

BLOWOUT!

A cost benefit analysis of the Australian Grand Prix

Final report

Prepared for Save Albert Park
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ADDING VALUE TO SOCIETY

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EXECUTIVE SUMMARY

The 2012 Australian Grand Prix resulted in a net economic loss to Victoria of between \$48.7m and \$66.7m dollars, with a mid estimate of \$60.6m. These estimates include not only financial losses to the state, but also consideration of non-market values such as noise and park amenity, benefits of increased visitation to Victoria and the media exposure of the event. Sensitivity analysis on the less certain variables indicates that the magnitude of the loss is not affected by these values. There is no doubt that the race reduced the welfare of Victorians in 2012 by tens of millions of dollars.

Save Albert Park (SAP) have commissioned Economists at Large to conduct this cost benefit analysis (CBA) of the Australian Formula 1 Grand Prix. CBA is the preferred economic assessment tool of the Victorian Department of Treasury and Finance and was recommended for ongoing assessment of the Grand Prix by the Victorian Auditor General's Office (VAGO) in 2007.

In 2007 VAGO estimated the race resulted in a net loss of \$6.7 million. Since that time the increasing costs of the race have been well publicised, but no further CBA study has been conducted. Our analysis closely follows the methodology of VAGO (2007), allowing the results to be compared:

	VAGO (2007) analysis of 2005 Grand Prix	Economists at Large analysis of 2011 Grand Prix	Economists at Large analysis of 2012 Grand Prix
<i>Total operating costs</i>	68,100,000	85,132,000	97,185,000
<i>Total revenues</i>	41,500,000	32,421,000	35,609,000
<i>Net operating loss</i>	-26,600,000	-52,711,000	-61,576,000
<i>Less other economic costs:</i>			
<i>Other government costs</i>	500,000	415,000	419,150
<i>Loss of park use and amenity</i>	400,000	2,689,506	2,716,401
<i>Congestion</i>	500,000	598,000	603,980
<i>Noise</i>	200,000	283,936	286,775
<i>Plus other economic benefits</i>			
<i>Victorian spectator and public consumer surplus</i>	5,300,000	1,854,775	1,873,322
<i>Net benefits of increased visitation</i>	5,400,000	2,878,000	2,906,780
<i>Media exposure and induced tourism</i>	0	263,000	265,630
<i>Mid estimate of net loss</i>	-6,700,000	-51,701,668	-60,556,574

The most important costs and benefits are based on financial data from the Australian Grand Prix Corporation annual reports. Like VAGO (2007), we include consideration of other economic and non-market costs and benefits, estimated with various methodologies. These costs and benefits

accrue to various groups of Victorians. Our analysis focused on the 2011 event due to the availability of data relating to attendees in that year, which helped estimate these values and allowed extrapolation to the 2012 event.

Given the uncertainty surrounding many values, we have estimated best and worst case scenarios for the event. These scenarios compared net operating benefits to low estimates of other costs and high estimates of other benefits and vice versa.

	VAGO (2007) analysis of 2005 Grand Prix	Economists at Large analysis of 2011 Grand Prix	Economists at Large analysis of 2012 Grand Prix
<i>Best case scenario estimate of net loss</i>	-800,000	-39,958,732	-48,696,210
<i>Worst case scenario estimate of net loss</i>	-13,200,000	-57,735,776	-66,651,024

Confusing claims are often made about the economic effects of the grand prix using methods other than cost benefit analysis. In particular, these claims relate to gross state product, visitor spending and media exposure.

Gross State Product (GSP)

GSP is a measure of economic activity rather than welfare. It measures how much activity we undertake, rather than how much better off that activity makes us. The grand prix may increase the overall amount of activity in Victoria, but its large costs mean it makes us worse off.

Visitor spending

The grand prix attracts visitors to Melbourne who spend money here in local businesses. When visitors spend money however, they expect goods and services in return. These goods and services use our resources and cost money to provide. The benefit to Victoria is not the amount visitors spend, but the difference between what visitors pay and what it costs to provide those goods and services. This benefit is included in our analysis as “Net benefits of increased visitation”.

Media exposure

Grand prix supporters often claim the main benefit of the race is the exposure the event brings to Victoria. While measures of the degree of exposure through the media exist, this exposure only brings economic benefit if it attracts tourism and investment that would not otherwise occur. There is little evidence to suggest a material increase in tourism or investment actually occurs, however we have included some estimates of media value as it seems unlikely that the race’s exposure is entirely without benefit.

