



The efficiency of government promotion of inbound tourism: The case of Australia[☆]



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ABSTRACT

This paper examines the effect of tax-funded promotion of inbound tourism on domestic welfare in an open economy setting with increasing returns in the tourism industry. As inbound tourism is a way of extending the market and getting more demand to realize the implication of increasing returns, promotion can help overcome the underproduction of tourism goods. However, taxation leads to a decline in domestic residents' consumption of tourism and non-tourism goods and reduces the competitiveness of the non-tourism industry in the host country. An important result obtained is that government promotion of inbound tourism will not improve welfare unless the degree of increasing returns in the tourism industry is high enough and the national income of the foreign country multiplied by the parameter of marketing effectiveness is larger than the national income of the home country. This finding is supported by a simulation with the case of Australia.

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1. Introduction

In recent years, inbound tourism has become an important industry in the world's economy and even a principal source of income for some countries, such as Thailand and Fiji. When foreign tourists purchase goods and services, foreign exchange earnings are injected into the economy. This tends to increase the profitability of local business, creates new employment opportunities and broadens the local tax base. In Thailand, foreign tourism is the largest export industry, which directly and indirectly accounts for 13% of GDP, 10% of employment and 12% of investment during 1998–2005. Even for a non-tourism-oriented country like Australia, inbound tourism directly accounted for 3.6% of total GDP, 10.1% of total exports, and 4.7% of total employment in 2007–08 (Tourism Industry Facts & Figures, [Tourism Research Australia, 2009](#)). Studies have shown that international tourism has a positive effect on long-run economic growth (see [Brida et al., 2010](#); [Katircioglu, 2010](#); [Kim et al., 2006](#)). Many countries promote tourism for this

reason. For example, spending on promotional programs accounts for about 3% of total government budget outlays in Thailand. The Federal Government of Australia has been directly involved in the marketing of tourism, providing 70% of the funding for the promotion activities of the Australian National Travel Association. After a dramatic drop in the number of tourists to the United States after September 11, leaders of America's tourism industry pressed Congress to approve two bills that would direct hundreds of millions of dollars of public and private money into programs aimed at reviving foreign visitation levels.

One justification for government funding of tourism promotion is that the 'free riders' problem makes private firms not willing to undertake promotion activity (see [Blake and Sinclair, 2007](#); [Bonham and Mak, 1996](#)). Government intervention, however, can overcome market failure and has been proven to be an effective way to highlight the main attractions of a location and draw more tourists. Some special events, such as athletic, cultural, or festive gatherings, may play an important role in attracting visitors to a destination. Many such events may be initially regarded as a one-time endeavor, but then subsequently evolve into annual events and become a famous brand. For example, Melbourne is regarded as a famous sports city in the world after hosting many sports events. In the literature, [Felsenstein and Fleischer \(2003\)](#) and [Beeton \(2004\)](#) discuss the role of tourism promotion with public assistance in boosting the regional economy. [Divisekera and Kulendran \(2006\)](#) find that the impressive growth in total visitor arrivals to Australia from 0.904 million in 1980 to 4.385 million in 2003 can be attributed to the effect of increased promotional efforts by the national tourist authority (the

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Australian Tourist Commission, ATC) and other media coverage. In sum, government promotion is an important factor affecting the outcomes of the tourism industry.

In this paper, we capture the relationship between tourism and the rest of the economy to analyze the efficiency of tax-funded promotion of inbound tourism in a general equilibrium framework. We will focus on the effect on domestic welfare in an open economy. We explore the much neglected implications of increasing returns to analyze the welfare effect of tourism promotion. The idea of increasing returns is to deal with monopolistic competition of tourism goods. In the presence of increasing returns, the firm finds its average cost curve downward sloping over the whole relevant range. We may have the monopolistic restriction of output with price above marginal cost, which is inefficient. Even though with average cost pricing in the long run, each consumer takes the price as given and they will not consume more. In fact, if consumers buy more of this good, the fixed cost of producing this good will spread over a larger number of units, which results in a lower average cost and hence lower price for each consumer. As the effect of increasing returns is not taken into account by individual consumers, the industry will have under-production. A promotion that attracts more foreign visitors may overcome this problem to improve welfare.

There are a couple of recent papers investigating tourism subsidy under monopolistically competitive environment. Copeland (2012) shows that an export subsidy in a monopolistic competition may improve welfare. The author uses a hotelling specification to find that a subsidy on tourists produces positive externality that otherwise monopolistic firm chooses its price to maximize its own profit without considering the effect of its decision on the overall inflow of tourists. Although the current paper also discusses product variety, the mechanism to deal with this issue is different from the Copeland paper. Copeland's paper focuses on a pricing externality affecting the overall price of tourism goods and hence the inflow of tourists. The current paper focuses on correction of tourism promotion to the underproduction of each local variety that affects domestic welfare. The other paper (Zeng and Zhu, 2011) uses new economic geography model to study the interdependence between tourism boom and industrialization in a general equilibrium framework. They find that a tourism boom may result in de-industrialization but may also stimulate manufacturing. In their model, the manufacturing sector is monopolistically competitive and the tourism sector is not. Tourism expansion can affect the size and the degree of product variety in manufacturing. In contrast, the current paper models a monopolistically competitive tourism sector to examine the welfare effect of tourism boom on domestic residents who consume tourism and non-tourism goods.

