TOURISM EVENTS: IMPACT ON IMPORTS

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ABSTRACT

The impact of tourism consumption on imports has hardly been discussed in the literature. The issue is an important one however, and must be explained further in relation to the evaluation of the impact that tourism, or tourism events in particular, have on a destination. Imports can be seen to be a leakage that limits the positive impact of expenditure on a destination. The purpose of this paper is to discuss the principal methodological questions that arise in the estimation of the impact of tourism consumption on import flows and to explore how this methodology can be applied to tourism events. Various methodologies are available for analysing the relationship between expenditure on tourism events and imports: the open and the closed input-output models, the social accounting matrix model and computable general equilibrium models. The advantages and disadvantages of each model in the context of tourism events are explained and some advantages in terms of coherence of the open input-output models are highlighted. Examples are used to illustrate the relevance of import leakages and the application of the methods proposed.

KEYWORDS

Impact of events, Input-output models, Imports

INTRODUCTION

Interest in the impact of tourism on the income of a destination has sometimes been accompanied by concern with regard to leakages due to imports. Nevertheless, very few papers are dedicated specifically to this question, whether from a theoretical or an empirical point of view. The aim of this study is to explain how the estimation of the import content adds to the analysis of the impact of tourism events and to provide useful insights for the application of the methodology to undertake such estimation. The importance of taking account of imports in the context of the impact of events has been pointed out by Faulkner (1993). Hernández-Martín (2004) provides practical information on limitations and the issues that require particular attention when applying the open input-output model to the estimation of the impact on imports, although not for the specific case of events.

Following McHone and Rungeling (2000), Tyrrel and Johnston (2001), Crompton *et al.* (2001), and Crompton (2006), the study of impact of tourism should be different from the study of the impact of events. The key factor when studying tourism events is to obtain an estimation of net (new) consumption due to the event. After undertaking that estimation, the model to be applied may not differ from that used to assess tourism impacts on imports, production or value added. Another important difference between tourism and events is the long-run impacts of the latter. Events and especially mega-events have long-run impacts due to investments, changes in destination image, increased attractiveness, know-how improvements and other factors that can enhance competitiveness of the destination. Such impacts normally appear once the event has concluded and can last for several years. However, our interest is restricted to short-term effects during the period when the activities directly related to the event take place.

The following section provides an explanation of the subject and discusses the importance of the question and the main economic relationships between tourism demand and imports. The next section introduces the main methodological alternatives, while the fourth section provides some insights on the application to tourism events. The final section concludes.

IMPORTS AND ECONOMIC IMPACTS OF TOURISM

Countries and regions with a high degree of specialization in tourism usually run a deficit in their trade in merchandises, which has led to study of the role played by tourism in this trade deficit. The concern regarding the relationship between tourism and imports has arisen mainly in the case of economies that are small and/or with a low level of development, where, due to the weakness of their intersectoral relations, tourism demand usually causes high levels of import flows. When the analysis is undertaken at the regional or local level, issues related to the impact on imports arise, including the question of what is to be considered as an import. This depends on the perspective of the study (local, regional or national), the availability of data and the geographical scope of the model. If the perspective of the study is local, and we have enough local data, the scope of the model can be also local. In this case we consider as imports any flow coming from outside the local area. Nevertheless, if the model is e.g. regional, the goods and services provided from other local areas of the region would not be considered as imports (see table 1).

Table 1:   Nature of trade flows due to an event and scope of the model

		Flow origin:			
		Local	Regional	National	Foreign
Scope of the model (scope of the destination)	Local	—	Imports	Imports	Imports
	Regional	—	—	Imports	Imports
	National	—	—	—	Imports

The macroeconomic relationship between inbound tourism and imports is more complex than is frequently thought, and can be established using two apparently contradictory approaches. From one point of view, inbound tourism, as an exogenous demand, can be considered as a factor that explains the rise in imports and the resulting trade deficit. When tourism consumption adds to the domestic demand in the destination, it is normal for the domestic supply to be insufficient to cover the increased demand, and so it is common to see economies that specialize in tourism maintaining a deficit in their balance of trade in goods. An alternative is that tourism can be evaluated based on its contribution to the financing of the trade deficit, since in tourism-oriented countries the surplus in the travel item usually contributes to evening out the balance of payments (figure 1). In fact, from the accounting point of view it is logical for this to be so, since a surplus in the tourism balance needs to find its counterpart (in the case that the capital account and the financial account are balanced overall) in the form of a deficit in another component of the current account.

