

MONASH Modelling of Post 2005 Assistance Options for PMVs

Conference Paper

*Productivity Commission Modelling
Workshop on Post 2005 Assistance
Options for the Automotive
Manufacturing Sector
Canberra, 27 May 2002*

*Philippa Dee
Kevin Hanslow
Terry Maidment*

**The views expressed in
this paper are those of
the staff involved and do
not necessarily reflect
those of the Productivity
Commission.**

MONASH modelling of post 2005 assistance options for PMVs

This paper uses the MONASH model to examine the short and long term effects of the following indicative post 2005 assistance options for the passenger motor vehicle industry:

- tariffs on PMVs and components remaining at 10 percent, a continuation of the ACIS scheme funded at the level prevailing in 2005, and no change to general tariffs — the status quo in terms of delivered assistance;
- tariffs on PMVs and components remaining at 10 per cent, ACIS funding discontinued in 2006 after the current arrangements expire, and no change to general tariffs — the policy status quo;
- phased reductions in tariffs on PMVs and components to 5 per cent in 2010 and thereafter, proportionate reductions in funding through an ACIS-type scheme, and no change to general tariffs;
- phased elimination of tariffs on PMVs and components by 2015, proportionate reductions in funding through an ACIS-type scheme, and phased elimination of general tariffs by 2015;
- phased elimination of tariffs on PMVs and components by 2010, proportionate reductions in funding through an ACIS-type scheme, and phased elimination of general tariffs by 2010;
- phased elimination of tariffs on PMVs and components by 2010, ACIS funding discontinued in 2006 after the current arrangements expire, and phased elimination of general tariffs by 2010.

The options encompass changes to tariffs on imported new PMVs and components, and to ACIS funding, but do not include changes to the other elements of government policy affecting the PMV industry — the tariff on second hand vehicles, government procurement policies, or other generally available measures such as TRADEX and the 125 per cent tax concession on R&D. Nor do the options consider the specifics of ACIS design. They do incorporate an assumption that assistance to the PMV industry would not be reduced below that to other industries.

The MONASH model projects the effects of these future policy changes year-by-year, relative to a future ‘business as usual’ basecase. The basecase has been projected forward from a 1996-97 starting point, drawn from the latest ABS input-output tables.¹ It incorporates the standard forward projections used by the Centre of Policy Studies for forecasting purposes, except that PMV exports are allowed to respond to their own price, rather than to the average price of all ‘non-traditional’ exports.² This implies annual basecase growth in PMV output of 2.9 per cent a year, falling between the 1.0 per cent and 3.6 per cent growth rates used by the Centre of Policy Studies in its modelling of the automotive industry’s contribution to the Australian economy (Allen Consulting 2002). PMV employment declines in the basecase by 2.8 per cent a year, worse than recent experience in the industry.

The basecase also incorporates the specific introduction of the GST in 2000³ and the planned reduction in tariffs on PMVs from 15 to 10 per cent in 2005 (and other planned tariff changes to 2005, primarily affecting TCF industries).

Thus the proposed post 2005 options are imposed on a basecase that in 2005 accurately reflects the tariff assistance and general taxes prevailing at the time. This is important for accurately measuring the economic gains from subsequent changes in assistance.

After 2005, the basecase incorporates the status quo in terms of delivered assistance — the first of the policy options above. When results are presented as deviations from the basecase, they are measured relative to this policy stance.

Care must be taken in interpreting results expressed as deviations from this basecase. Even if they show that some result falls below its business-as-usual value at some point in the future, this need not mean it falls below its current, or even its 2005 value, in absolute terms. To emphasise this point, absolute time paths, relative to 2005, are also shown for some economic outcomes.

¹ In the process, the ABS corrected the incidence of tariffs across different domestic users in the 1996-97 input-output tables. Average tariff levels faced by each industry were also adjusted so that they accorded with detailed information built up by the Productivity Commission from the tariff line item level.

² This alternative treatment of PMV exports differs from that presented at the Commission’s modelling workshop on 27 May 2002, and is also carried into the MONASH modelling of the policy scenarios presented later.

³ The wholesale sales tax was replaced by the GST using data on tax rates provided by Econtech.

MONASH framework

MONASH is an economy-wide model that traces through the impacts of assistance changes on the immediately affected industry, on downstream using industries and on consumers. For each industry, it projects the effects on such things as prices and costs, output and employment, as well as the mix of domestic and export sales. The projected effects on macroeconomic aggregates are obtained by adding up these industry impacts in a consistent fashion.

While the version used for this analysis has considerable industry detail,⁴ it has just one industry that represents all of PMV assembly activity and the bulk of component activity, as well as a portion of activity not under reference (see box A1 in the attachment). The remainder of relevant component activity forms a portion of other model industries. The single Motor Vehicle and Parts industry was not disaggregated for this exercise. But the ‘first round’ changes in average import prices associated with each of the post 2005 assistance options were calculated from detailed tariff line item data, taking into account which individual line items were affected by which policy changes, and which model industries they mapped into (table A1 in the attachment).

It was not possible to establish the distribution of ACIS funding among the full range of model industries in which PMV assembly and component activity is represented. Instead, information from the Department of Industry, Science and Tourism on the total production values of those receiving ACIS credits, and the values of those credits, was used to represent ACIS as a production subsidy in the under-reference portion of the single Motor Vehicles and Parts industry (which implied a subsidy rate in 2005 of about 2.9 per cent for the industry as a whole). Thus the model accurately captures the quantum of ACIS funding available, but not its exact distribution, nor the fact that some is tied to investment or R&D rather than production.

The starting ACIS subsidy rate in 2005 is a little higher than in the MONASH modelling presented at the modelling workshop. The current treatment recognises that only that portion of ACIS funding tied to production will step down with the tariff at the beginning of 2005, while in the workshop modelling, all ACIS funding had been stepped down in 2005.

Other key features of the MONASH model relevant for this exercise are:

⁴ The model database is a 107 commodity version based on the 1996-97 ABS input-output tables, provided by the Centre of Policy Studies.

-
- price-responsive substitution between domestic and imported sources for each commodity;
 - price-responsive foreign demands for Australian exports;
 - investment and capital accumulation responsive to changes in industry rates of return;
 - a facility for imputing labour adjustment costs to each of the estimated gross labour market movements induced by any policy change; and
 - a ‘tops-down’ regional facility, which can trace the effects of nationwide changes (such as changes in assistance to the PMV industry) down to 57 distinct regional areas, called statistical divisions, based on the industry mix of activity in each statistical division.

Two further features are critical to these results.

First, in each policy scenario, it is assumed that aggregate employment is the same as in the basecase throughout the entire period under review. All labour market pressures are assumed to be absorbed by changes in the economy-wide real wage, rather than changes in aggregate employment. This view abstracts from cyclical factors and sees aggregate employment as being determined primarily by labour market, social or training policies that would affect the prevailing ‘non-accelerating inflation rate of unemployment’ (NAIRU). The current treatment differs from the standard MONASH treatment, in which aggregate employment can rise in the short term in response to tariff cuts.

Second, in each policy scenario, the government revenue lost from cuts to tariffs (net of that gained from cuts to budgetary assistance) is made up partially, but not fully, by increases in other taxes. Normally, changes in assistance would affect two distinct dimensions of economic gain:

- aggregate real household consumption; and
- the aggregate real wealth of Australians.