Inbound tourism involves the movement of tourists from one country to the destination country, making non-tradable goods tradable. The modern trade theory has analyzed the role of increasing returns in the international trade for a long time. Krugman (1979) proposes a general equilibrium model of non-comparative advantage trade in which scale economies are assumed to be internal to firms with product differentiation and monopolistic competition. Helpman (1981) and Ethier (1982) also express the same idea that trade is caused by increasing returns by analyzing different types of scale economies. Antweiler and Trefler (2002) use a general-equilibrium econometric model to quantify the extent of increasing returns in the international trade. Fan (2005) also finds that there is an intense intra-industry trade among economies with similar levels of per capita income only if the degree of increasing returns is relatively high. In addition, Kemp and Negishi (1970), Eaton and Panagariya (1979), Grinols (1991) and Zhou (2007) all state that gains from trade are guaranteed if free trade leads to an expansion of increasing returns industries and non-expansion of decreasing or constant returns industries. However, the literature lacks explicit analysis of inbound tourism which may exhibit increasing returns. This is the main methodology we are going to address in this paper.

There are many empirical studies that find the existence of increasing returns in areas related to tourism. For example, based on survey

data of Taiwan's international tourist hotels, Weng and Wang (2004) and Lin and Liu (2000) show that scale economies exist for accommodation and other services. Chansomsak (1997) also finds strong evidence of economies of scale in the Thai hotel industry. This is easy to explain. To attract more tourist arrivals, more and more countries nowadays have realized that better hotel facilities and tourism infrastructure are important. They invest in better hotels and means of transportation to improve the quality of the tourism goods and services. They also employ new technology such as computer reservation system and internet marketing to make it convenient to travel in the destination countries. It is known that increasing returns can be internal or external. If a firm's cost decreases with total industrial level of output, it is a case of external economy. Internal increasing returns come from spreading of fixed cost of production. The investment in facilities and infrastructure and employment of new technology in the tourism industry can be regarded as fixed set-up costs. In this paper, we assume that increasing returns in the tourism industry come from internal returns to scale. By attracting more tourists into the home country to consume tourism goods and services, the implications of increasing returns are taken into account with the high fixed cost being spread over a larger number of units of output, leading to a decrease in average cost and price. The problem of under-production caused by monopolistic competition will be overcome and welfare may be improved. Hence, many economists advocate a subsidy to industries with increasing returns so that Pareto efficiency can be improved (see Myles, 1987; Devereux et al., 1996; Doi and Futagami, 2004 and Ng and Zhang, 2007).

In spite of benefits from promotion of inbound tourism by utilizing increasing returns, government promotion could be considered as a cost to the host country. As the promotion of tourism involves a redistribution of resources among sectors in an economy, the adverse effect of promotion on the non-tourism sectors makes it difficult to see if this type of promotion is desirable. Especially when the non-tourism industry also exhibits increasing returns, the tax-funded promotion is more distortionary. Dwyer and Forsyth (1992) find that the real cost of \$1 m promotion spent overseas approximates \$1.275 m numerically as the case in Australia. There are some welfare analyses of tourism expansion in the literature. Copeland (1991), Hazari and Ng (1993), Hazari and Nowak (2003) and Wattanakuljarus and Coxhead (2008) have studied the effect of a tourism boom from the perspectives of externalities like increased pollution, congestion, and income inequality, etc. But increasing returns to scale were not considered in those analyses. More recently, Nowak et al. (2003), Chao et al. (2006) and Chang et al. (2011) have used a variety of models in the analysis of welfare effect of tourism expansion. In their models, they assume constant returns in the tourism sector and increasing returns in the non-tourism sectors. Their results show that tourism boom immiserize local residents. There is no doubt that a subsidy to an industry with constant returns is not efficient, according to the arguments in Myles (1987), Doi and Futagami (2004) and Ng and Zhang (2007). On the contrary, we would like to illustrate in this paper if tourism promotion is welfare-improving under the condition of increasing returns.

The aim of this paper is to present a formal analysis of the efficiency of promotion of inbound tourism in a two-country and two-good model. The trade model consists of tourism and non-tourism goods. An important feature is that the tourism production exhibits internal increasing returns and is characterized by imperfect competition. We will develop a model of monopolistic competition with international trade based on the Dixit-Stiglitz' (1977) model. This model captures the source of increasing returns at the firm level from big fixed-cost components. We will examine the effects of promotion of inbound tourism funded by income tax on tourism output and variety and domestic demand of tourism and non-tourism goods in an open economy. We focus on sum-up welfare without considering the equity of income distribution. The criterion is to treat one dollar as one dollar, to whomsoever it goes, leaving the objective of equality to the general tax/transfer system, as in Ng (1984).

