (the *label price* promoted by the supplier), which in signaling the purchaser's wealth and power, eventually regulates his utility. For the purpose of clarity, he eventually adds a *speculative* and an *irrational* effect on utility<sup>20</sup>.

## 3.2 An analytical approach to conspicuous consumption

### 3.2.1 Deriving a demand function when price enters the utility function

Following Harvey Leibenstein's analysis of the *Veblen* effect, when the *price* enters the utility function for wealth-signaling activities, a demand curve that describes the conspicuous consumption phenomenon might be derived as follows.

Assume that a subject  $i$  has a utility function

$$U_i = \ddot{U}(C_i, P^c)^{21} \quad (3)$$

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<sup>17</sup>Veblen, 1899, p.100. It is worth to note that Veblen explicitly refuses the pejorative meaning of the term invidious. In using such adjective, he says "there is no intention to extol or depreciate, or to commend or to deplore any of the phenomenon which the word is used to characterize. The term is used in a technical sense as describing a comparison of persons with a view to rating and grading them in respect of relative worth or value" (Veblen, 1899, p.34)

<sup>18</sup>Veblen, 1899, p.100

<sup>19</sup>Leibenstein, 1950, p.189

<sup>20</sup>Leibenstein, 1950, p.188-189. It is worth to note that, in recognizing irrational effects on utility, Leibenstein anticipates the behavioral economics' idea of a bounded rationality, first proposed by Herbert A. Simon in 1955

<sup>21</sup>For simplicity, I omit  $i$ 's inclination to interpersonal comparisons:  $\alpha$  (see (2))

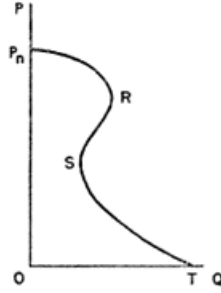


Figure 1: Leibenstein, 1950, p.204, figure 5A

where  $C_i$  is the subject's consumption and  $P_c$  is the good's label price (or conspicuous price<sup>22</sup>).

Through the maximization of this utility function, subject to a standard budget constraint, the following individual demand function is derived:

$$C_i = \ddot{C}(P, P^c) \quad (4)$$

where  $C_i$  is negatively related to  $P$  – the real price of the status good –, but positively related to  $P^c$  and  $P \leq P^c$ . The individuals' demands, in aggregation, lead to the market demand  $C = \sum_{i=1}^n C_i$ , where  $n$  is the total number of consumers.

Leibenstein eventually highlights that when a demand curve is not monotonically decreasing it is shaped as a backward  $S$  – as depicted in figure 1. In particular, there is a real price  $P$  over which no units are purchased, implying that there is a real price  $R$  over which the demand curve switch from being positive to being negative inclined. There is also a point of satiety  $T$  implying that there is a minimum conspicuous price  $S$  under which Leibenstein's Veblen effect is zero, where the product has no value for wealth signaling activities<sup>23</sup>. Thus, the part of the curve included between  $S$  and  $R$  is positively inclined. In that section Leibenstein's Veblen effect – the raise of the quantity demanded due to an increase of the conspicuous price – exceeds the price effect and conspicuous consumption arises.

### 3.2.2 Deriving a demand function when positional concerns enter the utility function

It is easily perceivable that a *label price per se* cannot be the actual *primum mobile* of an ostentatious behavior. So, after having derived the demand function when prices enter an individual's utility function for wealth-signaling activities, I turn to the formalization of a demand function when a *pure positional concern* accesses a subject's well-being formula.

When interpersonal comparisons enter the utility function, the neoclassical utility formula (1) can be rewritten as (2). The relation between a consumer's consumption and his peers' can be either negative or positive. Robert H. Frank takes a step further in the formalization of a utility function with positional concerns. He divides commodities in two categories: *positional* and *non-positional* goods (respectively, commodities whose consumption have value

<sup>22</sup>See Leibenstein, 1950, p.202-204

<sup>23</sup>Leibenstein, 1950, p.204

for wealth signaling activities and goods whose utility is not shaped by interpersonal comparisons). He assumes that an individual's utility is influenced by the *amount* of positional and non-positional goods he consumes and by how that compares with the consumption level of the others:

$$U = U(x, y, R(x)) \quad (5)$$

where  $x$  = positional consumption level,  $y$  = nonpositional consumption level ...". Before introducing the third variable it is worth to note that, when it comes to compare subjects' consumption levels, the approaches cited so far put the subject's consumption level in a relation with the *total* consumption of the population<sup>24</sup>. Frank opts instead for a percentile ranking: "... and  $R(x)$  is a number between 0 and 1 indicating the percentile ranking of  $x$  in the population of  $x$  values. If  $f(x)$  represents the density function for  $x$  values and  $x_0$  is the smallest value taken by  $x$  in the relevant population, then an individual with  $x = x_1$  will have  $R(x_1) = \int_{x_0}^{x_1} f(x) dx$ "<sup>25</sup>. The idea to use a person's percentile rank-order to represent status concerns, instead of using a person's consumption in relation to the aggregated consumption or mean consumption, is the same adopted by Richard Layard. He, in dealing with a study on human satisfactions and the associated public policies, affirms that we cannot suppose a person's ranking in the society to be decreed by his income relative to mean income. Being such a broad comparison unrealistic<sup>26</sup>, he opts for a person's percentile rank-order in the earnings' distribution<sup>27</sup>. Thus,  $R(x)$  can be considered as the subject's percentile rank-order in the status distribution attained with the consumption of a certain *quantity* of a positional commodity. Omitting non-conspicuous goods, this new utility function can be rewritten as

$$U_i = \ddot{U}(C_i, R(C_i)) \quad (6)$$

where  $C_i$  is the subject's consumption and  $R(C_i)$  is the subject's percentile rank-order in the status distribution attained with the consumption of a certain quantity of status products  $C_i$ .

Through the maximization of this utility function, subject to a standard budget constraint, the individual demand function for a conspicuous good is derived:

$$C_i = \ddot{C}(P, R(C_i)) \quad (7)$$

where  $C_i$  is negatively related to  $P$  – the *real* price of the status good –, but positively related to  $R(C_i)$ . The market demand  $C$ , for  $n$  consumers, is derived as above:  $C = \sum_{i=1}^n C_i$ .

### 3.2.3 Positional concerns and conspicuous prices entering the demand function: a synthesis

We might now ask whether the conspicuous prices of single observable goods or the total amounts of status products are the most effective way to signal an individual's social position. To pursue this question, I consider a simple example. Imagine two billionaires Alpha and Beta, both concerned about their position in the social ranking, engaging in a

<sup>24</sup>See Leibenstein, 1950; Chao and Schor, 1998

<sup>25</sup>Frank, 1985b, p.103

<sup>26</sup>People tend to compare themselves with their peers, colleagues and neighbors; not with the richest or the poorest (Frank, 1985, p.30)

<sup>27</sup>Layard, 1980, p.739-740

<sup>28</sup>For simplicity, I omit  $i$ 's inclination to interpersonal comparisons:  $\alpha$  (see (2))



status-seeking game. Alpha buys a 200-foot yacht for \$100 million – for a total expense of \$100 million. Beta purchases four 100-foot yachts for \$50 million each – for a total expense of \$200 million. If only Beta could be on his four yachts at the same time, Beta’s signaled wealth would double that of Alpha. But, since Beta does not have the gift of ubiquity, observers will infer that Alpha’s income is double Beta’s. Consequently, Alpha signals a higher position in the status ranking, with only half the expense.

Hence, I suggest that price – not quantity – is the most effective way to signal an individual’s social rank.

Considering the forementioned example, I derive a demand curve including both elements of social rank and conspicuous price as follows. Assume that a subject  $i$  has a utility function

$$U_i = \dot{U}(C_i, R(P^c))^{29} \quad (8)$$

where  $C_i$  is the subject’s consumption level and  $R(P^c)$  is the status attained through the consumption of a status good with a conspicuous price  $P^c$ .

Through the maximization of this utility function, subject to a standard budget constraint, I derive the following demand function:

$$C_i = \dot{C}(P, R(P^c)) \quad (9)$$

where  $C_i$  is negatively related to  $P$  – the *real* price of the status good –, but positively related to  $R(P^c)$  and  $P \leq P^c$ .

For simplicity, I assume that  $P = P^c$ , consequently, the individual’s demand function can be rewritten as:

$$C_i = \dot{C}(P, R(P)) \quad (10)$$

The individuals’ demands lead to the market demand  $C = \sum_{i=1}^n C_i$ , where  $n$  is the number of consumers. Leibenstein’s demand curve showed in figure 1 applies also to this case.

Now, considering (10), I can define the price effect and the ranking effect as follows:

**DEFINITION 1:** The price effect is the reduction of the demanded quantity due to a price increase.

**DEFINITION 2:** The ranking effect is the growth of the demanded quantity due to a status raise, attained through the consumption of a status good featuring a certain price.

Eventually, considering (10), DEFINITION 1 and DEFINITION 2, conspicuous consumption can be defined as follows:

**DEFINITION 3:** Conspicuous consumption is the consumer’s behavior arising if and only if the ranking effect exceeds the price effect.

Conspicuous consumption can be interpreted geometrically as a positively inclined section in the demand curve.

## 4 The externalities of conspicuous consumption

### 4.1 The supposed benefits of conspicuous consumption

Bernard de Mandeville and David Hume, among many others, have a positive consideration of conspicuous consumption. They affirm that the single’s aggrandizement, acting as a

<sup>29</sup>For simplicity, I omit  $i$ ’s inclination to interpersonal comparisons:  $\alpha$  (see (2))

boost to individuals' productivity, economic growth and prosperity, can increase the welfare of the society as a whole. Mandeville summarizes the benefits of ostentatious expenses in the aphorism: *private vices, public virtues*<sup>30</sup>. Hume acknowledges the benefits of luxury goods consumption as well: "The increase and consumption of all the commodities which serve to the ornament and pleasure of life, are advantageous to society; because at the same time that they multiply those innocent gratifications to individuals, they are a kind of storehouse of labor, which, in the exigencies of state, may be turn'd to the public service"<sup>31</sup>.