With two distinct dimensions being affected, there is no single measure of economic gain. So it is assumed here that the government budget moves gradually into deficit over time (relative to the basecase) so that by a particular year — chosen somewhat arbitrarily to be 2016 — the real wealth of Australians is the same as in the basecase. The reason the budget can move into deficit is that lowering PMV tariffs would lower the cost of investment goods, so that the national savings rate could fall slightly while still maintaining real wealth constant.

One implication is that in 2016 (and in this year only), changes in real household consumption can be taken as a single unambiguous indicator of overall economic gain.⁵

Long term effects

The post 2005 assistance arrangements involve a mix of changes to tariffs and to budgetary assistance. Each element would have slightly different flow-on effects to the rest of the economy.

Lowering tariffs would reduce the price of imported PMVs and components. This would have immediate benefits to consumers and to the cost structures of downstream using industries. It would particularly benefit those industries that were also trade exposed (whether exporters or those competing against imports), since the demands for their products tend to be the most sensitive to cost changes.

Lower import prices would also encourage a switch away from domestic production towards imports, putting pressure on the profits and output of local PMV assemblers and component makers. To some extent, assemblers and component makers could insulate themselves by switching their input mix towards those things (such as capital or imported components) that were relatively cheaper. This mechanism is captured in the model. They could also insulate themselves, as they have in the past, by finding product and process innovations to generate productivity improvements and additional cost reductions. This mechanism is not captured in the model.⁶

Reducing budgetary assistance would create the same pressures for PMV assemblers and component producers to find offsetting savings in real resource costs, but would not bring the immediate extra benefit of reducing import prices. Thus it is expected that reducing budgetary assistance would be less beneficial in the model than reducing tariffs by an equivalent amount, all other things being equal.

This is confirmed when considering the main sources of increase in real household consumption.

⁵ This way of measuring economic gain is the same as in the PC's (2000) review of Australia's general tariff arrangements. As in that exercise, the tax on labour income is chosen as the offsetting budgetary instrument.

⁶ Nor does the modelling allow for the possibility that rationalisation of PMV activity could raise throughput for individual firms, thereby generating productivity improvements through greater economies of scale.

-
- *Allocative efficiency effects.* Tariffs have a direct distorting effect on the domestic-import sourcing of consumers and downstream using industries, so reducing them would be expected to provide greater improvements in allocative efficiency.
 - *Effects on the size of the economy's resource base.* Aggregate employment is fixed (by assumption) and Australia's capital stock can increase only if it is financed by foreigners (by the assumption that the real wealth of Australians is constant). But Australia can still gain from a greater capital stock because of domestic taxes on repatriated profits. Tariff reductions would cause a greater fall in the replacement cost of capital in Australia, encouraging greater capital accumulation in the model and a greater benefit on this score.
 - *Terms of trade effects.* In the MONASH model, Australian firms can only sell greater volumes on world markets if they are prepared to accept a lower price for them, all other things being equal. To the extent that policy changes raise the share of resources devoted to exporting and thereby reduce export prices, Australians are worse off on this score — they face a reduction in the prices of things they produce (exports) relative to the things that they use (imports). Tariff reductions are likely to generate greater initial cost reductions, and are therefore likely to encourage greater exports in the model. But this is at the cost of greater declines in Australia's terms of trade.

Therefore, tariff reductions are likely to generate greater economy-wide gains in the model than equivalent reductions in budgetary assistance on two counts — allocative efficiency effects, and effects on the resource base of the economy. But they are also likely to generate greater terms of trade losses. The net outcome will depend on the strength of these opposing effects.

These terms of trade effects have often been criticised as being inconsistent with the idea that Australia is a small country by world standards, unable to influence world prices. But it is consistent with the notion that Australian firms sell differentiated products into niche markets — greater sales may require a lower price of the Australian product, even if all other overseas prices are unaffected.

The size of the terms of trade effects in the MONASH model is determined by the size of the export demand elasticities, which govern the extent to which greater export volumes must come at the expense of price declines — the greater the elasticities, the smaller the price declines.

The central results in this paper assume a value of 10 for all export demand elasticities. This value is greater than the standard values in the MONASH model, and closer to the values adopted by Econtech in the MM 600+ model. The Productivity Commission has argued in the past that the standard MONASH values

are too low (eg PC 2000). While low values might be appropriate for short run forecasting purposes, they are likely to overstate to some considerable degree the extent to which Australian firms can differentiate their products from those of foreign competitors in the longer term. There are two general pieces of evidence to support this.

- In models that treat economies of scale and product differentiation directly, there is a direct link *in equilibrium* between the extent of economies of scale and the extent of product differentiation. Admittedly rather old engineering studies of the extent economies of scale across industries suggest scale effects are not pronounced, implying that product differentiation cannot be strong (eg Francois, McDonald and Nordstrom 1995).
- Multicountry models typically cannot reproduce historical changes in trade patterns across countries unless they assume substantially higher export demand elasticities than the standard MONASH values (eg Gehlhar 1997, Hillberry et al. 2001).

Table 1 shows the effects of the last five policy options, relative to a basecase that incorporates the first. The results are presented as deviations from basecase values in 2016, the year in which changes in real household consumption can be taken as an unambiguous measure of economic gain.

The first column shows the effects of eliminating ACIS funding, while the second shows the effects of halving both ACIS funding and the PMV tariff. Participants have argued that the two have about equal effect currently. But with total ACIS funding in 2005 stepping down less than proportionately with the tariff, the remaining ACIS funding becomes a more important component of the overall assistance package. And eliminating ACIS funding after 2005 would be expected to have a greater impact on PMV output and employment than halving both ACIS funding and the PMV tariff. This is borne out, with the effects on the PMV industry in the first column — output about 11 per cent lower than otherwise and employment about 8 per cent lower than otherwise — being somewhat greater than in the second column.

The last three columns show the effects of eliminating both ACIS funding and the PMV tariff (as well as general tariffs) over different time frames. In general terms, this would be expected to have twice the effect on the PMV industry as halving PMV assistance (second column). Again, this is borne out. The effects of slow reductions are generally not as great, in 2016, as the effects of faster reductions, because less of the full effect has flowed through by then. But output is projected to be between 12 and 18 per cent lower than otherwise, employment about 15 or 16 per cent lower than otherwise, and imports between 6 and 8 per cent higher than otherwise.

Table 1 Projected macroeconomic effects of post 2005 assistance options — export demand elasticities of 10

percentage deviation from basecase forecast in 2016

<i>Scenarios</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>PMV tariffs:</i>	<i>No change</i>	<i>5% by 2010</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
<i>ACIS funding:</i>	<i>Zero in 2006</i>	<i>Half by 2010</i>	<i>Zero by 2015</i>	<i>Zero by 2010</i>	<i>Zero in 2006</i>
<i>General tariffs:</i>	<i>No change</i>	<i>No change</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
National aggregates					
Real h'hold consumption	-0.03	0.00	0.01	0.00	0.00
Real investment	-0.18	0.05	0.59	0.63	0.62
Export volumes	0.24	0.26	0.92	1.00	1.02
Import volumes	0.14	0.34	1.57	1.69	1.72
Real GDP	-0.02	0.00	0.02	0.02	0.01
Real wage	-0.20	0.10	0.96	0.96	0.94
Capital stock	-0.06	0.02	0.14	0.17	0.16
Terms of trade	-0.02	-0.03	-0.08	-0.09	-0.09
Real depreciation	0.02	0.08	0.28	0.24	0.24
PMV industry					
Output	-10.80	-7.59	-12.36	-16.34	-17.92
Employment	-8.44	-7.00	-15.46	-15.68	-15.95
Domestic sales – domestic production	-9.30	-7.29	-12.95	-16.24	-17.58
Domestic sales – total	-1.71	-0.71	-0.46	-0.97	-1.21
Exports	-29.61	-11.38	-4.92	-17.49	-22.24
Imports	2.17	2.68	6.21	7.19	7.55
Domestic supply price	3.89	1.40	0.81	2.33	2.97
Import price (incl duty)	0.01	-2.02	-5.87	-5.97	-5.98

Source: MONASH model projections.

