Economic Evaluation of Public Programs[1]

*Martin NEKOLA – František OCHRANA**

Abstract

The present study deals with theoretical and practical problems related to program evaluation. Based on contrasting various public program evaluation approaches it analyzes the virtues and setbacks of economic evaluation and offers indigenous criteria for comprehensive assessment of public programs. At the end, a mathematical model to optimize the public program portfolio related to discrete costs is proposed.

Keywords: *economic evaluation, program budgeting, program evaluation, performance management, Slovakia*

JEL Classification: H83, H41

Introduction

Evaluation of public policy outcomes and public programs is an interesting issue for researchers and hands on experts. "Evaluation" could be approached from various angles. However, the present study centers above all on economic evaluation that has been the focus of sterling efforts by scientists (see McDavid and Hawton, 2006; Harberger and Jenkins, 2002; Wholey et al., 1994) as well as authors developing general theoretical approaches to suit the specific features of the Central European region (Wright and Nemec, 2002). Other researchers center on particular economic issues, such as monitoring economy, efficiency and purpose in allocating resources (Šumpíková et al., 2004). Still others dwell on the issues of spending program control (Benčo et al., 2001) or institutional functioning of selected spending programs (Beblavý and Beblavá, 2006), or, in selected

* Martin NEKOLA – František OCHRANA, Univerzita Karlova v Praze, Fakulta sociálních věd, Centrum pro sociální a ekonomické strategie, Smetanovo nábřeží 6, 110 00, Praha 1, Česká republika; e-mail: nekola@fsv.cuni.cz; ochrana@fsv.cuni.cz

[1] This study was commissioned as part of FSV UK Research Objective MSM0021620841 *Development of Czech Society within the EU: Challenges and Risks*.

cases such as public orders (Pavel, 2007) or public services (Nemec et al., 2004), they deal with empirical analysis of public programs. Yet other authors use different perspectives to investigate the key role of politics in resource allocation. Politics formulates the goals of public programs (Coombs and Jenkins, 1994) and enables optimized implementation of resource allocation (Wholey et al., 1994). The example of the Czech Republic demonstrates that the system fails without the necessary political will for change (Ochrana, 2006).[2]

Due to the current state of scientific research of public programs we deem it appropriate to try and offer a more comprehensive outlook of public program evaluation efforts. Such a broader survey could give fresh impetus to the somewhat narrow concept of evaluation that often results (e.g. in the Czech Republic) in a rather formal evaluation of public programs, whereby outputs are mistaken for results and no attempt is made to assess actual results of public programs (Nemec et al., 2008). In order to eliminate the above mentioned methodological shortcomings is necessary to employ the appropriate investigating logic. This will be seen in the use of study progress from "general" to "unique". Therefore the first part of the study shall be devoted to the general delineation of the term "evaluation" whereby we shall apply a more specific and economical approach to evaluating public programs while variant approaches to program evaluation are offered and a procedure of comprehensive evaluation of public programs is suggested.

1. Specification of Evaluation and Three Levels of Input Conditions

The chief purpose of evaluation is to provide reliable and useful information to be used in the political process as both the objects and subjects of a policy. The most general purpose of evaluation is to provide a "useful feedback" (Trochim, 2006) to various recipients – evaluation principals, service customers, civil servants, politicians, etc. The usefulness of evaluation is understood as a degree to which findings can assist in decision making processes. In a similarly general sense, Rossi, Lipsey and Freeman (Rossi et al., 2003) define evaluation as a social scientific activity geared towards the collection, analysis, interpretation and sharing of information on the activity and efficacy of social programs.

Stepping down one notch, we could come across a number of often quite contradictory definitions as they took shape from the inset of the theory and practice

[2] The latter conclusion is based on one of the authors' immediate personal experience in trying to implement program budgeting in the Czech Republic's defense sector during the mid-1990s. The defense sector possessed the necessary know-how as well as, originally, the political will (pressure) in top management to implement changes. However, personal and lobby interests gradually prevailed, the political will vanished, and the attempt for system change failed.

of evaluation. These definitions reflect the whole spectrum of views concerning not only the nature and sources of knowledge but also world outlooks and ideological positions projecting either explicitly or implicitly into the ways of understanding evolution. Should evaluation rather be comprehensive or try to reduce complex phenomena and focus on individual elements? Does it serve to control expenditure or to strengthen the position of a certain group in society, to demonstrate efficiency or to assert its importance? Is expert opinion more important than the views of the target group or the recipients themselves? And, finally, should evaluation be rational and objective, or is objectiveness beyond reach and evaluation should rather focus on harmonizing the conflicting interests of the various actors? These and other questions (see Madnas and Kellaghan, 2002) influence in no small way people's approach to evaluation and their choice of methodology. Different approaches are nicely demonstrated by the following two definitions of evaluation, one representing the views of an important international organization, the other illustrating an influential stream within the realm of modern approaches to evaluation.

