

FISCAL FEDERALISM - THEORETICAL APPROACH

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Abstract: *One of the most complex financial functions in state administration is collecting and distributing of fiscal revenues. This matter, besides economic, legal, sociological and demographic aspects includes a number of other aspects. Regulating this matter is an interdisciplinary approach and often it is the main stumbling block in organizing inter-ethnic and other relationships in a complex social community. Particularly the issue is compounded by the federally regulated state communities, and there are a number of problems in the unitary states that follow. Keeping this in mind, it is necessary constantly to seek out newer and more contemporary techniques that could contribute to the improvement and development of solving these issues. The theoretical approaches in this paper can be the basis for an analysis of existing solutions and possibly stimulate reflection on some new approaches to addressing conflict issues.*

Keywords: *fiscal functions allocation, redistribution and stabilization, fiscal equalization, principles of fiscal function allocation.*

1. Introduction - Basic features of federally organized communities

Defining fiscal federalism in a social community is reflected in the relationship between central and lower levels of fiscal power. Today there is a growing number of socially-owned communities in which there is only one level of fiscal authority. This is due primarily to the fact that most of the community-based states are organized on a complex basis because of the existence of different national, demographic, social, territorial, urban and other interests. The tasks of the state in the 21st century are very different from those that prevailed since the beginning of the 20th century. In the previous century, the focus of state problems has been addressed to key issues such as: defense financing, internal and external protection, and interventionism in order to achieve maximum economic growth.

Although the financial theory has directed a practical policy to meet the goals of achieving the highest social justice, redistribution of national income and raising to a higher level satisfying general and common needs, many developed countries have directed their fiscal activity on other issues that directly or indirectly led to change of priorities in order to achieve the highest level of domination in the world economy.

In the light of such a policy, the main tasks of the 20th century are marginalized, such as full employment, permanent economic growth, social justice and social security of citizens, except in some of the most developed Western countries. Although it can be concluded with certainty that state expenditures are constantly increasing and that the share of state funding is growing in GDP, the effects of this consumption are getting weaker. It is especially noticeable in transition countries and underdeveloped countries "A recent very comprehensive study has shown that the decline in tax revenues observed in the poorest 1980s and 1990s can be largely explained by the demise of customs. The 1970s brought

about 5% of national income. ⁸²
 Globalization as the world process provides a free market for large world companies while underdeveloped and developing countries through the loss of their budget revenues indirectly finance the profits of the most powerful companies and directly instead of increasing the competitive ability of domestic producers, lead to the deterioration of the existing economy and, consequently, , tax revenues and the like.

"The issue of the return of the role of the state is not set in the same way in 2010 as in the 1930s for the simple reason: the role of the state is much higher today than at that time, even greater than it ever was. Therefore, in the current crisis, they are simultaneously accusing the market and challenging the role of the state. This second one does not cease from the 1970s and 1980s and will never stop; since the state plays a key role in economic life and social life in the post-war years, it is normal and legitimate to constantly discuss this role and to question it ... it is also necessary to find new instruments for taking control of the frustrated financial capitalism and thoroughly and continuously renew and modernize tax and transfer systems that are at the center of a modern welfare state and have reached that level of complexity that it sometimes seriously undermines their social and economic comprehensibility and effectiveness. ⁸³

A modern social state presupposes respecting the needs of its citizens and meeting the same equal and at the highest possible level. Bearing this in mind, we can assume that fiscal federalism is a key lever in the practical implementation of set social goals.

Fiscal sovereignty represents the right to introduce a fiscal obligation and the right to incomes from the imposed fiscal obligation. Fiscal sovereignty is conditioned by many factors and is most often the result of historical development and political relations in the social community. In relation to this question, there are at least two possibilities: firstly, a fully centralized

fiscal system and a system with a high degree of decentralization. Starting from these two opposing models, in practice, the most common combination is both one and the other with greater or less decentralization. In this respect, we are talking about fiscal federalism and the right of lower levels of government to participate in the introduction of fiscal obligations and the distribution of fiscal revenues. Things start to complicate when considering different fiscal forms, the cost of collecting them, and the distribution models.

