

Perception of the Value of Library Services Provided by Municipal Library of Prague

P. Kořátková Stránská, K. Mařátková

Abstract— Public services, the method of their production and efficient delivery all make up an important part of every economy, since the costs of providing them significantly affect the state of the public budget.

The aim of this paper is to assess whether the users of public services can appreciate their contribution and whether users of public libraries are willing to contribute funding for public services. A particular public service was selected to analyze the evaluation of public services i.e. the service provided by public libraries, since the services of public libraries are beneficial for society in terms of cultivating human potential and a resource for the utilization of information. This paper is focused on an evaluation of the library services provided by a selected public library i.e. Municipal Library of Prague". The outputs of this article can be used for further research of customer valuation of public services and measuring the value of library services.

Keywords — Public services, Municipal Library in Prague, benefit

I. INTRODUCTION

In general, goods can be divided in terms of their funding into private goods and public goods. Public good is the collective name for goods and services that are provided by the public sector or at the level of central government or local government, and represents public sector intervention into the economy. The provision of public goods is possible both through the public and private sectors. In this context, the role of the public sector in the economy of the given country is highlighted. The second group consists of so-called private goods, which are provided by the private sector and subjected to the principles of the market mechanism.

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Definitions of public good are not unified and are criticized by a number of economists. The first to define public good and lay the foundation of the theory of public good was Paul A. Samuelson in his article "The Pure Theory of Public Expenditure" in 1954. It defines pure public good, where "each individual's consumption of such a good does leads to no subtraction from any other individual's consumption of that good". Later in 1991 the publication *Ekonomie* gives a more precise definition and provides an additional feature of pure public good. According to Samuelson public good is a "commodity whose benefits may be provided to all people in society, without bringing higher costs than those associated with their provision to one person. Benefits from these goods are indivisible and people cannot be excluded from their consumption." [21] This definition leads to a separation of pure public goods and private goods. The indivisibility of the benefits of goods lies in their impact on the members of society regardless of their need to consume the goods.

Later still, Hyman (1990), the Musgraevs (1994), and Buchanan, Cullis, Jones (1992) came up with similar definitions of public goods. Richard Musgrave can be regarded as a follower of PA Samuelson, who in his publication in 1959 introduced a typology of goods according to the nature of the consumption of the goods i.e. pure public goods, mixed goods and private goods.

From the above-mentioned definitions it is possible to specify the attributes (objectively measurable) of pure public goods, which consist of: unrivaled in consumption, unexcludable from consumption.

The most common type of public goods is mixed goods, which are not filled with one of the above-mentioned attributes i.e. unexcludable from consumption. Mixed public goods are often rivaled and individuals or consumers can to varying degrees exclude them from the consumption. Consumption of mixed public goods can most commonly be excluded through the price mechanism or imposing a fee for its consumption (administrative, user). Examples of mixed public goods include: water supply, collection and disposal of municipal waste, recreational services, libraries, etc. For more details see also [9].

Provision and ensuring the required quality of public goods, especially public services, is currently very expensive, mainly due to the rising costs of the public service providers. At present the price of input factors is on the increase. Public

services are paid for either proportionally or entirely through public finances. The quality of public services is most commonly followed by the following three criteria: effectiveness, efficiency and economy. The issue of the provision of quality public services consists in an expression of the benefits of these services to the consumer.

The aim of this paper is to assess whether the users of public services can appreciate their contribution and whether users of public libraries are willing to contribute funding for public services. A particular public service was selected to analyze the evaluation of public services i.e. the service provided by public libraries, since the services of public libraries are beneficial for society in terms of cultivating human potential and a resource for the utilization of information. This paper is focused on an evaluation of the library services provided by a selected public library i.e. Municipal Library of Prague. To achieve the above-mentioned objective, the hypothesis is whether library users are willing to contribute funds as compensation for the information obtained from the resources of the public library. We can say that library users are able to quantify the benefits of library services, are willing to contribute funds to public libraries and value their membership in a public library. To verify the hypothesis statistical methods and a correlation analysis are used with a specified level of significance of 0.05. The input data for the analysis comes from a quantitative survey.

II. DEFINITION AND EVALUATION OF PUBLIC SERVICES

Public services, the method of their production and efficient delivery all make up an important part of every economy, since the costs of providing them significantly affect the state of the public budget. The perception of the importance of public services consists in an evaluation of the benefits of these services for society and the economy as a whole. The benefit of public services lies in meeting the public needs of society, especially in relation to cultivating human potential and thus the growth of human capital.

