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Economic Structure and Performance of the Australian Retail Industry

Prepared for the Initiative for a Competitive Online Marketplace

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Economics Policy Strategy

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1 Introduction

This submission has been prepared in response to the Productivity Commission's draft report on the Economic Structure and Performance of the Australian Retail Industry (the draft report). It has been prepared by ACIL Tasman for and on behalf of the Initiative for a Competitive Online Marketplace (ICOMP). ICOMP is funded by member contributions as well as sponsorship from Microsoft. Parker & Partners acts as the secretariat in Australia.

This submission reinforces the points made earlier by ICOMP in its May 2011 submission to the Productivity Commission (Initiative for a Competitive Online Marketplace, 2011). Specifically, it highlights the potential dangers of a dominant online search provider and provides indicative estimates of the economic consequences should such a provider attempt to capitalise on its market dominance in ways that could compromise search efficiency for internet users and/or reduce competition in online retailing.

This submission does not purport to be an exhaustive analysis of online markets or of all markets characterised by search engines. Rather, it considers some of the specific issues that could arise in markets where one search engine is dominant. As ICOMP pointed out in its May submission, the Australian marketplace is currently dominated by Google, which accounts for approximately 90 percent of searches in Australia (Initiative for a Competitive Online Marketplace, 2011, p. 3).

This submission begins, in section 2, with a brief overview of internet search and its role in the online marketplace. It goes on to examine two particular incentives that apply to a dominant search engine.

First, in section 3, it is argued that a dominant search engine has both the incentive and the ability to reduce the efficiency of search in order to increase the number of searches made on its engine and thus its profit. We estimate that, if this incentive is acted on and search efficiency is reduced by 10 per cent, the annual cost to Australians in terms of lost time would be approximately $430 million.

Second, in section 4, it is argued that a dominant search engine has both the incentive and the ability to prioritise its own product offerings over those of competitors, both actual and potential. In addition, a dominant search engine can take advantage of its position to extract more value from internet search than it could if competition was more intense, for example by way of charging high rates for businesses to advertise on its search results pages (sometimes described as "paid search"). Internet search has grown at very high rates for the

last few years, which may be due partly to the ability to obtain increased revenues through search advertising. As the major online search providers are all located offshore, the spending on paid search by Australian businesses represent an outflow of profits from the Australian economy. If the rates for paid search were reduced, Australian businesses are likely to be in a better position to direct their profits towards internal business growth and diversification, research and development and other initiatives which could benefit their consumer base and overall, strengthen Australian's retail industry.

If increased competition between online search providers were to reduce the anticipated growth in the spending by Australian businesses on paid search from 20 per cent to 15 per cent per annum over the next five years, we estimate that the total increase in Australia's Gross National Product (GNP, an aggregate measure of the welfare of all Australians) would be approximately $1.5 billion (undiscounted) in today's dollars over that time period.

2 Background

The internet has become a fundamental part of modern society. In Australia the internet affects most aspects of most people's lives. From an economic perspective, the annual value of the internet was recently estimated in a report commissioned by Google. The authors estimated the value of the internet at $50 billion, or almost four percent of Australia's Gross Domestic Product. However, as the authors note, the way that GDP is measured tends to understate the true impact that the internet has on Australian society. The wider benefits of the internet (and other things) are difficult to estimate, but might be approximately $80 billion, more than one and a half times the impact on GDP (Deloitte Access Economics, 2011).

Approximately one third of those wider benefits are thought to go to business and Government with the other two thirds going to consumers.

2.1 Growing importance of the internet to Australian retailers

In a separate study, the same authors who estimated the value of the internet at almost four percent of Australia's GDP estimated the value of online commerce at between $19 and $24 billion, almost half of the total value of the internet(Access Economics, 2010).

As ICOMP noted in its May submission, the Australian Government's planned National Broadband Network (NBN) is expected to lead to substantial further growth in online retail activity. The Government clearly envisages and supports the growth in online retail activity with the Government's National Digital Economy Strategy setting out a vision for Australia to realise the benefits of the NBN and position Australia as a leading digital economy by 2020. This is supported by the fact that online commerce, of which online retailing is a subset, has grown rapidly in recent years, more than tripling between 2003/04 and 2008/09 (Productivity Commission, 2011).[1]

At the same time that growth in online sales has been strong, growth in the physical 'bricks and mortar' sector of the retail industry has been slow. As the Productivity Commission noted in the draft report, the growth in retail sales has shown a downward trend for many years. This has been accentuated since the onset of the global financial crisis by increased household saving. In more

[1] The commerce referred to here is broader than retail as it includes business to business transactions as well. However, more accurate data is scarce and the growth rate is likely to be indicative.

recent years it has been compounded by cyclical factors and sales during 2011 "are especially soft" (Productivity Commission, 2011, p. xix).

