THEORETICAL AND METHODOLOGICAL ISSUES REGARDING SUBSIDIES FOR URBAN PUBLIC TRANSPORT OPERATORS

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ABSTRACT
Until the effective application of "REGULATION (EC) No 1370/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on public passenger transport services by rail and by road in Romania, the existing policy of subsidizing public transport companies generally consists in covering the difference between the total cost (usually higher) and revenue (usually lower) of the operator that are obtained by provisioning the public passenger transport. In this manner, by subsidizing the overall cost of public transport companies has led to a constantly growing financial effort for the local authority, in particular because there are no clear policies regarding the destination, volume and socio -economical effects of this subsidy.
Likewise, in the absence of clear methodologies and procedures for correct identification and quantification of the volume and destination of the subsidy needed for operating the public passenger transport services, it`s financing is done in a relative subjective manner. In this paper we propose to bring to the fore a number of conceptual and procedural elements regarding "a more correct approach on the volume and destination of operational subsidies granted to the public transport companies. The aim of the research is to demonstrate that urban transport system development is conditioned by the need to amend the regulatory mechanism for according operating subsidies.

KEYWORDS: *Subsidy, Urban Transport Public Operator (UPTO), Public Services*

JEL CLASSIFICATION: *H25, H71, L98, L9*

1. INTRODUCTION

Until the effective application of "REGULATION (EC) No 1370/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on public passenger transport services by rail and by road in Romania, the existing policy of subsidizing public transport companies generally consists in covering the difference between the total cost (usually higher) and revenue (usually lower) of the operator that are obtained by providing the public passenger transport. In this manner, by subsidizing the overall cost of public transport companies has led to a constantly growing financial effort for the local authority, in particular because there are no clear policies regarding the destination, volume and socio - economical effects of this subsidy.

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Likewise, in the absence of clear methodologies and procedures for correct identification and quantification of the volume and destination of the subsidy needed for operating the public passenger transport services, it`s financing is done in a relative subjective manner. In this paper we propose to bring to the fore a number of conceptual and procedural elements regarding "a more correct approach on the volume and destination of operational subsidies granted to the public transport companies. The aim of the research is to demonstrate that urban transport system development is conditioned by the need to amend the regulatory mechanism for according operating subsidies.

2. THE STATE OF KNOWLEDGE

Academic discussions and even the practices in real life are quite contradictory regarding the subsidy of public transport services. Transit subsidies are very controversial and their existence is a matter of continuous debate, both in countries that have them as in countries that do not.
Although subsidies aim to direclty benefit the users of the transport service, in many cases, some of the benefits (or costs) are forwarded to others. In addition, supply side subsidies are less targeted than demand side subsidies, since they are given directly to operators who usually do not discriminate between different types of users (Estupinan et al., 2007).
Urban transit subsidies are needed to enhance the mobility of the poor and the physically handicapped whose relative mobility has been steadily decreasing. Analysis of the overall transit situation suggests that such subsidies should be specifically tailored to needy individuals rather than to transit companies (Altshuler, 1969).
Subsidies for public transport operators have always been a concern for the public administrations and are treated in many studies at the EU level, such as the study initiated by the European Conference of Ministers of Transport (ECMT) with the help of the Transport and Road Research Laboratory which concluded that that although the major part of the subsidy paid to the transport operators was reflected by reduced fares and improved service levels there may well have been some leakage into higher unit costs and manning levels. (Bly et al., 1980).
As seen in other countries, the criteria used for calculating subsidies is somewhat lacking in efficiency even though Economists have tended to emphasize efficiency criteria and advocated the use of cost-benefit analysis, but, for a variety of reasons this approach does not seem to have played a major role in the allocation of subsidies (Peter & Else, 1992).
So, as seen in some cases from Romania, operating subsidies received directly by the operator are used to compensate the high costs and lack of efficiency (Estupiñán et al., 2007).
Normally, the policy of subsidizing the transport service must pursue a much wider range of effects in relation to respecting the accessibility of the service.
Van Goeverden et al. (2006) summarizes, in addition to the effect of social protection of disadvantaged groups, other three arguments for subsidization.
Thus subsidizing public transport is the best tool to address urban transport issues (noise, pollution, parking and traffic congestion) caused by personal vehicle use. On the other hand public transport is characterized by economies of scale, so marginal costs are below average costs, so setting up transport fares based on the marginal cost would lead to deficit for the operator, deficit that will yet again be covered by subsidies. These economies of scale can occur due to fixed costs but more importantly, they come from the "Mohring effect" (Parry & Small, 2009), that states that the cost derived from the waiting time of passengers decreases as the frequency of the transit service increases. On the other hand, van Reeven (Savage& Small, 2009) demonstrates that Mohring effect do not necessarily represent an argument for subsidising urban public transport. However, despite the statements of extensive debates taken from literature regarding public transport service subsidising, regulations and practice in Romania puts less emphasis on the traking and quantification of social, economical and evironmental effects produced by the subsidising policy.

