



Modelling Conspicuous Consumption with Its Possible Interpersonal Reactions by Behavioural Game Theory

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ABSTRACT

Individuals' spending on conspicuous consumption is continuing significant as conspicuous consumption is an essential form of status-seeking behaviour. How an individual can enhance his position by consuming a conspicuous good is influenced significantly by others' respond to his display. To investigate the possible interpersonal reactions of conspicuous consumption and their consequences, a game theoretical model is developed and analysed in this paper. Two subgames of rivalry are described. In quality-centred rivalry it depends on nature, that is, others' judgement, how high the payoff levels are that consumers can realise as taste has a critical role. However, in a material rivalry, it is the relative spending on conspicuous goods that mainly determines the outcome of the game. Further, in a quality-centred subgame, the possible outcomes indicate that more tastes can be viable at the same time. These subgames demonstrate the main differences between original and newer forms of conspicuous consumption.

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INTRODUCTION

Conspicuous consumption described originally by Veblen (1899) has been studied with great subtlety in behavioural economics for the last twenty years. It is partly due to that one of the main drivers of the continuous increase in consumer expenditure has become the increasing spending on conspicuous goods in developed economies[†] (Cordes, 2007). Overspending on conspicuous goods also contributed to the significant increase in consumer debt in consumption societies (Rucker and Galinsky, 2009). On the other hand, more and more research verifies that conspicuous consumption can be considered an efficient allocation process (Perez-Truglia, 2012). Further, the core of conspicuous consumption has changed significantly.

However, the possible interpersonal reactions of conspicuous consumption and their consequences are still rather unexplored. Despite that these influence essentially how far an individual can enhance his position by consuming a conspicuous good. This issue inspired my work to study what interpersonal responses can arise to conspicuous consumption and how these affect the result of an individual's display. To understand the core of the model and the importance of the findings presented in this paper, it is necessary to review the extensive literature that has explored conspicuous consumption.

Veblen (1899) critically analysed the emerging social class based on his observations in his widely acknowledged book titled *The Theory of the Leisure Class*. The members of this class do not do productive work but rather deal with unproductive activities such as leading the financial institution system. This elite group, called leisure class by Veblen, considers the possession of the goods beneficial instead of their production and strives for the display of financial power and social position that can be realised by unproductive work. The members of the leisure class flourish their social status through conspicuous consumption and conspicuous leisure.

According to mainstream economics individuals' motivations and preferences are independent of interpersonal relations and social effects as they are given (Hodgson, 1993). The evolutionary theory of conspicuous consumption diffused widely by the recognition of the role and importance of interdependent preferences. The core of Veblen's theory (1899) is that wealthy people often consume conspicuous goods to display their wealth to others and they can achieve higher social status in this way. Arrow and Dasgupta (2009) point out that conspicuous consumption described by Veblen (1899) appears in an environment where wealth cannot be observed and social status can be gained by wealth. According to Ordabayeva and Chandon (2011), social status is an individual's relative position in a community, and this position can be observable or unobservable. In my opinion, wealth usually cannot be observed directly, especially nowadays, when a significant proportion of the wealth is intangible due to virtual money and investments. However, conspicuous consumption can reflect the wealth possessed by individuals. In this way, the conspicuous good is a kind of communication asset that has to be visible for others so that its owner can achieve his purpose. The brand, the outward appearance, the stylistic features and the price (or by the others estimated price) of the conspicuous good can indicate the consumer's financial position.

According to Veblen's (1899) evolutionary approach habits and institutions have a relevant role in the development of the consumers' decision-making and behaviour. Consequently, the interpretation of goods and its diffusion in society influence the rivalry for social status through conspicuous consumption. Besides the elite group, the striving for possessing conspicuous goods also appears in other social classes, however, in different forms. There is a rivalry among the individuals as social status is determined by the owning properties considerably. But not only tangible goods are the objects of display. Conspicuous leisure and services reflect observable activities that require time and money such as taking part in parties and holidays, playing elite sports or studying dead languages. They also demonstrate that the individual abstains from productive work. Consequently, as Watkins (2015) points out the masses are excluded from these lavish expenditures.

Veblen's theory (1899) includes that each social class attempts to imitate the consumption patterns of the class above it, so there is a 'trickle down' emulation in the social hierarchy. Several scholars realised that this approach is too restrictive. Trigg (2001) argues that the diffusion of preferences and tastes can also occur in the opposite direction, that is, 'trickle up' from the lower classes of the society may be a relevant phenomenon in case of some goods, especially which are affordable for the mass. Bourdieu (1984) suggests a broader 'trickle round' model as a popular working-class taste can influence the members of the upper class, but it can also be transmitted to the middle class from them. Thus, it reflects a more flexible flow and rivalry, that is, not a one-directional process but a kind of circulation. According to Bourdieu (1984), people apply three different types of resources for the rivalry for social status. These are economic,

