

Research project objectives

(scientific problem aimed to be solved by the proposed project, project's research hypotheses)

Objective: The main goal of the project is to verify the following two research hypotheses.

1. **Since cultural goods are experience goods (i.e. they have to be consumed in order to know what utility they derive) there is a significant difference between the consumer's willingness to pay ex ante consumption and willingness to pay ex post consumption.**

Eliciting truthful willingness to pay (WTP) is often impossible, especially ex post consumption. To circumvent this problem we propose a modified version of the Groves-Clarke tax (GCT) mechanism. To judge the reliability of this mechanism we also propose other experimental techniques (e.g. Second-price sealed-bid (Vickrey) auctions, Bayesian Truth Serum scoring method). We thus implicitly test the second research hypothesis:

2. **Groves-Clarke tax scheme can be modified so that becomes rational for individuals to reveal truthfully their willingness to pay for a cultural good.**

In general, Groves-Clarke tax scheme (GCT) conceptualises a way to elicit truthful private valuations of a public good. Yet, GTC has been criticized on the grounds of its feasibility. We propose to use the subsidy mechanism rather than a tax implemented for cultural goods.

The problem: Cultural goods have some characteristics that traditional consumer models may fail to accommodate. For instance, contrary to many other types of goods, in the case of culture, the demand is rather binary than *quasi*-continuous – no consumer would buy two items of the same books or movie only because their price is lower. Another special feature may be the variation in tastes over a lifetime and over the cultural goods consumed: past consumption may have an effect on the perception of the quality of future consumption (Ateca-Amestoy V., 2007). Finally, cultural goods may be classified as experience goods: the quality of the good can only be observed after consumption. Individuals have to consume them in order to know what utility they derive.

For experience good the consumer has imperfect ex ante consumption information with respect to the characteristics of the good that are important to the derivation of utility (Nelson, 1970). As a result, when uncertainty with respect to the quality of the good is high, a buyer who is willing to pay for a good but who is risk-averse may abstain from the purchase. This may be the case in many cultural goods in particular if the consumer may choose free unauthorized version of the product as an alternative (mainly those offered digitally)¹. Is it thus recommendable for a seller of cultural goods, such as movies, audiobooks, ebooks to implement ex post consumption payment scheme? **Does the experience character of cultural goods significantly affect the difference between the WTP ex post and WTP ex ante consumption? How can we motivate the consumers to pay their true WTP ex post and WTP ex ante consumption values in PWYW payment scheme?** Those questions remain unanswered in both theoretical and empirical literature. The goal of this project is to answer these questions through a series of methodologically related controlled experiments.

The specificity of cultural goods, its heterogeneity, and the uncertainty with regard to the quality of the cultural goods before consumption, justified the need for verification of the above research hypothesis, especially for those cultural goods for which free alternative is available. Among others, the results will be helpful in finding effective means of supporting the authorized distribution of some cultural goods.

¹Internet piracy appears to be on the rise. IIPA (2010) reports that among 90 of IFTAs Members there were over 4,500,000 instances of P2P infringements and Poland ranked in the top ten countries for downloading with over 150,000 instances of P2P infringements.

Significance of the project

(state of the art, justification for tackling specific scientific problems by the proposed project, pioneering nature of the project, the impact of the project results on the development of the research field and scientific discipline, economic and societal impact)

Among the most popular methods of overcoming the problems of imperfect *ex ante consumption* information about the products value is signalling. There are many examples of signalling discussed in literature². In case of cultural goods, distributors often use the references, prices, free samples of sound track, pre-purchasing access to some part of the ebook or audiobook, brand and author image, trailers etc. as signalling. However, in many cases these signalling methods may not be sufficient. When uncertainty with respect to the quality of the good is high, a buyer who is willing to pay for a good but who is risk-averse may abstain from the purchase. Egbert et al. (2014) suggest that implementing PWYW *ex post* consumption pricing mechanism can turn out to be a successful strategy for sellers of experience goods³, that is for the goods which have to be consumed in order to know what utility they derive

