MEASURING THE BENEFITS AND COSTS OF FOREIGN TOURISM

Peter Forsyth, Larry Dwyer

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February 1991

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University of Western Sydney, Penrith

Lawrence Luong

and

Australian National University

Peter Pound

COSTS OF FOREIGN TOURISM

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224 Paper 1: Freyba, J., Some Results From the ORANI-F Model

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225 Parsell, Bruce F., Alan A. Powell and Peter J. Wilcoxen, The Effects of Fiscal Restraint on the Australian Economy as Projected by the Murphy and MSG2 Models: A Comparison. With a Comment by Chris W. Murphy, ANU, and a Note by Warwick McKibbin and Graham Elliott, Reserve Bank of Australia.

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INTRODUCTION

"..."
In this paper, we take what is essentially a Benefit-Cost Analysis framework in analysing the welfare effects of changes in foreign tourism. There have been some precursors of this, there have been Benefit Cost studies of tourism investments such as hotels (see Forbes, 1974). There have also been theoretical analyses of tourism using this framework - for example by Bevan and Soskice (1976) using the Little-Mirrlees (1974) approach to project evaluation. These applications have been to developing countries and several of the considerations important for such countries are of less significance for industrial countries. We concentrate on Benefit Cost analysis of tourism as such, though the considerations raised here are relevant for the evaluation of specific tourism investments.

The central objective of this paper is to provide an approach to measuring the net benefits of foreign tourism. While we do not provide precise estimates for Australia, we discuss their approximate magnitudes, and whether net benefits are likely to be positive. While we do not discuss the issue, this framework would also be useful in analysing policies which could maximise the net benefits from tourism. We confine our analysis to foreign tourism.

We begin by sketching out the Benefit-Cost framework, identifying the areas where prices may not equal opportunity costs. We then examine three of the more important areas of possible divergence of prices from opportunity cost and market power. Firstly we examine the foreign exchange aspects of tourism and whether these are of any benefit to the economy. Next we look at labour market implications. Then we examine what might be described as the "terms of trade" effects, which deal with changes in prices of tourism as demand changes. We also consider the possible exercise of market power. Finally we discuss the effects and benefits of tourism in the context of general equilibrium analysis.

2. THE BENEFIT COST FRAMEWORK FOR TOURISM

Benefit-Cost analysis proceeds by attempting to identify what market failures and distortions might be present in the provision of a good or service, and what indivisibilities might be present. With the provision of many goods and services, especially those left to the private sector, no explicit analysis is undertaken either due to neglect or because it is taken that such market failures as are present are sufficiently small to not warrant specific analysis in action. With tourism there are a number of distortions that, a priori, could be of significance so it is appropriate to consider them.

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DWYER L & FORSYTH P (1990) "Effectiveness of Environmental Policy Instruments - A Case Study of Australian Tourism" University of Western Sydney, Macarthur School of Business & Technology Discussion Paper Series No. E9006 October.


...
(b) Market Power

Market prices and shadow prices will diverge if market power is exercised. Typically, market prices will exceed shadow prices and extra expenditure by tourists will create a net benefit. While the nation as a whole may have market power in tourism (due to the uniqueness of the Australian tourism product, for example) this need not be the case for individual suppliers. In Australia, except for aviation, there is unlikely to be much market power at the level of individual suppliers in the industry. Contrary to popular opinion, increasing vertical integration as a result of foreign investment in Australian tourism does not create market power (Dwyer, Findlay, Forsyth, 1990).

(c) Externalities

Tourism can create negative and positive externalities. Extra tourism can put pressure on fragile environments, increase pollution, add to road congestion and crowd out attractions. It can have positive externalities, such as wildlife preservation and making a greater variety of facilities available. Tourists may use facilities such as roads, beaches and museums which may involve costs in providing but which are sold at zero price or a price which does not fully reflect costs.

External costs and benefits are difficult to measure in Australia as elsewhere, and it is difficult to know whether the external effects of tourism are positive or negative (for a discussion see Burns and Associates 1989; Dwyer and Forsyth 1990).

(d) Terms of Trade Effects

One of the more important effects of an increase in tourism expenditure is what might be called a terms of trade effect. Extra tourism pushes up the demand for Australian outputs of tourism services, and causes price to rise, since several inputs, land suitable for facilities in particular, are not in perfectly elastic supply. These price rises lead to an increase in rents enjoyed by the owners of the scarce resources, mainly Australians. This is illustrated in Fig 1.

