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# ALLOCATION OF SECONDARY COSTS BY USING THE MATRIX FUNCTIONS OF SPREADSHEET PROGRAMS

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ABSTRACT

The paper describes and applies the method of linear equations, by using the matrix functions of spreadsheet programs, for the secondary cost allocation of fully-conditioned auxiliary cost centers. The aim of the paper is to demonstrate the possibility of using matrix functions for cost allocation. A model has been formed based on the data from a specific company, that has auxiliary, main and non-productive cost centers. The linear equations method is used to solve the problem of secondary cost allocation, by applying the corresponding matrix functions of a spreadsheet program.

The goal of cost allocation of auxiliary cost centers to main cost centers, and later to the cost holders, is to calculate the exact cost, that is, the cost of products and services. The method of linear equations was chosen because a new model can be formed based on the starting model, by changing the number of cost centers.

This cost allocation model should encourage accountants and company management to use the more exact method of cost allocation instead of the simple direct method or complex step method. Matrix functions facilitate the method of linear equations, because they are quite simple to apply in models that can be easily adapted and applied in practice later on.

It has been concluded that this method can be easily described and applied, and the obtained results, with the correct data input and use of matrix functions, give completely accurate results, unlike other cost allocation methods.

## Introduction

Certain activities in a company, as groups of more or less related jobs, are essentially a small part of a certain activity, through which particular, homogeneous tasks are performed. Cost centers can be auxiliary, main and non-productive. Auxiliary cost centers do not generate revenue directly, since their outputs are not sold outside the organization, but they generate costs that must cover the main cost centers. In modern companies, there has been a cost increase in service cost centers, that are considered to be expensive activities and which reduce revenue but are necessary for the final result, just like the costs of the main centers. A high quality accounting system should ensure an efficient and economical use of auxiliary and non-productive cost centers, by allocating their costs which are based on planned (standard) or actual costs, which is a challenge for the calculation of costs and outputs. The overall objective of cost allocation to the main cost centers is to achieve the precise output costs (products and services) of the auxiliary cost centers. Most authors identify the shortcomings of simplified cost allocation methods for the auxiliary centers, such as the direct allocation method and specified order of closing method, that do not recognize all the costs of the services provided in auxiliary cost centers. Allocation methods that provide more precise results,

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such as the repeated addition with inclusion method and the method of linear equation system, which contain all the cost of the cost centers, are recommended.

Cost allocation method of fully-conditioned cost centers by means of repeated addition with inclusion method, so-called horizontal or vertical table, was used more in practice and teaching of cost accounting, while the cost allocation method of linear equations system, although it provides more precise results, is less represented, both in teaching and in practice, as it requires a significant knowledge of mathematics. However, linear equation method for cost allocation within an organization has adapted better to the changes in the today's business environment, due to the use of matrix functions of spreadsheet programs. The functions of the spreadsheet programs (Excel and similar programs) facilitate the cost calculations of fully-conditioned cost centers, since the system of linear equations is relatively simple to form and solve. The calculated costs of auxiliary (and non-productive) cost centers can be allocated to other auxiliary (and non-productive) cost centers, main cost centers (and cost bearers) using matrix functions.

In the practical part of the work, company „S“ is used as an example to illustrate the implementation of matrix functions in the allocation of reciprocal (fully-conditioned) costs of auxiliary (and / or non-productive) cost centers, using the standard application software for working in tables. Some of its advantages are: calculation errors, which appear during manual calculations, can be avoided, tables provide greater efficiency by eliminating the need for recurring data (for example, allocation databases, distribution formulas, tables, titles, etc.), when costs are regularly allocated for the preparation of periodic financial statements, the model of a program for working with tables can be perform quickly, regardless of the huge set of calculations when the allocation number is large. Finally, because a matrix algebra is required, the reciprocal method is not practical without a computer, or spreadsheet program that, using matrix functions, simplifies the calculation process.

## 1. Calculation of Secondary Costs

Secondary costs represent the cost of the used internal output, that create the auxiliary cost centers in the same accounting period, and their calculation does not have an impact on the total cost of the company (Stevanović, 2016: 173). The calculation of secondary costs contributes to the accuracy of the calculation of production and commercial cost of the final outputs (products and services), provides more complete information on costs per organizational parts of the company for the purpose of making business decisions, and it should be given great attention in companies with intensive internal output effects. The complete calculation of secondary costs assumes the determination of the amount of internal outputs for the cost centers providers and recipients of those outputs, determination of the outputs' price and the value-capturing of the internal output effects.