In the construction of the fiscal system, one must bear in mind the specific function of fiscal policy, which can only be realized if there are certain systemic assumptions, and above all, we emphasize:

- a) allocation function;
- b) the redistribution function;
- c) stabilization function;

a) The function of allocation starts from the basic assumption that there are goods that are regarded as public-social and private goods. Functioning of public goods can not be ensured on the basis of market principles, because in some cases the market is inefficient and in others, however, completely inefficient ... Basic characteristics of public goods - not limited to only one particular consumer who purchases such goods, as with private goods, but also available to others ..⁸⁴

The market mechanism is efficient in securing private goods under the laws of supply and demand. Benefits of public goods are not determined by the right of ownership but by the individual, so the market can not function. When public goods are available to everyone, the consumer will not volunteer to pay to the bidder of these goods. In this way, the connection between bidders and consumers has been discontinued, and the state must be involved in meeting such needs. Difficulties arise in deciding on the type and quality of the social goods to be offered and determining the counterweight - the price (people will rather enjoy themselves

⁸² Piketty T., (2015), Capital in the 21st Century, Sarajevo: Buybook str. 529.

⁸³ Ibidem, p.507-508.

⁸⁴ Musgrave R. P., (1993), Public Finance in Theory and Practice, Zagreb: Institute of Public Finance. p. 7.

as "free riders" in what others have secured). A different technique is needed in order to determine the supply of social goods and the allocation of costs of that offer. The process by which the total use of resources is shared between private and public goods and which selects a certain combination of consumption of public goods is called the allocation function of the budgetary policy. Regulatory policy, which can also be considered part of the allocation function, is not included because it is not primarily a part of budget policy.⁸⁵

b) The redistribution function, the adjustment of the distribution of income and wealth, to ensure what society considers a "fair" and "fair" distribution. In spite of all the difficulties, the distribution of income remains an issue of state policy. It seems that attention is shifted from the traditional concern about the relative position in the distribution of income, i.e. with a general state of equity and with high income in the upper part of the scale, on the adequacy of income in the lower part of the scale. Thus, in current discussions, emphasis is placed on preventing poverty and determining what is considered a tolerant threshold in the lower part of the income scale, not limiting the upper income limit, which was once the main concern of the redeployment policy. This significantly influences the formulation of the tax structure.⁸⁶ As can be concluded from the previous one, defining the current political goals in the direction of defining the threshold of the lower poverty line implies changes in the tax structure as well as in budget expenditures.

There are different instruments used in the policy of redistributing income, and the most direct are the following:

tax - transfer schemes; a combination of progressive taxation of high incomes with subsidies of socially disadvantaged people with low income,

progressive taxes used to finance public services - social housing, etc.

a combination of taxation of goods that are mainly purchased by high income

consumers and subsidies of those goods that are mostly used by low-income consumers.⁸⁷

In order to ensure the conditions for the implementation of redistributive policy instruments, it presupposes good social organization and cost effectiveness, while fully balancing the conflicting goals of justice and efficiency.

c) The stabilization function can not be viewed separately from monetary policy. That is why it is very important that when implementing stabilization fiscal instruments, we do so in cooperation with monetary instruments, taking into account the maximum time dimension. The implementation of certain measures requires the definition of a time limit and this should be followed. For these reasons we will first mention monetary instruments that include:

- the money supply must control the central banking system and adapt it to the needs of the economy in terms of short-term stability and long-term growth;
- monetary policy including mandatory reserve, discount rate and open market policy becomes a necessary component of the stabilization policy;
- fiscal instruments, the growth of public expenditures will act expansively, as demand increases, first in the public sector and then in the private market.⁸⁸ Similarly, tax cuts can act expansively because taxpayers are left with higher incomes. Naturally all this should be in coordination with the budget deficit and surplus.
- Coordination of budgetary functions in order to implement the stabilization policy relates primarily to the following issues: a) increasing the supply of public services, in order to achieve this, it is necessary to increase taxes, which raises the question; how should they

⁸⁵Ibidem p. 6

⁸⁶Ibidem p. 11

⁸⁷Ibidem p. 12

⁸⁸Ibidem p. 15

be distributed? Depending on which taxes are used, taxation changes the amount of income left for private use. That is why some voters can favor (reject) proposed changes in income distribution, not because they want (or do not want) public services. Similar is the opinion regarding the reduction of taxes and public services. b) promotion of distribution to greater equity. Such a shift can be made using a progressive (regressive) tax on the financing of transfers to lower (higher) income. But the same can be achieved by increasing (reducing) the supply of public services that consumers want to have along with the given distribution of income. c) in the event of a need for a higher expansive policy, which can be achieved by increasing (decreasing) expenditure on public services or by reducing (increasing) the level of taxation. In the first case there was interference with the function of allocating fiscal policy, while in the latter case it was not. But in the case of the last case, the question arises as to how to make changes in the level of taxation. In order for the stabilization measures to be neutral, both according to the allocation goals and the distribution goal, proportional changes in the level of tax rates could offer an appropriate solution.⁸⁹

The management of certain instruments of fiscal, and above all monetary policy, in itself, requires a certain degree of centralization of the social community and efficiency in implementing them with a high degree of cost efficiency.