An important proposition obtained in this paper is that promotion of inbound tourism is not welfare-improving unless the degree of increasing returns in the tourism production is high enough and the national income of the foreign country multiplied by the parameter of marketing effectiveness is larger than the national income of the home country. This proposition is supported by the numerical simulation of Australia's promotional campaign targeting Japanese tourists. On one hand, the promotion of inbound tourism overcomes underproduction and expands the variety of tourism goods, providing more choices for Australian consumers. On the other hand, the tax-funded tourism promotion makes the domestic demand for tourism and non-tourism goods decline, and meanwhile, it reduces the competitiveness of the non-tourism industry in the international market due to deteriorating terms of trade. If the favorable effect cannot outweigh the negative effect, welfare of a domestic consumer deteriorates.

This paper is organized as follows. In Section 2, we set up a general-equilibrium model in an open economy with tourism promotion. In Section 3, a simulation is conducted to examine the effect of tourism promotion on output, variety of tourism goods and domestic welfare. The conclusion and political implications are stated in Section 4.

2. The model with tourism promotion

2.1. The basic setup

Consider an open economy consisting of two countries – a home country and a foreign country, assuming that the two countries differ in their factor endowment with different populations. We assume that the home country produces and consumes tourism and non-tourism goods, x and y , while the foreign country only produces non-tourism goods. People from the foreign country have to visit the home country for tourism goods and services. Tourism demands are specified as a CES function with a variety of goods and services. Non-tourism products are generalized to be homogenous, as we mainly focus on the scale effect on the tourism production. For the home country with M_1 identical consumers, each has the following decision problem for the consumption of tourism and non-tourism goods.

$$\begin{aligned} \text{Max } U_1 &= \left[\sum_{i=1}^m x_i^\rho \right]^{\frac{\alpha}{\rho}} y_1^{1-\alpha} & (\text{utility function}) \\ \text{s.t. } \sum_{i=1}^m p_i x_i + p_y y_1 &= w_1 & (\text{budget constraint}) \end{aligned} \quad (1)$$

where x_i represents the i th tourism good consumed by an individual in the home country, m is the number of tourism goods. Here, tourism goods do not exactly mean scenic venues but mean any goods related to tourism activities, such as accommodation, restaurants and transportation, etc. The consumption of non-tourism goods by an individual in the home country is represented by y_1 . Parameters p_i and p_y are the equilibrium prices for tourism and non-tourism goods. ρ is the parameter for the elasticity of substitution between different types of tourism goods. α is the preference parameter for tourism goods and services. It is assumed that each consumer is endowed with one unit of labor. w_1 is the income earned by a representative consumer in the home country.

The foreign country, with M_2 identical consumers, only provides non-tourism goods and services for both countries and does not receive any tourists from the home country. Individuals in the foreign country have to visit the home country for tourism activities. The utility function and budget constraint for the foreign country are given by:

$$\begin{aligned} \text{Max } U_2 &= \left[\sum_{i=1}^m (x_i^f)^\rho \right]^{\frac{\alpha}{\rho}} y_2^{1-\alpha} & (\text{utility function}) \\ \text{s.t. } \sum_{i=1}^m p_i x_i^f + p_y y_2 &= w_2 & (\text{budget constraint}) \end{aligned} \quad (2)$$

where x_i^f is the amount of the i th tourism good consumed by a visitor from the foreign country. As tourism goods can only be provided by the home country, the number of tourism goods is still m for the foreign country. For simplicity, it is assumed that the foreign country starts from the same preference for tourism goods as the home country and the elasticity of substitution between different types of tourism goods is the same as the home country. y_2 is the non-tourism goods consumed by an individual in the foreign country. The income for a representative individual in the foreign economy is w_2 .

2.2. The tourism promotion

If the tourism industry is successful in lobbying the government to fund international marketing campaign, foreigners' preference for tourism goods and services will change. We let only the preference parameter for foreign consumers change to $\alpha(1+\gamma)$. The preference parameter for non-tourism goods remains unchanged so that the relative preferences for two goods change. We assume that promotion is funded by a tax on consumers in the home country. The reason for a tax on consumers rather than a levy on the tourism industry such as a bed tax is that the latter has specific effects on the tourism production. The tax rate is represented by t . As the promotion is financed by a tax on individuals in the home country, the amount of tax revenue needs to be sufficient to finance the promotion of tourism and change the original preference parameter by γ . Assume that $\gamma = At$. Here, parameter A measures how effectively the tax-funded promotion changes preference of foreigners for tourism demand.

Due to an increasing demand brought by the tourism promotion, individual firms may earn profit in the short run. However, with monopolistic competition, firms are free to leave the tourism industry entirely in response to negative short-run profit or new firms may decide to enter into this industry in response to positive short-run economic profit. The possibility of entry and exit of firms drives the profit of individual firms to zero in the long run. Now an individual's utility-maximizing problem in the home country with promotion becomes:

$$\begin{aligned} \text{Max } U_1 &= \left[\sum_{i=1}^m x_i^\rho \right]^{\frac{\alpha}{\rho}} y_1^{1-\alpha} & (\text{utility function}) \\ \text{s.t. } \sum_{i=1}^m p_i x_i + p_y y_1 &= w_1(1-t) & (\text{budget constraint}) \end{aligned} \quad (3)$$

