

Marek Dylewski

The Poznań School of Banking
The Institute of Finance and Banking
e-mail: marek.dylewski@wsb.szczecin.pl
tel. 61 655 32 46

Problems of cost measurement and valuation of public services

***Abstract.** The search for ways to increase the efficiency of the use of public resources has been the target of research for many years. Polish legal solutions and practices do not indicate the measurement procedure costs of public services. Therefore, the issue of the article focuses on the search for answers to the question about the real problems associated with the measurement and valuation of the costs of providing public services. Thus, the primary objective adopted in the article is to identify the problems related to the measurement and valuation of the costs of public services and what is considered an important element of the basic beginning to develop mechanisms and procedures for measuring the costs of providing public services. The considerations are based on existing legal mechanisms, the available literature on the subject, and previously applied solutions in this area worldwide.*

***Keywords:** public finance, local government finance, public services, method of measuring the cost of public services*

Introduction

Self-government units are seeking new solutions concerning raising quality of the rendered services and on one hand they often rely on outsourcing, while on the other hand they seek new solutions in terms of reducing costs, efficiency and effectiveness of service management. These actions are connected with the increase in the effectiveness of the use of public money resources. The basic problem is finding the real costs of rendering public services. Legal solutions and practice

do not indicate any procedures of measurement of public services costs. Public services costs result from assumed practice – self-government does not count and calculate, it only pays. That is why there are no rational rules or procedures of task valuation, which means it is impossible to price the services as well. In order to manage in the conditions when money is tight it is indispensable to work out mechanisms and procedures of measuring the costs of rendering public services. However, in order to make sure that these mechanisms are efficient it is necessary to find answers to the question about the real problems concerning the measurement and valuation of costs of rendering public services.

The purpose of this paper is to identify the problems concerning the measurement and valuation of costs of rendering public services in order to prepare mechanisms and procedures of cost measurement of providing public services.

1. Significance of cost measurement of public services for local self-government unit

Changes in society expectations are connected with the processes in global economy. Contemporary self-government needs to move away from traditional functional approach. The direction that should be taken should base the local self-government finance on the premises of new public management and on defining particular processes and actions. It is especially the thorough description of processes and actions that is significant with reference to the changes in the possibility of performing public tasks. Public tasks, the result of which are public services, might be realized by means of organizational and legal forms determined in chapter 3 of the Act on Public Finance.¹ These tasks can also be outsourced and performed by private subjects. Thus, it becomes necessary to find out how much a given service should cost. This information should not only be the basis for cost calculation but it should also be the starting point for negotiations with the entities to whom the tasks will be outsourced. Acceptance of cost calculation of realized services may become an important yardstick of the expenditure level which will be later used as an indicator of the effectiveness of the realized tasks together with the criterion mentioned in Art. 44, section 3 of the Act on Public Finance.

To sum it up, the measurement of the costs of the rendered services will make it possible for the local self-government entities not only to determine the expenditure level but also²:

¹ Art. 44, ust. 3 ustawy z dnia 27 sierpnia 2009 r. o finansach publicznych, Dz.U. Nr 157, poz. 1240, ze zm. [Article 44, section 3 of Act of 27 August 2009 on Public Finance, Journal of Laws No. 157, item 1240, as amended].

² B. Filipiak, *Costs Measurement's Procedure of Public Services – Idea Outline*, "Zeszyt Naukowy Uniwersytetu Szczecińskiego" 2008, No. 482: *Service Management*, vol. II, ed. A. Panasiuk, pp. 41-48.

- to design such changes in services that would satisfy the needs and expectations of the society on one hand, and would allow for the increase in the quality of managing financial resources on the other;
- to analyze the very moment of making qualitative, efficiency, technological changes in the realized services and also the changes in quantity of the services offered;
- to make changes in terms of provided factors of production (changes concerning suppliers and contractors) and also the increase in employees' qualifications;
- to make changes in terms of the subjects realizing the services in the situation of quality disturbances or standards of realized services;
- to make optimal decisions in terms of the structure of offered services, investment, effectiveness of rendering the services and the assessment of society satisfaction level;
- to increase the effectiveness of service distribution by self-government entities.