Given the magnitude of these loss estimates and the reliability of the major costs and benefits, our strong conclusion is that the race reduces the economic welfare of Victoria and that it should be discontinued.

INTRODUCTION

Save Albert Park (SAP) have commissioned Economists at Large to conduct a cost benefit analysis (CBA) of the Australian Formula 1 Grand Prix.

In recent years much attention has been given to the finances and economic value of the race, as it attracts considerable public subsidy. In 2007 the Victorian Auditor General's office conducted an inquiry into investment in major events, including cost benefit analysis and economic impact assessment of the grand prix. The cost benefit analysis commissioned by the Auditor General concluded the most likely result was a net cost of \$6.7m. The Auditor General also recommended that cost benefit analysis be conducted at both a pre and post event stages.

Despite public debate around the finances of the race and the Auditor General's recommendation of further cost benefit analysis, this report is the first formal cost benefit analysis conducted since VAGO (2007). The only more recent assessment of the grand prix has been an economic impact assessment, (Ernst and Young, 2011). This report estimated impacts on GSP, but did not include cost benefit analysis.

ABOUT THE AUSTRALIAN FORMULA 1 GRAND PRIX.

The grand prix has been held annually in Melbourne since 1996. The event takes place over most of a week in March, with the main race on a Sunday, qualifying and other events occurring from the preceding Thursday. In 2013 the race will be held from the 14th to the 17th of March.

The race takes place in Albert Park, an area of public parkland only kilometres from Melbourne's city centre. The grand prix affects public use of Albert Park, public access is closed to the park during the race week, while construction and pack-up affects park use and amenity for several months per year. The use of public open space for the event has been controversial since the first race in 1996.

ABOUT COST BENEFIT ANALYSIS

Cost benefit analysis is an economic decision making tool drawing on welfare economics. It involves comparing financial revenues and costs in addition to non-monetary impacts on people's welfare, such as consumer surplus, environmental and social externalities.

Cost benefit analysis the preferred evaluation method of almost all economists, treasuries and finance departments. See for example Government of Victoria, (2011); NSW Treasury, (2007); Qld DIP, (2011); Department of Finance and Administration, (2006) Abelson, (2011; Dobes & Bennett, (2009); Ergas, (2009). As Ernst and Young (2011) pointed out:

To understand whether the Grand Prix delivers net welfare improvements to Victoria, a full cost benefit analysis would need to be prepared. (p55)

Cost-benefit analysis is necessary as other economic modelling only shows the impact on the state's economic output, not on welfare. Change in gross state product (GSP) is not an appropriate measure of welfare for three reasons identified by Abelson (2011) p49:

1. GSP includes output produced by, and income accruing to:

- *non-resident owners of capital employed in the state;*
 - *non-resident labour including short-term casual labour arriving for a major event;*
 - *the Australian government via income and indirect taxes.*
2. *GSP makes no allowance for the real cost of labour, i.e. the loss of household production or leisure which is embodied in labour's reservation price. Therefore, it does not measure the net benefit to labour.*
 3. *GSP does not account for any other non-market goods including consumer surpluses, health status, travel in non-work time or environmental impacts.*

Despite the recommendations of the Auditor General and the agreement between treasuries and economists, this is the first cost benefit analysis performed on the grand prix since VAGO 2007. To allow for comparability with VAGO 2007 we have adopted similar methodology to that study.

SCOPE OF ANALYSIS

GEOGRAPHY

Setting a consistent scope is vital for cost benefit analysis. As Victorian Government is the sole owner of the Australian Grand Prix Corporation, funds the grand prix and is responsible for negotiating with Formula 1 management, the most appropriate scope for this analysis is Victoria. This analysis will consider the changes in welfare that the 2011 Grand Prix caused to Victorian producers and consumers.

TIMING

The main focus of our report is the 2011 Grand Prix. We have chosen to focus on this year due to the availability of crowd data presented in (Ernst and Young, 2011). Ernst and Young detail the results of a survey of attendees providing information on their places of origin, spending estimates and intentions. This information is useful in calculating several values relevant to cost benefit analysis.

Such crowd survey data was not collected in 2012, making analysis more difficult. However, it is likely that most costs and benefits were of similar magnitude and the implications for the 2012 event and future events are discussed.

CONVERSIONS

All conversions of Australian dollar units between years have been done using the Australian Bureau of Statistics' Consumer Price Index Inflation Calculator, available at:
www.abs.gov.au/websitedbs/d3310114.nsf/home/consumer+price+index+inflation+calculator

QUALITY OF DATA

Cost benefit analysis involves a range of values, some of which are difficult to estimate. The bulk of the costs and benefits of the grand prix are financial, relating to operating costs and sales revenue.