3. RESEARCH METHODOLOGY

The paper deals with the manner of sizing the volume and destination of subsidies received by an operator in Romania. By operator meaning an Urban Public Transport Operator - UPTO which is a public company belonging to the local government (LG). The performance objective aimed at making a profit is not a priority for the UPTO. The priority in this case for both the operator and owner of the service (local government) is increasing the quality of the transport service while ensuring safe transport, comfort and accessibility. Prices for travel titles for urban surface is determined taking into account social protection. UPTO, as most local operators in the country, do not usualy make profit from the transport service. The main source of financing for the UPTO consists of operating subsidies and investment received from the LG. Operating subsidy represents more than 50% of the operating revenue of the UPTO, which shows the high dependence of the operator of funding sources that the LG should grant to support the transport service (covering tariff differences and gratuities). Given that currently a contractual basis for the granting of these subsidies does not exist, the LG, which in turn is faced with insufficient financial resources, the timing and volume of subsidies to the UPTO is chosen randomly. In some financial years, the LG does not pay subsidies to the UPTO at the approved level. Therefore, the UPTO , inevitably arrives at a cash deficit and faces the imposibility of paying tax debts, comercial debts etc. The high degree of inertia of indirect fixed costs related to the activity carried out (eg TESA staff, administrative and management sector spendings) lead to reduced intervention to optimize their correlation with the performance of transport. This causes immediate and visible action on direct expenditure variables (fuels, electricity, spare parts) to reduce overall costs and stay within the parameters of budgetary sources provided by the LG with adverse effects on the quality of public transport services (limited number of vehicles in circulation). On the other hand, in the absence of a clear definition, stated by a contractual basis, of content, and destination of the LG budgetary allocations granted to the UPTO as operating subsidy, there was no VAT taken into consideration regarding the provision of the transport service. In the substantiation of annual income and expenditure budgets, of the UPTO, the following were considered under the name of "proper price difference":

- Subsidy from the local budget to cover the difference between the costs and revenue of the operator (Law no. 92/2007 – Law of local public transport services, Article 17, letter n);
- Supporting a partial or total cost of public transport for disadvantaged citizen established by decisions of local councils or by law (Law no. 92/2007 - Law of local public transport services, Article 17 letter o).

The law does not provide a clear breakdown of the categories of subsidies that the UPTO should receive from the LG. For the delimitation of subsidy categories fiscal legislation must be taken into consideration (Law no. 227/2015 regarding the Fiscal Code and it`s implementing rules). The categories of subsidies, their destination and their substantiation methodology should be explained explicitly in the content of the delegation contract. The lack of legal basis (delegation contract) creates the potential for interpretation of volume, nature and purpose of these subsidies. Identifying subsidy destinations also has the advantage of applying appropriate accounting treatment of each type of subsidy (to supplement revenues from sales, to cover expenses for which they were granted, etc.).

A first goal in the analysis for the corect fundamentation of the subsidy, was to establish a theoretical level of total compensation (subsidy), more precisely determining a global volume of financial compensation for fulfiling the public service obligations, by considering various optimization scenarios.

The second objective of this inquiry is to simulate the manner of determining the operating subsidies, while considering the subsidy for covering costs (SCC) is derived by subtracting direct and indirect revenue obtained by the operator and the subsidy awarded for for gratuities and 50% reductions determined by service obligations.

The final objective of the research is to identify concrete actions that can be made for both the UPTO and the LG for the optimization of the operating subsidy and it`s destination in relation with the tax treatment.

4. MAIN FINDINGS

Sensitivity analysis on the aggregate operating subsidy volume

In an accounting perspective, in the category of subidies the following are included:

a) subsidies related to assets (investment subsidies)
b) Subsidies for revenue.

The subsidies are sometimes called by other names such as: compensation, grants, allowances, bonuses or transfers.

a) Subsidies related to assets (investment subsidies)
   - subsidies for the award of which the main condition is that the receiving entity has to buy, build or purchase assets.
   - are recognized in the balance sheet as deferred income (account 475 "Investment subsidies"). Deferred revenue is recorded as current income in the profit and loss account by depreciation expenses of registration or scrapping or disposal of assets.
b) Subsidies related to income (operating subsidies)
   - include all subsidies, other than the ones related to assets:
     - subsidies directly linked to the price;
     - subsidies to achieve quality parameters;
     - subsidies to cover expenses or other similar situations.

Revenues from subsidies related to net turnover is presented in the profit and loss account as part of net turnover. Other income from subsidies are presented in the profit and loss account:

- as a correction of the expenditures for which they were granted or
- as revenue items.