Entities of the local self-government make use of human and material resources, technologies and capital. However, the actions that they undertake differ in terms of efficiency, effectiveness and costs. The improvement of the efficiency of the processes and actions should become the basic objective for self-government authorities. The lack of effectiveness can result in dissatisfaction on the part of the society and the entrepreneurs who will start seeking more favorable life and business conditions.

With reference to changing needs of the society and creating sustainable growth, the necessity of changes becomes unavoidable, that is the range of the services offered by local self-government entities must be wider. That is why it is so significant to determine the real costs of rendering the services offered so far and analyzing the level of connected expenditure. The other area is estimating the costs resulting from the changes in quality, range and the introduction of new services.

One needs to bear in mind that the lack of service standardization and the lack of the necessity of cost valuation of rendering the services in particular units makes it impossible to compare services offered by different self-government entities. Self-government authorities do not make comparisons of costs incurred when offering the same services and the analysis that is made is extremely superficial. Faced with the scarcity of the financial resources, changes in the consciousness of the society and especially with the necessity of changes in the self-government policy it becomes crucial to describe, standardize and analyze the costs of the provided services.

Thus, the differences in costs of particular kinds of services and the costs of increasing the quality or the range of the services need to be determined. This

approach requires reliable information on the costs involved. Such information is required at every single stage of the process of providing the service (regardless of the fact whether it will be realized by the public financial sector units or outsourced). This information will enable to estimate the real costs connected with the realization of one particular service and to determine the desired moment of change implementation. Effective management of a local self-government entity and its development is not possible without the knowledge about the costs. This knowledge is also necessary to determine the demand for capital and to compete for the citizens and the investors.

2. Potential problems concerning the change in approach towards cost calculation of public services

The basic dilemma that needs to be resolved by the authorities of the local self-government is whether the knowledge of costs of the realization of public services is really necessary and whether they can approach the problem of cost calculation of public services implementation in a reliable way. That is the question about the willingness of determining the real costs of providing services by a given local self-government entity. This dilemma requires taking into consideration the organization of the accounting system (system of recording economic events), organizational possibilities (equipment and computer software) and the implementation of the suitable cost calculation. All that might lead to the problems concerning the measurement itself, such as:

a) decisions concerning spending public resources and the consequences that accompany these decisions, such as:

- occurrence of deadweight cost/loss phenomenon,³
- high costs of public administration,⁴
- high costs connected with the changes in the range of public services (both quantitative and qualitative);
- problem with determining the real benefits for both the economy and the society as a result of providing the services in comparison with the costs which need to be incurred to render the services in question,
- problem concerning the measurement of costs and the benefits from the provided services – that is taking into consideration all the factors, effects (posi-

³ Described in detail: R. Chetty, *Is the Taxable Income Elasticity Sufficient to Calculate Deadweight Loss? The Implications of Evasion and Avoidance*, "American Economic Journal: Economic Policy" 2009, No. 1(2), pp. 31-52; M. Smart, *Taxation and Deadweight Loss in a System of Intergovernmental Transfers*, "The Canadian Journal of Economics" 1998, Vol. 31, No. 1, pp. 189-206.

⁴ Described in detail: M. Wojciechowski, *Koszty władzy publicznej w polskim samorządzie terytorialnym*, Difin, Warszawa 2014.

tive and negative ones), costs and benefits as part of the measurement, that is the problem of the valuation of different types of factors (quite often incomparable in terms of the same measurement units),⁵

- the lack of standard concerning public services.

