

A close-up, low-angle shot of a stack of open books. The pages are white and slightly aged, showing some discoloration and faint markings. The books are stacked in a somewhat haphazard manner, with the top book's pages fanned out. The background is a soft, out-of-focus green, suggesting a natural or library setting.

# Economic value and impact of public libraries in Latvia

Study report



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2012



TREŠAIS TĒVA DĒLS  
publiskās bibliotēkas attīstībai

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## EXECUTIVE SUMMARY

Nowadays Latvian public libraries face many challenges. For example, libraries are expected to deliver traditional services in an environment of rapidly changing technologies, maintain high quality service taking into account the social patterns defined by technological innovations, urbanisation, globalisation and the greater social role of public libraries in rural areas. Furthermore, libraries are expected to operate in ways that are financially sustainable. At the same time, libraries remain largely dependent on public financing, and hence they compete for state funding with other institutions and activities. Accordingly, it is important for policy makers to understand the benefits and impact generated by the public library system today.

This report presents a study with the purpose of analysing and quantifying the economic impact of public libraries in Latvia and to produce indicators of the return on investment in public libraries. Consequently, the report provides an assessment of the monetary and non-monetary value and benefits generated by libraries. A comparison of these benefits with costs allows estimating the ratio of benefits to cost in the public library system.

The present study is unique in the sense that it covers all public libraries in Latvia (more than 800) rather than individual libraries that have been considered in various studies before. The study is based on a substantial dataset – the survey sample included 3,004 individuals comprising 0.14% of population in all regions of Latvia. This allows making inferences at a regional level. The data collected allows estimation over a 3-year period (2008-2010) and the results can be analysed from both national and regional perspective. This makes the study the first of its kind and establishes a framework for future evaluation of the impact of public libraries.

The data sources for this study are twofold – part of the data comes from the annual national statistics provided by libraries; the other part of data has been assembled using specially conducted surveys. Altogether 596 heads of public libraries and 1 246 librarians took part in the survey. In order to estimate the benefits generated by public libraries in Latvia the contingent valuation method was used with the aim to identify a monetary estimate of the subjective value of a good or service consumed or enjoyed by an individual in a given quantity. Two ways of approaching this valuation were used: willingness to pay (WTP) that represents what a person would be willing to pay to ensure that he/she continues to enjoy the good or service rather than go without and the willingness to accept (WTA) that represents how much a person has to be compensated to leave wellbeing the same without the service as it is with. It should be noted that the data used for calculating benefits of services represent the most conservative approach in order to avoid overstating the benefits.

Results of the study indicate that the annual average total benefit created by public libraries in Latvia over 2008-2010 was almost 23.8 million lats while the annual costs of the library system were just over 17 million lats. The resulting net benefits were nearly 6.5 million lats annually.

The study has also identified important non-monetary benefits generated by the library system. These include in particular the role of the library as a social space which enables socialising and networking. For less well-off people the availability of free of charge services is also important. People also highlight the important role of public libraries as a force for education, information circulation and culture besides their traditional role as a source of the newest literature. The results indicate that the greatest net benefits of public libraries are gained from services that allow free of charge access to various information sources, for example, the use of PCs and Internet (the benefit-cost ratio was 3,04), reading rooms (1,45) and lending service (1,42). Positive net benefits were also revealed for exhibitions organised at public libraries making up the benefit-cost ratio of 5,77. This shows a positive trend indicating that the basic services public libraries provide yield monetary benefits that exceed the costs of those services.

Finally, the study suggests that the indirect monetary benefit of public libraries in Latvia is around 9.8 million lats countrywide. However, it should be taken into account that indirect benefits are difficult to estimate. Thus, there are limitations to precisely estimating the benefits of society that becomes more intelligent and knowledgeable by the use of public libraries' services which broadens their view.

Overall, the findings lead to a crucial conclusion suggesting that public libraries not only contribute to the cultural development of society, but also serve a solid economic ground for their existence as the benefits they provide outweigh the costs. It should be noted that the study does not suggest that public libraries should provide chargeable services. Rather, it intends to identify the value of services public libraries provide that society would be willing to pay for, which, in its turn, allows estimating in monetary terms the benefits created by public libraries.

## ABBREVIATIONS

BMGF	Bill & Melinda Gates Foundation
CAPI	Computer-assisted personal interviewing
CATI	Computer-assisted telephone interviewing
CAWI	Computer-assisted web interviewing
h	Hours
ICT	Information and communication technologies
Ls or LVL	Latvian lats
m	Million
min.	Minutes
PC	Personal computer
ROI	Return on investment
WiFi	Wireless Internet
WTP	Willingness to pay
WTA	Willingness to accept

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Public libraries in Latvia

## PUBLIC LIBRARIES IN LATVIA

The network of more than 800 public libraries covers the entire territory of Latvia. Public libraries provide access to information and knowledge in all municipalities; it is one of the most democratic tools for accessing information that is open to all age groups. There is 1 library per 1,458 inhabitants in regions, 1 library per 12,606 inhabitants in big cities and 1 library per 25,326 inhabitants in Riga<sup>1</sup>.

Libraries in Latvia manage information resources, provide research tools and help their users to locate the information they seek. Public libraries in many regions are also frontrunners in the use of the latest information technologies. Besides the provision of lending and other services, public libraries develop electronic catalogues, digitalise their collections, integrate their services with social networks and serve as a tool for connecting their users to other information seekers and providers via Internet. Libraries also serve as a valuable tool for the integration of disadvantaged groups of society. Special equipment for people with visual impairment is available in 36 libraries across Latvia. These libraries also organise trainings on the use of library resources for people with special needs.

The library system in Latvia consists of 1 831 libraries. This number includes:

- 1 national library;
- 1 national academic library;
- 52 libraries of higher education institutions;
- 38 special libraries;
- 910 school libraries;
- 829 public libraries (including 817 municipal libraries and Library for the Blind with 7 branches).

The role of all libraries is enshrined in Library law. According to the law, all libraries have the following functions:

- Establish and maintain the collection;
- Ensure access to the national libraries' collection and information systems;
- Provide timely services of good quality to library users;

- Improve library staff skills through regular trainings;
- Provide information on the local collection to be integrated into the national catalogue;
- Ensure the access of library services to everyone;
- Conserve and preserve historical materials in library collection;
- Install new information technologies in the libraries;
- Lend library collection free of charge;
- Provide free of charge access to PCs and Internet.

The national library develops and preserves the national collection (this includes all national literature and significant foreign literature) and ensures its preservation for future generations. The National library is also responsible for the national bibliography database and fostering library sciences in Latvia.

Public libraries are established under regional municipalities. The services provided by public libraries are integrated in the set of services provided by municipalities. Libraries can have a regional or local importance depending on the number of their functions. There are 28 public libraries of regional importance that provide support to local libraries.

Below is a list of the main services provided at public libraries in Latvia:

1. ICT training classes;
2. Lending (books, newspapers, CDs, DVDs, music scores, magazines, etc.);
3. Individual consultation on ICT;
4. Use of reading rooms;
5. Use of PCs and Internet;
6. Services for library users with disabilities;
7. Printing;

8. Scanning;
9. Photocopying;
10. Organisation of public events;
11. Organisation of exhibitions;
12. Reference services;
13. Online and offline book reservations;
14. Delivery of books from other libraries;
15. Home delivery of books;
16. Organising sightseeing tours or theatre/ concert visits;
17. Movies screening;
18. Use of video or audio resources;

19. Access to online databases;
20. Entertainment (e.g. computer games);
21. Use of Skype;
22. Saving of information (on CD, DVD, USB or other drives)

Attendance at Latvian public libraries has grown from about 7.9 m visits in 2008 to 9.9 m visits in 2010. This growth may be partly explained by the effects of the economic recession e.g. high unemployment, and partly by the expansion in the services package offered by libraries. Despite the increasing use of library services, the annual income, which includes the state grant, other grants and sources of income, of public libraries has been falling (as shown in the Figure 1).

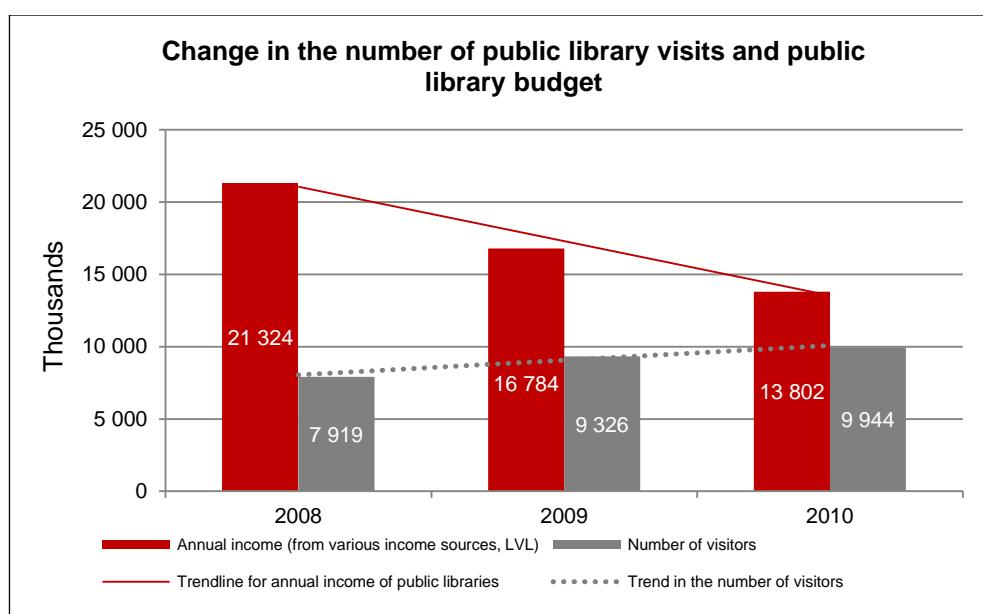


Figure 1 – Change in the number of public library visits and change in the annual funding assigned to public libraries in Latvia between 2008 and 2010 (state budget, municipal budget, income, donations and other income, LVL)

There are various revenue sources for public libraries in Latvia. Most funding comes from local municipalities, there are also state grants provided for targeted use by libraries (e.g. provision of digital resources and Internet connection); other sources include grants from foreign donors (e.g. Bill & Melinda Gates Foundation (hereinafter – BMGF))

and revenues from the services that libraries charge for such as printing, scanning or copying. It is the municipalities who determine which services at the local library will carry a charge for users. However, this is done in accordance with the Library law and regulations on chargeable services.

## INTRODUCTION TO THE STUDY

Latvian public libraries face many challenges in the 21st century. First, libraries are expected to deliver traditional services in an environment of rapidly changing technologies. Second, libraries are expected to maintain high quality service taking into account the social patterns defined by technological innovations, urbanisation, globalisation and the greater social role of public libraries in the countryside. Thirdly, they are expected to operate in ways that are financially sustainable. At the same time, libraries remain largely dependent on public financing, and hence they are in competition with other institutions and activities for public funds. Accordingly, it is important to understand the benefits and impact generated by the public library system today.

The purpose of this study is to analyse and quantify the economic impact of public libraries in Latvia and to produce indicators of the return on investment in public libraries. To do this it is necessary to estimate the value created by the services that libraries provide. This involves assessment of the monetary and non-monetary value and benefits generated by libraries and when this is compared with costs this enables estimation of the ratio of benefits to cost in the public library system.

This is the final study in a larger project aiming at assessing the impact of the investment in public libraries. The first phase of the project involved examination of foreign studies on the economic impact of public libraries conducted in other countries. This was done in order to determine the approach to be taken for this study. The second part of project involved analysis of the existing data and studies done in Latvia in order to assess what additional data was required for this study. The third step involved designing a survey for the necessary data collection which was followed by the fourth step – the determination of the survey sample. Then followed the fifth step: the survey and the data collection. The final step was analysis of the data to generate estimates of the value of libraries and the services they provide. This report presents the final stages of the project: the data analysis for the library valuation based on the survey results and impact assessment as well as the calculation of

return indicators. The aforementioned steps of the project are summarised below and in section “Tasks and activities of the project” of the Appendices:

1. Analysis of the foreign studies evaluating impact of public libraries.
2. Analysis of previous studies and the existing statistical data in Latvia about public libraries.
  - 2.1. Data analysis of the existing studies.
  - 2.2. Designing and testing the survey for the collection of the necessary data.
  - 2.3. Carrying out the research.
  - 2.4. Data collection and organisation.
3. Data analysis for the calculation of the value and economic impact of public libraries.
4. Estimation of the value and impact of public libraries.
5. Calculation of benefit cost ratios and other return indicators.

This is the first study of such kind in Latvia. Other similar studies have been carried out abroad. The present study is unusual in the sense that it covers all public libraries in Latvia (more than 800) rather than individual libraries as it has been done in various studies before. The study is based on a substantial dataset – the survey sample included 3,004 individuals (0.14% of population) in all regions of Latvia. This allows making inferences at a regional level. Questionnaires were also sent to all public libraries (to both library directors and librarians) and all local authorities in Latvia. The data collected allows estimation over a 3-year period (2008-2010) and the results can be analysed both from national and regional perspective. This makes the study first of such kind and establishes a strong framework for future evaluation of the impact of public libraries.

The study has been conducted within the public library development project “Father’s Third Son” (“Trešais tēva dēls”) that has been financed by the Bill & Melinda Gates Foundation, Latvian government and municipalities.

## LIMITATIONS AND ASSUMPTIONS

The scale of the study determined a number of limitations which required certain assumptions to be made in order to generate usable results. Some of the main issues are identified and discussed below.

- While the initial terms of reference required to analyse the value of public libraries across time (2007-2010), the contingent valuation method used to determine the hypothetical value of libraries and their services delivers results at the particular moment in time (survey time – 2011). Thus the WTP and WTA results are for a particular point in time.
- The use of WTP and WTA methods has a potential limitation that respondents may not always be motivated to reveal their true underlying willingness to pay. For example the response to a WTP question might depend on whether the respondent believed that what they actually have to pay for a service depends on their response. One approach to mitigate some of the problems is to provide a “starting value” for the service and ask the respondent to agree or disagree to pay this amount of money for the particular service. However, according to the literature, this approach contains potential bias – by suggesting an

approximate value that the user could use regardless of the individual preferences or capabilitiesii. In order to minimise bias, experts involved in this study agreed to structure questions in the following way. First ask responders if they are willing to pay a certain amount of money for library service. This first amount was determined by experts taking into account market prices of similar services or other costs that are similar to the library services in question. If the respondent answered “yes” to the first question – a follow-up question was asked – if the respondent would pay more than the stated sum. If responder said no – then the initial sum (proposed) was recorded as the value given to the service. If the responder was willing to pay more – an open question of “how much would you be willing to pay” for the service followed. If the answer to the first question was “no”, then the open question about the willingness to pay followed. The sample WTP question-answer structure is shown in the Table 1 below.

Table 1 – Structure of a WTP question

Question 1	Answer		Question 2	Answer/ Value 1	Value 2	Question 3	Value 3
<b>Would you pay 24 lats for the use of public libraries per year? (This price would include all the current services libraries provided already)</b>	Yes	➔	Would you be willing to pay more than this sum?	Yes	➔	How much would you be willing to pay?	<b>Sum</b> .....lats..... santims
			No	24 lats			
	No	➔	How much would you be willing to pay?	<b>Sum</b> .....lats..... santims			
	I don't know						

- The usage of many of library services in Latvia is not recorded. However, the approach chosen to calculate benefits requires data on usage of services. Accordingly, for services whose usage is not recorded, questions were included both in user and library surveys – enquiring about the use frequency of library

services. In addition, a specific “expert survey” was run – a selection of libraries was asked very elaborated and specific questions – to verify and adjust the library survey data – to ensure credibility of data. Users were asked “how many times do you use the particular service per week/ month/ year” and librarians

were asked “how many times is this service used per day/ week/ month/ year”. The results were later extrapolated to arrive at the usage data per year. Therefore the results on the value of library services can be evaluated from the “viewpoint” of library staff (taking into account their perception of how often they provide services) and from the users’ point of view (their perception of how often they use certain library services. For services whose usage is recorded – the official use statistics was used in calculations rather than the questionnaire data. For other services – it was decided to use results from the data provided by survey of library experts because users tend to report exaggerated use of some services, for example, because they mix use in libraries with the usage of similar services elsewhere (e.g. computer use at the library versus computer use at home or at work). However, the general library user survey generated very similar results on the usage of services as did the library expert survey – thereby further strengthening the credibility of the data provided by experts. This approach also has an impact on the year-by-year comparison of data.

- Since the surveys provided a single “as-is” situation regarding the WTP, benefit calculations based on survey data cannot be differentiated by year.
- It is complicated to determine the exact cost of each library service. A major part of costs is staff salaries but there are multiple ways of allocating salary costs to individual services from the salaries data. One approach is to determine the hourly pay for a librarian; then multiply the hourly pay with the number of times the service has been provided annually and the time that each service provision took. While the hourly pay can be precisely determined from the official statistics, the delivery times and duration of services are variables that depend on the “opinion” of either library staff or users. In order to minimise the number of subjective variables and increase the credibility of cost calculations – different approach was taken. Library staff

was asked to indicate how many hours per week they spend on delivering various services. This data indicated on a weekly basis the fraction of time that library staff spends on each service. The same fraction was applied to the total salaries paid to library staff annually in order to arrive at the labour costs of each service.

- Similarly, it is difficult to allocate the overheads (electricity, heating, water, rent, other services or administrative expenses etc.) to each library service. Libraries collect data on the annual expenses for electricity, heating and some related services. This data was used for the calculation of overheads for services that require substantial office space and resources – such as reading rooms, collections and computer rooms. Consequently for such services as lending/ borrowing library materials, or reading/ using library materials on-site as well as the use of PCs the overheads were calculated by first calculating the room-space taken by the particular service – and then calculating the proportion of the total room-space taken by each service; this same proportion was later attributed to the expenses for electricity, heating and other services in order to determine overheads for the particular service.
- For library services without significant room-space (copying, printing, scanning, individual consultations on ICT etc.), the overheads were calculated at 25% of the total expenses on salaries. This is a standard rate used to calculate overhead expenses in many other public sector studies in Latvia<sup>3</sup>.

When calculating total costs for library services, expenses on investments in land, buildings, refurbishment and renovations were not taken into account because these investments have long-term impact and any significant investment can seriously distort the data.

- For the regional breakdown the official statistical regions of Latvia<sup>4</sup> were used rather than the specific regional division used by libraries.

- The terms of reference for this study required analysis of annual data between 2007 and 2011 but the available data was for 2008 to 2010. However, because during this period Latvia experienced rather large economic fluctuations it was considered it to be more

reliable to average the costs and benefits of public libraries for the core analysis. The data extrapolation performed was based on a number of assumptions detailed below (see Table 2).

Table 2 – Assumptions

Position	Assumptions			Rationale
	2008	2009	2010	
Months per year	12	12	12	Libraries work 12 months per year
Weeks per year	52	52	52	Libraries work 52 weeks per year
Work days per year	260	260	260	From 806 libraries 4 work on weekends and 134 work on Saturdays. There are 13 public holidays per year. However in some years some of these public holidays occur on weekends. The approach taken was to exclude public holidays from calculations and consequently also exclude the cases when some libraries work on weekends or Saturdays. Assumption was therefore that libraries in most cases work on weekdays.
Number of public libraries in Latvia	866	842	815	Data from library statistics.

- The findings of this study have been compared to similar studies in US and UK because of the lack of comparable studies in Europe.

The limitations and assumptions above are valid throughout the discussion. Other assumptions made during calculations have been described under the methodology section for each separate calculation or mentioned in the discussion of results.



# Methodology

## METHODOLOGY

This section outlines the general methodological approach to the analysis.

### GENERAL RESEARCH APPROACH

#### Types of Economic Impact of Public Libraries

The economic impact of public libraries can be divided into costs and benefits which can be direct or indirect. All these components have in some way been accounted for in the study and are described below:

- **Direct benefits** – these are benefits that are directly related to the use of library services that can be measured, such as the number of borrowed materials or the number of events organised by libraries. Each of these services is measured by assigning a value via the population and library surveys (see approach below).
- **Indirect benefits** – these are benefits to society or economy at large that accrue from the existence and activities of libraries but they are not directly captured by the use of library services; these benefits are difficult to measure, particularly assigning them a monetary value. Indirect benefits are of two types – indirect monetary benefits and indirect non-monetary benefits:
  - **Indirect monetary benefits** – these are secondary economic benefits emanating from expenditures of libraries and library clients that would not occur unless libraries existed. These can be thought of as local or regional multiplier effects. Employment effects are also sometimes counted as indirect benefits.
  - **Indirect non-monetary benefits** – these are qualitative benefits that are related to the

existence of libraries and the services they provide. Some examples of indirect non-monetary benefits are that the use of libraries helps to create a literate population, the services provided by libraries reduces social exclusion and juvenile delinquency and the presence of a library in a community might affect the value of properties. Because of difficulties in assessing indirect non-monetary benefits, these effects have been estimated via qualitative surveys of library users, librarians and heads of local authorities.

- **Direct costs** – are direct expenses of libraries such as wages, purchase of library stock, capital investments, operating expenses and any overheads.
- **Indirect costs** – are indirect costs related to the existence of libraries – for example the travel costs of library staff and users represent a ‘cost’ that does not appear in the budget of the library service.

Ideally one would wish to quantify all costs and benefits to arrive at the economic impact of the library system. In practice there is insufficient data to quantify the indirect effects. Accordingly, as already noted the most important non-monetary indirect benefits have been identified on the basis of qualitative surveys; quantitative estimates of indirect monetary benefits are offered using the assumption that indirect benefits in Latvia are similar in relation to the size of the library system as those found in other countries.

## Data Scope and Sources

The data sources for this study are twofold – part of the data comes from the annual national statistics provided by libraries; the other part of data has been assembled using specially conducted surveys.

- **Library data** – comes from the annual library reports in the period 2008-2010 containing standardised set of information on library infrastructure, use of libraries (number of users, lending etc.), data on library collection (size), data on library employees (number) and financial indices (simplified balance sheet), data on ICT as well as a number of ratios describing the work efficiency of libraries.
- **Survey data** – refers to an extensive survey of library users, libraries and local authorities carried out by the Marketing and Public Opinion Research Centre SKDS in 2011 as well as express-survey of selected library experts in order to verify the general library survey data; the survey sought to identify a contingent valuation of libraries and library services, the data on the use of library services and also sought to identify the qualitative impact (indirect benefits) of public libraries.

The survey had the following target audiences (also indicates the surveying technique):

- Employees of public libraries (via CAWI);
- Users of public libraries (via CAPI);
- Non-users of public libraries (via CAPI);
- Chairpersons of local authorities (via CATI).

The survey was based upon a representative sample containing at least 500 respondents in the 6 statistical regions of Latvia:

- Rīga region;
- Pierīga region (locality of Rīga);
- Vidzeme region;
- Latgale region;
- Kurzeme region;
- Zemgale region

Altogether 3,004 residents were surveyed (not less than 500 in each region)<sup>5</sup>. In order to attribute the

data to the entire population – they were weighted against the following features: region, nationality, gender and age. All 119 municipalities were approached (91 of which responded) and all public libraries (more than 800) were included in the survey. Altogether 596 heads of public libraries and 1 246 librarians took part in the survey.

The content of all survey questionnaires was agreed with the impact assessment specialist of the project and tested with real target audiences before the actual survey took place. The results of library survey were checked via library expert survey.

The scope of the survey and analysis involved not only data on libraries as a whole but also data on specific services that were selected by the impact assessment specialists of the project. The following specific library services were included in the analysis:

1. ICT training classes;
2. Lending;
3. Individual consultations on ICT;
4. Reading;
5. Use of PCs and Internet;
6. Services for library users with disabilities;
7. Printing;
8. Scanning;
9. Photocopying;
10. Public events;
11. Exhibitions;
12. Reference services.

The analysis in this study interchangeably refers to “library data” and “library staff data”; these references imply that the data from either the library annual statistics or the special tailored survey of library staff and directors has been used. Overall this indicates that the data came from inside libraries and the results are based upon the opinion, observations or measurements by library staff and directors. The references to “user data” refer to the results that have been calculated by using data from the special survey of the public i.e. library users and non-users – a representative survey of inhabitants that was carried out specifically for this study.

## Valuation of Public Library Services

Public libraries and many of the services provided at public libraries in Latvia are provided either free of charge or at fees that do not fully reflect costs. Accordingly, revenues cannot be used as a measure of the benefits generated by the public library system. The standard method of assessing consumer benefits in cost benefit analysis is to estimate consumer surplus and when there is insufficient information to estimate a demand curve from which consumers' surplus could be calculated a widely used approach is *contingent valuation*. Contingent valuation is a survey based method of eliciting the subjective valuation of a service or a facility that is not provided through a market i.e. that is not bought and sold. It is a method that is widely used in other spheres, for example in the valuation of environmental benefits. The survey of foreign practice as well as the advice from project experts therefore endorsed the use of contingent valuation method as an appropriate instrument for estimating the benefits generated by public libraries.

The aim of the contingent valuation method is to identify a monetary estimate of the subjective value

of a good or service consumed or enjoyed by an individual in a given quantity. There are two ways of approaching this valuation: one is to consider what the person would be willing to pay to ensure that she continues to enjoy the good or service rather than go without. This is called the willingness to pay (WTP). An alternative is to consider by how much she has to be compensated to leave wellbeing the same without the service as it is with. This is called the willingness to accept (WTA)<sup>6</sup>.