Even John Maynard Keynes admits that a selfish quest for satisfaction can be advantageous to society. He prefers more socially useful ways to service the community; but nevertheless, he finds single-aggrandizement functional to public welfare<sup>32</sup>.

The aforementioned theories recall "Smith's invisible hand", according to which the single's satisfaction maximization guides to the optimal well-being of humankind.

Instead, Thorstein Veblen never recognizes that conspicuous consumption might enhance the community's wellbeing. While he concedes that these expenses might procure occupation and absorb the surplus caused by mass production, he does not ascribe to them any beneficial effect on the society<sup>33</sup>. In Veblen's theories, conspicuous consumption and society's wants collide. In "The theory of the leisure class", he considers a patent *waste of resources* any expense that does not serve "directly to enhance human life on the whole"<sup>34</sup> or to "further the life process taken impersonally"<sup>35</sup>.

## 4.2 Individual and society's optimal behavior: a game theory approach

Before examining the consequences of the conspicuous consumption from a community standpoint, it is fundamental to note, as Robert H. Frank did<sup>36</sup>, that the presence of positional concerns in the utility function does not contradict the traditional assumption of perfect consumer's rationality – the neo-classical *homo economicus*. In fact, when interdependent behaviors and interpersonal comparisons access an individual's satisfaction formula, wealth signaling activities become rational, utility maximizing, behaviors. But does a similar conduct also lead to the society's maximum welfare?

To investigate the matter, it is useful to consider an example similar to the one made by Frank<sup>37</sup>. Two persons, A e B, earn \$1000 per month each. They consume two categories of commodities: *positional* goods and *non-positional* goods. Positional goods are visible products or services which main purpose is to signal the purchaser's wealth and status – thus, the large part of their utility is *non-functional*<sup>38</sup>. According to Heffetz<sup>39</sup>, examples might be cars, hotels, jewelry and clothes. The non-positional goods are instead non-visible commodities or services "which further the life process taken impersonally"<sup>40</sup>, – hence, whose

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<sup>30</sup>See Mandeville, 1724

<sup>31</sup>See Hume, 1825 as cited in Watkins, 2019, p.920

<sup>32</sup>Watkins, 2019, p.919; See Watkins, 2015

<sup>33</sup>Watkins, 2019, p.919-920

<sup>34</sup>Veblen, 1899, p.99

<sup>35</sup>*Ibidem*

<sup>36</sup>See Frank, 1985; See Frank, 1985b

<sup>37</sup>Frank, 1985b, p.102

<sup>38</sup>See Leibenstein, 1950

<sup>39</sup>See Heffetz, 2011

<sup>40</sup>Veblen, 1899, p.99

A	B	
	\$300 Positional goods \$700 Non-positional goods	\$700 Positional goods \$300 Non-positional goods
\$300 Positional goods \$700 Non-positional goods	Second Best for A Second Best for B	Worst for A Best for B
\$700 Positional goods \$300 Non-positional goods	Best for A Worst for B	Third Best for A Third Best for B
Total income \$1000		

Figure 2: Adapted from Frank, 1985b, p. 103, Table 1

utility is entirely functional<sup>41</sup>. Namely, *productive goods*<sup>42</sup>, leisure time, saving programs, risk insurances, health care services and investments in public goods. Suppose they have two possible consumption patterns: they can either spend the 70% of their income on positional goods and the remaining on non-positional goods; or conversely, they can spend the 30% of their salary on the former and the residual on the latter. In taking their consumption decisions, A and B value the importance of consuming an optimal quantity of non-visible goods and the relevance of surpassing peers in the social rank. Since both A e B are strongly concerned about their position in the society, their payoff will depend on the choice of the other. The two rank the outcomes as in figure 2. The rankings in the upper-left and lower-right cells suggest that without positional concerns each would find worthwhile to spend most of their income on non-positional, more productive, goods; but neither would do that if in the process he lost positions in the status ranking. A e B are confronting a standard example of prisoner’s dilemma. The dominant strategy of both A e B is to spend the large part of their money on positional goods and consume a suboptimal quantity of non-positional goods. However, the lower-right outcome is poorer for both when compared to the still achievable upper-left result.

If positional concerns are incorporated in the utility function is easy to understand why individuals might find attractive to consume a sub-optimal quantity of non-status goods to consume an increasing number of conspicuous products. In fact, as Frank remarks<sup>43</sup>, by positional expenditures, each subject expects two sources of utility, instead of just one: the satisfaction of consuming more goods *per se*, but also the satisfaction of surpassing a peer in the social ranking. Why, then, the lower right outcome is less satisfying than the upper-left one?

This is due to the illusoriness of the second element from a community perspective<sup>44</sup>. For, if everyone consumes more positional goods to reach higher levels, the distribution of the relative position in the ranking rests unchanged: “. . . the number of favored positions in any rank ordering is fixed inescapably by the laws of simple arithmetic”<sup>45</sup>. Frank notes that an

<sup>41</sup>See Leibenstein, 1950

<sup>42</sup>See Veblen, 1899

<sup>43</sup>See (6); paragraph 3.2.2 and Frank, 1985b, p.103-104

<sup>44</sup>Analytically, from a community standpoint, in (6)  $R(C_i)$  is fixed at 1 (See Frank, 1985b, p.104)

<sup>45</sup>Frank, 1985b, p.102

individual's gain in the social rank strictly corresponds to another subject's loss: "For any contest to have a winner, it must also have a loser"<sup>46</sup>. Thus, from a society viewpoint, any status rank advancement is ephemeral, but the waste of resources in the process is tangible.

Frank eventually concludes that: "... the exchange that is so attractive from each individual's point of view has no similar allure when viewed from the perspective of the population as a whole"<sup>47</sup>.

### 4.3 The tangible adverse consequences of a quest for status

It is possible to state that, when individuals have strong positional concerns, the community's return for engaging in wealth-signaling consumption is considerably lower than the sum of the alleged individual gains.

In other words, when viewed from the society standpoint, the *non-functional* utility of surpassing a peer, to reach a higher social standing, turns to zero. Thus, the global net utility will correspond to the aggregated *functional* utility of the singles only.

The utility is ephemeral, but the wasted resources in equilibrium are tangible. In fact, in this free-determined equilibrium, the consumption of status goods will be over the optimum and conversely, considered a fixed income, the expenditures on non-positional goods will be below the optimal point. Thus, from a collective perspective, we are in a sub-optimal equilibrium point.

#### 4.3.1 Negative economic externalities

Thorstein Veblen, in "The theory of the leisure class", summarizes the externalities caused by conspicuous consumption as follows: "... the requirements of pecuniary reputability tend 1) to leave but a scanty subsistence minimum available for other than conspicuous consumption, and 2) to absorb any surplus energy which may be available after the bare physical necessities of life have been provided for"<sup>48</sup>.

Therefore, given the above categorization of commodities, interpersonal comparisons lead an individual to work more hours and to accept riskier tasks to signal a higher spending capacity. Subjects are prone to sacrifice leisure time and are willing to work in dirtier and less safe workplaces<sup>49</sup>. Moreover, positional concerns push a subject to spend less on health care and risk insurance to consume more status goods than his peers. Eventually, an inflated expense on status goods undermines savings (one of the best examples of non-visible good).

Furthermore, it is worth noting that to satisfy the *ostentatious need* the commodity has to be private. It is necessary that others can be excluded from its use. Public goods do not meet these characteristics, as if they are produced, they must be available to anyone. Public goods include nature, defense, clean air and water, energy and many other *non-observable* goods. Hence, an excessive expenditure on observable goods will come at the expense of the community's public investments and needs.

#### 4.3.2 Negative socio-psychological externalities

A quest for status does not only entail negative economic externalities, but also socio-psychological adverse consequences.

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<sup>46</sup>Frank, 1985, p.4

<sup>47</sup>Frank, 1985b, p. 103

<sup>48</sup>Veblen, 1986, p.205

<sup>49</sup>Frank, 1985, p.129

For example, K.A. Konrad, after affirming the impossibility to experience any positive externality from an ostentatious behavior, highlights how a wealth-seeking conduct causes social stratification and leads to the emergence of a class structure<sup>50</sup>.

Furthermore, Xinsheng Jiang and Jinyu Wang, through a cross-lagged regression analysis, highlight a unidirectional causality between envy and depression, with the first strictly linked to social comparison and competitiveness. They define envy as "... the painful emotion that arises when a person realizes someone else outperforms them in a self-related domain ..."<sup>51</sup> and as "... a social emotion that also springs from upward social comparisons"<sup>52</sup>.

Other researchers have suggested that a comparison with other superior individuals is correlated with a negative self-evaluation<sup>53</sup>– which, in turn, is a key feature of depression. Jiang e Wang, citing Edward Bibring, define depression as "an emotional expression of ego helplessness and ego powerless"<sup>54</sup>.

Furthermore Redzo Mujcic and Andrew J. Oswald, examining envy on an Australian sample of 18,000 adults interviewed in 2005, 2009 and 2013, suggest that "rises in envy are associated with falls in well-being"<sup>55</sup>.

Already Bertrand Russell, in "The conquest of happiness", reached a similar verdict: "Off all the characteristics of ordinary human nature, envy is the most unfortunate. . . not only does the envious person wish to inflict misfortune. . . but he is also himself rendered unhappy by envy. . . Whoever wishes to increase human happiness must. . . diminish envy"<sup>56</sup>.

#### 4.4 Does someone profit from conspicuous consumption?

Up until now firms remained hidden. Nevertheless several questions over their role easily arise. Do firms profit from conspicuous consumption? Are they encouraging interpersonal comparisons? In section 5 I will address these questions examining the role of the supplier in a market characterized by positional concerns.