These values are relatively easy to measure, have been independently audited and therefore have a high degree of reliability.

Other values are less certain. The impacts on local residents due to noise, or the values of induced tourism through international exposure are difficult to measure. We have therefore included a range of estimates for these values and calculated net values of the grand prix based on mid estimates, along with consideration of best and worst case scenarios to reflect the uncertainty in the analysis.

FINANCIAL COSTS

OPERATING COSTS

Operating costs represent the main financial cost of the Grand Prix and are quantified at \$86,562,000 in the AGPC 2011 annual report (p47), where they are reported in the categories of “Events management and staging”, “recurrent engineering”, “administration” and “marketing, promotion and catering”. Several points should be noted the use of these costs in an economic analysis.

Firstly, in an economy with well functioning labour, capital and product markets, these inputs should be valued at their opportunity cost – the value of goods and services foregone by putting the resources to this use. Media reports and public discussion sometimes present operating and capital costs as a benefit to downstream businesses. However, from a Victorian perspective, this is not correct. This expenditure would have occurred on other services in Victoria, such as health and education, had the government not decided to spend it on the grand prix. These costs, therefore, represent an economic cost of the event.

Secondly, the operating costs as presented in the financial reports include an amount of capital depreciation. While this is appropriate for financial analysis, allowing enterprises to account for the cost of capital expenditure over time, economic analysis ignores the sunk cost of earlier capital expenditure and considers only the actual decline in value and costs of wear and tear related to the event under analysis. Depreciation expenses to grand prix infrastructure and furniture and equipment have therefore been deducted from costs, leaving economic costs of operations of \$85,132,000 (see AGPC 2011 annual report page 48). This is consistent with the approach taken by VAGO (2007).

Table 1: Operating costs of Melbourne GP

<i>Event Management and Staging</i>	43,802,000
<i>Recurrent Engineering</i>	26,841,000
<i>Administration</i>	4,794,000
<i>Marketing/Promotion and Catering</i>	11,125,000
<i>Less depreciation on infrastructure</i>	1,174,000
<i>Less depreciation on furniture and equipment</i>	256,000
<i>Total economic operating costs</i>	85,132,000

OTHER GOVERNMENT COSTS

VAGO (2007) found that several public agencies reported significant net expenses in relation to the grand prix, in excess of receipts from AGPC, with a total of \$496,544.

The largest expense accrued to the City of Melbourne, with a net expense of \$126,341, mainly relating to a public parade in the City of Melbourne, a one-off event in 2005. Emergency services such as the Metropolitan Fire Brigade, police, ambulance, etc also experienced substantial net expenses, as did the department of infrastructure.

This study does not have the resources to contact these agencies and quantify any net expenses relating to the 2011 or other years' events. Instead we have taken low, middle and high estimates for sensitivity analysis.

Our low estimate is zero, which assumes that either these agencies no longer incur any expenses, or they are completely reimbursed by the AGPC. This seems unlikely as at least some organisations, such as St John Ambulance and the SES rely on volunteer labour. Even though it is not paid for by the agencies, volunteer labour has an opportunity cost to the volunteers and this should be recognised in economic analysis.

Our mid estimate was derived by taking VAGO's estimate of this cost for the 2005 grand prix, deducting the cost of the one off parade and converting this sum to 2011 dollars.

Our high estimate is derived by from VAGO's estimate of this cost for the 2005 grand prix, including parade, converted to 2011 dollars.

Table 2: Estimated costs to other government agencies

	Low estimate	Mid estimate	High estimate
<i>Other government and agency costs</i>	0	415,000	595,000

COSTS TO VICTORIAN COMMUNITY

LOSS OF PARK USE AND AMENITY

For the week of the grand prix the public is unable to use the Albert Park Lake area. For weeks leading up to and following the race, access is restricted as construction and removal of equipment takes place. These restrictions and the influence of construction detract from park users ability to use the park and the amenity they enjoy while they are in the park. This loss of amenity has economic value and must be included in economic analysis.

Such values are known as non-market values, as they are not relating to goods and services traded in markets. Estimating non-market values is carried out through a range of valuation methodologies. For background on these, consult environmental economics textbooks such as (Goodstein, 2002; Hussen, 2004).