Simultaneously to the slowed growth in 'bricks and mortar' retailing, the internet has become an increasingly important part of the retail sector. It has changed the nature of competition in retail markets. A large number of Australian consumers and businesses have begun using online retailing in recent years. Now that these Australians have begun to conduct business online they are likely to continue. The internet and online commerce is highly likely to be an area of strong growth for retail sales, and it will be an increasingly important market for Australian retail businesses to access in years to come. This has also been recognised as a key area of focus by the Government as part of the NBN rollout, with one of the eight digital economy goals being that by 2020, Australia will rank in the top five OECD (the Organisation for Economic Cooperation) countries in the portion of businesses and not for profit organisations using online opportunities to drive productivity improvements, expand their customer base and enable jobs growth.[2]

2.2 Link between internet search providers and a competitive online marketplace

The rise in online business has been fairly recent, and especially recent in Australia, which continues to trail the world in its presence in online retailing.

In the early days of internet commerce, the internet was seen as a "nearly perfect market [where] information is instantaneous and buyers can compare the offerings of sellers worldwide." At the time, the result was expected to be "...fierce price competition, dwindling product differentiation and vanishing brand loyalty" (Kuttner, 1998).

As discussed in ICOMP's May submission, and noted by the Productivity Commission in its draft report, search engines are a critically important part of the online marketplace. While the internet allows consumers to assemble information from a wide range of sources around the world, these sources can usually only be found using search engines. Therefore, it is not the internet itself but internet search engines that can drive the competitiveness of online markets.

Online search engines will play the key leading role in facilitating the growth of a healthy and strongly competitive online marketplace.

[2] http://www.nbn.gov.au/the-vision/digital-economy-goals/

This key point was noted by the Council of Small Business Organisations of Australia (COSBOA), which the Productivity Commission acknowledged and quoted in its draft report. COSBOA identified that, as the internet becomes a more important part of the retail sector, it is possible that small business will be unable to be found.

The risk that Australian small to medium businesses may not be found in the online marketplace is exacerbated by the fact, as reported by the Australia Institute, that online search engine users tend to concentrate almost exclusively on links which rank highest and ignore lower-ranked links(Fear & Denniss, 2011). One study cited by the Australia Institute found that the first search result receives, on average, almost six times as many clicks as the second ranked result and nine times as many as the third ranked result. Together, the top three ranked results account for more than 90 percent of all clicks, leaving very few to share among lower ranked results.

There is a risk that, left unchecked, the market will deliver an outcome where large businesses occupy the top few rankings in the results of any given online search and customers pay little or no attention to others. In effect, this could result in the development of online marketplaces which are highly concentrated, with only the businesses that appear regularly in the top two or three spaces in search results able to compete meaningfully.

Such a result would be analogous to a high degree of brand loyalty. While customers may not be loyal to particular suppliers in a traditional sense, or by choice, they may buy only from one or a few suppliers because they are not able to 'see' others. If this transpired, the fiercely competitive market anticipated in the early days of online commerce would not emerge. This is likely to have a detrimental impact on the strength of new business in Australia, as the online marketplace ideally represents an opportunity for new businesses, especially small businesses, to access a wider customer base and grow their retail offering in a manner that may not be similarly achievable in the bricks-and-mortar retail space. It is also likely to reduce the ability of Australia to realise its digital economy goals and reap the benefits of the Government's significant investment in the NBN.

2.3 The nature of internet search

As outlined in ICOMP's May submission, there are two components to search, namely 'natural' search (also known as organic search) and paid search.

In the first of these, the search engine 'crawls' the internet to identify and 'learn about' web pages, assembling what it learns for use in responding to searches later. Having done this, the search engine then receives a search phrase and does two things:

Matching – identifying pages which satisfy the search phrase. Some search phrases will produce hundreds of thousands or millions of hits.[3]

Ranking – deciding which of these to place in what position in the search results. Typically these are sorted in pages with approximately ten results per page.

In paid search, the search terms selected by the user are matched to terms input by paying advertisers. The 'crawling' stage is unnecessary because the 'universe' in which search is conducted is defined by user inputs. Matching is still required and ranking is typically influenced by payments that have been made.

Paid results are typically placed in a separate section of the search results page and marked 'Ads', 'sponsored links' or similar.

The search engine can influence the results that are presented to users in myriad ways. Many of these go to the heart of how search engines compete. Broadly, they are in the business of answering questions asked by searchers. By providing better answers to those questions they strive to increase the chance that searchers will use their engine instead of others and thus their 'traffic'. This is monetised by selling advertising through paid links, which represent the majority of a search engine's revenue (Initiative for a Competitive Online Marketplace, 2011, p. 6).

This submission does not purport to be an exhaustive analysis of online markets or of all markets characterised by search engines. Rather, it considers some of the specific issues that could arise in markets where one search engine is dominant. As ICOMP noted in its May submission, the Australian online marketplace is currently dominated by Google, which accounts for approximately 90 percent of online searches in Australia.