Figure 1: Tourism and trade deficit
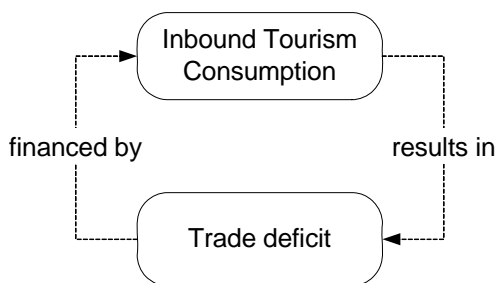
There are different channels that can explain the effect of tourism expenditure on imports. First, tourists consume imported products, sometimes proportionally more than households residing in the destination, due to the characteristics of their preferences. Nevertheless, it is usually the case that the goods and services that tourists demand in the destination (food, transport, accommodation, souvenirs, entertainment, etc.) are not very complex, require few imported inputs, and have a significant locally produced component. This is especially true in the case of services that are normally produced by enterprises based in the destination.

Second, the enterprises that cater for the tourism demand (or their suppliers) in turn consume imported inputs. Heavier reliance on imports can occur with the presence of foreign capital, which usually uses a higher percentage of inputs of foreign origin. However, if there are substitute products on the local market that are cheaper, these would probably be preferred due to the high price elasticity of demand for intermediate products. Third, the income generated by tourism consumption is spent, and as a consequence of such spending, imports are also generated.

Figure 2:   Impacts of tourism on imports
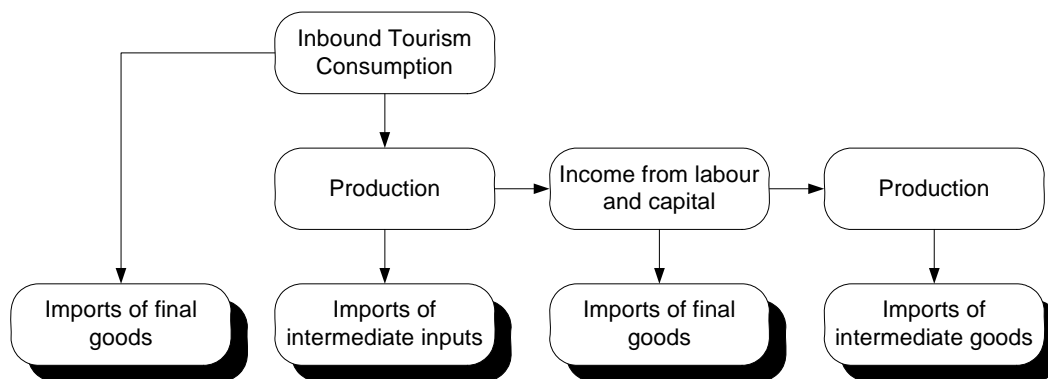
The impacts shown in Figure 2 do not constitute an exhaustive list of the relationships between tourism and imports, since crowding-out effects are also relevant. Specialization in tourism can crowd out other alternative activities, which might be more strongly linked to local demand. Thus, specialization in tourism can generate dependence on imports, not only in order to satisfy demand by tourists and tourism enterprises, but also to satisfy demand by local residents. As the local supply increasingly concentrates on the needs of the tourism demand, other activities could be crowded out, which could generate increasing import dependence.

The existence of leakages of tourism expenditure through imports is not the only factor that can limit its beneficial effects. Aside from imports and the possible negative impacts at the social or environmental level, there are at least five other economic factors that can be pointed out.

First, part of the expenditure by tourists does not affect the destination's economy in any way. Especially in the case of highly organized markets the percentage of expenditure that stays in the origin economy (margins of travel agencies, tour operators, transport, etc.) can be substantial. Second, part of the income (value added) generated by tourism can be transferred abroad especially in cases where there is a large presence of foreign capital or labour. Third, the development of tourism entails running costs and infrastructure expenditures on the part of the government, which need to be taken into account when estimating overall impacts. Fourth, the growth of aggregate demand as a result of tourism can cause price increases. Fifth, the crowding-out effect reflects the opportunity cost associated with the development of tourism (see Dwyer and Forsyth, 1994, and Andersson , 2001).