## 5 The role of the supplier and its advertising expense

### 5.1 On price premiums and advertising expenses

In marketing and management disciplines, the consumer is said to assess the benefit of a product using two criteria: its objective functional features (e.g., a Rolex ability of telling the time) and its subjectively perceived attributes (e.g., a Rolex ability of signaling the purchaser's social position). If the second element yields more than zero, the consumer will be willing to pay an above-average price – or in marketers' words: a *price premium*.

This categorization of the individual's satisfaction is the same used to introduce positional concerns in the utility function. Indeed, when "external non-functional effects" enter the individual's utility, an inflated price<sup>57</sup> – or in Leibenstein's words: a *conspicuous price* ( $P^c$ )<sup>58</sup> – might arise.

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<sup>50</sup>See Konrad, 1992

<sup>51</sup>See Smith et al., 1996 and Smith and Kim, 2007 as cited in Jiang and Wang, 2020, p.1

<sup>52</sup>See Smith et al., 1999 as cited in Jiang and Wang, 2020, p.1

<sup>53</sup>See Chatard et al., 2017

<sup>54</sup>See Bibring, 1953 as cited in Jiang and Wang, 2020, p.1

<sup>55</sup>Mujcic and Oswald, 2018, p.106

<sup>56</sup>See Russel, 1930 as cited in Mujcic and Oswald, 2018, p.103

<sup>57</sup>See Leibenstein, 1950; Frank, 1985 and 1985b; Bagwell and Bernheim, 1996

<sup>58</sup>Leibenstein, 1950, p.202-204

Consequently, in this model conspicuous prices and price premiums are considered as equivalent.

Furthermore, Akshay R. Rao and Kent B. Monroe highlight that *price premiums* arise in non-homogeneous market, with a high variability of products' features<sup>59</sup>, which from a marketing perspective is nothing but the consequence of a firm's *differentiation strategy*. Such strategy is indeed defined by Michael E. Porter as a plan consisting in the creation of a *unique and exclusive product*, that eventually permits to levy a higher-than-average price<sup>60</sup>.

Following Porter, to ensure a growing sense of uniqueness, exclusivity and scarcity, and so to impose a price premium, in this model a supplier invests in its brand's image – or, in other words, in the firm's *goodwill*, which is nothing but the quantification of its established identity and reputation in the marketplace.

Thus, the conspicuous price of a status good is positively related to the producer's goodwill, and the firm's goodwill is in turn positively related to investments in, for instance, branding, image, promotion, endorsements and distribution channels<sup>61</sup>; such investments are eventually grouped under the more general term of *advertising*<sup>62</sup>.

## 5.2 A new demand function

As noted above, the *conspicuous price* of a status good is positively related to its supplier's *goodwill*, which is in turn positively related to the firm's *advertising expense*<sup>63</sup>. Consequently, supposing again for simplicity that  $P = P^c$ , (10) can be rewritten as

$$C_i = C(P(G(a)), R(P(G(a)))) \quad (11)$$

Where  $C_i$  is negatively related to  $P(\cdot)$  – the good's price –, but positively related to  $R(\cdot)$  – the status attained through the consumption of a status good with a certain price  $P$  – where  $P$  is positively related to the supplier's goodwill  $G$ . And  $G$  is in turn positively related to the supplier's advertising expense  $a$ .

The market demand is then:

$$C = \sum_{i=1}^n C_i \quad (12)$$

where  $n$  is the number of consumers.

Harvey Leibenstein's demand curve showed in figure 1 applies also to this case, where again, when the *ranking effect* – the growth of the demanded quantity due to a status rise attained through the consumption of a commodity featuring a certain price – exceeds the *price effect*, conspicuous consumption arises leading to a positively inclined section of the demand curve<sup>64</sup>.

Considering (11) the following proposition might be established:

**PROPOSITION 1:** When the ranking effect exceeds the price effect, conspicuous consumption and its negative externalities arise and they are positively related to advertising expenses.

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<sup>59</sup>Rao and Monroe, 1996, p.517

<sup>60</sup>See Porter, 1985

<sup>61</sup>See Chenavaz and Eynan, 2020; Régis Y. Chevanaz and Amit Eynan highlight a positive relation between a firm's advertising expense and its goodwill in conspicuous consumption

<sup>62</sup>*Ibidem*

<sup>63</sup>*Ibidem*, p.676-677

<sup>64</sup>See DEFINITION 3

### 5.3 The supplier's profit and markup function

After having redefined conspicuous consumption and having highlighted its positive relation to the supplier's advertising expense, I finally turn to the actual producer's behavior when the demand curve turns to be positively inclined.

As I suggested above, through a differentiation strategy a firm is able to levy an above-average price – namely, a *price premium* (or a conspicuous price). This price by its definition is higher than the marginal cost for it incorporates a mark-up<sup>65</sup>. In these circumstances, a supplier's profit function might be written as markup times market share minus advertising expense<sup>66</sup>.

In this paragraph I first examine a monopolistic model. I show that, in the positively inclined section of the demand curve, a profit function incorporating both positional concerns and advertising expenses predicts a positive markup that raises with an increasing advertising expense; while a standard textbook profit function wrongly predicts a negative markup. Further, I extend my analysis to a more realistic oligopoly model, highlighting similar results.

#### 5.3.1 Monopoly

If the supplier's market share is positive and equal to the entire market demand, the supplier is a monopolist and its profit function might be written as:

$$\pi = (P(G(a)) - k) \times C(P(G(a)), R(P(G(a)))) - a \quad (13)$$

Where  $(P(\cdot) - k)$  is the supplier's markup with  $k$  being the marginal cost considered constant and equal for all suppliers and  $P$  is the price that the manufacturer imposes to the consumer which is positively related to the supplier's goodwill  $G$ . And  $G$  is in turn positively related to the supplier's advertising expense  $a$ .  $C(\cdot)$  is the market demand. And  $a$  is the advertising expense.

I derive the supplier's markup function<sup>67</sup>:

$$\frac{P(G(a)) - k}{P(G(a))} = -\frac{1}{\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R} + \frac{\frac{a}{P(G(a)) \times C(P(G(a)), R(P(G(a))))}}{(\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R) \varepsilon_G^P \varepsilon_a^G} \quad (14)$$

Where  $\varepsilon_P^C$  is the price elasticity of consumption - or the price effect as per DEFINITION 1 -,  $\varepsilon_R^C \varepsilon_P^R$  is the ranking elasticity of consumption times the price elasticity of ranking - or the ranking effect as per DEFINITION 2 - and  $\varepsilon_G^P \varepsilon_a^G$  is the goodwill elasticity of price times the advertising expense elasticity of goodwill - or the overall effect of the advertising expense on the price through goodwill.

(14) can be interpreted as an advertising augmented Lerner index, accounting for the effect of the advertising expense.

Furthermore (14) can be rewritten as:

$$\frac{P(G(a)) - k}{P(G(a))} = \left( \frac{\frac{a}{P(G(a)) \times C(P(G(a)), R(P(G(a))))}}{\varepsilon_G^P \varepsilon_a^G} - 1 \right) \times \frac{1}{\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R} \quad (15)$$

<sup>65</sup>See Porter, 1985

<sup>66</sup>Chenavaz and Eynan, 2020, p.677

<sup>67</sup>See Appendix

Where  $\frac{\frac{a}{\varepsilon_G^P \varepsilon_a^G}}{\frac{P(G(a)) \times C(P(G(a)), R(P(G(a))))}{\varepsilon_G^P \varepsilon_a^G}} - 1 > 0$  if  $\frac{a}{P(G(a)) \times C(P(G(a)), R(P(G(a))))} > \varepsilon_G^P \varepsilon_a^G$  and  $\frac{1}{\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R} > 0$  by the definition of conspicuous consumption<sup>68</sup>

Considering (15) the following proposition is established:

**PROPOSITION 2.1:** When the supplier's profit is maximized and the advertising expense/revenue ratio is higher than the overall effect of the advertising expense on the price through goodwill, the supplier's advertising expense is effective in determining a markup which is positive and positively related to the firm's advertising expense.

Instead, if I chose to rely on an orthodox profit formulation to describe the supplier's markup when the demand curve turns to be positively inclined, namely

$$\pi = (P - k) \times C(P) \quad (16)$$

I would derive the following markup function:

$$\frac{P - k}{P} = -\frac{1}{\varepsilon_P^C} \quad (17)$$

or the orthodox Lerner index.

Where  $\varepsilon_P^C$ , incorporating both the price effect and the ranking effect, is positive by the definition of conspicuous consumption<sup>69</sup> - thus, suggesting a negative markup.

Therefore, when conspicuous consumption arises, a monopoly explicitly featuring positional concerns and advertising expenses is characterized by a positive supplier's markup, while a standard textbook monopoly, only implicitly featuring positional concerns and omitting advertising expenses, is instead characterized by a negative one.

Eventually, it is possible to state that the model presented above predicts a more realistic outcome for a monopolist operating in a market featuring positional concerns.

### 5.3.2 Oligopoly

If the supplier's market share is positive, but lower than the entire market demand we can move to an oligopolistic model where (13) might be rewritten as:

$$\pi_s = \left( P_s \left( G \vec{a} \right) - k \right) \times C_s \left( P_s \left( G \vec{a} \right), R_s \left( P_s \left( G \vec{a} \right) \right) \right) - a_s \quad (18)$$

Where  $s = 1, \dots, m$  is a generic supplier operating in a market featuring positional concerns, with  $(P_s(\cdot) - k)$  being its markup,  $k$  being the marginal cost considered constant and equal for all suppliers and  $P_s$  being the price that  $s$  imposes to the consumer. Moreover  $P_s$ , being the case of an oligopoly, is in turn related to all manufacturers' goodwills which are in turn related to their respective advertising expense  $G \vec{a} = (G_1(a_1), \dots, G_s(a_s), \dots, G_m(a_m))$ . Eventually  $C_s(\cdot)$  is the market demand for the products of  $s$  and  $a_s$  is its advertising expense.