[†] The developed economies can be characterized by sustained economic growth, relatively high GDP per capita, high level of industrialization, well-trained workforce and low birth rate.

social and cultural capital; however, in the Veblenian framework economic capital has an exclusive role. Bourdieu (1984) argues that cultural capital is the most critical factor which can be acquired through education and gaining distinction taste. He states that cultural capital can be more powerful to achieve a higher social status than conspicuous consumption. Mason (1981) distinguishes between horizontal and vertical rivalry for social status. Horizontal emulation arises among people in the same group. In the case of vertical rivalry, an individual strives to achieve higher social status by becoming similar to the members of the upper classes. It is relevant to realise the two different forms of emulation as it has a critical role in analysing conspicuous consumption. Mason (1998) also states that lifestyle has become a more relevant feature of consumer segments during the development of market economies and the social class is not the only determinant factor of social status and consumption anymore.

A conspicuous good can satisfy an individual's need for status only temporarily. A reason for that is, as others' income increases, they can also afford themselves to consume certain or similar conspicuous goods. Consequently, newer or even more expensive goods become essential so that an individual can express his status (Cordes, 2007). Further, the prestige value of a good is determined by the average status of the people purchasing that good. Accordingly, the more consumers own a certain good, the lower status the good has (Frijters, 1998). Trigg (2001) claims that status-seeking behaviour expressed through consumption is a never-ending phenomenon. Due to these, consumption saturation does not occur in the case of conspicuous goods. It is valid despite that Veblen (1899), and later Bourdieu (1984) also claim that individuals' conspicuous consumption is not necessarily conscious.

According to Veblen (1899), conspicuous consumption can be considered as the wasting of goods. The purpose of wasteful consumption is to demonstrate superiority or enhance social status. Reisman (2012) points out that Veblen (1899) describes waste in a value-free way, that is, it is considered neither good nor bad. However, Veblen (1899) criticises the consumer habits of the upper class. According to his approach, the purpose of wasteful consumption is not to satisfy own consumer needs and desires but the invidious possession or use of conspicuous goods. In this way, the members of the leisure class can be prominent among others. By focusing on the wasteful feature of conspicuous consumption Watkins (2015) states that wasting is a core element of the display as it expresses the financial power. Consequently, wasteful consumption makes the increase in social status possible.

A positive relationship between price and quantity demanded of conspicuous goods is described widely in the literature, even though this relation does not appear explicitly in Veblen's theory (1899). Braun and Wicklund (1989) explain the assumed positive relation by stating that price can serve as a signal of prestige value of goods. Bagwell and Bernheim (1996) emphasise that Veblen (1899) not state that the price of a conspicuous good influences directly consumer utility or consumers want to get conspicuous goods at high price levels. In Veblen's interpretation, the relation exists between consumption and status-seeking behaviour and price has only a derived role in this way.

Veblen's theory (1899) focuses on the motivations of conspicuous consumption. Regarding rivalry, the core drivers are the invidious comparison and pecuniary emulation. In this aspect, the members of society can be considered as reference points before possessing and consuming conspicuous goods. Further, conspicuous consumption can contribute to protect and enhance self-esteem (Tilman, 2006). Ordabayeva and Chandon (2011) argue that it is also essential for an individual how his social position improves by owning or using a conspicuous good. However, Veblen's theory lacks whether the individual evaluates his consumption's effectiveness and influence, that is, the change in his status, and if yes, how he does it. Further, how these affect his future conspicuous consumption. It worth to mention Perez-Truglia's (2012) remark here that argues that the probability of attaining non-market goods like respect and admiration increases through conspicuous consumption. In other words, individuals can achieve various social benefits by possessing conspicuous goods. Similarly, Wisman (2009) states that investment in status can be advantageous in the sense that the gained status can contribute to higher income and social position in the future.

It indicates the complexity of Veblen's theory that Campbell (1995) argues it is made up of three various theories. According to one of them, conspicuous consumption is a kind of intention or motivation since the consumer attempts to demonstrate his financial position through buying and owning goods which can enhance his social status. The other view of conspicuous consumption focuses on the outcome and consequence of the consumer's behaviour. Its core point is that the consumer wants to make an impression on others that he can pay the price of conspicuous goods. According to the third theory, conspicuous consumption is an intrinsic quality of behaviour. It reflects that the display is a wasteful consumption as the consumer wants to impress others by his pecuniary strength.

This paper studies conspicuous consumption with the aspect that individuals want to demonstrate and strengthen their social status by consuming conspicuous goods. By developing a behavioural game theoretical model, the possible interpersonal reactions of conspicuous consumption and their consequences are described and analysed. This study also contributes to understanding the various rivalries in conspicuous consumption, how others' reaction can influence

consumers' utility level and the outcome of the game. The described games and the findings can be applied to demand analysis and forecast in business.

