

Chapter 10.C

Incorporating the Agricultural Domestic Support Data into GTAP 8 Data Base

Badri Narayanan G.

This chapter documents some procedures that were followed to incorporate the new agricultural domestic support data from the OECD (described in Chapters 10.A and 10.B) into GTAP 8 Data Base.

In the GTAP Data Base releases prior to this version, we had been using activity-specific domestic support payment data to calculate the powers of support for each sector. However, largely as a consequence of efforts to decouple agricultural support from production of particular commodities over the past decade, these domestic support instruments increasingly provide support to farmers regardless of the commodity produced.

This suggests that the subsidy rates for decoupled payments should be equalized across commodities, in the absence of the kind of data explained in Chapter 10.A. We carry out this exercise for EU member countries in GTAP 8 Data Base. We calculate the total category-wise domestic support after summing up across all the crop sectors (pdr, wht, gro, v_f, osd, c_b, pfb, ocr). From these figures, we arrive at category-wise domestic support rates for each factor and then distribute the payments across the crop sectors based on their value-added shares. Thus, we ensure that the domestic support rates are common across these crop sectors, while the total domestic support is calculated from the OECD data described in Chapters 10.A and 10.B.

As explained in Chapter 10.A, the new OECD domestic support data has the following categories on domestic support:

1. Activity-specific payments (Single Commodity Transfers or SCT): All payments were included in this form in all the previous versions.
2. Group-specific payments (Group Commodity Transfers or GCT): These are given for a group containing a few GTAP agricultural sectors.
3. Activity-generic payments (All Commodity Transfers or ACT): These are applicable to all of the GTAP agricultural sectors.
4. Other Transfer Payments (OTP): These are both activity-generic and factor-generic payments.

In incorporating the new format of agricultural domestic support data into GTAP 8 Data Base, we first split the OECD's agricultural sectors to GTAP sectoral level, using contributed I-O table shares. In all cases, this entails splitting an OECD sector named "Other Crops" into v_f, pfb and ocr. Secondly, we split the payment category named "Other Transfers" across the primary factors (land, labor and capital), by preserving same power for each of them, based on the factor's share in the value added. This is then added to activity-generic payments.

Group-wise payments are not meant for total production in each group. Therefore, we scale down the production in each sector in each group to match the group's value of production using the shares in the original production data as given in activity-specific payments table. Then, we impose the group- average rates of support to each activity in the group and calculate the activity-specific transfers. While calculating these powers of support, we use the appropriate base: for example, rate of support for land payments is the ratio of land payments to total land used by the group of sectors. We translate activity-generic payments for all inputs (and output if applicable) into activity-specific ones, by imposing the same power of support for these inputs across all activities. Finally, we add up all the activity-wise payments derived from the steps above to get the final set of activity-specific transfer payments and powers of support.

The final set of powers of agricultural domestic support and shares of payments towards different factors, inputs and output can be seen in the HAR files available from these links: [2004](#) and [2007](#), for all the regions for which used the domestic support data explained in chapters 10.A and 10.B, including the EU member countries. These are, however, slightly different from what appears in GTAP Data Base finally, because of the adjustments needed to fit the IO tables to various other international datasets.

In addition to the changes outlined here, users might also consider incorporating the recommendations of literature to account for partial capitalization of land-based payments, by allocating a part of these to other factors. We have not made this change in GTAP 8 Data Base, because this has been deemed to be a question of economic behavior, as opposed to a data base issue. As such, it belongs in the domain of modeling.