In a market where search engines compete with one another for advertiser dollars, they must also compete for search traffic. In this situation competitive forces on the search engine provide it with an incentive for continuous improvement. However, in the absence of these competitive constraints a search engine may face different incentives. In sections 3 and 4 of this submission, two of these incentives are analysed in detail, namely that it may be in a search engine's interest to:

1. provide less relevant results in some situations to maximise traffic; and
2. provide preferential treatment for its own product offerings, even where these do not match the user's search as closely.

[3] For example, as this report was being written, the phrase 'wallaby rugby' returned 146,000 hits on Google, while the phrase "all black rugby" produced 29,900,000 hits.

3 Reduction in search efficiency

In this section it is argued a dominant search engine has an incentive to reduce the quality of its both its natural and paid search results. The reduction in search efficiency imposes an economic cost on society through the extra, unnecessary, time spent searching. This incentive is strongest where the search engine is dominant and can act without risk of competitive constraint and, by corollary, would be weakened if competitive constraints were in place.

This incentive comes about because:

1. search engines have an incentive to maximise number of searches, not just the quality of search; and
2. search engine users cannot know whether they are being given the best quality search result unless there are other, equally well established search engines to compare.

3.1 Search engines are incentivised to maximise number of searches, not search quality

Search engines provide an online search service for free (to the consumer). Natural search, which accounts for a significant proportion of the search that is conducted, is free to both the searcher and the 'searchee'.

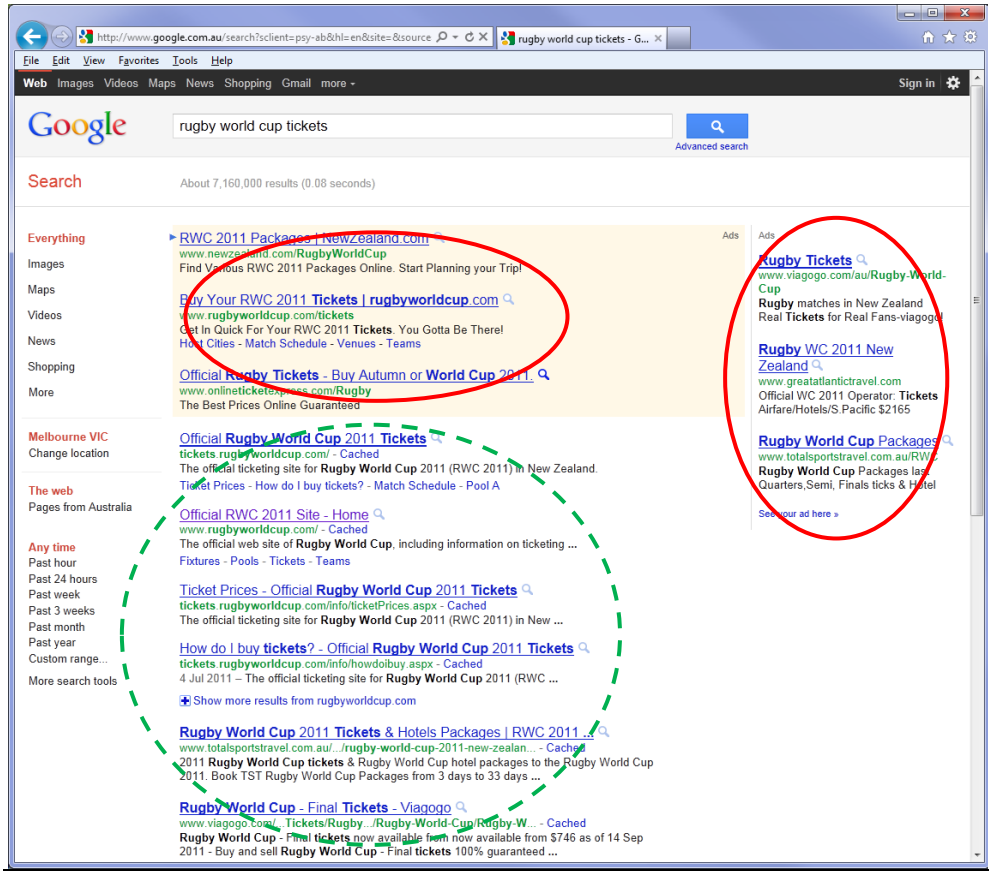
However, search engines are fundamentally businesses, generating revenue by selling advertising. This revenue is typically a function of the number of click throughs a site receives from its search engine. For example, if a search engine presents a paid link in response to a search request and the searcher clicks that link, a payment typically passes to the search engine from the owner of the link. By contrast, if a searcher follows a link generated by natural search, the search engine will likely earn nothing unless the consumer follows one of the search engine's own links.[4]

This is illustrated in Figure 1 below. In this case, the search term is "Rugby World Cup tickets". The search results in the top and top right positions (red solid circles) are paid search results, for travel packages. If these are clicked then the travel promoter pays a fee to the search engine, in this case Google.

