



The Contribution of GMH Elizabeth Operations to the South Australian economy and the Potential Impacts of Closure

UPDATED ASSESSMENT 2013

Barry Burgan and John Spoehr
November 2013

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CONTENTS	5
KEY FINDINGS AT A GLANCE	3
1 INTRODUCTION	5
2 IDENTIFYING THE SUPPLY CHAIN LINKAGES	5
3 MODELLING THE CONTRIBUTION FROM A WHOLE OF ECONOMY PERSPECTIVE	6
3.1 THE 2011 CONTRIBUTION.....	6
3.2 THE 2013 PICTURE.....	8
4 THE IMPACT OF THE CLOSURE OF GMH’S OPERATIONS IN 2013	10
4.1 BASE CASE SCENARIO	12
4.2 ADJUSTING FOR FREED RESOURCES	12
4.3 ADDITIONAL LOST VALUE	13

LIST OF FIGURES

FIGURE 1: EFFECTS ON REGIONAL EMPLOYMENT OF RAPID ELIMINATION OF MPV ASSISTANCE AND GENERAL TARIFFS - MONASH MODEL PROJECTIONS	11
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LIST OF TABLES

TABLE 1: SUPPLY CHAIN (INPUT OR PRODUCTION FUNCTION) STRUCTURES FOR SA MANUFACTURING INPUTS BY INDUSTRY SECTOR (\$ MILLION).....	6
TABLE 2: ESTIMATED LOCAL EXPENDITURE ASSOCIATED WITH GMH’S SA OPERATIONS - 2011	7
TABLE 3: ESTIMATES OF ECONOMIC ACTIVITY ASSOCIATED WITH GMH’S SA OPERATIONS - 2011	8
TABLE 4: ESTIMATED LOCAL EXPENDITURE ASSOCIATED WITH GMH’S SA OPERATIONS - 2013	9
TABLE 5: ESTIMATES OF ECONOMIC ACTIVITY ASSOCIATED WITH GMH’S SA OPERATIONS - 2013	10
TABLE 6: ESTIMATED LOST EXPENDITURE DUE TO CLOSURE OF GMH’S SA OPERATIONS – ALTERNATIVE SCENARIO 1: RESOURCES DIVERTED TO OTHER SECTORS.....	12
TABLE 7: ESTIMATED ECONOMIC IMPACT OF CLOSURE OF GMH’S SA OPERATIONS AS AT 2013 ALTERNATIVE SCENARIO 1: RESOURCES DIVERTED TO OTHER SECTORS	13
TABLE 8: ESTIMATED LOCAL EXPENDITURE ASSOCIATED WITH GMH’S SA OPERATIONS AS AT 2013 ALTERNATIVE SCENARIO 2: ADDITIONAL LOST VALUE	14
TABLE 9: ESTIMATED ECONOMIC IMPACT OF GMH’S SA OPERATIONS AS AT 2013 ALTERNATIVE SCENARIO 2: ADDITIONAL LOST VALUE	15

KEY FINDINGS AT A GLANCE

This paper presents the results of an analysis of the contribution that the GMH manufacturing facility in Elizabeth makes to South Australia. It updates a previous analysis of the contribution in 2011 undertaken for the Department of Manufacturing, Innovation, Trade, Resources and Energy – to reflect the reduction in employment at the facility that has occurred over the last two years. The summary conclusion is that:

- In 2011, GMH was reported as directly employing 2,700 people and purchasing \$530 million of supplies from core suppliers. In 2013 that has reduced to an estimated 1,750 jobs while still a similar level of supplies from core suppliers.
- Due to supply chain effects, the direct and first round (i.e. GMH and its direct suppliers) of GMHs activities are estimated to:
 - in 2011 – involve total expenditure of \$930 million, contributing \$520 million to Gross State Product and supporting 5,610 jobs.
 - in 2013 – involve total expenditure of \$750 million, contributing \$400 million to Gross State Product and supporting 4,340 jobs.
- If the full flow through effects of this activity are considered (including the impact of the purchases of suppliers, and the spend of wages and salary income) the total economic activity linked to GMHs operations are estimated as:
 - In 2011 a \$1.1 billion contribution to GSP (or 1.3% of Gross State Product), 11,700 jobs (1.5% of employment), \$65 million per year of the state taxation base (\$31.5 million in payroll tax and \$33.2 million in other taxation revenue).
 - In 2013 a \$0.9 billion contribution to GSP, 9,500 jobs, \$53 million per year of the state taxation base (\$31.5 million in payroll tax and \$33.2 million in other taxation revenue).

