



**Australian Koala  
Foundation**



# The Economic Value of the Koala

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## **About the Author**

I am an undergraduate student at Gettysburg College in Pennsylvania, USA. I will graduate with a degree in Economics in May 2015. I am originally from central Pennsylvania, but I travelled to Brisbane to study abroad at the University of Queensland in 2013. In May 2014, I returned to Brisbane for an internship at the Australia Koala Foundation. I chose this organisation for several reasons. I had always been interested in non-profits, as exemplified through my participation in volunteering in both high school and university. I was particularly interested in non-profits relating to animals, so the AKF could not have been a more perfect fit for me. The AKF internship allowed me to incorporate both my passion for animals and my knowledge in economics all into one. This was done through the completion of this report, aiming to quantify the economic value of the koala to Australia, particularly to the tourism sector. This report is important in that, although koalas are beloved creatures to Australians and internationals alike, it helps to put a measurable value to their iconic status. My hopes are that this report will aid the AKF in their fight to protect the koala as it so deserves.

## **Introduction**

The koala is one of the most defining symbols of Australia. This animal is known and associated universally with the many features of Australia that make it so unique. The koala is engrained within the Australian culture, and for this reason, the koala holds a high social value. In recent years, however, koala numbers have diminished to the point where it has now become a threatened species in most of Australia. While the social value that the koala holds is important, the economic impact is crucial as well. Because the koala is such an icon, it contributes modestly to the tourism sector of the Australian economy. In a previous report, Hundloe and Hamilton (1997) quantified the economic value of the koala to Australian tourism and the Australian economy in general. Using two different approaches, Hundloe and Hamilton found that the koala can account for about \$2 billion annually on the high end and \$336 million annually on the lower end. Despite the range between these two figures, their findings demonstrate that the koala nonetheless has a large financial effect on the Australian economy. Since their study was performed, the tourism sector has grown and with the continued significance of the koala, thus has the koala's economic contribution grown as well. The goal of this report is to estimate the current economic value of the koala in Australia, but the overarching emphasis is on protecting the koala and its habitat as part of its ongoing well-deserved right to a place in the world.

This report is structured through a breakdown into five sections. The first section details Australian tourism in general. In this section, both domestic travel and international visitation numbers are discussed. The next section focuses on how tourism affects the economy. This section looks at gross domestic product (GDP), gross value added (GVA), and employment levels in particular to assess the magnitude of tourism's contribution to the Australian economy as a whole. The third section examines the purpose for visiting Australia. This will allow for the determination of what proportion of Australian tourism can be

attributed to nature and/or wildlife, with emphasis on the koala. In this section, a Chinese satisfaction survey is analysed as well in order to serve as a specific example of how Australia is perceived by its largest tourist sector. From here, the fourth section then uses the figures from the previous sections to develop a top-down approach to estimate the economic value of the koala. In the fifth and final section, a forecast of Australian's economic future is examined in order to predict how the tourism industry and the koala's monetary value will likely change in the near future.

### **Recent General Tourism Trends**

The Australian tourism industry has been increasing in recent years. This includes both international and domestic travellers. At the time of Hundloe and Hamilton's report, tourism was experiencing growth as well (1997). This trend has since then continued.

International tourism was responsible for about 3.7 million visitors to Australia in 1995. Fewer than ten years later, in 2013, there were an estimated 5.9 million international visitors, according to Tourism Research Australia (2014). This is a nearly 60% increase in less than a decade. Just from 2012 to 2013, international visitation has risen 6%. Previously, Japan was the source of the largest sector of international visitors to Australia (Hundloe and Hamilton 1997). However, China has now surpassed Japan to become the leading source of visitors, excluding New Zealand. Chinese internationals comprise approximately 665 million of the visitors, up 79 million from just one year prior. Chinese internationals also visited for the most number of nights as well. Other nations with high volumes of visitors to Australia include the United Kingdom, the United States, Singapore, Japan, and Malaysia, in order of higher to lower volumes. Most of these experienced higher rates in comparison to the previous year as well. For example, the United Kingdom and the United States increased by

8% and 6%, respectively. Table 1 includes figures on the leading incoming international sectors, comparing 2013 to 2012 as well as to 1995.

