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The allocation of financial resources at local, but also at central level, is an issue especially since in times of crisis, finding the optimum way to spend public funds concerns all authorities. This paper aims to identify the ways in which, by leaving from the division of powers based on the allocation of resources and tools available, the local authorities can identify an optimal level of public expenditure so as to achieve a maximum level of using them. Also, the paper seeks to identify the impact that the local public expenditure can have on the development of local gross domestic product as an expression of social welfare.

Starting from the scientific acquisitions of Dick and Richard Armey, the "Armey Curve" was revised, thus identifying two components of the public sector: a central one and a local one. Following that, a chart relationship was established between the allocation of local public funds and the social welfare expressed by the local gross domestic product. By analyzing the shape of this chart, two econometric models have been developed: one regarding the impact of local resource allocation, and another one setting the optimal level of allocation of local public funds.

1. Allocation of the public financial resources of local communities

The financial resource allocation policy is strongly connected with the financial resources of local communities, the main instruments being: local tax levies, financial transfers, local public borrowings and balance mechanisms. All these elements allow both to locally attract financial resources and to allocate them for the proper functioning of those entities.

1. Local tax levies refer to the total tax liability of the nature of taxes and contributions, which play an important role in all financial resources spent at lower levels of administration - state and local governments. In 1993, Richard Bird claimed in the article "Threading the Fiscal Labyrinth: Some Issues in Fiscal Decentralization", that, as a theoretical issue, a local tax levy must possess the following attributes: "the structural characteristics should be made by the local authority, the tax rate should be set locally the taxable subject should be positioned in the local authority and the local entity should be the recipient of the tax levy."\(^1\)

The main local tax levies applicable in a federal system are: own tax levies in the technical sense, co-partnership tax levies, additional tax levies and surcharges extra.

a. Own tax levies in the technical sense are all categories of duties which a public authority can institute under federal and state laws. As such, junior public entities have full power to set the tax basis and rates, the tax levy addressee and the perception way.

In the article " Financing Public Expenditure: The Role of Tax Reform and the Designing of Tax System, 1991, Jeffrey Owens articulated several factors according to which a local tax levy is considered to be optimal:

- the tax flow is significant in terms of value;
- a high manoeuvrability of fiscal parameters is allowed:

\(^1\) Bird Richard, Threading the fiscal labyrinth: some issues in fiscal decentralization, National Tax Journal, Vol. 46, No.2, June 1993, pag.213.
b. **Co-partnership tax levies** are the tax levies mobilised to the order of the higher administrative levels, but by providing a parallel percentage share of the debt value of junior authorities. Neither the technical aspects of mandatory levy, nor the co-partnership rates are established at a lower level, but at a higher level, the regional and local bodies having no power of decision in this regard.

c. **Additional tax levies** illustrate the tax levies charged by public entities of lower rank, by raising additional tax rates from the same taxable matters which is subject of taxation at senior level too. Therefore the tax base generates a tax levy mobilized at senior level, but also a tax levy attributable to lower rank authorities, calculated by adding a rate of taxation on the same basis (additional shares are established by lower level courts within the limits set by the senior rank authority).

d. **Surcharges** reveal tax levies that can be established and set according to some tax laws issued in the first higher level, no legal framework, especially central, being necessary. The only limitation to the practice of such tax levy that is given by the fact that it must not cause distortion effects, which is a case when the central authority distribution policy would be harmed.

2. **Financial transfers** are financial resources through which lower rank authorities supplement their needs of financial resources, in order to achieve various objectives, in the form of financial transfers made, on the one hand, from the federal budget to state budgets and on the other hand, from the state budget to local budgets. The most common types of relationships found in financial practice are: conditional transfers, unconditional transfers, compensatory transfers, non-compensatory transfers, limiting transfers, non-limiting transfers, open refunds and "ad hoc" transfers.

a. **Tax transfers or sharing transfers (revenue sharing)** is a fraction of a certain type of tax attributable to local authorities, resulting from an operation of sharing the same tax base or the same tax with the central authority. 
These "factions" are regarded as budget transfers as their setting is made strictly by the central government, both in terms of choosing the type of shared tax levy, but also in terms of choosing the tax rate.

The process of practicing fiscal transfers give them three concrete expression variants, namely: the form of rates deducted from some taxes of the central budget, the form of the amounts deducted for the benefit of the local budgets and the form of additional rates of certain direct taxes.