From a fiscal perspective:

- Subsidies directly linked to the price represent those subsidies that correspond to the turnover and bear V.A.T., under Art. 268 - Taxable transactions of Law. 227/2015 regarding the Fiscal Code and it`s implementing rules Article 268 paragraph (1) pnt. a:30:
- "(1) According to art. 286 par. (1) a) of the Fiscal Code, subsidies directly linked to the price of the goods and / or services provided shall be included in calculation of the tax. "

The subsidy is directly linked to the price if the following conditions are met (According to the application of Law 227/2015 Article 268 paragraph 1):

a) The subsidy is specifically determinable within price of goods and / or services bought, therefore, it is determined by the unit of delivered goods and / or services supplied in absolute or percentage values;
b) the purchasers must benefit from the subsidy awarded to the supplier / provider, meaning that the price of goods / services the puchase must be lower than the price at which the same products / services would sell / provide in the absence of the subsidy.

- Operating subsidies for the covering of expenses are not free of VAT, as stated in Law 227/2015 Article 268 paragraph 2):
  a) The following are not included in the tax base: subsidies or allocations from the state budget, local budgets, the community budget or from the state social insurance budget, which do not fulfill the conditions of par. (1), respectively subsidies which are awarded for reaching certain quality parameters, subsidies to cover expenses or other similar situations.

Schematically, the types of subsidies that the UPTO receives from the local authority are presented in Figure 1

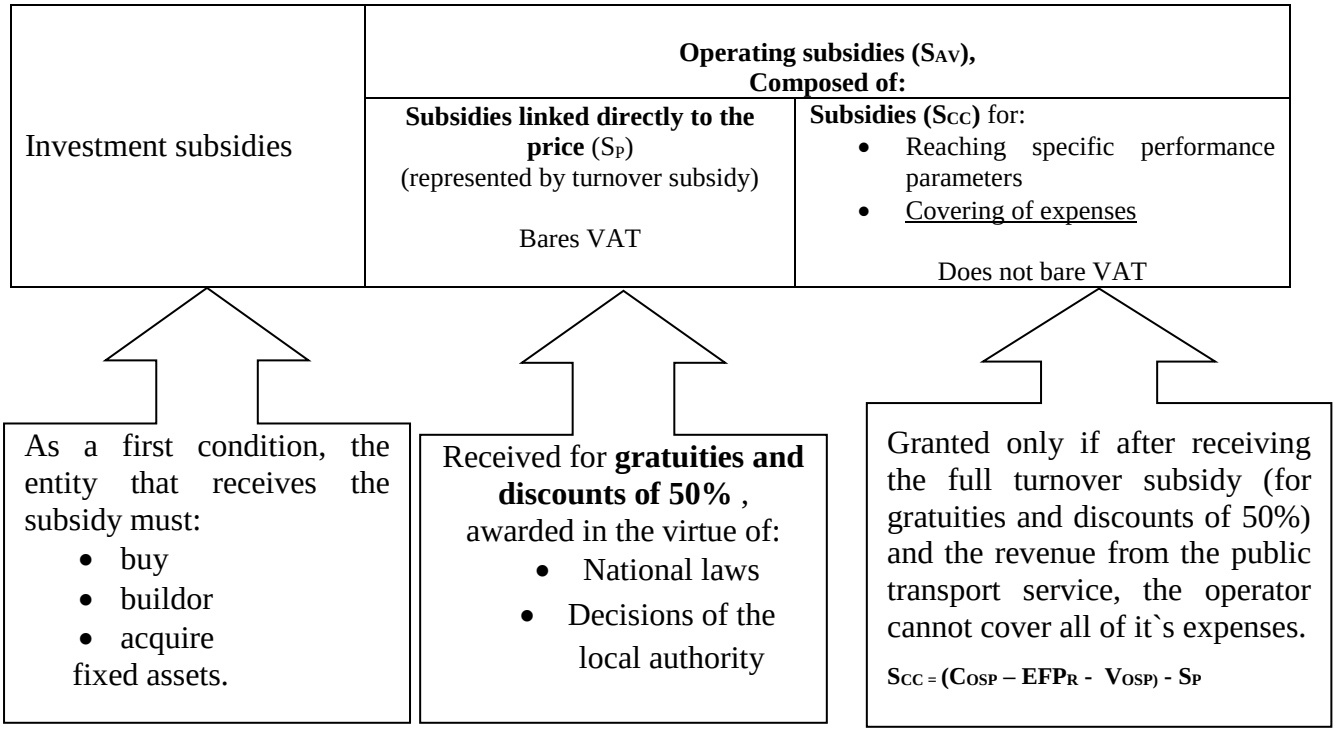

Figure 1. Types of subsidies and their specifications.
Source: authors

According to EC Regulation 1370 (The European Parliament and The Council of the European Union, 2007) net financial effect shall be determined according to (1):

$$S_{Av} = C_{OSP} – EFP_R - V_{OSP,} \quad (1)$$

Implementing rules Art. 268 - Taxable transactions of Law. 227/2015 regarding the Fiscal Code explains the components of net financial effect as (2).