"The division of competences between certain political-territorial units is conditioned by the organization of society and the state, historical, national and

religious reasons, size of territory, population, economic development and other factors."⁹⁰

In particular, the problem of the allocation of public functions and funds for their financing is complex and politically sensitive in multinational federal states in which there are greater differences in economic development between individual federal units (the so-called transfer of funds from economically developed into underdeveloped areas practically to the burden of the whole).

The degree of centralization or decentralization is not solely determined by the fact whether it is a federally regulated or unitary state. In general, the degree of decentralization is higher in federally regulated countries. However, it has unitary states where the degree of decentralization is higher than in the federal states. The degree of centralization-decentralization largely determines the distribution of revenues between political-territorial and administrative-territorial units, or, in other words, the financial relations between them.⁹¹

When it comes to levels of government, there are three levels: central government, federal units and local government. In unitary states, it is usually the central government and the authorities at the local level.

Distribution in federal states:

⁸⁹ Musgrave R. P., (1993), *Public Finance in Theory and Practice*, Zagreb: Institute of Public Finance, p. 14.

⁹⁰ Jelčić B., (1998), *Financial Law and Financial Science*, Zagreb: Informator. p. 411.

⁹¹ *Ibidem* p. 412

Country	Central level of government	Federal Units		Local level of government	
		1975 1985	1985 1995	1995 1975	1975 1985
Austria	51,7 13,1	48,9 10,1	46,2 12,4	10,6 10,7	10,8
Germany	33,5 22,0	31,6 21,5	31,2 9,0	22,3 8,9	7,3
Switzerland	27,3 22,6	28,7 20,4	26,5 19,5	16,7	24,0 15,8 ⁹²

Distribution in Unitary States:

Country	Central level of government	Federal Units		Local level of government	
		1975 1985	1985 1995	1995 1975	1975 1985
Denmark	68,5 -	68,5 -	64,9 29,8	28,3	- 31,6
Sweden	51,3 -	54,1 -	44,7 29,2	30,4	- 32,4
Greece	67,1 -	62,5 -	66,1 3,4	1,3	- 1,2 ⁹³

Based on the data from the table, it can be concluded that unitary states in the allocation of fiscal revenues are dominated by central government, social security and local self-government, while in federally regulated countries central government has considerably lower participation in total fiscal revenues.

At the level of the Federation, the following issues are usually defined: customs, the most important taxes in the tax system, and the most important tax policy measures (tax rates, tax exemptions and facilities, etc.), issues that are more easily addressed at the Federation level are:

- problems of efficiency of the economic system, its harmonious development, strengthening of the competitiveness of domestic producers, faster integration of domestic production into the international division of labor;
- fight against inflation,
- measures aimed at reducing unemployment,
- reducing the tension in the society caused by the existence and deepening of the differences in the economic strength of certain areas and its inhabitants;
- matching supply and demand and price ratios;
- credit and monetary flows;

The supporters of this system most often dispute the need to ensure the active participation of federal units (through parliamentary bodies or in some other way) when choosing and introducing measures that contribute to the unified economic system. The advocates of the decentralized Federal Government, or the decentralization of public functions in federal states, emphasize that public needs can be easily identified and easier to raise funds for their financing, if meeting these needs is within the competence of the narrow political-territorial units, or if it is entrusted to the body in direct contact with users of these needs.

Considering the majority of important determinants of historical, national, social, demographic, developmental, etc., the relationship between federation and federal units is defined differently. The modalities of regulating these relationships have contributed to improving communion, faster and more successful overcoming weaknesses, and facilitating the achievement of economic goals. However, inadequate regulation of inter-financial relations in the federation can contribute to the deepening of certain contradictions between and within federal units, members

⁹² Nedostajući dio sredstava u svim prikazanim državama ide na finansiranje socijalnog osiguranja. primjer Švicarska za 1975 god=27,3+24,0+19,5+soc.osiguranje =100%.