The rest of the paper is organised as follows. The literature review presents the changing nature of conspicuous consumption and the core of some models regarding conspicuous consumption according to the literature of behavioural economics. A behavioural game theoretical model of conspicuous consumption is set up in the following section. Firstly, the framework and the assumptions are clarified. Then the model is introduced, and two subgames of rivalry are highlighted. The last section includes the summary and conclusions.

LITERATURE REVIEW

Conspicuous consumption has changed over time. Reviewing the brief history of conspicuous consumption can help to understand the evolution of this status-seeking behaviour. Page (1992) distinguishes four stages. The first one is the time of traditional societies (1000-1700 AD) when social hierarchy was rigid and social mobility was limited. The objects of wasteful consumption were essentially foods, clothes and houses. Nowadays primitive communities of Africa, South America and Asia can be described by this manifestation. The second stage is related to achieving societies which developed as a consequence of the industrial revolution. Due to higher income and job mobility and the strengthening of the middle class more individuals engaged in conspicuous consumption. The third phase is called affluent societies based on Galbraith's (1958) work. This period can be characterised by modern mass communication and mass consumption. Taste gained a more significant role in display at this stage. Mason (1981) states the members of affluent societies have become other-directed. Galbraith (1958) claims promotion has a significant role in inducing both unnecessary wants and consumer indebtedness. As Packard (1960) describes the American social criticism of the 1950s, he points out that 'psychological obsolescence' induced by firms also contributes to wasteful and positional consumption as consumers become motivated to buy new goods before the functional obsolescence of the older ones. In this way, individuals who can afford themselves to buy goods with a new design and accelerate product switching, demonstrate their financial position at the same. According to Page (1992), the fourth stage started in the 1980s. This is the period when the advance of free-market mechanisms induces heightened materialism. The liberalisation of the credit supply conditions and the diffusion of credit-card facilities give rise to wasteful consumption and overspending on conspicuous goods. The growth of advertising, the emergence of shopping centres and the realisation of the higher social mobility also contribute to the greater variety and the diffusion of status symbols and the increased spending on conspicuous consumption. Consequently, Page (1992) argues that conspicuous consumption can be considered as a middle-class phenomenon as the objects of conspicuous consumption and conspicuous leisure have expanded significantly due to market development.

It is important to emphasise that wasteful expenditure increased considerably until the 2008 economic crisis. However, due to the high level of consumer debt spending on conspicuous goods decreased and individuals have become more conscious regarding their consumption expenditure. Rivalry for social status has become more intensive again by the recovery; however, the nature of display modified, more hidden way and qualitative factors of conspicuousness have gained a more significant role.

The manifestation of the display is very different in the various regions and from culture to culture. In the more deprived areas of Africa the car itself is a conspicuous good while it is a mass product in Europe and North America, so almost everyone possesses one. In the developed countries some elements of the car, like the brand, the (relative) price level and the design, can make it a conspicuous good. Due to the local social-cultural traditions and values, the demonstration of social position and taste can be very different in the various regions.

There are more and more actors of conspicuous consumption, that is, it is not primarily typical of social elite anymore, due to the increase of purchasing power, the spirit of consumer society, the enhanced role of social networks and the improved social and geographical mobility. Patsiaouras (2017) states that as a consequence of the diffusion and intensive usage of Internet, social media and smartphones virtual display and emulation have become an additional dimension of conspicuous consumption and conspicuous leisure. People post photos about their clothes, holidays, houses etc. In this way, individuals' conspicuous consumption and conspicuous leisure can be observed by more people than in traditional circumstances which induces a more vigorous rivalry for social position.

On the other hand, the economic actors of the supply side also have a significant effect on display and wasteful expenditure. During the development of markets newer forms of planned obsolescence has appeared in order to increase the profits of firms. They can encourage the rivalry for status among consumers. Watkins (2015) also demonstrates that

firms strive to incentive wasteful consumption so that they can increase their profits. A solution for this is to supply counterfeit products in the market. These goods can be especially attractive for individuals who are highly involved in imitating the members of the elite consumer groups but possess relatively low purchasing power.

The core of conspicuous consumption changes. Thus, in specific fields of alternative economics conspicuous consumption is studied with an evolutionary approach (Collins *et al.*, 2013; Frijters and Leigh, 2008; Mujcic and Frijters, 2015). Trigg (2001) emphasises that social norms driving rivalry among the members of society, change with the economy. Individuals do not display their wealth consciously and directly anymore. Similarly, Mason (1992) claims that they denote their status more hidden and refined. Shipman (2004) argues that emphasis changes from quantity to quality during conspicuousness. In this way, taste replaces wasting in conspicuous consumption, that is, culturally valued products have become more recognised instead of goods that are financially valuable. Chaudhuri and Majumdar (2010) state that the nature of conspicuous consumption changes. Not only wasteful consumption can be fruitful in positional competition. Individuals with refined taste but less financial power can also enhance their position through possessing goods that express their uncommon taste and easily affordable for them. Carbajal *et al.* (2015) argue that conspicuous goods can be separated into two groups increasingly. On the one hand, there are goods which express status in a refined way and can be observed relatively difficult but perceived easily through social interactions, e.g. consumption of high culture. On the other hand, there are goods which are visible and notable easily for others such as cars. The researchers conclude that in societies where social capital has a higher relevance the refined way of conspicuous consumption is far more typical. Carolan (2005) has a radical view as he states that it is the body itself which becomes the object of conspicuous consumption by embodying the individual himself since possessing only notable material goods is less and less efficient nowadays.