B o x 1

Examples of Different Definitions of Evaluation

Example 1	**Example 2**
The systematic and objective assessment of an on-going or completed project, programme or policy, its design, implementation and results. The aim is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact and sustainability. Evaluation also refers to the process of determining the worth or significance of an activity, policy or program. An assessment, as systematic and objective as possible, of a planned, on-going, or completed development intervention (OECD, 2002).	Empowerment evaluation utilizes evaluation concepts, methods and findings to help the others to help themselves (through self-assessment and reflection). The most important element of evaluation is its participants (clients, consumers, and employees); external evaluators often act rather as mediators (Fetterman et al., 2001).

While the OECD (example 1) emphasizes objective evaluation carried out by experts and focused on efficiency, effect and sustainability, the participative approaches (example 2) are targeted on individual actors and their subjective values and interests, and use evaluation as a means of reflection and harmonizing different outlooks and expectations. Which of the two approaches will safely navigate us towards our goal, which is to obtain reliable and useful information, applicable

to the policy process? There is no simple and universal answer to this key question. The choice of a specific evaluation model is determined by a number of factors, from the object and purpose of evaluation to the feasibility of project (Nekola, 2007). However, on the general level, it is precisely the explicit or implicit conditions offered by the various approaches to evaluation, and the ways in which these conditions influence the results of evaluation and their use, that matters in the end. Following Ian Sanderson (Sanderson, 2000), we suggest that most approaches are based on a certain set of dominant preconditions which should be considered in three levels:

- *epistemological basis* for evaluation, i.e. condition of validity of various types of knowledge;
- conditions of the *creation and organization of public policies*, i.e. the driving forces of formulating and implementing policies and programs, and factors influencing incidental processes in public policy;
- conditions as component parts of material policies and programs to solve specific economic and social problems, i.e. *conditions impacting the definition of a problem* and specifying relationships between the problem and the instruments for solving it.

In the following section, we shall therefore focus our attention on economic evaluation as one of the possible approaches to the evaluation of public programs, and outline its initial preconditions as well as its strong and weak points.

2. Economic Evaluation and its Strong and Weak Points

Economic evaluation yields data on the use of limited resources. Usually it involves systematic determination, measurement and subsequent comparison of costs (inputs) and benefits (outputs) of two or more intervention variants. In other words, the costs and implications of various programs, organizations or activities are compared in order to safeguard the optimal utilization of available resources. The usual evaluation criteria are economy, efficiency, and usefulness (see e.g. Coombs and Jenkins, 1994).

From the methodological point of view, economic performance evaluation is based on *positivistic methodology*, or more specifically on theories within the positivist stream of social sciences.[3] It is expected that using a prudently chosen method we could arrive at objective, relatively accurate (i.e. "devoid of additional significance") findings and conclusions. For an evaluation to produce objective findings, reality should be studied with the application of quantitative scientific

[3] This does not rule out the assertion of economic evaluation within the realm of normative analysis. However, this is purposefully disregarded in the present study.

methods and the evaluator should not be biased. Hence, the traditional approach to economic evaluation rests largely on the use of experimental and quasi-experimental methods, as well as on the identification and, if possible, also standardization and quantification of all relevant program costs and results systematically measured in real time (Sefton, 2003). For example, the World Health Organization's manual on economic evaluation recommends the use of an experimental method (specifically, randomized controlled trial) and points out the importance of control group in evaluating the efficiency of treatment (WHO, 2000).

Viewed from the policy formulation vantage point, economic evaluation is based on a *rational model*, which breaks down the political process into several consecutive phases. Individual authors differ in their approach to these phases (see Sabatier, 1999; Potůček et al., 2003). Within the framework of this model, evaluation is seen primarily as an instrument with which to find the answer to the issue of (economic) efficiency of measures selected vis-à-vis the set goals. Economic evaluation is most often performed (directly or indirectly) by government authorities and agencies, serving as an instrument of control. In this sense, the core functions are the control of fulfillment of standards, control of provided resources and services, and control of results. This type of evaluation is therefore characterized by focus on the evaluation of targets defined *top-down*, i.e. opted for by politicians and public program bureaucrats and/or managers.