If GMH was to cease manufacturing operations in South Australia, the above estimates provide an indication of what level of activity is at risk. A number of potential mediating factors need to be considered:

- GMHs closure would free up resources currently employed in the economy and make them available for other activity (there would be a deflationary effect on real wages and property prices that would increase the competitiveness of other sectors of the economy to facilitate this outcome). It is indicatively estimated that allowing for this effect, the impact on the state economy of GMH closing would be offset by growth in other sectors, and that total economic activity lost in the state linked to GMH's closure would be of the order of \$0.35 billion of GSP, 4,300 jobs of employment and \$22 million per year to the state taxation base.
- On the other hand, GMHs closure would make some major suppliers uneconomic, and not only might the state lose the supply chain that services GMH in Playford, but also the other activity that these businesses undertake (supplying into other sectors or states). It is indicatively estimated that allowing for this effect (independently of the issue of freed resources), the total economic activity lost in the state linked to GMH's closure would be of the order of \$1.24 billion of GSP, 13,200 jobs and \$72 million per year to the state taxation base.

Note that this report does not consider the issues around what is required to underpin the longer term sustainability of the operations at GMH. Nor does it consider the benefits that would arise from alternative uses of the funds that have and might be applied to GMH support.



1 INTRODUCTION

This report presents an updated assessment of the economic, financial and workforce implications of GMH closing operations in Elizabeth in South Australia. Outside the scope of this report is any assessment of the effectiveness of support (policy and/or financial) to keep the operations open. Nor does the analysis consider the level of benefits that would be achieved by use of the funds provided to support for other economic purposes, or through reduction in underlying taxes.

2 IDENTIFYING THE SUPPLY CHAIN LINKAGES

In 2011, it was reported that there were approximately 2,700 employees (direct employees and sub-contractors) based at GMH's Elizabeth facility. Linked to these employees there was a payroll for the period of (July 2010 to June 2011) of wages of \$133.06 million, and salaries of \$36.11 million.

Information provided by GMH indicates the core supplier base (supporting the Elizabeth facility) of parts and components in the manufacturing process is as follows:

- \$528 million per annum supplied by 29 suppliers based in South Australia
- \$197 million per annum supplied by 70 suppliers based in Victoria
- \$11.5 million per annum supplies by 16 suppliers based in New South Wales

The supplier base is made up of different types of operations, and can be classified into Tier 1 (where GMH and/or automotive in general are the core business of suppliers) through to Tier 2, 3 and 4 – where GMH and automotive clients comprise smaller proportions of the output. Some of the larger employers in the Tier 1 category include businesses such as TA (Australia) Group (Monroe Australia and Walker) with 690 employees, Toyoda Gosei (297 employees), SMR Automotive (450 employees), Futuris Automotive Group (320 employees). Tier 2 and 3 businesses include Intercast and Forge (250 employees), Excide (230 employees), Alloy Technologies etc.

In addition the car assembly supplier Base in SA also supports Toyota in Victoria – with an estimated spend by Toyota to South Australian companies of \$200 - \$270 million per year.

Since that period, employment at GMH has fallen to 1,750 employees, in two steps. This has been linked to improved labour productivity outcomes, and is not a consequence of declines in production. At this point the information provided suggests supply chains have not been impacted.

Table 1 indicates the underlying supply chain structures for the Automotive manufacturing sector (as defined in ANZIC code and in the latest state Input Output tables). The ABS categorisation of Motor Vehicle and Parts and other Transport Equipment represents 17% of the value of activity in manufacturing sector excluding food and beverage. It is underpinned by activity in the trade sector, in property and business services, as well as general manufacturing.

TABLE 1: SUPPLY CHAIN (INPUT OR PRODUCTION FUNCTION) STRUCTURES FOR SA MANUFACTURING INPUTS BY INDUSTRY SECTOR (\$ MILLION)

	Motor vehicles & parts; other transport equip	Total Manufacturing – excl. Food	Total Manufacturing
Agriculture	0	87	1,404
Automotive Manufacturing	204	253	258
Other Manufacturing	342	3,393	3,890
Utilities, Construction	16	96	133
Trade (wholesale and Retail)	474	1,276	1,618
Transport and Storage	59	709	1,075
Property and Business Services	287	1,290	1,610
Other	113	1,217	2,047
Total Intermediate Expenditure	1,496	8,322	12,035
Household income	601	4,845	6,091
Gross Operating Surplus	228	1,365	2,182
Taxes less subsidies on production	64	381	542
Imports	975	5,235	6,369
Total Production	3,364	20,148	27,218
<i>Employment (fte)</i>	<i>14,803</i>	<i>82,856</i>	<i>104,456</i>
<i>Employment (no. jobs)</i>	<i>13,855</i>	<i>79,241</i>	<i>101,167</i>

Source: SA Input Output tables for 2007, as contained in EconSearch Pty Ltd, "Economic and Environmental Indicators for South Australia and its Regions, 2006/07", Prepared for Department of Trade and Economic Development, 23 March 2009

3 MODELLING THE CONTRIBUTION FROM A WHOLE OF ECONOMY PERSPECTIVE

3.1 THE 2011 CONTRIBUTION

The first step in the analysis utilised in this paper is to use the above information, and an input-output framework to assess the 2011 contribution of GMH's operation from a whole of economy context. An input output framework is consistent with national accounting principles and provides the forward and backward linkages of individual industry sectors. By identifying the expenditures associated with GMH's activity, allocating them to the relevant industry sector and then tracing the linkages through an input-output table, the total network of contributions can be identified.