**Table 1**

Country of Origin	Visitation in 1995 (in thousands)	Visitation in 2012 (in thousands)	Visitation in 2013 (in thousands)
New Zealand	491	1078	1086
China	43	586	665
United Kingdom	335	573	621
United States	288	445	473
Singapore	169	261	297
Japan	738	319	297
Malaysia	94	222	248
Korea	161	188	184
Hong Kong	117	148	168
Germany	120	154	163

Based on data from Tourism Research Australia 2014 and Hundloe and Hamilton 1997

About half of all international visitors go to New South Wales, followed by Queensland, and then Victoria with a few thousand below that. New South Wales also experienced the highest number of overnight stays with a total of about 73 million nights, trailed by Victoria and Queensland with approximately 48 million and 46 million nights, respectively. Overall, the number of international overnight stays rose 4% from 2012 to 2013. Table 2 captures all of these changes from 2012 to 2013 (Tourism Research Australia 2014).

**Table 2: International**

Destination Region	2012 (in thousands)	2013 (in thousands)	Percentage Change (%)
New South Wales	2843	3005	+6
Queensland	1998	2034	+2
Victoria	1776	1958	+10
Western Australia	749	765	+2
South Australia	334	378	+13
Northern Territory	257	260	+1
ACT	162	182	+12
Tasmania	140	159	+14

Adapted from Tourism Research Australia 2014

Domestic travel within Australia did not experience growth to the same degree as international visitation to Australia, but the recent numbers are more promising. Since 1998, overnight trips have increased by approximately 2 million people. However, since the peak of the Global Financial Crisis in 2009, tourism has increased by about 8 million people, having dropped steadily prior to the date, and increasing ever since. The number of actual nights spent experienced similar trends, despite the overall growth since 1998 being negative. The upward trend in recent years shows the likelihood that it will continue to expand, however. Day trips followed a pattern more similar to overnight trips, experiencing positive growth overall since 1998, with about a 9 million increase overall. Having dropped prior to the Global Financial Crisis, since then, day trips have increased by a healthy 16 million. Similar to international travel numbers, New South Wales experiences the highest influx of domestic visitors as well. From 2012 to 2013, Victoria surpassed Queensland in terms of number of Australian travellers, but only by fewer than one million people. However, Queensland has about nearly 20 million more overnight stays than Victoria, with New South Wales still in the forefront of the three main visiting states. These numbers are shown in Table 3 below (Tourism Research Australia 2014).

**Table 3: Domestic**

<b>Destination Region</b>	<b>2012 (in thousands)</b>	<b>2013 (in thousands)</b>	<b>Percentage Change (%)</b>
New South Wales	24790	25705	+4
Victoria	17970	18309	+2
Queensland	18001	17572	-2
Western Australia	6272	6566	+5
South Australia	5176	5235	+1
Tasmania	2051	2066	+1
ACT	1955	2055	+5
Northern Territory	1032	897	-13

Adapted from Tourism Research Australia 2014

## **Tourism and the Economy**

As detailed above, tourism is a key component of Australia. More importantly, tourism plays a vital role in the Australian economy. First, tourism's overall economic effect since 1997 will be summarised in a brief snapshot, followed by a more in-depth analysis of its impact on the economy in the past year from 2012 to 2013.

In the past 15 years, tourism has experienced a positive rate of growth in terms of the key economic indicators GDP, GVA, and employment. As defined by Tourism Research Australia, GVA is the total summation of employee compensation, gross operating surplus, and taxes on production, while GDP is the GVA added to net taxes on products. In every year since 1997, tourism's GDP has experienced positive annual growth rates, most years growing at 4% or above, with an average growth rate of 4.5%. The only two exceptions to this are 2003-2004 and 2008-2009, which are the years corresponding to the severe acute respiratory syndrome outbreak and the Global Financial Crisis, respectively. Naturally, this would be due to economic factors out of control of the independent tourism sector. The greatest increase was from 2000-2001 during the Sydney Olympics, which led to a 12% increase in tourism GDP that year<sup>1</sup>. It is important to note that while tourism GDP did not increase at the same rate of growth as the overall Australian GDP, it still continues to grow nonetheless. The same holds true for GVA as well, with tourism's GVA rising around 4.2% on average annually (with total Australian GVA rising at 6.6% on average annually). Every industry encompassed by the tourism sector, except for the health care and social assistance industry, reflected positive average annual growth rates for the past 15 years. Rising by approximately 8.5% each year, the Education and Training industry increased the most out of any industry within the tourism sector. The ownership dwellings and the accommodation and food services

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<sup>1</sup> Numbers include both direct and indirect contributors to GDP as well as combined international and domestic visitors.

industries both also experienced higher positive growth rates as well (Kookana, Pham, & Quinn 2014).