PWYW mechanism

PWYW is a form of participative pricing in which consumers are given the opportunity to determine the prices. PWYW pricing strategies are neither new nor rare, and are prevalent in a variety of contexts. In late 2007, the British band Radiohead launched their new album *In Rainbows* with pay-as-you-want strategy. Many museums do not charge admission fees, but suggest making donations. Some restaurants in the U.S., U.K., Australia and Spain have experimented with PWYW options on their menus (Gregory, 2009). As it can be seen from the above mentioned examples, most of these goods share an important characteristic of experience goods: the quality of the good is unknown *ex ante* consumption, they are bought infrequently and are rather heterogeneous⁴.

In PWYW mechanism the payment can be made before consumption (PWYW *ex ante* consumption) or after consumption (PWYW *ex post* consumption). If the payment is made after the consumption buyers have a possibility to learn about the quality of the good, and can make their payments contingent on the quality of the good. If the act of consumption increases a buyer's utility she may be willing to pay a higher price *ex post* consumption as compared to *ex ante* assumptions (Egbert et al. , 2014). Furthermore, if uncertainty with respect to the quality of the good is high, a buyer who is willing to pay for a good but who is risk-averse may abstain from the purchase. What aspect may make a difference in buyers *ex post* and *ex ante* payment decision, in particular in case of experience good? Based on Thaler's "acquisition utility" Egbert et al. (2014) point out three sources of buyers utility in typical buyer-seller transaction.

1) Consumption of a good of a specific quality. A buyer derives utility from the consumption of the good which depends on the quality of the good. Because of the characteristics of the experience good, i.e. the quality of the good can only be observed after consumption, we can expect that this aspect strongly differentiates *ex post* and *ex ante* payment decisions.

2) Atmosphere in which purchase and consumption take place. The *atmosphere in the buying process* includes store environment, sales personnel friendliness and assistance and thus is rather

² Among other there are: warranties, certificates, brand image, prices (Milgrom and Roberts 1986; Lutz 1989; Kirmani and Rao 2000).

³ A term successful is explained by authors in the case of bundles: comparing to bundles sold at fixed prices a PWYW pricing mechanism can result in higher turnover rates.

⁴ Lévy-Garboua and Montmarquette (2002) propose learning-by-consuming models which take into account the experience characteristic of cultural goods. They assume that consumers tastes are given but unknown. Every new experience of a given art form an unexpected positive or negative increment in her taste for it. Consumers discover their tastes through repeated experiences in a sequential process of unsystematic learning by consuming.

controlled by the seller. The *atmosphere in the consumption process*, depending on the good consumed, can be controlled either by seller or by the buyer, or by both of them. For example, in case of cinema movie the atmosphere in the consumption process can be controlled by the seller by creating relaxed atmosphere. On the other hand, this atmosphere may also depends on the friends with which we are in cinema. The atmosphere in which purchase and consumption take place may affect buyers mood, which in turn may affect the buyer's willingness to pay. The atmosphere in the buying process affect both ex post consumption and ex ante consumption payment decisions but the atmosphere in the consumption process affect only ex post consumption payment decisions.

3) Image associated with buying the good at a specific price. In this case a buyer may derive utility from non-material aspects related to consumption of a good, such as *self image* concerns and *social image* concerns. In the PWYW literature, these motivations are commonly used to explain why a buyer pays something at all even if she could pay nothing (e.g., Gneezy et al., 2010; Gneezy et al., 2012; Regner and Riener, 2012). Although, these non-material aspects depend mostly on the buyer, they can be also partly controlled by a seller, for example by giving special announcements that some part from the payment is transferred for charity. These non-material aspects affect both ex post and ex ante consumers payment decisions.