The supplier base above is the specific input suppliers, and based on the proportion of inputs for the automotive sector as a whole (Table 1) it is further assumed that 30% of these suppliers are specific automotive manufacturers, while 70% are in other categories of manufacturing (e.g. plastics, general metal fabrication etc.).

In addition to that there is the general operating spend to be included that supports GMH's activity - including business services, IT services and communication, electricity etc. Values have been estimated for these expenditures by applying the ratios to spend to employment in the IO tables for the motor vehicle sector.

The above represents the operating spend of GMH, and in addition the investment spend will be incorporated in building and equipment care, refitting, and reinvestment. This will be somewhat cyclical in nature. National accounts indicates that fixed capital accumulation represent around 13% of turnover across the economy as a whole, and so in this analysis it is conservatively assumed that there is an annualised value of investment at 10% of the operating value. This has been distributed across industry sectors as in Table 2 below, with the balance of the spend not allocated assumed to be on direct imports.

Table 2 therefore shows the estimated expenditure linked to GMH's activity by sector of expenditure based on these above assumptions.

TABLE 2: ESTIMATED LOCAL EXPENDITURE ASSOCIATED WITH GMH'S SA OPERATIONS - 2011

	Operating Spend	Annualised Investment Spend	Sectoral spend re investment	Total
Agriculture, forestry and fishing	0.0	0.0	0	0.0
Mining	0	0.0	0	0.3
Automotive Manufacturing	158	0.0	0	158.4
Other Manufacturing	370	26.1	30%	395.7
Electricity, gas and water	4.4	4.3	5%	8.8
Building and construction	2.3	8.7	10%	11.0
Wholesale trade	80.0	8.7	10%	88.7
Retail trade	6.5	0.0	0%	6.5
Accommodation, cafes & restaurants	2.3	0.0	0%	2.3
Transport and storage	10.8	8.7	10%	19.5
Communication services	2.0	0.9	1%	2.9
Finance and insurance	4.1	0.0	0%	4.1
Ownership of dwellings	0.0	0.0	0%	0.0
Property and business services	52.3	1.7	2%	54.1
Public administration and defence	1.4	0.0	0%	1.4
Education	1.1	0.0	0%	1.1
Health and community services	0.7	0.0	0%	0.7
Cultural and recreational services	3.3	0.0	0%	3.3
Personal services	0.4	0.0	0%	0.4
Household income	169.2	0.0		169.2
Total Expenditure	869.1	59.1		928.2

Source: Modelled result

Table 3 shows the modeled estimates of the level of economic activity that is associated with operations at GMH. The results are presented at three levels (note that these are not additive - each level includes the preceding level). The first is the level of activity that occurs at GMH itself, and within the direct suppliers to GMH (parts and general business services). The second (All Production Induced Impacts) is the implications of this traced through all the industry oriented supply chains at work. The third (Total Impact) is inclusive of the consumption spend impacts – the spend of GMH's workers on general consumption, and the flow-through effects of wages paid in suppliers etc.

TABLE 3: ESTIMATES OF ECONOMIC ACTIVITY ASSOCIATED WITH GMH'S SA OPERATIONS - 2011

	Holdens and Direct Suppliers			All Production Induced Impacts			Total Impact		
	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)
Agriculture, forestry and fishing	0.0	0.0	0	20.1	8.6	272	30.1	12.9	408
Mining	0.2	0.0	1	6.6	1.3	21	8.6	1.8	27
Automotive Manufacturing	295.8	197.5	3,332	299.4	199.9	3,386	302.6	202.1	3,434
Other Manufacturing	131.4	91.0	1,347	176.0	122.0	1,805	213.9	148.2	2,193
Electricity, gas and water	4.5	1.4	15	14.4	4.4	48	29.6	9.0	99
Building and construction	3.4	2.2	36	8.4	5.6	89	11.3	7.6	120
Wholesale trade	37.7	24.9	419	62.3	41.1	693	15.7	52.5	885
Retail trade	3.3	2.4	69	10.2	7.3	214	60.2	43.4	1,265
Accommodation, cafes & restaurants	1.0	0.6	16	6.1	3.7	95	22.0	13.2	342
Transport and storage	8.4	4.6	72	30.5	16.5	260	43.3	23.5	370
Communication services	1.5	0.7	9	9.5	4.5	58	21.3	10.0	129
Finance and insurance	2.5	1.3	13	19.4	10.0	103	60.0	30.8	319
Ownership of dwellings	0.0	0.0	0	0.0	0.0	0	100.8	0.0	0
Property and business services	25.7	19.0	233	85.9	63.4	778	119.1	87.8	1,079
Public administration and defence	0.7	0.6	11	2.8	2.3	41	4.5	3.8	65
Education	0.8	0.8	13	3.4	3.2	51	19.7	18.5	298
Health and community services	0.5	0.5	7	1.3	1.2	19	20.9	18.8	301
Cultural and recreational services	1.2	0.8	11	4.2	2.9	41	12.3	8.5	118
Personal services	0.3	0.2	4	1.0	0.9	16	16.2	14.8	250
Total	518.9	348.5	5,607	761.6	498.9	7,989	1,112.2	707.2	11,701

