# 2 Estimated longer-run effects of the closure of passenger motor vehicle manufacturing plants

This chapter explores the longer-run economic effects of the exit of the three major passenger motor vehicle manufacturers and consequential reductions in supply chains in Australia using a comparative‑static modelling approach. This modelling abstracts from transition and adjustment issues to focus on the longer-term impacts after full adjustment is simulated to have occurred. The timescale over which these impacts are projected to occur is explored in chapter 3 using a dynamic modelling approach, while sensitivity of the results to some alternative modelling assumptions is reported in chapter 4.

As noted in chapter 1, the analysis does not seek to assess the potential costs of assistance that would be required to retain the industry nor to estimate the flow-on effects of these costs to the community.

Details of the model and database used are outlined in appendixes A and B, respectively. Details of the modelling of the exit scenario are outlined in appendix C.

## 2.1 Wider industry effects

Modelled changes in the industry composition of the economy arise primarily from the exit of the passenger vehicle manufacturers, the associated supply chain adjustment and the flow on effects of these changes on activity levels across industries. The mechanisms bringing about these adjustments are outlined in box 2.1. Industry composition is also influenced, albeit to a lesser degree, by the assumed reallocation of industry-specific budgetary assistance from eligible passenger motor vehicle manufacturers and their suppliers to households.

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| Box 2.1 How the closure of passenger motor vehicle manufacturing plants affects the broader economy |
| The closure of the three major Australian passenger motor vehicle plants will affect the broader economy through a variety of mechanisms. The main mechanisms are captured in a stylised way in the MMRF model, although no model can capture all of the linkages and processes of the real world.  After the closure, Australian demand for passenger motor vehicles will be met through imports, rather than a mix of domestic production and imports as is currently the case. The initial effects of passenger motor vehicle manufacturing ceasing in Australia are a loss in employment in that industry and a decrease in net exports, as exports of passenger motor vehicles decrease and imports increase to meet consumer demand. This affects industries that rely on sales to vehicle manufacturing, with output and employment also falling in these supply chain industries.  These initial effects trigger changes in prices of products, labour and capital which lead to output changes throughout the economy. First, the decrease in net exports moves the trade balance into deficit, reducing demand for the Australian dollar and increasing demand for foreign currencies. The resulting depreciation of the Australian dollar will increase the cost of foreign goods relative to the cost of domestic production and increase the international competitiveness of Australian exports and domestic firms that compete with imports. Australian export volumes will increase and the volume of imports of goods and services (other than passenger motor vehicles) will decrease, resulting in an expansion of output and employment in domestic traded goods industries. Even without any further adjustments in factor prices or industry capital, this absorbs some of the workers displaced from auto assembly and the supply chain industries.  Second, and in the longer run, there is pressure on factor prices to adjust to factor surpluses or shortages. In particular, if the expanding industries do not fully absorb the labour from contracting industries at the prevailing wage, then downward pressure on real wages increases the profitability of expanding employment and output across a range of industries. These demand responses and effects will depend on demand for industry output, the labour intensity of different industries, and the impact of changes in the cost of labour on the price of inputs. The demand for other inputs, including capital, will increase as returns from productive activity rise and firms increase output. |
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The primary effect of the exit of the major passenger motor vehicle manufacturers will be to reduce the output of, and employment in the automotive manufacturing industry (table 2.1, column 1).[[1]](#footnote-1) The estimated reduction in industry output and employment is less than 100 per cent to account for the retention of small-scale specialist and bespoke vehicle manufacturers (assumed to be 2 per cent of the current industry). However, moderating the effects of passenger motor vehicle plant closures to an extent, some current activities relating to marketing, design and head office functions (and associated jobs) are assumed to continue, which are reclassified as business services in Victoria.