The individual's utility-maximizing problem in the foreign country is:

$$\begin{aligned} \text{Max } U_2 &= \left[\sum_{i=1}^m (x_i^f)^\rho \right]^{\frac{\alpha(1+\gamma)}{\rho}} y_2^{1-\alpha} & (\text{utility function}) \\ \text{s.t. } \sum_{i=1}^m p_i x_i^f + p_y y_2 &= w_2 & (\text{budget constraint}) \end{aligned} \quad (4)$$

With the Cobb–Douglas function, a proportion of income is allocated to the consumption of tourism and non-tourism goods. Quantity demanded depends on preferences, price of goods and income, etc. The optimization outcomes for individuals in the two countries based on Eqs. (3) and (4) are:

$$\begin{aligned} x_i &= \frac{\alpha w_1(1-t)}{p_i^{1-\rho} \left(\sum_{k=1}^m p_k^{\rho-1} \right)} & y_1^d &= \frac{w_1(1-t)(1-\alpha)}{p_y} \\ x_i^f &= \frac{\alpha(1+\gamma)d}{p_i^{1-\rho} \left(\sum_{k=1}^m p_k^{\rho-1} \right)} & y_2^d &= \frac{w_2(1-\alpha)}{p_y} \end{aligned} \quad (5)$$

2.3. The firm's problem

Now consider the firm's decision problem. It is assumed that the tourism production exhibits internal increasing returns. For internal increasing returns, a tourism firm has fixed cost and relatively low and roughly constant marginal cost. This makes the average cost curve a sharply decreasing rectangular hyperbola. Since a firm finds its average cost curve to be downward sloping, it will expand output indefinitely until it is not a price taker, then the market structure exhibits monopolistic competition. In the presence of increasing returns, the monopolistic restriction of output with price above marginal cost will lead to under-production compared with perfect competition.

The first-order condition for monopolistic competitors to maximize profit with respect to output level or price is $MR = MC$; that is:

$$p_i \left(1 - \frac{1}{\varepsilon}\right) = b. \quad (6)$$

Here, b is the constant marginal cost in tourism production. As the tourism industry is relatively small in the whole economy for most countries which do not rely on tourism too much, marginal cost will not easily be affected by changes in tourism output. ε is the own price elasticity of demand for tourism good x_i . It can be verified that the price elasticity of demand is given by¹:

$$\varepsilon = -\frac{\partial \ln x_i}{\partial \ln p_i} = \frac{m - \rho}{m(1 - \rho)}. \quad (7)$$

By substituting Eq. (7) into Eq. (6), we get:

$$p_i = \frac{b(\rho - m)}{\rho(1 - m)}. \quad (8)$$

In addition, free entry is allowed, which will drive profit of individual firms to zero in the long run. The zero profit condition implies:

$$p_i X_s = a + bX_s \quad (9)$$

where a is fixed cost in the tourism production. From Eqs. (7) and (8), the quantity supplied of tourism goods and services is acquired as:

$$X_s = \frac{\alpha \rho (1 - m)}{bm(\rho - 1)}. \quad (10)$$

For simplicity, we assume that market goods are symmetrical. Thus we have $X_i = X$, $x_i = x$, $p_i = p$ for $i = 1, 2, \dots, n$. Combined with market clearance condition $M_1 x_i^d + M_2 x_i^d = X_s$, the general equilibrium value of variables can be obtained as:

$$\begin{aligned} m^* &= \rho + \frac{(1 - \rho)Z}{a} \\ p^* &= \frac{bZ}{\rho(Z - a)} \\ X^* &= \frac{a\rho(Z - a)}{b[a\rho + (1 - \rho)Z]} \\ x_d^* &= \frac{a\rho(Z - a)aw_1(1 - t)}{[a\rho + (1 - \rho)Z]bZ} \end{aligned} \quad (11)$$

where $Z = M_1 \alpha w_1 (1 - t) + M_2 \alpha w_2 (1 + \gamma)$.

2.4. Comparative statics analysis

We may examine the comparative statics by examining the effects of a change in some parameters on the equilibrium value of one variable such as product variety m .

$$\begin{aligned} \frac{\partial m}{\partial a} &= -\frac{(1 - \rho)Z}{a^2} < 0 \\ \frac{\partial m}{\partial \rho} &= 1 - \frac{Z}{a} < 0 \\ \frac{\partial m}{\partial a} &= \frac{1 - \rho}{a} [M_1 w_1 (1 - t) + M_2 w_2 (1 + \gamma)] > 0 \\ \frac{\partial m}{\partial M_1} &= \frac{1 - \rho}{a} w_1 (1 - t) > 0 \\ \frac{\partial m}{\partial M_2} &= \frac{1 - \rho}{a} w_2 (1 + \gamma) > 0. \end{aligned} \quad (12)$$

The above comparative-statics results imply that the number of tourism goods decreases with fixed cost and the elasticity of substitution between tourism goods but increases with preference for the tourism goods and the population. Intuitively, a higher fixed cost deters the entry of new firms. An increase in the elasticity of substitution makes it less important to have different type of goods. In contrast, an increase in preference and population requires more variety of that good.