These projected effects on PMV output and employment are more adverse than those presented in the Commission's modelling workshop, for two reasons. First, as noted, the quantum of ACIS funding to be eliminated after 2005 is greater than before. Second, with PMV exports responding to changes in the domestic PMV supply price (adjusted for the exchange rate), rather than to changes in an average price of all non-traditional exports, the projections for PMV exports are more adverse than in the modelling workshop. This has flow-on effects to total output and employment.

There is more differentiation among the scenarios when it comes to effects on national aggregates, although in all cases, the effects are very small.

The negligible effect on real household consumption reflects the fact that:

-
- the allocative efficiency gains from reductions in tariffs or budgetary assistance depend on the total height of the initial tariff or subsidy; while
 - the terms of trade effects depend on the size of the tariff or subsidy *reduction*.

In the past, when tariffs were higher to start with, the efficiency gains from a given reduction in assistance would have been greater than projected here, but the terms of trade losses would have been about the same magnitude.

One difference between cuts to tariff and budgetary assistance flows from the effects on PMV prices in the model. Cuts in budgetary assistance put upward pressure on the prices of locally produced vehicles and components.⁷ Tariff cuts reduce the cost of imports, and also put additional discipline on prices of local production. Thus scenarios involving tariff cuts are projected to spur investment, expanding the resource base of the economy.

When combined with the greater improvement in allocative efficiency, and similar effects on terms of trade, the model projects that a policy of halving PMV tariffs and budgetary assistance is superior to a policy of eliminating budgetary assistance. The ACIS-only policy is projected to cause a slight reduction in overall activity (real GDP) and real household consumption, while the mixed policy has negligible effects on both.

When the cuts to PMV assistance are greater, and when they are combined with cuts to general tariffs, both the allocative efficiency gains and effects on the resource base are bigger, but so too are the terms of trade declines. The projected net effect on overall economic activity (real GDP) is positive and bigger than before. There is also an increase in real household consumption, but smaller than this increase in activity.

Sensitivity analysis

As noted, the balance between gains to efficiency and the resource base of the economy on the one hand, and terms of trade losses on the other, depends on the assumed elasticities of export demand. Table 2 shows the projected long term effects of the same policy scenarios using uniform export demand elasticities of 4, the value used for all non-traditional exports (including PMVs) in the standard

⁷ In the first column, the price increase in 2016 actually exceeds the initial subsidy equivalent of ACIS funding because of the cyclical flow-on effects of the myopic investment behaviour assumed in the MONASH model. By 2016, the industry is undergoing a cycle of recovery in rates of returns, following an initial reduction and resulting contraction in investment.

MONASH model. Table 3 shows results using export demand elasticities of 20, which are closer to the preferred values now used in the GTAP model.

A comparison of tables 1, 2 and 3 confirms that the effects on real household consumption are sensitive to the values of the export demand elasticities. With the low elasticities, all policy options are projected to reduce real household consumption by a small amount, although those involving tariff cuts still induce an increase in economic activity. But low elasticities are likely to overstate the extent to which Australian firms can differentiate their products on world markets. With high elasticities, all scenarios involving tariff cuts generate improvements in real household consumption.

Table 2 Projected macroeconomic effects of post 2005 assistance options — export demand elasticities of 4
percentage deviation from basecase forecast in 2016

<i>Scenarios</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>PMV tariffs:</i>	<i>No change</i>	<i>5% by 2010</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
<i>ACIS funding:</i>	<i>Zero in 2006</i>	<i>Half by 2010</i>	<i>Zero by 2015</i>	<i>Zero by 2010</i>	<i>Zero in 2006</i>
<i>General tariffs:</i>	<i>No change</i>	<i>No change</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
National aggregates					
Real h'hold consumption	-0.05	-0.02	-0.04	-0.06	-0.07
Real investment	-0.19	0.03	0.54	0.57	0.56
Export volumes	0.32	0.31	1.00	1.13	1.17
Import volumes	0.17	0.34	1.49	1.64	1.67
Real GDP	-0.02	0.00	0.02	0.01	0.00
Real wage	-0.24	0.07	0.89	0.87	0.85
Capital stock	-0.06	0.02	0.13	0.16	0.14
Terms of trade	-0.08	-0.08	-0.25	-0.28	-0.29
Real depreciation	0.10	0.14	0.48	0.47	0.48
PMV industry					
Output	-9.31	-7.22	-12.09	-15.83	-17.01
Employment	-7.09	-6.42	-15.06	-14.71	-14.76
Domestic sales – domestic production	-9.03	-7.40	-12.91	-16.48	-17.61
Domestic sales – total	-1.54	-0.69	-0.49	-1.00	-1.18
Exports	-12.78	-4.90	-1.77	-7.67	-9.47
Imports	2.44	2.83	6.17	7.38	7.73
Domestic supply price	3.88	1.52	0.94	2.64	3.18
Import price (incl duty)	0.08	-1.96	-5.71	-5.79	-5.79

Source: MONASH model projections.

A comparison of the tables also shows how remarkably *insensitive* most of the other results are to variations in the export demand elasticities. In particular, the projections for output and employment in the PMV industry typically vary by less than three percentage points across the full range of elasticities. This variation is greater than in the results presented at the modelling workshop, primarily because of the different treatment of PMV exports, but is still small, especially for the scenarios involving the elimination of both tariffs and ACIS funding.

This finding means that the projected short term adjustment pressures associated with the above policy scenarios can be examined without reference to any particular set of export demand elasticities. The short term effects in the next section assume the central values of 10.

Table 3 Projected macroeconomic effects of post 2005 assistance options — export demand elasticities of 20
percentage deviation from basecase forecast in 2016

<i>Scenarios</i>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<i>PMV tariffs:</i>	<i>No change</i>	<i>5% by 2010</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
<i>ACIS funding:</i>	<i>Zero in 2006</i>	<i>Half by 2010</i>	<i>Zero by 2015</i>	<i>Zero by 2010</i>	<i>Zero in 2006</i>
<i>General tariffs:</i>	<i>No change</i>	<i>No change</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
National aggregates					
Real h'hold consumption	-0.03	0.00	0.02	0.02	0.02
Real investment	-0.20	0.05	0.60	0.64	0.62
Export volumes	0.18	0.22	0.89	0.93	0.95
Import volumes	0.08	0.31	1.58	1.67	1.69
Real GDP	-0.03	0.00	0.02	0.02	0.01
Real wage	-0.19	0.12	0.99	1.00	0.97
Capital stock	-0.06	0.02	0.14	0.18	0.16
Terms of trade	0.00	-0.01	-0.04	-0.04	-0.04
Real depreciation	0.00	0.06	0.22	0.18	0.18
PMV industry					
Output	-12.61	-8.04	-12.57	-16.78	-18.96
Employment	-10.12	-7.71	-15.83	-16.69	-17.28
Domestic sales – domestic production	-9.55	-7.10	-12.86	-15.81	-17.41
Domestic sales – total	-1.94	-0.76	-0.46	-0.99	-1.31
Exports	-51.07	-19.89	-8.93	-29.07	-38.47
Imports	1.76	2.43	6.12	6.81	7.14
Domestic supply price	3.91	1.27	0.71	2.03	2.78
Import price (incl duty)	-0.01	-2.03	-5.91	-6.02	-6.04