Figure 3: Costs of tourism
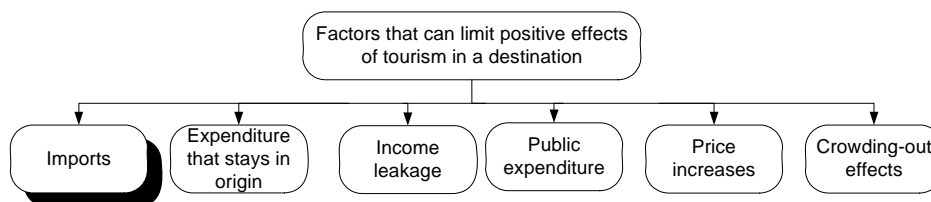
A further question that we must tackle is how concerned a country, region or city should be about the amount of imports tourism generates. In principle, the fact that an economy specializes in the tourism sector, at the expense of other alternative activities should be interpreted as a sign that it is exploiting its comparative advantages, and in this regard there is nothing negative about increases in imports. In any case, the flow of exports (of tourism services) will always be greater than the flow of imports (of goods) generated by tourism. Specialization in tourism would be a consequence of the fact that a country possesses advantages in these services and not in the production of goods and services to satisfy domestic demand (whether tourism demand or otherwise) or demand for exports.

In spite of this, knowing the volume and content of imports generated by tourism consumption could be important: a) in the context of justifying the public spending required for the development of an event; b) to add it to other costs in the context of an overall analysis of the impact of tourism; c) to know the effective impact of tourism on the balance of payments; d) as an estimation of the size of the potential market for domestic enterprises. Imports point to the existence of a market that could perhaps be exploited more intensely by local businesses, as long as this can be done under appropriate cost conditions. It is also interesting, although complex, to try to estimate whether the demand for imports rises as the aggregate expenditure of visitors increases. An example of the economic impact of a cultural event on value added and imports for a Finnish region is provided it table 2. In this case, the imports are coming from the rest of the country (domestic imports) and from abroad (foreign imports).

Table 2: Effects of consumption by festival visitors in a Finnish region

	Hotels and restaurants	Wholesale and retail trade	Transport	Total
Foreign imports	21,311	24,548	18,202	64,061
Domestic imports	103,985	70,008	32,706	206,699
Value added and taxes	242,141	360,041	233,408	835,590
Total	367,437	454,597	284,316	1,106,350

Source: T. Tohmo (2005)

ESTIMATING TOURISM'S IMPACT ON IMPORTS
Direct, indirect, and induced impacts

From a conceptual perspective, the estimation of the effects of tourism requires a distinction among so-called direct, indirect and induced impacts. Direct impacts are those produced on enterprises that directly cater for tourism demand. Indirect impacts are those that take place through the chain of intersectoral relationships originated by the direct impact; i.e. indirect impacts include the effect of the initial expenditure on enterprises that provide intermediate inputs, and in turn, on the supply chain of such enterprises. Lastly, induced impacts derive from the spending of the income generated as a result of direct and indirect impacts.

These concepts have been developed in the context of the study of the impact of tourism on production, income

or employment, but not for the case of imports, where their application can vary slightly. This is because in the case of imports, there is an initial impact due to the purchase of foreign-sourced products by tourists. In addition, enterprises that supply goods and services to tourists purchase inputs from outside the country / region / city. These imports could be considered as direct, strictly speaking, but due to their intermediate nature, and due to the existence of a previous impact (which has no parallel in the estimation of the effects on production, value added, or employment), it has been decided to include them as indirect impacts. The choice of identifying indirect impacts with the importation of intermediate products does not in any way modify the overall results obtained, having been considered a clearer option in the case of tourism, where there is an initial leakage.

Thus, imports of final goods needed to satisfy tourism consumption will be considered as direct effects of such consumption, while all imports of intermediate goods (in successive rounds) carried out by enterprises to satisfy tourism demand constitute indirect impacts. In this way, inbound tourism consumption is satisfied in an initial round (direct impacts) by imports or by local enterprises. The production of local enterprises in turn generates purchases of intermediate inputs from other enterprises, both local and foreign (indirect impact). In turn, local enterprises that sell intermediate inputs to other enterprises purchase inputs from other companies and carry out imports, generating an indirect input in each round (with decreasing magnitude).