The main aim of public services is to satisfy the public needs of society. In this regard Strecková [26, p. 25-26] provides a breakdown of the public sector in terms of the theory of needs into individual blocks which are met by public services. The third block "knowledge and information" serves mainly to satisfy the information needs of society i.e. preservation, collection and disclosure of information, information sources. Libraries (either public or scientific) are among the institution that provide this COFOG - Classification of the functions of government [2], supported by the OECD, and is used to complete a functional classification of public needs. This is a functional area of government (state) level where public services are divided into 10 categories, which are further divided into groups and classes. The COFOG categories of functional classification are as follows: General public services; Defence; Public order and safety; Economic affairs; Environmental protection; Housing and community

amenities; Health; Recreation, culture and religion; Education; Social protection.

This classification has been used in the Czech Republic since 1997 under the name CZ-COFOG in accordance with the COFOG international standard.

Services provided by public libraries in accordance with the COFOG functional classification can be found in category 8 (Recreation, culture and religion), group 8.1 (Cultural services). In this group it is possible to monitor the size of public spending which countries spend on providing the services belong to this group. In the Czech Republic, the amount of public spending on public services as a percentage of gross domestic product (GDP) in the period 2004 – 2010 was on average around 0.65%, while in 2009 and 2010 an increase was noted. (For more details, see Fig. 1) The situation in Sweden is similar and the lowest percentage can be observed in Ireland.

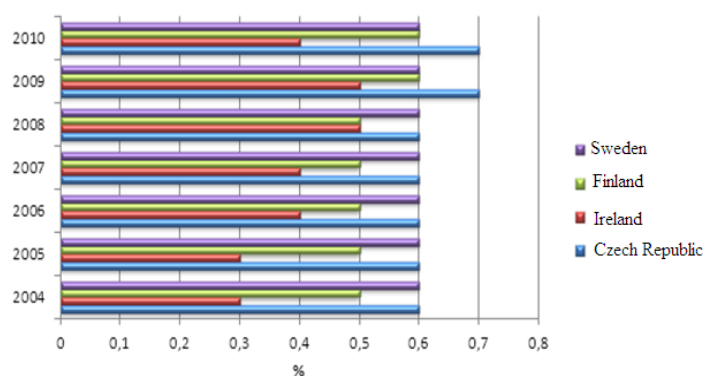


Fig. 1: Public expenditure on ensuring "cultural services" according to COFOG as a percentage of GDP

The evaluation of the benefits of public services and assessment of the effectiveness of their provision was performed "ex post", based on a subjective assessment of consumer services. Generally, we can speak of a survey of consumers of public services which most often takes the form of a questionnaire survey either directly or through an online questionnaire. From this perspective, it is important to have a properly constructed questionnaire so that the findings of the research reflect the actual perception of the public services or consumer public services.

A problematic area for investigating efficiency in the provision of public services and their evaluation is services that are provided by public libraries [28]. In the past, surveys and questionnaires were conducted whose aim was to evaluate library services and to evaluate their contribution to society and the economy as a whole. In the Czech Republic, this research was performed in the last two years. The initiator is the Municipal Library of Prague with the support of the Ministry of Culture. Since this is very demanding research, an educational institution i.e. the University of Pardubice was invited to contribute.

III. RESEARCH METHODOLOGY

A survey was used to obtain data for the purpose of measuring the value of library services perceived by library users. The survey was carried out in the pilot phase of the project “*Methodology for measuring the value of library services.*” One of the aims of the survey was to determine how the respondents (or users of public libraries) appreciate the services provided by the public library, how many would be willing to contribute to the library, and an evaluation of the benefits of library membership.

The basic panel of respondents was made up purely of users of the Municipal Library of Prague. The total number of members – respondents, who participated in the survey which took place in electronic form (CAWI-type) during the months of July and August 2012, was 2 694.