⁹³Jelčić B., (1998), *Financijsko pravo i financijska znanost*, Zagreb: Informator.str.413. Podaci preuzeti iz tabele br.14.

of different national, religious and ethnic groups.⁹⁴

In the United States, the multilayered decision-making system includes the federal government, fifty state authorities, the District of Columbia and 80,000 local jurisdictions. Three-tier arrangement can be observed in Canada, Australia, Germany ... UK, Denmark, Sweden operate only with two-tier fiscal authorities - central and local authorities. The work of R.P.Musgrave prevails the economic factor in the selection of central ones in relation to local policies. Thus Mesgrave claims that the distribution function must be carried out at the central level for reasons of different propensity to distribute. Also, the stabilization function must be carried out at the central level due to large deflections in lower level chests. When it comes to the allocation function, it is dominated by a lower level of government, for the following reasons:

- how the incidence of the use of different social goods is subject to a spatial restriction, each service must be decided and paid within the boundaries of the area in which it is used.
- this principle of user regions leads to the concept of an optimal community size;
- When it comes to social goods, it would be desirable to have as many residents as possible and thus reduce the cost per capita. However, there is a cost of extrusion that limits the optimal size of the community;
- the role of congestion and economies of scale also appear in determining the optimal size of the community;
- taking into account the differences in preferences, we have concluded that people with similar tastes for social goods will enter the same areas; (this leg motion mechanism becomes a mechanism for detecting tendencies);

- the impact of income differences on location selection is considered;
- The overflow of benefits include externals requiring correction;
- the reason for decentralization in meeting local services is linked to the conclusion that the cost should be borne in the area in which it is used;
- the previous paragraph requires the use of federal regulations in the financing of federal services and the financing of local services to taxes charged to the user's territory;

Concerning the distribution function, the conclusions are as follows:

- although distribution preferences are different, the distribution function must be carried out mainly at the central level;

Concerning the stabilization function, the conclusion is:

-stabilization function must be centralized due to outflow at the local level.⁹⁵

Bearing in mind the theoretical considerations of Musgrave, we can conclude that the use of fiscal policy instruments is more complicated as a more complex structure of state regulation, and the degree of decentralization is more difficult to implement. Regardless of these theoretical attitudes, practical solutions are different in some federally regulated countries. A higher degree of decentralization has been achieved in the area of allocation of public services belonging to lower levels of government, while their financing is either insufficiently or far below the average level of federal union. In this regard, the experiences from the FBiH are very useful for the analysis. The technique that can be used in such cases, high fiscal anomalies in meeting public services, falls into the field of fiscal equalization.

2. Fiscal equalization

Financial equalization can be defined as a deliberate undertaking of measures by the

⁹⁴ Ibidem p. 420

⁹⁵ Musgrave R. P. (1993), *Public Finance in Theory and Practice*, Zagreb: Institute of Public Finance, p.491.

federal authorities in removing differences in the degree and quality of satisfying public services. Financial equalization is the subject of system solutions that fall within fiscal policy frameworks. If all measures and procedures are not adequately implemented, they can lead to increased social and political tensions between individual federal units and between individual units and federal levels of government. In order to avoid unwanted effects, the so-called Financial equalization. The financial equalization can be:

- horizontally and vertically,
- domestic (national) and international (international),
- active and passive.

2.1. Horizontal and vertical fiscal equalization

Horizontal equality is expressed in the following requirements:

- even distribution of tax burden, i.e. in the requirement that persons having the same tax force have the same tax treatment, regardless of the country they live in;
- the demand for regional and local horizontal equity in the exploitation of the public good has no absolute value because it is primarily influenced by demographic, geographical, socio-economic and other reasons,
- The reduction in income per capita income exists in almost all countries between individual regions and local communities, and are conditioned by economic development and productivity, geographical location, natural resources, and so on.

Horizontal fiscal equalization is the regulation of financial relations between political territorial or administrative units of the same rank (municipalities, republics, cantons, provinces, etc.).

Vertical financial equalization is the regulation of financial relations between lower and higher levels of government

(between provinces and the central government, between cantons and federal authorities, etc.).

2.2. National and international financial equalization

We talk about national financial equalization when they deal with the regulation of fiscal relations between political territorial units within one state. International financial equalization is the arrangement of fiscal relations between the community of states that, by mutual agreement, deliberately limit their fiscal sovereignty, and regulate mutual relations jointly. International financial equalization may arise as a subject of an agreement between the two countries (double taxation avoidance agreements).

Transnational financial equalization exists internationally as an integral part of economic integration, and is implemented by harmonization of tax systems (harmonization of tax systems). Harmonization in taxation appears as an indispensable condition in financial equalization in an economic or political community.

2.3. Active and passive financial equalization

Active or financial equalization in the strict sense implies regulation of the distribution of public revenues between territorial units, primarily in federally regulated states. It primarily refers to the distribution of taxes between the political-territorial units in it, that is, the distribution of certain forms of tax sovereignty among them. Passive financial equalization represents a division of division of tasks and measures from the jurisdiction of certain territorial units. There are different ways of collecting budgetary funds, which is a matter of the organization of the fiscal system. The simplest model would be to collect all the funds in a centralized manner and then deploy according to the established model to lower levels of government. Due to the rationality in the collection and use of

funds, combined models are generally used in practice. So, for example, belonging to local community taxes are collected at that level and included in the budgets of local communities (for example: property tax and property income).