Summarizing, if a consumer is buying an experience good in PWYW ex post payment mechanism all the above mentioned aspects may affect its willingness to pay. If the good is purchased in PWYW ex ante consumption system (the buyer assume the specific quality of the good) then the atmosphere in which the good is consumed is not taken into account. But why would a buyer pay any positive amount if he is not required to do so? Assuming that people are only concerned about their own material payoffs, nobody should ever pay a positive price in PWYW pricing mechanism. Many studies on PWYW strategy prove that nearly no consumer pays zero. There are three main classes of theories which explain consumers' non-selfish, pro-social behavior: 1) outcome-based theories of social preferences, 2) intention-based models of reciprocity and 3) reputational models (Schmidt et. al., 2014).

(1) **Outcome-based theories of social preferences** (e.g. Andreoni and Miller, 2002; Bolton and Ockenfels, 2000; Fehr and Schmidt, 1999) assume that people are not purely self-interested but also care about the well-being of others. The larger the buyer's benefit from consuming the product and the higher the seller's cost of production, the higher the payments in PWYW system will be. It is also predicted that people are willing to pay more to a firm that is small and poor than to a large and rich corporation.

(2) **Intention-based models of reciprocity** (e.g. Rabin 1993; Dufwenberg and Kirchsteiger 2004) are based on the hypothesis that some people reciprocate to good intentions that are expressed by kind actions. For example, if a seller chooses to offer his product using PWYW system, then such an action is interpreted as an act of kindness that the buyer is willing to reciprocate by paying a higher price.

(3) **Reputational models** (e.g. Kreps et al. 1982) predict that buyers are willing to pay positive prices in early periods in order to keep the seller in business. However, these models predict that average prices paid in PWYW system would decline with time.

These three classes of theories are included in the general theory of social relationships (Fiske, 1992). Based on this theory Heyman and Ariely (2004) define two general categories to describe exchange relationships: money-market relationships and social-market relationships. In money-market relationships, exchange between at least two parties is usually regulated by the price of a product. Social-market relationships are characterized by social exchange norms (i.e. norms of cooperation, norms of reciprocity, and norms of distribution). People feel bad violating social norms and thus if they do choose to purchase the product or service, they often choose to pay a "fair" price that does not have a negative effect on their self-image (Gneezy et al. 2012).

In this project, based on actual bids made under PWYW mechanism, we analyse the difference in the consumer's WTP ex post consumption and WTP ex ante consumptions for cultural goods. Because eliciting truthful willingness to pay is often impossible, especially ex post consumption, the modified Groves Clarke tax (GCT) mechanism will be implemented. GCT is a scheme that makes it rational for individuals to reveal truthfully their private valuations of a public good. The key idea behind GCT concept is using tax to make people pay if the inclusion of his/her voice (i.e. statement of preferences) would change the group's decision. Assuming that everyone reveals true valuation incentives created by GCT make lying unprofitable⁵. For this project, GCT mechanism will be modified to be rather a subsidy than a tax and will be implemented for cultural goods. Reliability of modified GCT mechanism will be compared with other experimental techniques usually used to elicit from respondents truthful answers (among others Bayesian True Serum scoring method) and to estimate consumer WTP (e.g. Second-price sealed-bid (Vickrey) auctions).

To summarize: there are three **main contributions** distinguishing this study from previous studies on cultural goods and PWYW pricing systems:

- (1) To the best of our knowledge, there is no empirical work analyzing the difference between the prices paid under PWYW ex ante consumption scheme and the prices paid under PWYW ex post consumption scheme for goods, classified as an experience goods.
- (2) Controlled field experiments and online surveys will allow to identify factors which have a causal effect on the prices paid voluntarily under PWYW ex ante consumption and PWYW ex post consumption scheme.
- (3) To the best of our knowledge, there is no empirical work neither using Groves-Clarke tax mechanism nor judging its reliability.