The on-line panel was a fixed sample of library users who agreed to fill in an on-line questionnaire from time to time. The advantages of an online panel are its low cost and the fact that respondents do not have to be recruited for each new investigation. Also the sociodemographics and less changing information (age, gender, education) do not have to be filled out again for each questionnaire and the questionnaire can be shorter. The disadvantage of an online panel is its “death” – this means that an originally representative gradually becomes unrepresentative due to members dropping out. In which case, the panel must be supplemented by new members. The panel of library users should allow employees of MLP find out what users really think of the library; whereby allowing them to quantify assumptions and estimates and win support in decision making. Among the panel members were randomly selected users of MLP who meet the following criteria:

- age 15+ (1994 and older),
- borrowed at least 1 item in 2010,
- gave an e-mail address,
- answered the survey in the first round, i.e. agreed with being on the panel. [12]

The completed survey, which covered the period from July to August 2012, is made up of a basic set of 2 694 respondents in total, from which 2 483, i.e. 91% can be considered valid respondents who can be used for further analysis. The basic background material for the questionnaire was compiled in a foreign study whose common denominator was the use of the Contingent Valuation Method - CVM. For more detailed information on the structure of the respondents see Figures 2 and 3.

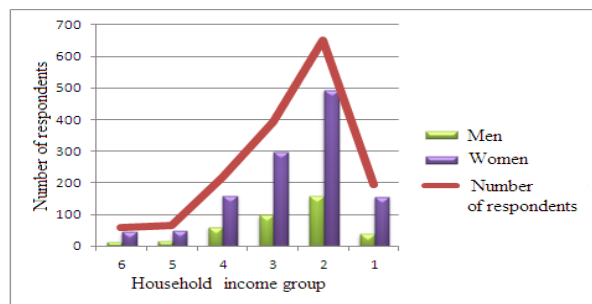


Fig. 2: Number of respondents in the survey in terms of household income group and gender

Table 1: Household income group

Household income group	Interval	
	From	To
1	0	14 999
2	15 000	29 999
3	30 000	44 999
4	45 000	59 999
5	60 000	74 999
6	75 000	and more

The respondents were divided into different income groups (see Table 1 (Fig. 2)), in order to obtain information on whether people with higher income are willing to spend more on public services or, conversely, whether people from low-income households are willing to pay less.

Data for further analysis had to be adjusted for blank questions, both for gender and division into household income groups. This led to a significant reduction from 2 483 to 1 584 respondents (decrease of 36%). In terms of gender a predominance of women is apparent among the respondents, who make up a total of 1 881 respondents in the group (approximately 70% of total respondents). For more details see Fig. 3. In terms of the adjusted number of respondents for the purpose of statistical analysis, there was a reduction in the number of women to 1 199 and men to 385.

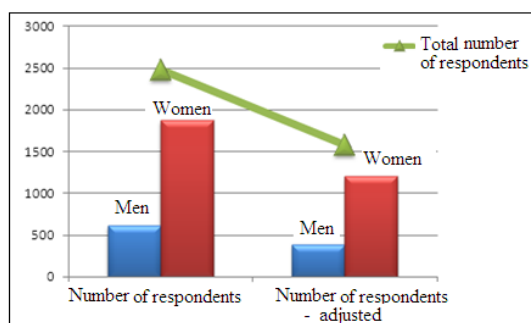


Fig. 3: Number of survey respondents in terms of gender

Perception of utility, which is derived from the user from the consumption of public goods, is influenced not only by gender and level of household income, but also by the level of education and economic activity (see Fig. 4). These two aspects (i.e. education and economic activity) change the perspective and the need to consume public services, in this case, consumption of services provided by public libraries. Respondents to the survey were predominantly economically active (employees, self-employed, etc.), almost 57% of the adjusted number, and students 23%. In terms of the education, a large group of respondents are university students (almost 50%) and people who have completed secondary school education with a graduation exam (36%).

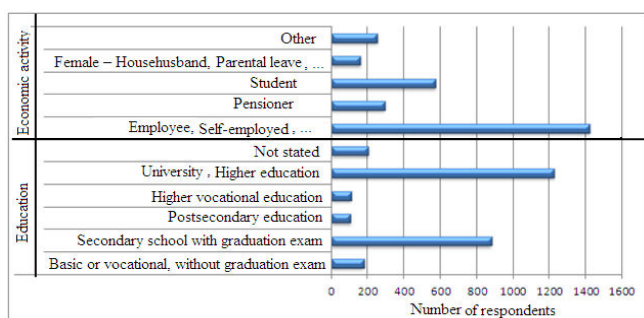


Fig. 4: Number of respondents in the survey, in terms of economic activity and level of education

Spearman's rank correlation coefficient was used to assess the level of intensity of the relationship between the monitored variables. Due to the existence of outlying values, the assumption of a normal distribution of choice is infringed. Calculation of the Spearman's rank correlation coefficient was performed using STATISTICA software with the level of significance of 0.05. The resulting value of Spearman's rank correlation coefficient can take a value of 1 or -1. In this case, there is a strong correlation between the observed variables, where the positive value shows a strong positive correlation dependence (i.e. a direct dependency) and the negative value, in contrast, a negative correlation dependence (i.e. indirect dependency).

