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Conference Paper

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55th Congress of the European Regional Science Association: "World Renaissance: Changing roles for people and places", 25-28 August 2015, Lisbon, Portugal

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Pichova, Simona; Stejskal, Jan (2015) : Return-on-investment of public investments to systems which provide public services - a case study, 55th Congress of the European Regional Science Association: "World Renaissance: Changing roles for people and places", 25-28 August 2015, Lisbon, Portugal, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/124814>

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Return-on-investment of public investments to systems which provide public services – a case study

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Introduction

Ensuring public investment in the production of public services is one of the main tasks of the public sector in all modern countries. Over the last 40 years, however, these systems have undergone significant reform changes. They focused especially on public management and implementation of the various elements of business management (new public management) and the very principles of good government (Osborne & Plastrik, 1997; Lynn, 1996; Denhardt & Denhardt, 2000; Fernandez & Rainey, 2006). In the public sector there are elements such as decentralization, deconcentration, disrupts the uniformity of administration and strengthens the role of non-profit organizations with an emphasis on efficiency and quality. Enhance the tendency to pass more often ensuring public production in the hands of the private sector (the tensions between the emphasis on decentralization promoted in the market model and the need for coordination in the public sector; Peters & Savoie, 1996). Some of these theories describe "neomanageristické" tendencies as "public entrepreneurship" (Fernandez & Rainey, 2006). In the last 20 years of the 20th century, not only in Europe to frequent efforts of scholars and practitioner's to analyse systems for the provision of public performance and suggest how to increase the productivity and find alternative service-delivery mechanisms based on public-choice assumptions and perspectives (Dunleavy & Hood, 1994). In variously called managerially oriented directions they recommend to focus also on area of accountability, effectiveness and high performance. To ensure that these objectives could be achieved, it is necessary to redefine organizational and production mission, reduce the influence of bureaucratic agencies and allow execution of the privatization of some public function. It was a great revolution in the current understanding of the role of the state in the economy (Brown & Osborne, 2012). In the last-decade of the 20th century publishes Janet and Robert Denhardt approach called as New Public Service. It contains many elements of the new public management, is regarded as normative model, which distinguishes it from other models. Precursors of New Public Services are theory of democratic citizenship, models of community and civil society and organization humanism and discourse theory.

This approach is oriented and accountable to the citizens, aimed at ensuring maximum well-being of a new approach to public production. It uses to them building of coalitions of public, non-profit and private agencies (Pestoff, Brandsen & Verschuere, 2013). The individual components is concerned with creating an appropriate legal environment, contributing to the creation of quality values in society and constitute the standards of individual services according to the needs of consumers - citizens (Bao, Wang, & Larsen, 2013). Simultaneously these consumers pulled into the production chain and both actively and passively (Bach & Kolins Givan, 2013).

The authors of the access new public services in their article indicate that the application of this approach is necessary to develop appropriate policies that will be a complex system featuring complex governance networks comprising o plurality of actors – public, private and non-government – each bringing their own special interest, resources, and set of expertise (Denhardt & Denhardt, 2015). They emphasize changing role of the public sector - from service delivery role (rowing role) into policy development (steering role). For this they need conclusively solve one problem. Public administrators have long struggled with how to measure outcomes of public programs because the performance measurement tools have traditionally neglected (Slater & Aiken, 2014).

Theoretical background

Every research on public services will therefore be used as a backdrop for the discussions on how evaluate or measure the utility from public services consumption. Many papers and studies revolve around both providing services cost effectively and creating societal wealth. But value in public sector is more complex than in the private sector and can therefore be harder to measure (Bloch & Bugge, 2013). Business sector can measure the output by existing indicators (sales, value added). These, however, do not exist (or have no explanatory value) in the public sector. Therefore, use other indicators to measure public sector performance (usually a macroeconomic view). For individual services or public sector organizations is necessary microeconomic view, taking into account both the costs and benefits arising from the consumption of the collective goods. Evaluation potentially provides the key to improved effectiveness at both organizational and policy levels as defined in terms of capacity to satisfy needs and improve the quality of life of citizens (Sanderson, 1996).

The evaluation of outputs or outcomes of public services are used input-output economic methods that analyse either one criterion or more criteria, often just costs as inputs or outputs in the form of benefits. Methods of economic evaluation of non-market goods or effects (e.g.

externalities), based on consumer's surplus, are mainly three: the Travel Cost Method, the Hedonic Price Method and the Contingent Valuation Method (Marella & Raga, 2014). The problem with these methods is again difficult measurability of outputs or results (Modell & Wiesel, 2008) and the need for direct interaction with the consumer. Other methods replicate practices commonly used in the private sector, as an example is the return-on-investment (Kaufman & Watstein, 2008). The goal is to provide a clearer picture of the benefits and costs of service producer. These methods can be used both to analyse the efficiency of individual providers and for the region or the entire system of the selected type of service in the state (McIntosh, 2013).