Table 2.1 Estimated longer-run industry effects of the closure of passenger motor vehicle manufacturing plants in Australiaa

Percentage change

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Exit of passenger motor vehicle manufacturers and consequential reductions in supply chains | Reallocation  of budgetary assistance outlays | Total effects |
| **Value added (at factor cost)** |  |  |  |
| Agriculture | 0.9 | (-) | 0.8 |
| Mining | 2.6 | -0.2 | 2.4 |
| Manufacturing | -1.6 | (-) | -1.6 |
| *of which:* |  |  |  |
| PMV manufacturing | -98 | (-) | -98 |
| Automotive components | -46 | (-) | -46 |
| Other manufacturing | 0.5 | (-) | 0.5 |
| Services | -0.1 | (+) | (-) |
| **Employment (persons)**b |  |  |  |
| Agriculture | 1.3 | -0.1 | 1.3 |
| Mining | 2.7 | -0.2 | 2.5 |
| Manufacturing | -1.1 | (-) | -1.2 |
| *of which:* |  |  |  |
| PMV manufacturing | -98 | (-) | -98 |
| Automotive components | -40 | (-) | -40 |
| Other manufacturing | 0.6 | (-) | 0.5 |
| Services | (+) | (+) | (+) |

**(+)** Positive, between 0 and 0.05. **(-)** Negative, between -0.05 and 0. a Longer-run impact after full adjustment relative to current passenger motor vehicle manufacturing operations. b Aggregate employment assumed unchanged from levels that would otherwise prevail.

*Source*: Commission estimates based on the MMRF‑Auto14 model.

In the Commission’s assessment, national employment in automotive components production could decline by up to 40 per cent (chapter 1). The decline in employment would be concentrated in the passenger motor vehicle producing states of Victoria and South Australia (58 per cent of jobs in component manufacturing are assumed to be lost in these two states) and would imply a decline in national value added of automotive components of nearly 50 per cent. This divergence between output and employment reflects higher value added per person employed by component manufacturers supplying the three major motor vehicle producers, mainly in Victoria and South Australia, compared to component manufacturers in other states. This reflects an input-output structure of the Victorian and South Australian suppliers that is characterised by production systems focused on higher-volume standardised lines more dependent on capital inputs compared to producers in other states that are, in some cases, producing small run length, customised parts for the aftermarket.

Nevertheless, the estimated decline in output and employment in automotive component manufacturing is smaller than that in passenger motor vehicle manufacturing, on account of sales of automotive components to other activities — in particular, to the aftermarket, to truck and bus manufacturing, and exports. Component manufacturing that is not directly linked to passenger motor vehicle production in Australia would not experience the direct reduction in demand for its output and would potentially benefit indirectly from the decline in real wages, the projected real depreciation of the Australian dollar associated with the exit of motor vehicle producers and expansion of activity levels more broadly.

With the decline in demand for intermediate inputs used in the production of passenger motor vehicles, the activities in the wider manufacturing industry (which includes automotive inputs such as metal, glass, plastic and rubber product manufacturing) are projected to decline.

The primary effect of the exit of the major passenger motor vehicle manufacturers and associated supply chain adjustment is to reduce the output of, and employment in, the automotive manufacturing industry (table 2.1, column 1). The changes are estimated to generate total job losses in the order of 33 000 from the industry and affected components and other suppliers. The Commission’s report conservatively rounds this up, and refers to ‘up to 40 000’ jobs lost.

In the longer-run environment modelled, national employment is assumed to be maintained through adjustment in real wages and the real depreciation of the exchange rate, which — after a period of adjustment to the direct and indirect effects of the modelled plant closures — lead to higher employment in a range of other activities. The activities projected to expand in the longer run from levels that would otherwise have prevailed include, in particular, the more capital–intensive, trade-exposed mining, agricultural and service industries, as well as other manufacturing activities not linked to passenger motor vehicle manufacturing.

Output from these activities is typically more responsive in the longer run to changes in the real exchange rate relative to other more labour-intensive domestically-oriented non-traded (mainly service) activities. On balance, the services sector is modelled to decline slightly, notwithstanding that some service industries expand to support trade-exposed activities (and the impact of reclassifying, as services, some design and engineering, head office, sales and marketing functions currently integrated into the manufacturing operations of Ford, Holden and Toyota).