The relationship between evaluation and program/policy theory is the last level. Virtually every program or policy come complete with an explicitly built-in system of social and behavioral presumptions concerning activities that must be conducted in order to solve a public policy problem, and the mechanisms of achieving required changes (goals). From the angle of economic evaluation, these presumptions are taken as a given and there is no need to dwell upon them. Together with the other input-output evaluation models they rank among the *atheoretical approaches* (Chen, 1990), which are focused on the overall relationships of input/output to a program without paying heed to the internal transformation process (internal program functioning being reduced to a kind of "black box"). However, this not to say that such approach to evaluation has no theoretical postulates. In actual fact it is strongly influenced by the neoclassical economic theory based on the presumption of rational behavior and maximizing the use of individual actors (individuals, organizations, etc.). This approach is actually built on the supposition of *rational choice* whereby decision-makers know what goals are there to reach and indeed also how to change the given social system. Inasmuch the goals might be "correctly" set *ex ante*, economic evaluation might be focused on *ex post* evaluation (Sanderson, 2000).

It is evident that a systematic and consistent approach enabling comparison between various programs and organizations, ranks among the chief *assets of economic evaluation*. Moreover, it makes the program and policy makers outline clear, concrete and quantifiable targets. Also, the quantitative approach enables a concise and fitting presentation of results. According to Sefton (Sefton, 2003), the "language of figures" and findings obtained through experiments can be very convincing, and therefore economic evaluation can have a fairly major impact on decision-makers.

However, economic evaluation is not without its fairly relevant *disadvantages* that complicate its assertion in practical public policy. They chiefly relate to methodological problems stemming from the complexity of public policies, namely from the:

- poor definition and unstable character of public policy goals;
- difficulty of measuring results;
- incomplete knowledge of programs (control versus learning);
- limited utilization of findings;
- dubious legitimacy of goals and the problem of justice.

Let us now examine these problems in greater detail.

Poor Definition and Unstable Character of Public Policy Goals

Successful economic evaluation calls for a precisely defined program with carefully preset goals the fulfillment of which would be the target of evaluation. However, is this condition realistically attainable in the context of ever-changing public policies reflecting the gamut of often conflicting interests? Even with less controversial policies one often encounters less than clearly formulated, rather inconsistent goals or a relatively broad decision-making freedom of implementation agencies as they define their particular aims. The second pre-requisite, a degree of stability of the program under evaluation, is not easy to meet, either. The attainment of such stability in the long run, so its effects can be safely evaluated, is rather exceptional in practical public policies. Programs are continuously modified and their goals reviewed; and funding sources change with the prevalent political and administrative trends, external environment changes notwithstanding. Any change, especially if accompanied by a series of non-systemic interventions, may cast doubt on the presumed input/output relationship, and thus even on the evaluation effort in general.

Difficulty of Measuring Program Results

While the cost-effectiveness of invested means can be easily evaluated by comparing them with the past period's standards and efficiency, or with the result of another program, their efficacy cannot really be determined without knowing their long-term effects. Here the endeavor to determine them meets a plethora of

problems linked with the social character of public programs. Their evaluation is often rendered difficult due to the complexity of relations between individual program elements, long-term effects, difficult measurements, etc., and there always is the risk of overestimating or underestimating the real impact of a program vis-à-vis its projected goal. Critics of the quantitative methods also caution that "figures" can hardly capture the variety and richness of reality or count in some of the hardly quantifiable factors as well as the context within which the activities under evaluation take place. The methodologically robust arrangements used in economic evaluation (experiments and quasi-experiments) are virtually useless in many situations (for ethical, technical, financial and other reasons), and their chief asset – strong internal validity – is marred by the problematic generalization and transferability of the results obtained.

Incomplete Knowledge of Programs

Neglecting the context and inner works of programs presents another problem for economic evaluation. We believe that the issue of broader understanding of relationships within the organization of a problem and its impact cannot be simply waived by saying such findings are not the focus of economic evaluation. In actual fact, this problem is closely associated with the interpretation of evaluation results that would be very difficult to make without a detailed knowledge of a program or organization. The evaluation of economic efficiency of programs with fuzzy goals, whose application is that proverbial "black box", can be quite misleading and its results will hardly be usable. Consequently, the question, what makes program results good or bad hangs in the balance, as the comparison of inputs and outputs of various programs and organizations gives no hints how to improve their functions.

Limited Usage of Evaluation Outcomes

According to some commentators, it was precisely the provision of irrelevant data of no practical use that has led to a shift from the positivist, atheoretical approach to evaluation in favor of qualitative approaches, which would respect the program's context and offer a more effective "utilization of knowledge". However, this does not seem to be a solution to the problem, for as observed by Hellstern (1986, p. 304), qualitative methods "lack preciseness in disentangling effects and confound situational with systemic effects; so there are no clear results to be used for programme design" (quoted according to Sanderson, 2000) Consequently, public program evaluators and managers face the dilemma of harmonizing requirements for monitoring the (cost) effectiveness on one hand with those for continuous improvement of programs on the other hand. However, there do exists techniques and strategies that attempt to solve the dilemma (e.g. instruments of comprehensive quality control). A case in point is the Czech

Republic's project, "Management of State Administration Process", implemented by the town hall of Vsetín; however, there are lingering problems ensuing from a degree of incompatibility of summative (result-oriented) and formative (process-oriented) approaches to evaluation (Schalock and Bonham, 2003). Limited use of economic evaluation results is naturally connected also with the problem of relatively weak external validity, as described above.