- **rates deducted** from some central budget taxes are percentage shares of certain taxes by the central source, determined by annual budget laws, under which, during the budget year, revenues from these taxes are shared between the central budget and local budgets.
- **amounts deducted** for the benefit of local budgets show absolute value amounts, provided in annual budget laws, which are granted to local authorities from the actual collections from a particular tax representing an income of the central budget.

For example, the technique of rates and amounts split for the benefit of local budgets from the income tax is practiced in Romania, as well as the amounts deducted from the value added tax. Determining the amount of split amounts is based on careful calculation formula and the criteria considered are similar to those met in case of inter-regional / local balance transfers.

- **additional rates** to certain direct taxes are a percentage that, under the annual budget laws, are added to those used for calculating those central taxes and are incomes of local budgets, being considered as true "local taxes related to state taxes"².

b. **Conditional transfers (conditional grands)** reflect conditional financial transfers to local courts, which can be used by these depending on the completion of certain activities, measures or targets, in many cases of a binding nature. The purpose of practicing such transfers is aimed both at promoting national policy priorities locally or at preventing sub-optimal provision of public goods at territorial level.

c. **Unconditional transfers (unconditional grands)** are annual financial transfers to local authorities, which can be freely used by them, without restriction. Their establishment and distribution on the lower levels is performed by the central authority, based on the so-called "distribution models", based on complicated computer algorithms, even "occult" sometimes.

d. **Compensatory transfers (matching grands)** illustrate a form of conditional transfers, provided by the Central Authority to the local authorities, when these engage in a sustained way in a certain area or activity. They are provided to the extent that local communities also undertake to make a comparable effort in a particular

area considered appropriate by the central government and where it seeks funding boost.

e. **Non-compensatory transfers (non-matching grands)** concern transfers provided from the central budget with no additional funding commitment from local authorities.

d. **Limiting transfers** are annual transfers the amounts of which shall be determined strictly from the beginning, in absolute terms, as they are strictly limited.

g. **Non-limiting transfers** imply a commitment by the central authority, which can achieve different levels, depending on the needs felt by local authorities.

h. **Open refunds (cost reimbursement)** are commitments by which the government undertakes to repay a certain rate of the costs incurred by local authorities when they implement local government policies.

The development of such arrangements involves three distinct steps:

- defining, by the government, of public services for which it guarantees the complete or partial coverage of costs;
- preparation, by the central authority, of transfers able to cover costs incurred by local authorities for locally implemented public services of national interest;
- carrying out, by the government, of transfers to cover local guaranteed costs.

Open refunds offer notable advantages: they can be used directly in major national importance financing; they relieve regional and local budgets of significant expenditure; they shift funds according to priority principles; they reduce the sub-optimal provision of public goods nationwide.

With all the advantages conferred, open refunds also generate a series of obstacles: "they undermine local options, delay the process of financial decentralization, discourage the local initiative and, as their promoters are the central authorities, they increase the pressure on the central budget expenditures, to which, additionally, the costs incurred by monitoring related programs to the conduct of those operations are added."3

i. **"Ad hoc" or "ex post" transfers (ad hoc or ex post grands)** are discretionary transfers made of funds available to the government to the favour of local communities, which supported during the election campaign the ruling party or coalition. The recipient local entities may consider them real "rewards" from the government for the accepted "political orientation" and their practice often create inter-regional conflicts.

The fourth class of models is very similar to the one before, only that the transfers due have for value the difference resulting from the tax revenues that would be obtained by applying the proportional rate on an average taxation basis (a taxation basis determined as average at the central level) and the tax revenues that are obtained by applying the same proportional rates to the effective community taxation basis.

The fifth class of models seeks to ensure the same level of performance between communities through tax levies, which will be differentiated from one community to another. The deficit caused to the federal budget is covered on account of shares of tax revenues collected at local level, due by them proportionately.

The sixth class of models takes into account both the tax potential of the community, and the need for public goods, the balance being performed via both components through transfers from the superior authority. This mechanism provides a combination of almost all the previous models and has the great advantage that it discourages the tendency of some communities to play the role of a “stowaway”.

In a restrictive sense, all the six classes of models presented by Musgrave should concurrently provide, by functionality, the vertical balance of the budget system.