$$SAv = SP + SCC \quad (2)$$

Resulting equation (3) for determining operating subsidies awarded for achievement of quality parameters and / or to cover expenses.

$$S_{CC =} (C_{OSP} – EFP_R - V_{OSP)} - S_{P,} \quad (3)$$

- S_{Av} represents the operating subsidy regarding revenues rezultet by providing the public service in compliance with service obligations (net financial effect, according to EC Regulation 1370/2007).
- C_{OSP} represents the total costs suported by the operator by providing transport services as required by the contracting authority (LG), obligation stated in the public service contract.
- E_{FPR} refers to any positive financial effects generated within the network operated by the operator while providing the public transport service in compliance with the service obligations.

- V_{OSP} represent revenue from ticket sales plus any other revenue generated while fulfilling the public service obligation.
- SP reffers to subsidies that are linked directly to price (subsidies related to turnover).
- SCC represents operating subsidies that are awarded for:
  - an achievement of quality benchmarks;
  - the covering of some expenses.

The relationship shown above should stand at the basis of determining the level of financial compensation (subsidy), starting from the reconsideration of the expenditure recorded in the financial accounting (by nature) as embeddable expenses and unembeddable expenses. On the other hand, destination of expenses (object of cost - km- transport benefit for example, respectively analysis centers) lead to the grouping of costs into two categories: direct costs for vehicles (fuel for transportation, energy for traction, spare parts etc.) and indirect costs in relation to these vehicles (joint production costs from the depots, support activities, maintenance, repairs, and general administrative expenses etc.)

Determining the overall volume of operating subsidy in compliance with public service obligations

Following the costs supported for providing the public service, we proceeded to a possible grouping of expenses incurred in the period 2013 -2015 by the UPTO (theoretical data), in categories of expenditure related tot he main activities of the UPTO. Data obtained from the processing of accounting information provided by UPTO for the period 2013 - 2015 are summarized in Table 1.

Table 1. Scenario 1. Calculation of overall operating subsidy – theoretical level based on revenue and cost of core activities for providing the transport service

INDICATORS		**2013**	**2014**	**2015 (hypothetical data)**
TOTAL account 704 Revenue from related work and services MAIN ACTIVITY INCOME* -lei	1	167.151.779	164.493.038	144.354.416
MAIN ACTIVITY COSTS lei	2	872.307.369	799.027.980	662.067.661
1. Amortization and depreciation costs, lei	3	195.946.026	149.824.012	102.931.449
Results: MAIN ACTIVITY COSTS without amortization and depreciation costs, lei	4=2-3	676.361.343	649.203.968	559.136.212
Theoretical level of overall subsidy (without amortization and depreciation costs), lei	5=4-1	509.209.564	484.710.929	414.781.796
Revenue from sales	6	167.064.285	162.935.149	118.526.854
Total number of annual trips – estimated	7	438.429.468	453.453.534	407.165.610
AVERAGE tariff charged for 1 trip (effective trip), lei/trip, without VAT	8=6:7	0,38	0,36	0,35
AVERAGE COST (incl. Amz.) for transport activity, lei / trip.	9=2:7	1,99	1,76	1,63
Income from subsidies related to turnover lei	11	464.408.000	557.267.000	×

Source: adapted from accounting informations UPTO: 2013, 2014

* In account 704 Revenues from work performed and services rendered there are other types of revenue, which do not come from the selling of transport tickets. Given that their volume is

insignificant, we considered all the revenue in this account as income from providing the base activity, for determining the needed volume of subsidy.
Depreciation and amortization expense deduction was made because revenue from related activities include revenue associated to amortization of subsidies for investments (also found in almost equal proportion in costs), without affecting the financial result.
Once removed from the total income, considered as the basis for calculating the needed subsidy, of all other revenue outside income from the transport service,we appeciated that depreciation and amortisation expenses should be eliminated also, given that we have considered as a working hypothesis that all amortization recorded as expense coresponds to an asset that was bought through investment subsidies (which are therfore conected with the income excluded from the calculation of the operating subsidy). However, for a more accurate calculation a grouping of fixed assets by source is needed (by own sources or by investment subsidies) and their corresponding amortization. This distinction is not made in this paper. Such a delimitation is not made in the present paper.
Table 3 presents the calculation in a more theoretical manner, in which the the operating subsidy is taken as a whole.

