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SUBSIDIZING WISELY: SOME LESSONS FOR MANAGING SUBSIDIES FOR AGRICULTURE*

Subvencioniraj mudrije – neke pouke za upravljanje subvencijama u poljoprivredi

Abstract

The subject of this paper is the study of the possible weak links in the agrarian budget management, primarily in terms of subsidizing beneficiaries in the light of improving competitiveness of the agriculture sector in the Republic of Serbia. The paper aims to investigate the possibilities for optimization of the scarce resources of Serbia's agrarian budget through enhancing the effects of its placement, and to suggest possible innovations with regard to the criteria used for decision-making and selecting priority beneficiaries of support. Having in mind the need for export-led growth orientation of the economy and the urgent need to improve its overall competitiveness as well as the competitiveness of individual sectors, we have suggested step-by-step guideline for choosing priorities in the agrarian budget allocation and pointed out some of the important issues related to the government support for the chosen ones.

Key words: *competitiveness, agriculture support, subsidies, budget allocation, direct payments*

Sažetak

Predmet ovog rada je analiza mogućih slabosti u upravljanju agrarnim budžetom, prvenstveno u svetlu sredstava subvencija, a imajući u vidu unapređenje konkurentnosti agrarnog sektora u Republici Srbiji. Rad ima za cilj da ispita mogućnosti optimizacije ograničenih sredstava agrarnog budžeta Srbije kroz poboljšanje efekata njegovog plasmana, kao i da predloži moguće inovacije kriterijuma korišćenih prilikom donošenja odluka o odabiru prioritetnih korisnika za podršku. Imajući u vidu orijentaciju ekonomije na rast kroz izvoz, kao i neodložnu potrebu za unapređenjem konkurentnosti, kako ekonomije u celini tako i pojedinih sektora, predložili smo korak-po-korak smernice za odabir prioriteta pri alokaciji agrarnog budžeta i istakli neka od značajnih pitanja državne podrške odabranih prioriteta.

Ključne reči: *konkurentnost, podrška agraru, subvencije, alokacija budžeta, direktna plaćanja*

Introduction

Serbia's economy is out of balance and performing below its potential, with important reforms significantly lagging [14, p. 1]. Critical areas and burning issues abound, and the need for improvement is becoming of paramount importance. According to the World Bank experts [14], after the years of consumption-led growth, the time has come to change the growth model and focus on exports. The potential is there, it *just* needs to be realized. Although it is noted that Serbia's exports are very low by regional standards, primarily due to the lack of competitiveness, one particular sector is recognized as a possible leader, i.e. a sector with comparative advantage – namely, the sector of agriculture and food production. In the period 2007-2012 the stated sector had evident revealed comparative advantage and growth of productivity among the highest in the region [14].

However, the agriculture sector itself is not blooming. Unfortunately, the situation is quite the opposite. The variety of problems, their persistence and expansiveness make the agriculture one of the sore points of Serbia's economy. Also, having in mind its importance and the fact that it employs around half a million people and accounts for around 10 percent of GDP [14, p. 35], as well as the fact that it actually possesses significant potential for improvement, it is probably a sore point that hurts the most.

Consequently, if agriculture is to be one of the sectors to improve Serbia's overall competitiveness and contribute to the rebalancing of the economy as a whole, it is clear that its own sore points will have to start healing. Marked by a powerful social dimension, Serbia's agriculture has traditionally been a sector heavily supported by the government in order to address specific obstacles arising along the way. Possibly, resolving social issues as they emerged, the government had simultaneously created obstacles to the development of agriculture as a fully dynamic and competitive sector of the economy. Therefore, the reform and improvement of government support mechanisms, i.e. investments and incentive policies, are recognized as one of the top reform priorities for strengthening the agriculture and food processing sector [15]. Moreover, given the long-term integration-related goals of the Republic of Serbia, it is recommended that these reforms be CAP-oriented, i.e. generally aligned with the agricultural policy of the EU.

The paper will first present a short overview of budgetary support for the agriculture in Serbia during the previous period, with an overview of future strategy. Then we will discuss the possible criteria to be used when deciding on which agriculture priorities to support in the light of improving overall agriculture competitiveness. Finally, we will stress some of the issues important for the selection of appropriate instruments of support as well as for the frugal use of available funds. Other important aspects of the agrarian budget management, such as possibilities for its increase, issues of filling the budget, customs barriers, price guarantees etc. remain outside the scope of our analysis.

Budgetary subsidies for agriculture in the previous period and a strategy for the future

The most important aspect of the government support to the sector of agriculture is executed through the agrarian budget – a part of the total budget of the Republic of Serbia which aims to provide stable financing resources for the stimulation of the development of agriculture, as emphasized by the Strategy on Agriculture and Rural Development [13, p. 45]. However, the elements influencing the amount of the total budget allocated to the agriculture oftentimes have been designed to resolve burning issues actually not related to the performance of the agriculture sector itself. Consequently, the agrarian budget varied, both in absolute and relative terms, as show in Figure 1.

The increase of the total budget funds allocated for agriculture was mainly influenced by ongoing inflation and depreciation of the dinar. In relative terms, after witnessing remarkable growth in the period 2002-2004, there was a decreasing trend starting from 2004, with positive changes recorded in 2012 and 2013.

There is a general consensus that the budgetary support to the agriculture in Serbia is insufficient and significantly lagging behind other countries [13]. Nonetheless, the actual amount of the agrarian budget is not the only problem. Another pickle is its allocation. While there is

no doubt that "bigger is better" when it comes to available funds, the matter of their allocation becomes an issue of contention. *How to allocate the agrarian budget* can practically be translated to *how to design the agrarian incentives policy* issue. Although farmers crave for direct support, researchers wonder whether that support will provide actual results in the long run. In fact, some of them claim that public expenditure in R&D, extension, and infrastructures may have a larger impact on farm productivity than commodity programs or direct subsidies [8]. Consequently, the matter of designing agricultural incentives becomes the cornerstone of the sector's future development.

Preparing for the anticipated accession to the EU, Serbia has adopted the 10-year Strategy on Agriculture and Rural Development [13], adapted to the principles of the Common Agricultural Policy, whose incentives policy could be generally summarized in the following [10]: 1) single farm payments, independent of production; 2) cross-compliance favoring environmentally friendly behavior, food safety, animal and plant health and welfare; 3) strengthened rural development policy; 4) reduction in direct payments for larger farms in favor of rural development.

However, the transition to "single farm payment" agricultural policy is not expected to happen quickly. Basically, fine-tuning the amounts of the agrarian budget to different pillars of support in the coming years is expected to result in the graduate decreasing of direct support incentives in favor of the strengthening of rural development. On the other hand, choosing the "winners", i.e. adequate beneficiaries of support, is not a virtue usually attributable to the government. Therefore, when it comes to agriculture incentives, there is a serious danger that wrong government interventions might result in a misallocation of resources and eventually deteriorate competitiveness of agriculture.