The expected **results and conclusions** will be helpful for many distributors and producers of specific cultural goods, mainly those who have to adjust their business models to the competition with unauthorized versions of their products, available online, for free. Due to the novelty of the approach in the context of GCT mechanism, PWYW ex post consumption and PWYW ex ante consumption, the sole research component of the project guarantees a substantial input in the progress of economic knowledge. Because the project will be conducted jointly with actual distributors of cultural goods it is anticipated that the mechanisms identified as effective will indeed be implemented. The value added is therefore in (i) the fields of behavioral and experimental economics and (ii) cultural economics, by extending the current understanding of economic processes in the analyzed segment of the economy.

Work plan

(outline of the work plan, critical paths, state of pre-existing and initial research indicating feasibility of research objectives)

There are four main studies planned. Each is designed accordingly with one of the research goals below:

- 1) **Research goal no. 1: Is cultural good an experience good? I.e. does WTP ex post and WTP ex ante consumption of cultural good differ.** Several methods measuring consumer true willingness to pay, for different cultural goods, will be adopted. Among others, the mechanism of Groves-Clarke tax will be adopted to encourage revealing these two values in

⁵ The idea of this scheme was proposed independently by two economics graduate students, Ed Clarke and Ted Groves, in late 1960.

a way compatible with individual incentives to disclose truthfully willingness to pay for a cultural goods.

- 2) **Research goal no. 2: Analysis of the factors which may have a causal effect on the prices paid voluntarily in PWYW ex ante consumption and PWYW ex post consumption pricing scheme.** The goal is to verify the following hypothesis: (a) PWYW ex post consumption payments are higher if the uncertainty with respect to quality of the good (i.e. with respect to the utility it may derive) is higher; (b) atmosphere in which consumption takes place affects consumers PWYW ex post consumption payments; and (c) the difference in PWYW ex ante consumption and PWYW ex post consumption payments are higher for the goods that are new on the market, in particular for the cultural goods offered digitally.
- 3) **Research goal no. 3: Comparison of the effectiveness of the PWYW ex post consumption and PWYW ex ante consumption scheme for cultural goods.** The goal is to compare the total payments made under PWYW ex ante consumption and PWYW ex post consumption schemes for different types of cultural goods (i.e. for cultural goods offered digitally and not digitally, which are new on the market and which already exists in the market).
- 4) **Research goal no. 4: Verification of the reliability of GCT mechanism.** The results received using modified GCT mechanism will be compared with other experimental techniques used to elicit truthful answers from respondents and with different methods of measuring consumer willingness to pay .

The research will be conducted in cooperation with entities, which finance the creation and distribution of the cultural goods. For the time being, there is a preliminary approval from the producers and distributors of ebooks, audiobooks and movies who would like to cooperate in this project. However, it should be noted that proposed research methods and conclusions of the study will be relevant to other cultural goods as well.

Research methodology:

(underlying scientific methodology, data reduction and treatment schemes, type and degree of access to the equipment to be used in the proposed research)

The nature of the project is mainly empirical and experimental. The project's goals will be reached through direct access to customers, and sales data acquired from distributors of cultural goods who have already agreed to participate.

Following research techniques will be used:

1) Field experiments:

Several controlled field experiments are planned⁶. We will analyse actual bids made under PWYW mechanism for different types of cultural goods. For each particular product (cultural good) we will analyse three different scenarios: 1) PWYW ex ante consumption payment; 2) PWYW ex ante consumption payment with the possibility of surcharge after its consumption; and 3) PWYW ex post consumption payment. The purpose of these experiments is to: (a) analyze the difference in PWYW *ex ante* consumption and PWYW *ex post* consumption payments for different types of cultural; (b) implement modified GCT for different types of cultural goods; and finally (c) compare and verify the reliability of modified GCT mechanism with other experimental techniques usually used to elicit from

⁶ Description of the nature of the controlled experiments is presented nu Harrison & List, 2004.

respondents truthful answers (e.g. Bayesian True Serum scoring method) and to estimate consumer WTP (e.g. Second-price sealed-bid (Vickrey) auctions)⁷.