Vertical balancing of the budget system (vertical balance) is a quite argued topic currently and closely related to the internal budget connections, which refer to “the disparity existing between the means to mobilise revenues and the expenditures to be made at various levels of government.4

In other words, vertical balancing a budget is derived from dividing the overall multilayered modern public finance and can reveal the correlation that exists between the expenditure responsibilities of local authorities and powers conferred on them by law in the spectrum of budget revenues. Measuring vertical balancing the budget system can be achieved in conditions where an imbalance is the result of irrational use of resources or a local financial mismanagement and other central government provides public goods with maximum efficiency.

The first indicator to quantify vertical balancing of the budget system was built for the first time in 1977 by Joseph S. Hunter, being called by this one “vertical balancing factor.”

According to the author’s vision, the calculation formula of the coefficient has the form:

\[ k_{Ev} = 1 - \left( \frac{V_{loc,G}}{C_{loc}} \right) \]  (1)

where:

- \( k_{Ev} \) is vertical balance coefficient;
- \( V_{loc,G} \) reflects the total revenue of local authorities under the central government control;
- \( C_{loc} \) shows total expenditure of the budgets of local authorities.

The indicator quantifies the part of expenditure made of local budgets which are funded from sources controlled by local authorities and the imbalance is even greater as the coefficient value is close to zero.

Currently, measuring the vertical balancing of the budget system is done through "vertical balancing index of the budget system", built in basis of the expenditure of local budgets, local tax revenues and the consolidated general budget revenue and expenditure.

Mathematically, the relationship of calculation has the form:

\[ I_{B.Vert.} = \frac{Ch_{loc}}{Vn_{tot} fisc.} \]  (2)

where:

- \( I_{B.Vert.} \) is the index of vertical balancing of the budget system;
- \( Ch_{loc} \) means local jurisdictions of expenses;
- \( Ch_{tot} \) are the consolidated general budget expenditures;
- \( Vn_{fisc.} \) illustrates the tax income of local authorities;
- \( Vn_{tot} \) reveals the incomes of the consolidated general budget.

We note that if the indicator has over-unitary values, the local budget expenditures cannot be fully funded at the expense of local tax revenues, the budgetary system is under-balanced, which causes extensive financial resources through budget transfers from the central authority.

Unlike the previous situation, if the balancing index is under-unitary, the local tax revenues are ahead of local costs; which means an over-balancing of the budget system and gives a greater role in local tax jurisdictions.

According to these remarks, the closer the vertical balancing index is to no. 1 value, the more equitably shared the authority in terms of revenue and spending is

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Nobuki Mochida, Revenue, expenditure and intergovernmental transfer in Japan, Workin Paper, Faculty of Economics, University of Tokio, 1997, pag.4.
between the central government and the local jurisdictions, the volume of inter-jurisdictional transfers compresses and the budgetary system is approaching to the steady state between supply and allocation.

The distribution of powers in terms of revenue and expenditure on levels of administration is a matter to be resolved partly, as it has its roots in the school of fiscal federalism and in the organization of federal state power. As such, state federalism implies a hierarchical structure of state governance in which every individual is simultaneously a citizen of at least two governments, which generates serious implications for the public finance system. Under such an arrangement, from a functional point, there should be no impediment, should the population be stationary demographically (people not change their residence with a high frequency).

Unfortunately, in reality, the population is not stationary, but highly mobile, which causes strong mutations in the area of public sector whereas individuals will "move" on the ground and according to the fiscal policy measures that the authorities of different levels of governance will take.

Furthermore, the ability of citizens to "migrate" from one jurisdiction to another according to certain fiscal policy criteria calls forth, just like in the private sector, the emergence of competition between public authorities - tax competition (fiscal competition), each trying to satisfy as far as possible the taxpayer desires in terms of the "paid tax levy - public goods received" ratio.

To all these issues of public finances, which rest with the activity of a federal system, the representatives of the school of 'fiscal federalism' are trying to answer; this is a school of thought emerged in the U.S.A. in the '50s, studying the system of taxation and public expenditure in terms of powers returning to the governance of a nation at its various levels, from the central one to the local ones.

The analysis of "the theory of fiscal federalism" (The theory of fiscal federalism) are focused, as such, on the two components of fiscal policy (taxation and public expenditure) and the idea of preserving the integrity of the state, must lead to the conclusion that the redistribution function of incomes and wealth in society as a whole, should be attributed to the central authority.

A Distribution of powers in terms of revenue on the components of the administration system - conferring authority on incomes (tax assignment) - involves sharing the taxable matter between the central (federal) authority and the other jurisdictions (states composing the federation and local authorities).