A non-market valuation study was conducted on Albert Park in 2001, using travel cost methodology, Lansdell & Gangadharan (2001). They estimated only values relating to informal recreational uses (ie not including formal sporting activities), rather than total economic value and stressed that this therefore represented a “useful lower bound for a park’s value” (p2). Their best estimate for recreational value, or consumer surplus, relating to Albert Park was \$19.2m per year (\$25.3m in 2011 dollars). With approximately 1.7 million visitors per year in 2001, this represented an average consumer surplus of \$11.29 (\$14.89 in 2011), considered conservative relative to similar travel cost studies in the USA by VAGO (2007, p102).

Parks Victoria estimated in VAGO (2007) that 15% of Albert Park visits are by people from interstate or overseas. Consumer surplus associated with these visits should not be incorporated into cost benefit analysis from the perspective of Victoria. In our calculations we have reduced visitation by 15% to exclude these benefits, consistent with VAGO (2007).

No formal estimates exist for the decline in recreational visitation during the grand prix construction, race and deconstruction periods. VAGO’s (2007) approach was to assume visitation would halve across six weeks of construction and deconstruction and would be zero for two weeks of racing and peak preparation. During this time they estimated that visitors amenity would halve as a result of construction and deconstruction, traffic, etc. Applying the consumer surplus estimate to VAGO’s interpretation of disturbance of use and amenity values gives an estimate of lost consumer surplus of nearly \$2.7m¹.

Table 3: Estimated costs due to loss of park use and amenity

Variable	Unit	Value
<i>Estimated recreational visits per year</i>	Visits	1,700,000
<i>Visits per week</i>	Visits	32,692
<i>Portion of visits by Victorians</i>	Value	0.85

¹ Note this is considerably higher than VAGO’s (2007) figure of \$440,000. VAGO seem to make a computational error on p99, where they convert 1.7m annual recreational visits to an average of 6,000 per week. Clearly Albert Park receives more than 6,000 visits per week, suggesting an error. The error is carried through calculations on loss of use and amenity values on p101.

<i>Average weekly visits by Victorians</i>	Visits	27,788
<i>Consumer surplus per visit</i>	2011 Dollars	14.89
<i>Average consumer surplus from 8 week period</i>	2011 Dollars	3,310,162
<i>Period with no recreational visitation</i>	Weeks	2
<i>Period with reduced recreational visitation</i>	Weeks	6
<i>Reduced visitation period impact on visitation</i>	Value	0.5
<i>Reduced visitation period impact on amenity</i>	Value	0.5
<i>Consumer surplus for 8 week period of Grand Prix</i>	Dollars	620,655
<i>Loss in consumer surplus due to Grand Prix</i>	Dollars	2,689,506

Great uncertainty surrounds many aspects of this estimate. In sensitivity analysis we have included values 50% lower and higher to account for uncertainty.

Table 4: Sensitivity analysis of estimate for loss of use and amenity values

	Low estimate	Mid estimate	High estimate
<i>Losses of park use and amenity</i>	1,344,753	2,689,506	4,034,259

TRAFFIC CONGESTION AND DIVERSION COSTS

VAGO (2007) note that there had been little quantification of the effects of traffic diversions associated with the grand prix. Since then, it seems no publicly available research has been undertaken and it is beyond the resources of this report to carry out analysis of traffic diversions. We have based our estimates on converting the findings of VAGO to 2011 dollars. VAGO assumed:

- Diversions of 15,000 vehicles per day during grand prix week, lesser diversions for four weeks earlier and one week following the race
- Each vehicle would take an extra 3 minutes
- Travel time cost of \$22 per hour (\$0.37 per minute), based on 2005 Austroads Road User Cost estimates which have not been updated since.
- Vehicles can carry more than one person and can be used for business or leisure travel

VAGO's estimate was \$500,000, which in 2011 dollars is \$598,000. Given the uncertainty surrounding this value we have included values 50% lower and higher in sensitivity analysis.