Figure 4:   Impacts on imports (direct and indirect)
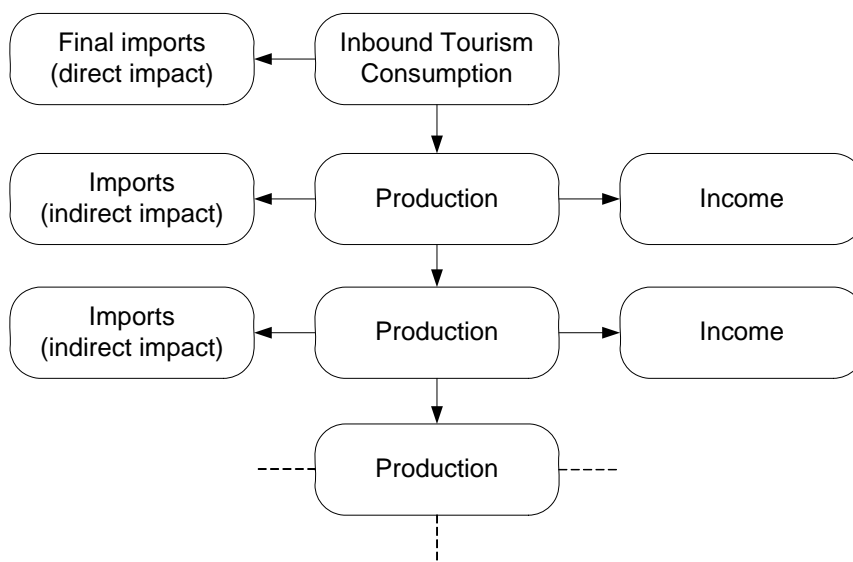
Induced impacts on imports derive from the spending of the income generated by tourism over successive rounds. This definition requires clarification, as it is open to two interpretations. One interpretation, which is the more restrictive, only takes into account the impacts of the spending of the income generated directly by tourism (more in line with the Keynesian model). A second interpretation (in keeping with the closed input-output model) includes all those impacts on imports generated

by the spending of income obtained directly or indirectly through tourism. Thus, in this more exhaustive approach, the induced impact on imports would include: (a) the purchase of imported products directly by the receivers of the income derived from tourism; (b) the acquisition of imported products by enterprises that satisfy the demand generated by the income derived from tourism; and (c) the expenditure on imported goods of the income generated by intermediate production (see Figure 5).

Figure 5:   Induced impacts on imports (Note: induced impacts shadowed)
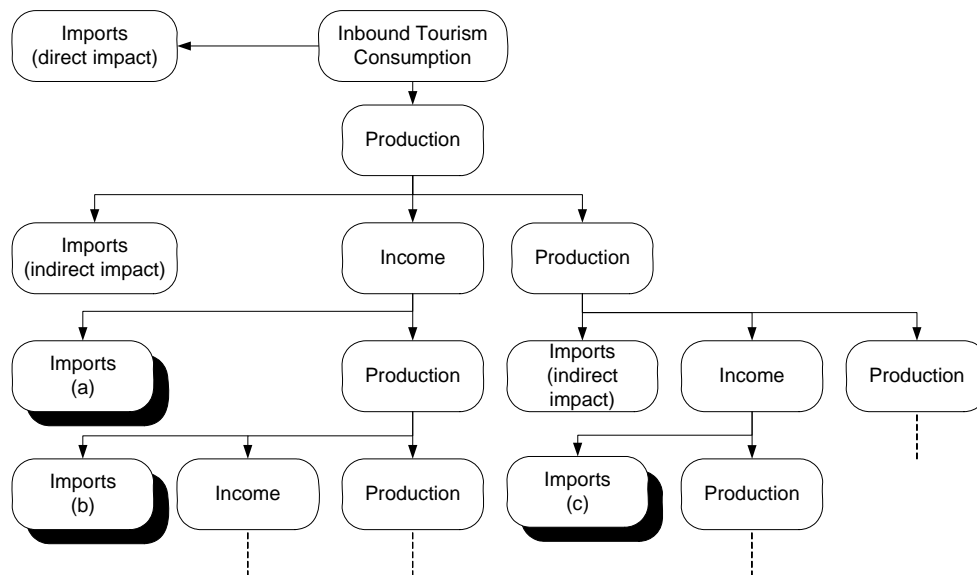
Alternative estimation methods