The territorial mobility of contributors and capital unfortunately causes a number of shortcomings to achieve that goal. When a local authority imposes a high tax or leads an aggressive redistributive policy, its citizens tend to leave it, seeking a less hostile tax environment.

The hardships caused by the mobility of taxpayers were observed in 1956 by Charles M. Tiebout, who in the paper "A Pure Theory of Local Expenditures" argued that the great advantage of a multi-jurisdictional system is that it allows individuals to "vote with their feet" or, in other words, they may opt for a combination of public services and local taxes that maximizes their utility, which creates the emergence of an "inter-jurisdictional competition". Tiebout also thought that if all citizens had the freedom of choice, then the social wealth level can reach the climax.

Against this background, Richard Musgrave appreciated in 1959, in the monumental work "The Theory of Public Finance", that the redistribution function should be attributed to central government. Later, in 1983, he manages to deliver some revenue-sharing rules between the links of the system of public finance: the taxes and charges with an increased progression should be oriented to public authorities located in the upper levels, the taxes on the profits of companies should be allocated to the interim authorities and the tax levies with an immovable taxable basis should be assigned to lower rank entities.

Contrary to Musgrave's thinking, in 1973, Mark. V. Pauly admitted in the article CA Model of Local Government and Tax Capitalization, given the mobility of citizens in the territory that the redistribution function can be considered a true "local public good" and, as such, it should be close to local authorities.

Among those who subsequently develop the rules of Musgrave, there is also Richard Bird and François Vaillancourt, who in the article entitled "Décentralisation financière et pays en développement: concepts, mesure et évaluation", in 1997, reveal that "the main criterion of division is given the mobility of the trim tax or its ability to move from one tax jurisdiction to another, in order to prevent its partial or total circumvention from tax liabilities".

The more mobile the trim tax is, the more it should be subject to the jurisdiction of a higher hierarchical authority. The trim tax on property tax is by definition immobile, these taxes being a good source of revenue to fund local services, in this respect they having to be deployed at lower echelons.


In the case of income taxes of individuals and of indirect taxes (VAT, excise and customs duties), their trim tax is much more mobile than the trim tax corresponding to property, but without exceeding it, in this view, that of capital tax. From this viewpoint, many scholars consider that income taxes should be mobilised at the central level in order to ensure, in this way, the general policy of the central authorities in terms of income redistribution in the economy, and indirect taxes should provide resources to the authorities of local origin.

Finally, the trim tax of income taxes of legal persons is characterized by a very high mobility, which determines that these tax revenues are allotted, with few exceptions, to the administrative links located at high hierarchical levels.

In 1991, noting that "the function of redistribution should be implemented centrally through transfers"\(^9\), Robert Inman and Daniel Rubinfeld propose, in the article "Fiscal Federalism in Europe: Lesson from the United States Experience", an attractive option to solve the impediments caused taxpayers and capital mobility.

Two prominent representatives of the school of public options of Chicago, Geoffrey Brennan and James Buchanan, attack in 1980, the concept of "tax competition" or "inter-jurisdictional competition. If the fiscal policy is hyper-centralized, then the costs incurred by local authorities largely depend on the transfers from the central government.

In this way, the authority on local income is restricted, and the inter-jurisdictional competition has no more substance. The revenue allocation "should be determined on the basis of what can be considered a good central tax and a good local tax, while the administration and collection of tax revenues should be the burden of the central authority, since it exhibits a strong management valence to the economy of scale"\(^10\).

B. The distribution of powers in terms of expenditures on the components of the administration system - conferring authority for expenditures (expenditure assignment) - must "carry out a demarcation between what is financed from a budget or another, depending on which the distribution of allowances between the links of the budget system is made."\(^11\)

Friedrich von Hayek showed in September 1945, in the article "The Use of Knowledge in Society", published in the "American Economic Review", the importance of decentralization of decision making at various levels of administration, based on the idea that local information is a usually "good information". In the context of public finances, because local authorities have better information than the central authority on local conditions, and sending it to the higher level would be costly and would distort it, local jurisdictions can make better decisions in the provision of public goods compared to the central entity.

Charles M. Tiebout, entering in 1956, in "A Pure Theory of Local Expenditures", the concept of "tax competition", argues that this competition between the lower level public authorities is also the result of the fact that citizens are able to move to the jurisdiction that provide them with public goods according to their preferences.

Such a phenomenon would be absent if the central government would finance at a large scale the production of public goods, and their provision should be uniform in the state.