Dubious Legitimacy of Goals and the Problem of Justice

As we said, economic evaluation primarily serves to monitor effective implementation of set goals. Now, who sets these goals, and who defines the purpose of evaluation itself? It is mostly politicians and bureaucrats, whose chief interest in the realm of evaluation is to boost central control leverage on local providers and public funds. From this vantage point, economic factors such as cost-efficiency, cost-effictiveness and cost-benefit are seen as being crucial. Critics argue that this top-down approach serves to strengthen prevailing political-administrative and management structures, and to divert attention solely to values and interests embodied by the formal, official goals of public policies and programs, and ultimately also to understanding evaluation as a technical instrument (Sanderson, 2000). Also, this approach severely demolishes the concept of strict neutrality of the evaluator in particular, and the whole concept of evaluation in general.

Summing up the problem for the sake of transparency, one of the main setbacks of economic evaluation is that it yields scarce information about how a program works and why it is (in)effective. Another serious methodological problem is the small ability to quantify certain important program results (both at the individual level and at the level of organizations or groups within the program, not mentioning society as a whole), which results in inaccurate measurements, or indeed in ignorance. Also, results are available only midway through the program or at its end, and the rather inflexible framework of economic evaluation is hardly applicable to programs that continuously develop and change. The said problems curtail the options of practical use of results as this approach displays little sensitivity towards the political process and the natural rivalry of society's various interests.

3. Alternative Approaches to Evaluation and Proposal of General Policy on the Evaluation of Implemented Public Programs

What else is there to be offered by the evaluation? Due to variegated criteria and perspectives, it is basically impossible to come forward with a generally valid comprehensive categorization of all the extant approaches to evaluation. Any survey at the end of the day will always depend on the choice of criteria and random

selection of individual models, or groups of models. We propose an indigenous classification typology for the purposes of this study. It is based on modified typology proposed by Hanne Foss Hansen (2005), which recognizes economic evaluation plus another five basic types thereof:

1. *Summative evaluation* serves the overall assessment of the efficiency of a program or organization in relation to their set goals. In this sense, it is a result model of evaluation, and one usually distinguishes between the approaches that evaluate preset goals (e.g. by governments, organizations), and the approaches that endeavor to clarify all, i.e. also unintentional effects and implications of the program under evaluation independently of its set goals (*goal-free evaluation*). Distinction is usually made between the evaluation of a result, whereby it is examined whether a program has a proven immediate effect on its target group, and the evaluation of effect, judging the overall effect of a programme (whether intended or not). A case out of the ordinary is the so-called *meta-analysis* that sums up the results of a number of evaluations on the basis of set criteria. In epistemological and methodological terms, summative evaluation closely approximates and is mutually complementary with economic evaluation (inasmuch the efficiency of a programme cannot be evaluated without knowing its results).

2. *System evaluation* analyzes inputs, structures, processes and results that are subsequently compared with that which was originally planned, or with the inputs, processes and results of another program or organization considered successful in a given field (*benchmarking*) (Nemec et al., 2008). This approach is very close to economic evaluation which, however, bypasses internal processes and program/structure organization.

3. *Formative evaluation* aims to improve the object of evaluation by means of research of the inner workings of a program, the quality of its implementation, its organizational context, etc. It centers e.g. on the analysis of needs (systematic effort to outline needs – the difference between "that which is" and "that which should be") and their classification according to relevance. Formative evaluation asks how big the need is and what could work in order to meet the need. This has a lot to do also with the analysis of feasibility of evaluation, which judges the verifiability of policy effects in regard of set goals and ways of their implementation. Above all, however, formative evaluation centers on the internal processes of a program's functions and its implementation from the point of its adoption. Usually this is a continuous process, seldom taking place in reverse.

4. *Participative evaluation* is an umbrella title of the evaluation approaches that actively engage evaluation participants (clients, workers, principals, etc.) in activities associated with planning and implementing evaluation (King, 2005). Even though there exists a number of purposes and methods of such evaluation,

the fundamental idea of participative evaluation is in transforming objects of evaluation to its subjects, which ultimately should lead not only to positive change on the level of individuals, programs or organizations but also to strengthening the motivation and capacity of these actors to utilize evaluation outcomes (*utilization-focused evaluation*) and to subsequently perform independent evaluation (*empowerment evaluation*).

5. ***Theory-based evaluation*** is preoccupied with empirical evaluation of the validity of theoretical presumptions on which a program or an organization is based. Therefore it should not only yield information about the program's performance and contributions but also explain how and why the program has succeeded or failed. In this way, it represents both a comprehensive and contextual approach to evaluation (what works, for whom, and why), that "opens the black box" of relationships between results and the mechanisms of achieving them in given conditions (*realistic evaluation*, also known as *realist synthesis*).