Source: Modelled result

The modeling suggests that the operations of GMH in 2011:

- Supported directly 5,600 jobs and underpinned \$520 million of value added at GMH and its first round suppliers.
- Supported, through production induced impacts, a total of almost 8,000 jobs and contributes \$0.76 billion to Gross State Product.
- When including all impacts (i.e. including the consumption induced impacts), supported through production induced impacts a total of 11,700 jobs (FTE's) and contributes \$1.11 billion to Gross State Product. This represented of the order of 1.3% of total Gross State Product, and 1.4% of employment in the State.
- Given that wages and salary income is taxed for employers who pay wages above the threshold level at 4.95% in terms of payroll tax, it is assumed that the majority of the wages impact above is in larger firms on the full tax rate, with a 10% discount applied to allow for a small number of firms which would not be. Other state taxes (property taxes, gambling, and motor vehicle) on average represent around 3.0% of GDP. On this basis it is estimated that linked to the total activity above state taxes represent around \$65 million (\$31.5 million of payroll tax and \$33.4 million of other taxes). Almost half (\$31 million) is linked to the outcomes directly in GMH and its suppliers, while the balance is linked to the flow through effects.

3.2 THE 2013 PICTURE

Since 2011 GMH has taken steps to improve competitiveness by reducing labour inputs and changing conditions and employment arrangements. As a consequence the wages component (and direct employment) has fallen. The major supply chain inputs are assumed to remain constant (based on information provided) while other inputs are assumed to be proportional to wages, and so generally fall. Table 4 indicates the estimated current local spend assuming that it is wages only that has been significantly reduced.

TABLE 4: ESTIMATED LOCAL EXPENDITURE ASSOCIATED WITH GMH'S SA OPERATIONS - 2013

	Operating Spend (\$m)	Annualised Investment Spend (\$m)	Sectoral spend re investment	Total (\$m)
Agriculture, forestry and fishing	0.0	0.0	0	0.0
Mining	0.2	0.0	0	0.2
Automotive Manufacturing	158.4	0.0	0	158.4
Other Manufacturing	369.6	22.5	30%	392.1
Electricity, gas and water	2.9	3.7	5%	6.6
Building and construction	1.5	7.5	10%	9.0
Wholesale trade	51.8	7.5	10%	59.3
Retail trade	4.2	0.0	0%	4.2
Accommodation, cafes & restaurants	1.5	0.0	0%	1.5
Transport and storage	7.0	7.5	10%	14.5
Communication services	1.3	0.7	1%	2.1
Finance and insurance	2.7	0.0	0%	2.7
Ownership of dwellings	0.0	0.0	0%	0.0
Property and business services	33.9	1.5	2%	35.4
Public administration and defence	0.9	0.0	0%	0.9
Education	0.7	0.0	0%	0.7
Health and community services	0.4	0.0	0%	0.4
Cultural and recreational services	2.1	0.0	0%	2.1
Personal services	0.3	0.0	0%	0.3
Household income	109.6	0.0		109.6
Total Expenditure	749.1	50.9		800.0

Source: Modelled result

Table 5 shows the modeled estimates of the level of economic activity that is associated with the operations at GMH as at 2013. The results are presented at three levels (note that these are not additive, each level includes the preceding level). The first is the level of activity that occurs at GMH itself, and within the direct suppliers to GMH (parts and general business services). The second (all production induced impacts) is the implications of this traced through all the industry oriented supply chains at work. The third (total impact) is the previous impacts, but also inclusive of the consumption spend impacts – the spend of GMH's workers on general consumption, and the flow-through effects of wages paid in suppliers etc.

