Australian Government
Productivity Commission

Modelling Economy-wide Effects of Future Automotive Assistance

Diminishing Returns to Tariff Reductions

Technical Supplement

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This technical note further explains some of the results in the Commission's recent report *Modelling economy-wide effects of future automotive assistance*. It explains why the modelling results show larger gains from successive reductions in tariffs, and yet are consistent with the notion of diminishing returns from tariff reductions.

Successive equal percentage point reductions in tariffs for a particular good or class of goods can be shown to produce successively smaller benefits (as measured in terms of efficiency or welfare). The reason why this effect is not immediately apparent in the Commission's simulations is that, reflecting the Commission's use of up-to-date, disaggregated industry data in its modelling, the two successive tariff reductions modelled are not equal and, moreover, apply to different baskets of commodities.

The possibility of a misunderstanding might arise because reducing 'headline' or Most Favoured Nation tariffs on automotive imports from 10 to 5 per cent is projected in the Commission's modelling to produce smaller economy-wide benefits than reducing tariffs further from 5 per cent to zero. This is illustrated in table 1 below, which presents results based on scenarios R1 and O7. In scenario R1, headline automotive tariffs are reduced from 10 to 5 per cent. In scenario O7, they are reduced from 10 per cent to zero. (Both scenarios include the same change in ACIS.) The initial tariff reduction (scenario R1) produces benefits in the order of 0.06 per cent of GDP. The subsequent reduction from 5 per cent to zero (last column in table 1) projects larger benefits. There are two reasons for this result:

1. In the Commission's modelling, the commodity group subject to the 5 per cent to zero headline tariff reduction is about 50 per cent larger than the commodity group subject to the 10 to 5 per cent reduction (table 1, part (C)). This is because many automotive products (such as 4WDs) currently attract tariffs of 5 per cent and are not affected by the first round of reductions.
2. While the reductions in *headline* tariffs are the same (5 percentage points) for each 'shock', the *weighted average* tariff reduction is smaller for the first than the second because not all products affected by the first round of cuts attract a 10 per cent tariff (mainly due to concessional or preferential arrangements).

The combination of these two effects means that cutting headline automotive tariffs from 5 per cent to zero imposes a larger effective tariff reduction applied to a larger commodity sector than cutting the headline tariff from 10 per cent to 5 per cent. While the model used by the Commission (which was solved in multiple steps) captures diminishing returns to equivalent tariff reductions, this effect is dominated by the complexity of the actual tariff structure applying to the sector.

Table 1 **Comparing changes in tariffs**

Based on scenarios R1 and O7

Change in headline tariff rate		***10 to 5*[a]**	***5 to 0*[b]**
(A) Economy-wide results			
Real GDP	% change	0.06	0.12
Real adjusted GNE	% change	0.06	0.10
(B) Trade-weighted average tariff rates			
Cars	% point change	-3.15	-4.98
Components	% point change	-3.40	-4.55
(C) Value of automotive imports affected by the tariff reduction	$ million	12 134	18 390

a results for scenario R1. **b** calculated as the difference between scenario O7 and scenario R1.

Source: Commission estimates based on MMRF simulations