These economic effects can be broken down into direct and indirect contributors, and then analysed overall. Direct effects are simply ones that are affected firsthand by tourism, while indirect effects are those that are affected in a second-hand manner. Since 1998, tourism has contributed indirectly to GDP and GVA more than directly. However, it is important to note that the gap between the two has been narrowing. In 1998, the indirect effects were about \$20 billion and \$6 billion higher than direct effects for GDP and GVA, respectively. This past year the gap declined to about \$6 billion and \$2.5 billion, respectively. This means that tourism is having a larger direct impact on the economy now than it did 15 years prior. Overall, tourism's contribution to GDP nearly doubled in 15 years, going from about \$47 billion to about \$91 billion. Tourism's contribution to GVA experienced similar growth rates, rising from approximately \$43 billion to \$80 billion. Because the tourism sector of GDP and GVA grew positively but at a rate slightly lower than the national GDP and GVA, tourism's contribution to GDP and GVA as a per cent of the national GDP and GVA has decreased in the past 15 years. Nevertheless, the tourism sector was still responsible for 6% and 5.6% of the national GDP and GVA respectively from 2012 to 2013 ((Kookana, Pham, & Quinn 2014). Therefore, tourism maintains an influential role in the Australian economy as a whole.

Tourism also contributes modestly to the employment levels within Australia as well. Like most economic indicators, employment can be direct or indirect. An example of indirect employment would be employees hired to construct the buildings for zoos toured by visitors, but a critical note is that these employees are probably also hired to perform duties unrelated to tourism as well. From 1998 to 2013, direct employment grew by just under 140,000 people, and indirect employment grew by just under 200,000 people. Because of the



tendencies of direct versus indirect employment, most of the growth in direct employment came from the accommodation and food services industry, while the majority of the growth of the indirect employment came from other industries unrelated specifically to tourism. Overall, tourism employment increased from about 614,000 to 929,000 from 1997 to 2013 (Kookana, Pham, & Quinn 2014). This reflects an approximately 50% increase in employment in tourism in just over 15 years.

Now focus will be on tourism and the economy particularly within the past year to assess the current influence of tourism on the economy. As previously mentioned, tourism is composed of both direct and indirect effects on the economy. Between 2012 and 2013, tourism directly contributed \$42 billion and \$39 billion to GDP and GVA, respectively. In this same time frame, tourism also indirectly contributed \$48 billion and \$41 billion to GDP and GVA, respectively. Thus, tourism added \$91 billion total to GDP and \$80 billion total to GVA in the past year. In terms of GDP, this combines to be a 4.3% increase in its influence on GDP from 2011-2012; this is on par with the average growth rate for the past 15 years. This represents 6.0% of the total national GDP, with 2.8% coming from direct contributions and the other 3.2% coming from indirect contributions. In terms of GVA, tourism increased GVA by 4.4% in the past year, again on par with the average growth rate since 1997. Just slightly lower than GDP, GVA composed 5.6% of national GVA, with 2.7% coming from direct contributions and 2.9% coming from indirect contributions (Tourism Research Australia 2014). Based on both GDP and GVA, it can be noted that indirect contributions are responsible for more than 50% of tourism's impact on the economy.

However, GVA can also be explored through the particular industries it affects. These are similar to the longer trends highlighted in the years spanning 1997-2013. The top four industries that compose direct contributions are accommodation and food services, transport services, retail trade, and education and training, from greatest to least influence. As

expected, the largest industries impacted by indirect contributions are any other industries not directly affected by tourism. The highest directly-impacted industry, food and accommodation services received about \$14 billion, while all other industries not directly related received about \$30 billion (Tourism Research Australia 2014). Therefore, these other industries comprise the vast majority of total GVA effect. This lends hand to the notion that often one aspect of the economy or even the world flow is likely to affect another; this is an important idea to be further elaborated upon later.