Now we will look at the effect of taxation on the number of tourism goods. This can be seen by:

$$\frac{\partial m}{\partial t} = \frac{\alpha(1 - \rho)}{a} (M_2 w_2 A - M_1 w_1). \quad (13)$$

As long as $M_2 w_2 A > M_1 w_1$, the above inequality is positive, then promotion will raise the variety of tourism goods.

2.5. The non-tourism market

For the non-tourism industry, as we are mainly considering cases where it is large relatively to the tourism industry, for relatively moderate changes in the latter, the effect on the former is unlikely to be significant. Within the range of such changes, the marginal cost of the non-tourism industry may be taken as approximately not affected. As labor is the only factor of production, the production function in the home country is assumed to be a linear function of labor: $F_1(L_1) = cL_1$. The parameter c measures technology or productivity level, implying that one unit of labor is able to produce c units of non-tourism goods. Similarly, the production function in the foreign country is assumed to be: $F_2(L_2) = dL_2$, implying that the productivity is different from that in the home country. The value of c or d decides if the non-tourism industry exhibits external increasing returns.

As each consumer is assumed to be endowed with one unit of labor, L_1 and L_2 denote the amount of labor force employed in the non-tourism industry in the home and foreign countries respectively. If both countries have full employment, then $M_1 - L_1$ units of labor are employed in the tourism industry in the home country and $L_2 = M_2$ units of labor are employed in the non-tourism industry in the foreign country. As an individual may work in the tourism industry or the non-tourism industry with free labor mobility, returns from the two industries should be equal. Hence, w_1 and w_2 in Eqs. (1) and (2) denote the income for a representative individual in each country who works in either industry. According to the zero-profit condition, $\pi = p_y F(L) - wL = 0$, we can see that $w_1 = cp_y$ and $w_2 = dp_y$.

Assuming that there are no transportation cost or tariff barriers for imports, free trade makes prices of non-tourism goods in the two countries equivalent. Here, the price for non-tourism goods is normalized to one: $p_y = 1$, which is a numeraire price relative to other prices and income. As such, the income of each consumer in the home country is $w_1 = c$ and in the foreign country is $w_2 = d$. This implies that the income difference depends on labor productivity. Based

¹ See Yang and Heijdra (1993).

on this, the budget constraints for a representative individual in the two countries change to $\sum_{i=1}^m p_i x_i + y_1 = c$ and $\sum_{i=1}^m p_i x_i^f + y_2 = d$.

For the non-tourism market, each price-taking buyer is buying their optimal amount of goods at the prevailing price and each price-taking firm is selling its profit-maximizing output at the same prevailing price. Thus, we have an equilibrium that no one in the market has the incentive to change their behavior as everyone is doing their best they can under the free trade they face. The market clearance for non-tourism goods leads to:

$$Y_1 + Y_2 = M_1 y_1 + M_2 y_2 \quad (14)$$

where Y_1 and Y_2 are total output of non-tourism goods in the home and the foreign countries. Then substitute the production function and total demand for non-tourism goods into Eq. (14), we have

$$cL_1 + dL_2 = M_1 c(1-t)(1-\alpha) + M_2 d(1-\alpha). \quad (15)$$

As the foreign country specializes in non-tourism goods, the whole population is employed in the non-tourism industry with $L_2 = M_2$. Hence, the number of workers of the non-tourism industry in the home country can be derived, given the value of exogenous variables.

$$L_1^* = M_1(1-t)(1-\alpha) - M_2 \frac{\alpha d}{c}. \quad (16)$$

According to the balance of trade $M_2 \sum_{i=1}^m p_i x_i^f = M_1 p_y y^f$, where y^f is the amount of non-tourism goods imported by the home country, the foreign country exports more non-tourism goods to pay for its higher demand for tourism goods. However, in the home country, with the income tax and reduced income due to zero profit made by tourism firms in the long run, demand for non-tourism goods y_1 decreases. While exporting more tourism goods, the home country will import non-tourism goods to keep the trade balanced. With a higher y^f , demand for domestic non-tourism goods $y_1 - y^f$ declines. Thus non-tourism firms in the home country will adjust output to a lower level, with fewer labor employed in this industry, as $\frac{\partial L_1}{\partial t} < 0$.

This finding is consistent with the notion of ‘de-industrialization’ proposed by Copeland (1991) and Adams and Parmenter (1995), who used a computable general equilibrium model to find that traditional export sectors like agriculture and mining are crowded out by the expansion of international tourism. An empirical study of tourism growth done by Oh (2005) also found similar situation for the Korean economy.