Some guidelines for choosing priorities for direct support

Management incompetence immanent to governments, together with societal-related burning issues that require ongoing attention, is commonly recognized as an obstacle to the development of agriculture. On the other hand, the necessity of Serbia's economy to finally start moving towards competitiveness requires reforms not just in the realm of policies and regulations, but also in the way of thinking – towards contributing, producing, and value-creating approach. That said, when deciding on the priorities which will be honored with agricultural incentives, the government needs to introduce some economics-related criteria.

Bearing in mind the necessity of shifting to export-led growth model of development and preparing for the accession to the EU, there is no doubt that competitiveness is a characteristic to be nurtured and strengthened, which especially applies to the agricultural sector that has already

Figure 1: Agrarian budget, 2002-2013
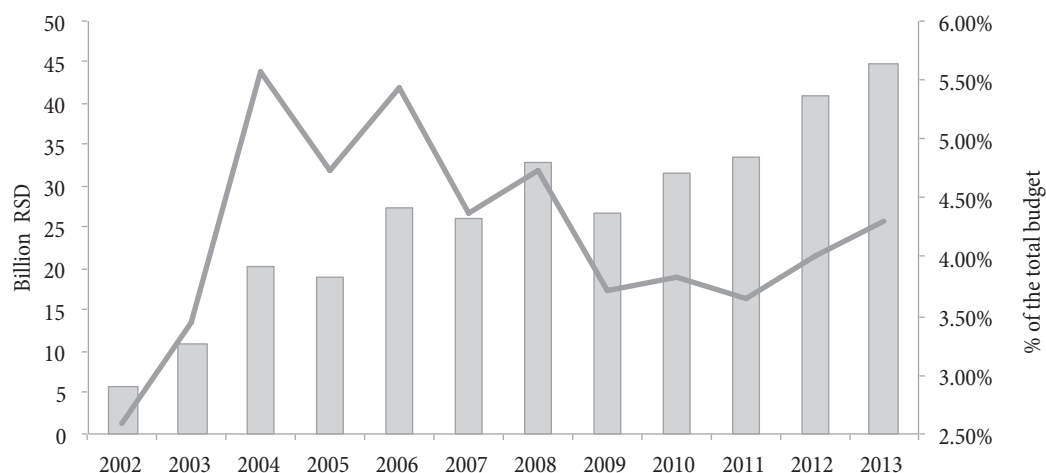
Source: The authors' compilation according to [12]

been recognized as a potential. Consequently, it seems rational to incorporate the competitiveness-related criteria in the agrarian budget allocation decision-making.

Revealed competitive advantages

But, what is competitiveness? And more importantly, can we measure it? Competitiveness as a concept is based on the idea of comparative advantage. Namely, comparative advantage exists if the economy can produce a commodity at a lesser opportunity cost than others do. The same can be applied to specific sectors, value chains, individual producers, and specific products. Consequently, the operationalization of this concept resulted in the development of the variety of tools and measures, which essentially aim to portray the relative efficiency of the domestic production of a commodity in relation to the rest of the world. However, it should not be forgotten that the comparative advantage of a specific product (sector or the economy) does not imply that it can, by default, be produced and sold at profit, i.e. be actually competitive. Many other elements need to be considered as well, market conditions primarily [9, p. 29].

One of the commonly used tools for assessing comparative advantages in the field of agriculture (both as a sector and on the product level) is the Revealed Competitive Advantage Index (RCA index, also known as the Balassa index). Originally defined by *Bela Balassa* in 1965 [2], the index underwent different types of modifications by various authors, resulting in the variety of RCA measures, out of which *Thomas Vollrath*'s index [17] is one of the most commonly used. What these different RCAs have in common is that they calculate the ratio of a country's export share of a specific commodity in the international market to the country's export share of all other commodities. We calculated the RCA index using the following formula:

$$RCA = \ln \left[\frac{X_i}{M_i} \right] \times \left(\frac{\sum_{i=1}^{n} X_i}{\sum_{i=1}^{n} M_i} \right)$$

where:

X_i – value of export of the product i

M_i – value of import of the product i

$\sum_{i=1}^{n} X_i$ – value of the total export of all products

$\sum_{i=1}^{n} M_i$ – value of the total import of all products

Comparative advantage exists for those commodities with RCA greater than 1.0 [11, p. 8]. RCA bellow 1.0 stands for the absence of comparative advantage.

Reviewing the existing literature we have found a variety of studies dealing with competitiveness from the aspect of comparative advantages, based on the RCA analysis (supplemented with other indicators) at the level of different sectors in the economy, and especially, at the level of agriculture and agricultural products. Some of them aim to investigate the competitiveness of agriculture as a whole, or certain groups of products of non-EU economies in the light of the future EU integration. Certain research studies have been carried out at the level of Serbian agriculture. *Buturac et al.* [3] in their research from 2010 confirm the existence of comparative advantages in export of Serbian food industry. Analyzing the performance of Western Balkan countries in 2008, they have found that Serbia had the highest indicator of competitiveness for the *Food and live animals* section. However, a common characteristic for all analyzed countries is the presence of comparative advantages in low value added sectors and the absence of correlation between the values of the RCA indicator and the share of individual products in the total export structure.

Having in mind the relative simplicity of the RCA calculations, availability of necessary data and the applicability to different levels of the analysis, i.e. economy sectors, value chains, groups of products, down to the level of individual products, RCA index can serve as a solid initial criterion when deciding on the priority beneficiaries of the budgetary support. Considering that the products (groups of products or value chains) with existing revealed comparative advantage are worth supporting in order to increase the overall competitiveness of agriculture, the initial selection naturally leans toward candidates with higher RCA. Therefore, RCA analysis can be used in the first step of decision-making process, as a tool for compiling the initial list of products (groups of products or value chains) whose competitiveness could be improved and thus trigger the economic growth, and which are as such possible candidates for budgetary support.

In order to illustrate the possible use of RCA analysis as a criterion for the selection of candidates who could be supported using the agricultural budget funds, we examined the levels of RCA index of comparative advantage of Serbian agricultural products in five-year period. The necessary data were obtained from the Statistical Office of the Republic of Serbia (SORS), focusing on the sector of food and live animals (as defined by the Standard International Trade Classification – SITC [16]), in relation to the entire international market. Results of the analysis have been summarized into categories corresponding to groups of products within the analyzed sector, according to SITC categorization and are shown in Table 1.

According to the results of the analysis, out of 36 analyzed product groups, only 7 of them had revealed comparative advantages during the whole period (RCA index was higher than 1.0 in each year of the analyzed period). Consequently, these groups can be initially highlighted as possible priorities for budgetary support, i.e. selected for the initial list of priority beneficiaries.