Tourism also notably impacted employment levels in Australia from 2012-2013, as it continues its positive growth rate since 1997. The tourism sector employed approximately 929 thousand people between 2012 and 2013. This represents a 2.9% increase from the previous year. Of that 929 thousand, almost 60% (544 thousand) was comprised of direct employment while the other 40% (385 thousand) was indirect employment. However, indirect employment grew at more than twice the rate of direct employment during this time. As expected based on the prior analysis of industries affected by GDP and GVA, most of this employment comes from accommodation, food, retail, transportation, and training services of varying types. Any other employment falls into the indirect category, which is comprised of industries such as manufacturing and technical services. The 929 thousand people employed due to tourism comprise approximately 8% of total Australian employment (Tourism Research Australia 2014). Put simply, this means that almost one in ten employees in Australia can be connected back to tourism. This demonstrates the breadth of impact that tourism has on not just the Australian economy as a whole but also the average employee. A summary of this impact can be found in Table 4 below.

**Table 4**

<b>Economic Influence</b>	<b>1997-1998</b>	<b>2011-2012</b>	<b>2012-2013</b>
<b>Direct Contribution</b>			
GDP (in billions \$)	18.5	40.7	42.3
GVA (in billions \$)	18.8	37.4	38.8
Employment (in thousands)	413.8	532.1	543.6
<b>Indirect Contribution</b>			
GDP (in billions \$)	28.3	46.3	48.5
GVA (in billions \$)	24.4	39.4	41.3
Employment (in thousands)	200.5	370.9	385.4
<b>Total Contribution</b>			
GDP (in billions \$)	46.8	87.0	90.7
National Share (%)	7.9	5.9	6.0
GVA (in billions \$)	43.2	72.8	80.1
National Share (%)	8.0	5.5	5.6
Employment (in thousands)	614.3	903.0	929.0
National Share (%)	7.2	7.9	8.0

Adapted from Tourism Research Australia 2014

Tourism's role in the economy can also be broken down into international and domestic components. International expenditure experienced similar growth trends to the increase in international visitation numbers. Expenditures rose to almost \$29 billion, which was an increase of 6% from the previous year. Chinese tourist expenditures, like their visitation numbers, are the highest of any of tourist group expenditures, growing 16% from 2012 to 2013. The United States and United Kingdom expenditures increased modestly as well, rising 9% and 12% respectively, with Japanese and Korean consumption falling 15% and 14% respectively, as expected based on their declining visitation numbers. Domestic expenditures increased as well, but not by as much as international consumption levels. Domestic expenditures rose to nearly \$70 billion, with \$51.5 billion coming from overnight stays and the other \$18.3 billion coming from day trips. Overall, total domestic expenditures increased by 2.3% from 2012 to 2013 (Tourism Research Australia 2014). Like visitation

numbers, the domestic sector of tourism expenditures is much larger than international expenditures.

### **Purpose for Visiting Australia**

The purpose behind travel to and within Australia is important for determining to what extent the koala influences the Australian economy. There are several prominent reasons that motivate this travel. The purpose that stimulates the most tourism visitation numbers for both international and domestic sectors is holiday. In 2013, holiday was the top reason behind tourism in Australia, accounting for more than 2.6 million international and almost 33 million domestic travellers. This was up 8% from 2.4 million and up 4% from just under 32 million from 2012 for international and domestic tourists, respectively (Tourism Research Australia 2014). This was a nearly 30% increase in holiday travel since 1995 (Hundloe and Hamilton 1997). For international tourism in 2013 in terms of visitation numbers, the other reasons in order from most to least important were visiting friends and/or relatives, business, education, other reasons not stated, and employment. For domestic tourism in terms of visitation numbers, the other prominent purposes were the same in order of importance, except business and employment were not included in the survey (Tourism Research Australia 2014). Tables 5 and 6 depict these international findings in comparisons between 1995 and 2013 and last year and 2013. For the goal of this paper, holiday travel is the most important factor as it is in this category that the koala's contribution can be estimated. As indicated, both the international and domestic sectors of holiday travel experienced reasonable growth, and even though domestic tourism makes up a much larger component of tourism, international tourism rose at double its rate, indicating both its and holiday travel's increasing importance in the tourism industry and economy as a whole.

