Re-designing agricultural subsidies in sub-Saharan Africa

Extended abstract

Introduction

Agricultural subsidies have been an important driver for achieving food security and fostering technological change in many developed countries. However, the structure of subsidies has also been criticized for being unsocial, unhealthy, supporting environmental degradation, and negatively impacting climate change.[1-4] In the least developed countries, agricultural subsidies are usually low. To reduce hunger and support rural livelihoods, governments have committed to increasing agricultural spending but are struggling to do so. Funnelling public money to the agricultural sector has been an important engine for growth and employment where the poorest households in the poorest countries benefit most. In the Maputo declaration of 2003, countries of the African Union have committed to spend 10% of national spending on agriculture, but this has not been achieved in most countries. Here we analyse the impacts of this declaration and several other agricultural subsidy schemes in sub-Saharan Africa on human health, climate change, agricultural incomes, and export revenues.

Methods

We use a combined economic-health modeling framework. The economic effects are derived from the Computable General Equilibrium model MAGNET with agricultural detail.[5] The diet-related health effects are computed with a comparative health risk model.[6] The risk-assessment model used here included eight diet and weight-related risk factors and five disease endpoints like cancer, CHD and T2DM. We adopted relative risk estimates that relate changes in risk factors to changes in disease mortality from meta-analyses of prospective cohort studies to minimise bias from individual studies. The economic model builds on general equilibrium theory and includes industrial and service sectors besides agriculture. A more detailed description of the methods can be found in Springmann & Freund (2022).

We updated the database to include producer support data in sub-Saharan Africa (SSA) and the most recent information on producer support estimates as provided by the OECD-PSE database.[7] We consider several reform options. Those include the removal of current subsidies and increasing them in accordance with the Maputo declaration in which governments committed to increasing spending for agriculture. In the latter, we assume the 10% ceiling for national spending on agriculture is achieved, which, as a consequence, would imply producer support of approximately 6 Billion USD. Within this scenario, we consider two approaches: (i) subsidies are paid unconditionally, and (ii) subsidies are targeted to grow food with beneficial health and environmental characteristics such as fruits, vegetables, and nuts.

Results

According to the data, 680 Million USD have been declared as payments to producers in SSA, of which the majority (88%) is distributed to support input purchases such as fertilizers, while 4% is given as direct farm income, 3% as coupled support, and the remainder is declared as other payments to producers.[8] This is a small number compared to OECD and some major non-OECD countries that regularly spend more than 200 Billion USD on producer support, excluding border protection such as import tariffs. However, of these 200 Billion USD only 1.5 Billion USD have been clearly dedicated to delivering public goods.[9] The rest is mainly given unconditionally and likely supports production structures that are unhealthy and unsustainable.

In our model simulations, the scenarios of agricultural subsidy reform in SSA differ in their agricultural, economic, and health impacts (Table 1, Figures 1-2). Removing agricultural subsidies in SSA (RMV_SSA) shows modest results, with production, consumption, and economic indicators decreasing slightly and little change in health. More pronounced effects could be observed when OECD and major non-OECD countries abolish their agricultural

support payments (RMV_ALL). By reducing the availability of subsidized food on the world markets prices generally increase. This reduces domestic consumption and increases the production of agricultural products in SSA. In turn, calories consumed decrease, whilst health, farm income, and export revenues increase. The two variants of the Maputo scenarios lead to more production and consumption, as well as increases in farm income and export revenues. While the variants with targeted subsidies (MVF_SSA) delivers better health outcomes, unconditional subsidies (MPU_SSA) deliver better outcomes on economic indicators. The relatively smaller gains in income when subsidies target horticultural production result from resources that are drawn away from high-value other crops like cocoa or coffee.

Conclusion

Our simulations suggest several points of conclusion. First, although the current producer support has some economic benefits for farms, the consequences are rather small. Second, when other countries remove their subsidies, the consequences would be larger compared to the current subsidy payments: production increases due to higher world market prices and imports into SSA decrease accordingly, while the diet-related health effects are rather small. Third, increasing agricultural spending to approx. 6 Billion USD leads to much larger income gains but also to negative health outcomes. Fourth, targeting the 6 Billion USD to healthy and relatively sustainable horticultural products could reduce deaths the most while still creating considerable income gains.

References

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Display items

Table 1: Production changes by scenario, in thousand metric tonnes

	RMV_SSA	RMV_ALL	MPU_SSA	MVF_SSA
Wheat	-26.1	169.0	204.0	-117.0
Other Grain	-48.2	-32.6	451.1	-253.8
Horticulture	-327.3	157.6	2865.8	12591.3
Oilseeds	-65.1	186.2	322.2	-147.5
Sugar	-103.3	-59.2	459.2	-388.7
Other crops	-63.5	356.3	349.0	-187.0
Cattle	-3.0	4.3	33.6	-20.8
Pigs & Poultry	-5.0	7.3	32.0	-30.0
Milk	-3.1	8.2	143.6	-132.4
Pant fibers	-8.5	26.5	39.7	-24.8
Wool	-0.6	-0.5	0.6	-0.7
Total	-653.6	823.2	4900.8	11288.5

Figure 1: Changes in economic indicators by scenario, in million USD

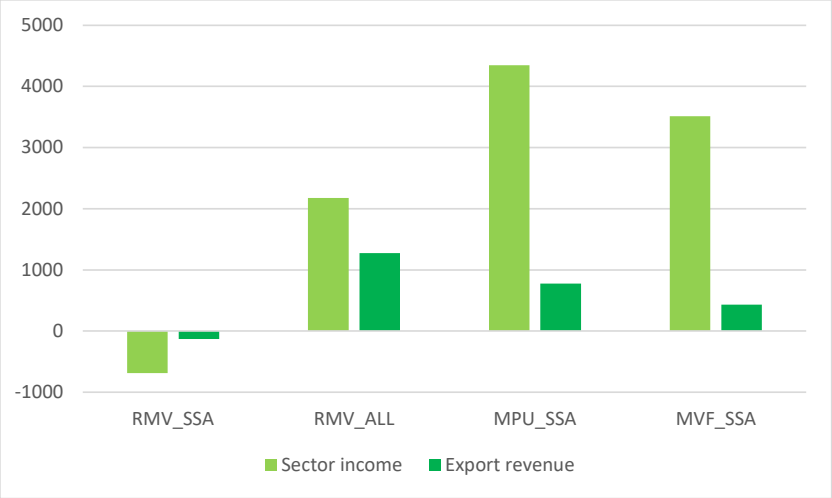

Figure 2: Numbers of avoidable deaths by scenario and risk factor