Additional receipts from foreign tourism will only lessen the current account deficit to the extent that aggregate savings increase more than aggregate investment. Since there is no reason to expect that extra tourism expenditures would encourage domestic savers to save more, the effects on the current account will be negligible. There will thus be no change in overall foreign demand for home goods and services, and thus there is unlikely to be a significant output effect. This is a question which merits further investigation however.

The impact on GDP or total consumption is not a good measure of the benefits from tourism expenditures (or any other expenditures). This is because GDP is the gross value of output - to obtain a measure of the benefits, it is necessary to subtract the cost of additional factors used. If additional labour is employed, there is a cost to it, even if this cost is less than the wage. Thus the measures of benefits presented by the CIE (1988) and in some of the IAC (1989a,b) simulations are considerable over estimates, since they effectively assume additional labour as free (and most of the extra real GDP created comes from extra employment). The CIE measures and some IAC measures are based on large output effects, (along with large effects on savings). Such measures do not take into account the offsets to demand coming about through the requirements for external balance.

Tourism is different from many other export industries in as much as Australia, like other countries, possesses some market power. It raises the question of what price for tourism would maximise benefits. The issue is made more complicated by a trade-off between profits at the tourism level and profits at the international aviation level - higher tourism (aviation) prices lessen demand for tourism (aviation) and lower profits at that level. The prices which maximise benefits must be determined simultaneously, allowing for several other complications (Forsyth, 1988). It is possible that, if there were higher prices for tourism services generally, the benefits to Australia could be greater. These issues have been discussed (Findley and Forsyth 1988; CIE 1988; IAC 1989b) but to resolve them a reliable measure of benefits and costs is needed.

Another issue which arises from the presence of market power is the desirability of promotion. Where Australia is a price taker, there is no point in promotion. Tourism promotion can shift the demand curve to the right, and result in increased benefits to Australia - there benefits would be enjoyed by the owners of scarce factors, not the tourism industry generally. While tourism promotion may be desirable, there may be free rider problems in achieving it, since it may not be in the interests of factor owners to contribute to general promotion. Thus there could be a case for
Figure 2

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in GDP with changes in benefits (CIE, 1988, p64, IAC, 1989b, p.vii), though in its discussion of
the detailed results, the IAC is more circumspect. In most simulations examined by the CIE and
IAC, labour and capital impacts change substantially, meaning that GDP changes (or
consumption changes) are poor measures of benefits.

A very rough method of converting GDP changes into net benefits would be to estimate the
opportunity cost in increased inputs and deduct this from the GDP change. Thus, taking the IAC
(1989a, p27) estimate of the results of a 20% ($900m) increase in tourism, which yields a GDP
increase of $470m, (in 1987-88), the cost of extra labour could be deducted. At a wage of $25,000 ,
and with extra employment of 17,000, this would come to $425m, leaving a net benefit of $45m
(=5%), if no additional capital were employed. If a shadow wage of $15,000 were used, net
benefits would be $215m.

Both the CIE and IAC highlight the importance of domestic adjustment to changes in tourism
expenditures through drawing resources from other industries. However, they are unexplicit about
external balance, and effectively, impose solutions. Doing this has enormous implications for the
results. Effectively, the CIE estimates an increase in GDP, and assumes that all of this increase is
saved, and goes to reduce the current account deficit. The IAC reports several different
possibilities - in the earlier study (1989a) the reduction in the trade balance is equal to half the
GDP increase, and in the later study, simulations with zero effect on the current account, and with
considerable saving out of the GDP leading to a reduction in the deficit, are amongst those
undertaken. As argued in section 4, there is no reasons to expect that an increase in tourism
expenditure will make savings any more attractive, and thus one would expect only a small impact
on the current account (with investment constant) or an ambiguous impact (if investment increases
to provide for extra tourism).

The sensitivity to the labour market assumptions is quite critical. In the CIE and the earlier
IAC studies, a short run assumption of constant real wages was used. This resulted in large
employment and output effects (increased tourism expenditures were not matched by any demand
side changes on other industries as a result of exchange rate changes). In the IAC's longer run
simulations, where real wages are free to vary (and rise for the categories of labour in increased
demand) the employment and output effects are significantly reduced. We consider these larger
run simulations are a better guide as to what is likely to happen.
There have been some attempts to test the ORNL model to quantify the benefits of combining solar power with storage systems, but these efforts have been limited in scope and have not led to widespread adoption. Challenges in implementing these systems include the high cost of initial investment, lack of grid connectivity, and intermittency of solar power generation. However, with advancements in technology and increasing demand for renewable energy, the viability of solar power storage systems is expected to improve.