T a b l e 1

Classification of Main Evaluation Approaches

Approach	Issues Solved	Evaluation Criteria
Summative evaluation centered on:		
a) Goal attainment	a) What is the degree of implementing set goal?	a) Derived from target(s)
b) Effects identification	b) What effects could be detected?	b) Open, all consequences should be identified
Formative evaluation	Is the program implemented as intended?	Functionality of decision-making processes, service provision to target groups, etc.
System model	How does the program perform?	Actual and intended inputs, processes, structure and results of program
Economic model		
a) Cost-efficiency	a) Is productivity satisfactory?	a) Minimize inputs with view to required quality of outputs.
b) Cost-effectiveness	b) Is effectiveness satisfactory?	b) Natural inputs in terms of cost-effectiveness (costs per natural input unit) or results measured in terms of productivity (in case of fixed budget, opt for the variant with the most of natural input units).
c) Cost-benefit	c) Is utility satisfactory?	c) Goal/input fulfillment criteria
Participative evaluation – targeting clients or actors (stakeholders)	Are clients/stakeholders satisfied?	Evaluation criteria formulated by clients/stakeholders. To measure levels of satisfaction there are algorithms utilizing scales (tables) with descriptors.
Theory-based evaluation	Does program works according to a program theory? What works for whom and in which context?	Empirical analysis of theory and presumption in program background.

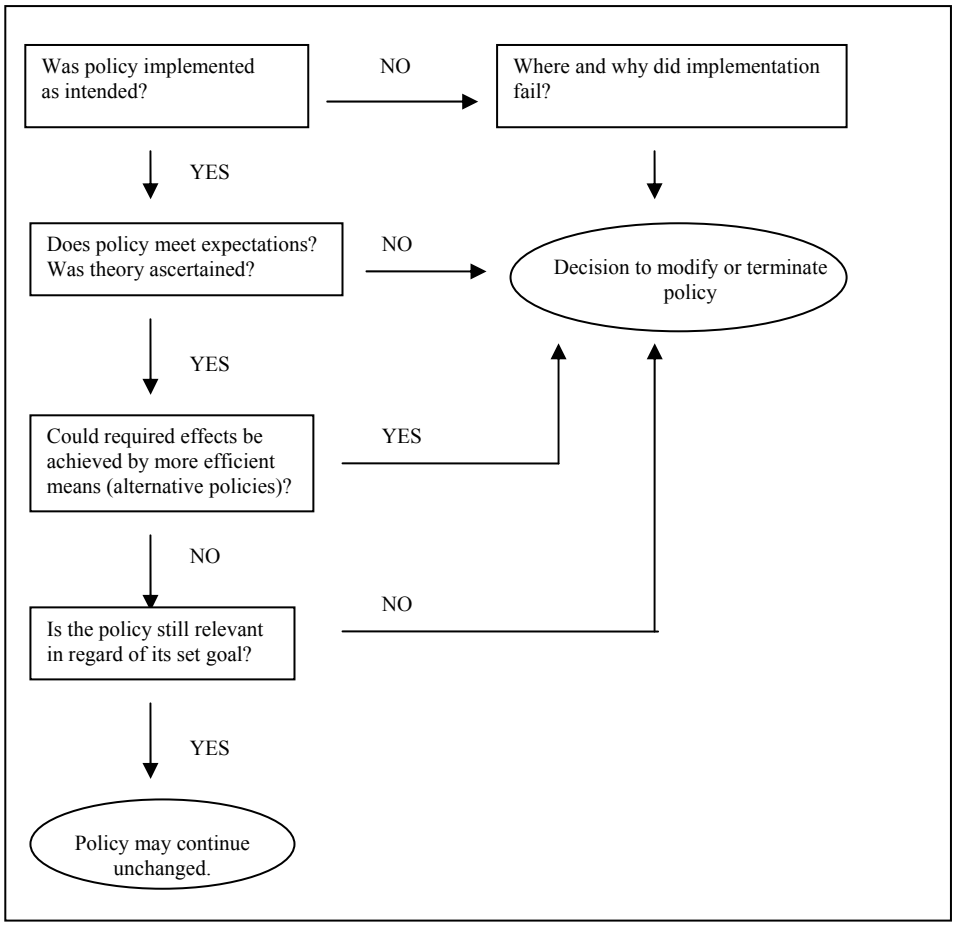
Source: Modified after Hansen (2005).