**Table 5**

<b>Reason for International Visits</b>	<b>1995 (in thousands)</b>	<b>2013 (in thousands)</b>
Holiday	2047.5	2643
Visiting friends/relatives	637.1	1591
Business	361.0	813
Other	382.7	855

Based on data from Tourism Research Australia 2014 and Hundloe and Hamilton 1997

**Table 6**

<b>Reason for International Visits</b>	<b>2012 (in thousands)</b>	<b>2013 (in thousands)</b>	<b>Percentage Change (%)</b>
Holiday	2446	2643	+8
Visiting friends/relatives	1463	1591	+9
Business	826	813	-2
Education	366	370	+1
Other	253	258	+2
Employment	234	227	-3
Total	5589	5903	+6

Adapted from Tourism Research Australia 2014

Holiday travel topped tourism expenditures for international and domestic tourism as well. \$11.4 billion and \$27.0 billion were spent on holiday tourism in 2013 by international and Australians respectively. While this was a 5% increase domestically, it was an even larger increase for international tourism, jumping up 12% in just a year. Internationally, holiday travel expenditures also grew at a faster rate than holiday travel visitation numbers, meaning that the average international tourist would be spending more on holiday tourism than one year ago. The rankings of importance based on expenditures are nearly the same as those based on visitation numbers. The only difference is that education expenditures for international travel ranks second instead of fourth. This is to be expected as education expenditures for international students would be significantly higher. The rankings for domestic travel based on expenditures, however, are the same as when based on visitation numbers. Based on both expenditures and visitation numbers, holiday travel is the most

significant purpose for travel to and within Australia (Tourism Research Australia 2014).

This category can be further broken down into what types of activities were performed; this will help narrow down the field so that the koala's contribution to the economy can be better estimated.

There are four main categories that activities can be broken down before approaching the koala's specific economic influence. These four categories are culture and heritage, food and wine, indigenous and nature based. The koala would fall into the nature based category. In every state and territory (except the Australian Capital Territory), nature based activity ranked as the second highest visitors partook in. This is important for New South Wales, Victoria, and Queensland, as these three receive the greatest number of visitors and shares of tourist expenditure. The food and wine category was consistently ranked as the experience with the highest numbers (Tourism Research Australia n.d.). However, this does not take into account the money that is spent on food while engaging in nature based experiences. These are not always entirely separate occasions, and thus may underestimate how much is spent during the entire nature based experience. Nevertheless, in each state and/or territory, approximately 22-23% of the experiences were spent doing an activity involving nature in some manner. Table 7 summarises the findings for each category in every state/territory.

**Table 7**

<b>Visitors</b>	<b>2013 (in thousands)</b>	<b>Visitors</b>	<b>2013 (in thousands)</b>
<b>New South Wales</b>		<b>Western Australia</b>	
Culture & Heritage	5476	Culture & Heritage	1508
Food & Wine	17406	Food & Wine	4410
Indigenous	563	Indigenous	164
Nature Based	6968	Nature Based	2006
<b>Victoria</b>		<b>Tasmania</b>	
Culture & Heritage	3848	Culture & Heritage	806
Food & Wine	12199	Food & Wine	1506
Indigenous	358	Indigenous	Not enough data
Nature Based	4636	Nature Based	848
<b>Queensland</b>		<b>Northern Territory</b>	
Culture & Heritage	3141	Culture & Heritage	491
Food & Wine	12326	Food & Wine	846
Indigenous	509	Indigenous	Not enough data
Nature Based	4895	Nature Based	573
<b>South Australia</b>		<b>ACT</b>	
Culture & Heritage	996	Culture & Heritage	842
Food & Wine	3317	Food & Wine	1410
Indigenous	146	Indigenous	Not enough data
Nature Based	1190	Nature Based	418

Adapted from Tourism Research Australia

To better understand the significance of nature, it is important to assess how influential nature was in the decision process of whether or not to come to Australia. Nature ranks fourth overall when choosing a destination to travel. Table 8 below displays results based on a consumer demand project focused on nature. It was found that ‘world class beauty and natural environments’ are within the top 5 factors for 37% of those surveyed<sup>2</sup>. For the top ten visiting countries<sup>3</sup>, nature is consistently ranked within the top 5 influencing factors, even ranking as the most important factor for China. Categories such as ‘interesting attractions to visit’ and ‘exciting events, local festivals and celebrations’ that draw people to Australia

<sup>2</sup> Included respondents from North America, South America, Asia, Europe, and New Zealand.