Further, it is important to emphasise that; however, both wealth and income level influence an individual's consumption there is a contrast between Veblen's theory and views in recent literature. Veblen (1899) states definitely regarding conspicuous consumption that an individual wants to signal his wealth to others. In contrast with it, researchers usually relate conspicuous consumption with income level in recent literature. It can be explained partly by that consumer economics derives consumer expenditures for goods from income. Further, the income level at a particular time can influence more an individual's actual presumed or desired status in a developed economy than his accumulated wealth. Thus, Heffetz (2011) analyses the relationship between income elasticity and expenditure for conspicuous consumption. Applying another approach, Charles *et al.* (2009) confirm that the level of conspicuous consumption decreases if the average income level of the reference group increases. Wasteful expenditure can also affect the saving rate. Wisman (2009) concludes that Americans think a high degree of vertical mobility is possible, they spend much money on conspicuous consumption to enhance status. However, the saving rate decreases consequently.

In the following the core of some models regarding conspicuous consumption is presented since the added value of this paper is a behavioural game theoretical model of conspicuous consumption. The first model of conspicuous consumption was developed by Leibenstein (1950), his findings diffused and accepted widely in the literature. The positively-sloped demand function drawn by him, however, has been taken up and explained by many scholars without taking its conditions and derivation into consideration. Setting up models of conspicuous consumption has come to the focus of attention in the field of behavioural economics in the last twenty years as it has become necessary to explore and analyse the quantitative relations of this phenomena by becoming more complex and relevant. The published models are valuable and useful contributions to the more profound understanding of conspicuous consumption as they quantify the qualitative factors of the phenomenon sophisticatedly. In this way, they can be applied efficiently to demand analysis and forecast in business.

The core of Corneo and Jeanne's model (1997) is that the number of consumers determines the denoting value of a conspicuous good. Further, consumers strive for either conformism or snobbism. Concluding, snob consumers' demand curve for conspicuous goods has a negative slope, but if consumers are conformist, it is upward-sloping. Amaldoss and Jain (2005) base their conspicuous consumption model on rational expectations and also consider bandwagon and snob effects. Jaramillo *et al.* (2000) build their model on the assumption that both gaining status and entering in a club drive the consumption of conspicuous goods and these two factors cannot be separated from each other. Friedman and Ostrov (2008) investigate conspicuous consumption both at individual and social levels by two various kinds of interdependent preferences that are pride and envy. Further, the critical dimension of some models is visibility and observability. According to Perez-Truglia's findings (2013), a consumer's well-being can increase as a consequence of higher social status deriving from his publicly visible and observable consumption. However, his well-being cannot be affected by his position arising from his non-observable consumption. Frijters and Leigh (2008) assume

that individuals strive to optimise the ratio of conspicuous leisure and conspicuous consumption to maximise their utility level. They conclude that if geographical mobility level is high, the visibility of conspicuous leisure is insignificant and striving for status arises mostly through conspicuous consumption.

The content of the models and the studied relations reflect the complexity of conspicuous consumption. It means at the same time that by quantifying the qualitative factors and relations, the analysis of conspicuous consumption can be made more exact. It is relevant as the original theory of conspicuous consumption (Veblen, 1899) has been a simple narrative description based on observation.

THE BEHAVIOURAL GAME THEORETICAL MODEL OF CONSPICUOUS CONSUMPTION

Framework and assumptions

In this section, a behavioural game theoretical model of conspicuous consumption is presented. Game theory, especially non-cooperative one, is a good applicable method to study conspicuous consumption as there is interdependence among the individuals deriving from rivalry for social status. However, there are only a few papers (e.g. Hopkins and Kornienko, 2004) in which game theory is used to investigate the phenomenon.

In the followings, the possible interpersonal reactions of conspicuous consumption and their consequences are described and analysed by applying game theory. Studying conspicuous consumption from this aspect is relevant as it focuses on how far an individual can be efficient, more precisely can enhance his position, by consuming a (visible and observable) conspicuous good. Further, others' various possible reactions for his conspicuous consumption and their consequences can be studied. Applying this viewpoint to develop a model has been inspired partly by Almeida's (2014) approach which points out that a conspicuous consumer is an active observer and vicarious observation has a determinant role in conspicuous consumption in this way. Vicarious observation means an individual observes and evaluates others, clarifies who are the members of his reference groups and strives to learn by observing their characteristics, behaviour and activities. As, according to Veblen (1899), a conspicuous consumer tries to acquire similar goods that the individuals with higher social position, he observes others and learns what conspicuous goods or other forms of display are advantageous for emulation. Furthermore, I have also been motivated by the views, which do not include exactly, what possible outcomes and consequences can arise as a result of consuming a conspicuous good when an individual strives to make an impression to others to enhance or sign his social status. However, reviewing, evaluating and comparing the possible outcomes and consequences are relevant regarding both rivalry and individuals' expected utility level.