<sup>68</sup> *Ibidem*, see also DEFINITION 3

<sup>69</sup> *Ibidem*, see also DEFINITION 3



Consequently, it is possible to derive the suppliers' markup functions<sup>70</sup>

$$\left\{ \begin{array}{l} \frac{P_1(\vec{G}(a)) - k}{P_1(\vec{G}(a))} = -\frac{1}{\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P} + \frac{\overline{P_1(\vec{G}(a)) \times C_1(P_1(\vec{G}(a)), R_1(P_1(\vec{G}(a))))}}{(\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P) \varepsilon_1^P \varepsilon_1^G} \\ \vdots \\ \frac{P_s(\vec{G}(a)) - k}{P_s(\vec{G}(a))} = -\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} + \frac{\overline{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))}}{(\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P) \varepsilon_s^P \varepsilon_s^G} \\ \vdots \\ \frac{P_m(\vec{G}(a)) - k}{P_m(\vec{G}(a))} = -\frac{1}{\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P} + \frac{\overline{P_m(\vec{G}(a)) \times C_m(P_m(\vec{G}(a)), R_m(P_m(\vec{G}(a))))}}{(\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P) \varepsilon_m^P \varepsilon_m^G} \end{array} \right. \quad (19)$$

Where  $\varepsilon_s^C$  is the price elasticity of consumption - or the price effect as per DEFINITION 1 - encountered by supplier s,  $\varepsilon_s^R \varepsilon_s^P$  is the ranking elasticity of consumption times the price elasticity of ranking - or the ranking effect as per DEFINITION 2 - encountered by supplier s and  $\varepsilon_s^P \varepsilon_s^G$  is the goodwill elasticity of price times the advertising expense elasticity of goodwill - or the overall effect of the advertising expense on the price through goodwill - encountered by supplier s.

(19) can be interpreted as an advertising augmented Lerner index, accounting for the effect of the advertising expense.

Furthermore (19) can be rewritten as:

$$\left\{ \begin{array}{l} \frac{P_1(\vec{G}(a)) - k}{P_1(\vec{G}(a))} = \left( \frac{\overline{P_1(\vec{G}(a)) \times C_1(P_1(\vec{G}(a)), R_1(P_1(\vec{G}(a))))}}{\varepsilon_1^P \varepsilon_1^G} - 1 \right) \times \frac{1}{\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P} \\ \vdots \\ \frac{P_s(\vec{G}(a)) - k}{P_s(\vec{G}(a))} = \left( \frac{\overline{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))}}{\varepsilon_s^P \varepsilon_s^G} - 1 \right) \times \frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} \\ \vdots \\ \frac{P_m(\vec{G}(a)) - k}{P_m(\vec{G}(a))} = \left( \frac{\overline{P_m(\vec{G}(a)) \times C_m(P_m(\vec{G}(a)), R_m(P_m(\vec{G}(a))))}}{\varepsilon_m^P \varepsilon_m^G} - 1 \right) \times \frac{1}{\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P} \end{array} \right. \quad (20)$$

Where  $\left( \frac{\overline{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))}}{\varepsilon_s^P \varepsilon_s^G} - 1 \right) > 0$  if  $\frac{\overline{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))}}{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))} > \varepsilon_s^P \varepsilon_s^G$  and  $\frac{1}{(\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P)} > 0$  by the definition of conspicuous consumption<sup>71</sup>.

Considering (20) the following proposition is established:

**PROPOSITION 2.2:** When the suppliers' profits are maximized and the advertising expense/revenue ratios are higher than the overall effect of advertising expenses on prices

<sup>70</sup>See Appendix

<sup>71</sup>*Ibidem*, see also DEFINITION 3

through goodwills, the suppliers' advertising expenses are effective in determining markups which are positive and positively related to the firms' advertising expenses.

Instead, if I chose to rely on an orthodox profit formulation to describe the supplier's markup when the demand curve turns to be positively inclined, namely

$$\pi_s = (P_s - k) \times C_s(P_s) \quad (21)$$

I would derive the following markup functions:

$$\left\{ \begin{array}{l} \frac{P_1 - k}{p_1} = -\frac{1}{\varepsilon_{1P}^C} \\ \vdots \\ \frac{P_s - k}{p_s} = -\frac{1}{\varepsilon_{sP}^C} \\ \vdots \\ \frac{P_m - k}{p_m} = -\frac{1}{\varepsilon_{mP}^C} \end{array} \right. \quad (22)$$

or the orthodox Lerner index.

Where  $\varepsilon_{sP}^C$ , incorporating both the price effect and the ranking effect encountered by firm s, is positive by the definition of conspicuous consumption<sup>72</sup> - thus, suggesting negative markups.

Therefore, when conspicuous consumption arises, an oligopoly explicitly featuring positional concerns and advertising expenses is characterized by positive suppliers' markups, while a standard textbook oligopoly, only implicitly featuring positional concerns and omitting advertising expenses, is instead characterized by negative ones.

Eventually as in the monopoly case, it is possible to state that the model presented above predicts a more realistic outcome for an oligopolist operating in a market featuring positional concerns.

## 5.4 Advertising externalities

From PROPOSITION 1 and PROPOSITION 2 I suggest that, when conspicuous consumption arises and advertising expenses are effective in raising markups, profit maximizer suppliers earn markups which are positive and positively related to their advertising expense.

However, this behavior enhances conspicuous consumption and its economic and socio-psychological externalities.

Hence, since firms are nothing but economic institutions constituted by individuals who are in turn consumers, a profit maximizing behavior that enhances conspicuous consumption and its adverse consequences is patently not socially optimal.

## 6 Empirical support

Before introducing a few measures aimed at realigning the conflictual interests between firms and consumers, it is worth to consider whether real world suppliers behave consistently to the model introduced above.

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<sup>72</sup>*Ibidem*, see also DEFINITION 3

## 6.1 Research objective, panel description and data collection

This section aims at assessing whether a growing advertising expense actually translates into a positive and growing markup.

To address this question I build a polynomial regression model analyzing the non-linear relationship between advertising expenses and markups for firms operating in markets endowed with positional concerns. The data used for this study are collected from a panel of 22 public owned holdings over a period of 20 years - or less if the IPO took place in between 2003 and 2022. Moreover, manufacturers are grouped according to the market they operate in: namely luxury consumption goods - apparel, accessories and department stores -, high-end automotive and jewelry.

Table 1: Panel

Market	Company
Luxury Consumption Goods	LVMH
	Kering
	Moncler
	Luxottica
	Hermes
	Cucinelli
	Ferragamo
	Capri Holdings
	Canada Goose
	Ermenegildo Zegna
	Dior
	Burberry
	Chanel
	Prada
	Farfetch
	MYT
	Nordstrom

High-End Automotive	Ferrari
	Aston Martin
Jewellery	Richemont
	Tiffany
	Emperor Watch Jewellery

It is worth to note that each of any of the holdings listed above encompasses from one to several other companies operating in the same market, resulting in a panel of firms covering almost the entire population of status goods' brands.

Concerning the source of the data, values are collected from official end of the year financial statements. In particular, the advertising expense is collected directly under Operating Expenses either as advertising or communication or GS&A expenses<sup>73</sup>. The markup is calculated as the Net Operating Result/Total Revenue ratio. Where the Net Operating Result is defined as the difference between the Total Revenue and the Total Operating Expenses. Where in turn the Total Operating Expenses exclude advertising - accordingly to my model -, financial and other expenses. These two latter adjustments are required in order to keep the Net Operating Result as close to customers' evaluations as possible and to discount any possible accounting strategy and non-commercial value recorded in the financial report.<sup>74</sup>

Table 2: Measures

	Observations	Min	Max	Median	Mean	Variance
Markup (%)	307	-43.58	64.79	35.71	36.52	324.42
Avertising Expense (1'000'000€)	307	4.11	28151.00	415.50	2288.36	21389247.60

## 6.2 Polynomial regression

The plot of observations - including the fitted curve - and the positive regression's coefficients reported below suggest how a growing advertising expenditure might indeed lead to a growing markup.

Furthermore, the high value recorded by the adjusted  $R^2$ , along with the significance of all coefficients, suggests a strong reliability of the analysis.

To address robustness issues markets, trend and years control variables have also been included in the model.

<sup>73</sup>GS&A expenses, comprising advertising, selling, distribution and related expenditures, is in line with above definition of advertising cost

<sup>74</sup>Values in foreign currencies are converted in EUR€ at the exchange rate in force the last day of the reference year, as reported by the Bank of Italy

Table 3: Polynomial Regression Summary

	<i>Dependent variable:</i>		
	(1)	Markup (%) (2)	(3)
Advertising Expense (1'000'000 €)	0.004756567*** (0.000534938)	0.004154508*** (0.000505586)	0.004179320*** (0.000516757)
Advertising Expense (1'000'000 €) <sup>2</sup>	-0.000000152*** (0.000000025)	-0.000000120*** (0.000000024)	-0.000000123*** (0.000000025)
Markets		YES	YES
Trend		YES	
Years			YES
Constant	29.672970000*** (1.080106000)	33.886500000*** (2.265429000)	33.493080000*** (5.152360000)
Observations	307	307	307
R <sup>2</sup>	0.288693500	0.395678100	0.418598300
Adjusted R <sup>2</sup>	0.284013900	0.385639500	0.371346500
Residual Std. Error	15.265690000 (df = 304)	14.140860000 (df = 301)	14.304410000 (df = 283)
F Statistic	61.691300000*** (df = 2; 304)	39.415780000*** (df = 5; 301)	8.858898000*** (df = 23; 283)