The effect of industry-specific budgetary assistance on production and employment in the automotive manufacturing industry has not been modelled. However, the modelling assumes the freeing up of government funds following exit of the industry is reallocated as a lump-sum payment to Australian households. This is estimated to have a small effect on industry outputs (in automotive manufacturing and other industries) due to the increase in consumption expenditure. Increased consumption expenditure causes an expansion of the non-traded sector (services in particular) and some crowding out of activity in the traded sector — particularly in agriculture and mining — as resources are reallocated to the non-traded sector. These effects moderate somewhat the impacts of the real depreciation on broad industry composition triggered by passenger vehicle manufacturing closure.

## 2.2 Aggregate effects

The estimated aggregate effects of the closure of passenger motor vehicle manufacturing plants on the economy are presented in table 2.2. Overall, the results suggest that the aggregate effects will be small. For example, as modelled, the estimated longer-run Australia-wide effects of the plant closures and cessation of subsidies could raise national output, after the economy has fully adjusted, by around 0.1 per cent relative to the level it otherwise would have been if manufacturing operations had remained at current levels (table 2.2, column 3). Real gross national expenditure and each component — domestic consumption, investment and government spending — could also increase fractionally.

However, notwithstanding that the effects on GDP and other aggregate variables will be small, the magnitude and even direction of change depends on factors such as the relative capital intensity of the rest of the economy and its ability to draw in additional capital and other influences. For example, sensitivity testing presented in chapter 4 confirms that, although modest, aggregate impacts are influenced by impediments to job mobility across states, and may be negative. It also should be borne in mind that an increase in GDP will not necessarily translate to an increase in net national income to the extent of terms of trade declines and changes in *net* investment income associated with additional capital accruing outside Australia (PC 2005).

Table 2.2 Estimated longer-run economywide effects of the closure of passenger motor vehicle manufacturing plants in Australiaa

Percentage change

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Exit of passenger motor vehicle manufacturers and consequential reductions in supply chains | Reallocation of budgetary assistance outlays | Total effects |
| Real gross domestic product | 0.1 | (+) | 0.1 |
| Real gross national expenditure | (-) | (+) | (+) |
| *of which:* |  |  |  |
| Real household consumption | -0.1 | 0.1 | (+) |
| Real investment | 0.1 | (+) | 0.1 |
| Real government spending | (-) | 0.1 | (+) |
| Export volumes | 2.5 | -0.2 | 2.3 |
| Import volumes | 2.0 | (+) | 2.0 |
| Real exchange rateb | 0.4 | (-) | 0.4 |
| Terms of trade | -0.3 | (+) | -0.3 |
| Real unit labour costc | -0.2 | (+) | -0.2 |
| Consumer real wagesd | -0.2 | (+) | -0.1 |

**(+)** Positive, between 0 and 0.05. **(-)** Negative, between -0.05 and 0. a Longer-run impact after full adjustment relative to current passenger motor vehicle manufacturing operations. b Real depreciation of the Australian dollar (defined as the Australian dollar price of imports less the GDP(E) deflator). c Real unit labour cost paid by producers inclusive of taxes on labour income used in production (such as payroll tax). d Real wage rate received by workers after the payment of any taxes on labour income used in production (such as payroll tax), but before income tax.

*Source*: Commission estimates based on the MMRF‑Auto14 model.

The estimated changes in trade flows are larger in magnitude than those for broader aggregates. This is because, as outlined in box 2.1, import volumes would increase to fill the gap in supply left by the reduction in the domestic production of cars, while the real depreciation of the Australian dollar promotes expansion of export industries. Imported passenger motor vehicles are projected to constitute the main part of the increase in imports.

While downward pressure on real wages associated with the cessation of passenger motor vehicle assembly would lower household incomes (table 2.2, column 1), lower subsidy payments to passenger motor vehicle and component manufacturers would enable those funds to be redistributed — modelled as increasing household disposable incomes. This assumed reallocation increases household real consumption spending to levels above those that would otherwise have prevailed and would raise gross national expenditure (table 2.2, column 2).