TABLE 5: ESTIMATES OF ECONOMIC ACTIVITY ASSOCIATED WITH GMH'S SA OPERATIONS - 2013

	Holdens and Direct Suppliers			All Production Induced Impacts			Total Impact		
	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)
Agriculture, forestry and fishing	0.0	0.0	0	19.7	8.4	266	27.8	11.9	376
Mining	0.1	0.0	0	6.2	1.3	19	7.8	1.6	24
Automotive Manufacturing	206.5	138.0	2,382	210.0	140.3	2,434	212.6	142.1	2,474
Other Manufacturing	130.2	90.2	1,335	172.7	119.7	1,771	203.5	141.0	2,087
Electricity, gas and water	3.4	1.0	11	12.4	3.8	41	24.7	7.5	82
Building and construction	2.7	1.8	29	7.0	4.7	74	9.4	6.3	100
Wholesale trade	25.2	16.6	280	48.6	32.1	541	13.1	41.4	697
Retail trade	2.1	1.5	45	8.3	6.0	175	48.9	35.2	1,028
Accommodation, cafes & restaurants	0.7	0.4	10	5.3	3.2	82	18.1	10.9	283
Transport and storage	6.3	3.4	53	26.1	14.1	223	36.5	19.8	312
Communication services	1.1	0.5	6	7.9	3.7	48	17.5	8.2	106
Finance and insurance	1.6	0.8	9	16.1	8.3	85	49.1	25.2	261
Ownership of dwellings	0.0	0.0	0	0.0	0.0	0	81.9	0.0	0
Property and business services	16.9	12.4	153	69.3	51.1	628	96.3	71.0	872
Public administration and defence	0.5	0.4	7	2.3	1.9	33	3.7	3.1	53
Education	0.5	0.5	8	2.8	2.6	42	16.0	15.1	243
Health and community services	0.3	0.3	5	1.1	1.0	16	17.0	15.3	245
Cultural and recreational services	0.8	0.5	7	3.4	2.3	32	9.9	6.9	95
Personal services	0.2	0.2	3	0.8	0.8	13	13.2	12.1	203
Total	399.1	268.7	4,344	620.0	405.3	6,525	907.1	574.6	9,541

Source: Modelled result

The modeling suggests that in 2013 the GMH operation has the following economic, employment and financial impacts in South Australia:

- Directly 4,300 jobs and underpins \$400 million of value added at GMH and its first round suppliers (a reduction of 1,200 jobs over 2011)
- Supports through production induced impacts a total of almost 6,500 jobs and contributes \$0.62 billion to Gross State Product
- When including all impacts (i.e. including the consumption induced impacts), supports a total of 9,500 jobs (FTEs) and contributes \$0.91 billion to Gross State Product.
- Linked to the total activity above, annual state taxes paid based on this activity, exclusive of GST revenue is around \$53 million (\$25.6 million of payroll tax and \$27.2 million of other taxes). Almost half (\$24 million) is linked to the outcomes directly in GMH and its suppliers, while the balance is linked to the flow through effects.

4 THE IMPACT OF THE CLOSURE OF GMH'S OPERATIONS IN 2013

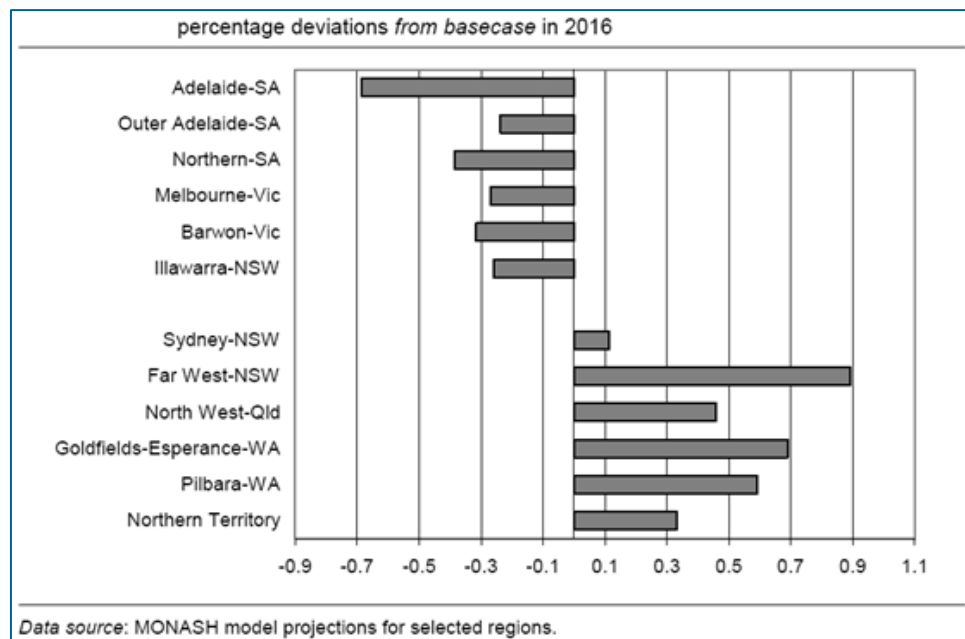
In this section of the report we examine what the likely impact would be of General Motors ceasing manufacturing operations at its Elizabeth plant (and in Australia). The contribution above represents an estimate of the level of activity that would be at risk if this were to occur at the current time. The above analysis indicates that the impact is potentially very significant, representing 1.5% of state employment in the entire supply chain in 2011 – noting that this has now reduced as a consequence of new employment arrangements in 2013.