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

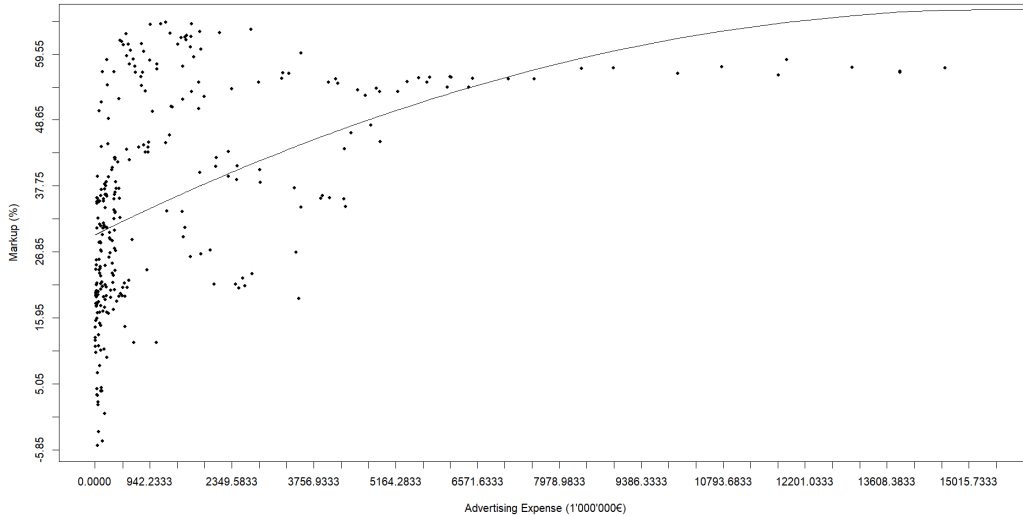


Figure 3: Plot of Observations and Fitted Curve

Considering above results, real world firms seem to be indeed able to levy a positive and growing markup by increasing their publicity expenditures.

### 6.3 Comments

The results obtained highlights the urgency to investigate the effects of suppliers' behavior on customers' wellbeing with great attention. Related feasible remedies shall also be addressed.

## 7 Some remedies

### 7.1 Escaping the prisoner's dilemma

How can a community escape the prisoner's dilemma to assure an optimal consumption of non-observable goods and to reduce socio-psychological externalities?

Communication permits to find the way out of the quandary. Considered the ephemeral non-functional utility in social equilibrium and the related tangible waste of resources, anyone would agree on some sort of restrictions on conspicuous expenditures. The matter becomes complex in a society where millions of individuals are incapable to negotiate. It is for this complication that state intrusion is legitimized.

### 7.2 Three "Demand-side" remedies

As I noted in the previous sections, deep in the human nature of any individual is the desire to display signs of power and status. Veblen notes how this aspiration induces subjects to work harder than needed to consume expensive products that are signs of their rank in the society. However, from a community standpoint, the result of the single's maximizing behavior is a mutual escalation of conspicuous expenditures that does not improve the social rank of anyone. As in the metaphor, when all stand to get a better view, no one sees better than when all were seated. Moreover, for the extra spending leads to the under-consumption of non-visible goods - such as health care, insurance, leisure, saving and public goods -, the result is a welfare decrease.

In other words, despite the resources employed in the attempt to advance to a higher rank, the quest for status is a zero-sum game – *for every winner, there has to be a loser*. In this regard, Layard affirms: "For, though individuals are willing to make sacrifices to improve their individual position, the net result of status motivated action will be no increase in status satisfaction but an increase in sacrifice"<sup>75</sup>. Then, how can we intervene to offset the adverse consequences of *invidious comparisons*?

Ronald Coase notes that if subjects could negotiate, they would resolve any delicate balancing issue efficiently; but when negotiation is impractical state intervention should push the party who bears the lower costs to adjust to the externality<sup>76</sup>.

In this regard, the libertarian tradition only favors public interventions that impede damage to others. John Stuart Mill lays the boundaries of state action in *harm prevention*: "The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others"<sup>77</sup>. Why then should state

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<sup>75</sup>Layard, 1980, p.738

<sup>76</sup>See Coase, 1960

<sup>77</sup>See Mill, 1859 as cited in Frank, 1985, p.199

intervention halt a transaction that is attractive to both parties and apparently does not damage any third?

One reason might be that the subject thinks that renouncing to non-visible expenditures to increase his status is a good trade, but his preferences (being not carved in stone as orthodox theory affirms) might change overtime and, in the future, he might regret his behavior. Another motivation might be that third parties are in some way, even if indirectly, adversely affected by such transactions.

Granted that the adverse consequences of conspicuous consumption are enough to legitimize state intervention, three possible approaches to public policy are a prohibition approach, a behavioral approach and a fiscal approach.

### 7.2.1 A prohibition approach

Both John Rae and Melvin Reder suggest that restrictions on conspicuous expenditures might result in a welfare gain. Rae affirms that limits on spendings for “pure luxuries” might save labor to some and be a loss to none<sup>78</sup>. Similarly, Reder invites the state to forbid “invidious expenditure”, to free resources from *consumption* goods to *productive* commodities and enhance the community’s well-being<sup>79</sup>.

However, history teaches that such schemes are unenforceable. The national prohibition of alcohol<sup>80</sup>, for instance, was enforced to solve social problems, lessen prisons’ expenses and reduce lawbreaking. In spite of that, the “noble experiment” led to an increased illegal production of liquor, a proliferation of illegal drinking spots and a raise in organized crime. An even more relevant example is the puritan prohibition of wearing lace, which led to the inflation of the buttons’ price and made the latter a status good<sup>81</sup>.

In this regard, Veblen considers invidious comparison a habit of mind so deep in human nature that might be bent but never eradicated<sup>82</sup>. In other words, when prohibition is enforced, people simply take up invidious comparisons to a different sphere.

### 7.2.2 A behavioral approach

Richard Layard, to offset individual status-seeking, considers a second measure: changing human nature. He examines the possibility “that the utility function could itself be changed by education, so that people get more pleasure from the welfare of others and less from the feeling of being better off than others are”<sup>83</sup>. Hence, he affirms that people should not work to surpass others, but to perform tasks as good as possible and that the focus of the competition should be switched from other individuals to nature.

Moreover, he states that the main hurdles to reach the objective are institutions that strengthen the competition among individuals. Examples are parents that encourage sons to win sport matches, schools that publish grades, universities that organize mathematics contests, PhD programs that award prizes to the best thesis and nations that award decorations to the most meritorious citizens.

In this regard, Robert H. Frank notes that: “We should continue to teach our children not to envy the good fortunes of others. But such teachings, even if completely successful,

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<sup>78</sup>Rae, 1905, p.282-288

<sup>79</sup>Reder, 1947, p.65-66

<sup>80</sup>1920-1933, USA

<sup>81</sup>See Frank, 1999

<sup>82</sup>See Veblen, 1899

<sup>83</sup>Layard, 1980, p.744

will not eliminate welfare-reducing positional arms races, which stem less from envy than from the fact that many important rewards depend on relative consumption”<sup>84</sup>.

If neither prohibition nor education are feasible methods to escape the prisoner’s dilemma, how can the state intervene to discourage the consumption of luxury products and reach an optimal quantity of *productive* goods?

### 7.2.3 A fiscal approach

I affirmed that communication solves this balancing issue, but since any spontaneous change, if any, makes its way only tardily<sup>85</sup> or any private negotiation is simply not feasible<sup>86</sup>, state intervenes.

To introduce the third approach, I use an example similar to the one employed by Robert H. Frank<sup>87</sup>. Imagine a society where some drive sports cars and others are offended by the sight of them. Then, assume that the first would pay up to \$1000 to drive them and the second would pay up to \$500 to prohibit them. If negotiations were practical the first would pay the second somewhere between \$500 and \$1000 to drive a sports car. In a society where this type of transaction is impractical, the agreement takes the form of taxation. Consequently, a tax on luxury expenditures might be the most efficient way to limit positional and conspicuous consumption externalities – just like excise taxes on tobacco products and emission taxes on CO2 releases reduce incentives to smoke and to pollute. Supply siders might argue that a government interference would not reduce externalities but would instead produce even more adverse consequences. In this last paragraph I will insist on the fact that, when relative standings are part of an individual’s utility function, such taxes will not create an excess burden, but will instead mitigate behavior distortions and improve the society’s welfare.

Edward Miller examines the effects of an excise tax on conspicuous goods through a simple diagram<sup>88</sup> and concludes that: “A reduction in consumption due to an excise tax does not necessarily indicate the existence of an excess burden since the pre-tax level of consumption of the status good may have been excessive. A properly designed system of taxes can serve to shift the pattern of consumption towards a more desirable level. If all individuals in the society consume the status good, the effect of the imposition of a tax followed by the return of the proceeds of the tax to the taxpayers may be to make everyone better off . . .”<sup>89</sup>. Many economists insist that a luxury tax causes an excess burden to the purchaser in comparison with a more general income tax. Miller sustains instead that when a tax causes the price of a status good to raise, such inflation imposes a lower burden to the purchaser than the amount of the increase. He clarifies this point with an example: he examines the consequences of a 100 per cent tax on a pure status good (i.e. a good whose entire utility is to signal the buyer’s capacity of spending), such as a ring, characterized by a horizontal supply curve. A small ring costing \$500 to be produced and marketed is now valued \$1000 and a large ring amounting to \$1000 is now priced at \$2000. Once individuals have acknowledged the new scale of values, the small ring will signal the same wealth and power as the larger ring formerly did. Hence, the subject buying the smaller ring will receive the same utility he

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<sup>84</sup>Frank, 2005, p.141

<sup>85</sup>Veblen, 1899, p.206

<sup>86</sup>See Coase, 1960

<sup>87</sup>Frank, 2008, p.1782

<sup>88</sup>Miller, 1975, p.145

<sup>89</sup>*Ibidem*, p.146



received from buying the larger one. However, the supplier will receive only a half of the \$1000 spent on the small ring; thus, the resources saved to produce the small ring – instead of the large one – are entirely captured by the tax<sup>90</sup>. Miller eventually concludes that in doing so: “The government have succeeded in extracting \$500 without imposing any burden on the taxpayer”<sup>91</sup>.