Each of these basic approaches has its specific strong and weak points that should be considered when selecting a suitable evaluation model for the solution of a specific task. Although often viewed as conflicting and mutually incompatible, different evaluation approaches could, in our view, suitable complement each other to make up for their respective weak points. Each of them is legitimate due to its specific purpose, methodology, cognitive process, and practical use of evaluation findings. A summary of the main evaluation approaches, tasks and criteria is provided in Table 1 below.

The following chart proposes a possible general evaluation process that can make use of a range of evaluation approaches in order to comprehensively evaluate public programs.

C h a r t 1

Key Questions of Comprehensive Evaluation of Implemented Public Programs
(continuous and ex post evaluation)



Source: Nekola (2007), modified by authors.

The chart above defines the core questions the manager (evaluator) asks when continuously evaluating programs, and assessing their virtues *ex post*. Obviously, the first key question is whether a policy (and its goals) were implemented as intended. The answer is in the monitoring of set goals and contrasting them with achieved goals (or those found in progress during continuous control). Precise evaluation of goals requires these same goals to be object targets with clearly defined program evaluation criteria. Goals being the anticipated state-of-the--affairs, we use set indicators to find out if the results obtained fully correspond with, or diverge from the set goals. The harmony of results and goals tells the tale of the success of a program/policy. Program success can be measured using predefined indicators. If a policy does not meet its set goals, a management failure occurs.[4] It will be necessary to study the root causes of such failure, and to adopt management measures to correct the situation.

While continuously controlling the program we also continue to monitor any changes in its original implementation conditions. We ask if there is another possibility (variant solution) of attaining intended goals by more economical, effective and efficient methods. If there is no such option, the programme may go on without change. If, however, there is an option, the program will be reviewed and/or terminated. The said model could be used in developing interpretation procedures to evaluate public programs. This is especially relevant in the Czech Republic (Nemec et al., 2008). For this purpose, a system of program budgeting and public program evaluation must be implemented rigorously, rather than formally. Some of the methods for evaluating expenditure programs can be used to evaluate public programs economically. We can see room enough in the field of application of optimization methods of evaluating national budget outlays.

4. Model of Optimal Allocation of Discretionary Spending at the Level of National Budget Chapters

In our opinion, the road to the further improvement of program budgeting system leads through the application of optimization instruments in making decisions about public programs (projects). Therefore we propose that in the field of discretionary spending, a model be used that would help reduce the average discretionary expenses to a single program while establishing a pecking order of programs (projects) according to their usefulness, catering either to individual national budget chapters (individual program types) or to the national budget as a whole. The output results could be used by the ministry of finance (or rather

[4] Public policy theory refers to implementation gap.

budget chapter administrators) as decision-supporting instruments.[5] The model is based upon hyperbolic (due to share evaluation criterion), bivalent (due to inseparability of programs) and parametric (due to changing number of implemented programs) programming (Robillard, 1971). This model does not expect us to evaluate inseparable programs. These rather correspond to, say, "projects" in the structure of national budget.[6]

It is prudent to expect of this type of national budget spending that the discretionary expenses of a specific project are completely spent (not only as part of planned expenses). This, however, does not rule out possible changes (e.g. restrictions) occurring in the course of budget implementation. Budgeting means could be shifted between various public budget programs or (in exceptional cases) boosted in favor of other programs (projects). In case the planned resources are not fully spent on a program during a budgeting period, the final financing of the program (project) is to be decided on within the budgeting process of the next budgeting period. However, this has no effect on the provison that we consider programs (projects) indivisible for the purposes of discretionary expense planning.

This model could be used for the optimal allocation of public spending within one or more national budget chapters. The model will be elucidated using a single chapter (class) of the national budget.

Let us assume that a chapter (class) of national budget contains p of potential programs (projects) P_j ($j = 1,\ldots p$), at least one of which must be implemented.

The decision variants (public program portfolios) comprise all the possible groups of one to p programs selectable from set p of potential programs. In the pecking order, their number equals p.

Let us mark

c_j – as the cost of implementing the jth program ($j = 1,\ldots,p$).

[5] The proposed model (Píšek and Píšek, jr., 2003) was created within the Czech Grant Agency project *Allocation models of public resources and monitoring public spending efficiency*. Research Project No. 402/02/1267 (project manager F. Ochrana).

[6] The model is based on the assumption that inseparable programs are evaluated. Such programs in fact exist, with most investments normally falling into that category. If programs are inseparable, one of the other evaluation methods reviewed under (Ochrana, 2006) is used. Like every model, this model has both advantages and disadvantages. The following are among its advantages: it facilitates optimized resource allocation both within and between the different budget chapters; its limitations and purpose function are easily defined; analytic results can support decisions in resource allocation. A disadvantage lies in the fact that the model can only be used for inseparable programs. We have tested the model in the Czech defense sector at a time when an attempt to implement program budgeting was underway. In that case, we were able to see the key role of politics in implementing program budgeting. One of the preconditions for this model is our ability to rank programs by their utility, thus ordering them according to preferences. Such prioritization belongs to the realm of politics. It turned out that by ranking programs subjectively (based on lobbying), politics may disrupt the entire evaluation process by putting its rationale into question. This negative experience confirms the key role of politics in resource allocation.