Table 5: Costs of traffic diversion and road congestion

	Low estimate	Mid estimate	High estimate
<i>Traffic diversion and congestion costs</i>	299,000	598,000	897,000

NOISE COSTS

The noise of the grand prix affects local residents and businesses, creating another non-market cost of the race. Economic effects of noise in urban areas are most commonly estimated through their impact on property prices. This valuation method is known as hedonic pricing and was used by VAGO in their 2007 study, where they assumed:

- 2,500 properties would be severely affected and 3,300 others would be moderately affected
- Severely affected properties would have rental value decline of 20% for the 4 race days, while moderately affected households would experience a 10% decline (potential increases in value for accommodation for race goers is considered under surpluses to accommodation providers).
- Average rental value of \$500 per week

VAGO calculated a cost to local residents relating to noise of \$237,143. We do not have the resources to assess and update all the assumptions behind this estimate and its source studies on noise levels and impact on residents and patients in hospitals and aged care facilities. We assume these impacts remain unchanged. We have checked that:

- Median house and apartment values remain reasonably similar
- \$500 per week still seems a reasonable average rental value
- No more recent noise assessments have been carried out than VAGO's source of *Vipac Engineers and Scientists, Albert Park Grand Prix Noise Study, prepared for City of Port Phillip, Melbourne, 1994*. However, a study on the noise impacts of the grand prix on swan populations, Payne et al., (2012), suggests there environmental costs relating to noise that are not included in this estimate.

As VAGO's 2007 estimate still seems valid, we have updated its findings to 2011 dollars and included estimates 50% higher and lower due to the uncertainty surrounding these values.

Table 6: Noise and amenity costs

	Low estimate	Mid estimate	High estimate
Noise and amenity costs	141,968	283,936	425,904

BENEFITS OF THE GRAND PRIX

SALES AND SPONSORSHIP REVENUE

The revenue that the AGPC generates represents a benefit to the Victorian government and taxpayers, and is reported in the 2011 annual report on p47:

Table 7: Operating revenues

<i>Item</i>	
<i>Sales revenue</i>	26,462,000
<i>Sponsorship/Commercial revenue</i>	5,748,000
<i>Other revenue</i>	211,000
<i>Total</i>	32,421,000

Government contributions and interest received appear as income in the AGPC financial statements, but are an expense to the Victorian government, so are not included in cost benefit analysis.

VALUES RELATED TO ATTENDANCE

Several values below relate to the number and origin of attendees of the grand prix. The calculation of attendance at the Australian grand prix is a controversial topic. There are no formal counts of attendance through turnstiles or ticket scanning, rather attendance is estimated by the AGPC using “a combination of ticket sales and assumptions based on their experience with the event and their impressions of actual attendances over the four days of the Grand Prix.” (Ernst and Young, 2011 p16). Given their incentive to maintain public subsidy, the AGPC are regularly accused of overstating attendance, most recently by Baum (2013).

Ernst and Young (2011) in their assessment of the impact of the 2011 GP used the following figures in their analysis, based on AGPC data and a survey of attendees.

Table 8: Breakdown of attendees

Spectator type	Estimate
<i>Total individual spectators</i>	109,234
<i>Victorian</i>	70,893
<i>Interstate</i>	26,762
<i>International</i>	11,579
<i>Media, teams, staff, officials, etc</i>	14,553

Save Albert Park conduct their own estimates of grand prix attendance, based on counting at entrances to the event. Their estimate for the 2011 event was less than half the AGPC’s publicised total. Our analysis is primarily based on the Ernst and Young figures, while sensitivity analysis of some values will be adjusted to reflect the uncertainty in attendance figures.

CONSUMER SURPLUS TO VICTORIAN ATTENDEES

Consumer surplus is the extra amount that Victorian spectators would have been willing to pay to attend the race, over and above what their tickets cost them. By paying less than they were willing to pay, these spectators have gained in welfare and this gain should be included in cost benefit analysis. Consumer surplus to non-Victorian spectators is not relevant from a Victorian perspective.

Estimates of consumer surplus relating to major events is difficult, however, and few comparable empirical studies exist (Hone & Silvers, 2006). VAGO (2007) used an ACT Auditor General's study as the basis of their estimate of 10.8% of ticket revenues to Victorians. Applying this estimate to the 2011 race, we see:

Table 9: Estimate of Victorian consumer surplus

<i>Item</i>	<i>Estimate</i>
<i>Total ticket sales revenue</i>	26,462,000
<i>Portion of revenue attributable to Victorians</i>	64.9%
<i>Revenue attributable to Victorians</i>	17,174,000
<i>Estimate of average consumer surplus</i>	10.8%
<i>Estimate of consumer surplus to Victorians</i>	1,855,000

Given the uncertainty surrounding this figure, we have included sensitivity analysis of 50% above and below this figure:

Table 10: Sensitivity analysis of Victorian consumer surplus

	Low estimate	Mid estimate	High estimate
<i>Consumer surplus</i>	927,000	1,855,000	2,782,000

SURPLUSES RELATING TO ASSOCIATED EVENTS

VAGO (2007) included a benefit to Victorians attending a free parade in the central business district. No such parade or side event seems to have taken place in 2011 or 2012. Associated expenditure was removed from cost estimates above and no benefit is assumed here.