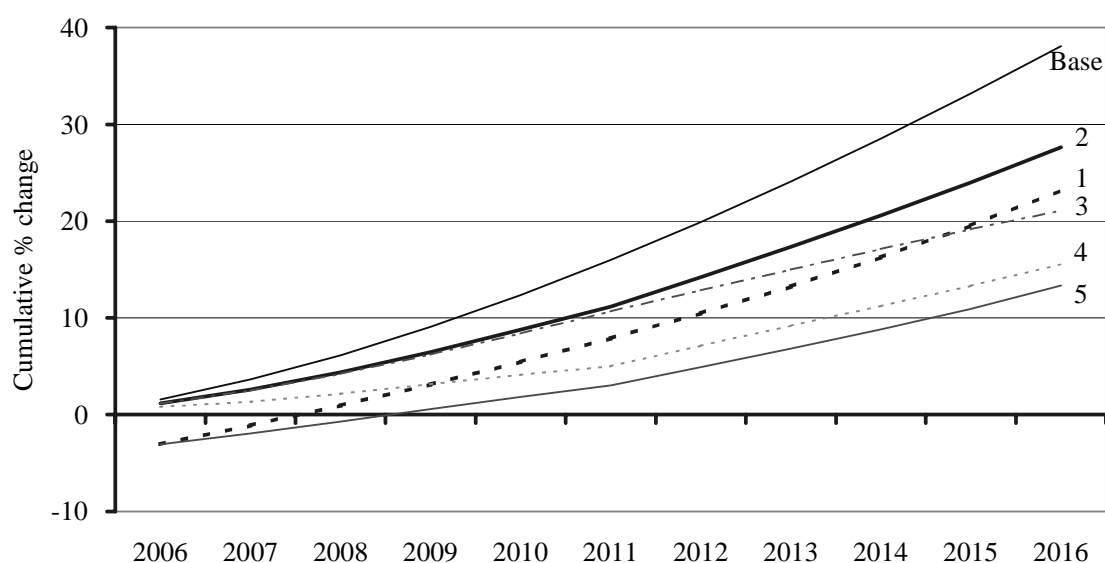
Source: MONASH model projections.

Short term effects

In the above results, the worst adjustment pressures on the PMV industry are projected to occur, not surprisingly, with total elimination of the remaining tariff and budgetary assistance. By 2016, output of the MONASH model's Motor Vehicle and Parts industry could be up to about 18 per cent lower than it would under a continuation of current delivered assistance, depending on the timing of the assistance cuts. As noted, the MONASH industry includes some activities not under reference, so the adjustment pressures on just the activities under reference would be greater.

But having output lower than under business-as-usual does not imply an absolute contraction in the industry. Figure 1 shows the absolute time paths of industry output under the five different policy options, as well as the path under the business-as-usual base case.

Figure 1 **Projected changes in PMV output over time under post 2005 assistance options^a**
basecase and five alternative policy scenarios



^a Policy scenarios numbered the same as in table 1.

Data source: MONASH model projections.

Under the base case, PMV output would be 38 per cent higher than its 2005 value by 2016, an annual compound growth rate of 2.9 per cent. Even under the most severe alternative policy scenario, PMV output is still projected to be 13 per cent higher in 2016 than in 2005, an annual compound growth rate of 1.1 per cent.⁸ The same policy option is projected to reduce PMV employment by 4.4 per cent a year, rather than the 2.8 per cent a year in the basecase. Either outcome looks excessive against the reality check of recent experience.

Thus all of the post 2005 assistance options in this paper are projected to reduce the rate of growth of PMV output over time, rather than to cause an absolute contraction. They are projected to reinforce the contraction in PMV employment over time. The labour market adjustment costs associated with these options are examined shortly.

The above conclusion could be sensitive to the growth rate of PMV output incorporated in the base case. As noted, the above base case is the current standard used by the Centre of Policy Studies for forecasting purposes (albeit with a different treatment of PMV exports). Its growth rate of PMV output, at 2.9 per cent a year, is:

- higher than the basecase rate of 1 per cent used by the Centre of Policy Studies in its modelling of the Automotive industry's contribution to the Australian economy (Allen Consulting 2002); but
- lower than that report's maximum rate of 3.6 per cent, achievable through productivity and other improvements that were judged to be in line with current industry trends.

Starting from a more conservative basecase for PMV output growth of 1 per cent a year, the rapid removal of PMV assistance and general tariffs could instead cause an cumulative absolute decline in PMV output of 8.1 per cent below its 2005 value by 2016, equivalent to an absolute annual contraction of about 0.8 per cent a year, and would further reduce PMV employment.

Labour market adjustment costs

The labour adjustments arising from lower assistance need to be assessed against the general level of structural adjustment already taking place in the economy.

⁸ With output in 2016 taking an index value of 138 in the base case, and a value of 113 under scenario 5, the percentage reduction in output in 2016 as a result of scenario 5 is 18 per cent, the same as reported in table 1.

-
- There may be some additional labour market adjustment costs associated with reducing assistance — such as job search, retraining of displaced workers and interstate migration.
 - Tariff-induced changes could also reduce total labour market adjustment costs, by ameliorating the effects of ongoing structural adjustments elsewhere.

To the extent that the net effects of these costs and benefits are not taken into account within MONASH, the gains from reducing assistance would be over (or under)-stated.

This section uses a labour input loss index (LILI) to provide information about the likely impact of post 2005 assistance options on ongoing labour market adjustment costs. The index is used to impute a labour market adjustment cost to each year of the base case, and to each year of a policy alternative. The adjustment costs associated with the policy are calculated as the difference between the two. The policy option under consideration is the rapid removal of PMV and general tariffs and ACIS funding (policy 5 in table 1, assuming export demand elasticities of 10 and a basecase growth rate of PMV output of 2.9 per cent a year). This policy is projected to cause the highest reduction in PMV employment by 2016.

Box 1 outlines the scope of the adjustment cost calculations and key assumptions lying behind them. A detailed outline of the LILI is provided in Dixon, Parmenter and Rimmer (1997) and PC (2000).

While the LILI provides a measure of labour market adjustment, it does not measure any costs to the economy as a whole from the adjustment of capital. But to the extent that assistance changes were anticipated, then investment plans could likely be adjusted so that these costs were reduced.

The LILI also does not include adjustment costs that affect individuals, but are not costs to the economy as a whole. A key example would be the stamp duty paid on house purchase when people change location. This is a transfer to the government rather than a cost to the economy as a whole.

When LILI calculations are used to estimate the labour market adjustment costs associated with the rapid removal of PMV assistance and general tariffs, they produce no change in adjustment costs in the first year, and a *reduction* in adjustment costs in each subsequent year, to average a very small reduction of just over 360 person-years in each year to 2016. Essentially, these numbers are indistinguishable from the noise produced by the lack of absolute machine accuracy in the computer used!

Box 1 Scope and key assumptions of the labour input loss index (LILI)

The LILI measures the person-years lost because of labour market adjustment. It quantifies the annual costs of all gross changes in labour market states each year.

Information about the impact of economic growth and structural change on net labour market adjustment is drawn from MONASH model simulation results. This is converted to estimates of gross labour market movements using information and assumptions about labour mobility. Costing each gross labour market movement according to the likely impact on the amount of time withdrawn from employment provides an overall measure of labour market adjustment costs, measured in person-years. Labour market adjustment costs so derived can be converted to a dollar values using estimates of average annual earnings per person employed.