Determining the amount of internal outputs raises the question of establishing the unit of outputs of auxiliary cost centers, which can be determined directly on the basis of documentation (e.g. quantity of cargo transported in tons) or indirectly using known sizes (quantitative or value) for the cost centers where outputs are given, which represent keys, or surrogate measures of cost reallocation of cost centers of providers to the cost centers of the recipients of internal outputs (Radovanović et al., 2011: 162). Contrary to the prices of external services, prices of internal services are not known in advance, and the determination of prices for internal outputs becomes a complex issue. It is necessary to consider the types of relationships in the internal outputs between auxiliary cost centers, the calculation of the secondary and total costs of auxiliary (previous) cost centers with mutual (reciprocal) exchange of internal outputs, the calculation of the output unit cost and output distribution (total costs) of auxiliary cost centers with mutual output exchange, calculation of secondary and total costs, and cost allocation of auxiliary cost centers without reciprocal exchange of internal outputs, the control of accuracy when determining total costs and prices, as well as the allocation of outputs (costs) of auxiliary cost centers to the users of their outputs (Stevanović, 2016: 176).

The total cost calculation process is different for the auxiliary cost centers that do not use the internal outputs of other auxiliary cost centers, for cost centers that use the internal outputs of other auxiliary cost centers and do not give them their outputs and for the cost centers that both use the outputs of other auxiliary costs centers and give their outputs to other auxiliary cost centers. In the first group of auxiliary cost centers, there are no secondary costs, so their total costs are equal to the primary costs, the price of their outputs is simply determined and the total cost is allocated to the cost centers of the recipients of these outputs. (Stevanović, 2016: 176). Secondary costs should be calculated for the second group of auxiliary cost centers, which is relatively easy, especially when their secondary costs arrise due to the use of outputs from the first group of auxiliary cost centers, for which both total costs and their price are known. The problem arises in the third group of auxiliary cost centers, from the calculation of secondary and total costs, when there is a multi-member conditionality in the exchange of their outputs. The total cost of every cost center is an unknown value, which depends on the unknown total cost of other cost centers.

The solution of the problem of calculating the total cost of fully-conditioned cost centers is in setting up and solving an appropriate system of linear equations (simultaneous equation method) or applying a repeated addition with inclusion method of known values (repeated distribution method). For the allocation of total costs, two methods can be used, which are easy for calculation but less accurate, specific order of closing method and direct allocation method (Drury, 2006, 109; Stinson, 2002: 1- 2).

The method of direct allocation of total costs of auxiliary cost centers ignores the reciprocal condition of using the internal outputs of the auxiliary (or service) cost centers and allocates costs to the production (main) cost centers, and can be applied in cases where the conditional intensity of output exchange between the auxiliary cost centers is relatively small.

Specific order of closing method allocates the total cost of fully-conditioned service cost centers to production (main) cost centers, by closing the auxiliary cost center first, where performs most of the internal services for other cost centers, and after it the second one on the same criteria and so on, while reciprocal costs are not transferred to service cost centers that have been previously allocated, which is a significant shortcoming (Radovanović et al., 2011: 165-166).

The essence of repeated addition with inclusion method is in step by step calculation of add-ons, the completion of the costs of all fully-conditioned cost centers, and the starting point for the calculation of total costs is the mass of already known costs. The method consists in step by step calculation of add-ons, i.e. the gradual completion of costs of every fully-conditioned cost center (Matanović & Mesarić, 2011: 278).

The starting point for the calculation of total costs using the linear equation system is the mass of the known costs of fully-conditioned auxiliary cost centers. Setting up a system of linear equations does not represent a specific problem and does not require a higher knowledge of mathematics, even when there is a large number of fully-conditioned cost centers. Solving the system of linear equations is more difficult, because it requires a good knowledge of mathematics, especially when it comes to a large number of fully-conditioned cost centers, whose total costs have yet to be calculated. The matrix functions of spreadsheet programs facilitate the reciprocal method, by providing the ability to model and solve complex scenarios (Togo, 2013: 56). The example of company "S" illustrates the matrix functions technique for fully-conditioned cost centers.