A non-cooperative game is assumed. It can be explained by that there is a rivalry among the individuals in conspicuous consumption. A repeated game is presented which reflects the possible interpersonal consequences of an individual's conspicuous consumption. This kind of game occurs again and again since there is a continuous interaction among the individuals due to the visibility of conspicuous consumption and rivalry for social status is also never-ending. There are two players in this game. Firstly, individual *A*, who can be even an innovator, consumes a conspicuous good, and then individual *B* as a potential responder comes in the game who has a recipient and an evaluative role if he perceives individual *A*'s conspicuous consumption. Let us assume that each individual tries to maximise his utility level by his consumer decision-making. It is (partly) a function of the other individual's reaction.

Let denote u_{Ai} individual *A*'s consumer utility level, that is, his payoff, in the case of the possible outcome *i*. Similarly, let denote u_{Bi} individual *B*'s consumer utility level, that is, his payoff, in the case of the possible outcome *i*. Further, let

p is the probability of being perceived individual *A*'s consumption by individual *B*, $0 \leq p \leq 1$,

q is the probability of making a dependent decision by individual *B*, $0 \leq q \leq 1$,

r is the probability of individual *B*'s consumption if there is an interdependence between individuals regarding conspicuous consumption, $0 \leq r \leq 1$,

s is the probability of individual *B*'s consumption if he makes an independent decision, $0 \leq s \leq 1$.

An extensive game form is applied in the interests of definite review. Conspicuous consumption and its possible interpersonal reactions can be represented as in Figure 1.

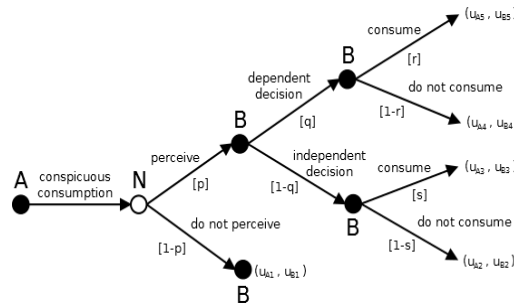


Figure 1 The game of conspicuous consumption and its possible interpersonal reactions

The model

Figure 1 can be interpreted according to the following. Firstly, individual *A* makes a decision to consume a conspicuous good. It depends on chance whether individual *B* perceives his conspicuous consumption or not. It is illustrated by a non-filled node (*N*). There are two possibilities, individual *B* does perceive or does not perceive individual *A*'s visible display. Incorporating factor *N* into the model is necessary since an individual does not perceive all the information in reality due to information overloading. First, let us consider the outcome when individual *B* does not perceive individual *A*'s conspicuous consumption, its probability is $(1 - p)$. From the viewpoint of individual *A*, it means that he does not achieve his purpose as he cannot make an impression on individual *B*. It indicates the end of the game at the same time. In this way, $u_{A1} < 0$ as the price of the good and the failing of the expected utility deriving from consumption are losses for individual *A*. Further, $u_{B1} = 0$ as individual *B* has neither advantage nor disadvantage directly from individual *A*'s consumption since he does not perceive it and he does not respond to it with consumption either.

Let us see the upper part of Figure 1. It has a probability p of being perceived individual *A*'s consumption by individual *B*. If individual *B* perceives individual *A*'s visible display, individual *B* has two possibilities. Either he takes individual *A*'s conspicuous consumption into consideration during his consumer decision making, or he makes a decision independently of him. Regarding these alternatives, it is critical to realise the following core differences. If individual *B* takes individual *A*'s visible display into consideration, he considers it a kind of reference point which affects his conspicuous consumption decision through the created impression. Its indirect consequence is that individual *B*'s consumer decision influences individual *A*'s consumer utility level and relative position as there is an interaction between the consumers. It means regarding conspicuous consumption that rivalry arises in fact. According to the other alternative, although individual *B* perceives individual *A*'s conspicuous consumption and he can also evaluate it, however, it does not influence his consumer decision. Thus, individual *A* and individual *B* are independent in consumption.

If individual *B* makes a decision independently from individual *A* about conspicuous consumption, individual *A* is not a reference point for individual *B*. In this case, individual *B* has two alternatives; he consumes a conspicuous good or not. In both outcomes, individual *A*'s payoff is positive as he could reach individual *B* by displaying conspicuous good and individual *B* does not respond to that with a rival consumption that would diminish individual *A*'s payoff since his decision is independent of individual *A*. In this way, $u_{A2} > 0$ and $u_{A3} > 0$. If individual *B* consumes at the same time, his payoff is $u_{B3} > 0$ due to independence. However, if individual *B* does not consume, then $u_{B2} = 0$ as utility deriving from consumption does not arise, and he does not get a worse position as a result of individual *A*'s conspicuous consumption due to their consumer independence.