2.6. Equilibrium analysis

So far, we have acquired the general-equilibrium value for all variables. Inserting the general-equilibrium values into the utility function (3) for a representative consumer in the home country, we have

$$U^* = m^{\frac{a}{a-1}} x_1^{\frac{a}{a-1}} y_1^{1-\alpha} = \left[\rho + \frac{(1-\rho)Z^{\frac{a}{a-1}}}{a} \right] \times \left(\frac{a\rho(Z-a)\alpha c(1-t)}{[a\rho + (1-\rho)Z]bZ} \right)^{\alpha} \times [c(1-t)(1-\alpha)]^{1-\alpha}. \quad (17)$$

To see the effect of promotion of inbound tourism on domestic welfare, we differentiate the equilibrium utility with respect to tax rate t , evaluated at $t=0$. For the convenience of calculation, we take log of the utility function and differentiate it, as utility level is always positive.

$$\frac{\partial \ln U^*}{\partial t} \Big|_{t=0} = \left\{ \frac{\alpha(1-\rho)^2}{\rho[a\rho + (1-\rho)(M_1 c + M_2 d)\alpha]} + \frac{a}{(M_1 c + M_2 d)[\alpha(M_1 c + M_2 d) - a]} \right\} \times \frac{1}{\alpha(M_2 d - M_1 c) - 1}. \quad (18)$$

We notice that the first term in the parentheses approaches to zero as $(M_1 c + M_2 d)$ is quite large and $\alpha, \rho \in (0, 1)$. The second term in the parentheses is positive as $\alpha(M_1 c + M_2 d) > a$ is the condition for x_d to be positive. Economically, the fixed cost in the tourism production

must be smaller than the total income spent on tourism goods to provide a viable economy. For the inequality $\frac{\partial \ln U^*}{\partial t} \Big|_{t=0} > 0$ to exist, it requires $M_2 d a > M_1 c$ and $\alpha(M_1 c + M_2 d) > a > \frac{\alpha(M_1 c + M_2 d)^2}{(1-\alpha)M_1 c + (\alpha+1)M_2 d}$. Based on this, we derive the following proposition.

Proposition 1. In an open economy in which the home country provides tourism goods and services under internal increasing returns, tourism promotion is welfare-improving only when the degree of increasing returns is high enough, and the national income of the foreign country multiplied by the parameter of marketing effectiveness is larger than the national income of the home country.

We will conduct a simulation to examine the proposition in the next section.

3. Simulation

The aim of this simulation is to examine the effect of inbound tourism promotion on utility of domestic residents. We need to specify values for parameters in Eq. (17). We use the trade between Australia and Japan as an illustration. We specify that $\alpha = 0.5$, $\rho = 0.5$. According to Divisekera and Kulendran (2006), the sensitivity of Australia's inbound tourism demand to advertising expenditure for Japan is 0.65 during the period of 1980–2001. Assume there is no rent-seeking with one dollar tax revenue being totally used in promotion, tourism demand by Japanese tourists in terms of dollar will increase by 0.65. As $\gamma = At$, the sensitivity parameter A measuring how effectively the promotion changes preference for tourism goods, is equal to 0.65. The data for variables a, b, c, d and M_1, M_2 are acquired from the Australia Bureau of Statistics, Japan Statistics Bureau & Statistics Center and the OECD Statistics. As tourism is not considered as a specific industry in standard industry classification systems with goods and services purchased by tourists covering many industries, we can only get an approximate estimate of the Australian tourism industry by adding up the tourism share of each industry provided by the Australian Tourism Satellite Account (2005–06).

As capital and labor are assumed to be the only inputs, we use the consumption of fixed capital to represent the variable a . Total consumption of fixed capital by industry is sourced from the Australian National Account (ABS, Cat. no. 5204.0). By multiplying it with the tourism share, we then obtain the approximate consumption of fixed capital for the tourism sector. The variable b is captured by average wage per year, which is acquired from dividing annual compensation of employees by employed persons. Tourism employment data is available from the Australian Tourism Satellite Account (2005–06). Data for compensation of employees by industry comes from the Australian National Account (ABS, Cat. no. 5204.0) Australian Bureau of Statistics (2010–2011), and total compensation of employees in the tourism sector is derived from adding up tourism share of each industry's salaries and wages. A representative individual's income in the home country – Australia ($w_1 = c$) and the foreign country – Japan ($w_2 = d$) is respectively represented by average annual wages, which come from the OECD Statistics. Last, we obtain the populations in both countries from the issued population census (ABS, Cat. no. 3101.0 and Japan Statistical Yearbook, 2011, Table 2-1). After obtaining all needed data, we substitute them into the general equilibrium utility function (17) to undertake simulations over a period of 1997–2001. The results of sensitivity analysis with respect to tax rate in 2001 are shown as below. It is noted that the graphs for 1997 to 2000 have similar tendency, which will not be shown in the paper.

Figs. 1 and 2 show that both the variety and output of tourism goods increase with tax-funded promotion of inbound tourism with a progressively slowing pace. This is due to taking into account of the implications of increasing returns in the tourism industry. In the presence of increasing returns with average cost decreasing, monopolistic competition results in some inefficiency. Heal (1980) shows that with increasing returns and product differentiation, large markets tend to be over-served and small markets under-served relative

to the optimum. Even with average cost pricing, it may not be efficient. An explanation is that each consumer will not consider the role of fixed cost but instead will take the price as given. In their eyes, no matter how much they buy, price of that good will not change. They do not buy more than what is individually optimal. In fact, the fixed cost will spread over a larger number of units if more products are consumed, leading to a lower average cost and lower price for that product. Following this, promotion of inbound tourism in an open economy will attract more consumption of tourism goods, and the implications of increasing returns will be largely taken into account. According to Eq. (13), as long as $M_2w_2A > M_1w_1$, the equilibrium number of tourism goods increases with tax-funded promotion. This is the case for the trade between Australia and Japan that the income level in both countries is similar but Japan has a much larger population than Australia and promotional campaign to the Japan market is relatively effective, so promotion is beneficial to the Australian tourism industry. However, the benefit of promotion is less evident with a higher tax, as the marginal effect is decreasing.