Table 1: RCA index by commodity groups of the Serbian food and live animals sector, 2009-2013

Food and live animals - product groups by SITC, Revision 4	2009	2010	2011	2012	2013
Live animals other than animals of division 03	0.72	1.22	0.90	0.45	0.23
Meat of bovine animals, fresh, chilled or frozen	2.86	2.24	1.74	1.68	1.71
Other meat and edible meat offal, fresh, chilled or frozen	-0.32	-0.41	-0.41	-0.59	-0.89
Meat and edible meat offal, salted, in brine, dried or smoked	-0.71	-0.85	-1.04	-1.13	-1.24
Meat and edible meat offal, prepared or preserved, n.e.s.*	0.21	0.16	0.19	0.17	0.18
Milk and cream and milk products, other than butter or cheese	0.70	0.24	0.34	0.20	0.14
Butter and other fats and oils derived from milk; dairy spreads	0.79	0.10	-0.30	-0.24	-0.01
Cheese and curd	0.51	0.29	0.40	0.47	0.66
Eggs, birds' and egg yolks, fresh, dried or otherwise preserved; egg albumin	-0.73	-0.39	-0.52	-0.38	-0.60
Fish, fresh (live or dead), chilled or frozen	-2.43	-2.53	-2.57	-2.50	-2.40
Fish, dried, salted, in brine; smoked fish; flours, meals and pellets of fish, for human consumption	-2.14	-	-0.43	0.35	0.34
Crustaceans, mollusks and aquatic invertebrates, fresh, chilled, dried, salt or in brine	-1.86	-2.27	-2.11	-2.66	-3.58
Fish, crustaceans, mollusks and other aquatic invertebrates, prepared or preserved, n.e.s.	-0.99	-1.32	-1.44	-1.56	-1.79
Wheat (including spelt) and meslin, unmilled	2.72	3.36	2.92	2.52	4.27
Rice	-1.57	-1.82	-1.88	-1.62	-1.79
Barley, unmilled	1.13	0.53	-0.77	-0.16	0.10
Maize (not including sweet corn), unmilled	1.89	2.22	2.19	2.09	1.58
Cereals, unmilled (other than wheat, rice, barley and maize)	0.00	0.38	-0.41	-0.67	-0.60
Meal and flour of wheat and flour of meslin	1.55	1.78	1.82	1.85	2.24
Other cereal meals and flours	2.05	2.72	2.17	1.58	2.20
Cereal preparations and preparations of flour or starch of fruits or vegetables	0.58	0.55	0.51	0.46	0.49
Vegetables, fresh, chilled, frozen or simply preserved; roots, tubers	0.05	0.16	0.18	-0.08	-0.06
Vegetables, roots and tubers, prepared or preserved, n.e.s.	0.20	0.35	0.29	0.38	0.28
Fruit and nuts (not including oil nuts), fresh or dried	-0.33	-0.17	-0.05	-0.19	0.01
Fruit, preserved, and fruit preparations (excluding fruit juices)	1.34	1.44	1.46	1.25	1.62
Fruit juices (including grape must) and vegetable juices, unfermented and without added spirit	0.17	0.49	0.60	0.44	0.73
Sugars, molasses and honey	1.03	1.59	1.13	1.07	1.19
Sugar confectionery	-0.18	-0.18	-0.07	-0.46	-0.48
Coffee and coffee substitutes	-1.89	-2.20	-2.11	-1.64	-1.88
Cocoa	-2.32	-2.12	-2.04	-1.56	-1.48
Chocolate and other food preparations containing cocoa, n.e.s.	0.53	0.34	0.32	0.21	0.05
Tea and mate	-0.21	-0.09	-0.21	-0.37	-0.50
Spices	0.86	0.80	0.76	0.31	0.39
Feeding stuff for animals (not including unmilled cereals)	0.25	0.23	0.39	0.46	0.20
Margarine and shortening	0.07	-0.13	-0.10	-0.06	-0.31
Edible products and preparations, n.e.s.	0.03	-0.13	-0.18	-0.16	-0.02

*n.e.s. - not elsewhere specified
Source: The authors' calculations (according to SORS data)

Comparing the RCAs of the seven groups with revealed comparative advantage for the period, as displayed in Figure 2, we can see that *Wheat and meslin* group stands out notably. We must also note that the results of our analysis generally coincide with the results of previously conducted studies on the subject matter.

Going deeper into the analysis, RCA index can be calculated all the way down to the level of certain agricultural products or, combining individual data, the level of specific agricultural value chains. Additionally, comparative advantages can be examined not just in relation to the entire international market, but also focusing on desired countries or regions of interest.

To illustrate the possibility of a more detailed analysis, we have examined the RCAs of individual products within the two previously analyzed groups – *Fruit, preserved, and fruit preparations (excluding fruit juices),* which proved to be *competitive* during the whole analyzed period, and *Fruit and nuts (not including oil nuts), fresh or dried* which had negative RCAs (except in 2013 when it leveled up to somewhat above zero). As shown in Table 1, there was a substantial difference in the RCAs of these, at first glance similar, groups. However, analyzing the RCA at the product level, we have found that even in the "non-competitive" group, certain products stand out with high RCAs, exceeding the competitiveness of the products from the "competitive" group. That said, extending the RCA analysis to product level becomes crucial for the competitiveness analysis. Table 2 summarizes the RCA indexes of competitive products within these two groups.

However, when prioritizing sectors for budgetary allocations on the basis of their revealed competitive advantage a certain caution is necessary, due to the existing shortcomings of the RCA indicator. Namely, RCA is not capable of seizing the clear effects of purely economic factors affecting the comparative advantage [9, p. 30]; it also comprises the effects that previously applied government policies and incentives have on the comparative advantage. Bearing in mind that government support is commonly accused as a trigger of market distortions, one should be careful when judging on the relative competitive advantage of already subsidized sectors, value chains or products. In the light of our analysis, and taking into account the structure of agriculture budget in the analyzed period [12] it is clear that a serious doubt should be expressed on the actual competitiveness of the selected groups, i.e. their ability to compete without the safety net of the agricultural budget. Surprisingly or not, the *milk* group of products, traditionally marked in Serbia as heavily subsidized, turned out to be a group without comparative advantages in relation to the international market.