In 1957, in the article "Tenable Range of Functions of Local Government", George Stigler justifies the importance of local authorities, but also of public goods provision by these, in virtue of two so-called principles.

The first principle relates to the fact that a local jurisdiction "works better"\(^12\) than the central government, provided that it receives the individual utilities and preferences of citizens more accurately, "according to the democratic rule - one person one vote"\(^13\).

The second rule illustrates the ability of a group of citizens in a given geographical area, to choose by voting the provision of certain public goods of common interest. In 1959, Richard Musgrave, in the now-on famous work "The Theory of Public Finance", identifies three types of government actions: macroeconomic interventions, redistributive interventions and microeconomic interventions.

The first type of interventions is supported in most countries of the world from the central budget and concerns the need to coordinate fiscal and monetary policies by the central authority. Here, local authorities can play only the role of simple agents, which make local funding in response to the incitation caused by the central government.

The redistributive interventions, they too, raise funds from the central budget, by virtue of the fact that the population is highly mobile from one local jurisdiction to another. Where, for ethno-linguistic reasons, the mobility of citizens in the territory is low, a local authority can claim the right

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to practice redistributive policies, funding being made of the regional or local budgets.

The last type of intervention, the microeconomic ones, confer lower rank jurisdictions an important role, based on the following rules:

- the more the quantity and quality of public goods provided by the public sector vary from one local authority to another (utilities are considered heterogeneous), the more the decision of provision should be allocated to higher levels of authority;
- the more the effects, positive or negative, generated by a local authority over another higher authority, the more the production of public goods should be ensured by the central government, in order to achieve the internalization of those effects and to ensure the optimal level of production;
- the higher the possibility to provide novel public goods, the more their financing should be made from the budgets located at a lower level, thus encouraging innovation and inter-jurisdictional cooperation.

Wallace E. Oates, in 1972, in "Fiscal federalism" solidifies the two principles of Stigler, by proposing the concept of "perfect match", which describes "a government structure, where each jurisdiction determined by the level of supply of a public good specifically includes a group of individuals who consume that good." Based on the concept of perfect correlation, the author has developed the "optimal decentralization theorem", summed up as: "for a public good whose consumption area covers more geographical areas and whose production cost is the same at both centrally and locally, it will always be better (or at least equally effective) to be produced in optimal quantities, in a Paretian sense, locally rather than centrally".

Charles Adams and Gordon A. Mackenzie, drawing on the experience of Richard Musgrave, in 1997, in "Intergovernmental Tax Relations: The Chinese System in Perspective", conclude that "the main guidance in conferring authority as to expenditures is the principle of benefit, whereby granting responsibilities for a particular function should aim at that particular judicial function to which the benefits of that function return."

The theory of fiscal federalism seeks to resolve, as we have seen, the building of a system of government with more levels, that should ensure freedom of action of regional and local communities, but also to allow, the same time, the long-term conservation of the idea of state in its completeness. This idea was also borrowed for unitary states, but it was defined as an essential element "of financial decentralization".

### 3. Armey Curve

Arthur Laffer graphically implements - Laffer Curve - the idea expressed since 1776 by Adam Smith that too high tax rates destroy the basis on which taxation acts, reduce tax revenues collected by the state and reduce the tax revenue. Laffer Curve is a chart showing the relationship between the tax levies rates and the total incomes of tax levy. According to it, any change in the taxation rate under the average rate will lead to increased tax revenues, while surpassing this rate will decrease tax revenues.

Starting from the idea of Laffer, Dick and Richard Armey, in 1995, released in a similar way the opinion that there is a significant link between the public spending and the gross domestic product. In reality, there are many researchers who attribute this conceptualization to Professor Gerald Scully, who in 1989 published his acquisitions on this topic in the article The Size of the State, Economic Growth and the Efficient Utilization of National Resource, published in the journal Public Choice.

More specifically, they consider that as public expenditure in the gross domestic product growth, the public sector (GDP) expands to a point after which it will compress. It

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17 "Laffer Curve" was presented for the first time by Arthur Laffer and Laurence H. Meyer in May 1981, in the article Supply-Side Effects of Economic Policy, published in the journal of the American Studies Center for Business in St. Louis.
Eugen DOGARIU

argues that with the fact that the absence of the public sector causes anarchy (there is no law or, if there is, it is inapplicable, and private property is not guaranteed) and an extremely low level of social welfare. The first sequence is integrated into the area in which public expenditures are productive and the second one of the two is non-productive. Armey curve is as follows (Chart 2).