Apart from the mentioned above problems one needs to take into consideration the problem of government or self-government intervention by means of delivered goods and public services. In modern economies the public choice theory states that politicians' reactions to the electors' preferences or to the pressure groups need to be taken into consideration with the use of the methods and tools of economic analysis, bearing in mind that similarly to producers offering their products to end-users, politicians also compete with each other striving for votes and trying to sell their election programs. However, the decisions of the politicians seldom concern individuals, they usually concern communities.⁶

Another important issue concerning both the choice of services financed with public resources and cost estimation is the problem concerning the fallibility of the efficient market and the role of the state in the process of elimination of this phenomenon. External effects (both negative and the positive ones), different kinds of market fallibility, arguments for and against the broadly understood state intervention (government and self-government authorities) result in approach that „the government should do something”, and that „public decisions should concern a wider pool of public interests not just selected pressure groups.”⁷ The described above premises are the reason why public authorities, including self-government authorities are not driven by cost analysis but they want to solve the problems of inefficiency with public resources and tailoring the financing system to the particular services. This has nothing to do with the effectiveness or with well-performed analysis of costs and social benefits.

On the basis of the above mentioned deliberations one might state that the major factors hindering the implementation of cost measurement methods are as follows:

- approach of executive bodies and the workers of organizational units of local self-government in terms of the selection of services (effects and radicalness of the changes) which will be financed with public resources;

⁵ Uniform approach towards the analysis of costs and benefits with reference to public resources described in: *Przewodnik do analizy kosztów i korzyści projektów inwestycyjnych*, ed. M. Florio, final report TRT Trasporti e Territorio and CSIL Centre for Industrial Studies, Komisja Europejska, Dyrekcja Generalna ds. Polityki Regionalnej, Brussels, 16.06.2008; while broad formal approach towards cost and benefit analysis, qualitative analysis costs-benefits, modified analysis costs-benefits, costs-efficiency analysis, multiple-purpose analysis described in: D.L. Weimer, A.R. Vining, *Policy Analysis: Concepts and Practice*, Pearson Prentice Hall, Upper Saddle River 2004, pp. 338-343.

⁶ R. Milewski, E. Kwiatkowski, *Podstawy ekonomii*, Wyd. Naukowe PWN, Warszawa 2005, p. 218

⁷ J.E. Stiglitz, *Ekonomia sektora publicznego*, Wyd. Naukowe PWN, Warszawa 2004, p. 107.

- accessibility of full data regarding the costs; the pivotal element might be the accounting system itself, especially the limitations stemming from the records and the selected computer accounting system;
- costs of new system implementation, costs connected with errors, mistakes and public employees' resistance towards change;
- problems with implementing cost and benefits calculation, that is identification of actions, action cost objects, irreversible costs and costs of exclusion, including social and political approval of cost and post effective approach which might be contrary to public interventionism;⁸
- problem of creating the system of measurement and the correct isolation of actions (aggregated services) that could be measured; it is indispensable to create measures that would allow for the assessment of the social effect of provided services and also the assessment of one's own organizational and legal forms realizing the service and the subjects the service was outsourced to;
- legal problems – legally binding regulations limit to a large extent the possibility of finding out about the real costs of public services realization. This limitation is conveyed not in enumerative and authoritative way but by means of the existing regulations in the Public Procurement Law, which leads to pathological phenomena such as inflating costs, lack of the effectiveness of the decisions taken or no possibility to change a worse (from the social or economical point of view) variant into the better, more effective one. Existing law introduces the notion of bid bonds which increases the costs of the offer as the entrepreneurs need to incur the costs of freezing resources, which they will try to offload onto the service price. The dominant criterion of selecting tenderers is not the quality but the price only, which is unfavorable for the society in terms of additional outlays on the improvement or restoration of the service standard (for example, more frequent road repairs) and the occurrence of negative external effects. The possibility of lodging a protest against decisions in public procurement protracts the providing of the service, which, in turn leads to technology becoming obsolete, which results in poorer service quality. When the price is a sole criterion, it is so high so that it would allow for inflation (discounting) when the prices rise and the contract does not allow to introduce changes in the terms of the contract. Thus, the society pays for providing services prices which are disproportionately higher than market prices.