SURPLUSES RELATING TO INCREASED VISITATION

The increase in overseas and interstate visitor spending provides benefits to some Victorian businesses and workers. However, this expenditure is not a net benefit, as for their spending the visitors expect goods and services in return which require resources that are a cost to Victoria. The benefit is the difference between the expenditure gained from grand prix visitors and the cost that Victorian businesses incur in providing the goods and services.

Cost benefit analysis generally assumes that capital and labour are priced at their opportunity cost, and that they are fully employed – see Department of Finance and Administration (2006). This means that there would be no benefit from extra grand prix visitation, as all businesses and labour would have been fully employed in other activities even in the absence of the race. However VAGO (2007) considered that the short term nature of the event would allow businesses to employ underutilised or unemployed resources for the grand prix period. As these resources would

otherwise be unemployed or underemployed some degree of surplus is gained under this assumption.

Estimating these surpluses is difficult as the costs of businesses are not known without extensive research and VAGO (2007) found that employer and tourism groups were unable to provide an estimate. Instead they applied the work of Dwyer, Forsyth, Spurr, & Ho (2004) who estimated the net benefits of increases in tourism expenditure in NSW using a computable general equilibrium model. Dwyer et al estimated that increases in international and interstate visitation produced net benefits in the order of 15% and 18% of expenditure. VAGO assumed that a further 20% of these benefits would accrue to interests outside of Victoria, but we have omitted this from the upper estimate due to the likely labour intensive nature of most activity within the hospitality industry.

The results of Dwyer et al can be applied to Ernst and Young (2011)'s estimates of non-Victorian expenditures to estimate net benefits associated with increases in non-Victorian visitation:

Table 11: Surpluses from increased visitation

	Overseas	Interstate	Total
<i>Visitors & accompanying persons</i>	9,053	24,571	33,624
<i>Length of stay</i>	6	3.9	
<i>Average spend</i>	192	243	
<i>Spending</i>	10,429,056	23,285,937	33,714,993
<i>Net benefit %</i>	0.15	0.18	
<i>Net benefit</i>	1,564,358	4,191,469	5,755,827

Ernst and Young (2011) calculate values for "retained expenditure". This refers to expenditure by Victorians who would have left the state to attend a grand prix held elsewhere. We have not included a net benefit estimate based on this value for several reasons:

- The administration of the relevant survey questions in Ernst and Young (2011) was not reliable, merely asking if people "were likely" to attend a race elsewhere and treating this as a certain commitment. See (Campbell, 2011).
- For retained expenditure to be a net benefit Victorians must not only express a commitment to attend a race outside the state, but this trip must be in addition to other trips outside the state, rather than displacing another.
- As Ernst and Young identify, the likelihood of Victorians' attendance of a race outside the state depends on where the race is held. No other Australian state seems to express interest in hosting the race, and it seems unlikely that travel to all overseas locations are equally likely. No analysis of how many Australians currently do travel overseas to attend races has been presented.
- VAGO (2007) do not include this in their cost benefit analysis and elsewhere describe the value as "certainly contestable" (p142)

Given the uncertainty around the net benefit of increased visitation expenditure we have included several values for sensitivity testing. The low estimate is zero, following standard CBA practice of

assuming full employment. The high estimate is based on net benefit calculations above and the mid estimate is a midpoint of these estimates.

Table 12: Sensitivity analysis on surplus relating to visitation

	Low estimate	Mid estimate	High estimate
<i>Benefits of additional visitation</i>	0	2,878,000	5,755,827

BENEFITS OF MEDIA EXPOSURE

Supporters of the grand prix claim that the race serves to increase Melbourne's or Victoria's exposure to world audiences and that this has economic value. See for example (Tourism Victoria, 2011):

[the race] is associated with longer-term benefits such as induced tourism, It can be particularly beneficial in markets that are growing in importance for Victoria in trade and tourism, such as China and India.

Economic literature does not support this claim. Abelson (2011) recommends a conservative approach towards induced tourism and the VAGO (2007) was sceptical about its inclusion in analysis of the GP. Giesecke & Madden (2007) have written the only empirical study that touches on induced tourism in Australia, relating to the Sydney Olympics:

For the three years immediately after the games, foreign willingness to pay for NSW tourism grew by an average 2.2 percentage points less than for Australia as a whole. Only by 2005/06 did the rate of growth in demand for NSW tourism match the Australian average. These results lend no support to the existence of an induced tourism effect.