## 2. Secondary Cost Allocation of The Company "S"

According to the financial accounting statement, all activities of the company "S", which produces textile confection, incurred the primary costs in the amount of 225,000 in the accounting period,. The company applies the calculation system according to the real costs and allocates the primary costs, based on this documentation, to the accounts of the cost centers and cost bearers, which are recording in the calculation of costs and effects in the following way: *Procurement 2,950; Workshop 7,900; Autopark 9,550; Tailoring 6,450; Sewing 23,300, Packaging 6,550; Cardboard packaging 3,300; Management 26,250 and Sales 2,250.* After the first phase, primary costs are related to particular cost centers and cost drivers. However, the mass of primary costs associated with individual cost accounts does not reflect their total costs, that is, the cost of the outputs that these cost centers generate, so it is necessary to connect their accounts to the costs which arising from the consumption of internal services created and spent in the same accounting period. Accounts of the cost centers should also be charged for their secondary costs, which are a monetary expression of internal services spending, or outputs. Internal services create cost centers from auxiliary and non-productive activities. In the example of Company "S", these cost centers are: *Procurement, Workshop, Autopark, Management and Sales*. Costs centers of main and secondary activities appear as consumers of internal services. However, other cost centers from auxiliary and non-productive activities also consume internal services.

The participation of every cost center in the use of internal services, as well as relations with other cost centers, can be shown in the form of a table, in the heading are cost centers - recipients of internal services, and in the first column are cost centers - providers of internal services (Table 1).

**Table 1. Initial data for problem solving**

| Primary costs | Auxiliary activities | | | Main activities | | | Auxiliary activity | Non-productive activities | |
|---|---|---|---|---|---|---|---|---|---|
| | 2,950 | 7,900 | 9,550 | 6,450 | 23,300 | 6,550 | 3,300 | 26,250 | 2,250 |
| Receives / Provides | Procurement | Workshop | Car park | Tailoring | Sewing | Packaging | Cardboard packaging | Management | Sales |
| Procurement | 100% | 2% | 3% | 31% | 30% | 30% | 2% | 1% | 1% |
| Workshop | 2% | 100% | 10% | 5% | 70% | 8% | - | 3% | 2% |
| Car park | 25% | - | 100% | - | - | - | - | 5% | 70% |
| Management | 2% | 7% | 5% | 15% | 53% | 12% | 4% | 100% | 2% |
| Sales | - | - | - | 29% | 42% | 29% | - | - | 100% |

The percentage of participation in the consumption of internal services is usually expressed by a whole number, without decimals. However, when it comes to companies whose cost centers have large primary costs, it is recommended that percentage of participation is expressed in decimal numbers, in order to achieve higher accuracy of secondary costs. The existence of reciprocal relationships between non-productive and auxiliary cost centers creates difficulties in determining the unit price for certain services and for certain types of secondary costs, that have yet to be calculated. The problem of determining the overall cost of these cost centers is more complex, if the intensity of their reciprocal relationships is higher.

The calculation of total costs differs for the cost centers that are entirely conditioned or incomplete conditional. Certain auxiliary and non-productive centers may be full-conditioned in relation to one or more cost centers and incomplete conditional, in relation to one or more other cost centers. In the example of company "S", there are four fully-conditioned cost centers, and the starting point for total cost calculation is their known costs (*Procurement* 2,950; *Repair Workshop* 7,900; *Car park* 9,550 and *Management* 26,250). As previously mentioned, there are two ways to calculate the total cost of fully-conditioned cost centers. The use of linear equation system requires knowledge of mathematics, and therefore is less used in practice and teaching, especially when it comes to a large number of cost centers, where data is calculated manually. Modern computers and spreadsheet programs facilitate the use of matrix method and enable the solution of complex scenarios for calculating and allocating the total cost of auxiliary and non-productive cost centers.

## 3. Problem Setting and Solving with Matrix Functions

### Problem setting

Table 1 contains the input data on the basis of which Table 2 is formed, in which the cost centers' mutual conditionality is presented with coefficients.