As seen from the chart, as the percentage of public expenditure in gross domestic product increases, the gross domestic product increases to a point (maximum point, the gross domestic product is up - GDP₀ and public expenditure is best - PE₀) after which it falls.

Moreover, it is noted that when the share of public expenditure in the gross domestic product is 0, the gross domestic product takes the GDPp value given exclusively by the private sector. Consequently, the wider the public sector (the public expenditure in the gross domestic product) is, the higher the social welfare or economic growth becomes, up to a point where it collapses.


Based on these considerations, we believe that we can "restrict" the Armey idea by "fragmenting it" into two parts:

- one part corresponding to the central public sector, where public expenditures are "controlled" by the central public authorities;
- another part corresponding to the local public sector (local or regional, depending on the state administrative-territorial organization), in which public expenditures are "controlled" by the lower level public authorities (local or regional). Therefore, the "Revised Armey Curve" is as follows (Chart 3).

The curve corresponding to the "Local public sector area" is located under the area of the central public sector and the optimal point (localCo) differs from the optimal point corresponding to the central government expenditure, obtained as the difference between PE₀ and localPE₀. We can see four hypothetical situations:

- if PE₀ > localPE₀ and localPE₀ \rightarrow 0, then the degree of local financial autonomy, on the allocation component, is reduced;
- if PE₀ > localPE₀ and localPE₀ \rightarrow PE₀, then the degree of local financial autonomy, on the allocation component, is high;
- if PE₀ = localPE₀, the local authorities have powers equal to the powers of the central authority, on the allocation component;
- if PE₀ < localPE₀, the local authorities have powers superior to the powers of the central authorities, on the allocation component.

The first situation is characteristic of the highly centralised states, the second situation corresponds to the decentralized states, while the last two situations are virtually impossible. We believe that the "Revised Armey Curve" presents particular importance to quantify and analyze the optimal allocation of financial resources of local communities. The identification of the optimal point is achieved when the local gross domestic product is up, and local public expenditure optimal (social welfare or economic growth).
4. The Optimum in Local Public Finance

In accordance with the theoretical foundations of Dick and Richard Armey, in 1995, related to all the theoretical elements developed in the previous paragraph, which aim at identifying the optimal level of public sector size in the economy in relation to the gross domestic product, this paragraph means to describe the process of quantifying the optimum local public expenditure as an equivalent way of measuring the size of the local public sector. The function that supports the empirical approach is below:

\[ G = f(E, A) \]  

(3)

where:

- \( G \) = social welfare represented by the gross domestic product per capita;
- \( E \) = local public expenditure;
- \( A \) = other factors that can influence social welfare.

Therefore, based on graphs 2 and 3, the function that describes the link "Local public expenditure - social welfare" can be described using the following type of nonlinear quadratic equation, with a concave-shaped graph (\( A \) is neglected):

\[ f(E) = G = \alpha_1 + \alpha_2xE + \alpha_3xE^2 \]  

(4)

provided that:

\[ f(E) < 0 \]  

(5)

meaning

\[ G' = 2\alpha_3 < 0 \]  

(6)

or

\[ \alpha_3 < 0 \]  

(7)

The optimal point of the local public expenditure, where the social welfare is maximum, is the level where the order 1 derivative of the \( f(E) \) function is 0:

\[ f'(E) = G' = \alpha_2 + 2\alpha_3xE = 0 \]  

(8)

provided that:

\[ \alpha_3 < 0 \]  

(9)

Therefore, the allocation of local financial resources is optimal and the social welfare is maximum, according to the relation:

\[ E_{\text{optimal}} = -\frac{\alpha_2}{2\alpha_3} \]  

(10)

Conclusions

Economically speaking, any positioning of the local public expenditure to the right or to the left of the optimum section means a departure from the maximum social welfare. The position to the left of the local public expenditure as compared to the optimal level requires an insufficient financial allocation, which can be offset by the central level allocation policy.

Per a contrario, a positioning to the right of the local public expenditure in relation to the optimal point requires an inefficient allocation of local financial resources (inefficient over-financing), resulting in the decrease of the maximum level of social welfare.

In conclusion, we can appreciate that the "Revised Armey" arrangement is a good way to quantify the optimal level of local financial resource allocation, which allows the maximization of social welfare.

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