If individual *A*'s conspicuous consumption influences individual *B*'s consumer decision, there is interdependence between them regarding consumption. Individual *B* has two alternatives again. On the one hand, he can respond to individual *A*'s consumption with consuming a conspicuous good; consequently, rivalry arises. On the other, he can decide not to consume. The latter can occur if individual *B* is in a bad financial situation or he postpones his consumption or he is not involved in the certain situation. In this case, individual *A*'s payoff is $u_{A4} > 0$ as he could influence individual *B* through his conspicuous consumption. Individual *B*'s payoff is $u_{B4} < 0$ as he gets in a worse relative position by that individual *A* has received an advantage by his display, however, he does not consume a conspicuous good.

Finally, let us see the case when individual *B* reacts with conspicuous consumption, that is, he begins to rival with individual *A* who made his consumer decision before him. In this situation, individual *A*'s payoff level depends on individual *B*'s consumption, or more precisely its effect. Even though individual *A* gives an impression on individual *B*, his relative position diminishes by a certain degree resulting from individual *B*'s consumption. It also reduces

individual A 's payoff. Consequently, $u_{A5} < u_{A4}$ where the value of u_{A5} can even be negative. The relation of individual B 's payoffs is $u_{B5} > u_{B4}$ as he competes with individual A , further $u_{B5} > 0$ is expected. In this way, the better outcome for individual A is when individual B does not consume as he can sustain his position. However, the higher payoff can be achieved by individual B if he also begins to consume the conspicuous good. It means at the same time that rivalry arises due to choosing the preferable strategy by the second decision-maker in the game. It explains the fact that if there is interdependence among the individuals regarding conspicuous consumption, a continuous rivalry is present among them.

It is worth to compare the expected value of individual A 's consumer utility level when independent and dependent decisions are made by individual B . Firstly, let us assume that individual B perceives individual A 's conspicuous consumption and he makes a consumer decision independently from him. As in this case $u_{A2} > 0$ and $u_{A3} > 0$ due to the reasons mentioned above, thus

$$E(u_A) = (1 - s) \times u_{A2} + s \times u_{A3} > 0. \quad (1)$$

However, if individual B perceives individual A 's display but he makes a dependent consumer decision, the expected value of individual A 's consumer utility level is not necessarily positive. According to the description above, $u_{A4} > 0$ and $-\infty < u_{A5} < \infty$, in this way

$$-\infty < E(u_A) = (1 - r) \times u_{A4} + r \times u_{A5} < \infty. \quad (2)$$

The negative expected value of individual A 's consumer utility level reflects that it is possible he cannot achieve his purpose by a display, and in this way, his relative position can diminish due to rivalry with individual B . The extended interval of the expected utility value denotes the greater volatility of the outcome of conspicuous consumption if other consumers respond to display by emulation. In other words, individual A is exposed to higher social and psychological risks through his conspicuous consumption if others make consumer decisions by taking him as a reference point for consideration.

The expected value of individual B 's consumer utility level can be similarly studied. If we assume that he makes a decision independently from individual A , then

$$E(u_B) = (1 - s) \times u_{B2} + s \times u_{B3} > 0 \quad (3)$$

as $u_{B2} = 0$ and $u_{B3} > 0$. However, if his consumer decision making depends on individual A 's conspicuous consumption, the expected utility value has a wider range since it can be both positive and negative, that is,

$$-\infty < E(u_B) = (1 - r) \times u_{B4} + r \times u_{B5} < \infty. \quad (4)$$

as $u_{B4} < 0$ and $u_{B5} > 0$. It implies that individuals' interdependence regarding conspicuous consumption is riskier not only for an innovator or first-mover but also for an individual in a recipient or evaluative role who can react actively (consuming) or passively (not consuming) to a visible display in his environment. Further, the second-mover's decision is also influenced considerably by social and psychological factors, consequently, his decision and in this way, the outcome of the game can be inconsistent with the approach and explanation of the analytical game theory.

Considering the interpretation of probabilities in the game is essential. The probability p of perceiving conspicuous consumption determines basically how many people take notice of individual A 's display. In an environment where individual B experiences many stimuli, the value of p is relatively low. The probability of perception, that is, the value of p is greater if individual B is close to individual A or he is strongly involved with display and rivalry. The value of probability q expresses in fact, how strong the interdependence is between individuals. The more individual B tends to take the perceived display into consideration in his consumer decision-making, the higher the value of q is. Further, probability r reflects that the individual who has been impressed by another individual's conspicuous consumption what extent he is able and wants to join in the rivalry for social status. The higher the value of r is, the more.