<sup>3</sup> Excluding Hong Kong for which data was not available

include nature activities as well, heightening the impact of nature on destination decision making (Tourism Australia 2014).

**Table 8**

<b>Important Factors for Choosing Australia*</b>	<b>NZ (%)</b>	<b>China (%)</b>	<b>UK (%)</b>	<b>US (%)</b>	<b>Sing. (%)</b>	<b>Japan (%)</b>	<b>Malay. (%)</b>	<b>Korea (%)</b>	<b>Ger. (%)</b>
A safe and secure destination	53	45	53	49	64	59	58	60	46
A destination that offers value for money	53	24	43	41	47	39	36	35	50
Good food, wine, local cuisine, and produce	32	46	46	35	35	53	36	35	43
World class beauty and natural environments	25	57	30	31	28	39	32	46	40
Interesting attractions to visit	54	22	45	47	52	8	45	40	29
Rich history and heritage	28	34	35	33	23	41	21	26	33
Friendly and open citizens, local hospitality	33	14	34	32	31	19	25	14	38
A family friendly destination	27	26	17	24	27	24	26	19	15
Spectacular coastal scenery	14	27	22	20	13	20	16	15	19
Clean cities, good infrastructure	13	19	10	15	23	12	32	22	13

Adapted from Tourism Australia 2014

From here, the influence nature based activities can be narrowed down to wildlife and from there, the koala specifically. The same survey also analysed wildlife in further depth. Among the activities that visitors were passionate about, approximately 24% responded that observing wildlife was one of those. 16% of people indicated that they would be highly involved in observing wildlife as well (Tourism Research Australia 2014). This means that almost one in four visitors enjoyed or was looking to enjoy Australia's wildlife. A 2001 study



by Fredline and Faulkner was performed in airports, interviewing international visitors to Australia. Native animals played a large role in choosing Australia with just under 20% of people saying that they were a factor in their decision. More than 70% of the people visiting responded that they had experienced native animals while on their visit and over two-thirds of all respondents sought to see them prior to their arrival in Australia. Other studies indicated similar affirmative numbers as well. According to a 2005 study by Moscardo and Saltzer, more than 50% of people considered wildlife in their choice to visit Australia, with 20% ranking it as one of the top factors. Many of them desired that the wildlife be 'cute' and furry, qualities that the koala possesses. The Fredline and Faulkner study focused on specific animals as well, one of them being the koala. They found that 44% of visitors wanted to see the koala, the highest of any animal, with 50% actually being able to encounter it. That means half of the visitors were visiting koalas while in Australia. The visitors who fit these desires were more likely to be first-time visitors to Australia, but nearly three-fourths of people who saw the koala were satisfied with having seen it (Sustainable Tourism Cooperative Research Centre 2009). This means that international visitors to Australia want to experience the koala, and the majority who do are pleased with their experience. The limitation of this study, however, is that it was performed over 10 years ago. However, most top incoming countries then have remained in the top, so it is not unreasonable to assume that their preference for the koala would have remained similar to this data as this data is still consistent with Hundloe and Hamilton's 1995 data. At that time, Japanese visitors still remained the highest sectors of total visitors, which has since then been overtaken by Chinese visitors. Despite this shift, a Chinese satisfaction survey was performed recently that indicated that the Chinese today value and seek nature-based experiences when visiting other countries.

A Chinese satisfaction survey performed by CRC International with Tourism Research Australia showed that nature is one of the key factors for Chinese people planning

to visit Australia. According to survey results, nature was Australia's defining characteristic for approximately 44% of Chinese visitors. Furthermore, nearly two-thirds of Chinese internationals were looking to experience nature, with over one quarter of all Chinese internationals hoping to experience wildlife specifically. More than a third of those wanting to experience nature found their expectations to be equal to reality, while just under 60% had those expectations surpassed. This means that more than 90% of Chinese internationals were at least, if not more than, satisfied with their nature-based experiences in Australia. This correlated with higher overall trip satisfaction as well (CRC International & Tourism Research Australia 2014). Therefore, these results indicate that nature is important to Chinese internationals who are looking to visit Australia. As nature remains essential to the decision-making process for the Chinese, it is a reasonable assumption that koalas would continue to be a significant feature in these nature-based and wildlife experiences and thus, the appeal of Australia as well. This means that it is likely that with the shift from Japanese to Chinese tourists as the largest sector of international tourists, the proportion of Chinese visitors that come for wildlife and the koala in particular has remained approximately the same. Knowing this, Hundloe and Hamilton's 1995 results, and current perspectives on wildlife and the koala, the economic value of the koala can be properly estimated at this point.