The upward numbering of programs according to their declining utility leads to the preferential arrangement of programs from those with the maximum utility to those with the least utility: P_1, P_2,...,Pp.

Each potential program is associated with bivalent variable x_j (j = 1,...,p) acquiring one of the two values indicated below:

1 – jth program will be implemented
0 – jth program will not be implemented.

The system of limiting conditions of mathematical model shall comprise:

- equation $\sum_{j=1}^{p} x_j = r$ representing number r of implemented programs where by the r-parameter acquires values r = 1, 2,…,p;
- equation $x_1 = 1$ is the result of the requirement for the implementation of at least one program and the pecking order of programs;
- set of inequalities $x_1 \geq x_2 \geq ... \geq x_p$ expressing the preferential arrangement of programs.

The purpose function (optimality criterion) of the mathematical model expresses the average spending on the implementation of one public budget program.

$$R = \frac{\sum_{j=1}^{p} c_j \cdot x_j}{\sum_{j=1}^{p} x_j}$$

The mathematical model of optimal allocation of non-mandatory expenses – minimization of average spending on one implemented program – is

$$\sum_{j=1}^{p} x_j = r \quad (r = 1,\ldots,p)$$

$$x_j - x_{j+1} \geq 0 \ (j = 1,\ldots\ p-1)$$

$$x_1 = 1$$

$$x_j = \begin{cases} 1 \\ 0 \end{cases} \quad (j = 2,\ldots,p)$$

$$\min R = \frac{\sum_{j=1}^{p} c_j \cdot x_j}{\sum_{j=1}^{p} x_j}$$

By solving this model we can set the amount of minimal average discretionary spending for one implemented program (project). Spending is determined by the following relation:

$$\min R = \min S = \frac{\sum_{k=1}^{s} c_k}{s}$$

using the optimal number **s** of implemented programs/projects.

If the sum of discretionary expenses $\sum_{j=1}^{s} c_j$ of selected programs (projects) exceeds budgeting limitations, the calculation must be repeated after the exclusion of the bottom-most pecking-order programs (projects) the spending on which has exceeded the budget limits. The information thus obtained may be used in support of decision-making processes.

Conclusions

It becomes obvious, on the face of comparing individual evaluation approaches, that there are many ways of evaluating programs. Each of them has its assets and drawbacks which, however, could be strengthened or weakened by suitably blending them with other approaches. Economic evaluation would seem to be optimal for checking and assessing the use of available resources, while formative evaluation seems to be fit for the research of program implementation, etc. The choice of evaluation approach depends not only on the type of program but indeed also on its goals and the nature of the evaluation process and enough political will on behalf of the ruling political parties (and the will to reach consensus on setting non-normative government program goals), aimed at obtaining sufficient know-how, expertise and staff preparation.

References

BEBLAVÝ, M. – SIČÁKOVÁ-BEBLAVÁ, E. (2006): Institucionálne dilemy pri zabezpečení verejných služieb. Bratislava: Transparency International. Adin, s. r. o.

BENČO, J. – KOMOĎA, J. – NEMEC, J. (2001): Kontrola vo verejnom sektore. [Monografia.] Banská Bystrica: UMB, Ekonomická fakulta.

BEŇOVÁ, E. a kol. (2007): Financie a mena. Bratislava: Iura Edition.

COOMBS, H. M. – JENKINS, D. E. (1994): Public Sector Financial Management. London – Glasgow – Weinheim – New York – Tokyo – Melbourne – Madras: Chapman and Hall.

FETTERMAN, D. M. – SHAKEH, K. – WANDERSMAN, A. (2001): Empowerment Evaluation: Knowledge and Tools for Self-Assessment and Accountability. Thousand Oaks, CA: Sage Publications.

HANSEN, H. F. (2005): Choosing Evaluation Models: A Discussion on Evaluation Design. Evaluation, *11*, pp. 447 – 462.

HARBERGER, A. – JENKINS, G. P. (2002): Cost-Benefit Analysis. Cheltenham,UK – Northhapton, MA: An Edgar Reference Collection.

HELLSTERN, G. (1986): Assessing Evaluation Research. In: KAUFMANN, F.-X., MAJONE, G. and OSTROM, V. (eds.): Guidance, Control and Evaluation in the Public Sector. Berlin: Walter de Gruyter.

CHEN, H. (1990): Theory-Driven Evaluation. Newbury Park, CA: Sage Publications.

KING, J. A. (2005): Participatory Evaluation. In: MATHISON, S. (eds.): Encyclopedia of Evaluation. Thousand Oaks, CA: Sage Publications.