It is necessary to recognise that there are a range of possible economic responses to an economic shock of this nature. The implications of reduced activity in the Motor Vehicle sector has been modeled and considered over the years, particularly by the Productivity Commission in the context of their Inquiries into tariff policy. The Review of Automotive Assistance Inquiry report in 2002 concluded that the rapid elimination of passenger motor vehicle assistance and general tariffs in Australian motor vehicles would result in:

- a forecast 7.0% decline in output (relative to the base case) from the national motor vehicle and parts industry
- a short term 0.07% decline in national aggregate employment, and a 0.06% decline in GDP – but this impact would be mitigated over time as employment opportunities were redirected to other sectors
- a short term 2% decline in employment in South Australia (note this was prior to the Mitsubishi closure) but this would reduce a little to be a 1.3% decline after 10 years (again relative to the base case).

This modeling indicates that at the national level the reduction in activity in the motor vehicle industry that would result from tariff changes would cause a small short term impact at the national level but minimal impact in the longer run as the resources previously allocated to the inefficient motor vehicle sector would be redirected to other sectors of the economy (often more efficient). It should be noted that this modeling generally assumes that there is costless transferability of skills from one industry to another. However the modeling also clearly concludes that it is states other than South Australia that will benefit from reductions in assistance to the sector – jobs will be created in mining in WA and Queensland, and international tourism at the prevalent locations. Therefore South Australia would be faced with some significant restructuring costs in this context. The outcomes are depicted in the report as follows:

FIGURE 1: EFFECTS ON REGIONAL EMPLOYMENT OF RAPID ELIMINATION OF MPV ASSISTANCE AND GENERAL TARIFFS - MONASH MODEL PROJECTIONS



Source: *Review of Automotive Assistance, Productivity Commission Inquiry Report No 25, 30 August 2002*

4.1 BASE CASE SCENARIO

The simplest interpretation of the impact of closure of GMH as it currently operates would be that the direct and supporting activity as estimated in Tables 4 and 5 would be lost to the state – i.e. there would be a reduction of \$0.9 billion of GSP or 9,500 jobs.

But the actual outcome would depend – as noted – on how the economy reacts, and as such alternative scenarios have been modeled as follows.

4.2 ADJUSTING FOR FREED RESOURCES

In considering the implications of GMH closing one possibility is that resources will effectively be diverted to other uses, and that the total impact will be less than the supply chain linkages as modeled above. Modeling using a Computable General Equilibrium model (as per the Monash model used in Productivity Commission reports) would include relationships where the decline in demand for resources associated with GMH closing would result in prices falling (real wages, property prices) and as such there would be increasing employment in other sectors. The Monash modeling, however, confirms that to the extent that this exists, much of this opportunity will be in other states.

It would be possible to model this using the Monash model or an equivalent, but this is out of scope and timing for this analysis. Therefore for this scenario it has been indicatively assumed that 50% of the lost output from GMH could be picked up across other industry sectors of the South Australian economy and this offsets the damage of the loss of GMH. The results of this modeling are shown in Table 6 and Table 7. Reductions in output in automotive and other manufacturing are offset by gains in other industry sectors.

TABLE 6: ESTIMATED LOST EXPENDITURE DUE TO CLOSURE OF GMH'S SA OPERATIONS – ALTERNATIVE SCENARIO 1: RESOURCES DIVERTED TO OTHER SECTORS

	Operating Spend (\$ m)	Annualised Investment Spend (\$m)	Sectoral spend re investment	Total (\$m)
Agriculture, forestry and fishing	12.9	0.0	0	12.9
Mining	10.9	0.0	0	10.9
Automotive Manufacturing	-148.8	0.0	0	-148.8
Other Manufacturing	-295.7	-8.0	30%	-303.7
Electricity, gas and water	7.6	-1.3	5%	6.3
Building and construction	39.9	-2.7	10%	37.3
Wholesale trade	-33.2	-2.7	10%	-35.9
Retail trade	17.3	0.0	0%	17.3
Accommodation, cafes & restaurants	8.3	0.0	0%	8.3
Transport and storage	14.6	-2.7	10%	12.0
Communication services	6.9	-0.3	1%	6.6
Finance and insurance	15.7	0.0	0%	15.7
Ownership of dwellings	19.4	0.0	0%	19.4
Property and business services	5.3	-0.5	2%	4.8
Public administration and defence	12.4	0.0	0%	12.4
Education	10.9	0.0	0%	10.9
Health and community services	18.0	0.0	0%	18.0
Cultural and recreational services	6.1	0.0	0%	6.1
Personal services	6.5	0.0	0%	6.5
Household income	-2.2	0.0		-2.2
Total Expenditure	-267.1	-18.2		-285.3

Source: Modelled result

**TABLE 7: ESTIMATED ECONOMIC IMPACT OF CLOSURE OF GMH'S SA OPERATIONS AS AT 2013
ALTERNATIVE SCENARIO 1: RESOURCES DIVERTED TO OTHER SECTORS**