IV. ANALYSIS OF THE BENEFIT OF LIBRARY SERVICES

The survey provided data which will contribute to the verification of the hypothesis to determine whether library users are able to value the information obtained from the resources of the public library. We can state that the users of the public library - Municipal Library of Prague are able to quantify the benefits of the library services and are willing to contribute to the library funds and value their membership in the library.

A correlation analysis and time series were selected to verify the above-mentioned hypothesis. Given the existence of outlying values, there are doubts about the normal distribution of the probability of random selection, so Spearman's rank correlation coefficient was used to determine the existence of a correlation relationship. The level of significance was set at 0.05.

The results of the survey were processed using the statistical software STATISTICA 10.1, SPSS CLEMENTINA and MS EXCEL.

A. Analysis of the benefit of library services

One of the aims of the survey was to determine the willingness of users to contribute financially to the library as compensation for the services it provides. As we have already mentioned, perception of the value of public service is very difficult to quantify. The respondents were asked to express their perception of the services the library provides (borrowing books and magazines for free) by stating the amount they would be willing to contribute to the funding of the library services.

Respondents were asked questions about how much they are willing to pay for the further running of the library with no financial limit (maximum amount) and with a maximum amount of 10 000 CZK. Firstly, respondents were asked how much they are willing to pay for the provision of library services without limitations from their own disposable income and how much they are willing to pay (or reallocate) from their taxes (in the case that people have the opportunity to decide on allocation of funds collected on their taxes).

The results from the survey are shown in Table 2 below.

Table 2: Willingness of library users to financially contribute as compensation for its existence in age categories and household income groups

Age		Willingness to pay library an amount which decreases conscription on tax (per year)		Willingness to pay library an amount according to individual decision respondents from disposable income (per year)		Income	
		Man	Woman	Man	Woman	Man	Woman
To 26 let	Median	100	100	100	100	0	2
	Average	541	443	211	188	1	2
27-35	Median	350	400	200	200	2	2
	Average	1437	633	244	233	2	2
36-55	Median	500	400	60	100	2	2
	Average	2185	804	191	205	2	2
56-65	Median	235	200	150	0	2	2
	Average	463	410	220	181	2	1
65 and more	Median	100	70	80	100	2	1
	Average	298	401	2530	141	2	1

From Table 2 it is evident that respondents would pay the library the most in the case that the resources were taken from their tax. This situation is most evident in the age group 36-55 years, where the median is 500 CZK and the average is 2 185 CZK, while the average is distorted by outlying values from the values in the target population. This age group comes from the second household income category (taken from the median for all within the given age category), where their income ranges from 15 000 to 29 999 CZK. On the contrary, the respondents who would pay the least are from the age groups of under 26 and over 65 years, where the median amounts are the same, i.e. 100 CZK.

The largest and most credible representation in the survey was from respondents aged between 27-35 years and 36-55 years, with a total of 1 311, as there were no extreme outlying values and the respondents answered to a substantial amount of the questions. Their willingness to pay the library ranged in sums of money from 200 to 350 CZK. Again, they would be willing to contribute more from their taxes rather than directly from disposable income. The resulting distribution of amounts within age categories is shown in the following Figures 5 and 6, which show the situation of willingness to pay libraries from taxes paid annually and the situation of willingness to pay libraries directly from disposable income.