The benefits of integrating solar power storage systems can be significant:

1. **Energy Reliability**: Storage systems can help maintain energy supply during periods of high demand or when solar generation is low, ensuring a stable power supply for consumers.
2. **Cost Reduction**: By smoothing out peak loads, storage systems can reduce the need for additional generating capacity, lowering overall costs for energy providers and consumers.
3. **Environmental Benefits**: Solar power storage systems reduce greenhouse gas emissions by replacing traditional, carbon-intensive electricity sources.
4. **Grid Integration**: Storage systems can help integrate intermittent renewable energy sources into the grid, improving grid stability and reducing the need for expensive peaking power plants.

In conclusion, while solar power storage systems are experiencing growth and technological advancements, there are still challenges to overcome. However, the potential benefits make it an attractive area for further investment and development.
(b) Labour Market Effects

When tourism expenditure increases, the demand for inputs will increase. The most important of these will be labour, and the supply of labour will not be completely inelastic. If there are distortions in the labour market, impacts on the demand for and supply of labour can give rise to benefits or costs. Thus, if there is unemployment additional tourism may generate jobs if the shadow wage is less than the market wage and there will be a net benefit. Further, since labour earnings are taxed, shadow and market wages may diverge even if there is no unemployment.

(c) Foreign Exchange Effects

Additional foreign tourism will add to foreign exchange receipts. This is not an additional benefit over and above those identified except in so far as the home country places a value on foreign exchange which is different from the market rate of exchange. If exchange rates are not free to vary to equilibrate demand for and supply of the currency, or where there are trade distortions such as tariffs and export subsidies, the shadow foreign exchange rate will differ from the market rate. If the shadow price of foreign exchange exceeds the value represented by the market exchange rate there will be a benefit to the economy from extra tourism expenditure.

(d) General Equilibrium Aspects

When tourism expenditure increases, other industries are not unaffected. While there will be some other industries which are complementary to tourism which expand, on balance, economic activity elsewhere will decline. Tourism will draw resources, such as labour, away from other industries, and induce a reduction in production. There will be effects through the foreign exchange market - extra receipts will push the home currency up, and exports of other goods and services will be discouraged, along with import competing outputs. It is possible that overall output will increase, because increased factor inputs may be used, but the increase will be less than the change in tourism expenditures. This has important implications for the measurement of the net benefits of the expenditure increase.

Much the same can be said in principle about the industries which contract as can be said about tourism. They may be taxed, subsidised, they may possess market power and charge prices above marginal cost, and they create positive and negative externalities. They also employ labour wages policy and the nature of the awards governing industries under public ownership may prevent movement in relative wages to eliminate shortages.) Prices of tourism services will rise, and domestic as well as foreign tourists will pay higher prices, though the gain to producers exceeds the loss to domestic consumers. In the long run, more people will train for these skilled jobs, and wages will fall.

The effect in the land market will be permanent. There is a limited supply of land suitable for tourist development, and many of the best sites have been developed already. It is possible to find other sites, but they may not be as convenient, as attractive, and they may pose environmental difficulties. Land is necessary for many tourist facilities, such as hotels, shops and attractions. Some facilities such as beaches, natural attractions and historical sites are limited in supply, and while their use may be subject to congestion, if they are priced efficiently, additional demand will push prices up, to the benefit of the home country. (A similar argument has been made in the context of population growth and externalities - see Clarke and Ng, 1990). When understood broadly, there is a substantial "land" component to tourism.

It would be possible to measure price effects as a result of increases in foreign tourism expenditures. These effects do not seem negligible - it is claimed that higher prices caused by foreign tourism in some resort areas are pricing domestic tourists out.

Using a simple 'welfare triangle' approach to measurement of the gain, starting from a base where all tourism was domestic, an increase to tourism from foreign sources would lead to a net gain to the economy of one half of the difference in the costs of this expenditure valued at the old and new prices (the areas ABC in figure 1). Thus if foreign tourism raised the price by 10% there would be a gain to the economy of approximately 5% of the foreign tourism expenditure. Where there is already some foreign tourism the gain will be greater since the price to foreign tourists will rise (ie some of $P_1P_2$ is a net gain to the economy). Currently about 27% of total tourism expenditure is by foreign residents, and a 10% price rise will give rise to an additional gain of 2.7% of total tourism expenditure. If, say, this price rise came about as a result of a 40% increase in tourism demand overall, the gain to the economy would be slightly less than 11.75% (=6.75% + 5.0%) of the spending by the new foreign tourists. There will be other effects resulting from exchange rate changes. As the exchange rate rises, other export industries will face lower prices and producers surpluses will fall. However, consumers will gain. Thus the immediate gain from the tourism expenditure increase is a good approximation to the overall terms of trade gain.
As per the export restrictions, the export of technology and software to countries under specific embargo lists is prohibited. The U.S. Department of Commerce maintains a list of embargoed countries and technologies. Exporters must ensure that their exports comply with these regulations. Failure to comply can result in severe penalties, including fines and imprisonment. It is important for companies to consult with legal and regulatory experts to navigate these restrictions effectively.