Measurement of the impact of tourism on imports can be carried out using approaches that differ in the type of model used and the type of impacts considered. There are four principal methods: open and closed input-output models, the difference being whether or not induced impacts are considered; the social accounting matrix model, that develop the close input-output model with more emphasis on income and savings and lastly, computable general equilibrium models that are more flexible and can take into account the crowding-out or substitution effects generated by tourism.

Open input-output model

This model has the advantage of measuring the indirect impact of changes in demand on variables such as production, employment or value added. It is habitually used in the tourism sector following the methodology set out in studies such as those of Fletcher (1989), Briassoulis (1991) or in technical reports of the World Tourism Organization (2000b). In the analysis of the impact of events, this is the approach followed, for example, by Lee and Taylor (2004) or Tohmo (2005).

Input-output models have limitations due to the restrictive assumptions on which they are based. Specifically, they assume constant returns to scale in production, price stability, stability of technical coefficients and existence of idle resources. These assumptions mean that, in practice, the productive functions have fixed coefficients and that demand stimuli generate a linear and automatic response throughout the system, without any type of limitation linked to price variations or input scarcity.

Direct impacts on imports are not immediately obtained from the input output model, since in order to obtain them it is necessary to know the propensity of tourists to consume imported products. However, in order to determine the indirect impact, through intermediate imports, the accounting equalities of the input-output model are used. The total resources of the economy (production plus imports) have to be equal to uses (intermediate demand plus final demand). This can be expressed using the following equations:

$$\left(a_{11}^{d} + a_{11}^{m}\right)X_1 + \left(a_{12}^{d} + a_{12}^{m}\right)X_2 + \cdots\cdots + \left(a_{1n}^{d} + a_{1n}^{m}\right)X_n + D_1 = X_1 + M_1$$
$$\left(a_{21}^{d} + a_{21}^{m}\right)X_1 + \left(a_{22}^{d} + a_{22}^{m}\right)X_2 + \cdots\cdots + \left(a_{2n}^{d} + a_{2n}^{m}\right)X_n + D_2 = X_2 + M_2 \qquad [1]$$
$$\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$$
$$\left(a_{n1}^{d} + a_{n1}^{m}\right)X_1 + \left(a_{n2}^{d} + a_{n2}^{m}\right)X_2 + \cdots\cdots + \left(a_{nn}^{d} + a_{nn}^{m}\right)X_n + D_n = X_n + M_n$$

Where, a_{ij}^d and a_{ij}^m are the internal technical coefficient and the intermediate imports coefficient, respectively; X and D are, respectively, the production and the final demand by product or sector of activity; and M represents imports by product or sectors. This can be expressed in a matrix as follows:

$$\left(A^d + A^m\right)X + D = X + M \qquad [2]$$

Where A^d is the matrix of internal technical coefficients; A^m is the intermediate imports coefficient matrix; X is the column vector that represents production by product or sector; D is the column vector that records the value of the final demand of the economy; and, last, M is the column vector of total imports (final and intermediate) by product or sector. Operating, we obtain:

$$M^i = A^m\left(I - A^d\right)^{-1}CT^d \qquad [3]$$

Where M^i are intermediate imports, $(I-A^d)^{-1}$ is the Leontief inverse of internal technical coefficients and CT^d represents the tourism consumption of each sector that is met by internal production.

Closed input-output model
Direct and indirect impacts do not constitute the totality of possible impacts, since imports can also be affected by the expenditure of the income generated by tourism activity. In order to capture the induced effect using the input-output model, it is necessary to consider households as an endogenous variable. However, this assumption can only be justified under particular circumstances, which necessitate the introduction of additional hypotheses in the estimation and complicate the interpretation of the results obtained. The consideration of induced effects in the context of the impact of events is considered, for example, by Crompton (2006).