These valuations are typically elicited by means of a survey and both the WTP and WTA types of questions were used in the survey conducted for the project. Respondents were asked about their willingness to pay (and willingness to accept) both for libraries as such and for specific library services. It should be noted that answers to WTP questions are logically constrained by the ability of respondents to pay (by their income), while answers to WTA questions are not constrained in such a way<sup>7</sup> and some people may place very high values on the compensation needed for the removal of a service. Thus in general one would expect WTP to be less than WTA.

## DETAILED METHODOLOGY FOR CALCULATIONS

### General Approach to Cost Benefit Calculations

The summary of the data sources and calculation of various economic impact factors is outlined in the Table 3 below.

*Table 3 – Economic impact factors, data sources and calculations*

Economic impact	Data sources	General approach to calculation
<b>Direct benefits</b>	Survey data and library data	Value of service assigned by users multiplied by the utilisation of this service
<b>Indirect benefits</b>	Survey data and findings from other similar studies	Qualitative research for non-monetary indirect benefits. Use of ratios of indirect monetary benefits from other studies
<b>Direct costs</b>	Survey data and library data	Expenses on salaries multiplied by time proportion librarians spend on delivering particular service plus overheads

More details on the construction of the survey and the methodology for this study can be found in the first report of this project “Analysis of foreign studies estimating the impact of public libraries on

the local economy and analysis of the previous studies and data that can be used for the evaluation of public libraries”.

### General Approach to the Calculation of Return Indicators

The available data do not permit the calculation of a conventional rate of investment. Accordingly, we present two kinds of indicator. Firstly for libraries as

a whole and for individual services we present an annual benefit cost ratio shown in

Formula 1 below.

*Formula 1 – Benefit-cost ratio of public libraries*

$$\text{Benefit cost ratio} = \frac{\text{Total benefit}}{\text{Costs}}$$

Secondly for the services funded by the Bill and Melinda Gates Foundation where there is an initial investment we calculate an internal rate of return (hereinafter – IRR). The IRR of a library investment is the discount rate at which the present value of the flow of net benefits is zero. Thus it is like a financial internal rate of return except that instead of cash flows we have a flow of benefits based on the

*Formula 2 – IRR of BMGF investments*

$$\text{Net Present Value} = \sum_{n=0}^N \frac{(\text{Net benefit flow in the year } n)}{(1 + \text{IRR})^n} = 0$$

contingent valuation methodology. The BMGF investment could be considered worthwhile from the IRR viewpoint if the IRR is positive. Thus the IRR is calculated according to the formula below for 10, 15 and 20 years (until 2030 – number of periods abbreviated as “N” and the first year abbreviated as “n”).

## OVERALL ECONOMIC IMPACT OF PUBLIC LIBRARIES

The economic impact of public libraries is a combination of the direct benefits produced by public libraries and the indirect benefits to the local or national economy that are generated by the

existence of libraries and their services. The overall economic impact includes also the most important non-monetary indirect benefits identified in the survey.

### Direct Benefit Calculation

Calculation of the economic impact and return indicators of investment of public libraries first depends on calculation of the value (or direct economic benefit) of public libraries. This constitutes the "return" and "impact" value of libraries in monetary terms. The calculation of the value of public libraries has been done by using the contingent valuation method - measuring the willingness of the members of society to pay (or accept) for library services.

Valuation of the benefit of libraries as a whole involves two components: one component corresponds to the willingness to pay<sup>8</sup> for libraries as a whole – this can be interpreted as a kind of 'option value'. The second component is the sum of the willingness to pay for individual services.

Willingness to pay, based on the survey results, was the valuation method used for all library services even though some services are charged for. The study included three paid-for services: photocopying, scanning and printing. The surveys showed that respondents typically value these services higher than the prices they are charged i.e. respondents were willing to pay more for the services than their prices set at libraries. Therefore, using revenues from paid services would underestimate the benefit they generate. Accordingly, the valuation of the benefit of all services, paid and unpaid, was based on the survey results.

The calculation of total value of public libraries is shown in Formula 3 below.

#### Formula 3 – Total benefit of public libraries

$$\begin{aligned} \text{Total benefit} = & (\text{Willingness to pay for libraries as a whole} \times \text{numbers willing to pay}) \\ & + \sum_i [(\text{Willingness to pay for service } i) \times (\text{number of users of service } i)] \end{aligned}$$

The first term of formula above can be interpreted as something like an option value for public libraries i.e. what people are willing to pay simply for the

availability of a local library, and the second as the sum of the valuations placed on the individual services.

### Indirect Benefits

In addition, the benefits of public libraries include *indirect non-monetary* benefits that have been identified using a qualitative survey.

Some international studies have applied economic models to measure the *indirect monetary benefits* of libraries<sup>9</sup>. One way of doing this is to use input-output analysis to estimate the secondary impact of libraries in the region where they are located.

However, such regional input-output tables are not available for Latvia. Hence, in order to assess the potential magnitude of indirect monetary benefits it

was decided to use the evidence from experience abroad. Since the services provided by libraries is much the same across countries as is the technology of delivering those services it was assumed that the indirect monetary benefits are likely to be similar in relation to direct benefits. The average of this ratio

*Formula 4 – Indirect monetary benefits of public libraries*

$$\begin{aligned} \text{Indirect monetary benefits} &= \\ &= \frac{\text{Average indirect monetary benefits in other studies}}{\text{Average direct monetary benefits in other studies}} \times \\ &\quad \times \text{Direct benefits of public libraries in Latvia} \end{aligned}$$

### Cost Calculation

Annual costs for public libraries are assumed to correspond to the total annual income of public libraries which includes funding from the state and from municipalities, income from chargeable services, donations and gifts, foreign donations and

was calculated from a number of international studies applied to Latvian libraries.

Thus the calculation of the indirect monetary benefits of public libraries was made according to the following formula:

other incomes. The annual income is used to pay salaries and other costs. Libraries typically do not run a surplus or deficit. The data used in calculations had been provided by libraries themselves from the annual statistics of public libraries.

## VALUE OF ICT TRAINING CLASSES

### Benefit Calculation

The benefit of ICT training classes provided at public libraries were determined by using the WTP for 1 hour ICT training class of the population multiplied by the number of such classes delivered annually in

one library multiplied by the number of libraries in the particular year and by the length of a single ICT training class and the average ICT training class size. The formula for benefits is shown below.

*Formula 5 – Benefits of ICT training classes*

$$\begin{aligned} \text{Benefit of ICT training classes} &= \\ &= (\text{WTP for ICT training class (1h)} \times \\ &\quad \times \text{number of ICT training classes delivered at single library annually} \times \\ &\quad \times \text{duration of a single ICT training class} \times \\ &\quad \times \text{average number of people in a single ICT training class} \times \\ &\quad \times \text{number of public libraries}) \end{aligned}$$

The WTP data came from the user survey. The number of ICT training classes delivered at single library annually as well as the length of a single ICT training class and class size was determined by

library staff in surveys because no official statistics are collected on the attendance or length of ICT training classes. The number of public libraries is sourced in the library statistics.

### Cost Calculation

Total costs for ICT training classes were calculated by taking the total amount of money spent on staff salaries and multiplying this by the proportion of time that library staff spend on delivering ICT

training classes (out of their total working time – data coming from library survey) and adding 25% in overhead expenses as shown in the formula below.

#### *Formula 6 – Costs of ICT training classes*

##### *Cost of ICT training classes*

$$\begin{aligned} &= (\text{Total salaries for library staff} \times \\ &\times \text{proportion of time library staff spends on delivering ICT training classes} \times \\ &\times 1.25 \text{ overheads coefficient}) \end{aligned}$$

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## INDIVIDUAL CONSULTATIONS ON ICT

### Benefit Calculation

The calculation of the benefits from the provision of individual consultations on ICT at libraries is based upon the WTP for a 15 minutes long consultation multiplied by the number of such consultations provided at a single public library each day

multiplied by the number of public libraries and the number of working days per year multiplied by the time (fraction of 15 minutes) that it takes to provide a single consultation in libraries on average. The calculation is shown in the formula below.

#### *Formula 7 – Benefits of individual consultations on ICT*

##### *Benefit of individual consultation on ICT*

$$\begin{aligned} &= \text{WTP for 15 min. consultation} \times \\ &\times \text{number of consultations provided in single library per day} \\ &\times \text{working days per year} \times \text{number of libraries} \\ &\times \text{length of a single consultation (proportion of 15 minutes)} \end{aligned}$$

The data for benefits calculation have been obtained from user and library surveys.

### Cost Calculation

The library expert survey was used as the most credible data to determine the number and length of individual ICT consultations provided per day per library. This number was then multiplied by the

hourly pay rate for library staff and the total number of libraries and library working days plus 25% of overheads as outlined in the formula below.

#### *Formula 8 – Cost of individual consultations on ICT*

##### *Cost of individual consultations on ICT*

$$\begin{aligned} &= (\text{Number of consultations provided in a single library} \\ &\times \text{Time length of a single consultation}) \times \text{Hourly pay rate for library staff} \times \\ &\times \text{Number of working days per year} \times \text{Number of public libraries} \times \\ &\times 1.25 \text{ overheads coefficient} \end{aligned}$$

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## LENDING

### Benefit Calculation

The benefit of the lending service was calculated by using the official lending figures multiplied by the WTP from the user survey as detailed in the Formula 9 below.

### Formula 9 – Benefit of lending service

$$\text{Benefit of lending} = \text{WTP for borrowing a single item from library} \times \text{number of issued items}$$

### Cost Calculation

The cost of the lending service consists of the proportion of time that library staff spend on issuing library materials multiplied by the total salaries for library staff; in addition the expenses for upgrading collection with books and other materials (expenses on periodicals and electronic documents were attributed to the reading service below).

Formula 10 below.

Furthermore overheads have been calculated by taking the proportion of space allocated to lending service multiplied by the total overhead expenses indicated in library statistics<sup>10</sup> as is shown in.

### Formula 10 – Cost of lending service

#### Cost of lending service

$$\begin{aligned} &= \text{Proportion of time spent by library staff on issuing library items} \\ &\times \text{Expenses on staff salaries} + \text{Expenses on upgrading collection} + \text{Other expenses} \\ &\times \text{Proportion of floor space taken by lending activities} \end{aligned}$$

The calculation of overhead expenses represents a challenge. While the total expenses on electricity, heating, office supplies and other overheads is known, the proportion of these overheads that should be attributed to the lending service is arbitrary. It was assumed that the proportion could be determined by the floor area that lending activities take from the total area of libraries. The calculation of this area however is complex. Lending activities require both space for the collection and space for servicing users. In library surveys some libraries have indicated the space taken by the collection, reading rooms and PC rooms – for these libraries the exact area of the collection was used. However, PC space can often be integrated in the collection space or reading rooms – so this room space has to be accounted appropriately. Library surveys also indicated the number of computers that are located in the collection space or in reading rooms as well as in dedicated PC rooms. According to the government regulations No.395<sup>11</sup> in libraries the minimum area per PC should be 2 square metres. The library survey asked library staff if they think there is enough space for PCs in their libraries. Thereby the space taken by PCs in the collection space or in reading rooms (i.e. not in dedicated computer rooms) was calculated by multiplying the number of PCs by 2 square metres. In libraries where staff considered the PC space to be too small

– the space taken by PCs was reduced by 50%. In this way it was possible to arrive at the collection and reading space *without* the space taken by PCs.

All libraries provide officials statistics on space that is taken for servicing users. This, however, can include collection space, PC space, and reading space. For libraries that did not indicate the exact areas allocated to these functions it was assumed that PCs are located in the collection space; hence, the total number of PCs was multiplied by their minimum space (2 square metres or reduced according to library staff opinion about the space sufficiency) and deducted from space for servicing users. It was assumed that the remaining space contains both reading space and collection space in equal proportions (an estimate arrived at from calculating this proportion for the sample of libraries with sufficient data). Therefore the result was divided by 2 to retrieve the space taken by the collection space and the issue desk – used for calculating proportion of overheads for lending service.

Another limitation was assuming that the expenses for upgrading collection were limited to books and other materials. Expenses on periodicals and electronic documents were attributed to the reading services provided by libraries.

## READING

### Benefit Calculation

The benefit of the library reading rooms is calculated by using the WTP for 1 hour use of library reading rooms multiplied by the number of times people use a single library reading room per day multiplied by the number of hours each such visit

takes multiplied by the number of libraries and the number of working days per year as has been outlined in Formula 11 below.

#### *Formula 11 – Benefit of reading rooms*

##### *Benefit of reading rooms*

$$\begin{aligned} &= \text{WTP for using reading rooms for 1 hour} \times \\ &\times \text{number of times reading rooms are used per day in one library} \times \\ &\times \text{time of one reading room visit} \times \text{number of libraries} \times \\ &\times \text{number of working days per year} \end{aligned}$$

The data for reading room benefits calculations came from user surveys (WTP) and library surveys (times of use, length of a single visit). The number of

working days per year is fixed at 260 while the number of libraries changes over the time.

### Cost Calculation

The costs of reading rooms were calculated in a similar way to the lending service. Proportion of time library staff spend on servicing reading rooms was multiplied by total salaries for library staff plus

the expenses on periodicals and electronic documents plus other expenses times the proportion of floor space occupied by reading rooms.

#### *Formula 12 – Cost of reading service*

##### *Cost of reading service*

$$\begin{aligned} &= \text{Proportion of time spent by library staff on servicing reading rooms} \times \\ &\times \text{Total salaries of library staff} + \text{Expenses on upgrading collection} \\ &+ \text{Other expenses} \times \text{Proportion of floor space taken by reading rooms} \end{aligned}$$

The data for the calculation of reading room costs was retrieved in exactly the same way as the data for calculating the costs of the lending service.

## USE OF PCS AND INTERNET

### Benefit calculation

The benefit of the open access PC service at libraries is calculated by taking the WTP for 1 hour use of PC and Internet at a public library multiplied by the number of times a PC is used at a public library per

day multiplied by the time of a single use of PC at public libraries multiplied by the number of libraries and the number of working days per year as is outlined in Formula 13 below.

### Formula 13 – Value of PC/ Internet service

#### Benefit of PCs and Internet service

$$\begin{aligned} &= WTP \text{ for 1 hour use of PCs and Internet} \times \\ &\times \text{Number of times a PC is used per day in a single library} \times \\ &\times \text{Length of time of a single use of PC and Internet} \times \text{Number of public libraries} \times \\ &\times \text{Number of library working days per year} \end{aligned}$$

The data sources for the calculation is the user survey (for WTP) and the library data on the frequency of PCs use and the duration of such use.

#### Cost Calculation

The costs of the PCs and Internet use in public libraries first takes the time that librarians spend on servicing each service user – multiplying the percentage of time librarians spend on this task by the total salaries paid to library staff; then the

proportion of floor space taken by PCs relative to the total floor space is attributed to the other expenses (see description of calculating floor space proportion above).

### Formula 14 – Cost of PCs and Internet service

#### Cost of PCs and Internet service

$$\begin{aligned} &= \text{Total salaries of library staff} \\ &\times \text{Proportion of time spent on servicing PC and Internet users} + \text{Other expenses} \\ &\times \text{Proportion of floorspace taken by PCs} \end{aligned}$$

## SERVICES FOR LIBRARY USERS WITH DISABILITIES

#### Benefit of Services for Users with Visual Impairment

The benefit of library services for users with disabilities is calculated by multiplying the WTP for 1 hour use of special equipment by the number of times such equipment is used in a library per day

multiplied by the length of time of each use of the special equipment multiplied by the number of libraries with the special equipment and by the number of working days per year as outlined in the Formula 15 below.

### Formula 15 – Benefits of services for users with disabilities

#### Benefit of library services for users with disabilities

$$\begin{aligned} &= WTP \text{ for 1 hour use of the special equipment} \times \\ &\times \text{Times the special equipment is used per day in a single library} \times \\ &\times \text{Length of time that each user spends at the special equipment} \times \\ &\times \text{Number of public libraries with the special equipment} \times \\ &\times \text{Number of working days per year} \end{aligned}$$

The data sources for the calculation have been the user surveys (WTP) and librarians (use frequency and time)<sup>xii</sup>.

## Cost of Services for Users with Visual Impairment

The cost of services for users with visual impairment is calculated by multiplying the proportion of time that library staff spend on servicing users with visual

impairment by the total salaries of the library staff and the 25% overheads coefficient as is shown in Formula 16 below.

### *Formula 16 – Cost of services for users with visual impairment*

$$\begin{aligned} \text{Cost of services for users with visual impairment} &= \\ &= \text{Proportion of time spent on servicing users with visual impairment} \\ &\quad \times \text{Total salaries} \times 1.25 \text{ overheads coefficient} \end{aligned}$$

The proportion of the time spent on servicing users with visual impairment is obtained from the survey of library staff.

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## PRINTING

### Benefit of Printing Services

The value of printing services provided at public libraries is calculated by multiplying the WTP for printing a single page by the number of printouts

generated at a single library per day multiplied by the number of libraries and the number of working days per year. This calculation is outlined in Formula 17 below.

### *Formula 17 – Benefit of printing services*

$$\begin{aligned} \text{Benefit of printing services} &= \\ &= \text{WTP for a single printout} \times \text{Number of printouts per day in a single library} \times \\ &\quad \times \text{Number of libraries} \times \text{Number of working days per year} \end{aligned}$$

The data for the calculation is sourced from the user survey (WTP) and the library survey (frequency of use).

### Cost of Printing Service

The cost of printing service is calculated by multiplying the proportion of time that library staff spend on providing printing service by the total

salaries of the library staff and the 25% overheads coefficient as is shown in Formula 18 below.

### *Formula 18 – Cost of printing services*

$$\begin{aligned} \text{Cost of printing service} &= \\ &= \text{Proportion of time spent on printing service} \times \text{Total salaries} \\ &\quad \times 1.25 \text{ overheads coefficient} \end{aligned}$$

The proportion of the time spent on printing services is obtained from the survey of library staff.

## SCANNING

### Benefit of Scanning Services

The value of scanning services provided at public libraries is calculated by multiplying the WTP for scanning a single page by the number of scans

generated at a single library per day multiplied by the number of libraries and the number of working days per year. This calculation is outlined in Formula 19 below.

#### *Formula 19 – Benefit of scanning services*

##### *Benefit of scanning services*

$$\begin{aligned} &= \text{WTP for a single scan} \times \text{Number of scan per day in a single library} \\ &\quad \times \text{Number of libraries} \times \text{Number of working days per year} \end{aligned}$$

The data for the calculation is sourced from the user survey (WTP) and the library survey (frequency of use).

### Cost of Scanning Service

The cost of scanning service is calculated by multiplying the proportion of time that library staff spends on providing scanning service by the total

salaries of the library staff and the 25% overheads coefficient as is shown in Formula 20 below.

#### *Formula 20 – Cost of scanning services*

##### *Cost of scanning service*

$$\begin{aligned} &= \text{Proportion of time spent on scanning service} \times \text{Total salaries} \times \\ &\quad \times 1.25 \text{ overheads coefficient} \end{aligned}$$

The proportion of the time spent on scanning services is obtained from the survey of library staff.

## PHOTOCOPYING

### Benefit of Photocopying Services

The value of photocopying services provided at public libraries is calculated by multiplying the WTP for copying a single page by the number of copies

generated at a single library per day multiplied by the number of libraries and the number of working days per year. This calculation is outlined in Formula 21 below.

### *Formula 21 – Benefit of photocopying services*

#### *Benefit of photocopying services*

$$= \text{WTP for a single copy} \times \text{Number of copies per day in a single library} \times \\ \times \text{Number of libraries} \times \text{Number of working days per year}$$

The data for the calculation is sourced from the user survey (WTP) and the library survey (frequency of use).

#### *Cost of Photocopying Service*

The cost of photocopying service is calculated by multiplying the proportion of time that library staff spend on providing photocopying service by total

salaries and the 25% overheads coefficient as is shown in Formula 22 below.

### *Formula 22 – Cost of photocopying services*

#### *Cost of photocopying service*

$$= \text{Proportion of time spent on photocopying service} \times \text{Total salaries of library staff} \\ \times 1.25 \text{ overheads coefficient}$$

The proportion of the time spent on printing services is obtained from the survey of library staff.

## **PUBLIC EVENTS**

#### *Benefit of Public Events at Libraries*

The value of public events provided at public libraries was calculated by multiplying the WTP for attending a single public event organised at a public library by the number of such events organised at

public libraries and multiplied by the number of people that on average attend public events at libraries. This calculation is outlined in Formula 23 below.

### *Formula 23 – Benefit of public events*

#### *Benefit of public events at libraries*

$$= \text{WTP for attending one public event} \times \text{Number of public events} \times \\ \times \text{Number of people that on average attend a single public event at libraries}$$

The WTP data for the calculation comes from the user survey, the number of public events is accounted in the annual library statistics but the

average number of people that attend a public event at library was based on estimates by librarians.

#### *Cost of Public Events at Libraries*

The cost of public events organised at libraries was calculated by multiplying the proportion of time that library staff spend on preparing the events by

the total salaries of library staff and the 25% overheads coefficient as is shown in Formula 24 below.

#### *Formula 24 – Cost of public events at libraries*

##### *Cost of public events*

$$= \text{Proportion of time library staff spend on preparing public events} \times \\ \times \text{Total salaries for library staff} \times 1.25 \text{ overheads coefficient}$$

The proportion of the time spent on preparing public events was obtained from the survey of library staff.

## EXHIBITIONS

### Benefit of Exhibitions at Public Libraries

The value of exhibitions was calculated by multiplying the WTP for attending a single exhibition organised at public library by the number of exhibitions organised and multiplied by the number

of people that on average attend exhibitions at libraries. This calculation is outlined in Formula 25 below.

#### *Formula 25 – Benefit of exhibitions*

##### *Benefit of exhibitions at libraries*

$$= \text{WTP for attending one exhibition} \times \text{Number of exhibitions} \times \\ \times \text{Number of people that on average attend a single public exhibition at libraries}$$

The WTP data comes from the user survey, the number of exhibitions is from annual library statistics but the average number of people that

attend an exhibition was based on librarian estimates.

### Cost of Exhibitions at Public Libraries

The cost of exhibitions organised at libraries is calculated by multiplying the proportion of time that library staff spend on preparing an exhibition

by the total salaries of the library staff and the 25% overheads coefficient as is shown in Formula 26 below.

#### *Formula 26 – Cost of exhibitions at libraries*

##### *Cost of exhibitions*

$$= \text{Proportion of time library staff spend on preparing exhibitions} \times \\ \times \text{Total salaries for library staff} \times 1.25 \text{ overheads coefficient}$$

The proportion of the time spent on preparing exhibitions was obtained from the survey of library staff.

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## REFERENCE SERVICES

### Benefit of reference services

The benefit of reference services provided at public libraries was calculated by multiplying the WTP for a single reference by the number of references provided in a library per day multiplied by the

number of libraries and the number of working days per year. This calculation is outlined in Formula 27 below.

#### *Formula 27 – Benefit of reference services*

##### *Benefit of reference services*

$$\begin{aligned} &= \text{WTP for a single reference} \times \text{Number of provided references per day} \\ &\quad \times \text{Number of libraries} \times \text{Number of working days per year} \end{aligned}$$

### Cost of Reference Services

The cost of reference services at public libraries is calculated by multiplying the proportion of time that library staff spends on providing references by

the total salaries of the library staff and the 25% overheads coefficient as is shown in Formula 28 below.

#### *Formula 28 – Cost of reference services at libraries*

##### *Cost of reference services*

$$\begin{aligned} &= \text{Proportion of time library staff spend on providing references} \times \\ &\quad \times \text{Total salaries for library staff} \times 1.25 \text{ overheads coefficient} \end{aligned}$$

The proportion of the time spent on providing references was obtained from the survey of library staff.



Economic impact and benefit  
– cost ratio of public libraries

## ECONOMIC IMPACT AND BENEFIT-COST RATIO OF PUBLIC LIBRARIES

### SUMMARY OF FINDINGS OF ECONOMIC IMPACT OF PUBLIC LIBRARY SERVICES

Table 4 below summarises the main results of the study. The annual average total benefit created by public libraries in Latvia over 2008-2010 was almost 23.8m lats while the annual costs of the library system (mainly funded by state and municipalities) were just over 17m lats (this is the average for three

year period considered in the study). The resulting net benefits were nearly 6.5m lats annually. The total value of the 12 separate services accounted for in this study was estimated at more than 19.8m lats while their costs were almost 15m lats.