	Direct and First Round Effects			All Production Induced Impacts			Total Impact		
	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)
Agriculture, forestry and fishing	7.4	3.2	101	-5.7	-2.4	-77	-7.9	-3.4	-107
Mining	6.2	1.3	19	2.8	0.6	9	2.4	0.5	7
Automotive Manufacturing	-204.0	-136.3	-2,343	-206.8	-138.1	-2,386	-207.5	-138.6	-2,396
Other Manufacturing	-100.9	-69.9	-1,034	-125.8	-87.2	-1,290	-134.1	-92.9	-1,375
Electricity, gas and water	3.2	1.0	11	-0.6	-0.2	-2	-4.0	-1.2	-13
Building and construction	11.4	7.6	121	14.0	9.3	148	13.3	8.9	141
Wholesale trade	-15.2	-10.1	-170	-31.0	-20.4	-344	18.5	-22.9	-386
Retail trade	8.8	6.3	185	6.1	4.4	128	-4.8	-3.5	-101
Accommodation, cafes & restaurants	3.6	2.1	56	1.2	0.7	18	-2.3	-1.4	-36
Transport and storage	5.2	2.8	44	-5.7	-3.1	-49	-8.5	-4.6	-73
Communication services	3.4	1.6	21	1.3	0.6	8	-1.3	-0.6	-8
Finance and insurance	9.8	5.0	52	9.4	4.8	50	0.6	0.3	3
Ownership of dwellings	17.4	0.0	0	17.4	0.0	0	-4.7	0.0	0
Property and business services	2.3	1.7	21	-19.8	-14.6	-180	-27.1	-20.0	-245
Public administration and defence	6.4	5.4	93	5.9	4.9	86	5.5	4.6	80
Education	8.4	8.0	128	7.7	7.2	116	4.1	3.9	62
Health and community services	13.9	12.5	200	13.5	12.2	195	9.2	8.3	133
Cultural and recreational services	2.2	1.5	21	1.7	1.2	16	-0.1	0.0	-1
Personal services	4.3	3.9	65	4.2	3.8	64	0.8	0.8	13
Total	-206.3	-152.3	-2,410	-310.4	-216.4	-3,490	-347.7	-261.9	-4,301

Source: Modelled result

The modeling for this scenario suggests the following impacts from the closure of GMH:

- When including all impacts (i.e. including the consumption induced impacts), there would be a loss of 4,300 jobs (FTE's) and \$0.35 billion of Gross State Product. This represents of the order of 0.4% of total Gross State Product, and 0.5% of employment in the State
- State taxes would be reduced by around \$22 million annually (\$12 million of payroll tax and \$10 million of other taxes).

It is noted that this scenario assumes that resources can be easily diverted to other activities. Some would argue, for example, that closure would make labour and other resources more freely available to the mining industry to the benefit of that sector. However, it is noted that mining is capital rather than labour intensive, employing far fewer people than the automotive sector does in South Australia. As a consequence the closure of GMH would incur significant adjustment costs, particularly given the sustained decline in manufacturing employment since the GFC, which severely constrains the range of opportunities available to those who lose jobs as a result of closure. Even during relatively buoyant economic times, such as that prevailing at the time of the Mitsubishi closure, alternative employment at a similar level can be difficult to secure. Significant investment in retraining, family and personal support, income support and economic development initiatives will be required to offset a shock of the magnitude of the closure of GMH. Wider losses also need to be taken into account including depopulation.

4.3 ADDITIONAL LOST VALUE

The modeling above assumes that there are constant returns to scale, and that the implications are linked only to the value of transactions associated with GMH's business. It must be recognised that this can understate the impact, as the impact of the loss of sales on suppliers to GMH can have a tipping point effect, resulting in the closure of businesses that are heavily, but not solely, reliant on GMH. A cumulative effect is also

possible resulting in the collapse of key elements of the automotive supply chain, particularly those producing for Toyota (estimated to be around \$200-270 million per annum in value to SA suppliers).

To model this effect it is assumed that GMH's activity represents 50% of automotive manufacturing suppliers, and that all of this would be lost. A review of the characteristics of the Tier 1 suppliers supports that GMH is indeed the dominant customer for many of these businesses, and for others without GMH, they would have no reason to be located in South Australia – as South Australian customers are a very small proportion of their activity. Indeed in many cases they have located in South Australia due to the existence of GMH, but in addition would lose the Toyota work. It is assumed that GMH's activity represents 50% of the work of the other manufacturing suppliers, and conservatively that 50% of the other activity is also lost. While some businesses may develop replacement customers, others will not be able to survive the loss of GMH as a lead customer.

The results of this modeling are shown in Table 8 and Table 9.