Induced visitation would need to be in addition to any visit to see the grand prix, as this would be included in the benefits of increased visitation value above. As these benefits are in the future, for inclusion in cost benefit analysis, they would have to be discounted to present values, which is impossible without an estimate of when the induced visitation might occur.

While the form, timing and value of such benefits seem dubious, it does seem reasonable that Victoria does derive some value from media exposure. Two studies have attempted to value this exposure, Comperio Research (2009) and Formulamoney (2011). Their estimates relate to "advertising equivalent" value, ie what it would cost to receive similarly wide coverage through paid advertising. See (Campbell, 2012) for further discussion of these estimates.

For inclusion in cost benefit analysis, this advertising equivalent value would have to translate into the same amount of increased consumer and producer surplus for Victorians. This seems unlikely given the above discussion on induced tourism, but we have included the "net media value" from Comperio Research and the "Advertising Equivalent value" from Formulamoney for Melbourne. Note that Comperio's estimate seems to refer to Australia, while Formulamoney's estimate refers just to the "brand" of Melbourne.

Table 13: Sensitivity analysis on value of media coverage

	Low estimate	Mid estimate	High estimate
<i>Benefits of media coverage</i>	0	263,000	6,000,000

OVERALL COST BENEFIT RESULTS FOR 2011 GRAND PRIX

COSTS AND BENEFITS WITH HIGH DEGREE OF RELIABILITY

Values relating to revenues and costs as reported in the AGPC annual report are monetary, market values and have been independently audited and so have little uncertainty attached to them. They form the most reliable basis of the cost benefit analysis.

Table 14: Net benefits with high reliability

<i>Total economic operating costs</i>	85,132,000
<i>Total revenues</i>	32,421,000
<i>Net benefits with high reliability</i>	-52,711,000

From this estimate we add mid estimates of other economic values discussed above to give what we believe is the best estimate of the economic value of the 2011 grand prix:

Table 15: Mid estimate of 2011 net loss

<i>Net benefits with high reliability</i>	-52,711,000
<u><i>Less other economic costs</i></u>	
<i>Other government costs</i>	415,000
<i>Loss of park use and amenity</i>	2,689,506
<i>Congestion</i>	598,000
<i>Noise</i>	283,936
<u><i>Plus other economic benefits</i></u>	
<i>Victorian visitor's consumer surplus</i>	1,854,775
<i>Net benefits of increased visitation</i>	2,878,000
<i>Media exposure and induced tourism</i>	263,000
<i>Mid estimate of net loss</i>	-51,701,668

SENSITIVITY ANALYSIS

Given the uncertainty around many economic values, we have calculated best case and worst case scenarios. Under the best case scenario the high estimates of other economic benefits have been included with the low estimates of other economic costs. Under the worst case scenario, vice versa, the low estimates of uncertain economic benefits are included with the high estimates of economic costs:

Table 16: Best case scenario of 2011 net loss

<i>Net benefits with high reliability</i>	-52,711,000
<u><i>Less other economic costs</i></u>	
<i>Other government costs</i>	0
<i>Loss of park use and amenity</i>	1,344,753
<i>Congestion</i>	299,000
<i>Noise</i>	141,968
<u><i>Plus other economic benefits</i></u>	
<i>Victorian visitor's consumer surplus</i>	2,782,162
<i>Net benefits of increased visitation</i>	5,755,827
<i>Media exposure and induced tourism</i>	6,000,000
<i>Best case scenario estimate of net benefits</i>	-39,958,732

Table 17: Worst case scenario of 2011 net loss

<i>Net benefits with high reliability</i>	-52,711,000
<u><i>Less other economic costs</i></u>	
<i>Other government costs</i>	595,000
<i>Loss of park use and amenity</i>	4,034,259
<i>Congestion</i>	897,000
<i>Noise</i>	425,904
<u><i>Plus other economic benefits</i></u>	
<i>Victorian visitor's consumer surplus</i>	927,387
<i>Net benefits of increased visitation</i>	0
<i>Media exposure and induced tourism</i>	0
<i>Worst case scenario estimate of net benefits</i>	-57,735,776

IMPLICATIONS FOR 2012 GRAND PRIX

Our analysis has focused on the 2011 race due to the availability of survey data collected for Ernst and Young (2011), and no survey of attendees was conducted in 2012. However, as no major changes have been reported a strong estimate can be made of the net benefits of the 2012 race.