Two subgames of rivalry in conspicuous consumption

This section presents two possible and further developed subgames as part of the above-described model when there is an interdependence between the players, that is, individual *B* makes a dependent decision as a response to individual *A*'s conspicuous consumption. One of the subgames reflects rivalry if taste, culturally valued goods and quality are the core of conspicuous consumption, so the newer or alternative forms of display arise. The other subgame outlines interdependence in conspicuous consumption if material rivalry occurs and financially valuable goods have a relevant role. For simplicity, the probabilities of the alternatives are eliminated from the subgames.

Firstly, let us see the quality-centred consumption situation that is illustrated in Figure 2. We assume that individual *B* perceives individual *A*'s conspicuous consumption and he makes a dependent decision. In this case, he has two main alternatives, consumes or not to consume. If individual *B* does not consume, e.g. because of personal financial problems, his payoff is $u_{B6} < 0$ since he gets in a worse relative position due to interdependence with individual *A* who has received an advantage by his display as his rival does not consume a conspicuous good. Individual *A* can realise a payoff that is $u_{A6} > 0$. Further, individual *B*'s passive decision alternative is a dominated strategy for him since his utility level, and his social status diminish by applying it.

If individual *B* makes a decision to consume, he has two main alternatives again. On the one hand, he can choose a very similar culturally valued good, taste or quality level as individual *A*. In other words, individual *B* can imitate individual *A*; however, this following is a kind of emulation at the same time. According to the similarity of conspicuous consumption the rivals' payoff is equal, that is, $u_{A7} = u_{B7}$, where $u_{A7} > 0$ and $u_{B7} > 0$. On the other hand, individual *B* can choose a good with different quality elements, and in this way, he can distinguish himself culturally through conspicuous consumption. In this newer form of rivalry it is the nature (N) in the game, however, others' judgement in real life that determines which consumer can be more successful through conspicuous goods. The main reason is that the consumption of culturally valued goods is evaluated subjectively; taste has a critical role, so it is difficult to forecast the influence and efficiency of the newer forms of conspicuous consumption. Consequently, it is uncertain, how high the payoff is that the players can realise and which individual can achieve a higher payoff level. In this way, three possibilities are outlined in the sub-game. Firstly, individual *A* can realise higher payoff than individual *B*, that is, $u_{A8} > u_{B8}$, where $u_{A8} > 0$ and $u_{B8} > 0$. Secondly, they can be similarly successful with their consumption, thus, $u_{A9} = u_{B9}$, where $u_{A9} > 0$ and $u_{B9} > 0$. Thirdly, it can also happen that the second-mover's display becomes more appreciated by others, consequently, $u_{A10} < u_{B10}$, where $u_{A10} > 0$ and $u_{B10} > 0$. In this quality-centred subgame, the payoff level is positive in all outcomes if the player consumes a conspicuous good. A reason for this is that possessing a culturally valued good is also related to the intrinsic factor of consumption. It means that the conspicuous good works not only as a communication asset to strengthen or enhance the social status. However, it also provides positive feelings to the consumer as it embodies his taste or the cultural characters that he likes. In this way, a culturally valued good always provides at least a certain level of utility irrespective of others' judgement. Another reason can be for positive utility level is that goods with various qualitative characters can usually get on well with each other at the same time. An example of this can be various styles in clothing; they are not close competitors. Further, it is relevant to emphasise that any relationship can be between u_{A7}, u_{A8}, u_{A9} and u_{A10} , and on the other hand between u_{B7}, u_{B8}, u_{B9} and u_{B10} due to qualitative judgement described above.

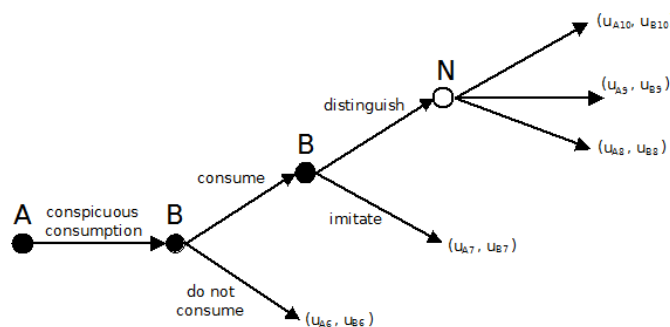


Figure 2 A subgame of rivalry in quality-centred conspicuous consumption

Secondly, let us see the subgame regarding material rivalry that occurs at each other account, as shown in Figure 3. It is assumed again that individual A's conspicuous consumption is perceived by individual B who responds to that with a dependent decision. If individual B does not consume, his payoff is $u_{B11} < 0$ and individual A's payoff is $u_{A11} > 0$. The explanation for this is the same as in the previous subgame.