The remainder of the search results (green dashed circle) are 'natural'. If these are clicked, no money changes hands.

[4] For example, the link might take the consumer to a shopping website operated by the search engine itself, such as Google shopping.

Figure 1 **Paid and natural search**



Source: internet search conducted by ACIL Tasman, 7 September 2011

Broadly, search engines face two incentives. First, it is in their interest to maximise the number of searchers using their engine and thereby maximise the price they can command for paid search. Shopping centres can charge rents in proportion to through traffic of shoppers and newspapers can charge for advertising in proportion to circulation. For web pages the price that can be charged for advertising is proportional to the number of 'views'.

Second, it is in a search engine's interest to maximise the number of times that searchers click through paid links to advertiser's sites.

Together, these incentives mean that, all else being equal, the profitability of a search engine increases as searchers both visit their engine more often and click through to more websites. This would be offset if consumers responded to the need to conduct more searches by switching to an alternative search engine which was more efficient at generating the desired result. However, as discussed in the next section, this may be impossible in a market characterised by a dominant search engine.

3.2 Search engine users cannot determine the quality of search unless there are competitors

For the most part, search engine users are interested in receiving the highest quality search results they can. As the Australia Institute noted, "web users...by now almost expect search engines to pre-empt their desires." The ideal search engine would provide the user with precisely what they were looking for, first time every time (Fear & Denniss, 2011).

Three different 'types' of goods are identified in the economic literature. They are distinguished by how much the (would be) consumer can determine about them before committing to a purchase. They are traditionally all referred to as goods reflecting the papers in which the terms were first offered. However, the analysis applies equally to services as to physical goods.(Nelson, 1970) (Darby & Karni, 1973)

The first type are *search goods*. These are goods whose quality and other relevant characteristics can be determined by a consumer before they are purchased and consumed.

The second type are *experience goods*. The consumer cannot determine the quality and other relevant characteristics of these goods until after they have been purchased.

The third type are *credence goods*. These are goods whose quality and other relevant characteristics are difficult or impossible to determine, even after purchase.

The 'type' of goods on sale in a market is critically important to performance and outcomes in that market. This was first illustrated by George Akerlof in a paper for which he won the Nobel Prize in Economics in 2001. In that paper, entitled "The Market for Lemons: Qualitative information and the market mechanism", Akerlof showed that where a seller knows the quality of a product but would be buyers cannot be sure until after purchase the market can break down and the product can become 'unsellable' (Akerlof, 1970).

In Akerlof's paper the analysis was of a market for second hand cars, where some are 'high quality' and others are 'lemons'. A buyer cannot tell whether the car they want to buy is a lemon until they have bought it so they reduce the price they are willing to pay to take this into account.

A seller who knows that the car is not a lemon would prefer to keep it than sell it for the value of a lemon.

Soon, only lemons are available on the market and 'high quality' cars cannot be sold even though there are willing buyers and sellers.

The 'lemons problem' could be overcome if the seller could give the buyer certainty that their car is 'high quality'. In other words, if the product is a search good the lemons problem does not exist. Many firms put significant effort into transforming experience goods into search goods, for example by offering independent test reports, free samples and money back satisfaction guarantees.

Credence goods create different distortions. The quality of these goods cannot be determined even after purchase, so consumers are entirely dependent on other sources to evaluate potential purchases. This makes consumers vulnerable to purchasing low quality products without realising it.

Ironically, in economic terms internet search could not be described as a "search good". The customer has no way of knowing whether they will be given the most accurate set of results before they conduct their search. When they learn this, and thus whether search is an experience or credence good, depends largely on whether or not the search engine in question faces effective competition, which would encourage the search engine to produce more accurate results and offer a better service than its competitors.

When a search engine user conducts a web search they are presented with a set of responses. They can click through to these websites and make a judgement as to whether or not the suggested sites are what they were looking for. The experience good characteristic arises because the searcher will typically not be able to know whether a site that was not presented was a better match than those that were presented. The user may expect that the search engine has provided the best result possible, but they cannot be sure.

If there are several competing search engines available for the user to choose between, the user can determine the quality of the search service provided by one search engine by comparing it with a competitor. In this case, the experience good nature of search may have little impact on market outcomes because online search takes on the characteristic of a search good (Round & Tustin, 2004).

Over time search engine users could be expected to learn, either from experience or by interacting with others, which engine provided the best search results. This engine would attract increased traffic and may succeed at the cost of others. Of course other engines would be expected to anticipate this and attempt to prevent it by ensuring that the search results they offer are the best they can provide.

By this process, competitive pressure between search engines could be expected to ensure that each engine strives to provide consumers with the best possible service.

However, in the absence of strong alternatives, the consumer would have no way to know whether the dominant search engine had provided the best possible search result. In this case, search takes on the characteristic of a credence good, one whose quality cannot be determined even after consumption.

The implication, as discussed in the next section, is that the search engine has an incentive to reduce the quality of search results to increase its own profitability.