Additional shortcoming of RCA lies in the fact that it is a past performance indicator. Namely, the design of the RCA index prevents it from grasping any dynamics – it portrays achieved results and comparative advantages, not being able to incorporate the effects of current trends and market dynamics when assessing comparative advantage. Given the imperfections of the RCA analysis, necessary caution must be present when interpreting the attractiveness of different candidates for budgetary support. Assuming

Figure 2: Products with revealed comparative advantage
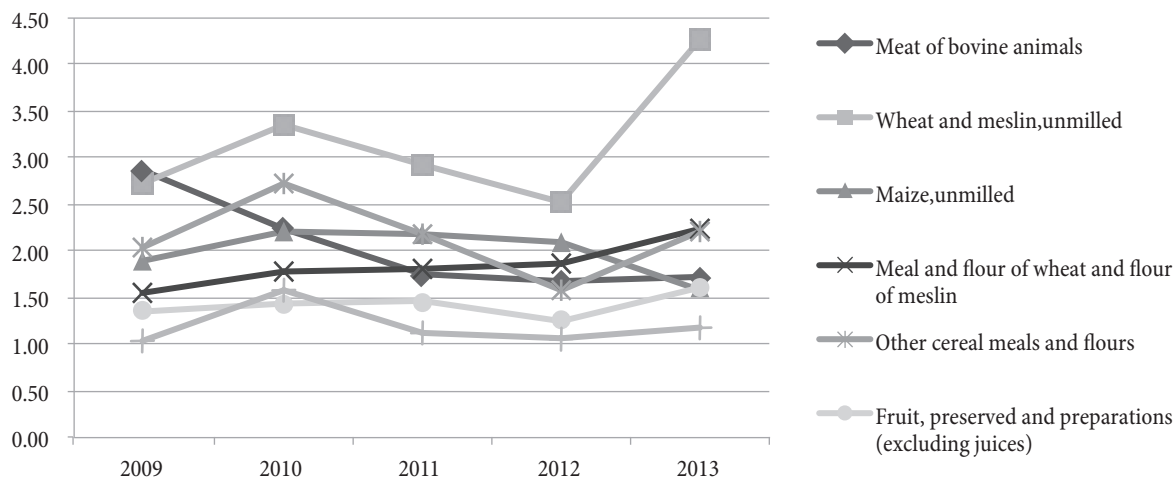
Source: The authors' compilation

that the analyst recognizes these limitations, RCA index can prove to be a quite helpful tool.

Introducing market-based criteria into the analysis

Once the revealed competitive advantages have been analyzed and the initial list of potential candidates narrowed down to selected "competitive" ones, the following step requires the introduction of market-based criteria into decision-making process. Namely, bearing in mind the shortcomings of the RCA index as a past performance indicator, it is necessary to obtain additional aspects of competitiveness which could cast some light on the current situation, i.e. indicate if the revealed comparative advantages are still present and whether there are some elements which could jeopardize them. Therefore, it can be useful to study the results of the RCA analysis in the light of the existing and expected trends and market conditions. Practically, these anticipated market surroundings can be observed as moving targets, to identify the outcomes, which need to be achieved, for each individual item from the initial list of priorities. Sensitivity analysis is preferable, to portray the anticipated outcomes in the case of different scenarios i.e. market circumstances. Factors to be considered include the nature of demand, its size and tendencies, segments and potential niches, price tendencies, customer preferences, current competitors, market access, and other requirements [9, p. 30].

Referring to the results of our analysis, the second step in prioritizing budgetary beneficiaries would require the decision-makers to investigate existing and expected market trends and conditions for the initially selected groups of products. Assuming that we focus on the seven groups of products with revealed comparative advantages in the period 2009-2013 (as shown in Figure 2), it would be useful to examine which international markets are of most significance for their exports, and to direct the further analysis towards those markets, at the same time keeping the other market options open (the possibility of entering new markets in the future). Therefore, we analyzed the structure of export of these product groups, investigating the participation of different countries in the total sum of the value of Serbian export for each product group, for the period 2009-2013. The results were summarized by grouping export markets into three categories – Former Yugoslav Countries (including the ones within the EU), EU member states (except the ones which have been a member of Yugoslavia) and other countries, as shown in Figure 3.

Evidently, some of the product groups are predominately oriented towards regional markets – *Meal and flour or wheat and flour of meslin* and *Other cereal meals and flours* group, while others like *Fruit, preserved, and fruit preparations, Maize* and *Wheat* focus on the EU market. Consequently, market factors that will be taken into consideration differ accordingly. The EU-oriented products will be heavily tested in terms of the expected trends on

Table 2: RCA index by individual fruit products, 2009-2013

Type of product	2009	2010	2011	2012	2013
Fruit and nuts (not including oil nuts), fresh or dried	**-0.33**	**-0.17**	**-0.05**	**-0.19**	**0.01**
Blackberries, mulberries and loganberries, fresh	2.21	2.72	3.44	3.96	4.61
Cherries and sour cherries, fresh	2.32	2.49	2.86	1.98	3.21
Plums and sloes, fresh	2.06	2.92	2.40	2.63	3.67
Raspberries, fresh	1.87	1.76	2.68	3.16	3.90
Fruit, preserved, and fruit preparations (excluding fruit juices)	**1.34**	**1.44**	**1.46**	**1.25**	**1.62**
Blackberries and mulberries, frozen, without sugar	2.10	2.20	2.23	1.71	2.20
Cherries and sour cherries, preserved	1.58	1.33	1.69	1.44	2.07
Raspberries, frozen, without sugar	2.07	2.15	2.46	1.74	2.07
Sour cherries, uncooked or cooked in water, frozen, not cont. added sugar	1.60	2.15	2.27	1.85	2.33
…					
Peaches, including nectarines, preserved	-1.35	-1.33	-1.31	-1.11	-1.23
Mixtures of fruits or other edible parts of plants, prepared or preserved, n.e.s.	-1.07	-0.79	-0.34	-0.29	-0.39
Strawberries, prepared or preserved, n.e.s.	-3.00	-2.38	-2.01	-2.01	-2.82
Currants, frozen, without sugar	-1.21	-0.97	-1.12	-1.44	-1.54

*n.e.s. - not elsewhere specified
Source: The authors' calculations (according to SORS data)

Figure 3: The structure of total export in the period 2009-2013
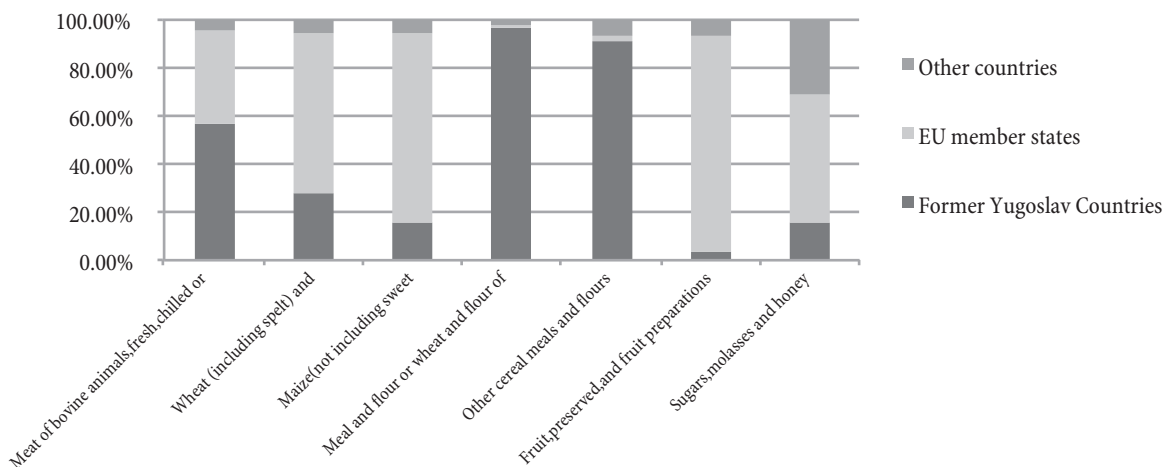
Source: The authors' calculations according to SORS data