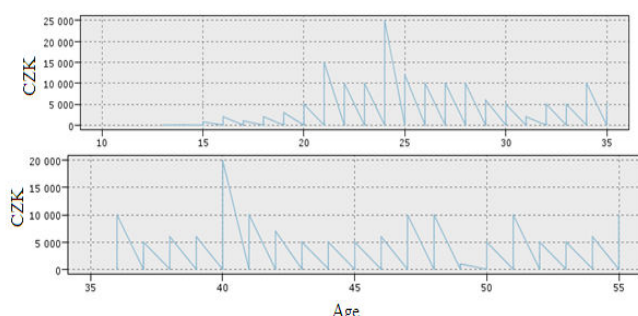


Fig. 5: Willingness to an amount to a library reducing tax payments (per year)

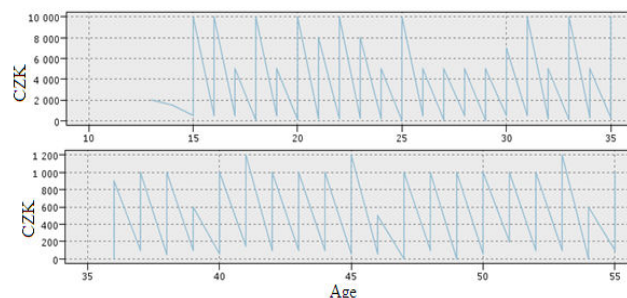


Fig. 6: Willingness to contribute an amount to a library according to the individual decision of the respondents from their disposable income (per year)

In terms of household income groups for all respondents it is possible to express the amount of money that respondents would be willing to pay from their disposable income for the running of the library using a data fit regression line, where the determinant index¹ reaches over 90%. Independent variables entering the regression analysis are expressed by household income groups and dependent variables represent the amount that respondents mentioned in the answer to the question. Graphical representation of data fit regression line is shown below in Fig. 7.

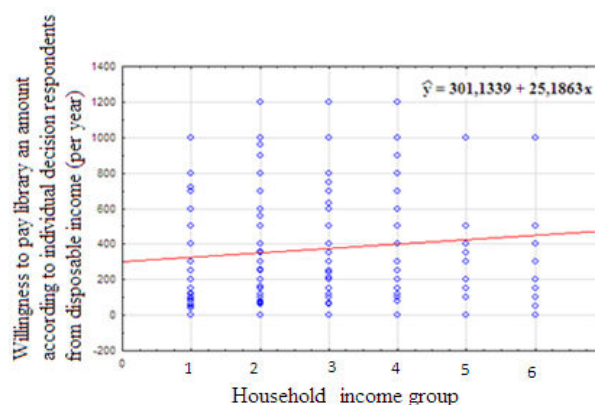


Fig. 7: Willingness of users to pay for the running of the library based on their inclusion in the household income group (elimination of outlying values)

The similarity within each income group is apparent from the above Fig. 7. In terms of all respondents the amount that respondents would be willing to pay for library services ranges in the interval between 0 and 1 200 CZK and corresponds to a median value of 500 CZK.

The willingness of respondents to contribute financially to the library from their taxes is shown in the figure below. Figure 8 shows a greater variance in terms of the amount of

¹ The determinant factor expresses as a percentage the changes of dependent variables explained by the changes of independent variables. The coefficient ranges from 0 to 100%. The closer the coefficient value is to 100, or 1, the greater the examined relationship is captured.

money that would otherwise accrue to the state budget. Respondents would rather offer money to the library for its services than pay to the state. In this case we can conclude that the respondents appreciate the existence of the library and see it as a more effective way of spending their money. This is reflected in the median value which is 2 000 CZK for all respondents.

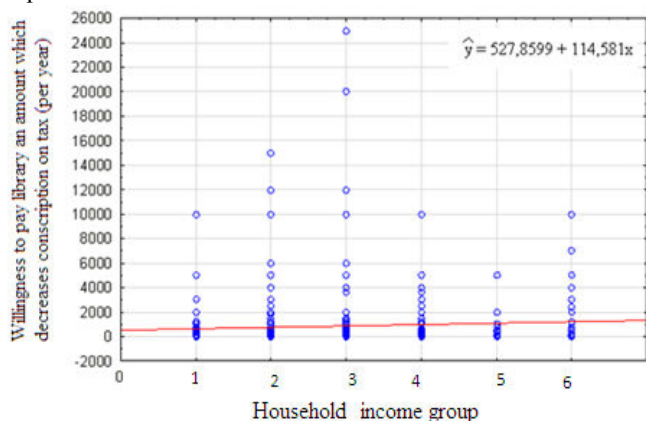


Fig. 8: Willingness of library users to contribute to the running of the library considering their inclusion in the household income group (elimination of outlying values 120 thousand CZK and 100 thousand CZK)