The index covers:

- the estimated cost of moving between employed, unemployed or not in the labour force states (assumed to be 3 to 9 months depending on the change);
- the cost of remaining in unemployment (one year per person unemployed);
- the cost of moving voluntarily between jobs in the same occupation and State (assumed to be zero for each move); and
- the cost of moving between occupational group or State-based region (assumed to be 3 person months for each move).

Labour market adjustment costs not quantified in the current analysis include: the cost of moving between jobs in a given occupation within a sub-State region (ie statistical division) and costs incurred while remaining in the same job.

Source: Dixon, Parmenter and Rimmer (1997), PC (2000).

One reason that the projected economy-wide labour market adjustment costs are so small is that eliminating PMV assistance tends to reallocate retrenchments in the economy, rather than add to their total number.

- The key industries projected to *gain* employment in *relative* terms from the elimination of PMV assistance — iron ores, other metal ores, fishing — also experience absolute declines in employment in the basecase. Thus while eliminating PMV assistance increases retrenchments in the PMV industry, it reduces retrenchments in these other industries by slightly more.
- Other industries projected to *lose* employment in *relative* terms from the elimination of PMV assistance — rubber products, iron and steel, fabricated metal products, paints — are still projected to have positive employment growth in absolute terms. Adjustment costs are minimal when an industry simply slows the rate at which it hires additional workers.

The effects on industry employment are examined in more detail shortly.

Starting from a more conservative basecase growth of 1 per cent a year in PMV output, the rapid removal of PMV assistance and general tariffs is projected to increase adjustment costs slightly by up to 380 person-years in the first three years, but to reduce them thereafter, for an average reduction of 300 person-years in each year to 2016. Under low basecase growth, more regional moves need to be made, and as these are more difficult, there is also a slight increase in involuntary unemployment in the short term. But the pattern of industry adjustment is the same as in the higher growth basecase, so the longer term adjustment story is similar. Again, the magnitudes are indistinguishable from machine error.

The modelling suggests that the labour market adjustment costs associated with post 2005 assistance options for the PMV industry are not significant at the economy-wide level. Even in circumstances where reducing PMV assistance would change the direction of PMV output growth, it is not projected to add to adjustment costs in the longer term because it would facilitate structural adjustments occurring elsewhere. If there is an adjustment issue at all, it will be concentrated in particular regions.

Regional employment effects

The MONASH model traces the effects of national changes down to the regional level, based on the regional distribution of each of the model's industries.

To understand the regional employment projections, it is therefore useful to look first at the detailed industry employment projections. Table 4 shows the projected deviations from the basecase for industry employment in 2016, under a policy of rapid elimination of PMV assistance and general tariffs, assuming export demand elasticities of 10.

Employment is projected to be worst affected in the PMV industry and those industries closely related to it — rubber products, iron and steel, fabricated metal products and paints. Employment is also adversely affected to a much smaller extent in those manufacturing industries affected by the general tariff reductions.

Employment gains are projected to occur in a range of other industries. Some, such as Iron Ores and Other Metal Ores, are trade exposed and benefit from the induced reduction in their cost structures (measured in table 1 by the induced real depreciation). Others, such as wholesale and retail trade, benefit from the small induced increase in general economic activity.

Table 4 Projected changes in industry employment under rapid elimination of PMV assistance and general tariffs — export demand elasticities of 10

percentage deviation from basecase forecast in 2016

Industry		Industry		Industry	
OthMetalOres	3.24	OtherRepairs	0.18	ElecSupply	-0.30
Fishing	1.70	Grains	0.17	FibreWoven	-0.33
IronOres	1.49	StrucMetlPrd	0.07	Banking	-0.33
OtherMachnry	1.32	CommunicSrvc	0.06	CementLime	-0.35
LeatherProds	1.09	Defence	0.06	FinanceSrvce	-0.38
OthConstruct	1.01	GovAdmin	0.06	PrefabBuildn	-0.39
AgricSrvces	0.91	OthPrprtySvc	0.04	Pharmaceutic	-0.39
PhotogSciEqp	0.85	SugarSeaFood	0.01	RoadTransprt	-0.42
Confectionry	0.83	NonCompImps	0.00	PersonalSrvc	-0.44
OtherAgric	0.73	ForestryLogs	-0.01	OwnerDwelling	-0.46
Footwear	0.66	Pigs	-0.01	DairyProds	-0.48
WaterTranspt	0.61	Insurance	-0.01	SoftDrinks	-0.49
RailwayEquip	0.59	Poultry	-0.01	ONmtlMinProd	-0.51
Aircraft	0.59	LbryMseumArt	-0.02	GasSupply	-0.53
MiningSrvces	0.56	SheetMetlPrd	-0.04	Printing	-0.53
OtherManufac	0.54	OtherBusSrvc	-0.04	FlourCereals	-0.54
ElectronicEqp	0.52	Sheep	-0.04	PaperProds	-0.57
CoalOilGas	0.50	CommunSrvces	-0.06	Cosmetics	-0.58
AgrMinMachnr	0.46	HealthSrvces	-0.07	WineSpirits	-0.64
RailTransprt	0.46	SportGambRec	-0.09	BasicChemicl	-0.68
BasicNferMtl	0.45	PetrolCoalP	-0.14	PulpPaper	-0.69
TechServices	0.43	TextileProds	-0.14	PlasticProds	-0.74
KnittingMill	0.41	MeatProds	-0.14	GlassProds	-0.79
WholesaleTrd	0.37	AirTransport	-0.18	OthChemPrd	-0.87
OilsFats	0.37	HotelsCafes	-0.19	HouseholdApp	-0.88
BeefCattle	0.35	MechRepairs	-0.20	Furniture	-0.98
Clothing	0.33	Soaps	-0.25	SawmillProds	-1.00
ShipsBoats	0.31	BeerMalt	-0.25	CeramicProds	-1.00
RetailTrade	0.28	OtherSrvces	-0.25	OthWoodProds	-1.08
OthElecEquip	0.28	WaterDrains	-0.27	OtherMining	-1.49
DairyCattle	0.24	FruitVeg	-0.27	Paints	-2.09
FilmRadioTV	0.23	TransprtSrvc	-0.27	FabrcMetlPrd	-2.14
Education	0.23	PlasterEtc	-0.27	IronSteel	-2.27
TobaccoProds	0.23	ResidBuildng	-0.28	RubberProds	-3.69
LawAccMkting	0.20	NonBankFnanc	-0.29	MVPOthTrnEq	-15.95
Bakery	0.19	Publishing	-0.30		

Source: MONASH model projections.

On balance, the employment gains balance the employment losses because of the assumption that labour market pressures are absorbed by real wages changes rather than by changes to aggregate employment. But table 1 shows that by 2016, this policy option is projected to cause an increase in real wages. The model is such that, were this real wage pressure kept in check, the result would be a projected increase in aggregate employment.

Figure 2 shows the resulting deviations from the basecase in 2016 for regional employment, by statistical division. Because each statistical division contains a major urban conurbation, most contain a substantial, but varying, mix of primary, manufacturing and service activities. Diversity is one feature that can help preserve a region from the employment effects of a shock to one particular industry. Smaller regional areas may be less diverse, and therefore more vulnerable.