3.3 Incentive to reduce search quality

Search engines and search engine users want different things from internet search. Search engine users want the best result first time every time. By contrast, search engines want more searches rather than less.

The fact that the user cannot tell whether a dominant search engine is providing it with the best possible search results makes the user vulnerable to the credence good nature of search. This vulnerability is compounded when the search engine is dominant because the user cannot take their search elsewhere.

As identified previously by DIW Econ, there are a number of factors relevant to the scale of the vulnerability. In addition to the competitive constraints discussed above search engine users are less vulnerable to the credence good nature of search:

- the more critically they view search engine results; and
- the more that they use search engines to find generally known information such as the web address of a known business (DIW Econ, 2009).

While the Australia Institute's recent survey did not address the issue of trust directly, it provided some evidence to suggest that Australians are split as to whether they are likely to evaluate search results critically. According to that survey, approximately half of Australians think that search engines give the highest ranking to web pages that are "*most relevant to my keywords*". Most of the remainder think that paid advertising is ranked higher. (Fear & Denniss, 2011)

It may follow that those who reported knowing that paid advertising ranks higher are more critical than others in evaluating search results. This would place approximately half of Australian internet users, namely those who consider that search engines rank search based only on keywords, in a position of vulnerability to the credence good nature of search.

If a significant proportion of searchers are unable to determine the quality of search results they are given, the search engine has the ability to alter search

quality to its own advantage. In the absence of a competitor it can do this without losing search volume.

Given the nature of paid and natural search, in these circumstances a dominant search engine has an incentive to reduce the accuracy of the search results it provides to its users so that they return several times to repeat their search or to follow other links from the original search. By doing this, the search engine increases both its revenue and the amount of time that must be spent on search. They face an incentive, which is well documented in the economic literature, to refer customers to lower quality stores first in anticipation that the customer will return and be referred again (Hagiu & Jullien, 2010).

This gives rise to a market for information providers or, in the online context, comparison shopping or vertical search sites. As discussed in the next section of this submission, a dominant search engine has an incentive to hinder the development of these types of online search services as well.

If the market for online search was competitive, customers would be in a position to 'switch' from one search engine to another if they were dissatisfied with the performance of the first search engine they used. The ability to switch would offset the incentive to offer lower quality results, with the search engine's strategy constrained by the likelihood that switching would occur and that consumers would be able to obtain more effective results from a competitor search engine. However, in the absence of competitors, this constraint would not apply. The result in this scenario is that search efficiency is decreased and search engine users need to spend more time performing any given search. The next section of this submission provides an estimate of the social cost of a modest reduction in search efficiency.

3.4 The social cost of reduced search efficiency

The Online Publishers Association recently conducted a 6-year analysis of its Internet Activity Index (IAI), a monthly gauge of the time being spent with Commerce, Communications, Community, Content and Search. The results of this analysis revealed that internet users spent an average of 57 minutes per month on search in 2009, an increase of 111 per cent since 2003.

Table 1 **Average time spent per month on various internet activities**

Category	2003 average monthly time (hours: minutes)	2009 average monthly time (hours: minutes)	Change in time
Content	3:42	6:58	+88%
Communications	5:20	4:54	-8%
Commerce	2:07	2:40	+26%
Community	n/a	3:01	n/a
Search	0:27	0:57	+111%

Data source: OPA Internet Activity Index

According to Nielsen, there were approximately 17 million internet users in Australia in 2010. Using the above information, Australians currently spend about 969 million minutes per month (or 194 million hours per year) on internet search.

According to *ABS 6306.0 Employee Earnings and Hours, Australia, May 2010*, non-managerial employees were paid for, on average, 31.3 hours per week and received average weekly total cash earnings of $948.90. That is, the average hourly wage rate was $30.32. In its study, Deloitte valued the time saved by internet search at $22 per hour or the post tax value of the average wage (Deloitte Access Economics, 2011).

If $22 per hour is used as an indicator of the value people place on their time, the value of time lost due to inefficient search can be estimated. A 10 per cent reduction in search efficiency will therefore translate into a cost to Australian society of approximately $430 million annually.

4 Reduction in online retail competition and competitiveness of Australian retailers

In the previous section it was put forward that a dominant search engine has an incentive to provide reduced search quality to search engine users and that this is detrimental to consumers. This section examines the way that a dominant search engine might act towards other businesses, both customers of and competitors to the dominant search engine.

We argue that a dominant search engine will have the incentive, and ability, to charge its customers higher prices than it could if the market for internet search was characterised by more competition. This is discussed further in section 4.1.

In addition, we argue that, in the absence of vigorous and effective competitors, a search engine has both the incentive and ability to give preferential treatment to its own product offerings over those of its competitors. As discussed further in section 4.2, this is not without precedent and is likely to be detrimental to both Australian businesses and consumers alike.

In section 4.3 we present an estimate of the potential impact of these two incentives.