**TABLE 8: ESTIMATED LOCAL EXPENDITURE ASSOCIATED WITH GMH'S SA OPERATIONS AS AT 2013
ALTERNATIVE SCENARIO 2: ADDITIONAL LOST VALUE**

	Operating Spend (\$ m)	Annualised Investment Spend (\$m)	Sectoral spend re invest-ment	Total (\$m)
Agriculture, forestry and fishing	0.0	0.0	0	0.0
Mining	-0.2	0.0	0	-0.2
Automotive Manufacturing	-316.8	0.0	0	-316.8
Other Manufacturing	-554.4	-32.8	30%	-587.2
Electricity, gas and water	-2.9	-5.5	5%	-8.3
Building and construction	-1.5	-10.9	10%	-12.4
Wholesale trade	-51.8	-10.9	10%	-62.8
Retail trade	-4.2	0.0	0%	-4.2
Accommodation, cafes & restaurants	-1.5	0.0	0%	-1.5
Transport and storage	-7.0	-10.9	10%	-17.9
Communication services	-1.3	-1.1	1%	-2.4
Finance and insurance	-2.7	0.0	0%	-2.7
Ownership of dwellings	0.0	0.0	0%	0.0
Property and business services	-33.9	-2.2	2%	-36.1
Public administration and defence	-0.9	0.0	0%	-0.9
Education	-0.7	0.0	0%	-0.7
Health and community services	-0.4	0.0	0%	-0.4
Cultural and recreational services	-2.1	0.0	0%	-2.1
Personal services	-0.3	0.0	0%	-0.3
Household income	-109.6	0.0		-109.6
Total Expenditure	-1092.3	-74.3		-1166.6

Source: Modelled result

TABLE 9: ESTIMATED ECONOMIC IMPACT OF GMH'S SA OPERATIONS AS AT 2013 ALTERNATIVE SCENARIO 2: ADDITIONAL LOST VALUE

	Holds and Direct Suppliers			All Production Induced Impacts			Total Impact		
	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)	GSP or Value Added (\$m)	Wage and Salary Income (\$m)	Employment (FTE's)
Agriculture, forestry and fishing	0.0	0.0	0	-29.7	-12.7	-402	-40.8	-17.5	-553
Mining	-0.1	0.0	0	-9.2	-1.9	-29	-11.4	-2.4	-36
Automotive Manufacturing	-248.6	-166.3	-3,013	-255.1	-170.7	-3,112	-258.7	-173.1	-3,166
Other Manufacturing	-195.0	-135.1	-1,999	-261.3	-181.1	-2,679	-303.5	-210.3	-3,112
Electricity, gas and water	-4.3	-1.3	-14	-17.7	-5.4	-59	-34.6	-10.5	-115
Building and construction	-3.8	-2.5	-40	-10.0	-6.7	-106	-13.3	-8.9	-141
Wholesale trade	-26.7	-17.6	-296	-66.1	-43.7	-735	-18.4	-56.3	-949
Retail trade	-2.1	-1.5	-45	-11.6	-8.3	-243	-67.1	-48.4	-1,412
Accommodation, cafes & restaurants	-0.7	-0.4	-10	-7.6	-4.5	-118	-25.2	-15.1	-393
Transport and storage	-7.7	-4.2	-66	-37.3	-20.2	-318	-51.6	-27.9	-440
Communication services	-1.2	-0.6	-7	-11.2	-5.3	-68	-24.3	-11.4	-147
Finance and insurance	-1.6	-0.8	-9	-22.6	-11.6	-120	-67.8	-34.8	-360
Ownership of dwellings	0.0	0.0	0	0.0	0.0	0	-112.1	0.0	0
Property and business services	-17.2	-12.7	-156	-95.9	-70.7	-869	-132.8	-97.9	-1,203
Public administration and defence	-0.5	-0.4	-7	-3.2	-2.7	-47	-5.1	-4.3	-74
Education	-0.5	-0.5	-8	-3.9	-3.7	-59	-22.1	-20.8	-334
Health and community services	-0.3	-0.3	-5	-1.5	-1.4	-22	-23.3	-21.0	-336
Cultural and recreational services	-0.8	-0.5	-7	-4.6	-3.2	-44	-13.6	-9.4	-130
Personal services	-0.2	-0.2	-3	-1.2	-1.1	-18	-18.1	-16.5	-279
Total	-511.3	-345.0	-5,686	-849.7	-554.8	-9,048	-1243.6	-786.5	-13,176

Source: Modelled result

The modeling for this scenario suggests the following impact associated with the closure of the operations of GMH:

- When including all impacts (i.e. including the consumption induced impacts), there would be a loss of 13,176 jobs (FTE's) and \$1.24 billion of Gross State Product.
- State taxes would be reduced by around \$72 million annually (\$35 million of payroll tax and \$37 million of other taxes).

the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 12.5 million, and the number of people in the public sector who are employed in the health sector has increased from 2.5 million to 3.5 million (Department of Health 2000).

There are a number of reasons for this increase in the number of people employed in the public sector. One of the main reasons is the increasing demand for public services, particularly in the health sector. The population of the UK is increasing, and the number of people who are aged 65 and over is increasing rapidly. This has led to an increase in the number of people who are employed in the health sector, particularly in the areas of nursing and social care.

Another reason for the increase in the number of people employed in the public sector is the increasing demand for public services in other areas, such as education and social services. The number of people who are employed in the education sector has increased from 1.5 million in 1990 to 2.5 million in 2000, and the number of people who are employed in the social services sector has increased from 0.5 million in 1990 to 1.5 million in 2000.

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