Table 4 – Summary of the WTP, costs, benefits, net benefits and benefit-cost ratio of public library services

Library service	WTP (LVL) <sup>13</sup>	Total annual direct benefits of services (LVL) <sup>14</sup>	Total annual direct costs of services (LVL) <sup>15</sup>	Net annual direct benefits of services (LVL)	Benefit-cost ratio <sup>16</sup>
1. Public library services in general	8,92 <i>pay per year</i>	23 773 337	17 303 307	6 470 030	1,37
2. Total for the selected public library services	n.a.	19 876 053	14 803 988	5 072 065	1,34
2.1. ICT training classes	1,36 <i>pay per 1h class</i>	358 744	730 556	-371 812	0,49
2.2. Individual consultations on ICT	0,31 <i>pay per 15 min. consultation</i>	1 047 622	2 671 502	-1 623 880	0,39
2.3. Lending	0,39 <i>per item</i>	5 818 178	4 108 521	1 709 657	1,42
2.4. Use of PCs and Internet	0,45 <i>per 1h use</i>	3 864 529	1 269 279	2 595 250	3,04
2.5. Reading	0,24 <i>per 1h</i>	2 863 984	1 981 694	882 291	1,45
2.6. Services for library users with disabilities	0,67 <i>per 1h use</i>	15 619	132 449	-116 829	0,12
2.7. Printing	0,06 <i>per 1 b/w page</i>	338 698	428 617	-89 919	0,79
2.8. Scanning	0,06 <i>per 1 page</i>	67 613	251 160	-183 548	0,27
2.9. Photocopying	0,05 <i>per 1 page</i>	435 954	494 835	-58 881	0,88
2.10. Public events	1,14 <i>per 1 event ticket</i>	430 491	1 037 174	-606 683	0,42
2.11. Exhibitions	0,89 <i>per 1 exhibition ticket</i>	4 325 601	749 486	3 576 115	5,77
2.12. Reference services	0,10 <i>per 1 reference</i>	309 021	948 715	-639 694	0,33

Positive net benefits were revealed for the lending service, the PCs and Internet service, the use of reading rooms and for exhibitions organised at public libraries. On the other hand for services such

as ICT training classes and services for library users with disabilities the total annual costs exceeded the annual benefits as generated by the WTP measure. Arguably, this is because these are services

consumed by relatively low income people whose WTP is constrained by income. As shown in the sensitivity analysis reported in Table 12 of the Appendices in some cases the use as WTA as the benefit measure results in a closing of the gap between costs and benefits

It should be noted that, the survey of staff time spent on the nominated services did not fully

account for their working day. Some 15% of staff time is spent on other activities rather than the ones included in this study. These other services were not explicitly included in the terms of reference of the study but very likely to also produce positive benefits.

## OVERALL ECONOMIC IMPACT OF PUBLIC LIBRARIES

### Direct Costs and Benefits of Public Libraries

The value of library services according to the research methodology depends primarily upon the contingent valuation – the willingness to pay for libraries or accept compensation in case libraries were unavailable. The value for WTP for public libraries varies around 9 lats annually while the WTA

(as could be expected) is much higher – on average around 40 lats per year. The value assigned to library services by the population in different regions of Latvia is summarised in the Figure 2 below.

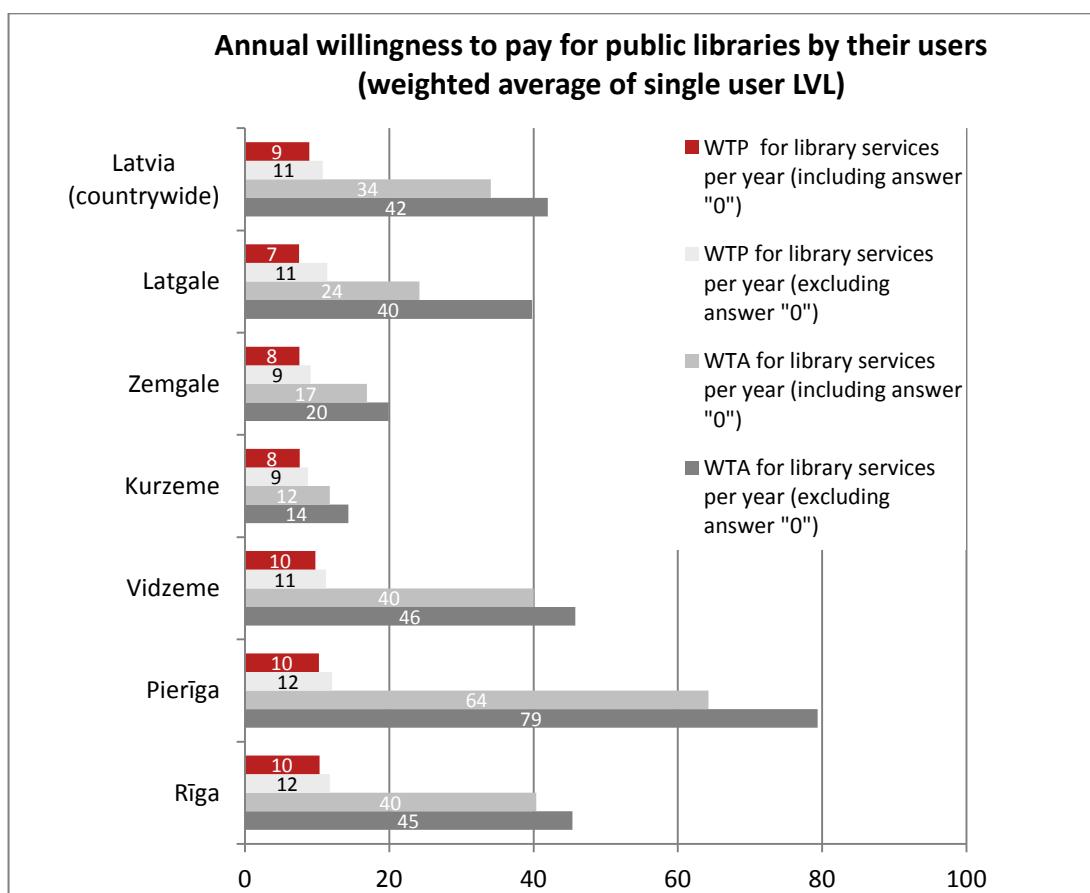


Figure 2 – WTP and WTA values of public libraries (survey data, LVL)

Secondly, the value of library services is calculated by using the value that users assign to public library services and the usage frequency of libraries (i.e. number of registered users) – shown in the Figure 3

and Figure 4. The trend shows increasing number of registered users and the number of visitors in the period between 2008 and 2010.

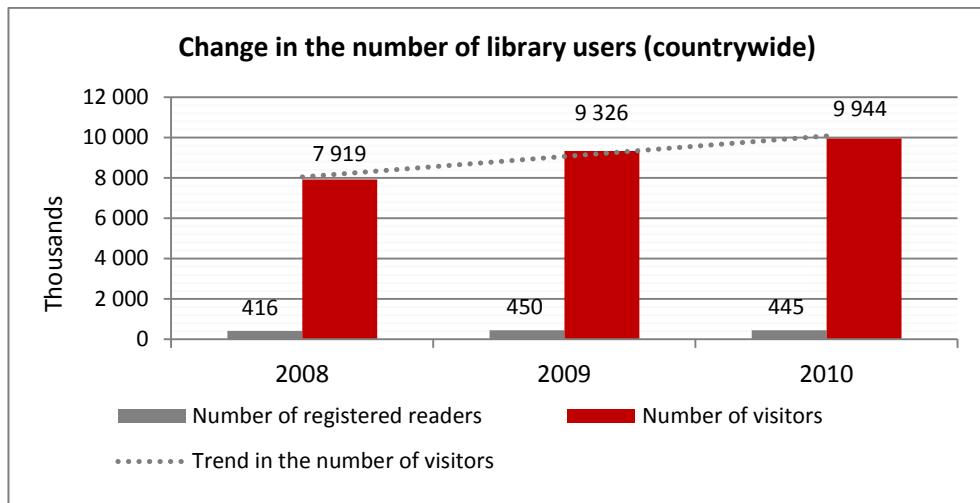


Figure 3 – Change in the number of public library users in Latvia between 2008 and 2010

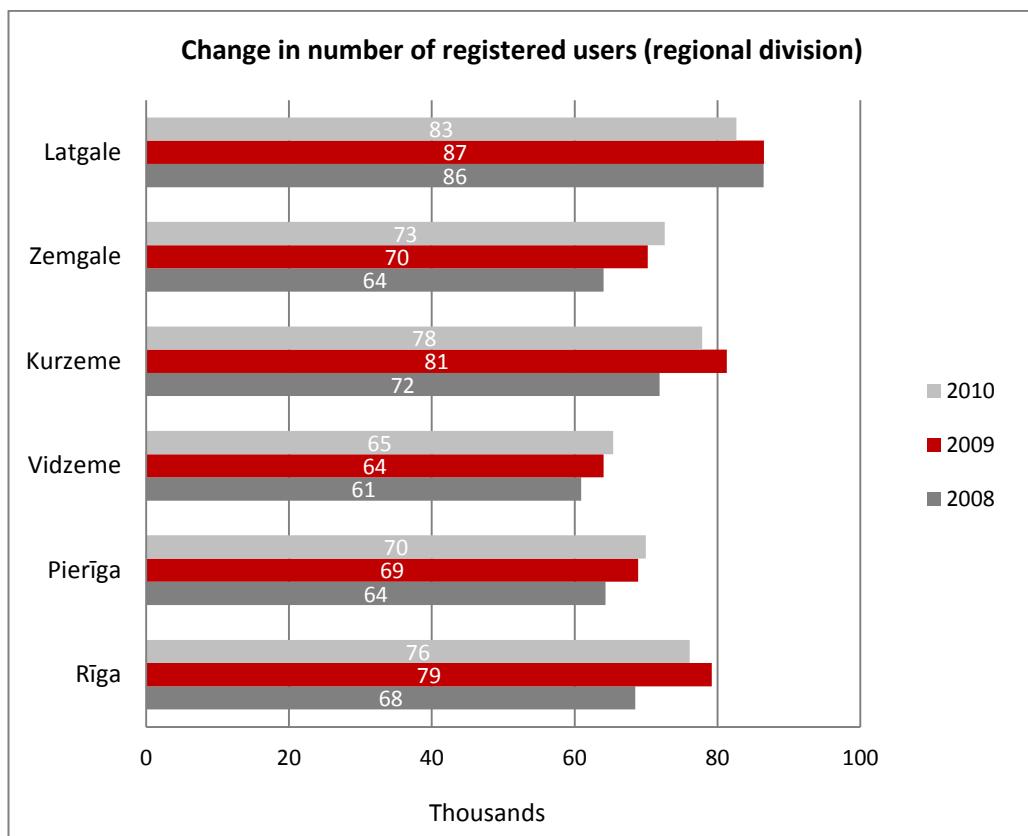


Figure 4 – Change in the number of registered users of public libraries in Latvia between 2008 and 2010 (regional division)

The total benefits of public libraries are calculated by taking into account not only the WTP and number of registered users (which gives the option value) but also the major services provided at public libraries. An important variable in this is the number of registered users which is an indicator that

changes over the time – therefore the benefits created by libraries also change over time. The dynamics of the benefits of the public library system in different regions in 2010 and over the period between 2008 and 2010 in Latvia (countrywide weighted average) is outlined in the Figure 5.

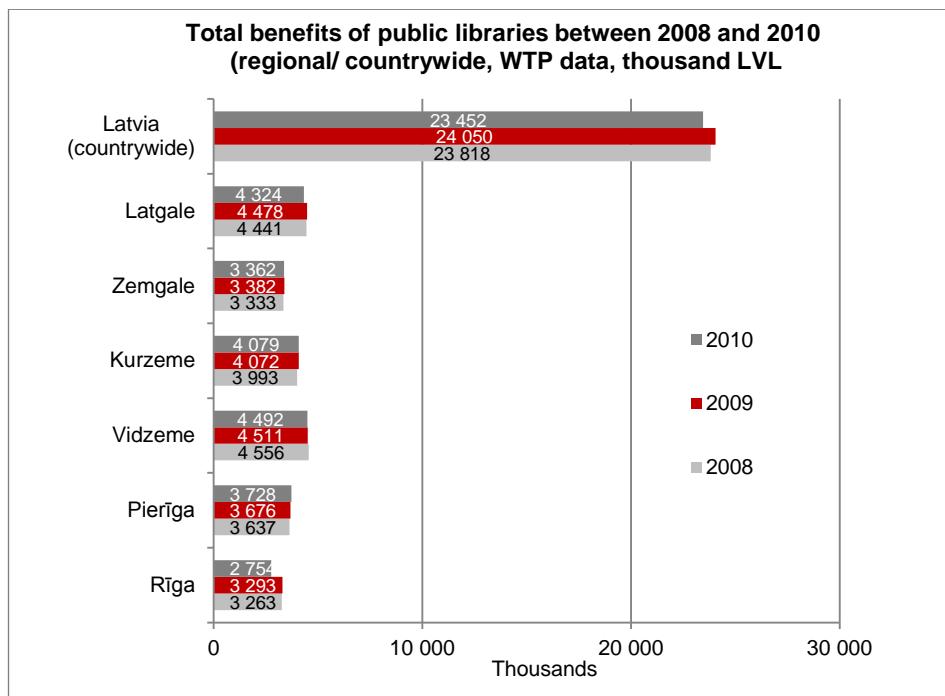


Figure 5 – Value of public libraries for the period between 2008 and 2010 (WTP data, LVL)

The dynamics of the total costs of public library system are shown in the Figure 6 below.

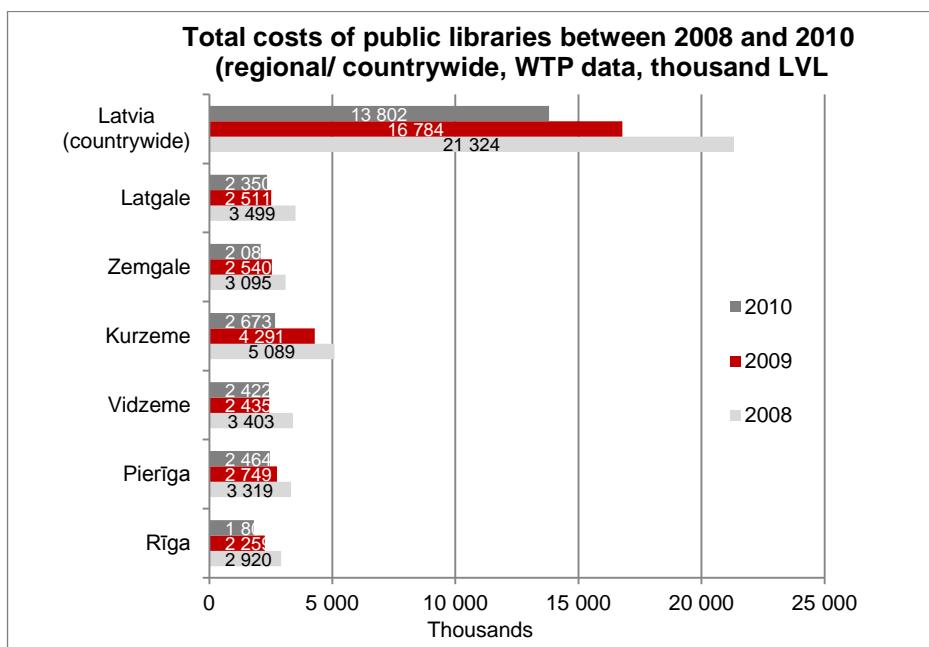


Figure 6 – Change in the costs of public libraries between 2008 and 2010 (countrywide data, LVL)

Combining the data on total benefits and costs – the net benefits of public libraries can be calculated (total benefits less total costs). The dynamics of the net benefit of the public library system is shown in

Figure 7 where it can be seen that net benefits increased from around 2 to 9m lats between 2008 and 2010. This is mainly the result of an increase in users/attendances.

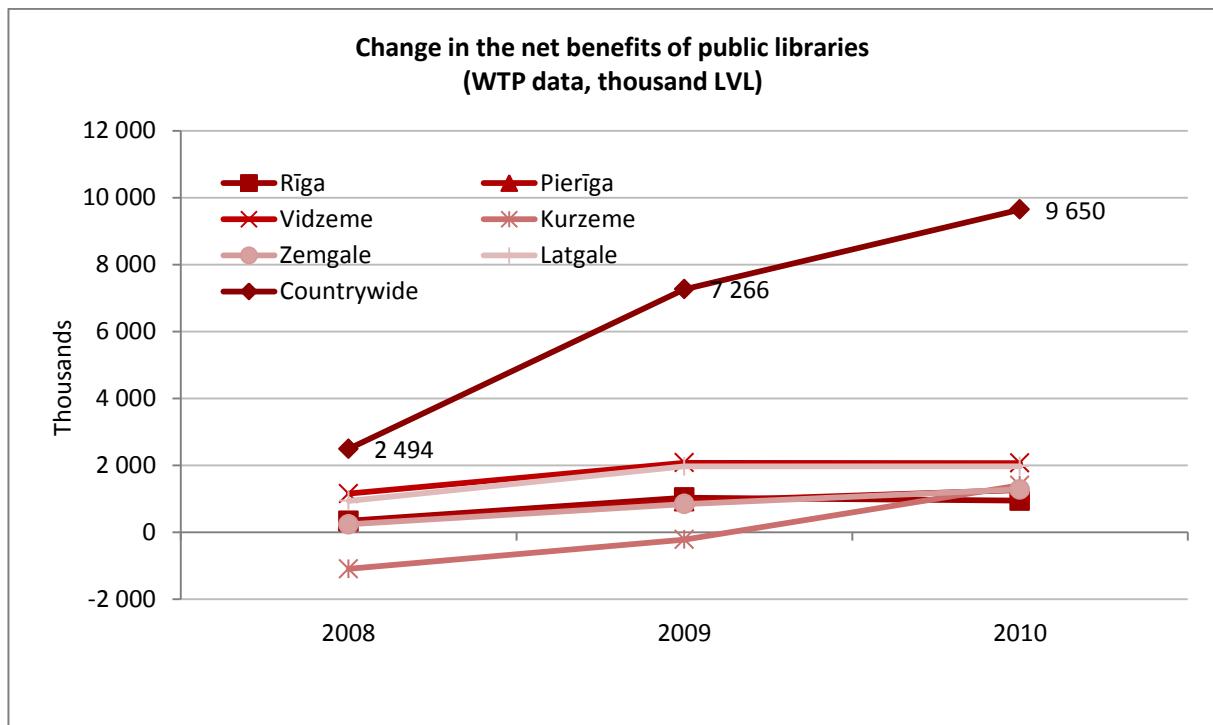


Figure 7 – Net benefits of public libraries in Latvia (regional division, thousand LVL)

The charts above show that the net annual benefits of public libraries in regions vary around 1-2m lats. The value of libraries has changed in line with

changes in the attendance at public libraries and the drop in funding (perceived as costs in this study) channelled to public libraries.

### Indirect Non-Monetary Benefits

Indirect non-monetary benefits form an important part of the socio-economic impact of the public library system. In order to identify these benefits survey that was carried out during this research asked the general population, library staff and municipalities three types of questions:

- What other benefits for the society are there because of public libraries?
- In what ways has the public library influenced the life of the local society?
- What is the effect of the local public library on the economy?

These were open-ended questions – therefore the answers were coded in specific groups of answers in order to identify the main types of impact determined by various groups of respondents.

Figure 8 below shows that most of those surveyed consider that some of the most important benefits provided by public libraries are their social function (e.g. a place for gathering), the educational, informative or cultural function of libraries and the chance to save money for the society.

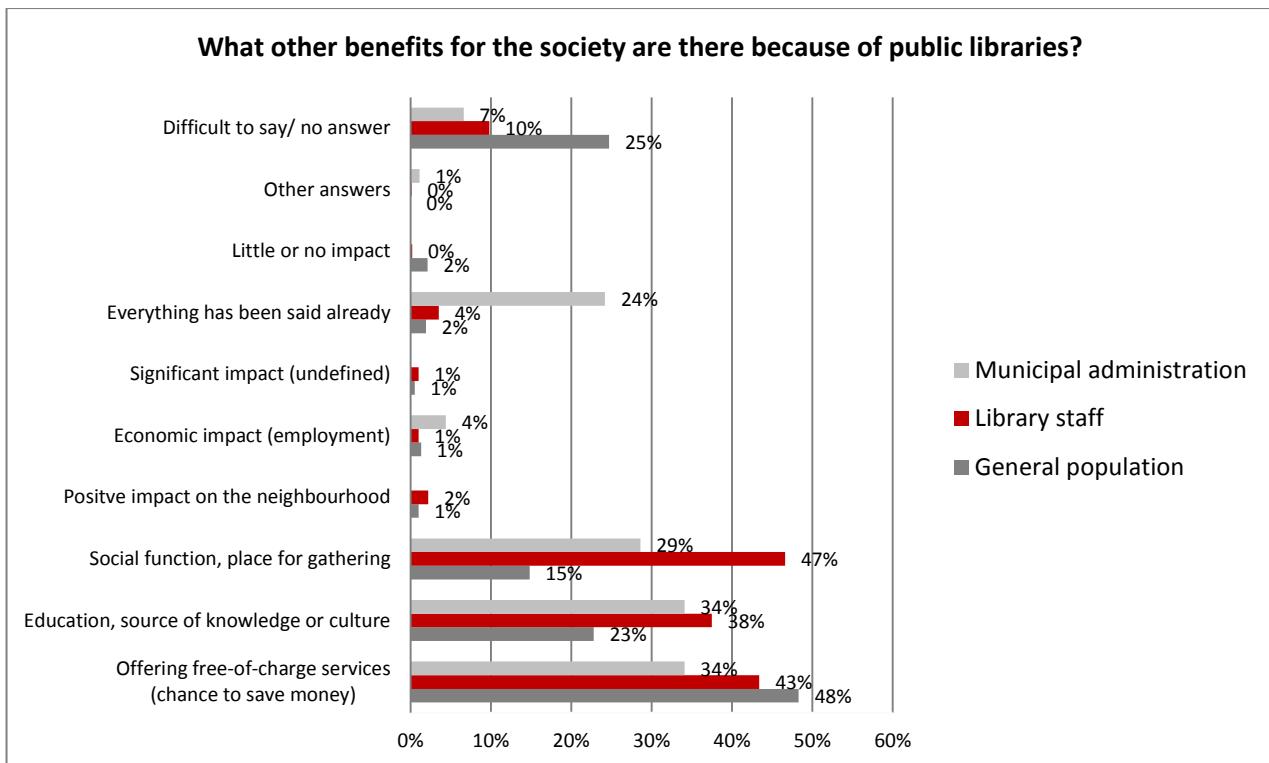


Figure 8 – Qualitative benefits for society that are provided by public libraries

According to the survey data, the society is affected by the presence of public libraries primarily by encouraging education, awareness and dissemination of culture; libraries also encourage

socialising and networking as well as improve the quality of life in general. This is shown below in the Figure 9.

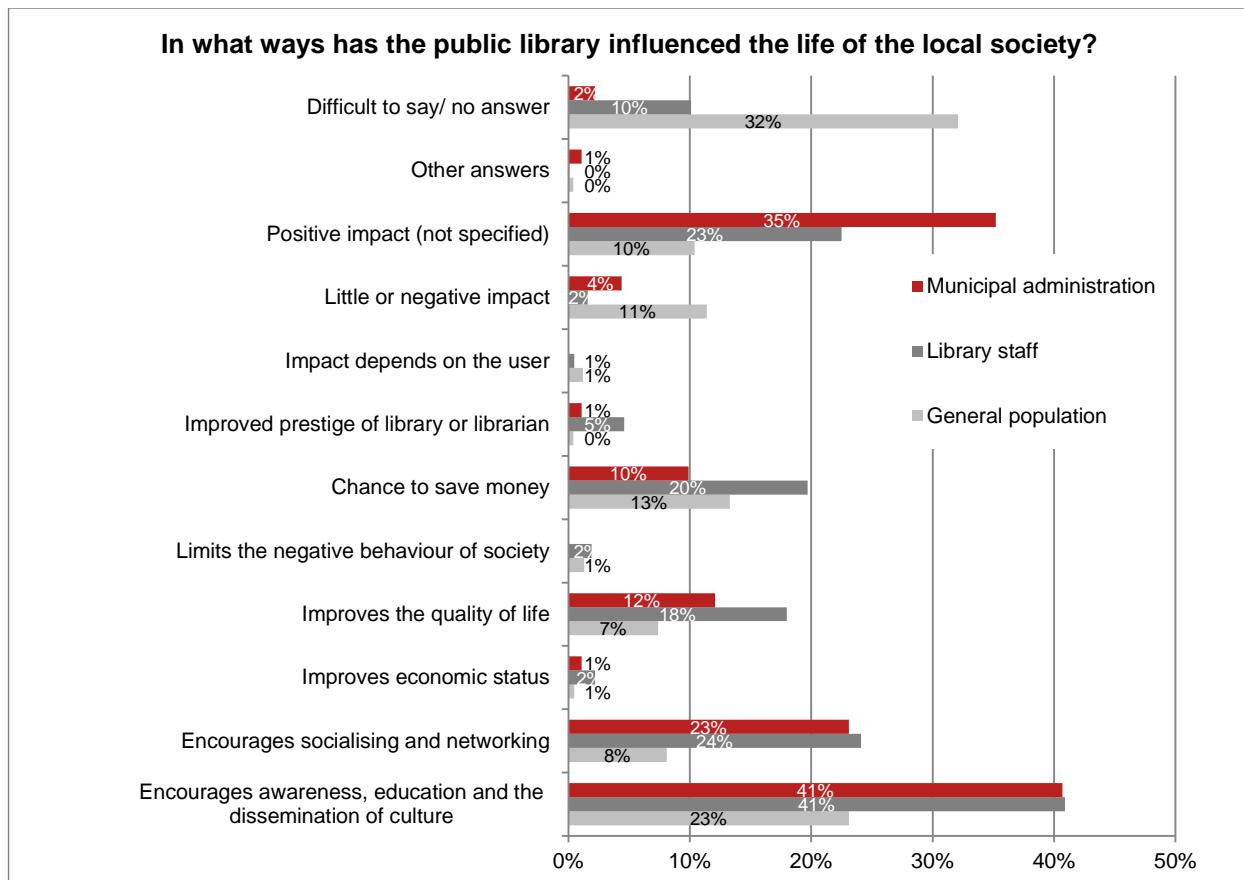


Figure 9 – Ways the public libraries influence the life of the local society

The effects of the public libraries on the local economy are primarily by improving information flow, providing access to education and culture. Otherwise respondents found it difficult to identify

the effect of public libraries on the national economy. The summary of responses is shown in the Figure 10.