## 2.3 State and territory effects

The state and territory results reflect the location of the passenger motor vehicle manufacturing plants that are scheduled to close and their input suppliers — mainly in Victoria and South Australia — versus the location of activities that are projected to expand — which are generally located in other jurisdictions. While there would be some flow-on expansion in non-automotive industries in Victoria and South Australia, the outcomes for these jurisdictions are estimated to be dominated by the changes in the passenger motor vehicle manufacturing activities and their supply chains, all other things remaining equal.

With national employment assumed fixed in the longer run, activity and employment are projected to be lower than otherwise in Victoria and South Australia, and higher in all other jurisdictions, most notably in export-orientated industries in Western Australia, Queensland as well as New South Wales and other jurisdictions (table 2.3).

Other reductions in output and shifts in employment are also projected in Victoria and South Australia, as the effects of the closure of passenger motor vehicle manufacturing operations ripple through state economies. Affected activities include those that supply inputs indirectly to passenger motor vehicle producers and their suppliers, as well as those that supply consumer goods, such as trade and transport services. These flow-on effects are estimated to account for about one half of the total projected impacts for Victoria and South Australia.

Table 2.3 Estimated longer-run state and territory effects of the closure of passenger motor vehicle manufacturing plants in Australiaa

Percentage change

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | NSW | Vic | QLD | SA | WA | Tas | NT | ACT | Aust |
| Real gross product | 0.5 | -1.9 | 1.1 | -2.3 | 1.9 | 1.0 | 1.0 | 0.2 | 0.1 |
| Employment | 0.6 | -1.8 | 1.1 | -2.2 | 1.6 | 0.8 | 0.9 | 0.2 | ..b |
| Real gross expenditure per person | -0.2 | 0.4 | -0.3 | 0.5 | -0.2 | -0.3 | -0.3 | -0.1 | (+) |
| **Value added (at factor cost)** |  |  |  |  |  |  |  |  |  |
| Agriculture | 0.9 | 0.6 | 1.0 | 0.7 | 0.9 | 0.8 | 0.9 | 0.4 | 0.8 |
| Mining | 2.1 | 0.1 | 2.6 | 0.8 | 2.7 | 2.2 | 2.2 | .. | 2.4 |
| Manufacturing | 0.7 | -5.9 | 1.6 | -6.4 | 2.0 | 1.3 | 1.8 | 0.5 | -1.6 |
| *of which:* |  |  |  |  |  |  |  |  |  |
| PMV manufacturing | Na | -98 | na | -98 | na | na | na | na | -98 |
| Automotive components | -2.5 | -58 | 1.0 | -58 | 1.7 | 1.0 | 0.9 | 0.1 | -46 |
| Other manufacturing | 0.8 | -0.6 | 1.6 | -1.0 | 2.0 | 1.3 | 1.8 | 0.5 | 0.5 |
| Services | 0.4 | -1.5 | 0.9 | -2.2 | 1.4 | 0.7 | 0.7 | 0.1 | (-) |
| **Employment (persons)** |  |  |  |  |  |  |  |  |  |
| Agriculture | 1.3 | 1.0 | 1.5 | 1.0 | 1.4 | 1.0 | 1.4 | 0.5 | 1.3 |
| Mining | 2.3 | 0.8 | 2.7 | 1.7 | 2.7 | 2.3 | 2.3 | .. | 2.5 |
| Manufacturing | 0.8 | -4.8 | 1.5 | -4.6 | 1.9 | 1.3 | 1.7 | 0.6 | -1.2 |
| *of which:* |  |  |  |  |  |  |  |  |  |
| PMV manufacturing | na | -98 | na | -98 | na | na | na | na | -98 |
| Automotive components | -2.4 | -58 | 1.1 | -58 | 1.8 | 1.0 | 1.0 | 0.2 | -40 |
| Other manufacturing | 0.9 | -0.5 | 1.5 | -0.8 | 2.0 | 1.3 | 1.7 | 0.6 | 0.5 |
| Services | 0.5 | -1.5 | 1.0 | -2.1 | 1.5 | 0.7 | 0.8 | 0.2 | (+) |

**na** Not applicable. **..** No change. a Longer-run impact after full adjustment relative to current passenger motor vehicle manufacturing operations. b Held fixed by assumption.