Also Yew-Kwang Ng sustains that arbitrarily high taxes on pure status goods (*diamond goods*) impose no excess burden leaving the utility of the purchaser unchanged<sup>92</sup>. He highlights that “a pure diamond good has an infinite tax in an optimal tax system”<sup>93</sup>. However, he concludes that his model ceases to be a good approximation when the tax rate becomes very high. An infinite or excessive tax rate might in fact surpass the budget of the purchaser or lead to adverse consequences as evasion. Hence, he eventually states that a very high tax rate, rather than an infinite tax, is optimal<sup>94</sup>.

Edward Miller, in its above cited research, turns also to the case of goods that serve wealth-signaling purposes only partially. For simplicity, he assumes that the positional utility of such good is proportional to its price and that for every dollar increase the utility grows of  $y$  dollars. The purchaser’s net burden is thus  $1 - y$  dollars. Hence, the society profits while imposing a less than equal burden on the individual<sup>95</sup>. Furthermore, Miller states that the traditional method of analysis, which assumes independent utility functions, is inadequate to examine the burden of a luxury tax<sup>96</sup>.

Similarly, Bagwell and Bernheim sustain the idea that an excise tax on luxury products is a *nondistortionary tax on pure profits*: “... luxury brands are sold at the consumer’s preferred price, which is tax inclusive, and does not vary with the tax rate. Thus, as long as the tax per unit does not exceed the difference between the consumer’s preferred price and marginal cost, an excise tax on luxury brands amounts to a nondistortionary tax on pure profits”<sup>97</sup>.

These policy proposals are not just pure theory, they have been put in practice in the USA and in Canada. The Omnibus Budget Reconciliation Act of 1990 imposed a federal tax on many status goods including automobiles, aircrafts and jewelry. The OBRA established a 10 per cent tax rate on the sum exceeding a certain limit. The thresholds were \$30,000 for cars, \$250,000 for aircrafts and \$10,000 for jewelry<sup>98</sup>. Likewise, the Canadian Luxury Tax of 2022 established a tax rate based on the lesser of 20 per cent of the amount exceeding a threshold – namely, \$100,000 for vehicles and aircrafts and \$250,000 for boats – and 10 per cent of the value below the threshold<sup>99</sup>.

Even if luxury taxes seem the solution, Robert H. Frank remarks that just like with prohibition, people will start competing elsewhere<sup>100</sup>.

If neither prohibition, nor a behavioral approach, nor a luxury tax are the solutions, Robert H. Frank suggests taxing consumption at a progressive rate and exempting sav-

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<sup>90</sup> *Ibidem*, p.143-144

<sup>91</sup> *Ibidem*, p.144

<sup>92</sup> Ng, 1987, p.187

<sup>93</sup> *Ibidem*, p.190

<sup>94</sup> *Ibidem*, p.190

<sup>95</sup> Miller, 1975, p.144

<sup>96</sup> *Ibidem*, p.147-149

<sup>97</sup> Bagwell and Bernheim, 1996, p.351

<sup>98</sup> *Ibidem*, p.368

<sup>99</sup> See Urquhart and Shapka, 2022

<sup>100</sup> See Frank, 1999

ings<sup>101</sup>. A lower level of consumption would slow down the positional treadmill. The halt of positional arms races would diminish the adverse consequences of conspicuous consumption and assure an optimal expenditure level on non-status goods such as leisure, health and safety. Society would have more resources to foster social justice and security. The increased savings could be invested, to use Veblen’s words, on *productive goods* and enhance economic growth.

### 7.3 Two “Supply-side” remedies

As noted above a growing conspicuous consumption level is not only caused by positional concerns *per se*, but it is also due to the luxury goods producers’ behavior and their advertising investments. Thus, to battle the negative externalities induced by a conspicuous behavior, state intervention shall also focus on the suppliers’ conducts and activities that foster *conspicuous waste*. Hence, I suggest two measures to induce firms to spend less on advertising and to invest more in productive and welfare enhancing ventures.

#### 7.3.1 A steeply progressive advertising tax

Given the adverse consequences of a prohibition approach and the difficulties of discriminating between positional and nonpositional goods’ advertisings, I suggest a general, steeply progressive, tax on advertising expenses. This measure not only would discourage luring on consumers’ suboptimal consumption behaviors, but it would also free resources for more productive investments in, for instance, R&D, product’s innovation, personnel’s training and formation, workplace safety and diversification.

A supply-sider analysis of the measure would not hesitate to remark the presumed distortionary effects of a similar tax. However, as noted above, when positional concerns enter the utility function and conspicuous consumption arises, taxation is no longer a policy in which lawmakers try to minimize the distortion public intervention causes, but it becomes the remedy to an existing distortion of the consumption behavior.

A steeply progressive tax on advertising expenses, to be effective, should reduce the supplier’s markup deleting the extra gain produced by advertising expenses to lead to the markup function it would experience if conspicuous consumption did not emerge. In short, it has to lead the supplier’s markup function from the advertising augmented Lerner index (19) back to the standard textbook Lerner Index where positional concerns are out of the consumer’s utility function.

In an oligopoly, a steeply progressive advertising tax that leads to a similar result is<sup>102</sup>

$$t(a_s) = -\frac{\varepsilon_s^C \varepsilon_s^R \varepsilon_s^P \varepsilon_s^G \varepsilon_s^a}{\varepsilon_s^C} \times \frac{P_s(G(\vec{a})) \times C_s(P_s(G(\vec{a})), R_s(P_s(G(\vec{a}))))}{a_s} - 1 \quad (23)$$

A similar tax - accounting for the market’s net effect of advertising expense on consumption through positional concerns and for the firm specific revenue/advertising expense ratio - eventually deletes the positive effect of advertising expenses on the firm’s markup and it discourages the supplier’s investment in publicity.

This results in the aspired decrease in conspicuous consumption and its economic and socio-psychological externalities.

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<sup>101</sup> *Ibidem*

<sup>102</sup> See Appendix

### 7.3.2 Changing the supplier's nature: the role of academia

The second approach might be defined *behavioral*. If pursuing profits at all costs causes major adverse consequences to the community's welfare, then striving towards the sole shareholders' interest is welfare diminishing and it shall be replaced with the broader pursuit of all stakeholders' satisfaction.

Subhabrata Bobby Banerjee highlights how already in 1951 Frank Abrams, Chairman of the Board of the Standard Oil, asked managers "to become 'good citizens', aspire to a 'higher duty of professional management' and contribute to the 'solution of the many complex social problems of our times' because business firms were 'man-made instruments of society'"<sup>103</sup>.

Hence, following Abrams, firms shall develop a greater sensibility for *Corporate Social Responsibility* themes and eventually implement alternative models of governance, as for instance a *stakeholder* structure of governance.

Also academia, in shaping tomorrow's managers, has the duty to show alternatives to shareholder models and "pure" profit-maximizing behaviors.

In conclusion, sole profit-seeking is not the optimal strategy, practical alternatives exist and they consist in the recalibration of the firm's aim and structure to properly serve all stakeholders' expectations, especially consumers'.

As a first step, CSR themes – in particular Corporate *Consumer* Responsibility – and alternative governance models might be discussed in more depth in undergraduate courses such as Corporate Strategy, Firm's Financing and Marketing.

## 8 Conclusion

This paper aspired to two results. It aimed at taking a few steps towards a proper formalization of positional concerns and advertising expenses in, respectively, demand and supply functions and to highlight the conflictual interests between firms and the generality of consumers in a market characterized by conspicuous consumption; to finally suggest some remedies. In this work I also highlighted how an orthodox approach to an individual's utility and demand function, and to a supplier's profit and supply function, presents several flaws when interdependent behaviors and positional concerns are taken under proper consideration.

The starting point of this paper was an analysis of the past literature and the state of the art of the contemporary demand theory. Then, I formalized a demand function to include status concerns and I showed when and how conspicuous consumption emerges, leading a textbook demand curve to be shaped as a backward S, hence, featuring a positively inclined section. Further, I highlighted the relevant economic and socio-psychological externalities fostered by status goods' consumption. Furthermore, I turned to the analysis of the supply side of the phenomenon. Through an advertising augmented Lerner index I showed how advertising expenses, under certain conditions, lead to a positive and growing markup for profit maximizer suppliers when conspicuous consumption emerges. This results in the rise of conflictual interests between firms and the generality of consumers. I also conducted a polynomial regression over a panel of luxury goods suppliers in order to investigate the relationship between their advertising expenses and markups. And eventually, after a list of possible remedies to conspicuous consumption and its externalities, I suggested a steeply

<sup>103</sup>Abrams, 1951 as cited in Banerjee, 2007, p. 5

progressive advertising tax to reduce the phenomenon and its negative downsides on consumers.

However, the role of positional concerns, interdependent behaviors and advertising expenses in shaping consumption patterns is still far from being entirely explained. The aim is to keep moving forward towards a proper formalization of the phenomenon to align, as much as possible, this model to the real world.

## **Final remarks**

From this analysis clearly emerges the need to include positional concerns and advertising expenses in the textbook utility and profit functions and the necessity to operate a micro-foundation of macroeconomics on these new bases. Any difficulty of formalization cannot be used as an excuse to choose simplicity, economic theory should reflect the complexity of the real world and should not be artificially separated from other social sciences.