The input-output table would now have a dimension of n+1, since a new column and a new row would appear. The column would be final consumption expenditure of resident households (excluding inbound tourism consumption); the row would be the income of the households, obtained from the sale of production factors to the production activities (for the closure rules see United Nations, 1999). The estimation of the impacts on imports is then as follows:

$$M^{ir} = \overline{A}^m\left(I - \overline{A}^d\right)^{-1}CT^d \qquad [4]$$

Where Mir represents the sum of indirect and induced impacts of tourism consumption on imports and the dash over the variables indicates the matrices of the new model. By subtracting M^i (obtained previously using the open model) from M^{ir} it is possible to obtain the induced effects exclusively. The closed model includes assumptions in addition to those required by the open model. Aside from the assumptions needed in order to close the model, it is assumed that the structure of expenditure remains constant even when there are variations in income.

The social accounting matrix model
One alternative to the method proposed by the closed input-output model for incorporating induced effects is to use social accounting matrices. This method offers greater analytical possibilities, as it provides increased disaggregation of institutional sectors. However, the availability of up-to-date social accounting matrices is less frequent than that of input-output tables, their main interest being the study of redistributive effects. In the case of tourism, this approach has been used in studies such as those by West (1993) for Queensland (Australia) or Wagner (1997) for the Guaraqueçaba region (Brazil). A study of the relationship between multipliers derived from social accounting matrices and those from the closed input-output model can be found in Holland and Wyeth (1993).

Computable general equilibrium model
The use of computable general equilibrium models is one of the most interesting innovations in the study of tourism impacts. These models make it possible to relax the restrictive assumptions of input-output models, such as the rigidity of the prices of goods, services and factors, perfect competition, or the existence of linear relationships among variables. In input-output models, an increase in final demand has positive effects, or at least a neutral effect, on the rest of activities, and never a negative effect. Computable general equilibrium models, are more flexible, making it possible to estimate the opportunity costs generated by tourism, i.e. these models include crowding-out effects on other alternative sectors (agricultural, industrial, etc.). Examples of the application to the tourism sector of computable general equilibrium models can be found in Adams and Parmenter (1995), Zhou et al. (1997) or Blake and Sinclair (2003). Adams

and Parmenter show how tourism growth can have negative effects on other sectors, while in Zhou et al. it is shown that when crowding-out effects are taken into account, the impacts are lower than those obtained from the input-output models. This is because an increase in (tourism) demand generates increases in the prices of goods, services and factors that limit their dynamizing effect on the rest of the local economy. The third study mentioned above takes advantage of the flexibility and versatility of the model to estimate the impacts of September 11th on the North American economy.

Computable general equilibrium models are used to simulate scenarios and study the marginal effects of changes in one or more variables, but not to study the overall contribution of tourism to employment, production or imports. A study of the contribution that these models can make to the analysis of the impact of events has been carried out by Dwyer, Forsyth and Spurr (2006).

Table 3:   Main methods for measuring the impact of tourism on imports

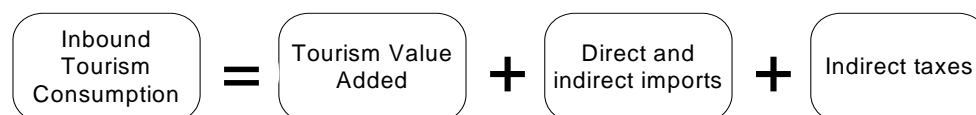| Model	Impacts considered			
	Direct	Indirect	Induced	Crowding-out effects
I/O (open)	X	X		
I/O (closed)	X	X	X	
Social Accounting Matrix	X	X	X	
Computable General Equilibrium	X	X	X	X

Choice of the model

The open input-output model has the highest level of acceptance for measuring the overall impact of tourism from a macroeconomic point of view. Despite this, the model is not explicitly recommended by the document *Tourism Satellite Account: Recommended Methodological Framework* (United Nations et al., 2001). It is, however, the model recommended by the World Tourism Organization in the document *Measuring Gross Domestic Product* (WTO, 2000b), and it has been used for the elaboration of the Tourism Satellite Accounts (e.g. United States, New Zealand or Spain).