If individual B makes a decision to consume a financially valuable good, there are three possibilities. Firstly, he can be motivated by the above-mentioned pecuniary emulation or invidious comparison, so that others believe he belongs to a higher class than individual A. Individual B consumes a financially more valuable good than individual A in this situation, thus the relation between the players' payoff is $u_{A12} < u_{B12}$, where $-\infty < u_{A12} < \infty$ and $u_{B12} > 0$. It means at the same time that the first-mover's utility level can be negative as this kind of conspicuous consumption does not have a personal, intrinsic dimension that would provide some degree of utility. The purpose of the consumers is to display their financial position through publicly visible and observable financially valuable goods; further, the interpersonal effects determine the players' payoff levels. Secondly, individual B can choose the following strategy. He purchases a conspicuous good which financial value is very similar to the one that individual A possesses. Thus, the outcome is $u_{A13} = u_{B13}$, where $u_{A13} > 0$ and $u_{B13} > 0$. Thirdly, if individual B has limited financial resources, but he wants to join in the rivalry, he buys a less valuable conspicuous good than individual A. In this way, he can avoid diminishing his position considerably. Thus, the payoff level is $u_{A14} > u_{B14}$, where $u_{A14} > 0$ and $u_{B14} > 0$. Finally, it is important to emphasize that the relation between the payoff levels in the three mentioned situations is $u_{B12} > u_{B13} > u_{B14}$ since individual B can achieve the highest relative position if he possesses a more valuable conspicuous good than his rival and he can get the lowest relative position if he has limited budget to join in rivalry. As consumers can improve their position only at each other account in a material rivalry, thus $u_{A12} < u_{A13} < u_{A14}$. Consequently, not consuming is a dominated strategy for individual B while owning a financially more valuable conspicuous good than his rival is a dominant strategy for him.

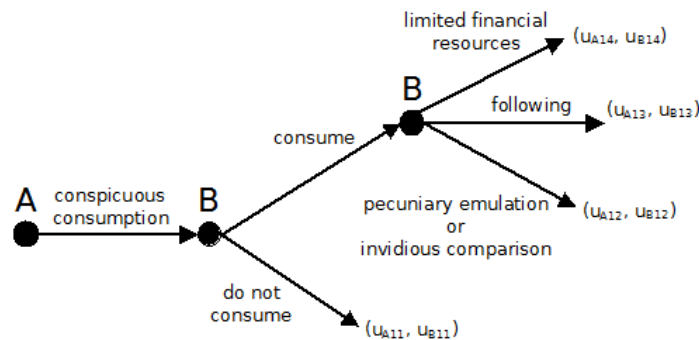


Figure 3 A subgame of material rivalry in conspicuous consumption

CONCLUSIONS

As consumer expenditure on conspicuous goods is considerable due to the never-ending rivalry for status in developed economies and conspicuous consumption changes significantly, quality becomes more important instead of quantity, behavioural economics investigates the phenomenon with great interest, especially by sophisticatedly quantifying the qualitative factors. Scholars study many dimensions and factors of conspicuous consumption; however, the interpersonal reactions of the display are still rather unexplored.

The initial point of the investigation presented in this paper is that individuals want to demonstrate and enhance their social status by conspicuous consumption. However, it also depends on others' respond to display how far consumers can strengthen their position. To investigate the possible interpersonal reactions of conspicuous consumption and their consequences, a behavioural game theoretical model is developed and analysed in this paper. The non-cooperative game with two players presents the following interpersonal stages of conspicuous consumption, such as perception and making a decision about consumption dependently or independently. If the other player does not perceive the conspicuous consumption, the consumer has a negative payoff; further, the game is over. By comparing the two situations when the second-mover makes an independent and dependent decision, it can be concluded that the second one is a riskier situation for both players.

Two subgames of the rival in conspicuous consumption are interpreted. The quality-centred subgame describes the newer or alternative forms of conspicuous consumption; the other one is based on Veblen's theory (1899). In quality-centred rivalry it depends on nature, that is, others' judgement, how high the payoff levels are that the consumers can realise as taste has a critical role, while in a material rivalry it is the relative spending on conspicuous goods that mainly determines the outcome of the game. As possessing a culturally valued good also provides good feelings for its owner, so it is not only for display, the payoff level is positive in all outcomes. Further, various tastes and cultural characters can be appreciated by others at the same time. However, in a material rivalry, players can increase their payoff level only at each other's expense. In both subgames the second-mover's passive decision alternative, that is, not consuming, is a dominated strategy for him since his utility level and his social status can diminish by applying it.

The limitation of the model is that it interprets games with two players. However, there are more actors of the interpersonal effects of conspicuous consumption. In this way, network theory can be an option for future research if the phenomena would be investigated for a consumer segment or the whole society.

The described games and the findings can be applied to demand analysis and forecast in business and to investigate the dynamism of rivalry and status change among individuals. Furthermore, firms can study the interpersonal effects in their target groups, the diffusion of their products in case of various forms of rivalry and how successful the consumers can be through choosing a particular product for conspicuousness. The gained information can be applied to both product development and promotion strategies.

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