The results of the above analysis allow us to answer the beginning of the question, i.e. that it can be said that library users are able to quantify the benefits of library services, and are willing to contribute financially to public libraries. Respondents quantify their willingness to contribute financially to library services up to an amount which corresponds to the median value of 500 CZK per year. In the event that they could redirect a fixed amount of money to reduce the amount they would pay to the state budget in taxes, they would give more. The value of the contribution would correspond to the median value of 2 000 CZK. This value is not affected by the maximum amount of 10 000 CZK, which they would be willing to pay out of their taxes. This result and the resulting value of the contribution to the running of the library corresponds to respondents in the second household income group with an income in the range of 15 000 to 29 999 CZK and age expressed by the median value of 38 years. A summary of the results is shown in Fig. 9 below.

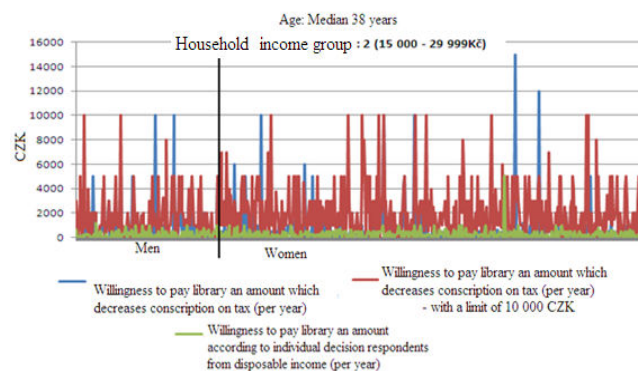


Fig. 9: Willingness of users of services provided by the public library to contribute financially within the selected household income groups

Willingness of users to contribute to the cost of the library based on their age and income

Correlation analysis in the form of Spearman’s rank correlation coefficient will be used to determine the relationship between library users contributing financially as compensation for the services provided by the library based on their age and their classification to the household income groups. Spearman’s rank correlation coefficient will be used to identify and quantify the correlation dependence between the observed variables represented by the answers to the questions, age and household income groups. Given the doubts about the normal distribution of the population due to the existence of outlying values, only Spearman’s rank correlation coefficient is used.

The null hypothesis shall be that that there is no correlation relationship between the observed variables. Since there are more than 2 observed variables, a correlation matrix with the values of the correlation coefficient is used for convenience in interpreting the results. The resulting matrix is shown in Fig. 10 below.

Variable	Age	Income	Prom1	Prom2
Age	1,000000	-0,159984	0,068131	-0,061524
Income		1,000000	0,188377	0,159465
Prom1			1,000000	0,460447

Where:

Prom1 ...

Willingness to pay library an amount which decreases consumption on tax (per year)

Prom2 ...

Willingness to pay library an amount according to individual decision respondents from disposable income (per year)

Fig. 10: Correlation matrix - Results of the correlation analysis (Spearman’s rank correlation coefficient)

Using the statistical software STATISTICA version 10.1, the values of Spearman's rank correlation coefficient were identified as being significant. The result of the correlation analysis in Figure 10 is the finding that there is a correlation relationship between the observed variables. In terms of the partial results, it was found that there is a positive correlation or direct dependence between all age categories and the willingness to contribute an amount to the library which would otherwise be paid as tax. However, due to the existence of the age category of over 65 the increasing amounts are only expected up to 65 years old. On the contrary, there is a negative correlation relationship (or indirect dependence) between the variables of age category and willingness to contribute financially from disposable income. Also, there is a negative correlation relationship between the age categories and household income groups, where it is clear that income increase with increasing age.

B. Results from the survey on user valuation of membership in a public library

From the above text it is clear that the respondents (or users of public services i.e. library services) are willing to contribute a certain amount to the running of the public library, whether the funds come from their disposable income or taxes payable to the state budget.

Respondents to the survey are readers from MLP and hold a library card that allows them to use a wide range of library services. The question is how the respondents value their membership or in other words the ability of readers to value their membership in a public library. To determine how the readers value their library card, which entitles them to use and consume the services of the library, we asked: "What is the smallest amount you would expect to receive to transfer your annual membership in the library to someone else?" The following table presents the results divided based on the age categories. The amount stated (average or median) is reliable with the corresponding probability. The reliability is very important because non-standard answers such as text or blanks were given for this question. The results shown in Table 3, how the respondents (readers) value their membership in the library, correspond to the median amount of 500 CZK, given that this sum has the highest level of reliability. This amount is also in the age group with the largest proportion in the survey. The average amount cannot be considered here due to outlying values which distort the results.