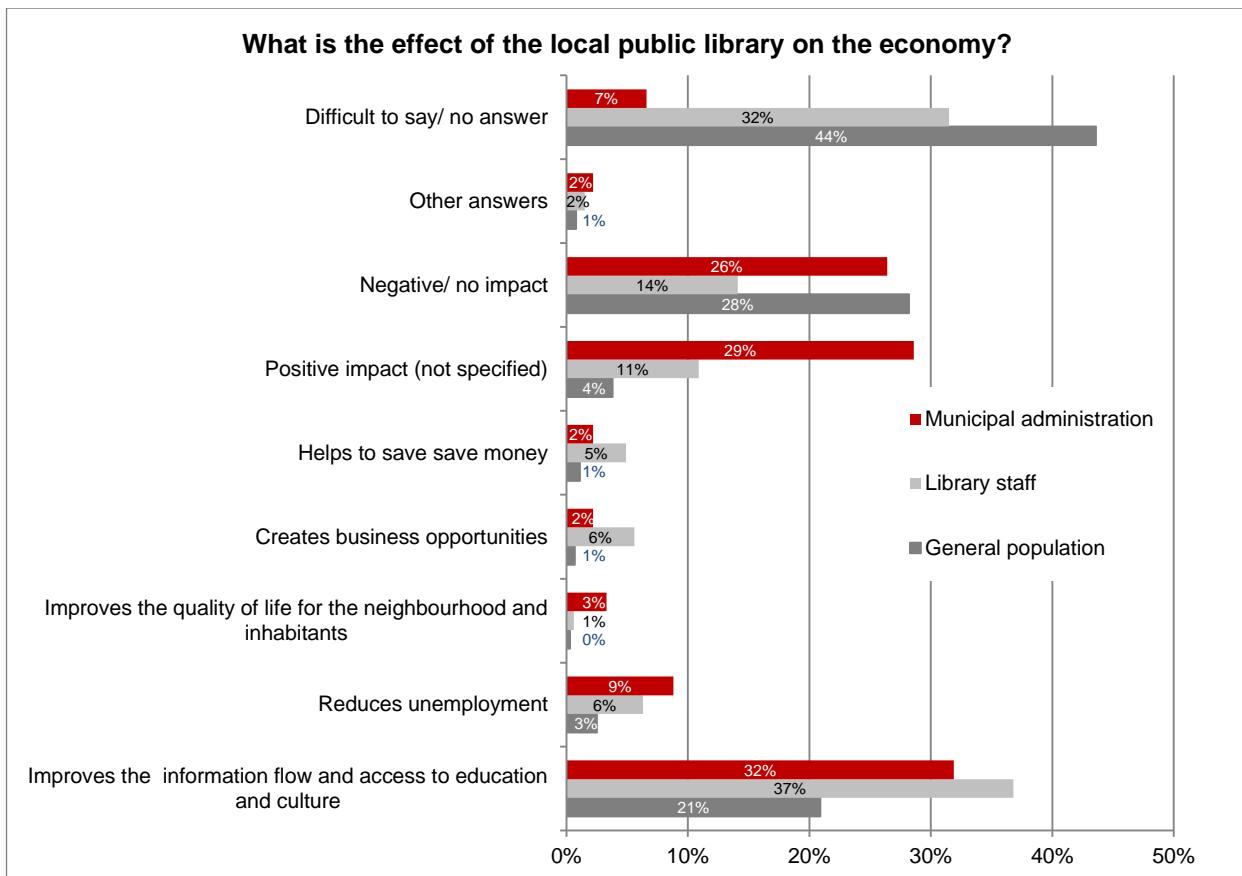


Figure 10 – Ways in which public libraries affect the local economy

#### Indirect Monetary Benefits

In order to estimate the indirect monetary or economic benefits the study adopted an approach which applied to Latvia the average ratio of indirect

to direct benefits observed in a selection of US studies. The US indirect-direct benefit ratio is shown in Figure 11.

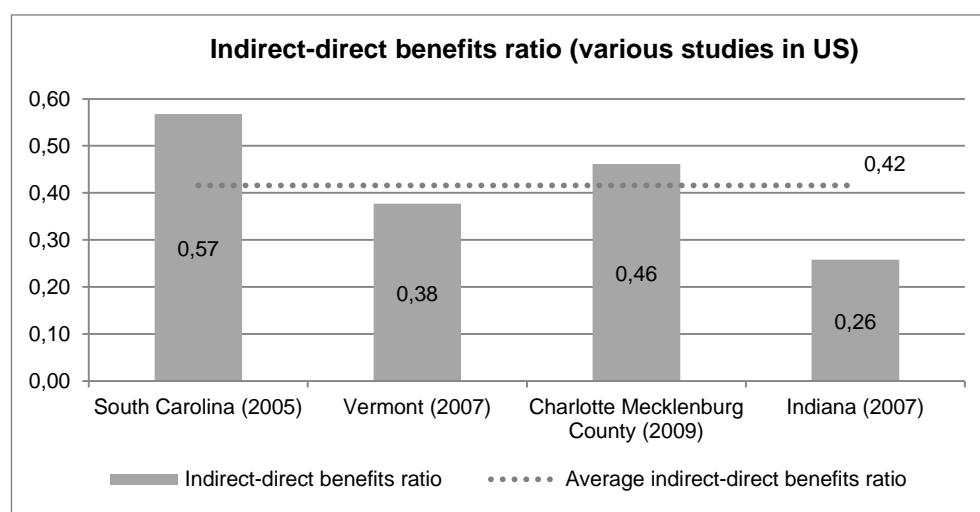


Figure 11 – Indirect-direct monetary benefits ratio (various US studies)

Figure 11 shows that the average proportion of indirect to direct benefits in the selected studies was 0.42; applying the ratio to the direct benefits of public library system in Latvia yields the money value of indirect benefits in Latvia. The figure below

shows that on this basis the indirect monetary benefit of public libraries in Latvia is around 9.8m lats countrywide and approximately 1.5m lats in the regions.

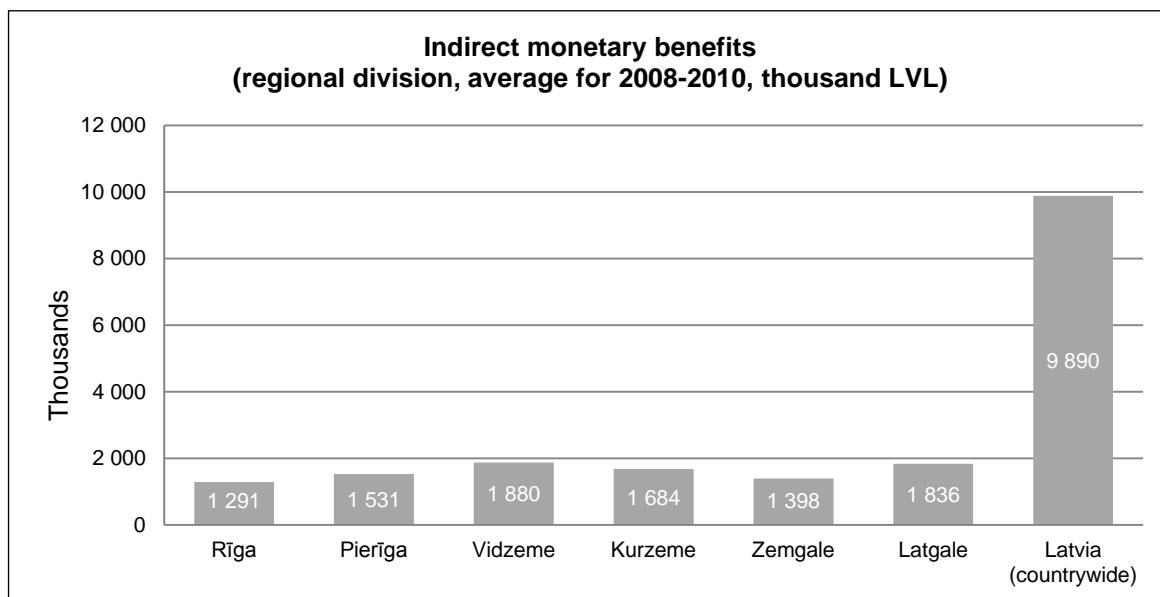


Figure 12 – Average indirect monetary benefits (average for 2008-2010, thousand LVL)

#### Return Indicators

The available data do not permit the calculation of a standard rate of return on investment either for libraries as a whole or for most individual services. Accordingly we calculate an annual benefit/ cost

ratio<sup>17</sup>. The Figure 13 below shows that the benefit-cost ratio on a countrywide scale has increased in the period between 2008 and 2010.

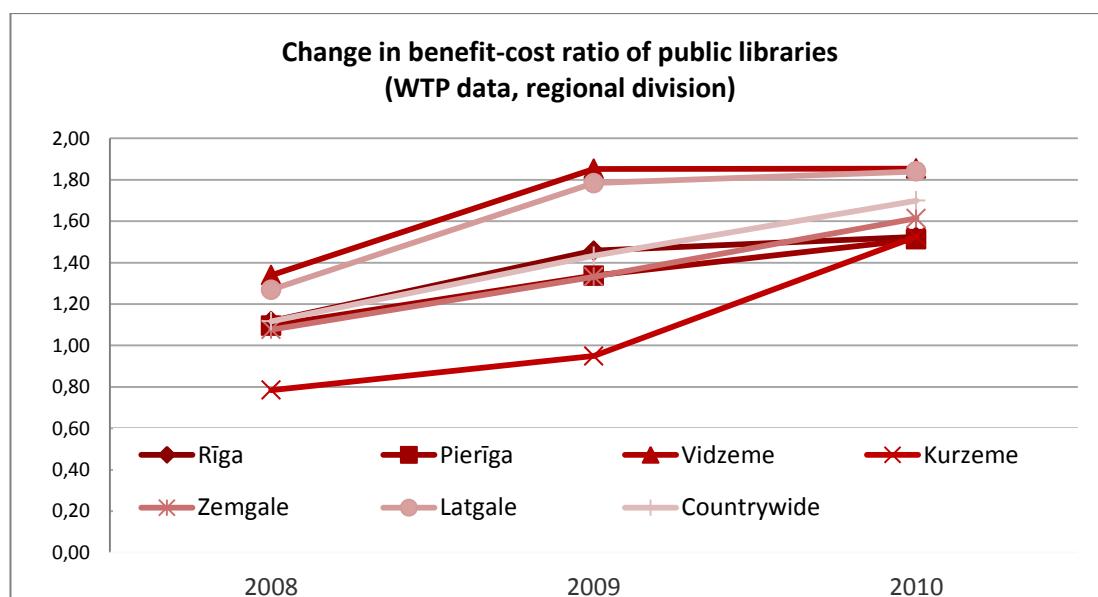


Figure 13 – Change in the benefit-cost ratio of public libraries in Latvia (regional division)

Thus on average between 2008 and 2010 the direct benefit-cost ratio, which in practice is the same as what is (inaccurately) called a ROI in some US studies, was 1.37. As shown in the

Figure 14 below, this is somewhat smaller than in a selection of public libraries in US. It should be noted that for Latvia the data used for calculating benefits

represent the most conservative approach in order to avoid overstating benefits (see the Sensitivity analysis chapter in the for the results with alternative assumptions). The comparator studies from the US are notably less conservative in their approach.

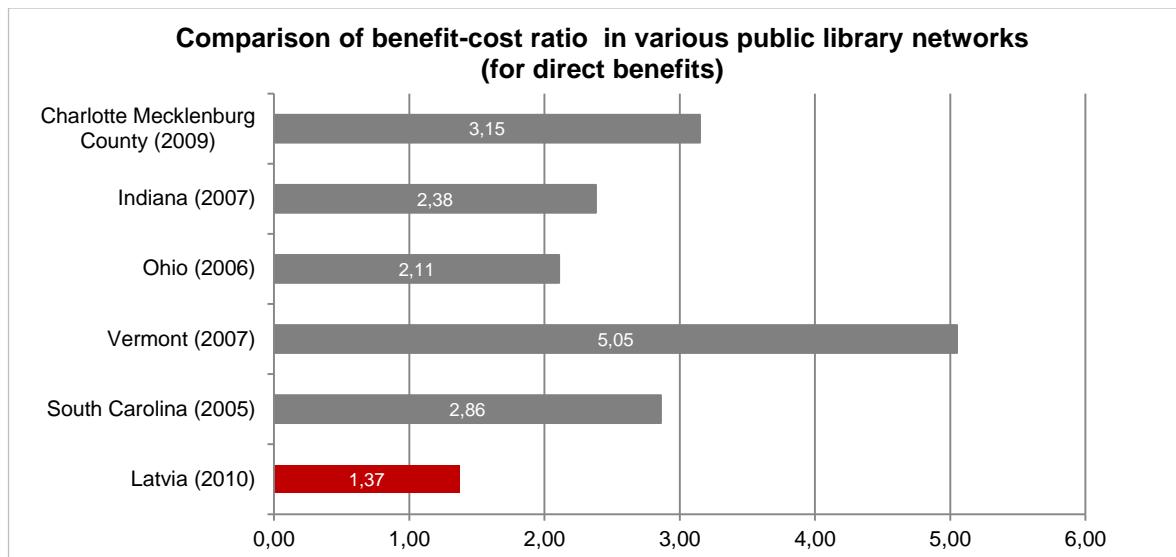


Figure 14 – Comparison of benefit/cost ratio between public libraries in Latvia and various public libraries in US<sup>18</sup>

The data above uses only the data for direct benefits, however, the indirect benefits can also be included in the calculation of benefit-cost ratio as has been done in other studies. The benefit-cost

ratio for Latvia when indirect benefits are included is 1.96 and a comparison with the US studies is shown in Figure 15.

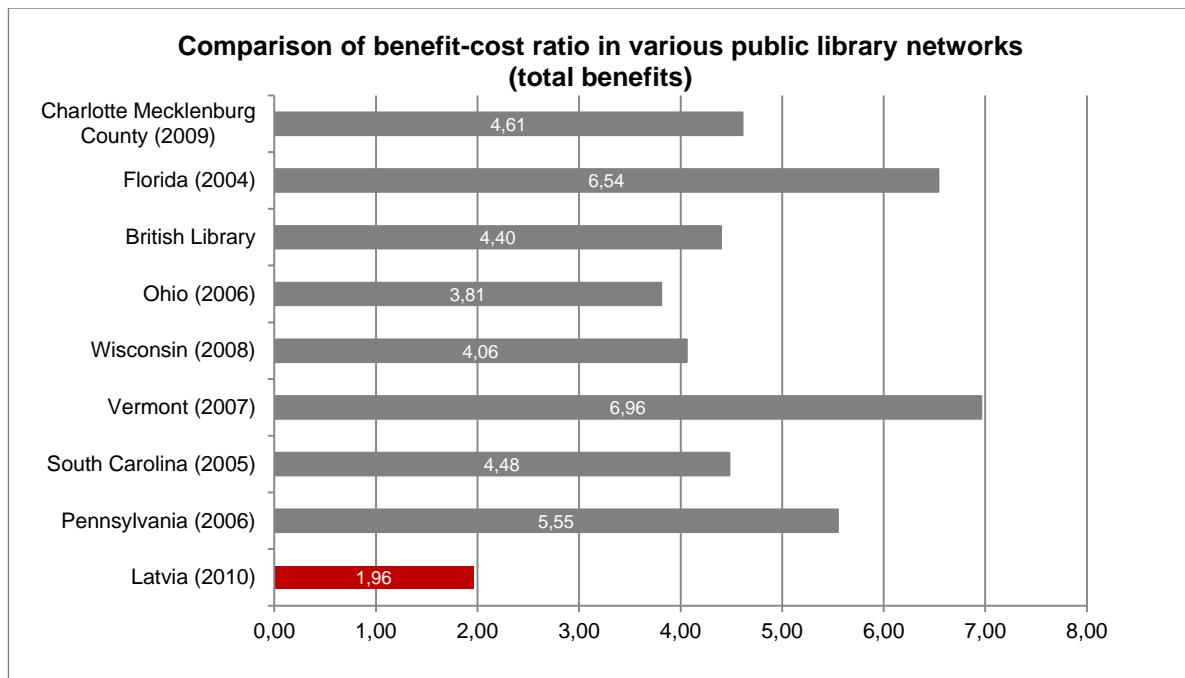


Figure 15 – Benefit/cost ratio of total benefits of various public library networks<sup>19</sup>

The data shows that the benefit-cost ratio of public libraries in Latvia is smaller than that in US public libraries. There is a number of reasons for such result some of which are that the study used the most conservative approach in calculation of benefits of services (see the differences in results when using less conservative data in the Sensitivity

analysis of the Appendices), the compared studies had much smaller scale – none of them included all public libraries in a country and this study used contingency analysis and users' "willingness to pay" for services for the benefit calculation that are constrained by users' ability to pay (can be considered lower than that in US).

## THE ECONOMIC IMPACT OF INDIVIDUAL LIBRARY SERVICES

The study calculated the economic impact of lending, reading, printing, scanning, photocopying activities as well as the impact created by public events, exhibitions and reference services provided at public libraries. In addition the study considered in detail the economic impact of the BMGF supported computer and IT related services. For each of these services the annual benefits and costs of the service were calculated according to the methodology described in section "Detailed Methodology for Calculations". Here as an illustration, the calculations are described for the lending service – a traditional service and still one of the most important services provided by libraries. The lending service also proved to be one of the services with a high ratio of benefits to costs.

The library holdings that are available for borrowing include books, newspapers, magazines, CDs, DVDs,

music score and other materials. The following sections describe in detail the findings on the benefits and costs of the lending service and discuss the resulting return indicators. The analysis includes a regional breakdown for reading, printing, scanning, photocopying, public events, exhibitions and reference services provided a very similar approach was adopted and the key results are reported in the summary Table 4 as well as in the conclusions. The detailed calculations for these services are described in the section "Economic impact of specific library services – detailed analysis" of the Appendices. For the BMGF supported services the impact results and indicators are presented in the section "The economic impact and return indicators of the public library services supported by BMGF".

### Benefits and costs of the Lending Service

The total benefits of the lending activity were calculated by using the average that people in Latvia are willing to pay for borrowing a single item. This is around 39 santims when including the responses of people unwilling to pay anything for borrowing library items. If such responses are excluded, then

the average willingness to pay is about 54 santims for borrowing an item from a library. The regional and countrywide stratification of these answers is shown in Figure 16 below.

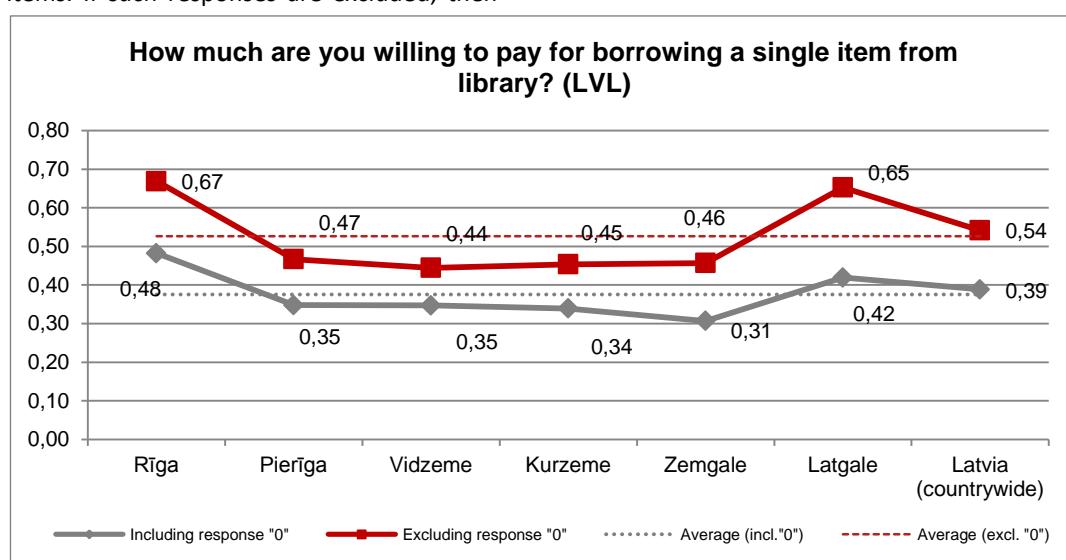


Figure 16 - WTP for borrowing a single item (weighted averages, LVL per item)

The annual total value of services is average willingness to pay multiplied by the annual number of issued items. The annual cost of the lending

service is the annual salary bill multiplied by the proportion of time library staff spend on lending service plus overheads. The total costs and benefits of lending service are shown in the Figure 17 below.

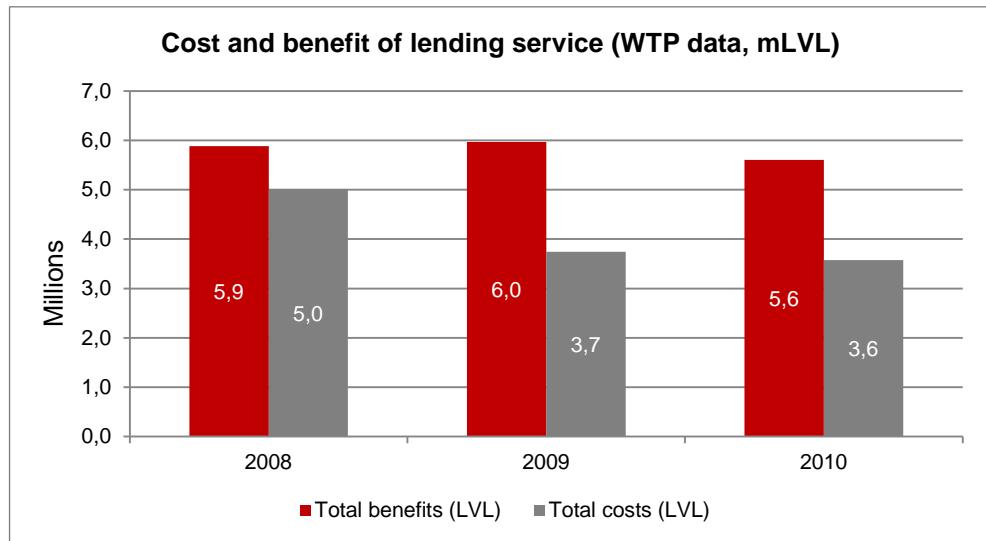


Figure 17 – Cost and benefit of lending activities (WTP data, LVL)

The net benefit of the lending service is the difference between the benefits and costs of the service. The regional difference of the average net benefits (in the period between 2008 and 2010) of

the lending service is shown in the Figure 18 below – the annual net benefit of lending is on average roughly 1.7m lats.

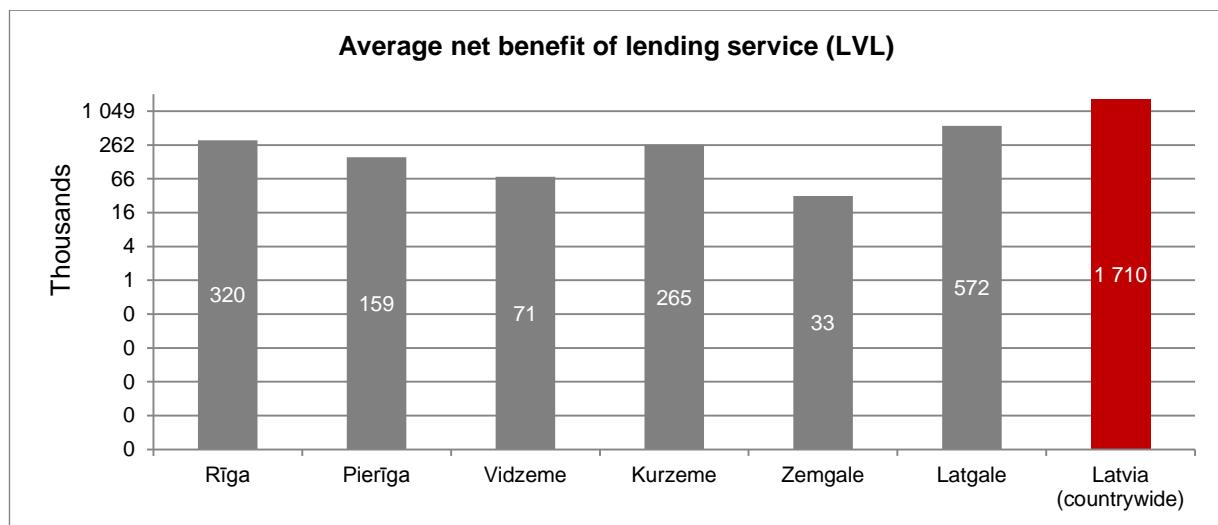


Figure 18 – Average net benefit of lending service (regional division, thousand LVL)

#### Return Indicators of the Lending Service

The cost and benefit indices allow a calculation of benefit-cost ratios for the lending service. Between 2008 and 2010 the average benefit-cost ratio for

lending services in Latvia was 1.42 as shown in the Figure 19 below.