the EU market – the anticipated size of demand, possible changes in the customer expectations and preferences, possible tightening of demands regarding food safety and quality of commodities etc. Namely, scenario analysis will aim to portray the probability that these groups of products will keep their comparative advantages in the case of possible changes in any of these elements. On the other hand, regionally-oriented products will probably be tested not just in the light of the regional markets, but also in the light of investigating the possibility to increase their exports and bring them to the EU market. Going deeper into the analysis, RCA index can be calculated for specific targeted markets, as a more reliable basis for making conclusions on their competitiveness. Having in mind Serbia's EU orientation, we have examined the RCAs of the two "regionally focused" product groups in relation to the EU member states solely, to determine if their competitiveness exists on this market as well, in case of a possible market expansion. Therefore, we calculated the RCAs for the *Meal and flour or wheat and flour of meslin* and *Other cereal meals and flours* group, narrowing the analysis to the EU market. The results are summarized within Table 3.

Naturally, *Other cereal meals and flours* group appeared as a highly competitive group in relation to the

EU market. Consequently, the further analysis should examine potential barriers to expanding on the EU market in this particular field, as well as the possibilities for their overcoming. By contrast, *Meal and flour or wheat and flour of meslin* group should primarily be analyzed in the light of potential competitiveness improvement, before expanding to the EU market.

Market-based analysis can be used as a reversed criterion for selection, as well. Namely, if there are evident or expected market advantages for certain types of products (groups of products or value chains), they can be included in the initial list of priorities, even if they failed to achieve significant (or any) comparative advantages in the past. Therefore, the assessment of barter arrangements, if any, and free trade arrangements (FTA) is needed so that they also might become the criteria for selection. The analysis of the market threats and opportunities for the selected products or groups of importance should finally result in the further tuning of the list of priorities. Providing that the appropriate metrics have been established, the selection would favor those candidates with the highest potential for value creating.

Last but not least, the list of priorities may be tested by introducing additional requirements, not necessarily competitiveness-driven. Namely, having in mind the

Table 3: RCA index of regionally-oriented product groups, 2009-2013

Product groups	2009	2010	2011	2012	2013
Meal and flour of wheat and flour of meslin	-2.59	-2.59	-4.17	-4.52	-1.75
Other cereal meals and flours	7.06	8.11	7.22	4.98	5.24

Source: The authors' calculations (according to SORS data)

nature of agriculture and the structure of population whose fundamental activities, directly or indirectly, depend on it, the allocation of the agricultural budget is unlikely to be entirely economical, especially in the short term. Consequently, it is expected that societal aspects such as the reduction of poverty and the stability of farmer's income will be very much considered as a selection criterion. The art of managing the agricultural budget lies in choosing those beneficiaries, i.e. the means of societal support, whose rewarding will not significantly deteriorate the overall competitiveness. However, we should also note that social and rural development criteria could, and oftentimes will, be highlighted by the government as "top priorities" for budgetary support. That subject matter remains outside the framework of the analysis elaborated in this paper.

Choosing the instruments for support

Once the list of priorities has been set, i.e. once the products (or value chains) that will benefit from the allocation of the agricultural budget have been selected, the important questions and difficulties facing the decision-making process start to increase. Namely, all of them can generally be summarized in the following question – *how to help*? That is, once the long-term directives for budget allocations have been set, the important question is how to operationalize the budget payments. Basically, setting the right instruments of the agricultural policy, in terms of agricultural budget use, becomes the matter of utmost significance. Selecting the means of support for the identified priorities which would imply the "best possible" use of the available budget, i.e. would result in the increase of competitiveness and boost the performance of the chosen ones, arises as a challenging reaching target.

Reviewing the existing literature on the subject, the overall conclusion is that when it comes to the design of agricultural budget and allocation mechanisms, a common view is that there is no common view. When it comes to the EU, CAP is in the final stage of the transition process to the Single Payment Scheme, predominantly based on direct payments (DPs) and particularly payments not related to the production level – Decoupled Direct Payments (DDPs) [5]. DDP as an incentive does not impose an obligation to

farmers in terms of production – they are free to respond to market signals and to decide on the type and volume of production accordingly. However, a significant part of the EU budget was allocated in the past through production-related incentives, i.e. Coupled Direct Payments (CDPs).

Generally, direct payments can be considered as incentives aimed at providing additional revenues or reducing costs for farmers, leading to the increase (and stabilization) of farmers' income. However, in spite of their evident advantages relative to previously popular measures such as price support, direct payments are not flawless. Although some of their shortcomings are mainly theoretical, noticeable practical issues in their application make them a measure that must be used with caution.

From the theoretical point of view, DPs are potentially troublesome because they are believed to cause distortions in the farmers' production and investment decisions (i.e. farmers' decisions would probably be different and possibly better in the absence of DPs) and to change their risk aversion. CDPs create even greater distortions because they stimulate farmers to increase production and invest more in those businesses which are supported by government. Consequently, farmers fail to invest in other types of production and to make profit on other products they would normally do if there were no CDPs. Additionally, CDPs may create an excess supply of certain products that cannot be spent or profitably exported. Since DDPs are not related to production level, the risk of distortions is much lower, but on the other hand there is a danger that the effects of the increased production will be missed out, i.e. farmers would fail to use the granted funds of the taxpayers to increase the production level. When it comes to the changes in the farmers' risk aversion, as a certain income DPs would have positive impact on the stabilization of the total farmers' income. On the other hand, the stabilization of farmers' income together with income increase may decrease the farmers' risk aversion, boost the production and investment distortions, and increase the cost of capital (WACC).

Additional problems of direct payments come from the fact that they are allocated both to family farms and agriculture companies, i.e. non-family farms, which significantly differ in terms of size and the effects these

payments aim to produce. When it comes to non-family farms, i.e. companies, DPs will increase their revenues or partially cover the costs incurred, which will increase the income (EBIT, EBITDA), i.e. accounting rate of return (ROI, ROA). However, maximizing EBITDA or ROA does not necessarily lead to value creation. In addition to the increase of EBITDA, the focus on value creation requires at least to take into account investments in Net Working Capital and Capital Expenditure (CAPEX), and also WACC. DPs are not capable of influencing these two important components of value. Moreover, due to the investment distortions and the reduction of risk aversion (WACC increase) in some cases DPs can actually implicitly destroy value. Generally, the main shortcoming of the DPs can be summarized in the fact that they do not favor the "winners".