### **Economic Value of the Koala: A Top-Down Approach**

The first method for determining the economic value of the koala is the top-down approach. After having outlined the value of tourism and analysing the influence of the koala on visiting Australia, now attention can be focused on how those come together to evaluate the value of the koala to Australia's economy. As mentioned in earlier sections, the economy can be evaluated in terms of indicators such as expenditure, GDP, and GVA. All three of these will be developed in this section. This will focus on international tourism, as it is even more difficult to determine the influence of the koala in terms of domestic travel. This is

because the koala is probably less of a definitive reason to travel, but that is not to say it is not valued. Therefore, the simplest way to value the koala domestically is to analyse its effect on employment. It should be acknowledged that there is also an added effect on domestic expenditure, GDP, and GVA, but these cannot be reasonably estimated. Nevertheless, the koala contributes significantly to international tourism alone.

The bounds of the koala's effects can be found using the assumption that wildlife and the koala's influence in making the choice to come to Australia has remained nearly the same since 1995. In 1995, Hundloe and Hamilton used 11% as their lower bound as this was the percentage of visitors who indicated that they would not have come to Australia without its wildlife (Hundloe and Hamilton 1997). International tourism expenditures were approximately \$28.9 billion in 2013. Using the 11% as the percentage coming to Australia for wildlife, this means that international tourism brought in nearly \$3.2 billion in 2013 just for wildlife. Hundloe and Hamilton used 22% as their upper bound as this was the percentage who found wildlife to be an important attraction. In 2013, nature-based activities corresponded to about 22-23% of the visitors' activities; the importance of native wildlife also averaged to about 22-23% as well. Based on this, it seems reasonable to argue that Hundloe and Hamilton's upper bound is applicable today. With 22% as the upper bound, nearly \$6.4 billion can be attributed to Australian wildlife in 2013. This gives a range of \$3.2 billion to \$6.4 billion that wildlife is responsible for adding to the Australian economy.

Using the range of 11-22% as the bounds, GDP and GVA from 2012 to 2013 can also be examined. Tourism was responsible for directly contributing \$42.3 billion to GDP, while also contributing an additional \$48.5 billion indirectly. These represent 2.8% and 3.2% of the national GDP for direct and indirect contributions, respectively. International tourism comprises about 29.3% of all tourism expenditures. Using this percentage and the lower bound of 11%, wildlife tourism by international visitors directly contributes approximately

.09% to national GDP, while indirectly contributing an additional .10% to national GDP. Together, this means wildlife tourism by international visitors is responsible for about .19% of national GDP for the lower bound. Using the upper bound of 22%, direct contribution falls at .18% of national GDP, while indirect contribution accumulates another .21% of national GDP. Together, the upper bound of wildlife tourism by internationals makes up .39% of national GDP. This gives a range of .19%-.39% of national GDP being due to this international wildlife tourism overall. The same can be done for GVA as well. Tourism brought in \$38.8 billion and \$41.3 billion directly and indirectly, respectively, to national GVA. These account for 2.7% and 2.9% of national GVA, respectively. This means that .09-.17% of national GVA is due to direct contributions from international wildlife tourism. Combined with indirect contributions, wildlife tourism by overseas visitors comprises .18-.36% of national GVA. Table 9 summarises these calculations.

The effect of overseas wildlife tourism on employment levels can be analysed as well. Tourism directly employed 543,600 people in Australia from 2012 to 2013. It also employed an additional 385,400 people indirectly. This gives a combined total of 929,000 people who were employed as a result of tourism. In terms of national percentage, this amounts to 4.7% and 3.3% directly and indirectly employed by tourism, respectively. Wildlife-based overseas tourism, therefore, employs approximately 17,500 directly and 12,400 indirectly for a total of 29,900 people on the lower bound. On the upper end, it employs 35,000 and 24,800 through direct and indirect contributions, respectively, for an overall total of 59,800 people. Thus, it employs between 29,900 and 59,800 people (see Table 9). In terms of national percentage, overseas tourism drawn by wildlife is directly responsible for .15% of all employed people. Combined with those employed indirectly, it contributes .26% of employment overall. This is on the lower end, but on the upper level, this tourism comprises .30% of employed people directly, to make .52% when combined with those employed indirectly as well. This gives a

range between .26% and .52% of national employment being founded in the wildlife-based international tourism sector.