Not surprisingly, among the statistical divisions projected to be adversely affected are those in which PMV assembly and component production occurs — Adelaide, Melbourne and Barwon (encompassing Geelong). Also adversely affected are those in which iron and steel production occurs — Illawarra (encompassing Wollongong) and Northern SA (encompassing Whyalla). Outer Adelaide is projected to be adversely affected, partly because of the impact on PMV component activity, and partly because of the projected effects of general tariff reductions, including (in the model) on the wine and spirits industry. South East of SA is projected to be adversely affected because of the impact of general tariff cuts on sawmilling.

Among the regions projected to gain in employment terms are those, such as Sydney, with very diverse economic bases. Also projected to gain are regions in Queensland and Western Australia in which export oriented mining activity occurs.

But the cumulative deviations of regional employment from the basecase in 2016 are all projected to be very small. Adelaide's employment is projected to be about 0.7 per cent lower than otherwise by 2016. In the other adversely affected regions, the cumulative deviations from the basecase are about 0.2 or 0.4 per cent. The employment gains, in regions where they occur, are generally a similar order of magnitude.

Reductions in employment from the basecase do not necessarily imply absolute contractions in employment. For all those regions adversely affected in *relative* terms, absolute employment growth over time is still projected to be positive. Employment in Adelaide and Melbourne is still projected to be about 16 per cent higher in 2016 than in 2005, even under a basecase with 1 per cent a year growth in PMV output. Employment in Barwon, Outer Adelaide and Illawarra is projected to be about 11 or 12 per cent higher. Results for the other adversely affected regions are similar.

Figure 2 Projected changes in regional employment under rapid elimination of PMV assistance and general tariffs — export demand elasticities of 10

percentage deviation from basecase forecast in 2016

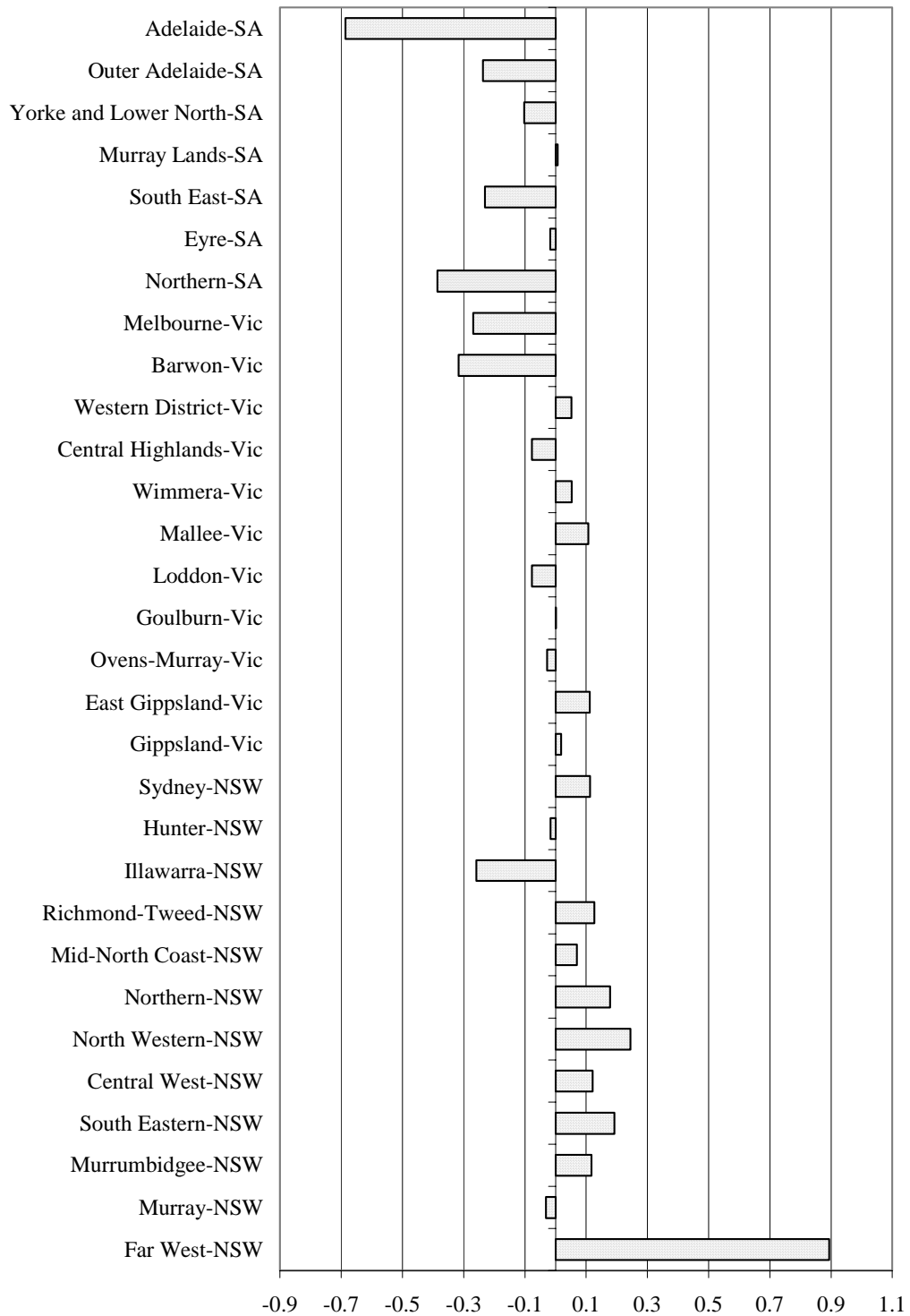
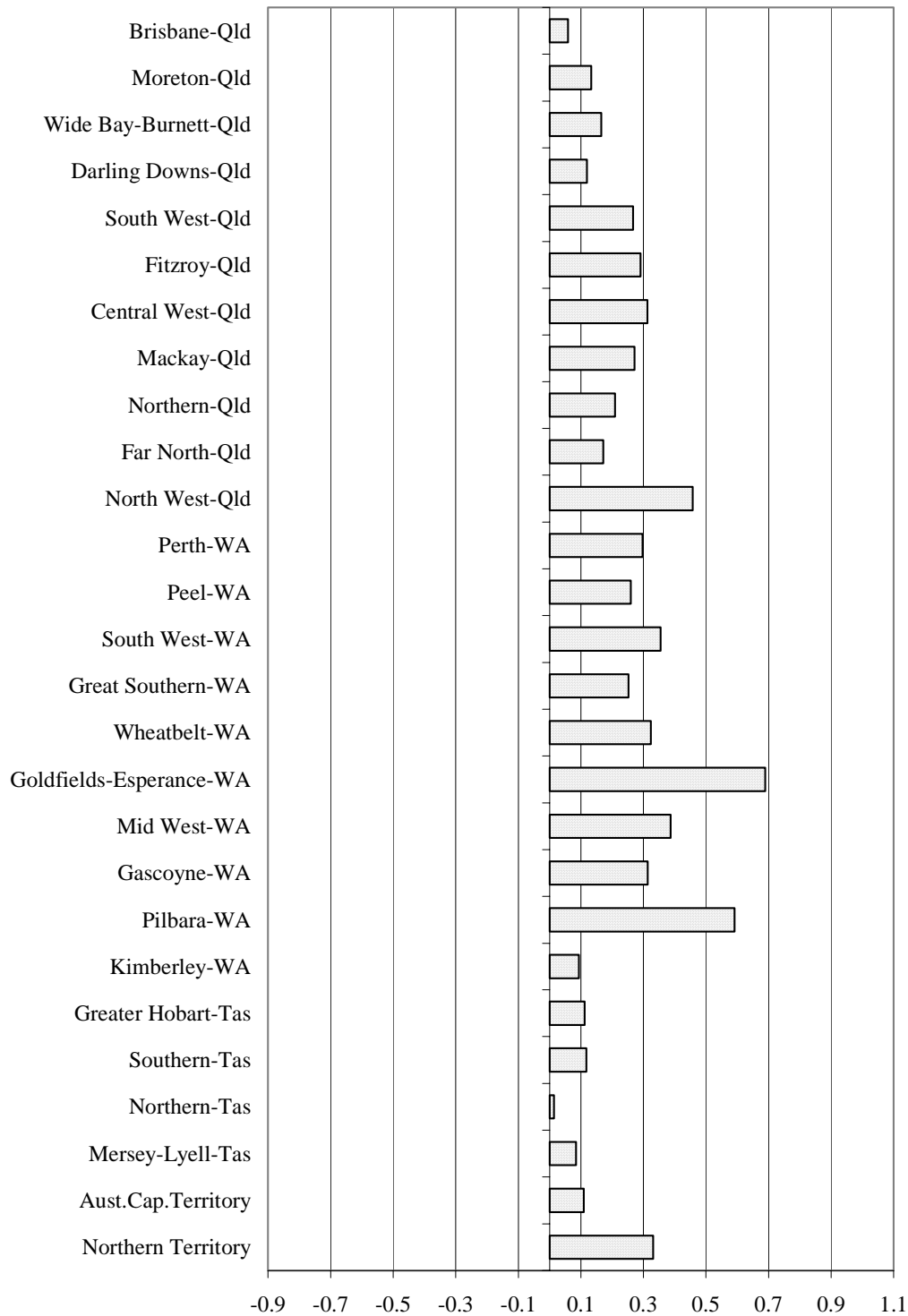