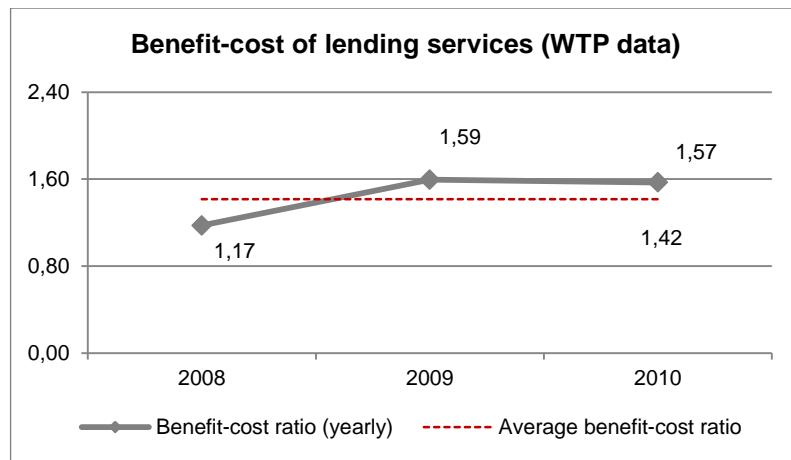


Figure 19 – Benefit-cost of lending services (WTP data)

The data therefore shows that each lat spent in supporting lending services in 2008-2010 generated

a net benefit of around 42 santims after expenses were covered.

## THE ECONOMIC IMPACT AND RETURN INDICATORS OF THE PUBLIC LIBRARY SERVICES SUPPORTED BY BMGF

BMGF support for public libraries in Latvia consists of grants for the following services and activities:

- Internet and PCs;
- Training in IT skills for library staff;
- Special equipment for users with visual impairment.

These investments are the most relevant in four of the observed library services:

- ICT training classes;
- Individual consultations on ICT;
- Use of PCs and Internet;
- Services for Library Users with Disabilities.

The willingness to pay for a single use of the abovementioned services is as follows:

- 1.36 lats for 1 hour ICT training class at public libraries,
- 0.31 lats for 15 minutes ICT consultation,
- 0.45 lats for 1 hour use of PCs and Internet and
- 0.67 lats for 1 hour use of special equipment.

The regional breakdown for these is shown in Figure 20.

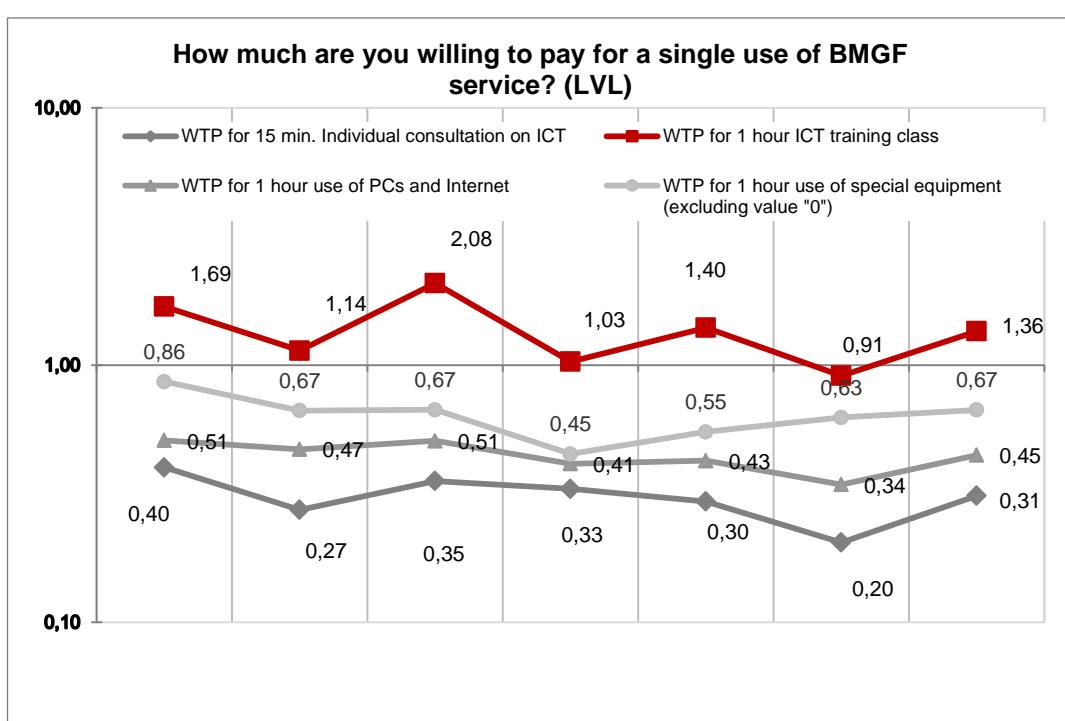


Figure 20 – WTP for individual BMGF-supported services (regional and countrywide division, data takes into account answers with value "0", LVL)

The annual benefits of the BMGF-supported services are calculated by multiplying the WTP for a single use of the service by its annual volume of use. Costs are calculated as the annual salary bill multiplied by the proportion of time that staff spend on delivering a particular service plus overheads. Figure 21

summarises the countrywide average data for total costs, benefits and net benefits of the different BMGF-supported services. The net benefits of the PC/Internet service are slightly more than 1.3m lats per year.

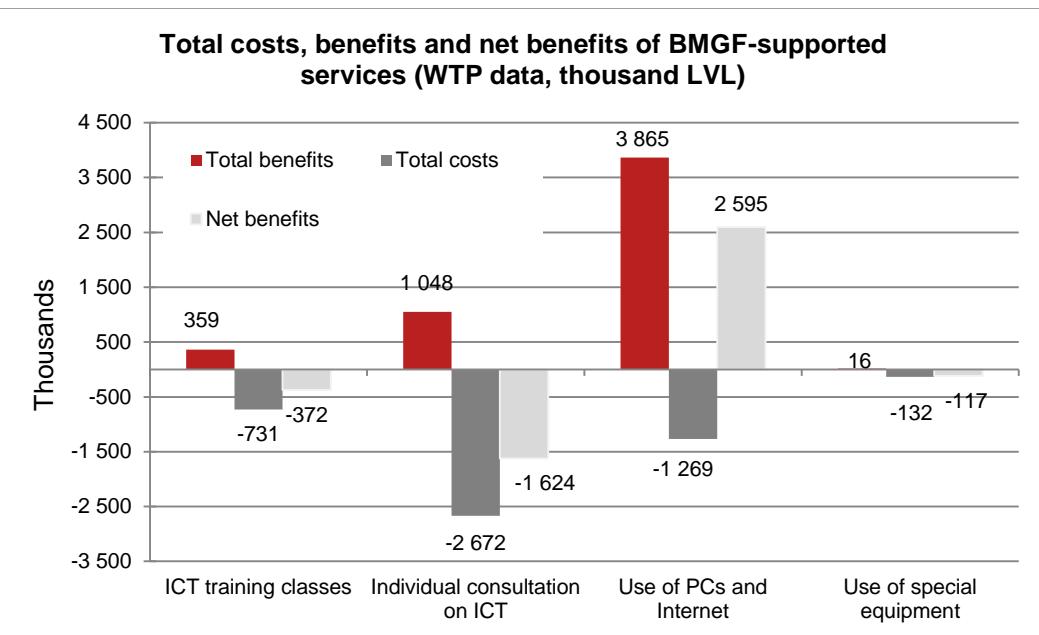


Figure 21 - Total costs, benefits and net benefits of BMGF-supported services (WTP data, thousand LVL)

However, for ICT training classes, individual consultations on ICT and the use of special equipment costs exceed their reported benefits.

Figure 22 and Figure 23 show that the negative net benefits for ICT training classes and the use of special equipment can be observed in all regions of Latvia.

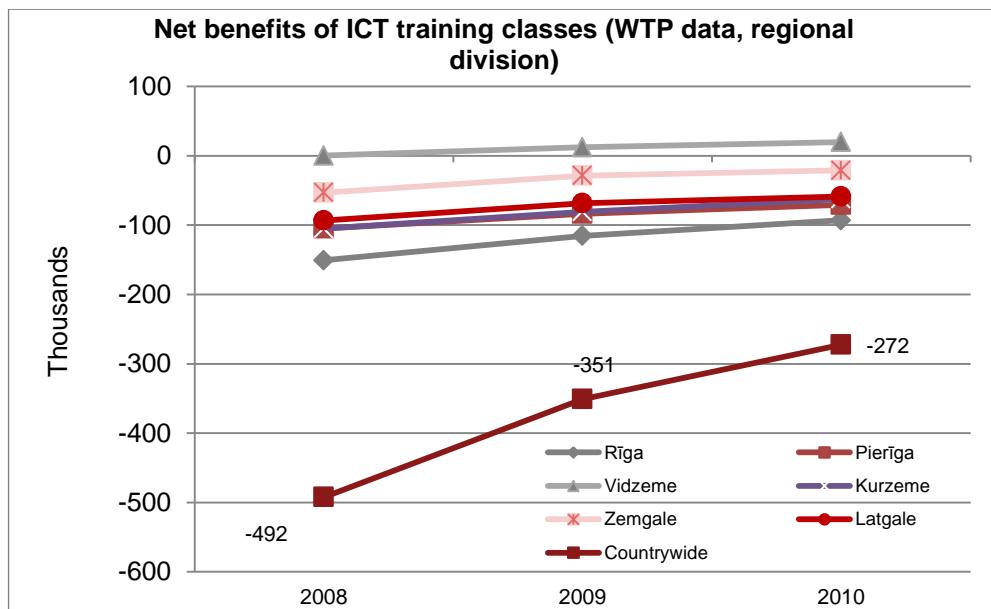


Figure 22 – Net benefits of ICT training classes (WTP data, regional division, LVL)

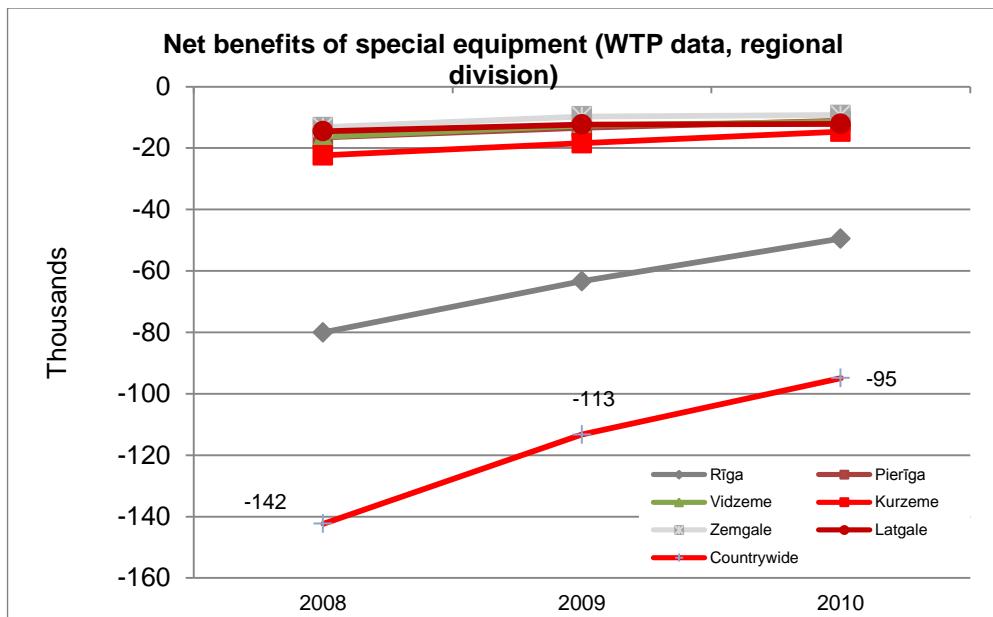


Figure 23 - Net benefits of special equipment (WTP data, regional division, LVL)

#### Return Indicators

From the benefit and costs data one can calculate the benefit-cost ratio of BMGF supported services; these are shown in Figure 24 below.

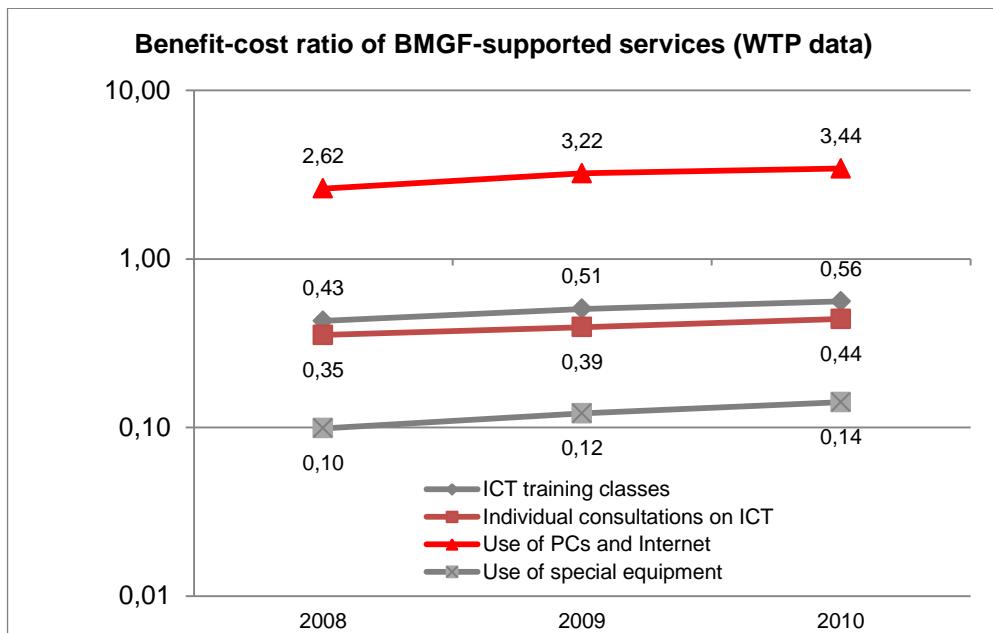


Figure 24 – Benefit-cost ratio of selected BMGF services (countrywide and WTP data)

In addition to annual benefit cost ratios, for BMGF investments it was possible to calculate an internal rate of return (IRR). This was done both for the services as a whole and in some of the separate services. The tables below summarise the flow of benefits and costs attributable to different BMGF-

supported library services and where net benefits are positive – the IRR values have been calculated. In cases where the net benefits using WTP benefits data were negative, WTA data for benefit calculation or WTA data excluding “0” values have been used.

Table 5 – BMGF investments and net benefits of ICT training classes (LVL)

	2008	2009	2010	2011-2030	IRR for 10 years (2020)	IRR for 15 years (2025)	IRR for 20 years (2030)
<i>BMGF investment</i>	-641 937	-6 402	-71 441				
<i>Direct benefits (WTA excluding "0")</i>	277 602	269 909	261 254				
<i>Direct costs</i>	-861 478	-710 106	-620 085				
<i>Net benefits of the service</i>	-583 876	-440 197	-358 832	-358 832			
<i>Aggregate net benefit</i>	-1 225 813	-446 599	-430 273	-358 832	N.A.	N.A.	N.A.

Table 6 – BMGF investments and net benefits of Individual consultations on ICT (LVL)

	2008	2009	2010	2011-2030	IRR for 10 years (2020)	IRR for 15 years (2025)	IRR for 20 years (2030)
<i>BMGF investment</i>	-641 937	-6 402	-71 441				
<i>Direct benefits (WTA including "0")</i>	2 760 710	2 684 201	2 598 128				
<i>Direct costs</i>	-3 048 313	-2 660 364	-2 305 830				
<i>Net benefits of the service</i>	-287 603	23 836	292 298	292 298			
<i>Aggregate net benefit</i>	-929 540	17 435	220 857	292 298	22,09%	23,74%	24,21%

Table 7 – BMGF investments and net benefits of use of PCs and Internet (LVL)

	2008	2009	2010	2011-2030	IRR for 10 years (2020)	IRR for 15 years (2025)	IRR for 20 years (2030)
<i>BMGF investment</i>	-10 751 621	-1 454 732	-9 178 118				
<i>Direct benefits (WTP including "0")</i>	3 979 408	3 869 124	3 745 054				
<i>Direct costs</i>	-3 332 135	-2 285 684	-1 968 916				
<i>Net benefits of the service</i>	647 273	1 583 440	1 776 138	1 776 138			
<i>Aggregate net benefit</i>	-10 104 349	128 708	-7 401 979	1 776 138	0,33%	5,02%	6,99%

Table 8 – BMGF investments and net benefits of services for disabled people (LVL)

	2008	2009	2010	2011-2030	IRR for 10 years (2020)	IRR for 15 years (2025)	IRR for 20 years (2030)
<i>BMGF investment</i>	-336 352	0	0				
<i>Direct benefits (WTA excluding "0")</i>	24 385	24 385	24 385				
<i>Direct costs</i>	-157 955	-128 888	-110 503				
<i>Net benefits of the service</i>	-133 570	-104 503	-86 119	-86 119			
<i>Aggregate net benefit</i>	-469 922	-104 503	-86 119	-86 119	N.A.	N.A.	N.A.

Table 9 – BMGF investments and net benefits of all BMGF-supported services (LVL)

	2008	2009	2010	2011-2030	IRR for 10 years (2020)	IRR for 15 years (2025)	IRR for 20 years (2030)
<i>BMGF investment</i>	-12 371 848	-1 467 536	-9 320 999				
<i>Direct benefits</i>	7 042 104	6 847 618	6 628 820				
<i>Direct costs</i>	-7 399 880	-5 785 042	-5 005 335				
<i>Net benefits of the services</i>	-357 776	1 062 576	1 623 486	1 623 486			
<i>Aggregate net benefit</i>	-12 729 624	-404 960	-7 697 514	1 623 486	N.A.	1,73%	4,08%

For services with negative net benefits (ICT training classes, use of special equipment) or where net benefits

outweighed the BMGF investments (ICT consultations) the IRR was not calculated.

Table 10 – IRR for BMGF-supported services

Service	IRR for 10 years (2020)	IRR for 25 years (2025)	IRR for 20 years (2030)
<b>Use of PCs and Internet</b>	0,33%	5,02%	6,99%
<b>Individual consultations on ICT</b>	22,09%	23,74%	24,21%
<b>All BMGF-supported services together</b>	N.A.	1,73%	4,08%

The IRR calculation shows that for some services the flow of WTP for services relative to costs of services generates positive returns while for others this is

not the case. Where this is the case e.g. services for disabled users, an important part of the benefit is very likely to come from the non-monetary benefits.

## CONCLUDING REMARKS

This study has attempted to determine the economic impact of public libraries in Latvia. The approach taken in the study is complex and unique because in contrast to many other similar studies, it aims to account for all public libraries rather than libraries in specific region or any single library. The study used the contingent valuation method to estimate of the value placed on libraries and specific library services by the public. An extensive survey carried out in all regions of Latvia, in all municipalities and all libraries involved a detailed set of questions – asking library users about their WTP and WTA for library services and on their use of different services; library staff were also asked the public's use of services and of the time library staff spent on providing different services; municipality leaders were questioned on the qualitative benefits that libraries bring to the neighbourhoods where the libraries are located. This report tries to present this data in the most coherent way – by using the most credible data for calculating the benefits and costs of various library services as well as estimating various return indicators for individual services.

***The net annual benefit of the public library system in Latvia is more than LVL 6m on the basis of rather conservative assumptions about benefits (see Table 11 below).***

The annual value of libraries is almost LVL 23.8m which includes an estimated 'option value' of around LVL 4m that the registered users would be willing to pay for the availability of public libraries and around LVL 19.8m that library users are willing to pay for specific library services. The total costs of public libraries on average are just over 17m lats per year of which almost LVL 15m are the costs for the 12 services analysed in this study. The benefit-cost ratio shows that 4 out of 12 services analysed generate positive net benefits. The annual benefit-cost ratio of the library system calculated using these variables is 1.37 which is comparable to public libraries in US. In addition to the direct monetary benefits it was estimated that the Latvian public library system generates annual indirect benefits to the economy of nearly 9.8 m lats. Taking this into account the annual ratio of benefits to cost is estimated at 1.96.

*Table 11 – Summary of the WTP, value, economic impact and benefit-cost ratio of the library system*

Library service	WTP (LVL) <sup>20</sup>		Total benefits of services (LVL) <sup>21</sup>	Total costs of services (LVL) <sup>22</sup>	Net benefits of services (LVL)	Benefit-cost ratio <sup>23</sup>
1. Public library services in general	8,92	<i>pay per year</i>	23 773 337	17 303 307	6 470 030	1,37
2. ICT training classes	1,36	<i>pay per 1h class</i>	358 744	730 556	-371 812	0,49
3. Individual consultations on ICT	0,31	<i>pay per 15 min. consultation</i>	1 047 622	2 671 502	-1 623 880	0,39
4. Lending	0,39	<i>per item</i>	5 818 178	4 108 521	1 709 657	1,42
5. Use of PCs and Internet	0,45	<i>per 1h use</i>	3 864 529	1 269 279	2 595 250	3,04
6. Reading	0,24	<i>per 1h</i>	2 863 984	1 981 694	882 291	1,45
7. Services for library users with disabilities	0,67	<i>per 1h use</i>	15 619	132 449	-116 829	0,12
8. Printing	0,06	<i>per 1 b/w page</i>	338 698	428 617	-89 919	0,79
9. Scanning	0,06	<i>per 1 page</i>	67 613	251 160	-183 548	0,27
10. Photocopying	0,05	<i>per 1 page</i>	435 954	494 835	-58 881	0,88
11. Public events	1,14	<i>per 1 event ticket</i>	430 491	1 037 174	-606 683	0,42
12. Exhibitions	0,89	<i>per 1 exhibition ticket</i>	4 325 601	749 486	3 576 115	5,77
13. Reference services	0,10	<i>per 1 reference</i>	309 021	948 715	-639 694	0,33

Among the most significant findings from the study regarding specific services is the high net benefit of services like the open-access PC/Internet service, reading, lending and exhibitions – these services are the most highly valued by library users and can be considered to constitute the core of what public libraries offer today. This highlights the new role of libraries as a source of learning new (IT) skills and as a locus of social life in regions. The library services where the estimated monetary value of benefits did not cover costs included services such as the library computer services to people with visual impairment. The impact of these services is nevertheless

important since they enable disadvantaged library users to have access to new technologies and the information they make available.

Although the estimates reported in table above are averages for the three year period from 2008 to 2010, the net benefits of public library services have been increasing over time (see Figure 25). This has been the result of higher attendances and hence more use and lower costs (more productive libraries).