Input-output models have several limitations, which have been discussed, but the open model enjoys advantages in terms of coherence from a macroeconomic point of view, since in this case, the total final demand explains total imports. This is not the case in the context of the closed model where imports are explained only by exogenous demand. Thus, a reliability test can be applied since inbound tourism consumption should be equal to the sum of the effects on value added, imports and indirect taxes. Expressed in other terms, the multiplier of inbound tourism consumption on imports plus the multipliers on value added and on indirect taxes must be equal to 1. This identity constitutes one way of implicitly calculating the impact on imports if there is available information on the other elements of the expression, as was done by Henry and Deane (1997), for example. However, this residual form of calculation does not seem very advisable, especially in the case of studies that do not sufficiently clarify the methodology used.

Figure 6:   Impact of tourism in the open input-output model

Impacts of tourism consumption in the closed input-output model tend to generate erroneous interpretations, given that impacts deriving from expenditure of the income obtained from the tourism sector are considered. If one were to estimate, in turn, the economic impact of such activities, one would run into the problem of double counting. Additionally, in making resident households endogenous, one would be making the behaviour of the entire economy dependent on the changes in the components of final demand that were considered exogenous (tourism consumption, public consumption, gross capital formation and exports).

The input-output model makes it possible to estimate the contribution of tourism, that is, how tourism consumption is distributed among value added, indirect taxes and imports. However, the closed input-output model or the social accounting matrix model estimate something entirely different: the impact that the disappearance of tourism activities would have assuming that there are no alternative sources of employment of production factors. Thus, in such models, tourism would not only be responsible for purchases of intermediate goods, but also for the income generated as well as for the effects of the spending of such income.

The closed input-output model and the social accounting matrix model include induced impacts. They could be appropriate, as long as their results are interpreted cautiously, for estimating the effects a very small economy that is extremely dependent on a tourism event and where there are no investment alternatives. In this case, the domestic income should be considered as endogenous to the model. However, for a mature and complex economy, the estimation of economic impact using induced effects leads to the problem of overvaluation because they do not take into account the crowding-effects that take place as a result of tourism.

The open input-output model avoids the problem of double counting (overvaluation). Nevertheless, its results can still overstate impacts. This is due to the problem, pointed out by Fletcher and Archer (1989), that this model offers average propensities for measuring the impact of what are sometimes marginal changes in demand. Because of this, the open input-output model is more reliable for the measurement of the overall contribution of tourism to GDP or imports than for estimating the impact that a marginal increase in tourism demand would have, since there comes a point where marginal impacts could

be very different from average impacts. To correct this, West and Gamage (2001) used marginal coefficients in an input-output context.

Consideration of marginal instead of average impacts of tourism is relevant in the context of tourism events. The estimation of the (average) impact of tourism on imports or GDP is better accomplished through the open input-output model. Nevertheless, taking into account marginal impacts can be an opportunity for the flexibility of computable general equilibrium models. These models have the advantage of taking into account crowding-out effects on other sectors. The biggest issue with such models is the existence of a large number of possible methodological variants, each of which depends on *ad hoc* assumptions that change the results. Therefore, the use of such models requires an in depth knowledge of the economy of the destination .
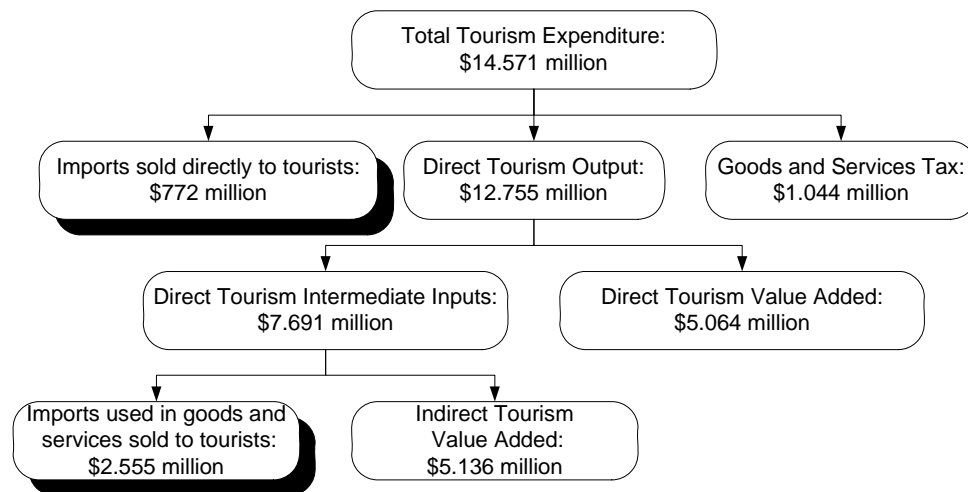
ESTIMATION OF THE IMPACT OF TOURISM EVENTS ON IMPORTS