All of the above methods for further analyses use the perceived value of services from customers. It is a process based on contingent valuation (Cumming & Taylor, 1999), which was established in 1947. The essence of methods based on this principle is the valuation of willingness-to-pay of the public services customers. The contingent valuation method is a widely used nonmarket valuation method especially in the areas of environmental cost (Venkatachalam, 2004), health care (Klose, 1999), public libraries (Stejskal & Hájek, 2015). CV principle is the basis of a method that is still used today in practice – contingent valuation method (CVM). The CVM is a survey-based technique generally accepted as a meaningful tool used to estimate the value of various nonmarket goods (Lee & Chung, 2012), it reflects altruistic motivation, a major component of non-use value in contingent valuation. This method gained popularity after the two major non-use values, namely, option and existence values have been recognised as important components of the total economic values (Venkatachalam, 2004). For methodology of contingent valuation see (Russell et al., 1995; Wedgwood & Sansom, 2003). There are also criticisms of this approach in the literature. “Variations on the contingent valuation method place value on goods or services that are far removed from any market pricing mechanism. Second, the valuation rests on subjective notions of value, rather than market values, with little regard for level of income or the trade-offs with other goods and services” (IBRC, 2007 in McIntosh, 2013). Contribution to the critique it also adds Mathews, who proposes to use the results as a method CVM “fairly low” estimates of value (Mathews, 2011).

To obtain the perceived value of the experiments are often used, sometimes suitably combined questionnaire surveys and direct interviews. Contingent valuation studies ask questions that help to reveal the monetary trade off each person would make concerning the value of goods or services (by means of a questionnaire, a hypothetical market is described where the service in question can be traded). The researcher must obtain so called “stated

preference” from the customer. Such surveys are a practical alternative approach for eliciting the value of public goods, including those with passive use considerations. Results from contingent valuation studies are used for many purposes in benefit–cost studies (Carson, 2012; Marella & Raga, 2014).

Discussed evaluation techniques have been used also in library services to analysing of “return” of public investments. There are three main groups of approaches:

The first studies were generally “efficiency” or output-oriented studies and it demonstrate the value of libraries in operating efficiently in managing human and material resources, being financially responsible and therefore of providing value as a service per se. In these studies we can include costing library activities (how can be processes and services made more effective) and benchmarking (Wilson & Pitman, 1999a, 1999b). Another approach to measuring the value of library services is aimed at demonstrating the success of the library in providing a financial return to the organisation or to the region. The problem of this research was: what is the dollar figure for the contribution of the library (Marshall, 1993; Griffiths & King, 1993).

Third: in the 1990s came a new methodology – taking a broader view of the value of libraries and seeking to establish their value to stakeholders and clients. It was used the Balanced scorecard methodology, which enabled to set goals to split hard numbers under consideration to determine which services should be changed, and also to consider process improvements (Kaplan & Norton, 1996, Walsh & Greenshields 1998). The high point of these approaches for evaluation of public library services can be seen in the current studies of value using return-on-investment and contingent valuation. These methods are generally conducted to determine the economic benefit to citizens of public libraries and the economic benefit of particular services, such as national union catalogues and bibliographic services (Missingham, 2005).

Regardless of the used method, it can be argued that the results of analyses can help to comment on both: the effectiveness and the return too.

Data and methodology

For return-on-investment analysis we need the empirical data. This paper build on the results of the project focused on the ROI analysis in municipal libraries in the Czech Republic. During year 2012 the empirical survey was realized. The data was obtained from the biggest public library of Czech Republic – from Municipal Library of Prague (MLP).

The survey was conducted in July – August 2012 as a qualitative and representative with the help of on-line questionnaire (CAWI). Were addressed 11,397 randomly selected readers MLP library. These readers were older than 15 years, said in their application an email and they used of library services in the last quarter before receiving the questionnaire. Return of the survey was 20 %, after cleaning the data file consists of a basic set of 2227 respondents. Questionnaire used to establish the perceived value of selected services provided by the library was first subjected to pilot testing, so that individual questions were for the reader to understand and be able to answer them. Simultaneously it was designed so that the method of asking questions and their sequence did not affect readers. Here were published the experience of Venkatachalam (2004).

Respondents were asked to evaluate a list of library services directly assigning the perceived value of the WTP approach. Overview of services is given in Table 1. Observed values were obtained in CZK and for the purposes of publication are translated into EUR at the announced rate. Already in pilot testing, it was found that readers do not appreciate the service of the loan book. The factors that make it impossible have been identified. They are mainly for example the kind or genre of books, the actual importance of books for readers and its current social situation. For this reason, WTP methodology for library borrowing was supplemented by the necessary data, which facilitates to evaluate the perceived value of the loan for readers. The results are shown in Table 1.

The calculation of the ROI value is performed using the calculation of cost / benefit analysis (according to OECD methodology, 2006). Cost/benefit analysis is the most used means of characterizing the euro benefits that accrue to communities when they provide tax support to public libraries (Aabø, 2009). Input data - costs for providing of evaluated portfolio of the public services - into the cost / benefit analysis were obtained from MLP (listed in the necessary breakdown in Tables 1 and 2). These financial resources in the form of cost of the MLP are public investments because they come from the public budgets of the regional level. The result of the study presented in this paper is a calculating ROI for public investment. In a cost/benefit analysis using measurement of secondary economic impacts, the library's impact on the rest of the economy can be calculated, e.g. its contribution towards employment, income, consumption expenditures, and state or local government revenue in the form of taxes. Economic impact studies are an established methodology in economics (Aabø, 2009), methods were mentioned above.