4.1 Increase price without losing sales

It is widely recognised that businesses are more likely to offer goods and services to consumers based on lower and more reasonable pricing structures in circumstances where the businesses operate in a highly competitive market. If businesses that operate in competitive markets do not do so, customers are likely to pass their products and services in favour of lower priced offerings from their competitors. Therefore, businesses must consider their choice of pricing structure and quality of their goods in the knowledge that, if their offering is poor quality or too expensive, they risk losing sales to their competitors.

However, in some circumstances, businesses are able to set price without fear of losing sales to competitors. The most common case is a monopoly, when only one firm offers a particular good or service in a relevant market. Regardless of their satisfaction with the price and quality combination offered by the monopolist, consumers cannot (by definition) buy from elsewhere. Therefore they must either take what is offered or do without, and the firm can

act relatively free from the constraints of competition provided their offering is in demand.

By definition, a firm that can act persistently in a manner free from competitive constraint is one that possesses market power (Kaysen & Turner, 1959).

Search engines sell advertising services to businesses for paid search. When a search engine has market power it has the ability to charge a higher price for that service than it could otherwise charge. It is likely that any such firm would take advantage of that ability and set prices accordingly.[5] When the dominance of a search engine reduces the alternatives available for a business to be noticed on the internet, it is likely to bid a higher price for paid search listings.

In practice, Google supplies in excess of 90 per cent of internet search in Australia and almost as much globally. It follows logically that the price for Google's services is higher than if it was matched by a competitor of similar scale. For this reason, it is reasonable to expect that Australian businesses are now paying more for paid search results than they would pay if there were vigorous and effective competitors to Google in the online search marketplace.

4.2 Prioritise related sites

As the Productivity Commission noted in the draft report, search engines translate search terms to results using algorithms that are proprietary to themselves. These algorithms are closely guarded and are, as ICOMP noted in its May submission, a key arena of competition between search engines.

It is not surprising, therefore, that the same search made on different search engines will produce different results. The Productivity Commission produced an example of this in its draft report (Productivity Commission, 2011, p. 120).

It is also unsurprising that Google, which has grown rapidly in the fifteen years or so since it began, has acquired a number of other businesses.[6] Many of these other businesses are in markets related to internet search, making the modern Google a genuinely multiproduct firm.

As a multiproduct firm, Google has an incentive to direct search engine users to its own services in preference to third party services which can be located online using a Google search. It also has an incentive to disadvantage its competitors. As the Australia Institute noted, Google acknowledged this incentive in 2007, saying at a conference that it was originally hesitant to host

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[5] This is not the same as misuse of market power as prohibited by the Competition and Consumer Act.

[6] See http://en.wikipedia.org/wiki/List_of_acquisitions_by_Google for a list of more than 100 acquisitions made by Google since 2001.

content in competition with other businesses. It appears that in relation to some of Google's product offerings, the incentive to preference its own service has been too strong.. For example, before Google offered its own finance service it is understood that it would order search results based on certain published metrics (a "search algorithm"). However:

> When we rolled out Google Finance, we did put the Google link first. It seems only fair right, we do all the work for the search page and all these other things, so we do put it first...That has actually been our policy since then
>
> (Mayer, 2007)

In recent years, a number of competitors have complained that Google has followed this incentive to their detriment. The Productivity Commission noted some of the complaints made by competitors in its draft report (pp. 121, 122).

The European Commission is currently investigating allegations that Google

- has abused a dominant market position in online search by lowering the ranking of unpaid search results of competing services;
- accords preferential placement to the results of its own vertical search services and in so doing shuts out competing services; and
- lowered the 'Quality Score' for sponsored links of competing vertical search services, the Quality Score being one of the factors that determines the price paid to Google by advertisers.

The complaints that have been made share the common allegation that Google is in the practice of lowering the ranking of certain results, either manually or through alterations to its standard search algorithm. The complaints have varied as to why Google is thought to have done this, but a common thread is that the suspected objective is to prevent competitors from emerging, or from flourishing, in various markets in which Google offers a competing service.

The purpose of this submission is not to consider, or establish, whether the complaints against Google are well founded. Rather, we simply note that Google has an incentive to act this way and has allegedly done so in other markets. Having noted this, in the next section we estimate the impact that these actions would have on the Australian economy. To do so we characterise the incentive discussed here as increasing the cost of search advertising to all businesses in Australia that use it.

4.3 Potential economic impacts

As noted previously, internet search (including paid search) has grown at very high rates for the last few years. As the major search providers are all located offshore, the spending on paid search by Australian businesses represent an outflow from the Australian economy.

According to the *IAB Online Advertising Expenditure Report* for the quarter ended June 2011, an industry survey conducted by PricewaterhouseCoopers on behalf of the Interactive Advertising Bureau Australia, total online advertising expenditure by Australian business for search and directories for the 2010-11 financial year was $1,264 million. This expenditure has grown by an average of 21.3 per cent per annum over the last three financial years.(PriceWaterhouseCoopers, 2011)

Assuming that 70 per cent of the online advertising expenditure on search and directories relates to search and given that the major internet search providers are all located overseas, this translates to an outflow of $885 million from the Australian economy in 2010-11 that is attributable to spending by Australian businesses on paid search listings.