Table 2. Synthesis 1. Calculation of overall operating subsidy – theoretical level based on revenue and cost of core activities for providing the transport service

Hypotheses 1	**Conclusion 1.**
• For the subsidy calculation (as overall volume) the revenue obtained from providing the service was taken into account, except the the selling of travel tickets for which expenses for the core busines have been deducted (whthout considering the costs for the amortization of return assets): transport, maintenance and repairs. • All expenses registered in the expense accounts (class 6).	Overall subsidy volume (theoretical level) differ from the values recorded in the Profit and Loss Account for the Income from subsidies related to net turnover account (ct.7411).

Source: authors

SCENARIO 2. Determining the total volume of the operating subsidy in the context of increasing transport ticket price (1 ticket = 2.1 lei travel with VAT)
The objective of the simulation: Setting a new volume for the operating subsidy by raising the revenue from ticket sales following an increase of the price of travel tickets.
In the context of raising the price of a ticket to 2,1 lei including VAT, the resulting income/1 ticket becomes 0,59 lei/ticket without VAT (the diferent offers for monthly passes and the bonification policy set by the LG were taken into consideration), and so, the estimated income volume for the year 2015 was calculated.

Conclusion 2. As shown in Table 3, while maintaining the same operating parameters and collection as in hypothesis 1, correlated with raising the price of tickets (2.1 lei including VAT, with the resulting income/1 ticket of 0,59 lei/ticket without VAT), the overall volume of the operating subsidy decreases by 22,96% compared to the reference period of 2015 – scenario 1 (319.546.847 lei compared to 414.781.796 lei).

Table 3. Scenario 2. Recalculation of the operating subsidy (theoretical level) in the context of higher ticket price

Indicators	**2015 (hypothetical data) REFERENCE PERIOD Scenario 1 Table 1**	**Theoretical period 2015 - Hyptohesis in the context of a higher ticket price Scenario 2**
TOTAL account. 704 Revenue from related work and services MAIN ACTIVITY INCOM* - lei	144.354.416	239.589.365 (new ticket price without VAT)* travels number as in 2015)
Results : MAIN ACTIVITY COSTS without amortization and depreciation costs, lei	559.136.212	559.136.212
Theoretical level of overall subsidy (without amortization and depreciation costs), lei	414.781.796	319.546.847 = new overall subsidy level after the ticket price increase : decreasing by 22.96% compared to the reference period of 2015
Total number of annual trips – estimated	407.165.610	407.165.610
AVERAGE tariff charged for 1 trip (effective trip), lei/trip, without VAT	0,35= 144.354.416/ 407.165.610	0,59 (increasing by 68,57% in the context of a 2,1 lei price/ ticket, including VAT)

Source: authors

Table 4 summarizes the hypothesis and conclusions of the simulation of scenario nr.2.

Table 4. Synthesis 2. Recalculation of the operating subsidy (theoretical level) in the context of higher ticket price

Hypotheses 2	**Concusions 2.**
• For the subsidy calculation (as overall volume) the revenue obtained from providing the service was taken into account, except the the selling of travel tickets for which expenses for the core busines have been deducted (whthout considering the costs for the amortization of return assets): transport, maintenance and repairs. • All expenses registered in the expense accounts (class 6). • Maintaining operationg conditions and transport performance level. • Constant volume of costs for the base activity in the theoretical period. (Reference year – 2015 scenario 1) • Keeping a constant number of travels as in the base period (same as in the reference year – 2015 scenario 1). • Constant number of travels as in the reference period (reference year – 2015 scenario 1) • Maintaining the same structure of ticket sales as the monthly average.	In the context of maintaining the same operating parameters and collection as in hypothesis 1, corelated with raising the price of tickets (2,1 lei including VAT, with the resulting income/1 ticket of0,59 lei/ticket without VAT), the overall volume of the operating subsidy decreases by 22,96% compared to the reference period of 2015 – scenario 1 (319.546.847 lei compared to 414.781.796 lei Table 2).

Source: authors

SCENARIO 3. Recalculation of the overall operating subsidy level (theoretical) for the reference period (year 2015 scenario 1) by eliminating some costs from the transport by tram activity that were considered non – attributable.
The objective of the simulation: Setting a new volume for the operating subsidy by reducing costs from the transport activity by tram.
Hypotheses:

- Keeping operating conditions and keeping transport performance level.
- Maintaining the same level of revenue for the calculation of operating subsidy as in the reference period.
- Ticket prices are the ones used today (1,3 lei/ticket).
- Eliminating some costs from the transport by tram activites that were considered non – attributable (reference period - year 2015 scenario no.1).
- Keeping a constant number of travels as in the base period (same as in the reference year – 2015 scenario 1).
- Maintaining the structure of ticket sales as the monthly average.