*Source*: Commission estimates based on the MMRF‑Auto14 model.

These modelled estimates of employment and output changes illustrate the effect of manufacturing plant closures, abstracting from other possible changes in the economy. For example, actual outcomes for Victoria and South Australia will also depend on their productivity growth paths, other structural changes in their economies and other factors affecting their competitiveness relative to other Australian state and territories and internationally.

The output and employment impacts for jurisdictions other than Victoria and South Australia (most notably New South Wales, Queensland and Western Australia) reflect the net effect of three generally positive factors.

* First, the automotive component manufacturing industries in these jurisdictions are less reliant on sales to passenger motor vehicle manufacturing than are component producers in Victoria and South Australia.
* Second, these jurisdictions tend to be more reliant in the MMRF database on export-orientated industries that are projected to benefit from the reallocation of resources shed as a result of the exit of passenger motor vehicle manufacturers.
* Third, increased employment opportunities in these jurisdictions are projected to increase state and territory populations above levels that would otherwise have prevailed, raising demand for consumer goods and services.

Possible transition paths for the state economies are illustrated in chapter 3.

## 2.4 Sub-state regional effects

Reflecting that the Australian passenger motor vehicle manufacturing industry is located in Melbourne, Adelaide and Geelong, estimates of the longer-run impacts on regional economies and employment indicate that the effects are concentrated in the Barwon (covering Geelong), Adelaide and Melbourne statistical divisions. Employment in these regions is estimated to decline by 3.4, 3.3 and 2.6 per cent respectively (table 2.4). In the long run, employment is estimated to increase in the 55 remaining statistical divisions throughout Australia (including all other statistical divisions in Victoria and South Australia).

The estimated employment reductions in the Adelaide and Melbourne statistical divisions make the largest contributions to their respective state employment results (‑2.5 and ‑1.9 percentage point contributions, respectively) (table 2.4). As Barwon accounts for only about 5 per cent of employment in Victoria, the estimated contribution made by the Barwon statistical division to the Victorian result is ‑0.2 percentage points, much less than for the Melbourne statistical division. The projected reductions in employment in Victoria and South Australia (table 2.3) are entirely attributable to reductions in the Barwon, Adelaide and Melbourne statistical divisions (table 2.4).

Table 2.4 Estimated longer-run regional contributions to the changes in state employment from closing passenger motor vehicle manufacturing plants in Australiaa

|  |  |  |
| --- | --- | --- |
| State and key statistical divisions | Regional impact | Regional  contributions to  the state total |
|  | Percentage change | Percentage points |
| **Victoria** | **-1.8** | **-1.8** |
| Melbourne | -2.6 | -1.9 |
| Barwon (Geelong) | -3.4 | -0.2 |
| All other regions | 1.2 | 0.3 |
| **South Australia** | **-2.2** | **-2.2** |
| Adelaide | -3.3 | -2.5 |
| All other regions | 0.8 | 0.2 |
| **New South Wales** | **0.6** | **0.6** |
| Sydney | 0.5 | 0.3 |
| All other regions | 0.7 | 0.2 |
| **Queensland** | **1.1** | **1.1** |
| Brisbane | 0.9 | 0.4 |
| All other regions | 1.2 | 0.7 |
| **Western Australia** | **1.6** | **1.6** |
| Perth | 1.5 | 1.1 |
| All other regions | 1.7 | 0.5 |

**(+)** Positive, between 0 and 0.05. **(-)** Negative, between -0.05 and 0. Contributions may not add to state totals due to rounding. a Longer-run impact after full adjustment relative to current passenger motor vehicle manufacturing operations.

*Source*: Commission estimates based on the MMRF‑Auto14 model.

1. To fill the local supply gap, local consumers and investors are modelled as replacing previously produced domestic supplies with imported passenger motor vehicles and automotive components. Exports of passenger motor vehicles are assumed to decline in line with industry output (appendix C). [↑](#footnote-ref-1)