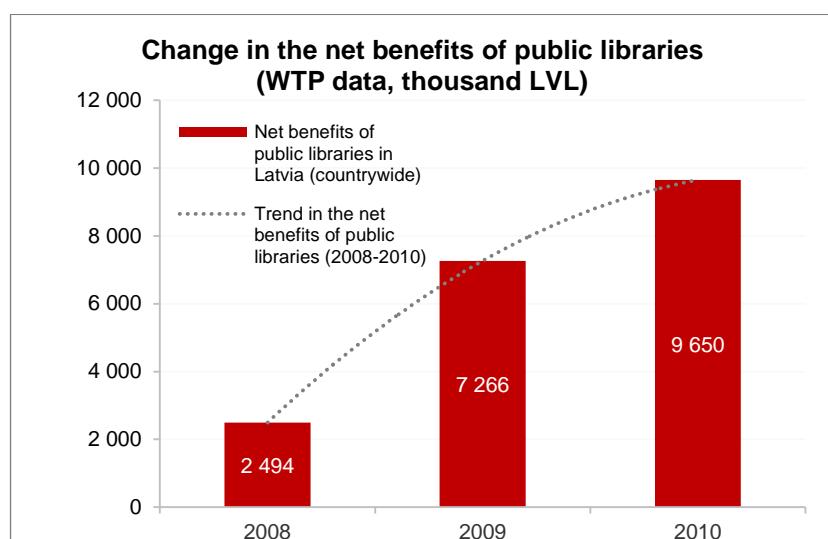


Figure 25 – Change in the net benefits of public libraries in Latvia between 2008 and 2010 (WTP data, thousand LVL)

The study also identified important non-monetary benefits generated by the library system. These included in particular the role of the library as a social space which enables socialising and networking. For less well-off people the availability

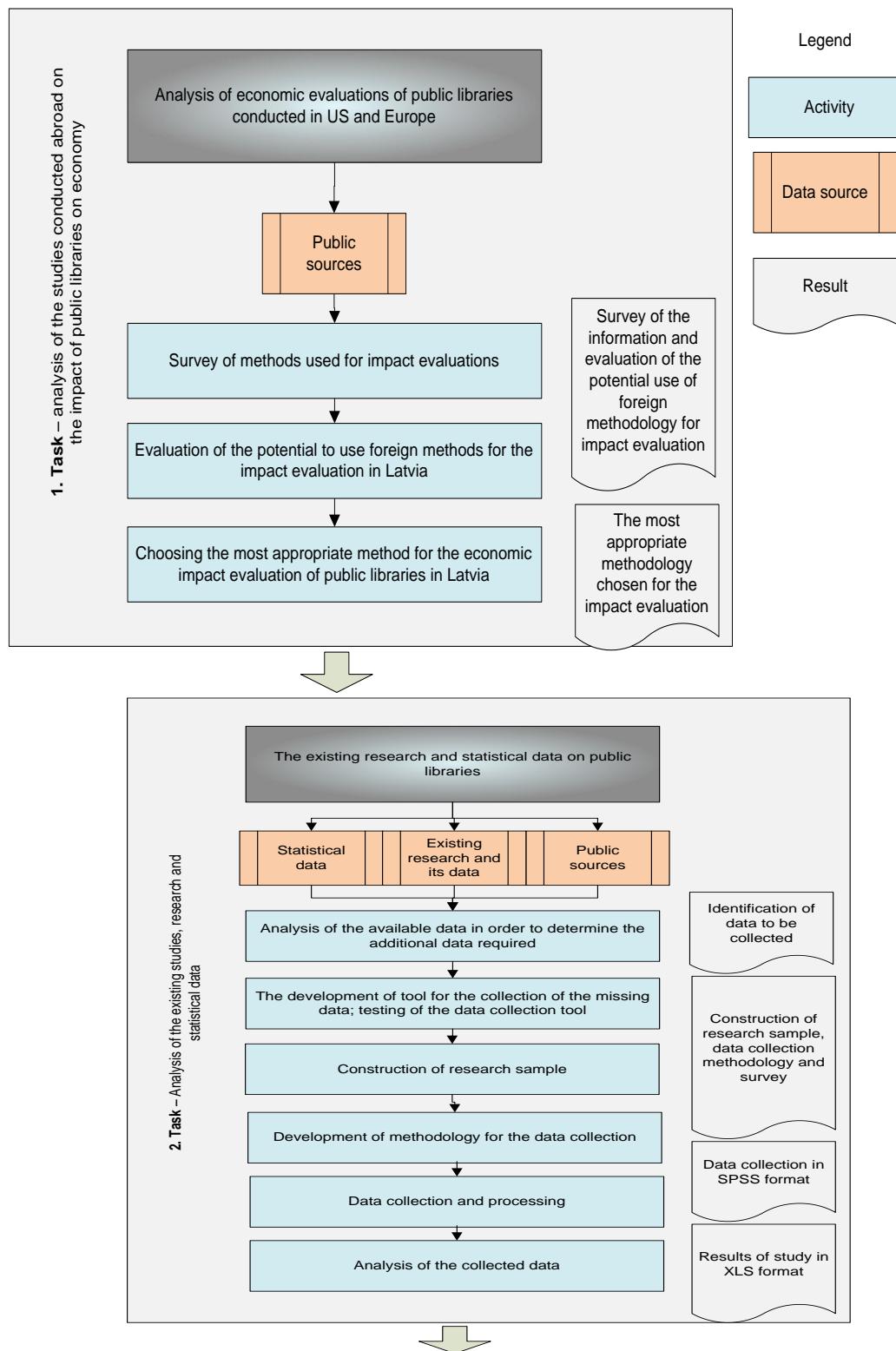
of free of charge services was also important. People also highlight the important role of public libraries as a force for education, information circulation and culture besides their traditional role as a source of the newest literature.



## Appendices

## APPENDICES

### TASKS AND ACTIVITIES OF THE PROJECT



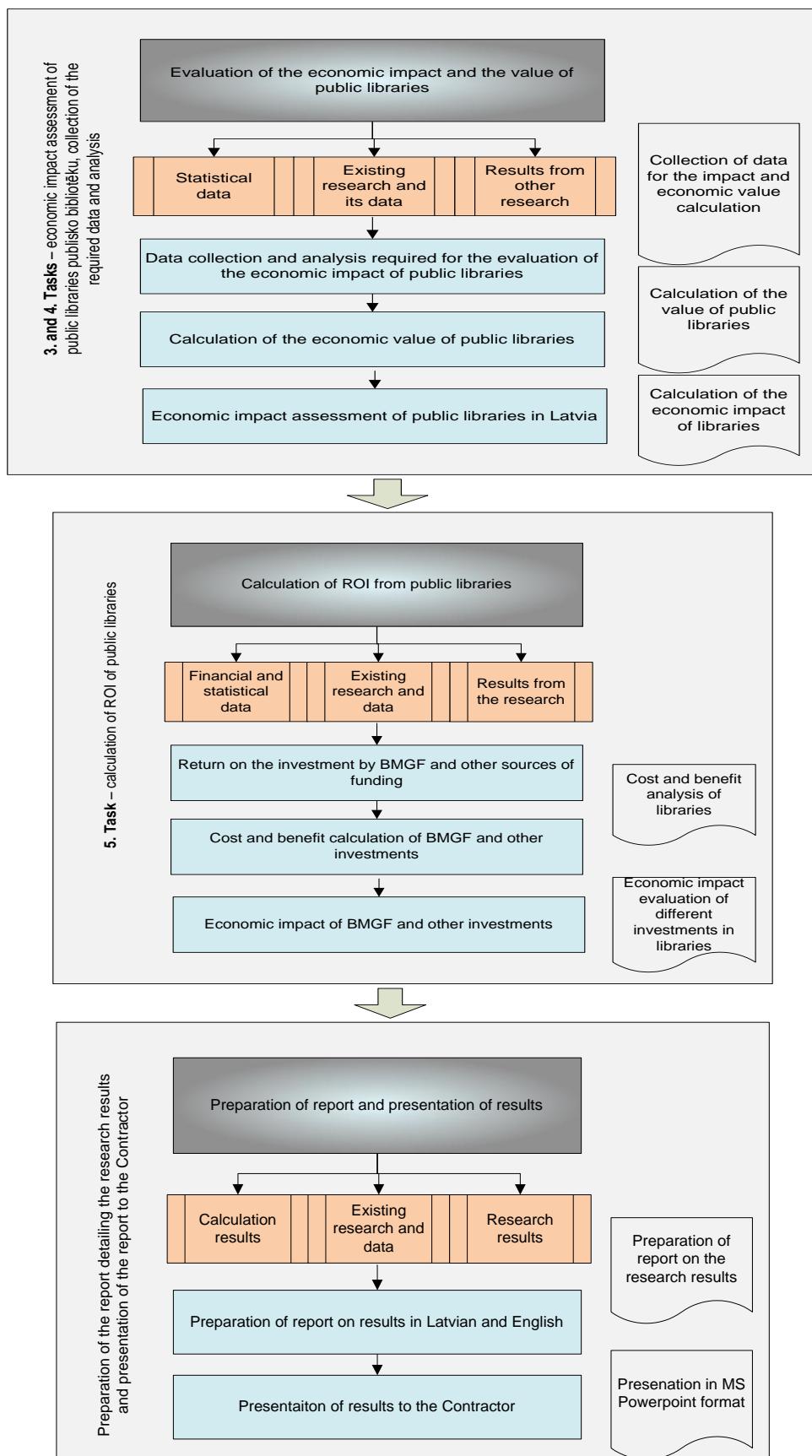


Figure 26 – Tasks, activities and results of the project

## ECONOMIC IMPACT OF SPECIFIC LIBRARY SERVICES – DETAILED ANALYSIS

The analysis below is a detailed analysis of separate public library services that constitutes a part of the total benefits of public libraries.

### READING

Library reading rooms are the social core of public libraries. These can be utilised for using library

materials, for informal gatherings and chats as well as for using public WiFi network.

#### Cost and Benefit of the Service

The total benefit of the reading activity is calculated by using the average amount of money people in Latvia are willing to pay for using a library reading rooms which is around 24 santims per hour when taking into account respondents that were not ready to pay anything for borrowing library items (answer "0") – otherwise for people who are willing

to pay at least 1 santim for using reading rooms – the willingness to pay on average is around 44 santims per hour for using library reading room. The regional and countrywide stratification of these answers are shown in the Figure 27 below.

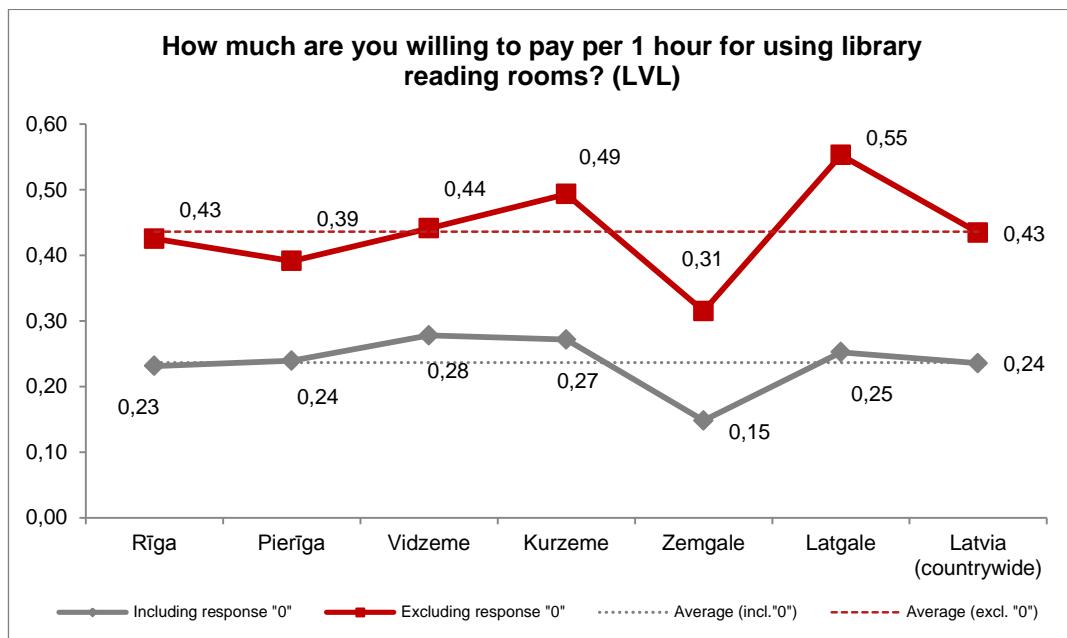


Figure 27 - WTP for using library reading rooms (weighted averages, LVL/hour)

The total benefit of services is a multiplication of users' willingness to pay for using reading rooms by the number of times reading rooms are actually used on a daily basis. The cost of reading rooms is the multiplication of the total salaries spent on library staff by the proportion of time library staff

spend on servicing reading rooms plus overheads. The total costs and benefits of reading rooms are shown in the Figure 28 below.

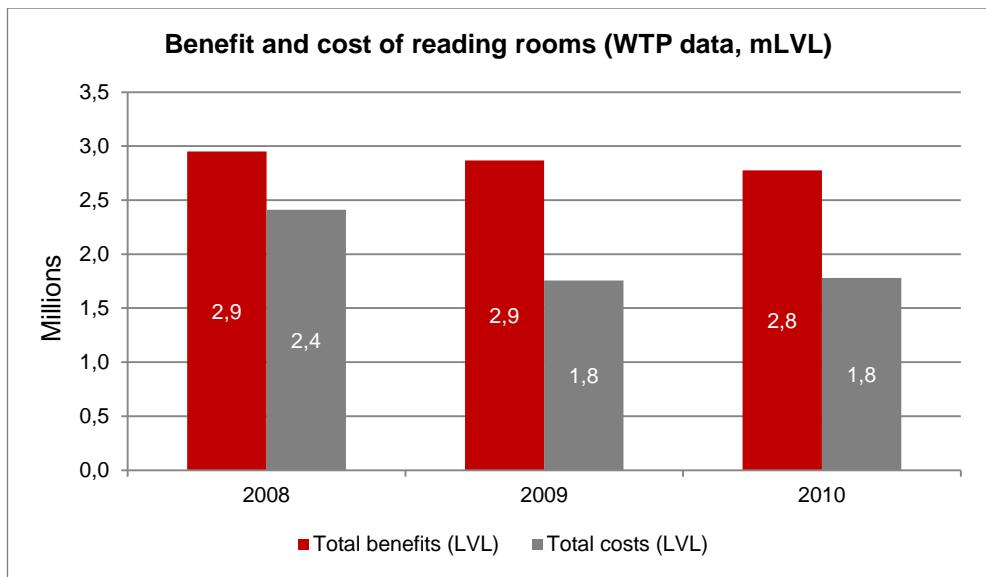


Figure 28 – Cost and benefit of reading rooms (countrywide WTP data, LVL)

The net benefits of reading rooms are the difference between the benefits and costs of the service. The regional difference of the average net benefit (in the period between 2008 and 2010) of the reading

rooms is shown in the Figure 29 below – reading rooms of all public libraries on average are worth roughly 0.8m lats per year.

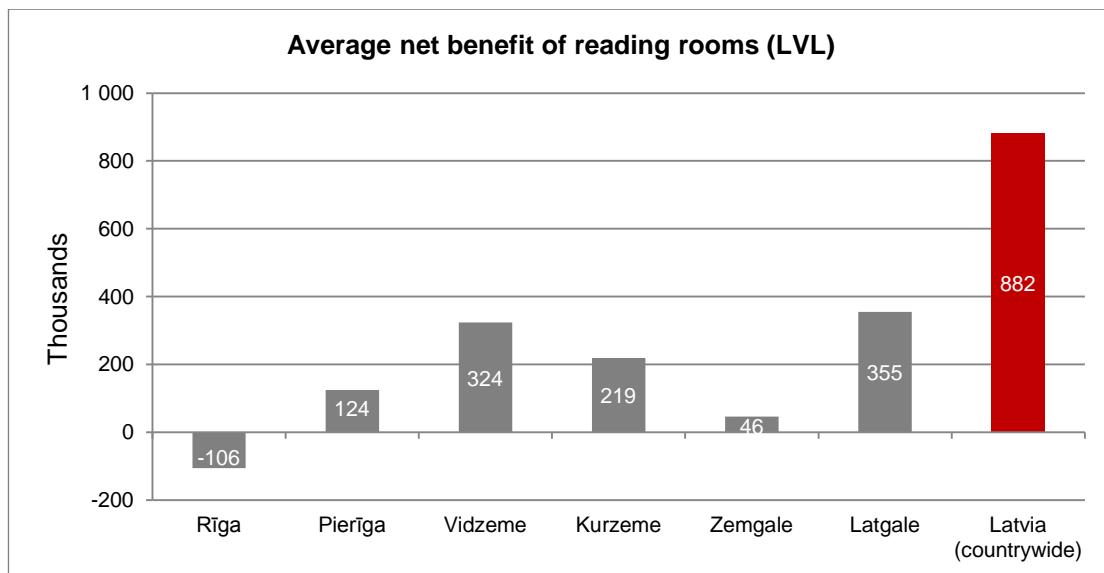


Figure 29 – Average net benefits of lending service (regional division, thousand LVL)

#### Return Indicators

The cost and benefit indices allows for a benefit-cost ratio analysis of reading rooms. The average benefit-cost ratio for reading rooms was 1.45 in the period

between 2008 and 2010 as shown in Figure 30 below.

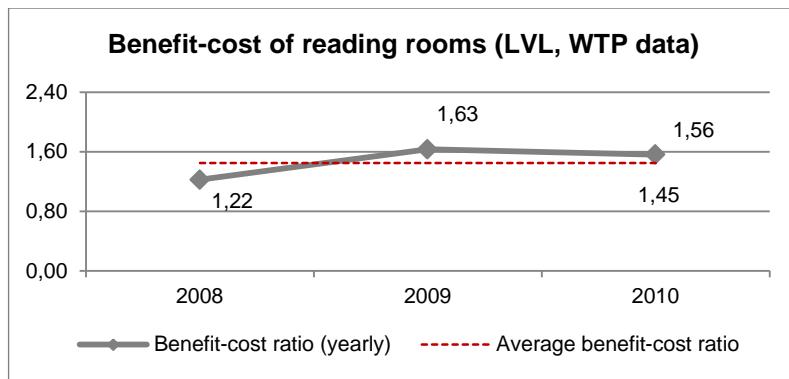


Figure 30 – Benefit-cost of reading rooms (WTP data)

The data therefore shows that each lat spent in supporting reading rooms in 2008-2010 generated around 1.45 lats of benefit.

## PRINTING

Printing is one of the chargeable services provided in public libraries. However, not all libraries charge for this service. Furthermore, most of libraries do

### Cost and Benefit of the Service

The total benefit of the printing service is calculated by using the average amount of money people in Latvia are willing to pay for a single print which is around 6 santims per page when taking into account respondents that were not ready to pay anything for printing (answer "0") – otherwise for people who

not record statistics on the provision of this service even though the service is charged for.

are willing to pay at least 1 santim for printing at libraries – the willingness to pay on average is around 7 santims single page. The regional and countrywide stratification of these answers are shown in Figure 31 below.

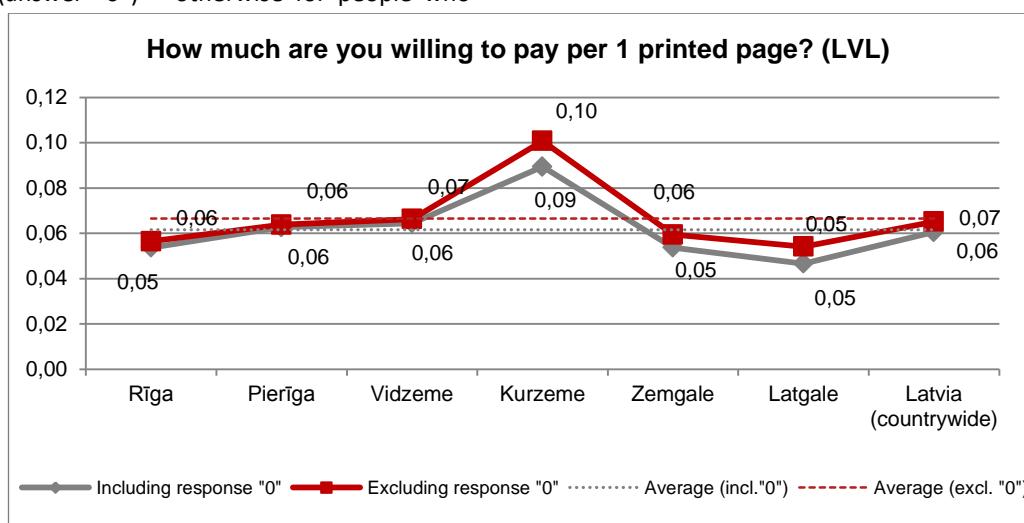


Figure 31 - WTP for using library printing service (weighted averages, LVL/ page in black and white)

The total benefit of the service is a multiplication of users' willingness to pay for printing at libraries by the number of prints library users make per year. The cost of printing service is the multiplication of the total salaries spent on library staff by the proportion of time library staff spends on the

provision of the printing service plus overheads. The total costs and benefits of printing service are shown in the Figure 32 below. It can be observed that while the costs have decreased in the period between 2008 and 2010, the benefits of the service have still been lower than the costs.

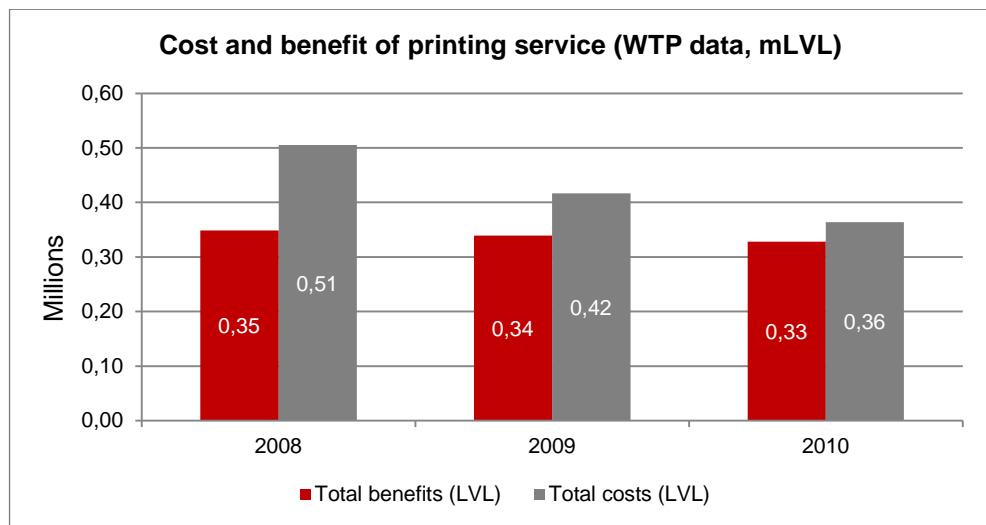


Figure 32 – Cost and benefit of printing service (countrywide WTP data, LVL)

The net benefit of printing service is the difference between the costs and benefits of the service. The regional difference of the average net benefit (in the period between 2008 and 2010) of printing service is shown in the Figure 33 below – the net value of

the printing service of all public libraries on average is negative while only in Vidzeme and Kurzeme regions is it on average positive – generating 73 and 233 thousand lats of annual net benefits.

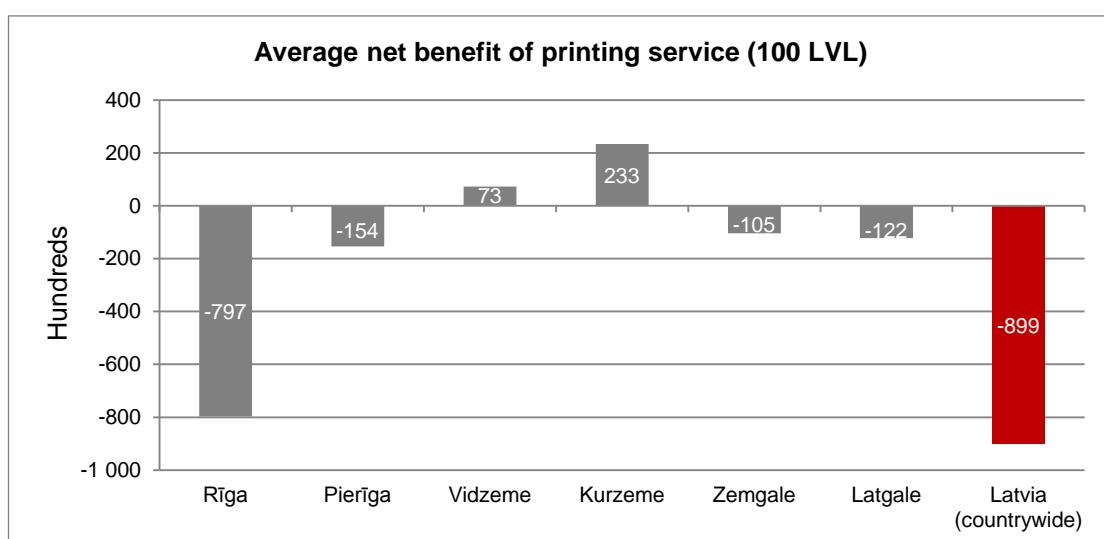


Figure 33 – Average net benefits of printing service (regional division, hundred LVL)

## Return Indicators

The average benefit-cost ratio for printing has been 0.79 in the period between 2008 and 2010 as shown in the Figure 34 below.

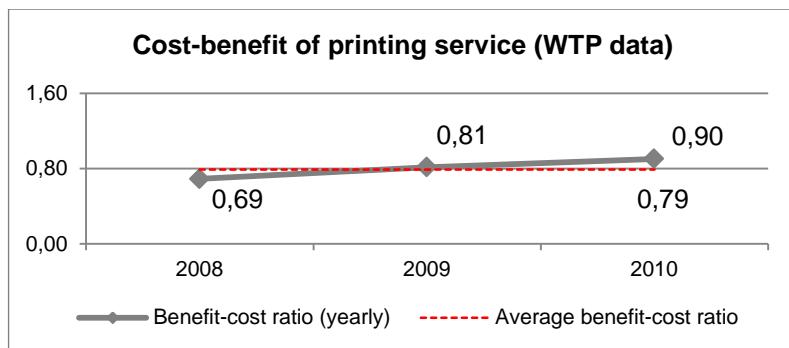


Figure 34 – Cost-benefit of printing service (WTP data)

## SCANNING

Scanning is another chargeable service provided by public libraries. However, not all libraries charge for this service. Furthermore, most do not record

statistics on the provision of this service even though the service is charged for.

## Cost and Benefit of the Service

The total benefit of the scanning service is calculated by using the average amount of money people in Latvia are willing to pay for a single scan which is around 6 santims per page when taking into account responders that were not ready to pay anything for scanning (answer "0") – otherwise for

people who are willing to pay at least 1 santim for scanning service at libraries – their willingness to pay on average is around 7 santims per page. The regional and countrywide stratification of these answers are shown in the Figure 35 below.