In the non attributable category a series of cost elements were included. These expenses were realised within cost centers not linked to the transport activity (sports club, medical center, diner). The value of these costs for 2015 was 4.166.448 lei. Even though, these centers give indirect support to the main activity by providing better work conditions for the staff, the costs generated by these centers should not be covered through subsidies.
Table 5 shows the overall level of operating subsidy by excluding the costs deemed non-attributable to transport by tram activity (total 2015 = 4.166.448 lei)

Table 5. Scenario 3. The overall level of operating subsidy by excluding the costs deemed non-attributable to transport by tram activity

Indicators	**2015 (scenario 3) lei**	**Considerations**
TOTAL ct. 704 Revenue from related work and services MAIN ACTIVITY INCOME	144.354.416	
INCOME FROM SALES	118.526.854	
BASE ACTIVITY COSTS (including amortization and depreciation costs)	657.901.213	
TOTAL TRAM EXPENSES (after eliminating the non - attributable expenses 4.166.448 lei, out of the initial value of 318.888.096 lei)	314.721.648 (= 318.888.096 - 4.166.448)	Compared to the initial value (scenario 1, table1)= 318.888.096 lei, in scenario 3 the volume of expenses for transport by tram(314.721.648 lei) has decreased by 1,31%
MAIN ACTIVITY COSTS AFTER OPTIMIZATION (without amortization and depreciation costs)	554.969.764	Compared to the initial value (scenario 1, table1)= 559.136.212 lei, in scenario 3 the volume of main activity costs, excluding amortization and depreciation costs (554.969.764 lei) decreased by 1%
Theoretical level of overall subsidy (without amortization and depreciation costs), lei	410.615.348	Compared to the initial value (scenario 1, table1)=414.781.796 lei, in scenario 3 the volume of overall subsidy (410.615.348 lei) decreased by 1,01%
Total number of annual trips – estimated	407.165.610	
AVERAGE tariff charged for 1 trip (effective trip), lei/trip, without VAT	0,35	

Source: authors

Conclusion 3. As shown in Table 5, after the optimization of transport costs by eliminating the costs deemed non-attributable to transport by tram activity (optimization that determines an overall reduction of transport costs involved in determining the operating subsidy by 1%), the theoretical level of overall operating subsidy decreased by 1.01% compared to reference data (scenario 1).

Table 6. Summary 3. The overall level of operating subsidy by excluding the costs deemed non-attributable to transport by tram activity

Hypotheses 3	**Conclusions 3**
• Maintaining operationg conditions and transport performance level. • Maintaining the same level of revenue for the calculation of operating subsidy as in the reference period. • Ticket prices are the ones used today (1,3lei/ticket). • Elimination of the costs deemed non-attributable to transport by tram activity (reference period 2015 scenario 1) Table 4. • Keeping a constant number of travels as in the base period (same as in the reference year – 2015 scenario 1).	After the optimization of transport costs by eliminating the costs deemed non-attributable to transport by tram activity (optimization that determines an overall reduction of transport costs involved in determining the operating subsidy by 1%) , the theoretical level of overall operating subsidy decreased by 1.01% compared to reference data (scenario 1). Identifying other ways to optimize transport costs for the activities involved in determining the overall level of operating subsidy (proper allocation of costs on activities for the expenses of the central organization, optimizinon on social spendings) would cause a corresponding reduction in the volume of subsidy.

Source: authors

SCENARIO 4. Recalculation of the overall operating subsidy level (theoretical) for the reference period (year 2015 scenario 1) by eliminating some costs from the transport by tram activity that were considered non – attributable, while simultaneously raising ticket prices.
The objective of the simulation: Setting a new volume for the operating subsidy by reducing costs from the transport activity by tram, while increasing revenue from sales by rasising ticket prices.

Hypotheses:

- Keeping operating conditions and keeping transport performance level.
- Income for 1 trip becomes 0,59 lei, without VAT.
- Eliminating some costs from the transport by tram activities that were considered non – attributable (reference period - year 2015 scenario no.1).
- Keeping a constant number of travels as in the base period (same as in the reference year – 2015 scenario 1).
- Maintaining the structure of ticket sales as the monthly average.

Table 7 shows the calculation of the volume of overall operating subsidy under the assumptions of scenario 4.

Table 7. Scenario 4. Theoretical level of overall subsidy after the optimization of transport costs, while simultaneously raising ticket prices.