In the tables below use financial data from the 2012 AGPC annual reports and 2011 estimates converted to 2012 dollars.

Table 18: 2012 operating net loss

Costs	<i>Event Management and Staging</i>	54,631,000
	<i>Recurrent Engineering</i>	27,939,000
	<i>Administration</i>	5,117,000
	<i>Marketing/Promotion and Catering</i>	11,778,000
	<i>Less depreciation on infrastructure</i>	2,009,000
	<i>Less depreciation on furniture and equipment</i>	271,000
	Total economic operating costs	97,185,000
Benefits	<i>Sales revenue</i>	27,896,000
	<i>Sponsorship/Commercial revenue</i>	7,255,000
	<i>Other revenue</i>	458,000
	Total economic operating revenue	35,609,000
Net benefits	Net loss with high reliability	-61,576,000

Table 19: Mid estimate of 2012 net loss

<i>Net benefits with high reliability</i>	-61,576,000
<u><i>Less other economic costs</i></u>	
<i>Other government costs</i>	419,150
<i>Loss of park use and amenity</i>	2,716,401
<i>Congestion</i>	603,980
<i>Noise</i>	286,775
<u><i>Plus other economic benefits</i></u>	
<i>Victorian visitor's consumer surplus</i>	1,873,322
<i>Net benefits of increased visitation</i>	2,906,780
<i>Media exposure and induced tourism</i>	265,630
<i>Mid estimate of net loss</i>	-60,556,574

Table 20: Best case scenario of 2012 net loss

<i>Net benefits with high reliability</i>	-61,576,000
<u><i>Less other economic costs</i></u>	
<i>Other government costs</i>	0
<i>Loss of park use and amenity</i>	1,358,201
<i>Congestion</i>	301,990
<i>Noise</i>	143,388
<u><i>Plus other economic benefits</i></u>	
<i>Victorian visitor's consumer surplus</i>	2,809,983
<i>Net benefits of increased visitation</i>	5,813,385
<i>Media exposure and induced tourism</i>	6,060,000
<i>Best case scenario estimate of net benefits</i>	-48,696,210

Table 21: Worst case scenario of 2012 net loss

<i>Net benefits with high reliability</i>	-61,576,000
<u><i>Less other economic costs</i></u>	
<i>Other government costs</i>	600,950
<i>Loss of park use and amenity</i>	4,074,602
<i>Congestion</i>	905,970
<i>Noise</i>	430,163
<u><i>Plus other economic benefits</i></u>	
<i>Victorian visitor's consumer surplus</i>	936,661
<i>Net benefits of increased visitation</i>	0
<i>Media exposure and induced tourism</i>	0
<i>Worst case scenario estimate of net benefits</i>	-66,651,024

IMPLICATIONS FOR THE CONTINUATION OF THE GRAND PRIX

Our analysis has focused on the evaluation of the 2011 race as a one off event. As the future of the grand prix is currently under debate, with negotiations for the future race contracts due to commence in the coming months, it is useful to consider the implications of these results. More detailed analysis of hosting the race would need to include required capital expenditure and depreciation over that period. More detailed consideration of tourism effects would also be desirable.

Below we have assumed the race would continue at 2012 estimates and have used a discount rate of 9%, consistent with advice from Victorian Department of Treasury and Finance (2005) relating to entertainment projects. Further consideration of this discount rate should be included in more detailed analysis of the race over time.

Table 22: Present value of grand prix continuation

	Present value of grand prix 2013-2015
<i>Best case</i>	-123,264,456
<i>Mid estimate</i>	-153,286,533
<i>Worst case</i>	-168,713,381

CONCLUSION

The 2011 Australian Grand Prix resulted in a net loss of between -39,958,732 and -57,735,776 dollars, with a mid estimate of -51,701,668. These estimates include not only financial losses to the state, but also consideration of non-market values such as noise and park amenity, benefits of increased visitation to Victoria and the media exposure of the event. Sensitivity analysis on the less certain variables indicates that the magnitude of the loss is not affected by these values. There is no doubt that the race reduced the welfare of Victorians in 2011 by tens of millions of dollars.

This analysis focused on the 2011 event due to the availability of data relating to attendees in that year. The analysis has strong implications for the 2012 race and future races. We estimate that the 2012 race reduced the welfare of Victorians by -60,556,574 and that extending the race to 2015 would have a net present value of -153,286,533.

Given the magnitude of these losses and the reliability of the major costs and benefits, our strong conclusion is that the race is a net economic cost to Victoria and that it should be discontinued.

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