Table 3: Valuation of respondents' membership in a public library by age category

Age category	Valuation of membership [in CZK]		Reliability of the value
	Median	Average	
0 - 35	500	21 548	83%
36 - 55	400	6 050	73%
56 – and over	300	1 057	59%

A more detailed structure of the responses in the age group 0-35 years and 14-35 years is shown in Fig. 11 below

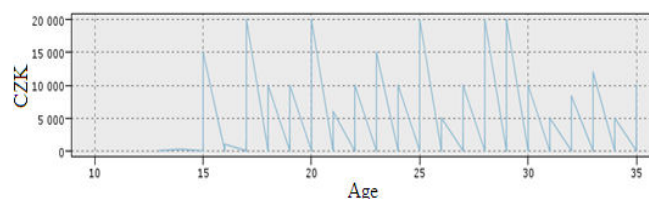


Fig. 11: Valuation of respondents' membership in the public library
Source: own work based on the results of the survey

Fig. 11 above shows the variability in the valuation of respondent's membership in the library. The graphic representation shows that respondents aged 20 to 30 years value their membership (library card) very much. This is reflected by the high minimum amount for which they would be willing to transfer their membership to another person in order to consume and use the library services. As the respondents reach old age the valuation of their membership in the library becomes less, based on Fig. 11 above we can say that this is close to reality. We can say that the respondents (readers) are able to value their membership in a public library, they value their membership and if they would transfer their membership to another person it would require high financial compensation.

V. CONCLUSION

Valuation of public services or perception of the benefits resulting from the consumption of public services is a purely individual matter and is variable across society. In recent years, the world has begun to study the appreciability of the benefits gained from the consumption of public services. In practice, the most common methodological procedure for the quantification of the benefits is an empirical investigation of users of public services, who evaluate the resulting benefits *ex post* or in other words after consumption of the services. An empirical investigation is carried out using a questionnaire in the form of direct questioning of respondents or an electronic version of the questionnaire. Respondents are asked prepared questions designed to determine the perceived value of public services, whether service users are able to appreciate the

benefits of their consumption, or are willing to support them by contributing financially to their production.

Studies that have already taken place in the world have failed to provide a unified or single indicator that could be used to determine the perception of the value of public services and respect the dynamically changing factors affecting the resulting perception of the value of public services, e.g. the actual amount of disposable income (or user's ability to pay for public services), level of education, economic activity, economic situation in relation to the state of public finances in the given country, etc. The resulting perception of the value or the benefit from the consumption of public services is affected by future consumption.

The most common method used to quantify the perception of the value of public service, as mentioned above, is a survey with questions focusing on the "*Willingness To Pay – WTP*" for the consumption of public services and on the valuation of the benefits of public services.

The results of the survey will contribute to verification of the hypothesis mentioned in the introduction, how public library users value its existence and how much they are willing to contribute financially to ensuring its services. Data from the quantitative survey are analyzed using statistical methods and correlation analysis with a fixed level of significance of 0.05. The survey showed that the larger group of users of services provided by the public library in terms of age category ranges from 26 to 55 years and in terms of household income groups is in the category from 15 000 to 29 999 CZK. Willingness to pay for the provision of public library services or pay a contribution to the library as compensation for the provision of public services is expressed as an amount corresponding to the median ranging from 200 to 350 CZK (calculated as an annual contribution). The closer the amount is to the higher value, the more it is an amount that users are willing to pay from their taxes. The lower amount corresponds to a situation where users would pay for services from their disposable income. A negative relationship between the variables of household income and willingness to contribute financially to the library was shown through correlation analysis to be significant and the Spearman's rank correlation coefficient reached negative values. A negative correlation relationship was also demonstrated and identified as being significant between the variables of age of service users and household income. On the contrary, a positive relationship was demonstrated between the variables of household income and willingness to contribute financially to the library from tax.

The result is verification of the hypothesis stated in the introduction. **So we can say that library users are able to quantify the benefits of library services, are willing to contribute financially to public libraries and value their membership in a public library.**

The results of the analysis are beneficial not only for the Municipal Library of Prague, but also for other libraries in terms of obtaining information directly from their users. The

outputs of this article can be used for further research of customer valuation of public services and measuring the value of library services.

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