Apart from the mentioned above numerous problems the change in approach is reasonable as it allows to estimate the real costs involved in spending public resources. It also makes it possible to undertake activities aimed at rationalization and efficiency of managing public financial resources. Cost measurement may

⁸ Behavior concerning public intervention described by: J.E. Stiglitz, *Ekonomia sektora publicznego*, Wyd. Naukowe PWN, Warszawa 2004, pp. 90-135.

result in the rationalization of the process of rendering services itself and introducing mechanisms of satisfaction level measurement which would define a qualitative model of public services (qualitative standard of public services realization by public and private subjects).

3. Problems of approach towards measurement and valuation of public services costs

Problems of measurement and valuation of public services costs are an important and introductory element of creating relevant mechanisms and procedures. This is when one should ask oneself a question about the methods of valuation and cost calculation. Numerous approaches are mentioned in the literature, from budget accounting,⁹ simple cost accounting,¹⁰ task approach,¹¹ accomplishment models,¹² up to complex cost calculation (including activity based costing, balanced scorecard)¹³ and cost-benefit analysis.

Cost-benefit analysis is a method of assessing public policy (including realized public services) which exhibits all its effects in the form of monetary units.¹⁴ One might indicate that this analysis exhibits expected cost-benefit balance, including the stated beforehand alternatives and status quo. The role of cost-benefit analysis is to support the decision-making process in terms of quantifying competing policies with regard to their cost-benefit ratio. Thus, it makes it possible to determine whether costs outweigh benefits and to what extent in comparison with other alternative policies. As part of cost-benefit analysis particular measurement of positive and negative consequences of each service, project or task realization are made in order to determine the following:

– effects it will bring for the users or participants (especially the society, selected target groups, particular recipients);

⁹ A. Zysnarska, *Rachunkowość budżetowa w świetle koncepcji prawdziwego i wiernego obrazu*, Wyd. Uniwersytetu Gdańskiego, Gdańsk 2010.

¹⁰ A. Kożuch, *Rachunek kosztów jako instrument zapewniający sprawne zaspokajanie potrzeb publicznych w JST*, "Optimum. Studia Ekonomiczne" 2013, No. 1(61), pp. 93-105.

¹¹ M. Dylewski, *Ewidencja kosztów zadań publicznych w jednostkach samorządu terytorialnego – wybrane problemy*, "Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu" 2008, No. 14: *Rachunkowość a controlling*, ed. E. Nowak, pp. 114-120; M. Kaczmarek, *Rachunkowość zadaniowa w systemie rachunkowości budżetowej jednostek sektora finansów publicznych*, "Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu" 2008, No. 14: *Rachunkowość a controlling*, op.cit., pp. 127-133.

¹² T. Strąk, *Modele dokonań jednostek sektora finansów publicznych*, Difin, Warszawa 2012.

¹³ B. Filipiak, op. cit.; see also: J. Walters, *The Buzz over Balance*, "Governing" 2000, No. 13(3), pp. 56-62.

¹⁴ A.E. Boardman et al., *Cost-Benefit Analysis: Concepts and Practice*, Prentice Hall, Upper Saddle River 2002, p. 2.

- effects it will bring for the people who are neither users nor participants (exclusion problem);
- external effects (influence onto separate local or regional communities and societies);
- additional values or social benefits.

Two basic model approaches towards cost-benefit analysis can be indicated. They differ from each other in terms of the number of steps that need to be taken (the detail of the approach). Approach by William N. Dunn, who assumes that costs and benefits can be defined in a different way and divided into different types according to various criteria. The following divisions are indicated in this approach: internal and external (in terms of a particular target group or area), tangible and intangible (that is measured in the direct or indirect way), direct and indirect (depending on whether the effects of the program are direct or indirect) and finally, into effectiveness and redistributive ones (depending on whether they increase the net benefit or they only change the benefit distribution).¹⁵ The quoted author recommends that the cost-benefit analysis should be performed in the following steps¹⁶:

1. Problem analysis (public or social problem, which can be resolved by means of public financial resources by a public authority).
2. Detailing objectives that are to be realized by means of a given service.
3. Alternatives (variants) identification by means of which the objectives mentioned in point 2 can be realized.
4. Analytical actions comprising the process of information gathering, analyzing and interpreting.
5. Selection of target groups and beneficiaries.
6. Estimating costs and benefits.
7. Discounting costs and benefits.
8. Estimating risk and uncertainty factors which could influence services realization (connected with the uncertainty of the results of particular future variants).
9. Selection of the decisive criterion.
10. Giving reasons for selecting a particular alternative.