Fig. 3 shows the relationship between price of tourism goods and tax rate. As a result of promotion, price is slightly falling with tax rate. This trivial fall of price is due to a lower average cost resulted from the implications of increasing returns, with average cost pricing. Although a higher demand for tourism goods drives the price up, the output expands at the same time, which offsets the pressure for a higher price.

However, the promotion of inbound tourism also incurs a burden on domestic residents in spite of the above favorable effects. Zero profit of tourism firms in the long run due to an inefficient entry occurring in the tourism industry plus a tax burden to fund promotion lowers income earned by domestic residents. The benefit of a variety of tourism goods is largely offset by less consumption of tourism goods shown in Fig. 4. Furthermore, the consumption of non-tourism goods will be affected by a promotion due to a lower after-tax income, as illustrated by $\frac{\partial y_1}{\partial t} = -c(1-\alpha) < 0$.

Considering all these aspects, we find that promotion of inbound tourism actually reduces domestic welfare in the long run as shown in Fig. 5. Although domestic consumers partly benefit from a more variety of tourism goods after large entry of tourism firms in the long run, domestic consumers are worse off from income tax used to fund the promotion. A decline in domestic welfare shown in Fig. 5 implies that the benefit of tourism boom is overwhelmed by the cost of promotion. According to Proposition 1 in Section 2, the conditions for an efficient tourism promotion are high fixed cost in the tourism industry and a large foreign market with effective promotion. In our case, levels of a representative individual's income in Australia and Japan represented by c and d are similar. Japan has a much larger

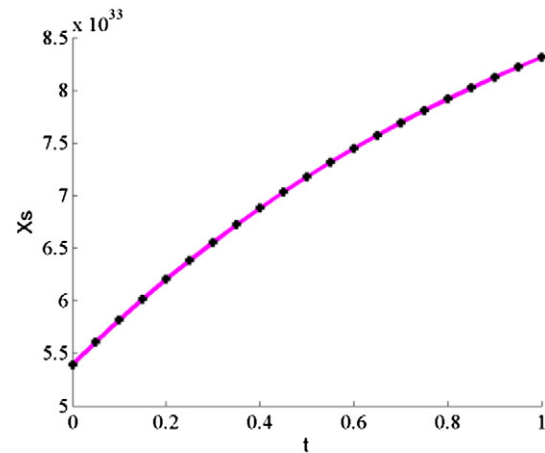


Fig. 2. Impact on the output of tourism goods.

population than Australia, and the effective parameter of marketing A is 0.65, so one of the conditions $M_2dA > M_1c$ is satisfied. Therefore, the reason for a welfare decrease with promotion is due to the other condition that is not satisfied. In the simulation, $a < \frac{\alpha(M_1c + M_2d)^2}{(1-\alpha)M_1c + (\alpha A + 1)M_2d}$, which implies that the fixed cost of the Australian tourism industry is not large enough to sustain an efficient promotion. The result is related to the degree of increasing returns. The lower the fixed cost, the smaller is the cost to be diffused over units of output. Therefore, the average cost of producing one unit of good decreases less when the production increases.

4. Conclusion

This paper examines the welfare effect of promotion of inbound tourism in an open economy with a two-sector and two-country model. With increasing returns in the tourism industry, promotion of inbound tourism is a way of extending the market and getting more demand to realize the implications of increasing returns, which can overcome the underproduction of monopolistic tourism goods. By attracting more tourists into the host country, the high fixed cost can be spread over a larger number of units of output, leading to a decrease in the average cost and lower price for tourism goods and services. However, the tax-funded promotion involves a reallocation of resources between tourism and non-tourism sectors. From the general equilibrium model used in the current paper, it is concluded that if the tourism industry exhibits a very high degree of increasing returns, and the national income of the foreign country multiplied by the parameter of marketing effectiveness is larger

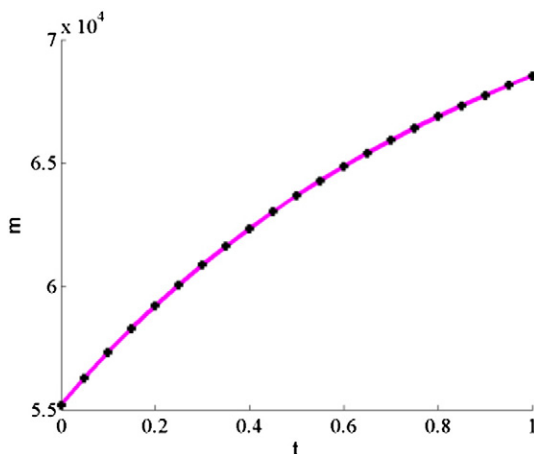


Fig. 1. Impact on the number of tourism goods.