**Table 9**

<b>Wildlife Economic Influence (% of national)</b>	<b>Lower Bound – 11%</b>	<b>Upper Bound – 22%</b>
<b>Direct Contributions</b>		
GDP (% of national)	.09	.18
GVA (% of national)	.09	.17
Employment (in thousands)	17,500	35,000
<b>Indirect Contributions</b>		
GDP (% of national)	.10	.21
GVA (% of national)	.09	.18
Employment (in thousands)	12,400	24,800
<b>Total Contributions</b>		
GDP (% of national)	.19	.39
GVA (% of national)	.18	.36
Employment (in thousands)	29,900	59,800

From these above mentioned ranges, the impact of koala specifically can be estimated. Although an exact number cannot be pinpointed, a rough value can be developed using these figures. As it was found that the koala was the most sought-after animal (rivalled only by the kangaroo), the koala likely generates a large fraction of the economic contributions calculated above. Based on this fact, Hundloe and Hamilton valued the koala using the lower bound of wildlife’s economic worth in their 1997 report as the highest economic worth of the koala. The same will be done here. Thus, this gives an estimate of \$3.2 billion in expenditures, .19% of national GDP, .18% of national GVA, and nearly 30,000 employed people, all due to the influence of one animal.

## **Forecast of the Koala and the Australian Economy**

The outlook for the Australian economy in the coming years looks promising for tourism and the future of the koala's economic worth. Growth rates are expected to continue to remain positive for the next decade. This includes growth rates for tourism expenditures, both international and domestic. Part of this is likely due to the increased number of international visitors to Australia as well as the greater number of nights Australians spend visiting other regions across Australia. The holiday sector for both international and domestic travel is projected to rise. This leads to a brief look behind what is causing these positive figures in the upcoming years.

The global as well as the domestic economy shows good indicators for increasing tourism trends. The economies of the top visiting countries are expected to have positive growth rates. These include countries such as China, the United Kingdom, New Zealand, and the United States, among others. The domestic economy is expected to experience growth as well. However, one of the key factors to encouraging tourism outlooks is the depreciation of the Australian dollar. In the next several years, the Australian dollar is predicted to depreciate in value, which means foreign currency will be worth more money in Australia (Tourism Research Australia 2013). This is likely to increase the appeal of visiting Australia as internationals will be able to purchase more goods and/or carry out more activities while visiting. Depreciation of the Australian dollar will likely also lead to more domestic travel, as Australians cannot spend as much abroad now that the Australian dollar does not acquire as much foreign currency as before.

Several other factors are important as well, including accommodation and transportation. Australian accommodation is projected to increase in price if demand surpasses supply, which is anticipated based on estimated growth rates for the next several

years. Higher prices will result in greater tourism expenditures. International air travel has reassuring expectations with capacity intended to increase, although domestic air travel capacity growth rates are predicted to remain positive but at a decreasing rate. Nevertheless, with more available seats on international flights, international visitation can increase more easily (Tourism Research Australia 2013). Therefore, with these encouraging projections, it is probable that the koala will increase in value in the coming years.

## **Conclusion**

Since 1995, tourism to and within Australia has been increasingly steadily. As a result, tourism expenditures have been rising as well. This means that tourism maintains a significant contributor to national expenditures, GDP, GVA, and employment. From the overall tourism value, it can be narrowed down to the value of overseas international wildlife tourism. This gives a range of \$3.2 to \$6.4 billion. From here and based on the momentous popularity of the koala alone, it can be best estimated that koalas are responsible for up to \$3.2 billion, according to the top-down method. Similarly, it can be said that the koala contributes up to 29,900 jobs as well. It is important to note that this is only using the top-down method. The bottom-up approach would likely give a different outcome, but this figure tends to be an underestimate. Therefore, it is reasonable to conclude that the koala can contribute up to \$3.2 billion and near 30,000 jobs, and it is expected to increase in the coming years. The koala, thus, proves to be of much economic value to the Australian economy, and this fact further emphasises the need to protect this beloved icon.

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