In connection with the previous observation, at macro level DPs can result in keeping the farmers in agriculture business even when they are evidently uncompetitive without the budgetary support. Additionally, DPs may cause undesirable distribution effects, i.e. produce bigger income disparities than the ones which would exist without them [1]. This is particularly troublesome due to the fact that the reduction of income disparities is often proclaimed as a goal of DPs. For example, a study ordered by the European Commission [5] showed the high concentration in the distribution of DPs. In 2006, farmers of the EU-25 received in average EUR 12,200 of subsidies per farm and 72% of these subsidies were EU DPs. Interestingly, 20% of the FADN farms received 76% of the DPs recorded in

FADN, and around 15% of FADN farms did not benefit from any EU DPs. Furthermore, direct payments could possibly trigger the increase of land prices, cancelling out the part of their benefits. Finally, there is an issue of the actual receiver of the direct payment – should it be the landowner or the land leaseholder who actually initiates production, together with the taxpayer's never-ending dilemma who actually receives their money and where it is spent.

When it comes to the Republic of Serbia, as previously elaborated, the agrarian budget varied, in absolute and relative terms, during the past decade. Simultaneously, its structure varied, as well. The structure of the agricultural and rural development subsidies for the period 2010-2013 is shown in Table 4.

As show in Table 4, during the period 2010-2013, direct support to producers was the most significant budget incentive in terms of allocated funds. As the incentive with the longest tradition and direct effect on the production and income of agricultural holdings, direct support is recognized as the most attractive type of support from the farmers' point of view [13, p. 48]. Direct support incentives have usually comprised direct payments based on outputs, input subsidies as well as payments per hectare or per livestock. The structure of funds allocated in the form of direct payments in 2013 is shown in Figure 4.

As shown in Figure 4, 20.44% of the direct payments in 2013 were allocated for the milk premium. Bearing in mind the results of the RCA analysis elaborated in the

Table 4: Agricultural and rural development subsidies per subsidy type (RSD mil.), 2010-2013

Type of subsidy	2010		2011		2012		2013	
	RSD mil	%	RSD mil	%	RSD mil	%	RSD mil	%
MARKET SUPPORT MEASURES AND DIRECT SUPPORT TO THE PRODUCERS	20,627	81.88	14.120	80.62	23,848	89.36	25,933	91.86
Market support measures	1,317	5.23	31	0.18	0	0.00	0	0,00
Direct support to producers	19,310	76.65	14,089	80.44	23,848	89.36	25,933	91.86
STRUCTURAL AND RURAL DEVELOPMENT SUBSIDIES	3,205	12.72	2,039	11.64	2,410	9.03	1,855	6.57
Improving agricultural competitiveness	3,071	12.19	1,886	10.77	1,674	6.27	1,696	6.01
Improving the environmental and rural landscape	21	0.08	20	0.11	45	0.17	15	0.05
Support for rural economy and population	113	0.45	133	0.76	690	2.59	144	0.51
GENERAL SUPPORT MEASURES	526	2.09	214	1.22	385	1.44	442	1.57
R&D, advisory and extensions	474	1.88	163	0.93	385	1.44	442	1.57
Food quality and food safety control	52	0.21	51	0.29	0	0.00	0	0.00
UNALLOCATED	835	3.31	1,142	6.52	45	0.17	0	0.00
TOTAL	25,193		17,515		26,687		28,230	

Source: [12]

Figure 4: The structure of direct payments in 2013
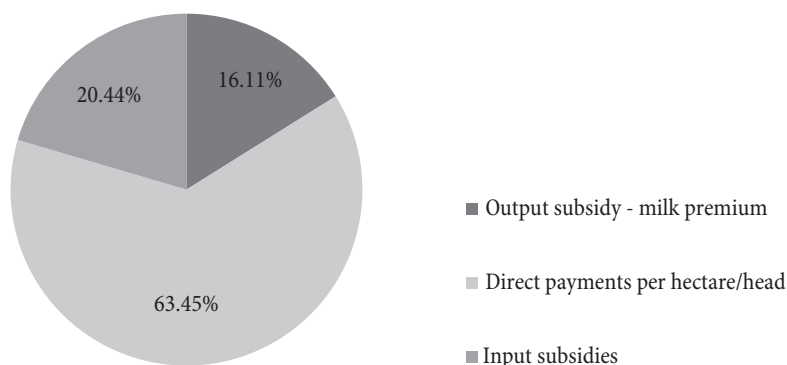
Source: The authors' calculations according to [12]

previous section and the fact that all the *milk* product groups proved to be uncompetitive relative to the entire international market, such budgetary allocation should be carefully reconsidered for future periods, if increasing overall agriculture competitiveness is to become a priority goal.

At the same time, as shown in Table 4, when it comes to subsidies for improving competitiveness and rural development subsidies, the situation is getting worse in the last four years, both in absolute and relative terms. That said, the agrarian budget in Serbia practically rests on the direct support to the agricultural producers, through both production-related and non-related instruments, while competitiveness and rural development (together with the general support measures) remain on the fringe. Although the structure of the budget is generally aligned with the CAP pillars of support, given the actual use of the budget, the situation is far from an essential alignment. Namely, rural development measures, intended to help farmers modernize their farms and become more competitive, account for some 20% of the CAP's budget, while 70% of the budget is reserved for the direct payments [7]. However, these direct payments are predominately decoupled (DDPs) and are paid to farmers provided that they fulfill strict standards regarding food safety, environmental protection, and animal health and welfare.

The previous discussion on the advantages and shortcomings of various types of agriculture incentives emphasizes the delicacy of allocation of the limited agrarian budget on different instruments of support. In the absence of an *optimal* allocation policy, when selecting the budgetary allocation means, policy makers must bear

in mind the pros and cons of the available alternatives i.e. what is gained, and how much is sacrificed. Taking into account that the position of Serbia and its agriculture sector significantly differs from the position of the EU, it is obvious that the agrarian budget allocation mechanisms cannot blindly follow CAP solutions, particularly not in terms of sharp turn to DDPs exclusively. Therefore, given the potentials and significance of agriculture in Serbia, as well as the long and not entirely certain EU accession process with which EU policies become mandatory, CDPs jointly with other instruments focused on competitive products should be prioritized over non-selective DDPs. We believe that, compared to the present situation when only 6.57% of the budget is allocated to competitiveness improvement and rural development, a significantly larger part of the budget should be allocated to those very areas and selectively – to support the identified priorities, as we discussed in the previous section. Besides farmers who produce products with competitive advantages, positive discrimination in favor of low-income family farms and farmers from rural areas (also as selected priorities) should be applied.

When it comes to the actual form of distribution to selected priorities, the increase of the incentives through subsidized loans should be considered. An evident advantage of such subsidy is the effect of multiplication, which cannot be achieved with the other forms of direct payments. Namely, no matter how high the subsidies that farmers receive from the government are, they are almost always insufficient for financing significant investments. On the other hand, if these funds are received in the form of loan interest subsidy, farmers could apply with a bank

for a loan that could be even ten times higher than the amount of the actual government subsidy, and necessary funds for significant investment will be obtained. Except for cheap (or interest-free) loan for farmers this form of allocation carries other not so insignificant benefits as well. It stimulates the credit activity of banks, which is currently extremely low in Serbia, and at the same time the bank takes care on the collateral of the loan and monitors its use and payback. The benefits from monitoring are not to be neglected, since the government monitoring is often quite inefficient.