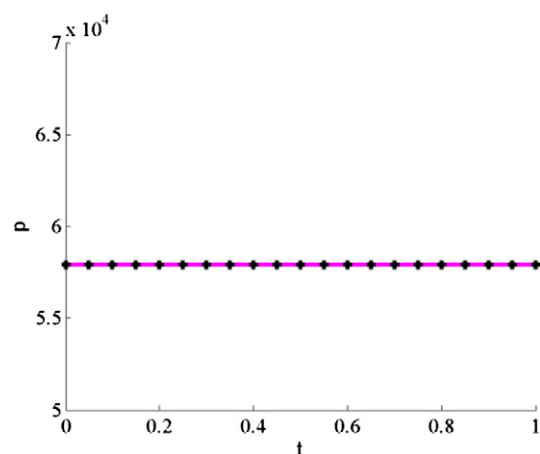


Fig. 3. Impact on the price of tourism goods.

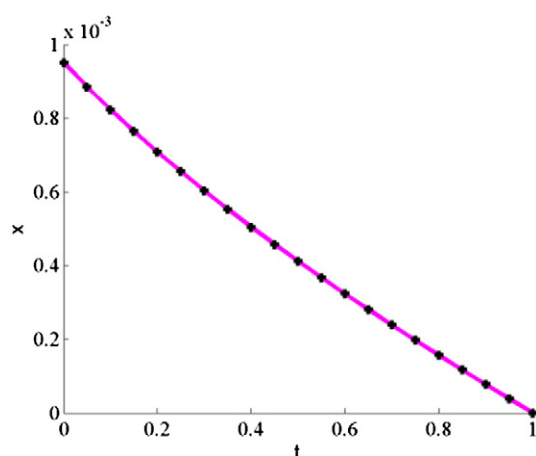


Fig. 4. Impact on the domestic demand of tourism goods.

than the national income of the home country, promotion of inbound tourism is welfare-improving.

To prove the proposition, we conduct a simulation to examine the net effect by using the trade between Australia and Japan as an illustration. On one side, promotion results in more variety of tourism goods and higher output by utilizing the implications of increasing returns; on the other side, tax-funded promotion leads to a lower domestic consumption of tourism and non-tourism goods as it lowers individuals' income and deteriorates the non-tourism industry. In the examined case with similar income level of a representative individual in both countries, even though Japan has large potential tourists and the promotion is relatively effective (a 10% of advertising expenditure can raise tourism demand by 6.5%), promotion of inbound tourism reduces welfare of domestic consumers. The case that the benefit of promotion is smaller than the cost of promotion is due to low fixed cost in the Australian tourism industry, according to Proposition 1. In another word, the Australian tourism industry may not exhibit such a degree of increasing returns that is high enough to overcome the cost of taxation to improve efficiency, so it is not worthwhile to promote tourism in the examined case.

The analysis in this paper has practical policy implications. The promotion of inbound tourism can enhance one nation's visibility or profile worldwide, and bring foreign exchange and economic growth to the local economy. Most governments have incentives to do so. However, the key point for promotion is not the profit made by some tourism-related industries in the short run, but the welfare gain of domestic residents in the long run. While total output expands, possible welfare gains are dissipated by inefficient entry,

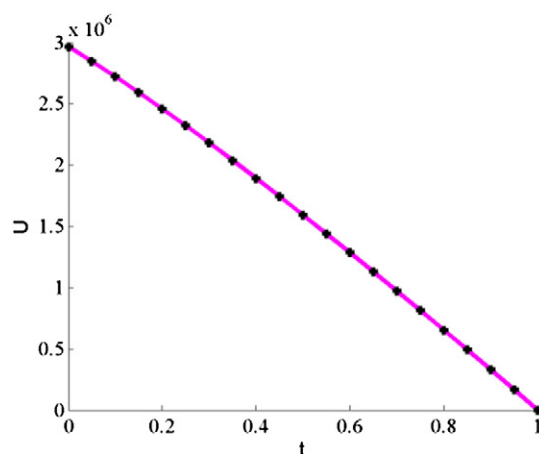


Fig. 5. Welfare effect of inbound tourism promotion.

similar to the argument in Horstmann and Markusen (1986). In addition, the promotion of tourism may result in unfavorable term-of-trade effects, making the non-tourism industries less competitive in the face of foreign competition. In spite of some support for subsidizing industries with increasing returns (Doi and Futagami, 2004; Myles, 1987 and Ng and Zhang, 2007), this argument provides a different perspective toward export subsidy.

Furthermore, an accurate welfare assessment of a promotion policy, to a large extent, is not feasible. First, the real cost of promotion may exceed the amount of taxation used to fund promotion due to several distortions such as externalities and terms of trade; second, it is difficult for government to measure and compare the degrees of increasing returns for industries in an economy to find out the criteria for taxing and subsidizing; third, it may open a gate for rent-seeking which is worse than other negative effects. Considering all these issues, it may not be efficient for the government to blindly take action to finance tourism promotion in the interest of some groups. It is necessary to justify the applicability of promotional policies using the benefit–cost criteria before taking steps.

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