In summary, companies must be vigilant in understanding and complying with the restrictions imposed by the U.S. government to avoid legal repercussions and ensure the continued growth and prosperity of their operations.
significant, although particular local impacts may be substantial. (Dwyer and Forsyth 1990)

Effects on government revenues could go either way, and are unlikely to be significant and by assumption (for the no extra output case) labour market effects are not important. While tourism may not increase the amount of foreign exchange earned (see Section 3 on this) there may be benefits through the replacement of protected industries by a non-protected industry. This will result in positive net benefits from the expansion of tourism.

Finally, it should be noted that even if overall output does not increase, the terms of trade effect, increasing the prices received for the country’s exports, will be present and leads to net benefits. There will be some offsetting effects when output is unchanged and domestic prices of other exports will fall (due to exchange rate changes). Nevertheless the net effect will be positive.

The various possible sources of benefits and costs are summarised in Table 1. The table refers primarily to long run effects but the analysis for the short run is not very different for example, during the pilots dispute. When there is excess capacity, the cost of providing services to foreign tourists will be low. However since the industry is quite competitive it is also likely that the price charged for them will fall to approximate the shadow price - thus there is unlikely to be a large divergence between market and shadow prices as a result of short run excess capacity.

It is possible that all of the effects mentioned will be present if extra expenditure leads to extra employment and output. This is indicated in column 1. When there is no impact on output, the only effects which are likely to be significant are the terms of trade and the foreign exchange effects. Both of these will be sources of positive net benefits. For this reason it is appropriate to examine them in greater detail. Clearly, the size of the net benefits from tourism depend upon the output response, and in turn, on the way the labour market works, and thus it is worth examining this closely.

The expansion of the capital intensive mining industry, corresponded to the growth of unemployment in Australia. When real wages are set too high, it is difficult to eliminate unemployment by trade related measures such as devaluation or protection (see Dornbusch, 1980, p73, Corden, 1985).

The workings of the labour market may not be as simple as supposed above. The market really consists of several sub markets classified by skill and by region. An increase in labour demand in one region for particular skills will imperfectly spill over into other regions and skills. Thus, a tourism development may result in a reduction of unemployment and increased labour force participation in a region, and rather little reduction in unemployment in other regions. It is also possible that unemployment may not be very sensitive to labour demand. A given level of unemployment may be the result of preferences by unions and the workforce which reflect a trade-off between higher wages and higher employment. Extra labour demand could raise real wages without lessening unemployment substantially.

One way to settle the question of the impact on employment would be to model it using a general equilibrium model. The problem is that the results are very sensitive to the assumptions used in particular runs of the model. Under some assumptions (basically a fixed real wage and limited displacement effects on other industries through exchange rates), the impact on jobs is quite large. The Industry Commission, using the ORANI model estimated that the short run effects of a 20 percent increase in international tourist expenditure (about $900 million in 1987/88) would increase employment by 17,000 (IAC 1989a). However, other runs of the same model, used to estimate long run effects under such assumptions as the trade balance is fixed indicate much smaller gains in employment (IAC 1989b).

Overall, major impacts on aggregate labour demand, as a result of increased tourism (or any other) expenditure, are not likely. Tourism development may lead to a reduction in regional unemployment as well as increasing participation rates within certain regions. Because it is a relatively labour intensive industry, a shift towards tourism would tend to increase labour demand, and decrease unemployment, but this effect would be small relative to the initial employment impact. Overall output would increase slightly, and there would be a corresponding increase in the other benefits and costs discussed in Section 2.

If employment increases, there can be a net benefit to the economy if the shadow price of labour is less than the market wage. This could be the case if labour were taxed (which it is), or the market
4. THE CURRENT ACCOUNT AND FOREIGN EXCHANGE IMPACTS OF TOURISM

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Table 1

Source: No Change in Gross Domestic Product (GDP) 1993

According to the Bureau of Tourism Research Statistics, which update the Bureau of Industry Program of Measuring the Impact of Tourism and Questionnaire in the Rail...