Results and analysis

Based on the characterised empirical examination, the perceived value library services (per unit) were determined. The quantification of all services realized in MLP in year 2013 is also presented in Table 1. Data about the quantification was obtained from MLP library database.

Table 1: Library services WTP evaluation and quantification (2013)

Standardised library services	WTP (Eur/unit)	Quantification
	EVU	Q
Circulating loans with assistance	2.40	33,887
Circulating loans without assistance	2.40	138,293
Non-circulating loans with assistance	.30	7,304
Non-circulating loans without assistance	.20	30,976
Copying or printing documents	.11	5,667
Digital services on-site	.60	7,520
Digital services with off-site access	.10	350,533
Information and research	.29	1,884
Cultural and educational events	1.91	4,625
Technical services	.82	8,230
Services related to the life of the community	2.97	603
Residence in the library	.21	6,773

Source: Authors' own research

The details about the regional investment (from local authority budget) were obtained from accounting. MLP accounting department can track the cost (expenses) by every service category. In Table 2, calculations are also made which are necessary for the use of the CBA method and find out the ROI for all services.

Table 2: Total Costs, perceived utility of individual library services in 2013 (EUR)

Standardised library services	Costs		Utility	ROI
	Total cost	Unit Costs	Total utility	
	TC	TC/Q	TU = EVU.Q	TU/TC
Circulating loans with assistance	79,172.50	2.34	81,328.80	1.03
Circulating loans without assistance	156,406.06	1.13	331,903.20	2.12
Non-circulating loans with assistance	19,758.24	2.71	2,191.20	0.11
Non-circulating loans without assistance	27,520.31	0.89	6,195.20	0.23
Copying or printing documents	1,954.48	0.34	623.37	0.32
Digital services on-site	5,223.18	6.95	451.20	0.09
Digital services with off-site access	9,546.22	0.03	35,053.30	3.67
Information and research	4,620.44	2.45	546.36	0.12
Cultural and educational events	14,949.18	3.23	8,833.75	0.59
Technical services	3,625.10	4.40	674.86	0.19
Services related to the life of the community	1,228.71	2.04	1,790.91	1.46
Residence in the library	11,403.65	1.68	1,422.33	0.12

Source: Authors' own research

The data in Table 2 shows the overall ROI of provided services in MLP. The total ROI of MLP is 1.80467 (1 EUR investment will bring 1.80467 EUR of benefit to customer and increases the wealth of society in the Prague).

The value of the overall efficiency should be used as a general reference that can serve as a benchmark for comparing different libraries or as information for library management or donors from the public sector.

On the contrary, data on the partial efficiency of the individual library services exhibits significant ambivalence. Some of the services are seen as highly effective, some only marginally greater than the limit value, and one of them highly inefficient. It is to be expected that the main services which constitute the essence of the libraries' existence (Circulating loans), will exhibit a higher degree of efficiency. This is true to a similar extent in both libraries. Conversely, marginal services, which only complement the range of services provided by the libraries, are rated as inefficient. These include non-circulating loans which are fairly labour intensive and therefore relatively expensive; as well as providing information or high-cost services providing residential stays in the library. When these results are interpreted by the management of the public authorities or the providers, it is necessary to draw attention to the fact that inefficient services are often provided in the public interest and therefore the resulting inefficiency is just a consequence of entering the public sector.

A surprising finding is the high efficiency observed in digital services, both on-site and off-site. This is probably due to the current trend towards the digitisation and provision of information through the Internet, e-books or various databases.

Conclusions

The methodology for ROI calculating of the public services systems is a very valuable tool for regional providers of public services and their investments. Through their assistance, regional providers can better orientate themselves when spending money and can make better decisions as to which services they will provide and to what extent. It will not be a question of making standard decisions under conditions of high uncertainty, but applying this methodology will reduce the uncertainty.

The methodology also monitors the extent to which individual services are used and economically evaluated by the consumers themselves. This data can be used both for the management of each library and their owners and regional donors.

For the analysed library, it was found that its operation and provision of a selected range of library services is generally effective, but the rate of effectiveness is relatively low,

approaching a value of one. Analysed library has a range of services what was defined which in turn are not effective.

A wider practical use is hampered by a lack of quality data on the outputs of the public service systems, or more precisely, their value specified by the consumers. This can be aided by the presented methodology, which provides evidence that consumers are able to perceive the value of the consumed services and also to interpret it. This was the first research of this type in this branch of the public sector with a high degree of representativeness, which has been implemented in Central and Eastern Europe. The results and data cannot be transferred between countries, but it has been shown that such a survey can be implemented also in other countries, but with respect to their own conditions of operation in that branch of the public sector.

Acknowledgement

This paper was realized under the financial support of Student Grant Agency of University Pardubice in year 2015.

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