In practice, different models are used for allocating fiscal revenues, primarily those that are harvested at the central government level, towards lower levels of government. Different points of view regarding the factors to be considered, of course, are greatly affected by the obligations assigned to lower levels of government in providing services to citizens. Among the most commonly used factors, the following are mentioned:

1. number of inhabitants,
2. financial needs,
3. financial strength,
4. tax burden,
5. per capita income.

These factors should converge with criteria that are referred to as instruments of passive financial equalization, and these include the following criteria:

- 1) the criterion of self-government - public functions should be left to lower territorial units if they are willing and economically strong enough to execute them.
- 2) the criterion of minimum satisfaction of public needs. Full decentralization of public needs would result in some territorial units not being able to finance certain public needs (for example: health services, quality education, etc.) a certain degree of centralization of public functions should ensure geographical equity in meeting public needs.
- 3) the minimum size criterion - in the allocation of functions, the ratio of costs and the number of users of public goods should be taken into account. If the number of beneficiaries (hospitals, educational institutions, cultural and entertainment establishments, sports facilities, etc.) is small, the costs of providing these services are disproportionate.
- 4) the criterion of the importance of the goal - for the objectives of national importance,

the competence of the federal central government (defense, external affairs, central bank, full employment, etc.) should be the competence of the central authorities and territorial unit.

5) the criterion of the necessary average costs - when distributing public functions, it is necessary to take into account that the execution of certain tasks and measures within the competence of the state is entrusted to those territorial units in which the average costs of their financing will be the lowest.

6) the criterion of favorable cost-benefit ratio. In order to prevent the occurrence of a certain circle of potential users of public goods due to high costs, the fulfillment of some needs should be transferred to wider territorial units in order to ensure that as many users as possible participate in their financing.

In this way, there will be a favorable relationship between benefits and costs, and thus the normal use of public revenues.

The stated criteria for the allocation of public functions between territorial units in practice are combined in order to achieve as much rational use of resources as possible and to maximize the satisfaction of public needs.⁹⁶

Conclusion

By establishing the basis of the fiscal system, the pervasive division of fiscal sovereignty, at the same time, it is necessary to incorporate criteria for allocating fiscal revenues. These criteria should take into account the basic specifics of individual federal communities. Possible anomalies in the distribution model can be corrected by incorporating into the system, the criteria of active and passive fiscal equalization. Defining through the legal frameworks of relations between higher and lower levels of government should be based on the criteria for vertical and horizontal fiscal equalization. The reform of the fiscal system should be based on the conclusions of the conducted

⁹⁶ Jelčić B., (1998), *Financial Law and Financial Science*, Zagreb: Informator p.431-440. more.

comprehensive fiscal analysis and on the instruments of this analysis.

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HIGH STRENGTH COATING TESTING LAYERS ON MACHINE PARTS ON THE ABRASIVE WEAR

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Abstract: *This study was conducted plasma technology application of coatings on machine parts. During the application the formed spray hits the surface of the material and the particles are deposited on the surface. In this way, the layers can be applied with a high thickness, and thus revitalized worn machine parts. Studied was the resistance to abrasive wear two types of layers: Al₂O₃ and the Al₂O₃ with phosphates, applied on the base material using plasma technology. Resistance to abrasive wear of coating was investigated by the method ASTM G 65-85. Shown are the result of material volume loss due to abrasive wear of the two aforementioned types of coatings on three samples. It was also presented the results of the material volume loss at different wheel revolution per minute. The layer impregnated with phosphates showed significantly greater resistance to abrasive wear.*

Key words: *plasma spraying, ceramics layers, abrasion wear*

1. INTRODUCTION

The research of metal materials is directed in two directions in the world: on the creation of new materials and on the improvement of the existing ones. Aluminum is the metal most commonly found in the Earth's crust (7.5%), and belongs to the group of light metals whose specific weight is 2.7 mg / m, which is 1/3 of the specific gravity of steel. It is corrosion resistant and has high electrical conductivity. Therefore, it is necessary to direct research into the application and satisfactory exploitation of these materials.

One of the basic conditions for long-term protection of metals from corrosion is the qualitative surface preparation. The coatings coated with the plasma-coated aluminum plasma method showed high quality, providing improved adhesion and corrosion protection [1].

The application of Torlo is a very widespread coating method. The basis of the hot application is the melting of the additional material and the direction of the molten material towards the surface of the base material, where rapid hardening and precipitation occurs. Different hot