

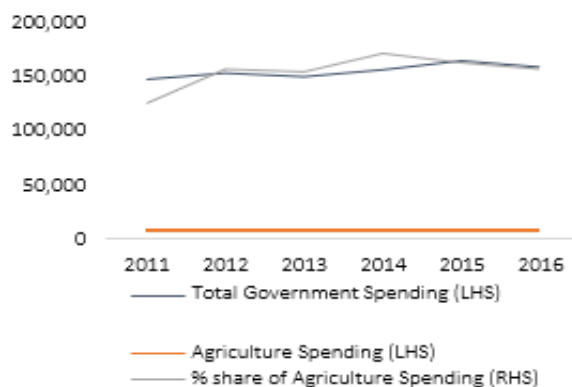


Agriculture is an important contributor to the North Macedonia's economy. However, there is still ample space to improve sector performance and to unlock its full potential. Farm productivity is still low, with decreasing returns to scale and limited use of technology, while labor abounds—many farmers are caught in a low productivity trap. The agricultural support measures currently in place do not address the productivity challenge effectively. Public support for agriculture is generous compared to regional peers, but much of it targets low-value products, resulting in misallocation of productive resources. Rebalancing of public support from market support and direct payments toward broader rural development measures, along with modernization of farms and the prioritization of high-value production, can lead to improvements of farm efficiency and sector productivity.

### Public support to agriculture in North Macedonia has been generous and focused on market support

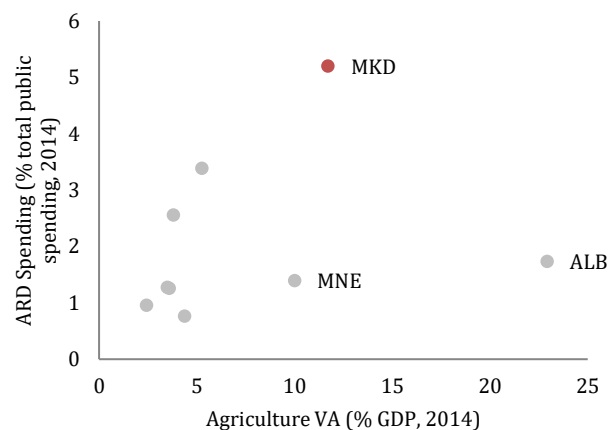
The importance of agriculture to North Macedonia's economy, the structural challenges in the sector, and the country's EU accession ambitions, are all reflected in the active public intervention in the primary sector. Between 2011 and 2016, agriculture spending represented on average 4.7 percent of total government spending (Figure 1), while the average annual rate of growth of public spending on agriculture (6.9 percent) was higher than that of total public expenditure (1.5 percent). Compared to Albania, Montenegro and several of the small European economies, the share of public spending allocated to agriculture in North Macedonia was the highest (Figure 2). In 2010-2015, budgetary transfers to farmers represented 1.14 percent of GDP and were, on average, double that of other Western Balkans countries and almost 60 percent higher than the EU28 average (Figure 3). Direct farm subsidies amounted to 0.84 percent of GDP in 2010-2015 which is almost threefold of the EU average.

**Figure 1: North Macedonia – Total Public and Agriculture Spending, MKD million in 2011 values (2011-2016)**



Source: Ministry of Finance; AFSARD

**Figure 2: Agricultural Value Added and spending, % of GDP and of public spending (2014)**

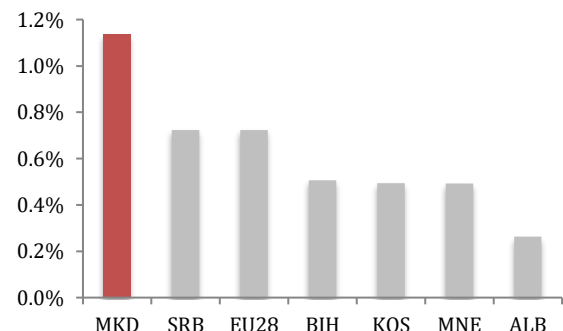


Source: World Development Indicators

The structure of spending raises questions on the overall effectiveness of public support and the need to facilitate structural adjustment for increased productivity. Over 2011-2016, market support and direct payments represented 80 percent of agriculture budget outlays. Around 60 percent of this support benefitted the crop sector and largely favored low value farm production, such as tobacco. Rural development accounted for 10.5 percent, food safety and veterinary services for 5.7 percent, while expenditure on extension services was low (0.9 percent).

**Farm support does not improve efficiency and productivity and has a very low impact on poverty reduction**

**Figure 3: Total Budgetary Transfers to Agriculture, % of GDP (2010-2015 average)**



Source: Ministry of Finance; AFSARD

**Technical efficiency<sup>1</sup> (TE) analysis has shown that overall, North Macedonia farms are characterized by significant technical inefficiency.** An average TE score of 0.45 (Table 1) indicates that the average farm can produce the same output using 55 percent less inputs. Further, the TE analysis shows that:

- Non-subsidized farms are characterized by their comparatively higher efficiency (TE<sup>b</sup>: 0.49) compared to subsidized ones (TE<sup>b</sup>: 0.44), especially in the livestock sector.
- Specialist crop farms are more efficient than specialist livestock and mixed farms, while efficiency is comparatively low for the heavily-subsidized tobacco producers.
- Farms which have invested in fixed assets have a much higher efficiency score, compared to the average.
- In terms of economic size, very small and very large farms seem to be doing comparatively better, compared to medium-sized farms. Within non-subsidized farms, small and specialist crop farms perform better. Within small farms, specialist crop farms are much more efficient than livestock ones, while the subsidization status does not seem to affect TE. In the case of specialist crops, smaller and non-subsidized farms outperform other categories. Again, very small and specialist crop farms have higher efficiency scores within farms which have invested on fixed assets. Within subsidized farms, again very small, very large and specialist crop farms have the highest efficiency scores.
- Finally, regions with comparatively more efficient farms (e.g. Vardar, Southeast, East) are generally characterized by a comparatively high share of agriculture in regional GDP, while the same holds on the contribution of regional agriculture to national agricultural GDP.