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## Appendix

### A Deriving a monopolist's markup function in a market featuring positional concerns and advertising expense when conspicuous consumption arises

The monopolist's profit function:

$$\pi = (P(G(a)) - k) \times C(P(G(a)), R(P(G(a)))) - a$$

FOC:

$$\frac{d\pi}{da} = \frac{dP(\cdot)}{dG(a)} \frac{dG(a)}{da} C(\cdot) + (P(\cdot) - k) \left( \frac{\partial C(\cdot)}{\partial P(\cdot)} \frac{dP(\cdot)}{dG(a)} \frac{dG(a)}{da} + \frac{\partial C(\cdot)}{\partial R(\cdot)} \frac{dR(\cdot)}{dP(\cdot)} \frac{dP(\cdot)}{dG(a)} \frac{dG(a)}{da} \right) - 1 = 0$$

Deriving the monopolist's markup function:

$$\begin{aligned} \frac{P(\cdot) - k}{P(\cdot)} &= \\ &= \frac{\frac{1}{P(\cdot)} - \frac{dP(\cdot)}{dG(a)} \frac{G(a)}{P(\cdot)} \frac{dG(a)}{da} \frac{a}{G(a)} \frac{C(\cdot)}{a}}{\frac{\partial C(\cdot)}{\partial P(\cdot)} \frac{P(\cdot)}{a} \frac{dP(\cdot)}{dG(a)} \frac{G(a)}{P(\cdot)} \frac{dG(a)}{da} \frac{a}{G(a)} + \frac{\partial C(\cdot)}{\partial R(\cdot)} \frac{R(\cdot)}{a} \frac{dR(\cdot)}{dP(\cdot)} \frac{P(\cdot)}{R(\cdot)} \frac{dP(\cdot)}{dG(a)} \frac{G(a)}{P(\cdot)} \frac{dG(a)}{da} \frac{a}{G(a)}}} = \\ &= \frac{\left( \frac{1}{P(\cdot)} - \varepsilon_G^P \varepsilon_a^G \frac{C(\cdot)}{a} \right) \frac{a}{C(\cdot)}}{\left( \frac{\partial C(\cdot)}{\partial P(\cdot)} \frac{P(\cdot)}{a} \varepsilon_G^P \varepsilon_a^G + \frac{\partial C(\cdot)}{\partial R(\cdot)} \frac{R(\cdot)}{a} \varepsilon_R^P \varepsilon_G^P \varepsilon_a^G \right) \frac{a}{C(\cdot)}} = \\ &= \frac{\frac{a}{P(\cdot)C(\cdot)} - \varepsilon_G^P \varepsilon_a^G}{\varepsilon_G^P \varepsilon_a^G (\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R)} = \\ &= -\frac{1}{\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R} + \frac{\frac{a}{P(\cdot)C(\cdot)}}{\varepsilon_G^P \varepsilon_a^G (\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R)} \end{aligned}$$

The markup function can be rewritten as

$$\frac{P(\cdot) - k}{P(\cdot)} = \left( \frac{\frac{a}{P(\cdot)C(\cdot)}}{\varepsilon_G^P \varepsilon_a^G} - 1 \right) \times \frac{1}{\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R}$$

Where  $\frac{\frac{a}{P(\cdot)C(\cdot)}}{\varepsilon_G^P \varepsilon_a^G} - 1 > 0$  if  $\frac{a}{P(\cdot)C(\cdot)} > \varepsilon_G^P \varepsilon_a^G$  and  $\frac{1}{\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R} > 0$  by the definition of conspicuous consumption.

Indeed, the sign of the second factor depends only on the sign of the derivatives. This is true because  $\varepsilon_P^C + \varepsilon_R^C \varepsilon_P^R = \frac{dC(\cdot)}{dP(\cdot)} \frac{P(\cdot)}{C(\cdot)} + \frac{dC(\cdot)}{dR(\cdot)} \frac{R(\cdot)}{C(\cdot)} \frac{dR(\cdot)}{dP(\cdot)} \frac{P(\cdot)}{R(\cdot)}$ ; furthermore  $\frac{dC(\cdot)}{dR(\cdot)} \frac{dR(\cdot)}{dP(\cdot)} > 0$ ,  $\frac{dC(\cdot)}{dP(\cdot)} < 0$  and  $\frac{dC(\cdot)}{dR(\cdot)} \frac{dR(\cdot)}{dP(\cdot)} > \frac{dC(\cdot)}{dP(\cdot)}$  by the definition of conspicuous consumption.

Thus, the sign of  $\frac{P(\cdot) - k}{P(\cdot)}$  depends entirely on the first factor, which is positive when  $\frac{a}{P(\cdot)C(\cdot)} > \varepsilon_G^P \varepsilon_a^G$ .

In conclusion, when the supplier's profit is maximized and the advertising expense/revenue ratio is higher than the goodwill elasticity of price times the advertising expense elasticity of goodwill - or the overall effect of the advertising expense on the price through goodwill -, the supplier's advertising expense is effective in determining a markup which is positive and positively related to the firm's advertising expense.



## B Deriving an oligopolist's markup function in a market featuring positional concerns and advertising expenses when conspicuous consumption arises

A generic oligopolist's profit function:

$$\pi_s = \left( P_s \left( G \vec{a} \right) - k \right) \times C_s \left( P_s \left( G \vec{a} \right), R_s \left( P_s \left( G \vec{a} \right) \right) \right) - a_s$$

Where  $G \vec{a} = (G_1(a_1), \dots, G_s(a_s), \dots, G_m(a_m))$

FOC:

$$\begin{aligned} \frac{d\pi_s}{da_s} &= \\ &= \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{dG_s(a_s)}{da_s} C_s(\cdot) + \\ &+ (P_s(\cdot) - k) \left( \frac{\partial C_s(\cdot)}{\partial P_s(\cdot)} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{dG_s(a_s)}{da_s} + \frac{\partial C_s(\cdot)}{\partial R_s(\cdot)} \frac{dR_s(\cdot)}{dP_s(\cdot)} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{dG_s(a_s)}{da_s} \right) - 1 = \\ &= 0 \end{aligned}$$

Deriving a generic oligopolist's markup function:

$$\begin{aligned} \frac{P_s(\cdot) - k}{P_s(\cdot)} &= \\ &= \frac{\frac{1}{P_s(\cdot)} - \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{G_s(a_s)}{P_s(\cdot)} \frac{dG_s(a_s)}{da_s} \frac{a_s}{G_s(a_s)} \frac{C_s(\cdot)}{a_s}}{\frac{\partial C_s(\cdot)}{\partial P_s(\cdot)} \frac{P_s(\cdot)}{a_s} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{G_s(a_s)}{P_s(\cdot)} \frac{dG_s(a_s)}{da_s} \frac{a_s}{G_s(a_s)} + \frac{\partial C_s(\cdot)}{\partial R_s(\cdot)} \frac{R_s(\cdot)}{a_s} \frac{dR_s(\cdot)}{dP_s(\cdot)} \frac{P_s(\cdot)}{R_s(\cdot)} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{G_s(a_s)}{P_s(\cdot)} \frac{dG_s(a_s)}{da_s} \frac{a_s}{G_s(a_s)}} = \\ &= \frac{\left( \frac{1}{P_s(\cdot)} - \varepsilon_s^P \varepsilon_s^G \frac{C_s(\cdot)}{a_s} \right) \frac{a_s}{C_s(\cdot)}}{\left( \frac{\partial C_s(\cdot)}{\partial P_s(\cdot)} \frac{P_s(\cdot)}{a_s} \varepsilon_s^P \varepsilon_s^G + \frac{\partial C_s(\cdot)}{\partial R_s(\cdot)} \frac{R_s(\cdot)}{a_s} \varepsilon_s^R \varepsilon_s^P \varepsilon_s^G \right) \frac{a_s}{C_s(\cdot)}} = \\ &= \frac{\frac{a_s}{P_s(\cdot) C_s(\cdot)} - \varepsilon_s^P \varepsilon_s^G}{\varepsilon_s^P \varepsilon_s^G \left( \varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P \right)} = \\ &= -\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} + \frac{\frac{a_s}{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^P \varepsilon_s^G \left( \varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P \right)} \end{aligned}$$

Firms' interaction in the oligopoly:

$$\left\{ \begin{array}{l} \frac{P_1(\vec{G}(a))-k}{P_1(\vec{G}(a))} = -\frac{1}{\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P} + \frac{\overline{P_1(\vec{G}(a)) \times C_1(P_1(\vec{G}(a)), R_1(P_1(\vec{G}(a))))}}{(\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P) \varepsilon_1^G \varepsilon_1^a} \\ \vdots \\ \frac{P_s(\vec{G}(a))-k}{P_s(\vec{G}(a))} = -\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} + \frac{\overline{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))}}{(\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P) \varepsilon_s^G \varepsilon_s^a} \\ \vdots \\ \frac{P_m(\vec{G}(a))-k}{P_m(\vec{G}(a))} = -\frac{1}{\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P} + \frac{\overline{P_m(\vec{G}(a)) \times C_m(P_m(\vec{G}(a)), R_m(P_m(\vec{G}(a))))}}{(\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P) \varepsilon_m^G \varepsilon_m^a} \end{array} \right.$$

The markup functions can be rewritten as

$$\left\{ \begin{array}{l} \frac{P_1(\vec{G}(a))-k}{P_1(\vec{G}(a))} = \left( \frac{\overline{P_1(\vec{G}(a)) \times C_1(P_1(\vec{G}(a)), R_1(P_1(\vec{G}(a))))}}{\varepsilon_1^G \varepsilon_1^a} - 1 \right) \times \frac{1}{\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P} \\ \vdots \\ \frac{P_s(\vec{G}(a))-k}{P_s(\vec{G}(a))} = \left( \frac{\overline{P_s(\vec{G}(a)) \times C_s(P_s(\vec{G}(a)), R_s(P_s(\vec{G}(a))))}}{\varepsilon_s^G \varepsilon_s^a} - 1 \right) \times \frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} \\ \vdots \\ \frac{P_m(\vec{G}(a))-k}{P_m(\vec{G}(a))} = \left( \frac{\overline{P_m(\vec{G}(a)) \times C_m(P_m(\vec{G}(a)), R_m(P_m(\vec{G}(a))))}}{\varepsilon_m^G \varepsilon_m^a} - 1 \right) \times \frac{1}{\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P} \end{array} \right.$$

Where  $\frac{\overline{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^G \varepsilon_s^a} - 1 > 0$  if  $\frac{\overline{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^G \varepsilon_s^a} > \varepsilon_s^P \varepsilon_s^G$  and  $\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} > 0$  by the definition of conspicuous consumption.