**Table 2. Mutual conditionality of cost centers**

| Cost centers | Fully-conditioned cost centers | | | | Non-productive, main and auxiliary cost centers | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | Procurement | Workshop | Car park | Managent | Sales | Tailoring | Sewing | Packaging | Cardboard packaging | |
| Procurement | -1.00 | 0.02 | 0.03 | 0.01 | 0.01 | 0.31 | 0.30 | 0.30 | 0.02 | 0.00 |
| Workshop | 0.02 | -1.00 | 0.10 | 0.03 | 0.02 | 0.05 | 0.70 | 0.08 | 0.00 | 0.00 |
| Car park | 0.25 | 0.00 | -1.00 | 0.05 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Management | 0.02 | 0.07 | 0.05 | -1.00 | 0.02 | 0.15 | 0.53 | 0.12 | 0.04 | 0.00 |

Table 2 shows that fully-conditioned cost centers completely allocate their costs to other departments, which is represented with the coefficient -1, and the other coefficients (between 0 and 1) show in which ratio the costs will be allocated to the other departments. For example, a fully-conditioned cost center *Procurement* transfers its costs to *Workshop, Car park, Management, Sales, Tailoring, Sewing, Packaging* and *Cardboard packaging*, with coefficients 0.02, 0.03.0.01, 0.01, 0.31, 0.30, 0.30 and 0.02, respectively.

Therefore, all costs of fully-conditioned cost centers will be allocated to other departments, so the sum of the coefficients, after allocation, is equal to zero, as presented in the last column of Table 2. In the model of spreadsheet programs in this column there is a formula = SUM (range), for example = SUM (B2: B9).

The coefficients of fully-conditioned cost centers, in Table 2, serve to form a starting matrix [*M*] which, together with the primary costs of fully-conditioned cost centers, shown in Table 4 and in the form of the matrix [*P*], serves to form a system of linear equations for further calculation.

**Table 3. Mutual relationship of fully-conditioned cost centers**

| | | | |
|---|---|---|---|
| -1,00 | 0.02 | 0.03 | 0.01 |
| 0.02 | -1.00 | 0.10 | 0.03 |
| 0.25 | 0.00 | -1.00 | 0.05 |
| 0.02 | 0.07 | 0.05 | -1.00 |

Matrix display of data from Table 3:

$$[M] = \begin{bmatrix} -1 & 0.02 & 0.03 & 0.01 \\ 0.02 & -1 & 0.10 & 0.03 \\ 0.25 & 0 & -1 & 0.05 \\ 0.02 & 0.07 & 0.05 & -1 \end{bmatrix} \tag{1}$$

**Table 4. Primary costs of fully-conditioned cost centers**

| | |
|---|---|
| Procurement | 2,950.00 |
| Workshop | 7,900.00 |
| Car park | 9,550.00 |
| Management | 26,250.00 |
| **Total** | 46,650.00 |

Matrix display of data from Table 4:

$$[P] = \begin{bmatrix} 2950 \\ 7900 \\ 9550 \\ 26250 \end{bmatrix} \tag{2}$$

In addition to the matrix [*M*], an expanded matrix [*N*] (3) has been formed, which has the same number of columns as the total number of all the cost centers and the number of rows is the same as the number of fully-conditioned cost centers, and which contains the coefficients on the basis of which the costs are mutually allocated.

$$[N] = \begin{bmatrix} -1 & 0.02 & 0.03 & 0.01 & 0.01 & 0.31 & 0.30 & 0.30 & 0.02 \\ 0.02 & -1 & 0.10 & 0.03 & 0.02 & 0.05 & 0.70 & 0.08 & 0 \\ 0.25 & 0 & -1 & 0.05 & 0.07 & 0 & 0 & 0 & 0 \\ 0.02 & 0.07 & 0.05 & -1 & 0.02 & 0,15 & 0.53 & 0.12 & 0.04 \end{bmatrix} \tag{3}$$

Matrix [*N*] is used for the final cost allocation.