Causal analysis shows a negative impact of subsidies on TE (-0.056), which is slightly lower if farms specialize in crop production (-0.046). Farm investments positively affect TE (0.142), especially if engaged in livestock production.

Productivity analysis shows that the productive use of capital is low across various types of farms, regardless of subsidization status.

Farm subsidies have negligible effect on poverty reduction in the country. Estimation based on the regression analysis of direct payments and Social Financial Assistance over the 2013-2016 period shows that a 100% increase in market support and direct payments leads to a 0.5% reduction in poverty as proxied by Financial Support Assistance payments.

**Table 1: Technical Efficiency for Different Farm Groups/Categories**

Farm groups	Number of farms (%)	TE <sup>a</sup>	TE <sup>b</sup>
1 All farms	454	0.57	0.45
2 Total subsidies			
Receiving subsidies	328 (72%)	0.55	0.44
Receiving no subsidies	126 (28%)	0.62	0.49
3 Crop subsidies			
Receiving subsidies on crops	284 (63%)	0.55	0.44
Receiving no subsidies on crops	170 (37%)	0.60	0.47
4 Livestock subsidies			
Receiving subsidies on livestock	175 (39%)	0.49	0.38
Receiving no subsidies on livestock	279 (61%)	0.62	0.50
5 Type of agricultural holding			
Specialist Crops	268 (59%)	0.61	0.49
Specialist Livestock	123 (27%)	0.51	0.40
Mixed Crops – Livestock	63 (14%)	0.51	0.40
6 Farm size			
Small (less than €4000)	134 (30%)	0.62	0.50
Medium (between €4000 and €8000)	118 (26%)	0.52	0.42
Large (over €8000)	202 (44%)	0.57	0.44
Small (less than €8000)	252 (55%)	0.57	0.46
Medium (between €8000 and €25000)	149 (33%)	0.53	0.42
Large (over €25000)	53 (12%)	0.66	0.50
7 Net investment on fixed assets			
Non-negative	103 (23%)	0.71	0.55

<sup>1</sup> Technical efficiency analysis measures the ability of a firm/sector to produce the greatest amount of output possible from a fixed amount of inputs; or to produce a fixed amount of output from the lowest possible amount of inputs

## A reform of agricultural public support is necessary for improving productivity and strengthening sector competitiveness

**To improve efficiency and support structural transformation, the size of direct farm subsidies should be reduced to the EU28 average of 0.33 percent of GDP, while farm support should move from largely coupled and unconditional subsidies to decoupled and conditional ones.** The analysis shows that subsidies have a negative impact on technical efficiency of farms in North Macedonia, as they lead to distortions in the allocation of production factors and ultimately, to low-productive and inefficient farms. This is particularly evident for heavily supported sectors, such as tobacco and livestock. This finding and the fact that public support for agriculture in North Macedonia, as a share of GDP, is much higher than in other countries in the region and far above the EU-28 average, make the reduction in direct farm subsidies an important short-term priority. Further, to facilitate a stronger market orientation of production decisions and production factors allocation, medium term reforms should consider greater alignment with current CAP practices, which involve a convergence of area-based support and even the introduction of a flat rate of support per ha. Decoupled subsidies would allow farmers to respond to market demand rather than subsidy rates, thereby shifting land use and making production decisions towards higher-value production where North Macedonia displays a comparative advantage.

**Policy makers should distinguish between support and social assistance measures, which could improve the efficiency of the governments' fiscal resources use.** Farm subsidies in North Macedonia currently have a negligible effect on poverty reduction. Hence, a rethinking of the mix of poverty reduction measures for rural areas is recommended. A better-targeted social assistance policy measure could be a more effective way to deal with rural poverty, while agricultural support could focus on the development of the productive base of rural areas.

**Further, aligning structure of subsidies with the EU would enable the reallocation of scarce public resources to other priorities.** Within agriculture, these resources could be used for strengthening the institutional capacity for delivering important services, such as extension and knowledge transfer systems, and on sanitary and phytosanitary measures for improving the sector's competitiveness.

**Public support on programs promoting rural development should be increased.** This analysis shows that North Macedonia's farmers who invest in fixed agricultural assets have higher technical efficiency. The absorption of rural development programs in North Macedonia has increased significantly in recent years, indicating that additional funds could be spent with impact. Yet, the low average technical efficiency of North Macedonia's farms points to the need to pay more attention to the enabling environments and provision of public services such as irrigation investments, agricultural extension, knowledge sharing programs, business development, and productive partnerships. These programs require additional resources (and technical guidance), which could originate from reducing the current farm subsidy budget.

**In the medium term, finding the "missing middle" is critical for the transformation of the sector.** Small and large farms in North Macedonia are found to utilize their inputs more efficiently than mid-size production units, across types of crops and support schemes. On the one hand, this indicates that scale (of factors of production) should be carefully considered in a context of land consolidation, where factor markets are imperfect, and where scale can be achieved through upward aggregation of agricultural products, creation of producer associations and focus on high value crops. On the other hand, this raises concerns regarding the modernization potential of medium-size farms and points towards underlying structural difficulties (e.g. limited access to finance, technology, markets) that hinder the transformation and more comprehensive thinking and incentives are needed for improving the broader enabling environment in agriculture in North Macedonia. This could be a key turning point, considering North Macedonia's relatively young agricultural labor force.