Finally, once the set of measures and instruments of the agrarian budget allocation have been determined by policy makers, the matters of their execution arise. Namely, adequate budget management requires the allocation to be performed strictly according to plan, with precise amounts for distribution specified by beneficiaries, budgetary instruments, and appropriate allocation dynamics. Specific issues of the budget execution process remain outside the scope of this paper.

Sparing the budget: Monitoring, review and evaluation

Due to the limited scope of this paper, these subject matters will not be elaborated in detail in the following section.

Monitoring the use of agricultural subsidies

Management of the agricultural budget is practically impossible without an adequate monitoring of the amounts spent. Namely, when available funds are scarce and the requirements of the beneficiaries on the verge of life or death importance, any misuse of the agricultural budget is simply not affordable. Therefore, designing the precise and reliable management and control systems to prevent, detect, and finally recover any irregular payments to the beneficiaries becomes one of the matters of utmost importance.

As for Serbia, activities aiming to ensure the reliable control of the spent agricultural budget funds have been initiated, primarily by setting the legal framework. The Directorate for Agrarian Payments was incorporated, modeled according to the EU's paying agency, as the authority with an exclusive right to manage and control all agricultural budget payments to beneficiaries. But the overall impression is that the Directorate lacks the capacities needed to fully realize its tasks and goals. Therefore, further development and strengthening of the Directorate in terms of capacities, knowledge and employees must be set as one of the priorities aimed at improving the efficiency of the allocated agrarian budget.

The incorporation and design of the monitoring mechanisms must be tailored to ensure the correct and accurate spending of the agrarian budget funds. Consequently, the most important assignments when it comes to monitoring can be summarized in the following [4]: 1) ensuring that the admissibility of budgetary claims and compliance with the national regulations is determined prior to payment; 2) ensuring that payments are adequately recorded in the accounts; 3) ensuring that the admission documents are correctly kept and presented in time; 4) ensuring that adequate checks and controls prescribed by the national regulations are made; 5) developing a computerized database according to the EU Integrated Administration and Control System to enable the cross-checks of information in the applications for budget payments.

Tracking and measuring the effects of allocated incentives

Any serious debate on the adequacy of the set agriculture budget instruments is pointless without the possibility to track and measure the effects of the introduced measures and instruments used. When it comes to instrument selection, the wisdom, like always, lies in setting the right measure, i.e. managing the budget allocation process steadily and safely. However, designing "the right" policies is practically impossible without the feedback on the effects of the imposed measures. Namely, measures must also be "measured". However, policy makers must also bear in mind that "what you measure is what you get" and adjust the measurement system accordingly.

The analysis of the effects of the imposed measures and instruments for agricultural budget allocation is one

of the weakest links of Serbian agriculture. The lack of the data necessary for the analysis makes any debate on the agricultural budget design strictly theoretical. Financial data on the allocated budget funds in the previous years are aggregate and inconsistent, due to the frequent changes in national regulations and instruments. Publicly available data on the amounts of budget support at the level of certain agriculture sectors, groups of products or individual commodities are not available. The same goes for the users of agricultural budget – there is a serious lack of the financial and other data that can be used to analyze their overall performance and assess their competitiveness. Therefore, to raise the efficiency of the allocated budget and create an impulse for increasing competitiveness, one of the priorities is to create solid and reliable data basis. Initial steps have been taken, through the incorporation of the Registry of agricultural holdings and introduction of the Farm Accountancy Data Network (FADN) system, but these are still in the early phase and the overall impression is that they need to be intensified.

The FADN is an instrument for evaluating the income of agricultural holdings and the impacts of the agricultural policy. It is considered by the European Commission to be the main information system to support the development of the Common Agricultural Policy [7]. The aim of the network is to gather accountancy data from selected farms for the determination of incomes and business analysis of agricultural holdings. Hence, the FADN database becomes a precious source of information for the farms' performance analysis, but also for the analysis of effects of changes in agriculture policies. Consequently, a set of various indicators and variables was developed under FADN, for the purpose of monitoring and review, and the goal for Serbia lies in their timely development and adoption. Once the initial data basis is created, decision makers can implement a variety of profit or value-based studies to examine the relation between certain types of budgetary instruments and performance of related beneficiaries. Additionally, the introduction of FADN can serve as an opportunity to educate the farmers and direct them towards the approach of value creation thinking, to plant the ideas of value-based management in the very core of the allocated funds management.

Review and evaluation

Finally, in terms of evaluating the effects of agricultural instruments and measures imposed, Serbia's agriculture is in need of a significant improvement once again. Fortunately, the experience of the EU agriculture practice can serve as the solid guideline in this field as well. For example, one of the studies financed by the European Commission [6] examined the effects of the direct support schemes, prescribed by the CAP provisions, on the income of farmers of the 27 EU member states. The results of the study showed the positive relation between the direct payments and the income of farmers i.e. their positive and significant contribution to enhancing the income, and the stability of income as well. Also, the efficiency of direct payments in targeting appropriate recipients proved to be high, meaning that direct payments actually supported the farmers with under-average income and contributed to the reduction of income disparities among farmers.