**Problem solving**

Problem solving begins with the formation of a system of linear equations for the reciprocal costs of fully-conditioned cost centers. Since the company "S" has four fully-conditioned cost centers, a system of four linear equations with four variables ($x_1$, $x_2$, $x_3$ and $x_4$) will be formed. For example, the fully-conditioned cost center *Procurement* will have reciprocal costs expressed with a coefficient 1, which represents the costs of *Procurement* increased by 0.02 (2%) of the *Workshop* costs, 0.03 (3%) of *Car park* costs and 0.01 (1%) of *Management* costs. Thus, the first linear equation is:

Procurement $x_1 = 2{,}950 + 0.02x_2 + 0.03\, x_3 + 0.01\, x_4$
After editing, the first linear equation has the form:

$x_1 – 0.02x_2 – 0.03\, x_3\, 0.01 – x_4 = 2{,}950$

Linear equations are formed for other department in a similar way, that is, the system of linear equations whose solutions (x1, x2, x3 and x4) represent the total costs of fully-conditioned cost centers.

Since the aim of this paper is to show how the matrix functions of spreadsheet programs can be used for the allocation of secondary costs, that procedure is explained in the following part of the work.

Calculation of the transpose of a matrix $[M]^T$

The initial matrix for the calculation of the transpose of a matrix $[M]^T$ is the matrix $[M]$ (1). The TRANSPOSE function is used to obtain the $[M]^T$ matrix. After selecting a field, or a range of cells in Excel, which contain data from Table 3, for example, A1: D4, the formula = - transpose (A1: D4) should be typed. When typing, since it is a matrix formula, you need to press the Ctrl, Shift and Enter keys at the same time. After applying the TRANSPOSE function, the data given in Table 5 are obtained, which are also shown in (4) as a transpose of a matrix $[M]^T$.

**Table 5. Transpose of a matrix $[M]^T$ mulitplied by (– 1)**

| | | | |
|---|---|---|---|
| 1.00 | -0.02 | -0.25 | -0.02 |
| -0.02 | 1.00 | 0.00 | -0.07 |
| -0.03 | -0.10 | 1.00 | -0.05 |
| -0.01 | -0.03 | -0.05 | 1.00 |

Matrix $[M]^T$:

$$[M]^T = \begin{bmatrix} 1 & -0.02 & -0.25 & -0.02 \\ -0.02 & 1 & 0 & -0.07 \\ -0.03 & -0.10 & 1 & -0.05 \\ -0.01 & -0.03 & -0.05 & 1 \end{bmatrix} \quad (4)$$

Multiplying by (- 1), or inserting (- 1) in front of the TRANSPOSE function, is necessary in order to get the opposite coefficients.

Calculation of the inverse matrix $[M]^{-1}$

The linear equations method requires the formation of an inverse matrix, which is calculated with the MINVERSE function. The results of the inverse matrix calculation are shown in Table 6.

**Table 6. Inverse matrix $[M]^{-1}$**

| | | | |
|---|---|---|---|
| 1.008916 | 0.046666 | 0.254036 | 0.036147 |
| 0.021044 | 1.003436 | 0.008816 | 0.071102 |
| 0.032990 | 0.103531 | 1.011171 | 0.058466 |
| 0.012370 | 0.035746 | 0.053363 | 1.005418 |

Matrix $[M]^{-1}$ based on the data from Table 6:

$$[M]^{-1} = \begin{bmatrix} 1.008916 & 0.046666 & 0.254036 & 0.036147 \\ 0.021044 & 1.003436 & 0.008816 & 0.071102 \\ 0.032990 & 0.103531 & 1.011171 & 0.058466 \\ 0.012370 & 0.035746 & 0.053363 & 1.005418 \end{bmatrix} \quad (5)$$

The total cost of fully-conditioned cost centers (Table 7) is obtained by multiplying the inverse matrix $[M]^1$ (5) by a range of cells that contain the primary costs in Table 4, or the matrix $[P]$ (2). Since two matrices are multiplied, you need to use the MMULT function and select the appropriate areas from the table created in the spreadsheet program.

The mathematical formulation of computations looks like this:

$$[Pt] = [M]^{-1} \cdot [P] \quad (6)$$

The results of the calculation are shown in Table 7 and in the form of a matrix (7).