Figure 2 Projected changes in regional employment under rapid elimination of PMV assistance and general tariffs — export demand elasticities of 10
percentage deviation from basecase forecast in 2016



Source: MONASH model projections.

References

- Allen Consulting 2002, *The Automotive Industry's Contribution to the Australian Economy: A Modern Perspective*, Report to the Federal Chamber of Automotive Industries and the Federation of Automotive Products Manufacturers, The Allen Consulting Group and Deloitte Touche Tohmatsu, 26 February 2002.
- Dixon, P., Parmenter, B.R. and Rimmer, M.T. 1997, *The Australian Textiles, Clothing and Footwear Sector from 1986-87 to 2013-14: Analysis Using the MONASH Model*, Centre of Policy Studies and the IMPACT Project, Monash University, September 1997.
- Francois, J.F., McDonald, B. and Nordstrom, H. 1995, 'Assessing the Uruguay Round', in Martin, W. and Winters, L.A. (eds), *The Uruguay Round and the Developing Economies*, Discussion Paper No. 307, World Bank, Washington DC, pp. 117–214.
- Gehlhar, M. 1997, 'Historical analysis of growth and trade patterns in the Pacific Rim: An evaluation of the GTAP framework', in Hertel, T. (ed), *Global Trade Analysis: Modelling and Applications*, Cambridge University Press, Cambridge, pp. 349–63.
- Hillberry, R., Anderson, M., Balistreri, E. and Fox, A. 2001, 'The Determinants of Armington Taste Parameters in CGE Models, or "Why You Love Canadian Vegetable Oil"', paper presented to Fourth Annual Conference on Global Economic Analysis, 27–29 June, Purdue University, West Lafayette.
- Productivity Commission (PC) 2000, 'Modelling the effects of removing general tariffs', Supplement to Inquiry Report, *Review of Australia's General Tariff Arrangements*, Productivity Commission, Canberra, July.

Attachment

Box A1 **PMV industry in the MONASH model**

The PMV industry in the MONASH model is taken directly from the input-output industry and product classification as follows:

2801 Motor vehicles and parts; other transport equipment

Mainly under reference

28110010-0060 Finished motor vehicles, finished trucks and utilities, unassembled vehicles, engines.

28130011-0017 Vehicle electric motors, air conditioners, wiring harnesses, starting equipment etc, gauges etc.

28190010-0026 Vehicle transmission assemblies, cylinder blocks etc, fuel pumps etc, cranks etc, gaskets, vehicle parts nec, vehicle body panels.

Mainly not under reference

28120011-0060 Vehicle bodies (coachwork), caravans etc, agricultural semi-trailers, other trailers, body panels for trucks and buses, parts nec for trailers.

28290010-8000 Transport equipment, parts and accessories nec, royalties, repairing and servicing, other income, increase in stocks, motor scooters and motor cycles.

In addition, there is some component activity that is under reference but included as a part of other input-output (and MONASH) industries. Some of the input-output industries and the relevant portions are as follows:

2508 Rubber products

25510050 New pneumatic, rubber tyres for motor cars and motor cycles.

25590060 Other rubber products.

2705 Fabricated metal products

2763 0010 Metal nuts, bolts, screws, rivets, washers, dowel pins, masonry anchors and turnbuckles.

2806 Electronic equipment

28490065 Electronic equipment and parts nec.

2808 Other machinery and equipment

28690064 Industrial machinery and equipment nec.

Source: ABS (Input-Output Tables Product Details, Cat. no. 5215.0).

Table A1 Import price effects of post 2005 assistance options^a
percentage deviation from 2005 prices once changes fully phased in

<i>Scenarios</i>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<i>PMV tariffs:</i>	<i>No change</i>	<i>5% by 2010</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
<i>ACIS funding:</i>	<i>Zero in 2006</i>	<i>Half by 2010</i>	<i>Zero by 2015</i>	<i>Zero by 2010</i>	<i>Zero in 2006</i>
<i>General tariffs:</i>	<i>No change</i>	<i>No change</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
MONASH commodity:					
Sheep	0.0	0.0	0.0	0.0	0.0
Grains	0.0	0.0	0.0	0.0	0.0
Beef cattle	0.0	0.0	0.0	0.0	0.0
Dairy cattle	0.0	0.0	0.0	0.0	0.0
Pigs	0.0	0.0	0.0	0.0	0.0
Poultry	0.0	0.0	0.0	0.0	0.0
Other agriculture	0.0	0.0	-0.2	-0.2	-0.2
Agricultural services	0.0	0.0	0.0	0.0	0.0
Forestry and logging	0.0	0.0	-0.4	-0.4	-0.4
Fishing	0.0	0.0	0.0	0.0	0.0
Coal, oil and gas	0.0	0.0	0.0	0.0	0.0
Iron ore	0.0	0.0	0.0	0.0	0.0
Other metal ores	0.0	0.0	0.0	0.0	0.0
Other mining	0.0	0.0	-0.3	-0.3	-0.3
Mining services	0.0	0.0	0.0	0.0	0.0
Meat products	0.0	0.0	-0.7	-0.7	-0.7
Dairy products	0.0	0.0	-10.2	-10.2	-10.2
Fruit and vegetable products	0.0	0.0	-3.1	-3.1	-3.1
Oils and fats	0.0	0.0	-0.5	-0.5	-0.5
Flour and cereal food	0.0	0.0	-2.9	-2.9	-2.9
Bakery products	0.0	0.0	-4.2	-4.2	-4.2
Confectionery	0.0	0.0	-2.5	-2.5	-2.5
Other food products	0.0	0.0	-0.9	-0.9	-0.9
Soft drinks, cordials, syrups	0.0	0.0	-3.3	-3.3	-3.3
Beer and malt	0.0	0.0	0.0	0.0	0.0
Wine and spirits	0.0	0.0	-4.4	-4.4	-4.4
Tobacco products	0.0	0.0	-0.2	-0.2	-0.2
Textile fibres, yarns etc	0.0	0.0	-0.1	-0.1	-0.1
Textile products	0.0	-0.1	-0.5	-0.5	-0.5
Knitting mill products	0.0	0.0	0.0	0.0	0.0
Clothing	0.0	0.0	0.0	0.0	0.0
Footwear	0.0	0.0	0.0	0.0	0.0
Leather and leather products	0.0	0.0	-2.9	-2.9	-2.9
Sawmill products	0.0	0.0	-3.5	-3.5	-3.5
Other wood products	0.0	0.0	-2.9	-2.9	-2.9
Pulp, paper and paperboard	0.0	0.0	-2.3	-2.3	-2.3
Paper bags and products	0.0	0.0	-2.1	-2.1	-2.1
Printing, services to printing	0.0	0.0	-1.6	-1.6	-1.6
Publishing	0.0	0.0	0.0	0.0	0.0
Petroleum and coal products	0.0	0.0	0.0	0.0	0.0