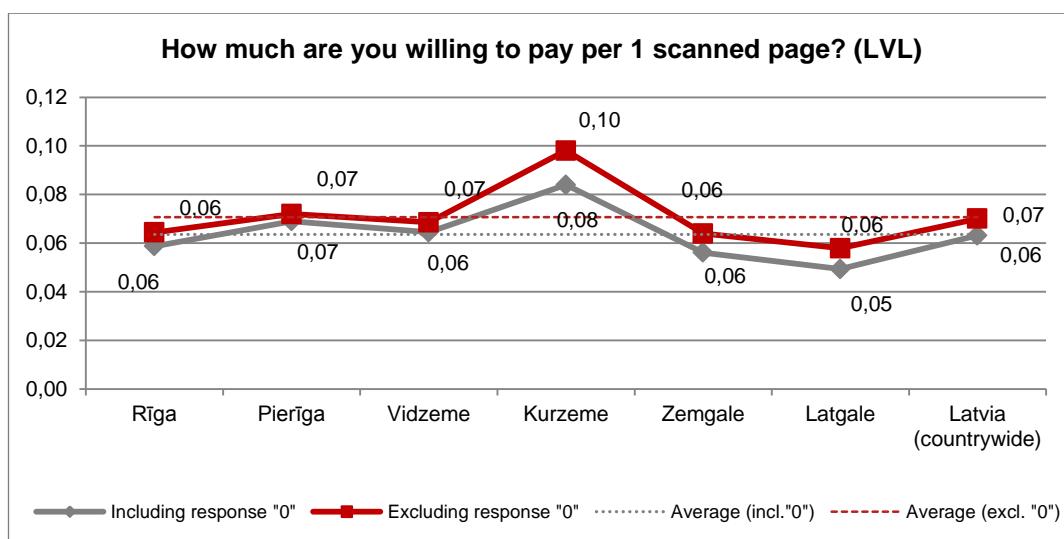


Figure 35 - WTP for using library scanning service (weighted averages, LVL)

The total benefit of service is a multiplication of users' willingness to pay for scanning at libraries by the number of scans library users make per year. The cost of scanning is the multiplication of the total salaries spent on library staff multiplied by the proportion of time library staff spends on the

provision of the scanning service plus overheads. The total costs and benefits of scanning service are shown in Figure 36 below. It can be observed that while the service costs have decreased in the period between 2008 and 2010, the benefits of the scanning have still been lower than the costs.

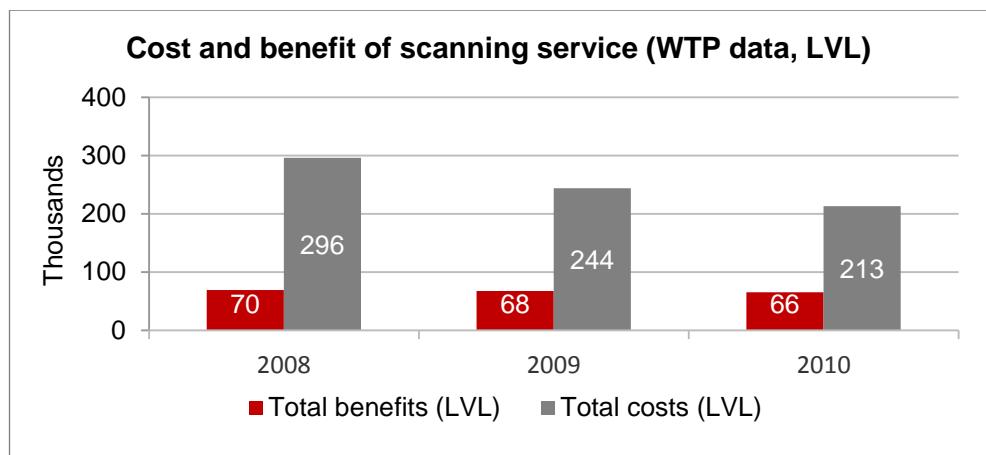


Figure 36 – Cost and benefit of scanning service (countrywide WTP data, LVL)

The regional distribution of the average net benefit (in the period between 2008 and 2010) of the scanning service is shown in the Figure 37 below –

the net value of scanning service of all public libraries as well as in all regions separately on average is negative.

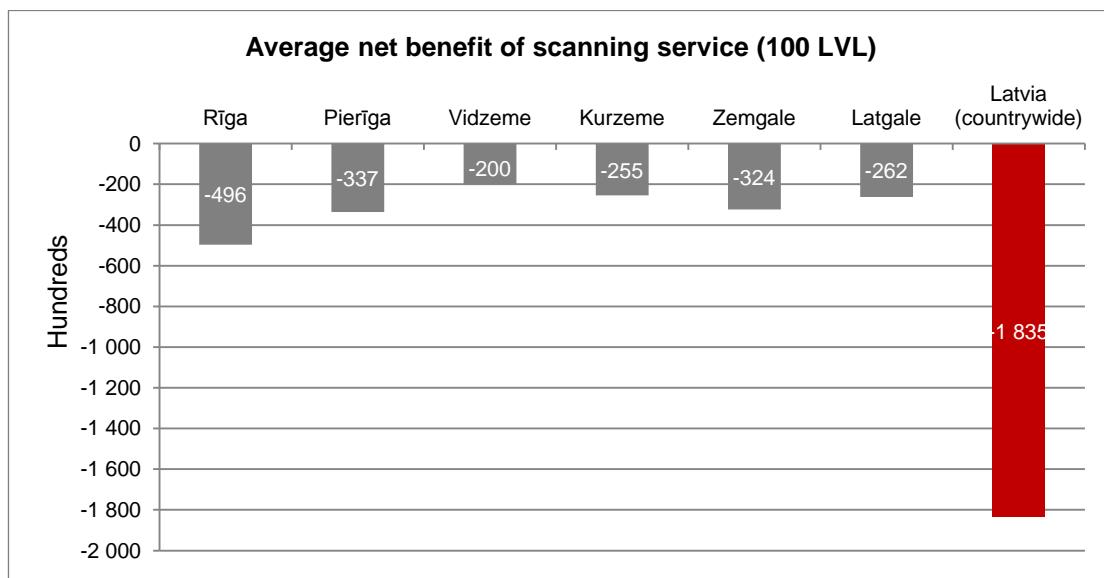


Figure 37 – Average net benefits of scanning service (regional division, hundred LVL)

### Return Indicators

The average benefit-cost ratio for scanning was 0.27 in the period between 2008 and 2010 as shown in the Figure 38 below.

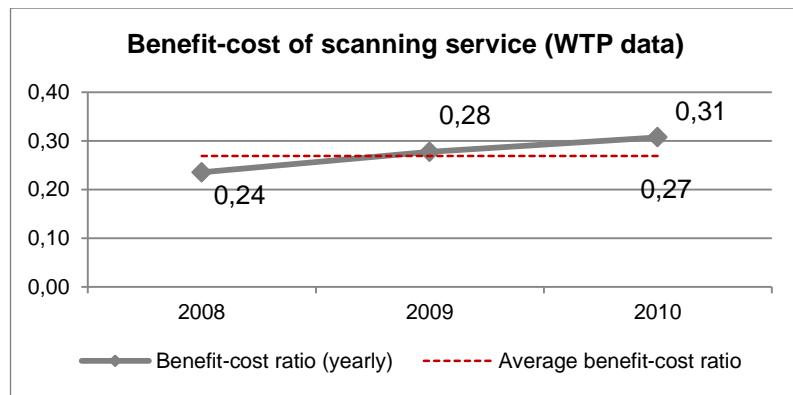


Figure 38 – Benefit-cost of scanning service (WTP data)

## PHOTOCOPYING

Photocopying service is another chargeable service provided by public libraries and included in the study. However, not all libraries charge for this service. Furthermore, most libraries do not record

statistics on the provision of photocopying even though they charge for the service.

### Cost and Benefit of the Service

The total benefit of the photocopying service is calculated by using the average amount of money people in Latvia are willing to pay for a single copy which is around 5 santims per page when taking into account responders that were not ready to pay anything for copying (answer "0") – otherwise for

people who are willing to pay at least 1 santim for photocopying service at libraries – their willingness to pay on average is around 7 santims per page. The regional and countrywide distribution of these answers are shown in the Figure 39 below.

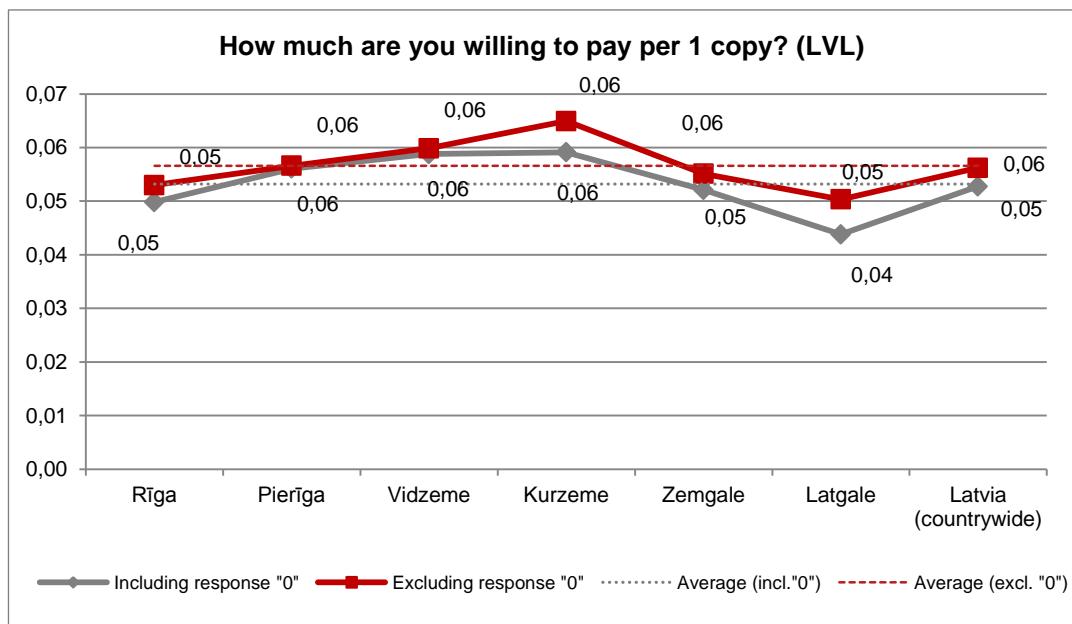


Figure 39 - WTP for using library photocopying service (weighted averages, LVL/ page in black and white)

The total benefit of the service is a multiplication of users' willingness to pay for photocopying at libraries by the number of copies library users make per year. The cost of photocopying service is the multiplication of the total salaries spent on library staff by the proportion of time library staff spends on the provision of the photocopying service plus

overheads. The total costs and benefits of photocopying service are shown in the Figure 40 below. It can be observed that while the service costs have decreased in the period between 2008 and 2010, the benefits of photocopying have still been lower than the costs until 2010 when the benefits slightly exceeded the costs.

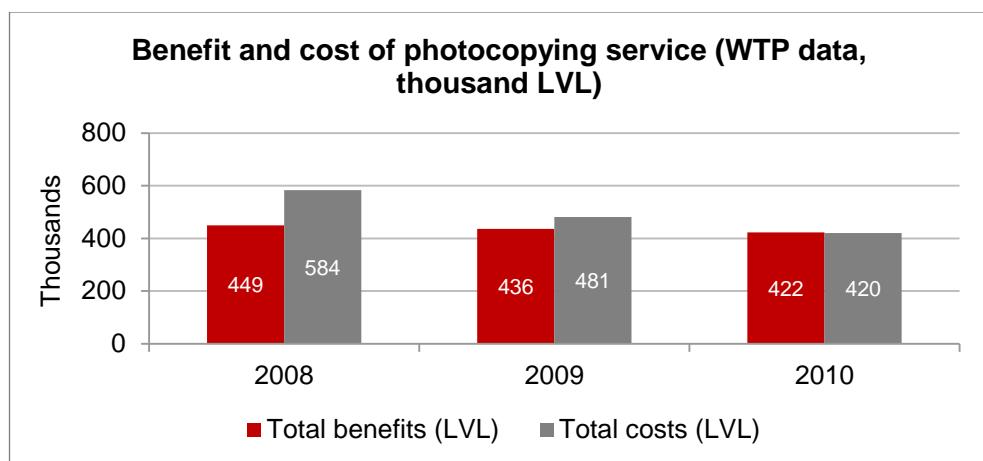


Figure 40 – Cost and benefit of photocopying service (countrywide WTP data, LVL)

The regional distribution average net benefit (in the period between 2008 and 2010) of the photocopying service is shown in Figure 41 below – the net value of the photocopying service of all public libraries in the period between 2008 and

2010 on average has been negative while; the same pattern can be observed in all regions except Vidzeme, Kurzeme and Latgale where photocopying had a positive net impact.

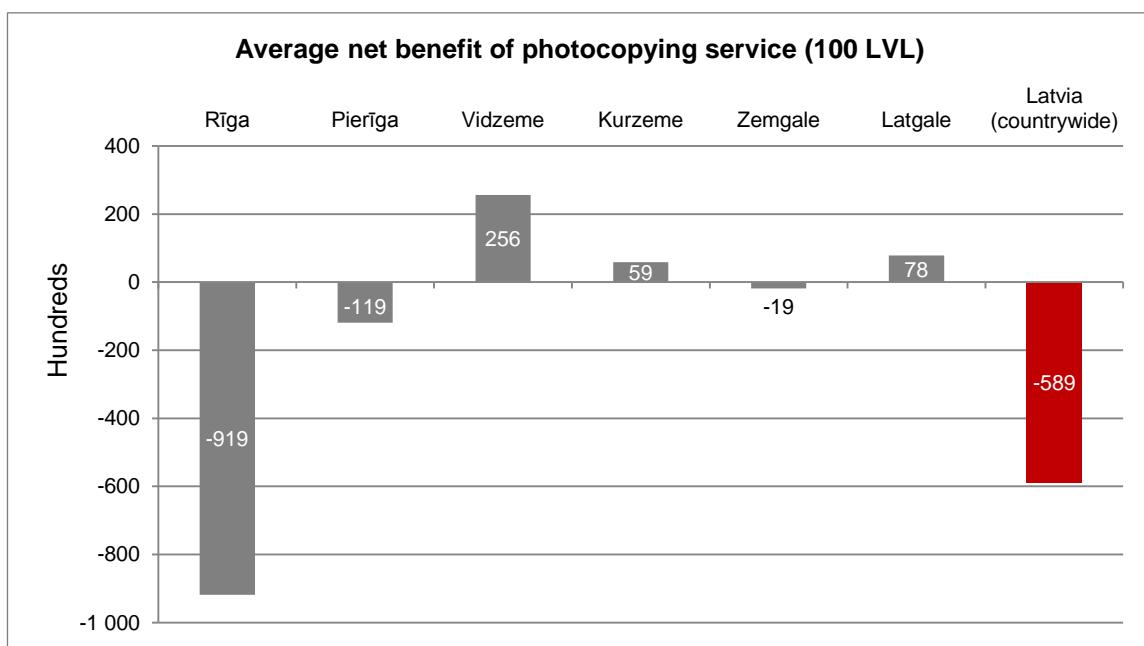


Figure 41 – Average net benefits of photocopying service (regional division, hundred LVL)

## Return Indicators

The average benefit-cost ratio for photocopying was 0.88 in the period between 2008 and 2010 as shown

in Figure 42 below. Only in 2010 did photocopying have a benefit-cost ratio above 1.

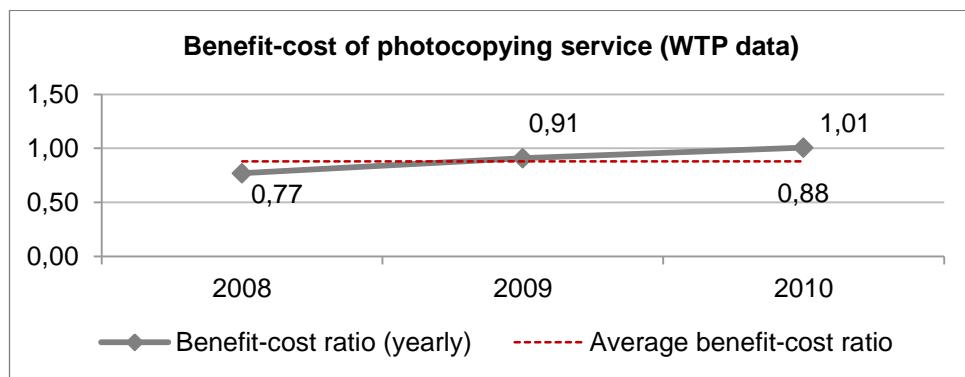


Figure 42 – Benefit-cost of photocopying service (WTP data)

## PUBLIC EVENTS

Public libraries because of their social function especially in countryside regions are popular locations for public events. Examples of public events include book openings, book reviews, discussions, lectures on library sciences and use of

library materials. Therefore it is important to estimate the value of these social activities. Most libraries do not collect data on the attendance of these public events which might affect the value estimations.

### Cost and Benefit of the Service

The total benefit of public events is calculated by using the average amount of money people in Latvia are willing to pay for a single public event which is around 1.14 lats per event when taking into account responders that were not ready to pay anything for attending an event (answer "0") – otherwise for

people who are willing to pay at least 1 santim for public events at libraries – their willingness to pay on average is around 1.47 lats for a single attendance. The regional and countrywide stratification of these answers are shown in Figure 43 below.

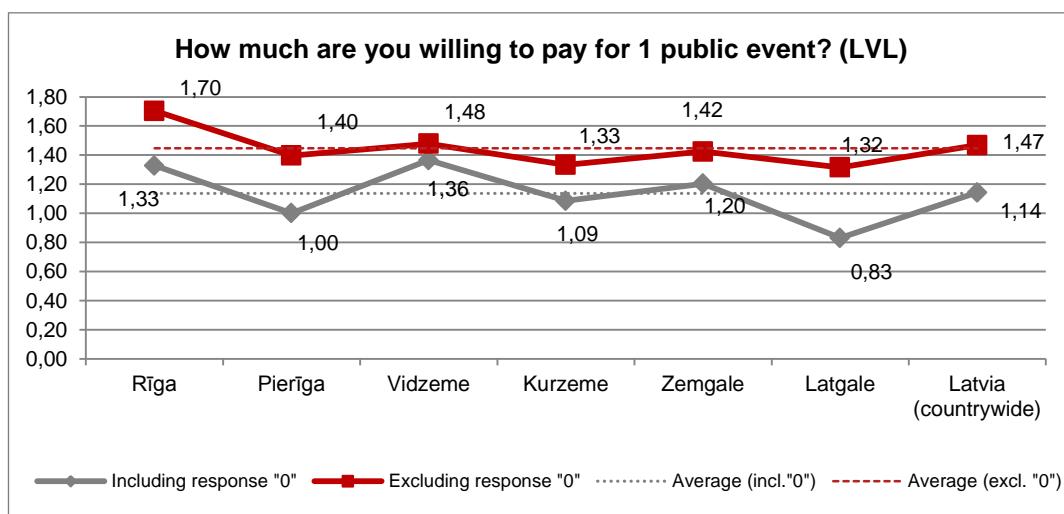


Figure 43 - WTP for public events (weighted averages, LVL)

The total benefit of public events is a multiplication of users' willingness to pay by the number of events library users attend per year. The cost of public events is the multiplication of the total salaries spent on library staff by the proportion of time library staff spends on the preparing the public

events plus overheads. The total costs and benefits of public events are shown in Figure 44 below. It can be observed that while the service costs have decreased in the period between 2008 and 2010, the benefits of public events have been lower than the costs.

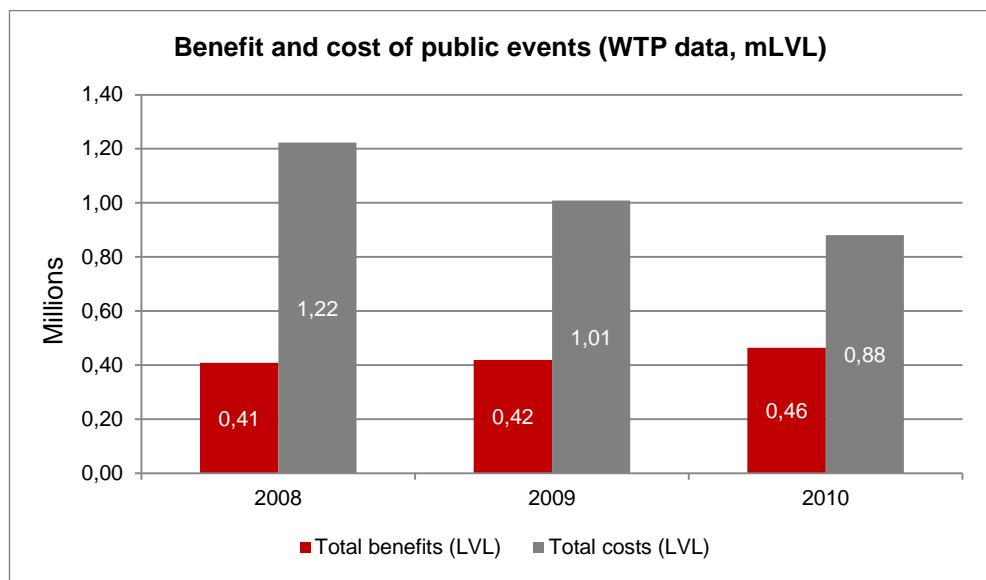


Figure 44 – Benefit and cost of public events service (countrywide WTP data, LVL)

The regional difference of the average net benefit (in the period between 2008 and 2010) of public events is shown in Figure 45 below – the net value

of public events service of all public libraries in the period between 2008 and 2010 on average has been negative.

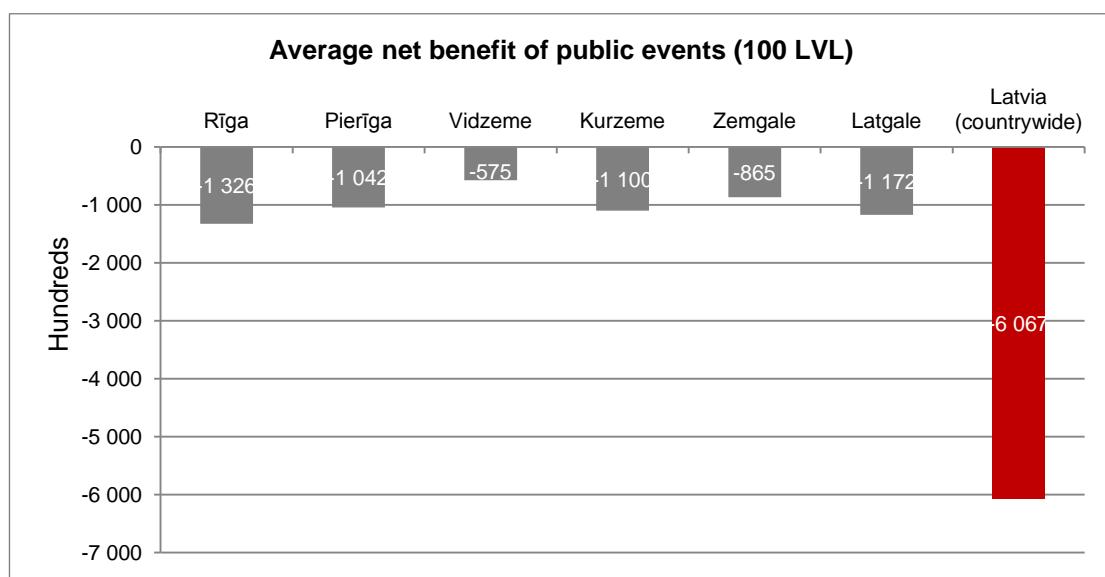


Figure 45 – Average net benefits of public events (regional division, hundred LVL)

## Return Indicators

The cost and benefit indices allows for a benefit-cost ratio analysis of public events service. The average benefit-cost ratio for public events has been 0.42 in

the period between 2008 and 2010 as shown in the Figure 46 below.

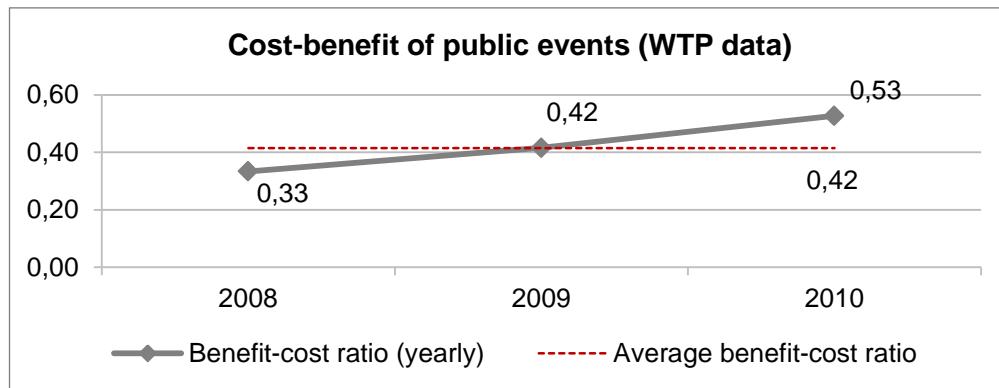


Figure 46 – Cost-benefit of public events (WTP data)

## EXHIBITIONS

Because of their public availability, libraries especially in countryside regions are often used as exhibition venues. These represent another

important social function of libraries. In contrast to other public events the net benefit was strongly positive.