If competition in the online marketplace for search was to become more intense, it would be reasonable to expect that prices would be lower and, as a result, volumes may increase. To estimate the effect of a potential intensifying of competition, we assumed in this submission that, if competition increased, the total amount Australian businesses will spend on search would grow more slowly than if the status quo remained. We compared this to a scenario where growth in search revenues continues in line with recent history.

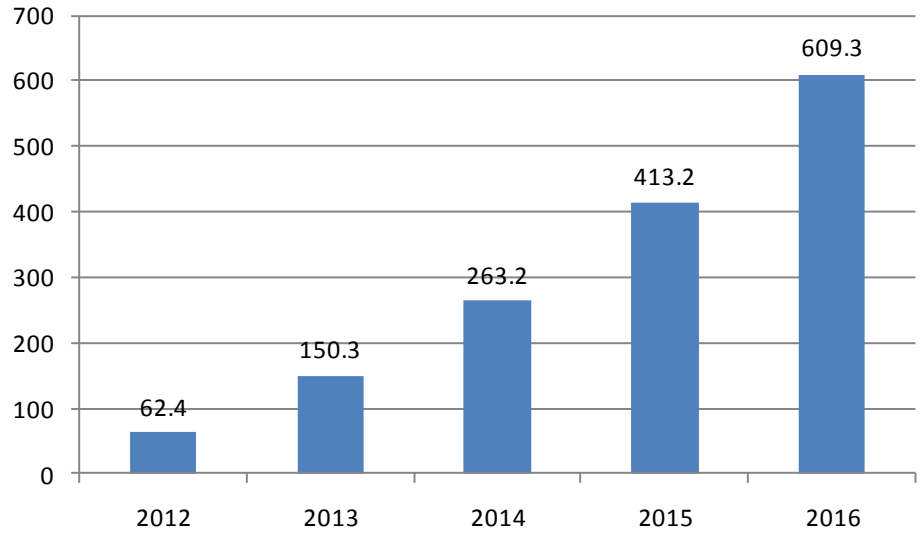
We used our in-house computable general equilibrium (CGE) model, *Tasman Global*, to estimate the potential impact of increased competition between internet search engines on the Australian economy. See Appendix B for a description of *Tasman Global*.

We estimate that, if increased competition between search providers was to reduce the anticipated growth in the spending by Australian businesses on paid search from 20 per cent to 15 per cent per annum over the next five years, the total increase in Australia's real income would be approximately $1.5 billion (undiscounted) in today's dollars over that time period.[7]

The breakdown of the impact by year is shown in Figure 2.

[7] Real income is synonymous to Real Gross National Disposable Income (RGNDI) as reported by the ABS.

Figure 2 **Potential change in Australian real income from increased competition between internet search engines, 2012 to 2016 (2010-11 $Am)**



Data source: ACIL Tasman

5 Conclusion

This submission has aimed to highlight the potential economic opportunity that could be lost by having a dominant search engine in Australia, a search engine upon which the retail sector is heavily reliant.

Search engines play a key role in facilitating internet commerce and online search is a service on which the Australian retail sector is heavily reliant.

We have estimated if an incentive is acted on and search efficiency is reduced by 10 per cent, the annual cost to Australians in terms of lost time would be approximately $430 million, the value of lost productivity due to a dominant search engine.

Increased competition in search in Australia would result in increased GNP based on our economic modelling. Over the next five years we have estimated potential increase of GNP could be around $1.5 billion dollars.

If the rates for paid search were reduced, which could occur as a result of more competition in online search engines, Australian businesses are likely to be in a better position to direct their profits towards internal business growth and diversification, research and development, and other initiatives which could benefit their consumer base and overall strengthen Australia's retail industry.

Online retailing presents a dynamic growth opportunity for Australian retailers. For these retailers, it is important that some of the competition concerns that have been experienced in the 'bricks and mortar' world do not arise for Australian retailers in the online marketplace. Having a healthy online marketplace will also contribute to the realisation of the Government's digital economy goal of positioning Australia as a leading digital economy by 2020, and truly benefiting from the Government's investment in the NBN.

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B The *Tasman Global* Model

ACIL Tasman's computable general equilibrium (CGE) model *Tasman Global* is a powerful tool for undertaking economic impact analysis at the regional, state, national and global level.

There are various types of economic models and modelling techniques. Many of these are based on partial equilibrium analysis that usually considers a single market. However, in economic analysis, linkages between markets and how these linkages develop and change over time can be critical. *Tasman Global* has been developed to meet this need.