**Table 7. Total costs of fully-conditioned cost centers**

| | |
|---|---|
| Procurement | 6,719.87 |
| Workshop | 9,939.85 |
| Car park | 12,106.62 |
| Management | 27,220.72 |
| **Total** | 55,987.06 |

Matrix display of data from Table 7:

$$[Pt] = \begin{bmatrix} 6719.87 \\ 9939.85 \\ 12106.62 \\ 55987.06 \end{bmatrix} \quad (7)$$

**Total cost allocation**

The final step is cost allocation of fully-conditioned cost centers to other departments. First, it is necessary to form a diagonal matrix[$D$] (8) which facilitates multiplication and presents the diagonally allocated costs of particular, fully-conditioned cost centers. Other values, that are not on the main diagonal of the matrix [$D$], are zero.

When multiplying a range of cells that contain the matrix [$D$] by a range of cells that contain the coefficients from Table 2 (matrix [$N$], we get the solution of the problem in Table 9, which contains the allocated costs of each individual fully-conditioned cost center and other cost centers. The solutions are also given in matrix [$R$] (10).

**Table 8. Data in the model of the program for diagonal matrix [*D*]**

| | | | |
|---|---|---|---|
| 6,719.87 | 0 | 0 | 0 |
| 0 | 9,939.85 | 0 | 0 |
| 0 | 0 | 12,106.62 | 0 |
| 0 | 0 | 0 | 27,220.72 |

Matrix [$D$]:

$$[D] = \begin{bmatrix} 6719.87 & 0 & 0 & 0 \\ 0 & 9939.85 & 0 & 0 \\ 0 & 0 & 12106.62 & 0 \\ 0 & 0 & 0 & 27220.72 \end{bmatrix} \quad (8)$$

**Table 9. Final results of cost allocation**

| Cost centers | Fully-conditioned cost centers | | | | Non-productive, main and auxiliary cost center | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | Procurement | Workshop | Car park | Management | Sales | Tailoring | Sewing | Packaging | Cardboard packaging | |
| Costs | 2,950.00 | 7,900,00 | 9,550.00 | 26,250.00 | - | - | - | - | - | 46,650.00 |
| Procurement | -6,719.87 | 134.40 | 201.60 | 67.20 | 67.20 | 2,083.16 | 2,015.96 | 2,015.96 | 134.40 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Workshop | 198.80 | -9,939.85 | 993.98 | 298.20 | 198.80 | 496.99 | 6,957.89 | 795.19 | 0.00 | 0.00 |
| Car park | 3,026.65 | 0.00 | -12,106.62 | 605.33 | 8,474.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Management | 544.41 | 1,905.45 | 1,361.04 | -27,220.72 | 544.41 | 4,083.11 | 14,426.98 | 3,266.49 | 1,088.83 | 0.00 |
| **Total** | 0.00 | 0.00 | 0.00 | 0.00 | 9,285.04 | 6,663.26 | 23,400.84 | 6,077.63 | 1,223.23 | 46,650.00 |

The mathematical formulation of computations looks like this:

$$[R] = [D] \cdot [N] \tag{9}$$

Matrix $[R]$:

$$[R] = \begin{bmatrix} -6719.87 & 134.40 & 201.60 & 67.20 & 67.20 & 2083.16 & 2015.96 & 2015.96 & 134.40 \\ 198.80 & -9939.85 & 993.98 & 298.20 & 198.80 & 496.99 & 6957.89 & 795.19 & 0 \\ 3026.65 & 0 & -12106.62 & 605.33 & 8474.63 & 0 & 0 & 0 & 0 \\ 544.41 & 1905.45 & 1,361.04 & -27220.72 & 544.41 & 4083.11 & 14426.98 & 3,266.49 & 1,088.83 \end{bmatrix} \tag{10}$$

The balance of fully-conditioned cost centers are zero (Table 9, row Total), since the costs of their services are calculated and allocated to the main and other cost centers. Primary costs of the main and other cost centers are not specifically stated (dashes in Table 9, in row Costs) for better transparency of the secondary costs allocation. Column Total, Table 9 is used for control.

## Conclusion

The application of the linear equation system is the best approach for the allocation of secondary and total costs to auxiliary and non-productive cost centers in companies that have multi-member mutual reciprocal exchange of internal outputs. Their application requires certain mathematical skills, that are necessary for modeling, calculating and allocating reciprocal costs between cost centers.

The matrix functions of spreadsheet programs, applied in the article, solve the difficulties associated with the cost allocation method of fully-conditioned cost centers, using a linear equation system. The example of Company "S" can serve as a model for other similar problems in secondary costs allocation.

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