(continued next page)

Table A.1 (continued)

<i>Scenarios</i>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<i>PMV tariffs:</i>	<i>No change</i>	<i>5% by 2010</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
<i>ACIS funding:</i>	<i>Zero in</i>	<i>Half by</i>	<i>Zero by</i>	<i>Zero by</i>	<i>Zero in</i>
<i>General tariffs:</i>	<i>2006</i>	<i>2010</i>	<i>2015</i>	<i>2010</i>	<i>2006</i>
	<i>No change</i>	<i>No change</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
MONASH commodity:					
Basic chemicals	0.0	0.0	-1.4	-1.4	-1.4
Paints	0.0	0.0	-4.2	-4.2	-4.2
Pharmaceuticals etc	0.0	0.0	-0.4	-0.4	-0.4
Soap and detergents	0.0	0.0	-4.0	-4.0	-4.0
Cosmetics and toiletries	0.0	0.0	-4.4	-4.4	-4.4
Other chemical products	0.0	0.0	-1.8	-1.8	-1.8
Rubber products	0.0	-2.2	-5.5	-5.5	-5.5
Plastic products	0.0	-0.1	-3.7	-3.7	-3.7
Glass and glass products	0.0	-0.4	-2.8	-2.8	-2.8
Ceramic products	0.0	0.0	-4.1	-4.1	-4.1
Cement, lime and concrete slurry	0.0	0.0	0.0	0.0	0.0
Plaster, other concrete products	0.0	0.0	-3.6	-3.6	-3.6
Other non-metallic products	0.0	0.0	-3.4	-3.4	-3.4
Iron and steel	0.0	0.0	-1.8	-1.8	-1.8
Basic non-ferrous metal etc	0.0	0.0	-2.0	-2.0	-2.0
Structural metal products	0.0	0.0	-4.1	-4.1	-4.1
Sheet metal products	0.0	0.0	-3.8	-3.8	-3.8
Fabricated metal products	0.0	-0.6	-4.0	-4.0	-4.0
Motor vehicles and parts etc	0.0	-2.0	-6.0	-6.0	-6.0
Ships and boats	0.0	0.0	-1.0	-1.0	-1.0
Railway equipment	0.0	0.0	-4.5	-4.5	-4.5
Aircraft	0.0	0.0	0.0	0.0	0.0
Scientific etc equipment	0.0	0.0	-0.6	-0.6	-0.6
Electronic equipment	0.0	0.0	-0.4	-0.4	-0.4
Household appliances	0.0	0.0	-3.4	-3.4	-3.4
Other electrical equipment	0.0	-0.4	-3.1	-3.1	-3.1
Agricultural, mining etc machinery	0.0	0.0	-2.4	-2.4	-2.4
Other machinery and equipment	0.0	-0.3	-2.5	-2.5	-2.5
Prefabricated buildings	0.0	0.0	-4.3	-4.3	-4.3
Furniture	0.0	-0.2	-4.1	-4.1	-4.1
Other manufacturing	0.0	-0.1	-2.0	-2.0	-2.0
Electricity	0.0	0.0	0.0	0.0	0.0
Gas	0.0	0.0	0.0	0.0	0.0
Water, sewerage and drainage	0.0	0.0	0.0	0.0	0.0
Residential building	0.0	0.0	0.0	0.0	0.0
Other construction	0.0	0.0	0.0	0.0	0.0
Wholesale trade	0.0	0.0	-2.6	-2.6	-2.6
Retail trade	0.0	0.0	0.0	0.0	0.0
Mechanical repairs	0.0	0.0	0.0	0.0	0.0
Other repairs	0.0	0.0	0.0	0.0	0.0
Accommodation, cafes & restaurants	0.0	0.0	0.0	0.0	0.0

(continued next page)

Table A.1 (continued)

<i>Scenarios</i>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<i>PMV tariffs:</i>	<i>No change</i>	<i>5% by 2010</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
<i>ACIS funding:</i>	<i>Zero in 2006</i>	<i>Half by 2010</i>	<i>Zero by 2015</i>	<i>Zero by 2010</i>	<i>Zero in 2006</i>
<i>General tariffs:</i>	<i>No change</i>	<i>No change</i>	<i>0% by 2015</i>	<i>0% by 2010</i>	<i>0% by 2010</i>
MONASH commodity:					
Road transport	0.0	0.0	0.0	0.0	0.0
Rail, pipeline, other transport	0.0	0.0	0.0	0.0	0.0
Water transport	0.0	0.0	0.0	0.0	0.0
Air and space transport	0.0	0.0	0.0	0.0	0.0
Services to transport & storage	0.0	0.0	0.0	0.0	0.0
Communication services	0.0	0.0	0.0	0.0	0.0
Banking	0.0	0.0	0.0	0.0	0.0
Non-bank finance	0.0	0.0	0.0	0.0	0.0
Insurance	0.0	0.0	0.0	0.0	0.0
Services to finance etc	0.0	0.0	0.0	0.0	0.0
Ownership of dwellings	0.0	0.0	0.0	0.0	0.0
Other property services	0.0	0.0	0.0	0.0	0.0
Scientific research etc	0.0	0.0	0.0	0.0	0.0
Legal, accounting etc services	0.0	0.0	0.0	0.0	0.0
Other business services	0.0	0.0	0.0	0.0	0.0
Government administration	0.0	0.0	0.0	0.0	0.0
Defence	0.0	0.0	0.0	0.0	0.0
Education	0.0	0.0	0.0	0.0	0.0
Health services	0.0	0.0	0.0	0.0	0.0
Community services	0.0	0.0	0.0	0.0	0.0
Motion picture, radio etc	0.0	0.0	0.0	0.0	0.0
Libraries, museums, arts	0.0	0.0	0.0	0.0	0.0
Sport, gambling etc	0.0	0.0	0.0	0.0	0.0
Personal services	0.0	0.0	0.0	0.0	0.0
Other services	0.0	0.0	0.0	0.0	0.0
Non-competing imports	0.0	0.0	0.0	0.0	0.0

^a Estimates of import price changes are based on import-weighted tariff rates. Import clearances for individual items in 1998-99 are used as weights. The percentage change in the landed duty paid import price is estimated for each commodity group using the general formula: $PoT = -t_m / (1 + t_o)$, where t_m is the import price-raising effect of selected interventions (eg the concessional rate, rate for general entry items) and t_o is the import price-raising effect of all border interventions. The power of the tariff (PoT) is a measure of the import price-raising effects of tariffs. A negative thus indicates that removing tariffs on items under reference would lower the ldp price of imports.

Source: PC estimates.