However, the evaluation itself is not limited to academic studies alone. FADN database enables a more operational approach. That said, one of the methods used compares only the farms that receive subsidies – "before and after" analysis, while another compares the differences in performance between the farms that receive the particular measure, i.e. budgetary support, and the ones that do not – counterfactual analysis. Second approach of the so-called *counterfactual paradigm* portrays the effect of the budgetary allocation instrument used as a difference between the value after the government intervention and the value which would exist without the intervention, for the same period and the same subjects. However, problems of practical application of both methods are not insignificant. Namely, the main difficulties lie in the possibility of tracking the "pure" agricultural policy effects, i.e. isolating other factors of impact, as well as in the inability to apply this analysis on those subjects which cannot be both beneficiaries and non-beneficiaries of a policy.
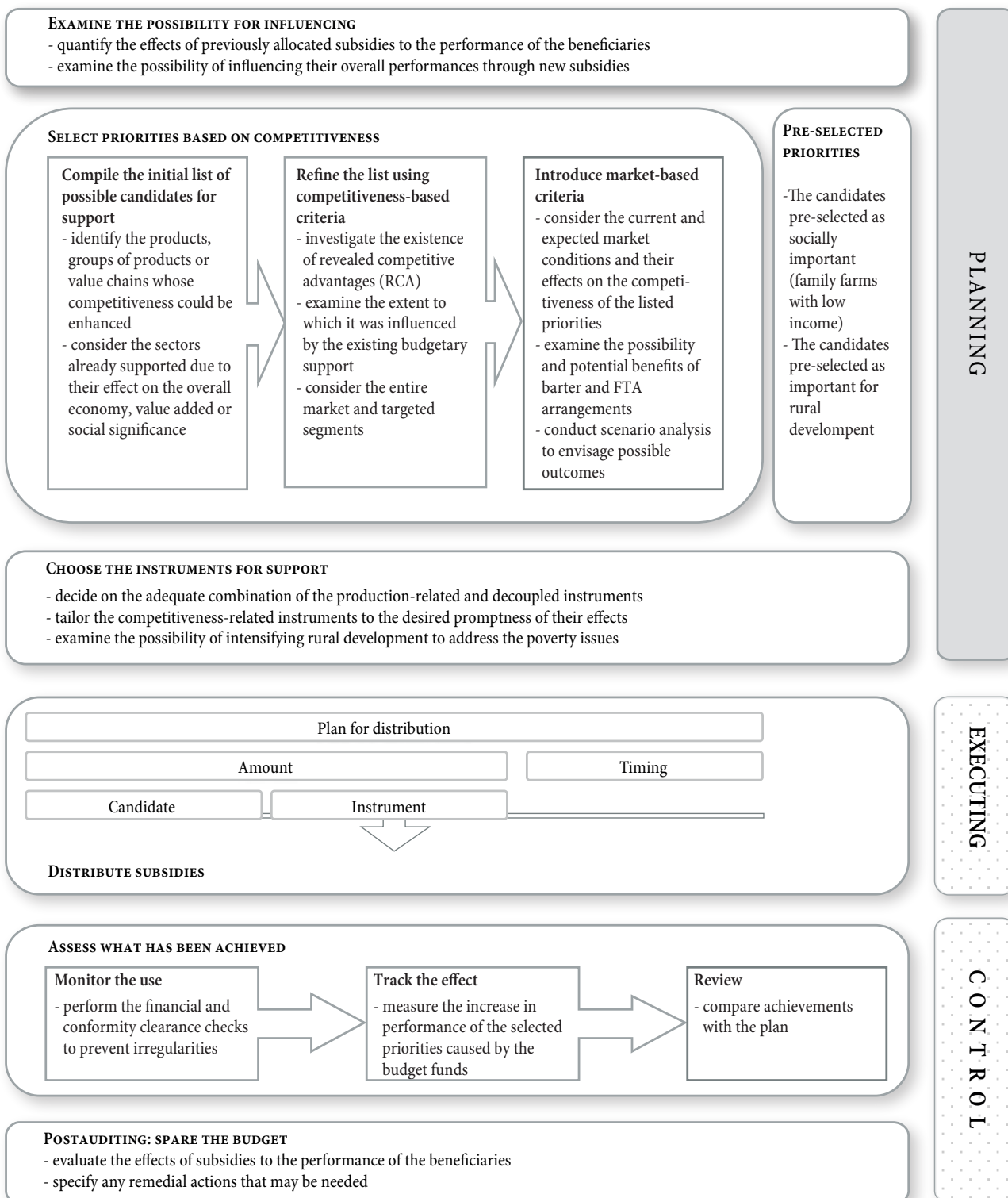
Having in mind the never-ending debates on the appropriateness and actual effects of the direct payments in Serbian agriculture, the possibility to perform such studies seems crucial. Namely, upon the identification of the groups of products with revealed comparative

advantage the following step of the analysis could include the evaluation of the effects which previous budget allocations (if existed) had on the competitiveness of those very groups. Consequently, insights of such analysis could help the decision-makers to evaluate the soundness of the achieved revealed competitive advantages that is the extent to which it was actually generated by the budgetary use in the previous years. Additionally, conclusions could be

Figure 5: The agricultural budget allocation – important steps

EXAMINE THE POSSIBILITY FOR INFLUENCING
- quantify the effects of previously allocated subsidies to the performance of the beneficiaries
- examine the possibility of influencing their overall performances through new subsidies

SELECT PRIORITIES BASED ON COMPETITIVENESS

Compile the initial list of possible candidates for support	Refine the list using competitiveness-based criteria	Introduce market-based criteria
- identify the products, groups of products or value chains whose competitiveness could be enhanced	- investigate the existence of revealed competitive advantages (RCA)	- consider the current and expected market conditions and their effects on the competitiveness of the listed priorities
- consider the sectors already supported due to their effect on the overall economy, value added or social significance	- examine the extent to which it was influenced by the existing budgetary support	- examine the possibility and potential benefits of barter and FTA arrangements
	- consider the entire market and targeted segments	- conduct scenario analysis to envisage possible outcomes

PRE-SELECTED PRIORITIES

- The candidates pre-selected as socially important (family farms with low income)
- The candidates pre-selected as important for rural develompent

CHOOSE THE INSTRUMENTS FOR SUPPORT

- decide on the adequate combination of the production-related and decoupled instruments
- tailor the competitiveness-related instruments to the desired promptness of their effects
- examine the possibility of intensifying rural development to address the poverty issues

PLANNING

Plan for distribution

Amount | Timing

Candidate | Instrument

DISTRIBUTE SUBSIDIES

EXECUTING

ASSESS WHAT HAS BEEN ACHIEVED

Monitor the use	Track the effect	Review
- perform the financial and conformity clearance checks to prevent irregularities	- measure the increase in performance of the selected priorities caused by the budget funds	- compare achievements with the plan

POSTAUDITING: SPARE THE BUDGET
- evaluate the effects of subsidies to the performance of the beneficiaries
- specify any remedial actions that may be needed

CONTROL

Source: The authors' compilation

made on the actual possibility of the budgetary support to influence the competitiveness of these groups i.e. the reasonableness of selecting such groups as priorities.

Important issues and steps to follow in the process of the agricultural budget allocation elaborated in this paper have been summarized in Figure 5.

Conclusion

Agriculture sector in Serbia is craving for support. Limited available funds, the sector's existing underperformance and evident perspective, together with the urgency of its improvement in the light of the future EU integrations, call for serious and immediate actions. In numerous instruments and areas of intervention, revision of the existing government support mechanisms and introduction of economical criteria for agriculture subsidies allocation appear to be among priorities. The complexity of goals bestowed upon policy makers and their rivalry, the absence of the organized tracking system for the allocated funds and the limited possibility to envisage the effects of taken measures and instruments make this revision a challenging task.

Designing the "right" combination of measures and means for agriculture subsidies allocation, policy makers should strive towards competitiveness improvement, keeping the inevitable social development (and rural development) related goals. Thus, economic criteria must be introduced in the selection of priorities to enable the government support to be directed towards "the winners" with revealed competitive advantages and evident market opportunities, believing that their improvement will trigger the improvement in performance of the sector as a whole. Although selecting the winners is traditionally marked as problematic when it comes to the government, designing the instruments for their support has proven to be an even trickier issue. Accordingly, revising the existing agriculture support mechanisms inevitably requires the improvement of the ancillary systems – introducing reliable and detail databases on agriculture support to beneficiaries, establishing policy evaluation systems, and monitoring the use of the allocated funds. The shining

example of the EU Common Agricultural Policy could serve as a solid guideline, provided that it does not blind the policy makers in tailoring the incentives system to the agriculture of Serbia.

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