Indicators	**2015 (scenario 1) lei**	**Observations**
Revenue from ticket sales with a higher price/ticket	239.589.365	(Average income/trip without VAT)* Number of trips 2015 -constant)) = 0,59 lei/trip *407.165.610 trips (year 2015)
MAIN ACTIVITY COSTS AFTER OPTIMIZATION (without amortization and depreciation costs)	554.969.764	Obtained after the optimization of transport costs by eliminating the costs deemed non-attributable to transport by tram activity (Table 4)
Theoretical level of overall subsidy 2015	315.380.399	Compared to the initial value (scenario 1, table1)=414.781.796 lei, by eliminating some costs from the transport by tram activity that were considered non – attributable, correlated with the raising of ticket prices., the overall theoretical level of subsidy drops by 23,97%.
Number of anual trips 2015	407.165.610	(considered constant for all scenarios).
AVERAGE tariff charged for 1 trip (efective trip), lei/trip, without VAT	0,59	(increasing by 68,57% in the context of a 2,1 lei price/ ticket, including VAT

Source: authors

Conclusion 4. By the data presented in Table 7 we can observe that after the optimization of transport costs, by eliminating the costs deemed non-attributable to transport by tram activity (optimization that determines an overall reduction of transport costs involved in determining the operating subsidy by 1%, and an increased income/1 ticket of 0,59 lei/ticket without VAT), the overall theoretical level of subsidy drops by 23,97% compared to the overall theoretical determined in in scenario 1. (Table 1). Table 8 shows the synthesis of the simulation in scenario 4.

Table 8. Synthesis 4. Theoretical level of overall subsidy after the optimization of transport costs, while simultaneously raising ticket prices

Hypotheses 4	**Conclusions 4**
• Maintaining operationg conditions and transport performance level. • Income for 1 trip becomes 0,59 lei, without VAT. • Eliminating some costs from the transport by tram activity that were considered non – attributable (reference period - year 2015 scenario no.1). • Keeping a constant number of travels as in the base period (same as in the reference year – 2015 scenario 1). • Maintaining the structure of ticket sales as the monthly average.	After the optimization of transport costs by eliminating the costs deemed non-attributable to transport by tram activity (optimization that determines an overall reduction of transport costs involved in determining the operating subsidy by 1%), and an increased income/1 ticket of 0,59 lei/ticket without VAT), the overall theoretical level of subsidy drops by 23,97% compared to the overall theoretical value determined in scenario 1. (Table 1).

Source: authors

Comments: After analyzing data from the 4 scenarios for optimizing the volume of operating subsidy we discovered that raising the price/ticket has a great influence in reducing the overall

operating subsidy. Obviously, this will result in an increase in revenue from ticket sales, taken that the costs for the transport activity remains unchanged or it diminishes unsignificantly.
The effect of raising ticket prices should be analyzed from the perspective of a clear delimitation of the subsidies regarding turnover and subsidies for covering expenses, which are both included in the operating subsidy as a whole and both of them require a different fiscal treatment.

Subsidies received by the UPTO for gratuities and discounts on travel passes.
Local authorities need to balance financial sustainability and social inclusion, given that the adopted price policies should first consider costs recovery and then the subsidizing of disadvantaged groups (elderly, students etc.).
Shomik Mehndiratta & Camila Rodriguez (2014) in World Bank study, Targeted Subsidies in Urban transport. The experience thus far and next steps with Output-Based Aid, presented at OBA Webinar Series, April 24, 2014 shows that:
To balance the needs for economic and social sustainability, in general cities have tried setting fares for cost-recovery, but then offering targeted subsidies for specific segments of the population. These subsidies, however, have not always lead to the intended results because of difficulties with accurately identifying the target population (especially if not employed in the formal sector), potential abuse of the subsidy, and large errors of both exclusion or inclusion of the target population.
Considering the current tariffs practiced by the RATB, subsidies for gratuities and price differences represent an annual value of 189.592.440. The biggest share in these subsidies is represented by the gratuities for the elderly.
Table 9 shows the effect on the volume of subsidy directly linked to price in the case of raising ticket prices from 1,3 lei/trip to 2,1 lei/trip (VAT included).

Table 9. Simulation for subsidy for gratuities and discounts (of 50%) in the hypothesis of changing the travel tariff, monthly situation.

Explications	**Current situation**	**Simulation regarding the change of travel tariff**	**Observations**
Price for 1 ticket with VAT	1,3	2,1	
Average estimated number of trips for people that receive gratuities or discounts of 50%	39.020.000	39.020.000	
Subsidy regarding monthly turnover, including VAT, of which:	15.799.370	25.522.059	The subsidy for gratuities and discounts of 50 % increases by 61,53% by raising the average price of 1 ticket to 2,1 lei
o Retirees that live in Bucharest (71,21% share in the price subsidy)	11.250.000	18.173.077	
o Workers of the city hall of Bucharest and other institutions (3,98% share in the price subsidy)	629.370	1.016.675	
Subsidy regarding net turnover, from which :	189.592.440 Lei	306.264.711 lei	
o Retires that live in Bucharest (71,21% share in the price subsidy)	135.000.000 lei	218.076.923 lei	
o Workers of the city hall of Bucharest and other institutions (3,98% share in the price subsidy)	7.552.440 lei	12.200.095 lei	