Bayesian True Serum scoring method is a scoring method for eliciting truthful subjective data in situations where objective truth is unknowable. The method assigns high scores, not to the most common answers, but to answers that are more common than collectively predicted, with predictions drawn from the same population. This simple adjustment in the scoring criterion removes bias in favor of consensus: Truthful answers maximize expected score even for respondents who believe that their answers represent a minority view (Prelec Drazen, 2004).

Second-price sealed-bid (Vickrey) auctions: In this type of auction bidders submit written bids without knowing the bid of the others in the auction. The highest bidder wins but the price paid is the second-highest bid.

2) **Questionnaire studies:**

Parallel to field experiments several types of questionnaire studies are planned. Those questionnaires will focus on the analysis of the impacts of: (a) consumers uncertainty with respect to quality of the good; and (b) the atmosphere in which consumption take place, on the difference in payments under PWYW ex ante consumption and PWYW ex post consumption schemes. Survey forms will be sent to the respondents each time when making the PWYW payment. In addition, given access to the consumers before and after their consumption of cultural goods in case of online purchases (e.g. tickets to a theatre, cinema or to a concert hall), on the basis of properly constructed survey, we will be able to verify the difference in the actual and expected quality of the cultural good purchased in the traditional payment system, i.e. with the fixed prices.

The results will be disseminate in relation to two basic groups:

- 1) **To the academic community:** participation in seminars and conferences; publication in peer-reviewed national and international journals (at least three articles are planned); publication of partial results, collected data available free of charge to other researchers via our website; a full documentation of conducted theoretical and empirical analysis provided for the scientists all over the world via our website; and the development of the book - a collective work - on the economic aspects of the experience characteristics of the cultural goods. The specificity of the cultural goods discussed above seems to be interesting and relevant to both the academic community related to cultural economics and to the business community involved in the financing and distribution of various cultural goods. However, at this moment there is no book related to the economic aspects of the experience characteristics of the cultural goods.
- 2) **To the general public:** organization of public seminars with the participation of representatives from the cultural goods industry; dissemination of the research results presented in the journalistic style; presence in social media, for instance on Facebook.

⁷ A comprehensive review of methods for measuring WTP is presented by Breidert et al. (2006) and Skiera and Wertenbroch (2001).

Appointing a new scientific team

(Justification for appointing a new scientific team)

The above research problems require appointing a new research team. The number of tasks, their diversity as well as the necessity to conduct several field experiments extend beyond the capacity of one researcher. Only a new team of researchers working closely together and developing this unique scientific workshop will allow for the proper conduct of the study. The team has to prepare the theoretical methodology, develop a consistent methodology for working with several different data sets, accurately and reliably interpret the results and prepare their presentation (publications).

The mixed nature of the team (senior team members with a doctoral degree and the younger members of the team - graduate students) as well as complex nature of the research questions posed will allow scientific exchange of theoretical and empirical knowledge between all team members. An important value for the younger team members will be the ability to cooperate with senior team member. This cooperation should give tangible results such as experience, broaden scientific skills as well as preparing the ground for the first phase of their own scientific work. It is not only for the junior team members that the cooperation will be beneficial – for the senior team members such setup will permit with the ability to provide scientific assistance and at the same time focus on tasks that allow best use of their experience.

The role of foreign expert who agreed to participate on this project cannot be overestimated. Matthias Greiff of the Justus Liebig University (Germany) specialises in behavioral and experimental economics. His research interests are closely related to the topics discussed in the project. His works have been published in such periodicals as the *Journal of Innovation Economics and Management*, *Journal of Evolutionary Economics* or *Ethics and Politics*. His participation in the team will allow to first of all to prepare and to conduct the experiments necessary to find an answer to the problems presented in the project research. His presence will also allow international cooperation and should facilitate the dissemination of the results of the research project. On the other hand, the participation of the sociologist of culture, will allow to include in the conducted researches the issues relating to social differentiation, the specificities of the different areas of culture and their interconnections.

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