Joseph E. Stiglitz's approach distinguishes four steps in conducting the cost-benefit analysis¹⁷:

1. Determining sets of possible decisive variants (sets of public services), that is a list of possible main solutions.
2. Determining all the consequences of considered alternatives, especially the outlays and expected results (in quantitative and qualitative terms).

¹⁵ W.N. Dunn, *Public Policy Analysis: An introduction*, Pearson Prentice Hall, Upper Saddle River 2002, p. 239.

¹⁶ *Ibidem*, p. 241.

¹⁷ J.E. Stiglitz, *Ekonomia sektora publicznego*, Wyd. Naukowe PWN, Warszawa 2004, p. 327.

3. Expressing outlays and results in monetary units for all the alternatives under consideration.

4. Summing up all the costs and benefits and making a general assessment of every single alternative against the costs of the remaining variants (opportunity costs).

Cost-benefit analysis needs to be performed with reference to the discounting ratio for all the considered alternatives and their influence on the environment.

In both mentioned above approaches the biggest problem is making cost-benefit calculation as not all the costs and benefits can be calculated according to market prices, as these prices either do not exist or they do not include outermost benefits and costs due to the fallibility of the market. This happens when outlays and effects in question are not subject to market trade and do not have their market prices (for example, clean air, preserving environment in its natural state).¹⁸ Under such circumstances, while dealing with services that cannot be valued with reference to the market prices, depending on the service a constructive method, revealed preference method, valuation based on declared usefulness, or dual prices should be applied.¹⁹ Similarly to W.N. Dunn, J. Stiglitz suggests taking into account risk and uncertainty in cost-benefit analysis.

To sum it up, both approaches take into consideration the most crucial elements of valuation, such as:

- estimating costs which are not easily expressed in market prices,
- risk and uncertainty,
- application of discounting methods.

The most difficult and problematic task is adapting measurement tools, that is accounting tools and document circulation system, so that it is possible to determine the full cost level of public service realization. Here the major problem will concern the service valuation made up from several kinds of costs. However, in this case estimated prices and values should be used (for those services or their parts whose value cannot be expressed in market prices).

Conclusions

The use of cost-benefit analysis seems to be a good approach towards determining the costs of realizing public services. The important argument is taking into consideration both the real cost and the valuation (estimated one) of those services whose value is not easily expressed in market prices. This argument outweighs the other cost approaches suggested in the literature. It is obvious that in

¹⁸ Ibidem, p. 330.

¹⁹ More broadly in: J.E. Stiglitz, *op. cit.*, pp. 337-340.

case of those costs and benefits that can be expressed in market prices the suggested in the literature approach of estimating costs could be applied. From the point of view of the effectiveness it will always be significant to make comparisons, that is why uniform method of public services valuation should be applied.

One also needs to emphasize that the measurement and valuation of the public services realization will always be a notion addressed by scientists. Will it be important for the practitioners as well? That is difficult to determine as the regulations concerning the measurement and valuation of costs or standardization of public services do not exist. This, in turn is the result of the public choice and formulating political programs. Where politics begins the change in approach is difficult to accomplish, and that is suggested in the following paper. However, more evolutionary, gradual approach that might lead to creating measurement and valuation of public services costs might come into use.