Source: authors

In the event of changing the ticket price to 2,1 lei the annual subsidy directly linked to the price increases by approximately 60%, compared to the actual scenario where the ticket price is 1,3 lei.
Conclusion:

- Increasing the ticket price has strong implications in the volume of subsidy related to turnover that the LG must pay tot he operator for gratuities and discounts.
- Monthly subsidy for gratuities and discounts increases by approximately 60% if the ticket price is increased to 2,1 le/trip (including VAT).
- These subsidies regarding gratuities and discounts bare VAT so their calculation must be made with accuracy at a monthly basis.
- Even though the overall operating subsidy (taken as a sum of subsidies linked to price and subsidies for covering costs) decreases by 23,97% (scenario 4, cost optimization and raise of ticket price), the subsidy for covering costs represents 11% of the overall operating subsidy, while the subsidy for gratuities and discounts represents 89% (Tabel 9).

Table 10. Calculating subsidies by their destination subsidies linked directly to the price and subsidies for covering costs (hypothetical data 2015)

Explications	**Overall operating subsidy - lei-**	**Turnover subsidy -lei-**	**Subsidy for covering costs -lei-**
Scenario 1 (base scenario)	414.781.796	- 173.793.070	= 240.988.726 Represents 58,1% of the overall operating subsidy
Scenario 2 (2,1 lei/ticket price)	319.546.847 Decrease by 22,96% compared to scenario 1	-280.742.649	= 38.804.198 Represents 12,14% of the overall operating subsidy
Scenario 3 (reducing transport costs)	410.615.348 Decrease by 1,01% compared to scenario 1	- 173.793.070	= 236.822.278 Represents 57,67% of the overall operating subsidy
Scenario 4 (2,1 lei/ticket price + reducing transport costs)	315.380.399 Decrease by 23,97% compared to scenario 1	-280.742.649	= 34.637.750 Represents 10,90% of the overall operating subsidy

Source: authors

Note: We reiterate the calculation hypothesis for the 4 scenarios that were simulated using hypothetical data of 2015.
Table 11 shows the methodology for determining operating subsidies. While subsidies for covering costs (Scc results by subtracting, direct and indicrect revenue obtained by the operator while providing transport services and subsidies for gratuities and 50% discounts) derived by providing the transport service.

Table 11. Calculation of subsidy forcovering costs

Formula:	**(C_{OSP} – EFP_R - V_{OSP}) - S_P = S_{CC}** ***EFP_R was not taken into consideration***			
	C_{OSP} Cost for the base activity without amortization or depreciation	- Revenue account 704 Bus, tram or trolley activity	 Turnover subsidy lei	= S_{CC} Subsidy for covering costs
Scenario 1 (base scenario)	559.136.212 (expenses for base activity, 11 months of 2015)	-144.354.416	- 173.793.070	= 240.988.726
Scenario 2 **With price changes**	559.136.212	-239.589.365 (new average price without VAT)* nr of trips. 2015 - constant))	-280.742.649	= 38.804.198
Scenariu 3	554.969.764 (tram expenses reduction with 4.166.448 lei). Comapred to scenario 1 (314.721.648 lei) they droped by 1,31%	-144.354.416	- 173.793.070	= 236.822.278
Scenario 4 **With price change**	554.969.764	-239.589.365 (new average price without VAT)* nr of trips. 2015 - constant))= 0,588432 lei/trip *407.165.610 trips	-280.742.649	= 34.637.750

Source: authors

5. RESULTS AND DISCUSSION

According to the previous simulations regarding the operating subsidy, we conclude the following:

- The overall volume for the operating subsidy is lower if it is determined by excluding the costs that have no connection with providing the transport service.
- An increase in ticket prices results in a higher revenue for the operator, but causes a higher level of the subsidy direclty linked to price (related gratuities and reductions of 50% on subscriptions), subsidies owed by the municipality (as an overall financial effort, total operating subsidies do not change in volume, but it changes in structure). In the context of increasing ticket prices, subsidies to cover the expenses necessary to achieve service obligation are approx. 11% of the total operating subsidy, while the remaining 89% represents the subsidy for gratuities and reductions of 50% on subscriptions), subsidies for which the operator owes VAT.
- In the case of identifying revenue, that the operator obtains from the transport network while providing the transport service, and explicitly stating such types of revenue in the delegation contract we can observe a decrease in the level of operatings ubsidy. We reffer here to revenue obtained from advertising exposed on transport vehicles or stations, special tourist transport services, etc.

At the moment the policy for acording subsidies for public transport in the cities from Romania, tends to follow polictical interests rather than substantiated social and economical reasons with a great impact on the local comunity.

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