Tasman Global is an analytical tool that can capture these linkages on a regional, state, national and global scale. *Tasman Global* is a large-scale computable general equilibrium model which is designed to account for all sectors within an economy and all economies across the world. ACIL Tasman uses this modelling platform to undertake industry, project, scenario and policy analyses. The model is able to analyse issues at the industry, global, national, state and regional levels and to determine the impacts of various economic changes on production, consumption and trade at the macroeconomic and industry levels.

B.1 A dynamic model

Tasman Global is a model that estimates relationships between variables at different points in time. This is in contrast to comparative static models, which compare two equilibriums (one before a policy change and one following). A dynamic model such as *Tasman Global* is beneficial when analysing issues where both the timing of and the adjustment path that economies follow are relevant in the analysis.

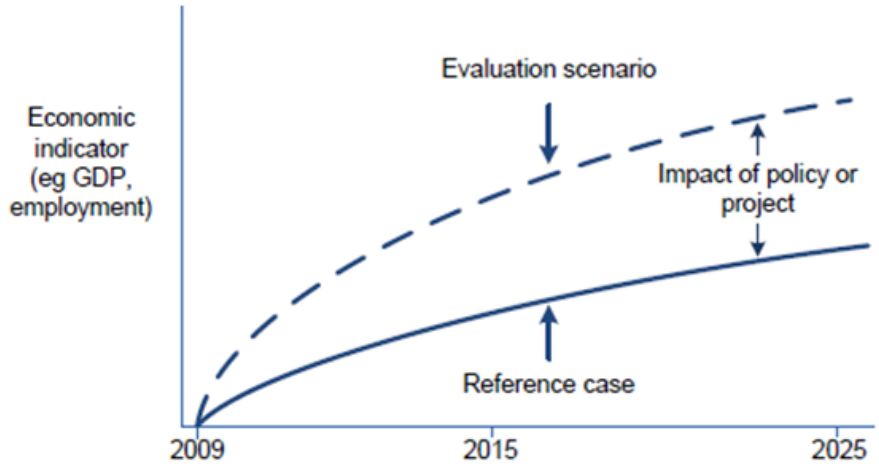
In applications of the *Tasman Global* model, a reference case simulation forms a 'business-as-usual' basis with which to compare the results of various simulations. The reference case provides projections of growth in the absence of the changes to be examined. The impact of the change to be examined is then simulated and the results interpreted as deviations from the reference case. (See Figure B1).

The database

A key advantage of *Tasman Global* is the level of detail in the database underpinning the model. The database is derived from the latest Global Trade Analysis Project (GTAP) database which was released in 2008. This database is a fully documented, publicly available global data base which contains

complete bilateral trade information, transport and protection linkages among regions for all GTAP commodities.

Figure B1 **Illustrative scenario analysis using Tasman Global**



Source: ACIL Tasman

The GTAP model was constructed at the Centre for Global Trade Analysis at Purdue University in the United States. It is the most up-to-date, detailed database of its type in the world.

Tasman Global builds on the GTAP model's equation structure and database by adding the following important features:

- dynamics (including detailed population and labour market dynamics)
- detailed technology representation within key industries (such as electricity generation and iron and steel production)
- disaggregation of a range of major commodities including iron ore, bauxite, alumina, primary aluminium, brown coal, black coal and LNG
- the ability to repatriate labour and capital income
- a detailed emissions accounting abatement framework
- explicit representation of the states and territories of Australia
- the capacity to explicitly represent multiple regions within states and territories of Australia.

Nominally the *Tasman Global* database divides the world economy into 120 regions (112 international regions plus the 8 states and territories of Australia) although in reality the regions are frequently disaggregated further. ACIL Tasman regularly models projects or policies at the statistical division (SD) level, as defined by the ABS, but finer regional detail has been modelled when warranted.

The *Tasman Global* database also contains a wealth of sectoral detail currently identifying up to 70 industries. The foundation of this information is the input-output tables that underpin the database. The input-output tables account for the distribution of industry production to satisfy industry and final demands. Industry demands, so-called intermediate usage, are the demands from each industry for inputs. For example, electricity is an input into the production of communications. In other words, the communications industry uses electricity as an intermediate input. Final demands are those made by households, governments, investors and foreigners (export demand). These final demands, as the name suggests, represent the demand for finished goods and services. To continue the example, electricity is used by households – their consumption of electricity is a final demand.

Each sector in the economy is typically assumed to produce one commodity, although in *Tasman Global*, the electricity, diesel and iron and steel sectors are modelled using a 'technology bundle' approach. With this approach, different known production methods are used to generate a homogeneous output for the 'technology bundle' industry. For example, electricity can be generated using brown coal, black coal, petroleum, base load gas, peak load gas, nuclear, hydro, geothermal, biomass, wind, solar or other renewable based technologies – each of which have their own cost structure.

The other key feature of the database is that the cost structure of each industry is also represented in detail. Each industry purchases intermediate inputs (from domestic and imported sources) primary factors (labour, capital, land and natural resources) as well as paying taxes or receiving subsidies.

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