Indeed, the sign of the second factor depends only on the sign of the derivatives. This is true because  $\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P = \frac{dC_s(\cdot)}{dP_s(\cdot)} \frac{P_s(\cdot)}{C_s(\cdot)} + \frac{dC_s(\cdot)}{dR_s(\cdot)} \frac{R_s(\cdot)}{C_s(\cdot)} \frac{dR_s(\cdot)}{dP_s(\cdot)} \frac{P_s(\cdot)}{R_s(\cdot)}$ ; furthermore  $\frac{dC_s(\cdot)}{dR_s(\cdot)} \frac{dR_s(\cdot)}{dP_s(\cdot)} > 0$ ,  $\frac{dC_s(\cdot)}{dP_s(\cdot)} < 0$  and  $\frac{dC_s(\cdot)}{dR_s(\cdot)} \frac{dR_s(\cdot)}{dP_s(\cdot)} > \frac{dC_s(\cdot)}{dP_s(\cdot)}$  by the definition of conspicuous consumption.

Thus, the sign of  $\frac{P_s(\cdot)-k}{P_s(\cdot)}$  depends entirely on the first factor, which is positive when  $\frac{\overline{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^G \varepsilon_s^a} > \varepsilon_s^P \varepsilon_s^G$ .

In conclusion, when the suppliers' profits are maximized and the advertising expense/revenue ratios are higher than the goodwill elasticities of price times the advertising expense elasticities of goodwill - or the overall effects of the advertising expenses on the prices through goodwills -, the suppliers' advertising expenses are effective in determining markups which are positive and positively related to the firms' advertising expenses.

## C Determining a steeply progressive advertising tax when conspicuous consumption arises in an oligopoly featuring positional concerns and advertising expenses

As I suggested above, a status good's supplier through a growing advertising expense levies a positive and growing markup. Thus, it is encouraged to invest in advertising, even if it leads to economic and sociopsychological externalities.

To discourage a similar behavior, state intervention should reduce the firm's markup deleting the extra gain produced by advertising expenses to eventually lead it back to the level the supplier would experience if conspicuous consumption did not emerge.

This can be accomplished through a steeply progressive advertising tax.

In short, a steeply progressive advertising tax  $t(a_s)$  shall lead from the advertising augmented Lerner index (19):

$$\left\{ \begin{array}{l} \frac{P_1(G\vec{a})-k}{P_1(G\vec{a})} = -\frac{1}{\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P} + \frac{\frac{a_1}{P_1(G\vec{a}) \times C_1(P_1(G\vec{a}), R_1(P_1(G\vec{a})))}}{(\varepsilon_1^C + \varepsilon_1^R \varepsilon_1^P) \varepsilon_1^P \varepsilon_1^G} \\ \vdots \\ \frac{P_s(G\vec{a})-k}{P_s(G\vec{a})} = -\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} + \frac{\frac{a_s}{P_s(G\vec{a}) \times C_s(P_s(G\vec{a}), R_s(P_s(G\vec{a})))}}{(\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P) \varepsilon_s^P \varepsilon_s^G} \\ \vdots \\ \frac{P_m(G\vec{a})-k}{P_m(G\vec{a})} = -\frac{1}{\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P} + \frac{\frac{a_m}{P_m(G\vec{a}) \times C_m(P_m(G\vec{a}), R_m(P_m(G\vec{a})))}}{(\varepsilon_m^C + \varepsilon_m^R \varepsilon_m^P) \varepsilon_m^P \varepsilon_m^G} \end{array} \right.$$

back to the standard textbook Lerner index

$$\left\{ \begin{array}{l} \frac{P_1-k}{p_1} = -\frac{1}{\varepsilon_1^C} \\ \vdots \\ \frac{P_s-k}{p_s} = -\frac{1}{\varepsilon_s^C} \\ \vdots \\ \frac{P_m-k}{p_m} = -\frac{1}{\varepsilon_m^C} \end{array} \right.$$

where positional concerns are out of the consumer's utility function.

To do so  $t(a_s)$  shall turn  $-\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P}$  to  $-\frac{1}{\varepsilon_s^C}$  and  $\frac{\frac{a_s}{P_s(G\vec{a}) \times C_s(P_s(G\vec{a}), R_s(P_s(G\vec{a})))}}{(\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P) \varepsilon_s^P \varepsilon_s^G}$  to zero.

It is possible to proceed for all firms as follows.

A generic oligopolist's profit function featuring a steeply progressive tax on its advertising

expense:

$$\pi_s = \left( P_s \left( G \vec{a} \right) - k \right) \times C_s \left( P_s \left( G \vec{a} \right), R_s \left( P_s \left( G \vec{a} \right) \right) \right) - (1 + t(a_s)) a_s$$

Where  $G \vec{a} = (G_1(a_1), \dots, G_s(a_s), \dots, G_m(a_m))$

FOC:

$$\begin{aligned} \frac{d\pi_s}{da_s} &= \\ &= \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{dG_s(a_s)}{da_s} C_s(\cdot) + \\ &+ (P_s(\cdot) - k) \left( \frac{\partial C_s(\cdot)}{\partial P_s(\cdot)} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{dG_s(a_s)}{da_s} + \frac{\partial C_s(\cdot)}{\partial R_s(\cdot)} \frac{dR_s(\cdot)}{dP_s(\cdot)} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{dG_s(a_s)}{da_s} \right) - 1 - t(a_s) = \\ &= 0 \end{aligned}$$

Deriving a generic oligopolist's markup function featuring a steeply progressive tax on its advertising expense:

$$\begin{aligned} \frac{P_s(\cdot) - k}{P_s(\cdot)} &= \\ &= \frac{\frac{1}{P_s(\cdot)} - \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{G_s(a_s)}{P_s(\cdot)} \frac{dG_s(a_s)}{da_s} \frac{a_s}{G_s(a_s)} \frac{C_s(\cdot)}{a_s} + \frac{t(a_s)}{P_s(\cdot)}}{\frac{\partial C_s(\cdot)}{\partial P_s(\cdot)} \frac{P_s(\cdot)}{a_s} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{G_s(a_s)}{P_s(\cdot)} \frac{dG_s(a_s)}{da_s} \frac{a_s}{G_s(a_s)} + \frac{\partial C_s(\cdot)}{\partial R_s(\cdot)} \frac{R_s(\cdot)}{a_s} \frac{dR_s(\cdot)}{dP_s(\cdot)} \frac{P_s(\cdot)}{R_s(\cdot)} \frac{\partial P_s(\cdot)}{\partial G_s(a_s)} \frac{G_s(a_s)}{P_s(\cdot)} \frac{dG_s(a_s)}{da_s} \frac{a_s}{G_s(a_s)}}} \\ &= \frac{\left( \frac{1}{P_s(\cdot)} - \varepsilon_s^P \varepsilon_s^G \frac{C_s(\cdot)}{a_s} + \frac{t(a_s)}{P_s(\cdot)} \right) \frac{a_s}{C_s(\cdot)}}{\left( \frac{\partial C_s(\cdot)}{\partial P_s(\cdot)} \frac{P_s(\cdot)}{a_s} \varepsilon_s^P \varepsilon_s^G + \frac{\partial C_s(\cdot)}{\partial R_s(\cdot)} \frac{R_s(\cdot)}{a_s} \varepsilon_s^R \varepsilon_s^P \varepsilon_s^G \right) \frac{a_s}{C_s(\cdot)}} = \\ &= \frac{\frac{a_s}{P_s(\cdot) C_s(\cdot)} - \varepsilon_s^P \varepsilon_s^G + t(a_s) \frac{a_s}{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^P \varepsilon_s^G (\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P)} = \\ &= -\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} + \frac{\frac{a_s}{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^P \varepsilon_s^G (\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P)} + \frac{t(a_s) \frac{a_s}{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^P \varepsilon_s^G (\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P)} \end{aligned}$$

In order to turn above equation into a standard Lerner index - when positional concerns are out of the consumer's utility function -, the following must hold true:

$$-\frac{1}{\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P} + \frac{\frac{a_s}{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^P \varepsilon_s^G (\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P)} + \frac{t(a_s) \frac{a_s}{P_s(\cdot) C_s(\cdot)}}{\varepsilon_s^P \varepsilon_s^G (\varepsilon_s^C + \varepsilon_s^R \varepsilon_s^P)} = -\frac{1}{\varepsilon_s^P}$$

It does hold true when

$$\begin{aligned}
t(a_s) &= \\
&= \frac{P(\cdot)C(\cdot)}{a_s} \varepsilon_{sG}^P \varepsilon_{sa}^G - \frac{P(\cdot)C(\cdot)}{a_s} \varepsilon_{sG}^P \varepsilon_{sa}^G \frac{\varepsilon_{sP}^C + \varepsilon_{sR}^C \varepsilon_{sP}^R}{\varepsilon_{sP}^C} - 1 = \\
&= \frac{P(\cdot)C(\cdot)}{a_s} \varepsilon_{sG}^P \varepsilon_{sa}^G \left( 1 - \frac{\varepsilon_{sP}^C + \varepsilon_{sR}^C \varepsilon_{sP}^R}{\varepsilon_{sP}^C} \right) - 1 = \\
&= \frac{P(\cdot)C(\cdot)}{a_s} \varepsilon_{sG}^P \varepsilon_{sa}^G \left( -\frac{\varepsilon_{sR}^C \varepsilon_{sP}^R}{\varepsilon_{sP}^C} \right) - 1 = \\
&= -\frac{\varepsilon_{sR}^C \varepsilon_{sP}^R \varepsilon_{sG}^P \varepsilon_{sa}^G}{\varepsilon_{sP}^C} \frac{P(\cdot)C(\cdot)}{a_s} - 1
\end{aligned}$$