Tourism and the Labour Market

Note: In the mark price, an additional 500% spending is assumed in the 50% while not...
impact on saving would be even smaller. There is nothing in an increase in tourism which makes saving more attractive relative to current consumption. (For a more general application of this argument, see Forsyth, 1990). There is not much that can be expected in terms of an increase in saving as a result of increased tourism expenditure.

The current account deficit could be reduced if investment falls. If anything, though, the reverse is likely to happen. Increased tourism will give rise to a demand for more facilities to serve the tourists, and these will require additional investments. At the beginning of a boom, these investment levels could be quite substantial. This is not the end of the matter, since the expansion of tourism will mean other industries contract, and these industries will invest less. Overall, it is not possible to predict reliably any effects either way on total investment. If the expansion of tourism is achieved primarily through increases in output, it is more likely that there will be an increase in aggregate investment. This will lead to an increase in the current account deficit in the short term.

Thus, the popular view that increased foreign tourism expenditures lead to a reduction in the current account deficit is mistaken. To the extent that expenditures are met by increases in output, the reverse might be true. What happens is that the savings and investment levels desired in the economy stay much the same, the real exchange rate rises to ensure this is the case, and imports rise and other exports fall. There is a significant precedent for this - it happened as a result of the mineral boom of the 1970’s (see Gregory, 1976 and Forsyth, 1986). The mineral export boom is still very much with us, yet the current account deficit is at record levels.

There can be a net benefit from increased foreign exchange earnings however, since it could be that the shadow price of foreign exchange exceeds its market price. One reason why this might be so is that the exchange rate might not be free to equilibrate supply and demand, and the home currency may be overvalued. This is not likely to be the case for Australia, with a floating exchange rate. While there is, from time to time, official intervention, this is not systematic and it is not likely to be of an order to warrant estimation of a shadow exchange rate. The other reason for adjusting the market value is to allow for the possibility of trade distortions.

If there are distortions, such as tariffs on imports, or export subsidies, present, the value of an additional $1 worth of foreign exchange may be greater than $1. An extra $1 in foreign exchange can be used to purchase goods and services which will be worth more to consumers than $1, since the market price will be higher than this. Viewed from a different angle, extra expenditure provides a benefit through extra tariff revenues to the government - prices exceed the resource costs to the economy. Extra spending on a non-protected industry crowds out spending on protected industries, resulting in a better overall allocation of resources. The upshot of this is that the shadow price of foreign exchange exceeds the market price.

Analysis of the shadow price of foreign exchange (e.g. Fane, 1988) usually takes it that government revenues, shortfalls and excesses are distributed in a lump sum manner, and that trade distortions are fixed. In practice neither assumption may be correct. When the exchange rate rises and the purpose of protection is primarily to protect employment, the government may accord to the inevitable pressure from industry and increase protection so as to ensure viability. To an extent, it did this in the 1970’s when the exchange rate rose (it instituted quotas for motor vehicles, textiles, clothing and footwear). If this happens, the gain from increased foreign exchange earnings, achieved through altering the industrial composition of the economy, is negated, and the shadow price is closer (perhaps equal to) the market price. In addition shortfalls in or excesses of revenue are made up through distortionary, not lump sum taxes. Shadow prices depend on what actual policies will be followed, and there is discretion about these (Sen, 1972).

Granted that imports are subject to protection, and that exports are slightly subsidised, it can be agreed that the shadow price of foreign exchange in Australia exceeds the market price. In spite of considerable interest in Australia’s trading position, there does not appear to be much interest in estimating a shadow price for foreign exchange. The shadow price will depend on the level of the trade distortions, the relevant demand and supply elasticities and the use to which revenues are put (see Fane 1988). By making the small country assumption and assuming equal demand elasticities for all imports and supply elasticities for exports the shadow exchange rate will depend on the levels of protection. Manufactured goods were subject to a nominal rate of assistance of 10.0% and agricultural goods of 3.3% in 1988-89 (Industry Commission 1990). In addition there are some export subsidies though these would amount to only about 1-2% of the value of exports. Given the shares of different groups in imports and exports and their rates of assistance, it is unlikely that the shadow price of foreign exchange would exceed 1.05 times the market price. When there is expenditure on tourism by foreigners not all of this amounts to a net increase in exports since imports are necessary to provide for tourist’s needs. Thus, ignoring other effects through foreign exchange and labour markets an additional $100 expenditure leads to a net gain in foreign exchange of $83 (Bureau of Industry Economics 1984). Thus, with a shadow price 1.05