MCDAVID, J. C. – HAWTON, L. R. L. (2006): Program Evaluation and Performance Measurement. An Introduction to Practice. London – New Delhi – Thousand Oaks, CA: Sage Publications.

MADAUS, G. F. – KELLAGHAN, T. (2002): Models, Metaphors, and Definitions in Evaluation. In: MADAUS, G. F., STUFFLEBEAM, D. L. and KELLAGHAN, T. (eds): Evaluation Models. Dordrecht: Kluwer Academic Publishers.

NEKOLA, M. (2007): Monitoring a evaluace realizovaných politik. In: VESELÝ, A. and NEKOLA, M. (eds.): Analýza a tvorba veřejných politik: přístupy, metody a praxe. Praha: SLON.

NEMEC, J. – MERIČKOVÁ, B. – OCHRANA, F. (2008): Introducting Benchmarking in the Czech Republic and Slovakia. Processes, Problems and Lessons. Public Management Review, *10*, No. 5, pp. 673 – 684.

NEMEC, J. – MERIČKOVÁ, B. – VÍTEK. L. (2004): Contracting-out on Local Government Level in Transitional Economies:Theory and Selected Evidence from Czech and Slovak Republic. [The Eight International Research Symposium on Public Management, 31. 3. 2004 – 02. 4. 2004.] Budapest: University of Economic Science and Public Administration.

OCHRANA, F. (2006): Programové financování a hodnocení veřejných výdajů. Praha: Ekopres.

PAVEL, J. (2007): Efektivnost obecních obchodních společností při poskytování služeb. Poskytování služeb obecními obchodními společnostmi. Politická ekonomie, *LV*, No. 5, pp. 681 – 693.

PAVEL, J. (2005): Velikost a transparentnost trhu veřejných zakázek v zemích OECD. Acta Facultatis Aerarii Publici, *2*, No. 1, pp. 142 – 151.

PÍŠEK, M. – PÍŠEK, M, jr. (2003): Použití matematického modelu při alokaci veřejných výdajů. In: Alokační modely veřejných zdrojů a sledování efektivnosti veřejných výdajů. [Studie výzkumného projektu Grantové agentury ČR. Evidenční číslo výzkumného projektu 402/02/1267.] Praha: Grantová agentura ČR

POTŮČEK, M. – LELOUP, L.T. – JENEI, G. – VÁRADI, L. (2003): Public Policy. Central Eastern Europe. Theories, Methods, Practices. Bratislava: NISPAcee.

ROBILLARD, P. (1971): (0,1) Hyperbolic Programming Problems. Naval Research Logistics Quarterly, *18*, No. 1, pp. 47 – 58.

ROSSI, P. H. – LIPSEY, M. W. – FREEMAN, H. E. (2003): Evaluation: A Systematic Approach. Thousand Oaks, CA: Sage Publications.

SABATIER, P. A. (1999): Theories of the Policy Process. Boulder: Westview Press.

SANDERSON, I. (2000): Evaluation in Complex Policy Systems. Evaluation, *6*, No. 4, pp. 433 – 454.

SEFTON, T. A. J. (2003): Economic Evaluation in the Social Welfare Field: Making Ends Meet. Evaluation, *9*, pp. 73 – 91.

SCHALOCK, R. L. – BONHAM, G. S. (2003): Measuring Outcomes and Managing for Results. Evaluation and Program Planning, *26*, pp. 229 – 235.

SIVÁK, R. a kol. (2007): Verejné financie. Bratislava: Iura Edition.

ŠUMPÍKOVÁ, M. – PAVEL, J. – KLAZAR, S. – POTLUKA, O. (2004): EU Funds: Absorption Capacity and Effectiveness on Their Use, with Focus on Regional Level in the Czech Republic. In: Institutional Requirements and Problem Solving in the Public Administrations of the Enlarged European Union and Its Neighbours, pp. 450 – 484. Bratislava: NISPAcee.

TROCHIM, W. M. (2006): The Research Methods Knowledge Base. 2nd Edition. Available at: <http://www.socialresearchmethods.net/kb/>.

WHO (2000): Ekonomická evaluace. In: Evaluace léčby poruch způsobených užíváním psychoaktivních látek. Sešit, č. 8.

WHOLEY, J. S. – HATRY H. P. – NEWCOMER, K. E. (eds.) (1994): Handbook of Practical Program Evaluation. San Francisco: Jossey Bass. A Wiley Imprint.

WRIGHT, G. – NEMEC, J. (eds.). (2002): Public Management in the Central and Eastern European Transition: Concepts and Cases. Bratislava: NISPAcee.

OECD (2002): Glossary of Key Terms in Evaluation and Results Based Management. Paris: OECD.