References

- Boardman A.E. et al., *Cost-Benefit Analysis: Concepts and Practice*, Prentice Hall, Upper Saddle River 2002.
- Chetty R., *Is the Taxable Income Elasticity Sufficient to Calculate Deadweight Loss? The Implications of Evasion and Avoidance*, "American Economic Journal. Economic Policy" 2009, No. 1(2).
- Dunn W.N., *Public Policy Analysis: An introduction*, Pearson Prentice Hall, Upper Saddle River 2002.
- Dylewski M., *Ewidencja kosztów zadań publicznych w jednostkach samorządu terytorialnego – wybrane problemy*, "Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu 2008, No. 14: *Rachunkowość a controlling*, ed. E. Nowak.
- Filipiak B., *Costs Measurement's Procedure of Public Services – Idea Outline*, "Zeszyt Naukowy Uniwersytetu Szczecińskiego" 2008, No. 482: *Service Management*, vol. II, ed. A. Panasiuk.
- Kaczmarek M., *Rachunkowość zadaniowa w systemie rachunkowości budżetowej jednostek sektora finansów publicznych*, "Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu" 2008, No. 14: *Rachunkowość a controlling*, ed. E. Nowak.
- Kożuch A., *Rachunek kosztów jako instrument zapewniający sprawne zaspokajanie potrzeb publicznych w JST*, "Optimum. Studia Ekonomiczne" 2013, No. 1(61).
- Milewski R., Kwiatkowski E., *Podstawy ekonomii*, Wyd. Naukowe PWN, Warszawa 2005.
- Przewodnik do analizy kosztów i korzyści projektów inwestycyjnych*, ed. M. Florio, final report TRT Trasporti e Territorio and CSIL Centre for Industrial Studies, Komisja Europejska, Dyrekcja Generalna ds. Polityki Regionalnej, Brussels, 16.06.2008.
- Smart M., *Taxation and Deadweight Loss in a System of Intergovernmental Transfers*, "The Canadian Journal of Economics" 1998, Vol. 31, No. 1.
- Stiglitz J.E., *Ekonomia sektora publicznego*, Wyd. Naukowe PWN, Warszawa 2004.
- Strąk T., *Modele dokonania jednostek sektora finansów publicznych*, Difin, Warszawa 2012.
- Ustawa z dnia 27 sierpnia 2009 r. o finansach publicznych, Dz.U. Nr 157, poz. 1240, ze zm. [Act of 27 August 2009 on Public Finance, Journal of Laws No 157, item 1240, as amended].
- Walters J., *The Buzz over Balance*, "Governing" 2000, No. 13(3).
- Weimer D.L., Vining A.R., *Policy Analysis: Concepts and Practice*, Pearson Prentice Hall, Upper Saddle River 2004.

Wojciechowski M., *Koszt władzy publicznej w polskim samorządzie terytorialnym*, Difin, Warszawa 2014.

Zysnarska A., *Rachunkowość budżetowa w świetle koncepcji prawdziwego i wiernego obrazu*, Wyd. Uniwersytetu Gdańskiego, Gdańsk 2010.

Problemy pomiaru i wyceny kosztów usług publicznych

Streszczenie. *Poszukiwanie dróg zwiększenia efektywności wykorzystania publicznych zasobów pieniądza od wielu lat stanowi cel badań. W warunkach polskich rozwiązania ustawowe oraz praktyka nie wskazują na procedury pomiaru kosztów usług publicznych. Dlatego też problematyka artykułu koncentruje się na poszukiwaniach odpowiedzi na pytanie o rzeczywiste problemy związane z pomiarem i wyceną kosztów świadczenia usług publicznych. W związku z tym jego celem stała się identyfikacja problemów pomiaru i wyceny kosztów usług publicznych rozpatrywanych jako punkt wyjścia do opracowania mechanizmów i procedur pomiaru kosztów świadczenia usług publicznych. Rozważania oparto na obowiązujących mechanizmach prawnych oraz dostępnej literaturze przedmiotu i stosowanych rozwiązaniach w tym zakresie na świecie.*

Słowa kluczowe: *finanse publiczne, finanse samorządowe, usługi publiczne, metody pomiaru kosztów usług publicznych*