### Cost and Benefit of the Service

The total benefit of exhibitions is calculated by using the average amount of money people in Latvia are willing to pay for a single exhibition which is around 0.89 lats per exhibition when taking into account responders that were not ready to pay anything for attending an exhibition (answer "0") – otherwise for

people who are willing to pay at least 1 santim for exhibitions at libraries – their willingness to pay on average is around 1.18 lats for single attendance. The regional and countrywide stratification of these answers are shown in Figure 47 below.

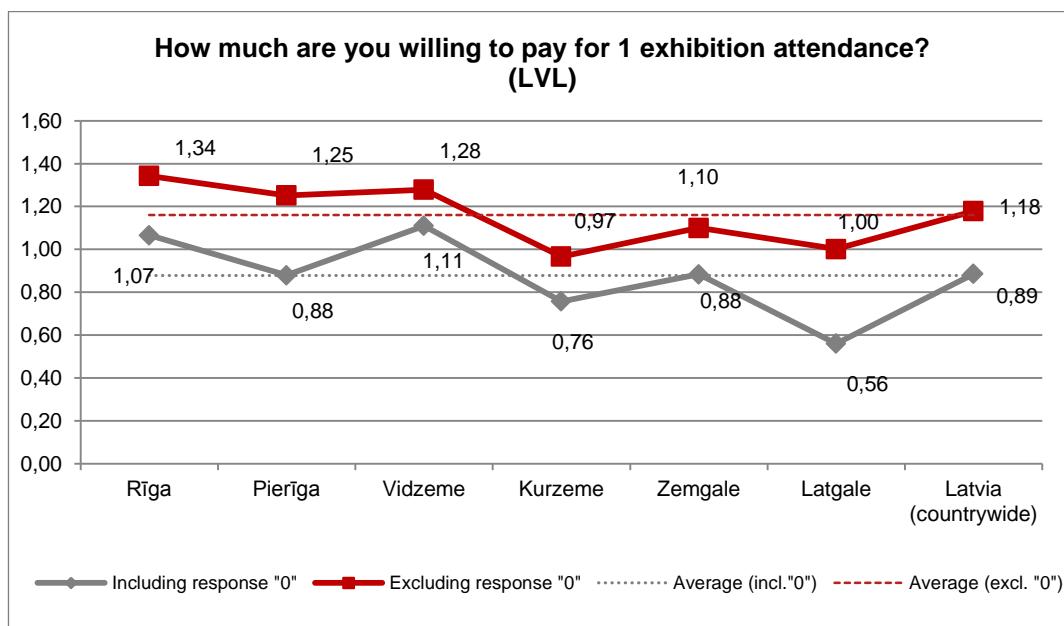


Figure 47 - WTP for exhibitions (weighted averages, LVL)

The total benefit of service is average willingness to pay for an exhibition at libraries multiplied by the number of exhibitions library users attend per year. The cost of exhibitions is the multiplication of the total salaries spent on library staff by the proportion of time library staff spends on preparing exhibitions plus overheads. The total costs and benefits of

exhibitions are shown in Figure 48 below. It can be observed that the service costs have decreased and service benefits have increased over the period between 2008 and 2010, and the benefits of exhibitions have consistently been much higher than the costs.

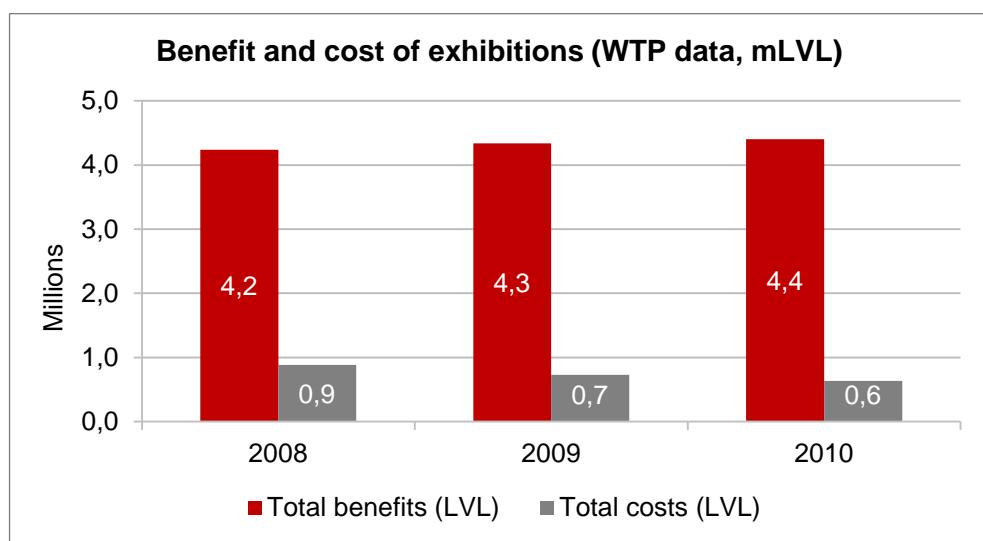


Figure 48 – Benefit and cost of exhibitions (countrywide WTP data, LVL)

The regional distribution of the average net benefit (in the period between 2008 and 2010) of exhibitions is shown in the Figure 49 below – the net value of exhibitions of all public libraries in the

period between 2008 and 2010 on average was around 3.5m lats while in regions it was approximately 0.5m lats.

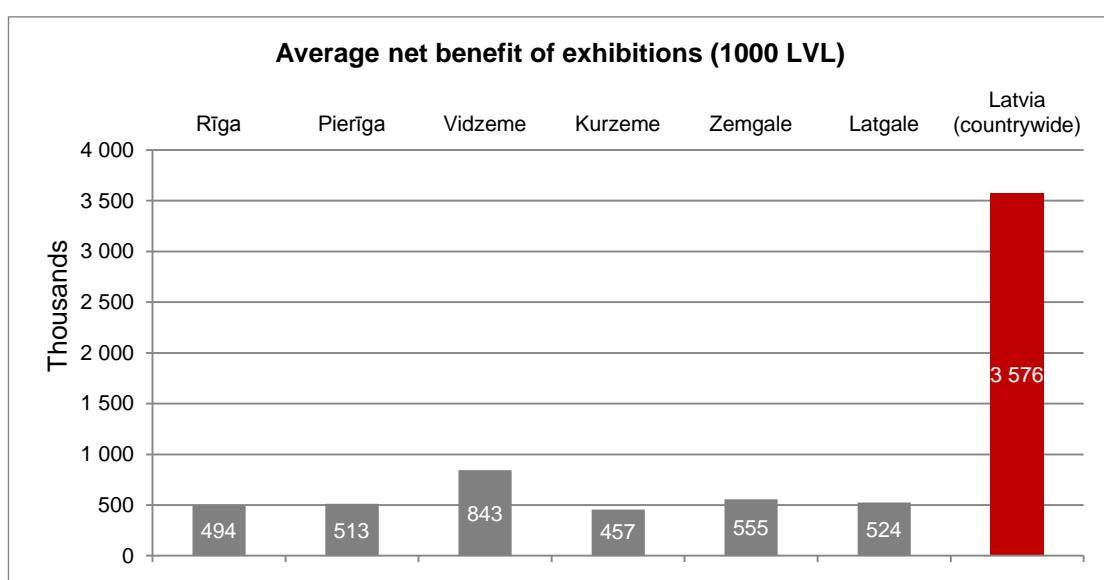


Figure 49 – Average net benefits of exhibitions (regional division, thousand LVL)

## Return Indicators

The average benefit-cost ratio for exhibitions was 5.77 in the period between 2008 and 2010 as shown in the Figure 50 below.

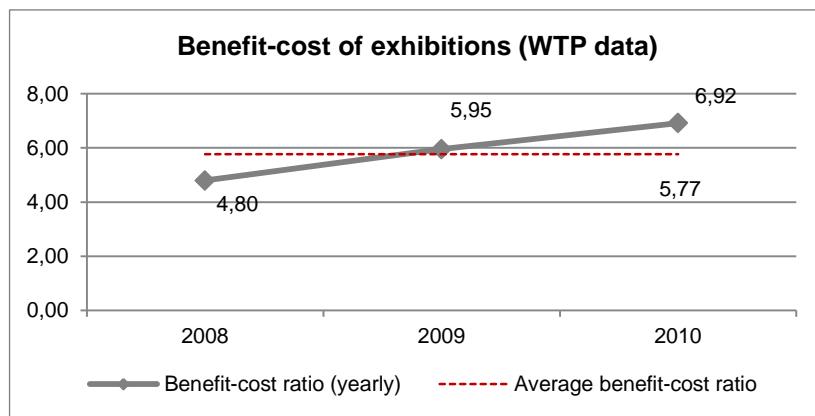


Figure 50 – Cost-benefit of exhibitions (WTP data)

## REFERENCE SERVICES

The library staff spends a significant amount of time every day providing various references from library users; these include not only references on the

library resources but also more general references that require library staff to search for information using various library resources.

### Cost and Benefit of the Service

The total benefit of reference services is calculated by using the average amount of money people in Latvia are willing to pay for a single reference which is around 0.10 lats per reference when taking into account responders that were not ready to pay anything for reference services (answer "0") –

otherwise for people who are willing to pay at least 1 santim for reference services at libraries – their willingness to pay on average is around 0.12 lats for a single reference. The regional and countrywide stratification of these answers are shown in Figure 51 below.

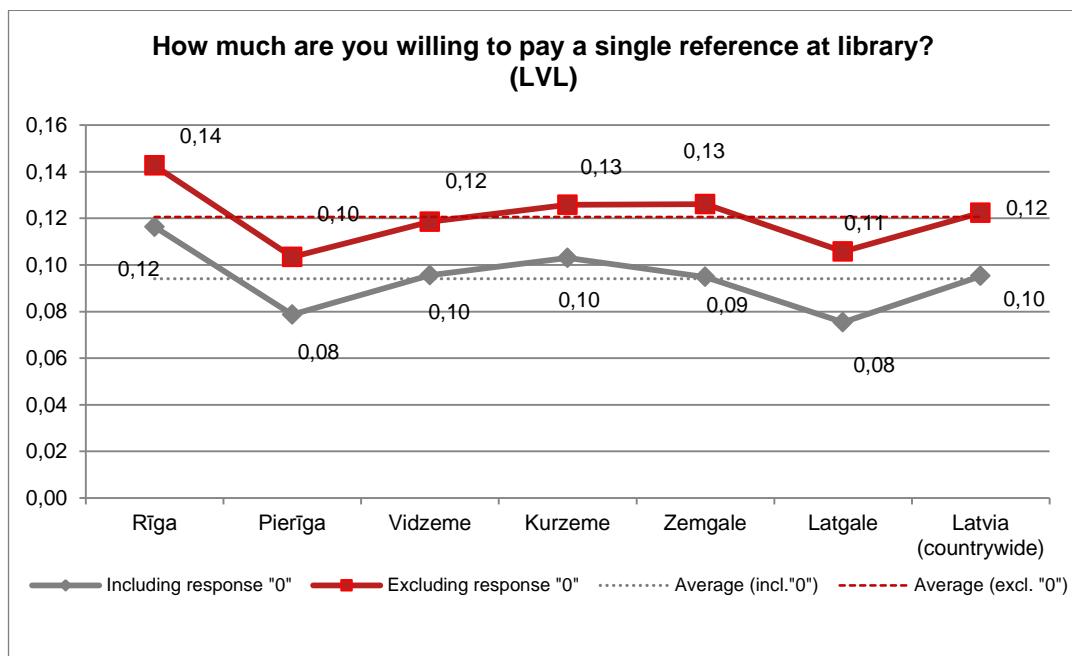


Figure 51 - WTP for reference services (weighted averages, LVL)

The total benefit of the reference services is a multiplication of users' willingness to pay for reference services at libraries by the number of references provided per year. The cost of reference services is the multiplication of the total salaries spent on library staff by the proportion of time

library staff spends on providing references plus overheads. The total costs and benefits of reference services are shown in Figure 52 below. It can be observed that costs have decreased in the period between 2008 and 2010 nonetheless the costs in the entire period have exceeded the benefits.

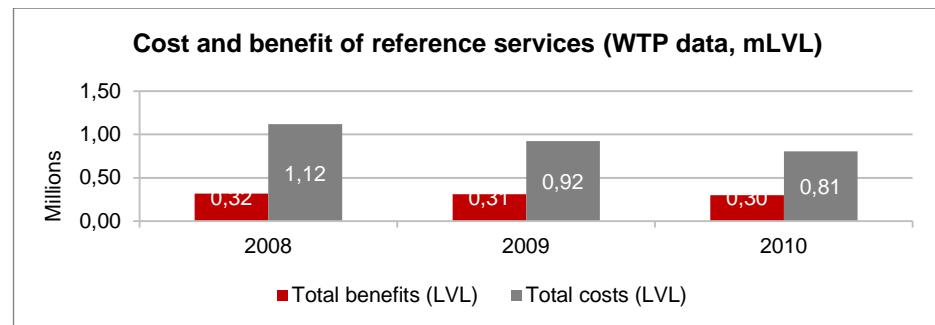


Figure 52 – Cost and benefit of reference services (countrywide WTP data, LVL)

The regional distribution of the average net benefit (in the period between 2008 and 2010) of reference services is shown in Figure 53 below – the net value

of reference services in all public libraries in the period between 2008 and 2010 on average was negative.

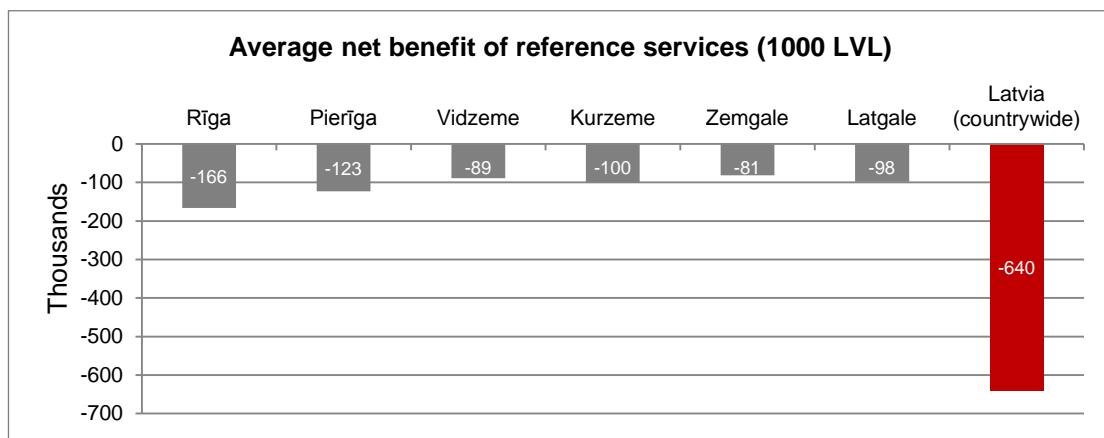


Figure 53 – Average net benefits of reference services (regional division, thousand LVL)

### Return Indicators

The average benefit-cost ratio for exhibitions has been 0.33 in the period between 2008 and 2010 as shown in the Figure 54 below.

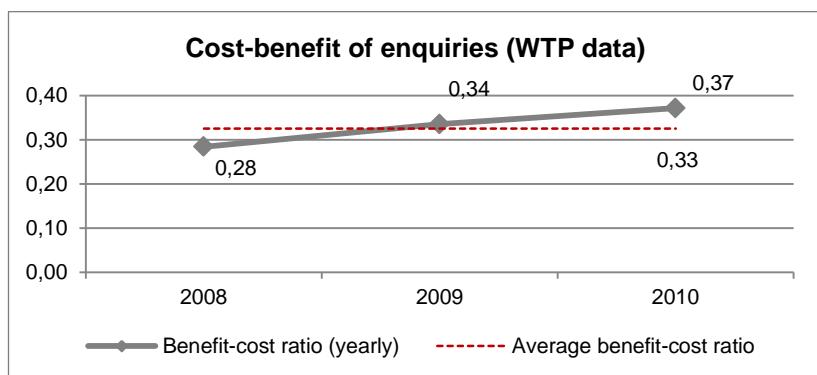


Figure 54 – Cost-benefit of reference services (WTP data)

## SENSITIVITY ANALYSIS

The choice of data for this study represents a “conservative” approach. The use of different data would mainly affect (increase) the benefits of services. This is because the surveys valued services at very different levels – some respondents, for example, indicated the value of some services to be zero – this value was included in the data used for calculations, hence, taking into account all answers given by respondents. An alternative approach would be to take only the answers where people attributed at least a minimum value to services. Another consideration is the use of the WTP in the valuation of library benefits. The WTP based approach inherently constrains valuations to the ability of users to pay for

services. Thus in some cases e.g. where users have low incomes, WTA might be considered as more representative of the ‘true value’ of services. Table 12 summarises the benefit, cost, net benefit and cost-benefit ratios for the three alternative approaches – WTP with and without zeros and WTA. The differences are apparent especially – both of the alternative approaches show much greater benefits generated by public libraries than the “conservative” approach taken as the central case in this study. Thus under the other alternative assumptions the net benefits of the library system are increased to 49m and to almost 160m representing benefit-cost ratios of 3.88 to 9.96 to 1.

Table 12 – Summary of the WTP, costs, benefits, net benefits and benefit-cost ratio of public library services

Library service	WTP (including 0)	WTP (excluding 0)	WTA (including 0)	Units	Total annual benefits of services (LVL)			Total annual costs of services (LVL)	Net annual benefits of services (LVL)			Benefit-cost ratio		
	WTP (including 0)	WTP (excluding 0)	WTA (including 0)		WTP (including 0)	WTP (excluding 0)	WTA (including 0)		WTP (including 0)	WTP (excluding 0)	WTA (including 0)	WTP (including 0)	WTP (excluding 0)	WTA (including 0)
1. Public library services in general	8,92	10,79	34,06: pay per year		23 773 337	67 086 443	172 407 991	17 303 307	6 470 030	49 783 136	155 104 683	1,37	3,88	9,96
2. Total for the selected public library services	0,00	0,00	0,00:n.a.		19 866 319	62 371 030	157 526 746	14 803 988	5 062 331	47 567 042	142 722 758	1,34	4,21	10,64
2.1. ICT training classes	1,36	2,05	2,97: pay per 1h class		358 744	543 795	786 877	730 556	-371 812	-186 761	56 321	0,49	0,74	1,08
2.2. ICT consultations	0,31	0,49	0,79: pay per 15 min. consultation		1 047 622	1 643 306	2 681 013	2 671 502	-1 623 880	-1 028 197	9 510	0,39	0,62	1,00
2.3. Lending	0,39	0,54	7,09: per item		5 818 178	8 112 341	106 217 840	4 108 521	1 709 657	4 003 820	102 109 319	1,42	1,97	25,85
2.4. Use of PCs and Internet	0,45	0,65	1,66: per 1h use		3 864 529	5 598 039	14 348 921	1 269 279	2 595 250	4 328 760	13 079 643	3,04	4,41	11,30
2.5. Reading	0,24	0,43	1,59: per 1h		2 863 984	38 851 246	19 314 024	1 981 694	882 291	36 869 552	17 332 330	1,45	19,61	9,75
2.6. Services for library users with disabilities	0,25	0,67	0,27: per 1h use		5 885	15 619	6 363	132 449	-126 564	-116 829	-126 085	0,04	0,12	0,05
2.7. Printing	0,06	0,07	0,60: per 1 b/w page		338 698	364 617	3 342 676	428 617	-89 919	-63 999	2 914 059	0,79	0,85	7,80
2.8. Scanning	0,06	0,07	0,38: per 1 page		67 613	75 018	409 857	251 160	-183 548	-176 142	158 697	0,27	0,30	1,63
2.9. Photocopying	0,05	0,06	0,55: per 1 page		435 954	464 381	4 575 812	494 835	-58 881	-30 454	4 080 977	0,88	0,94	9,25
2.10. Public events	1,14	1,47	1,99: per 1 event ticket		430 491	553 139	20 327	1 037 174	-606 683	-484 035	-1 016 846	0,42	0,53	0,02
2.11. Exhibitions	0,89	1,18	0,95: per 1 exhibition ticket		4 325 601	5 752 551	4 614 439	749 486	3 576 115	5 003 065	3 864 953	5,77	7,68	6,16
2.12. Reference services	0,10	0,12	0,37: per 1 reference		309 021	396 978	1 208 596	948 715	-639 694	-551 738	259 881	0,33	0,42	1,27

## ENDNOTES

<sup>1</sup> *Bibliotēku attīstības pamatnostādnes 2011.–2015.gadam* ([http://www.km.gov.lv/lv/doc/nozaru/biblio/dokumenti/LBPpamatnost.proj\\_2011.2015.pdf](http://www.km.gov.lv/lv/doc/nozaru/biblio/dokumenti/LBPpamatnost.proj_2011.2015.pdf))

<sup>ii</sup> *Introduction and General Description of the Method of Contingent Valuation*, Food and Agriculture Organization of the United Nations (<http://www.fao.org/DOCREP/003/X8955E/x8955e03.htm>)

<sup>3</sup> See, for example, a handbook on the extended standard cost model (“*Paplašinātais standarta izmaksu modelis*”) issued by the State Chancellery. ([www.mk.gov.lv/file/files/ESfondi/2011/as\\_metrgr\\_psim\\_e-vide.pdf](http://www.mk.gov.lv/file/files/ESfondi/2011/as_metrgr_psim_e-vide.pdf))

<sup>4</sup> <http://www.csb.gov.lv/en/node/28607>

<sup>5</sup> The sample size of more than 3,000 was chosen to increase the confidence level and reduce margin of error. Out of all respondents, 25% were non-users, 47% were active users and 27% were passive users of libraries.

<sup>6</sup> c.f. BusinessDictionary.com, 2011

<sup>7</sup> c.f. Smith, Richard D., 2005. "Sensitivity to scale in contingent valuation: the importance of the budget constraint," *Journal of Health Economics*, Elsevier, vol. 24(3), pages 515-529.

<sup>8</sup> Here we refer to willingness to pay throughout but logically willingness to accept is an alternative, which in some cases might be more informative.

<sup>9</sup> c.f. Kamer, Pearl M. Placing an Economic Value on the Services of Public Libraries in Suffolk County, New York, a study prepared by the Long Island Association, June 2005. (<http://scls.suffolk.lib.ny.us/pdf/librarystudy.pdf>).

<sup>10</sup> Other expenses include items like electricity, office supplies, heating, maintenance expenses and other similar costs.

<sup>11</sup> <http://www.likumi.lv/doc.php?id=53872>

<sup>xii</sup> In this particular case the WTP data used excluded responses that assigned value “0” to this service on the grounds that including the zero valuations of people who did not need such a service would unduly bias the results.

<sup>13</sup> Survey dataset including values „0” except for services for visually impaired (survey conducted in autumn/ winter 2011).

<sup>14</sup> Countrywide weighted average data for period of 2008-2010; based upon service usage frequency from library dataset using WTP dataset.

<sup>15</sup> Countrywide weighted average data for period of 2008-2010; based upon service usage frequency from library dataset.

<sup>16</sup> Using cost and benefit countrywide weighted average data for period of 2008-2010.

<sup>17</sup> The study included only those capital investments related to instalment of PC and Internet access equipment (mainly BMGF donation and state subsidy). Capital investments in buildings and land were not accounted for because the effect of these investments is long standing and would artificially raise the costs of library services. For this study investments are perceived as financial investments in salaries and support of services (purchase of materials and overheads, directly related to the provision of services).

<sup>18</sup> The Economic Contribution of Wisconsin Public Libraries 2008, A Return on Investment Study of the Charlotte Mecklenburg Library 2010, The Economic Impact of Libraries in Indiana, Indiana Business Research Center, November 2007, The Economic Impact of Public Libraries on South Carolina, Daniel D. Barron, Robert V. Williams, Stephen Bajjaly, Jennifer Arns, Steven Wilson, January 2005, The Economic Value of Vermont's Public Libraries 2005-2006, Marianne Kotch, February 2007, Information Searches That Solve Problems: How People Use the Internet, Libraries, and Government Agencies When They Need Help, PEW / Internet & American Life Project and Graduate School of Library and Information Science, December 30, 2007, Taxpayer Return on Investment in Florida Public Libraries: Summary Report, Jose- Marie Griffiths, Donald W. King, Christinger Tomer, Thomas Lynch, Julie Harrington, September 2004, Taxpayer Return-on-Investment (ROI) in Pennsylvania Public Libraries, Jose-Marie Griffiths, Donald W. King, Sarah E. Aerni, with Scott Beach, Janet Schlarb, Chris Briem, Chris Tomer, Matt Herbison, Songphan Choemprayong, September 2006, Value for Money: Southwestern Ohio's Return from Investment in Public Libraries, Levin, Driscoll and Fleeter, June 2006, The Wisconsin Library User (and Non-User) II: Outcomes of a Second Statewide Survey (2003-2007 Comparisons), Joshua H. Morrill, Ph.D., June 2007.

<sup>19</sup> Ibid. and Measuring Our Value. The British Library, 2004

<sup>20</sup> Survey dataset including values „0” except for services for disabled people (survey conducted in autumn/ winter 2011).

<sup>21</sup> Countrywide weighted average data for period of 2008-2010; based upon service usage frequency from library dataset using WTP dataset.

<sup>22</sup> Countrywide weighted average data for period of 2008-2010; based upon service usage frequency from library dataset.

<sup>23</sup> Using cost and benefits countrywide weighted average data for period of 2008-2010.