The application of the input-output model in the context of impact studies should be undertaken with caution, as the results can be exaggerated or underestimated by methodological variants that are not always stated. This partly explains the great disparity observed in the results. For example, Cooper et al. (1998) give a list of tourism's multipliers on income for various countries and regions, which range from 0.34 to 1.73. In the list, it is obvious that the differences observed are not due only to the characteristics of the economies studied, but to methodological differences.

Analysis in a macroeconomic context

The Tourism Satellite Account of New Zealand (Statistics New Zealand, 2003) is one case where the role of imports in the impacts of tourism is considered explicitly, albeit in aggregate form (see Figure 7). Thus, in the financial year ended March 2002, 722 million New Zealand dollars of imports, sold to tourists by retailers, were generated on the basis of an aggregate tourism expenditure of 14.571 billion New Zealand dollars. For their part, local enterprises produced an output of 12.755 billion to satisfy this demand, and 1.044 billion in indirect taxes were paid. Tourism production, in turn, generated imports totalling 2.555 billion. The value added generated directly and indirectly reached the aggregate amount of 10.200 billion dollars. As we can see, imports are the main leakage that limits the impact of tourism from a macroeconomic point of view.

Figure 7: Outline of tourism impacts in New Zealand. Year ended March 2002. Source: Statistics New Zealand

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                    ┌─────────────────────────────┐
                    │  Total Tourism Expenditure: │
                    │        $14.571 million      │
                    └─────────────────────────────┘
          ┌──────────────────┼────────────────────┐
 ┌──────────────────┐ ┌──────────────────┐ ┌──────────────────┐
 │ Imports sold     │ │ Direct Tourism   │ │ Goods and        │
 │ directly to      │ │ Output:          │ │ Services Tax:    │
 │ tourists:        │ │ $12.755 million  │ │ $1.044 million   │
 │ $772 million     │ └──────────────────┘ └──────────────────┘
 └──────────────────┘
                    ┌──────────┴───────────┐
      ┌──────────────────────────┐ ┌──────────────────────────┐
      │ Direct Tourism           │ │ Direct Tourism Value     │
      │ Intermediate Inputs:     │ │ Added:                   │
      │ $7.691 million           │ │ $5.064 million           │
      └──────────────────────────┘ └──────────────────────────┘
          ┌──────────┴───────────┐
 ┌──────────────────────┐ ┌──────────────────────┐
 │ Imports used in      │ │ Indirect Tourism     │
 │ goods and            │ │ Value Added:         │
 │ services sold to     │ │ $5.136 million       │
 │ tourists:            │ └──────────────────────┘
 │ $2.555 million       │
 └──────────────────────┘
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An application to tourism events in a regional or local context

One central idea of this paper is that when analysing events, it is very important to identify the factors that reduce or limit their positive impacts on the region where they take place. First, we must decide what our geographical zone of reference will be. This is important because it will define who the residents are and the outflows, while also being the zone of reference in the model used in the estimations. There are two main phases in the estimation of the impact of events. The first is devoted to the identification of net expenditure related to the event, and the second deals with the application of the appropriate economic model in order to estimate the impact whether on production, income or employment, etc.

The identification of net expenditure, rather than gross, is a goal proposed among others by Tyrrel and Johnston (2001). Following these authors, the analysis should focus on all sources of expenditure (not only by visitors but sponsors, media, competitors, etc). Besides, the expenditure to be considered is that of visitors attracted by the event plus residents who stay at home because of the event. Therefore only expenditures due to the event must be taken into account. This implies that expenditure by visitors who would have visited the place without the event or who have changed the time of their visit (time switching) should not be considered.

Two main alternatives are related to the inclusion of expenditure by residents; not to consider expenditure by residents (Crompton et al., 2001) or to consider it only if it avoids travels outside the region, keeping expenditure at home (McHone and Rungeling, 2000). Nevertheless, another alternative analysis of residents' expenditure is proposed in this paper: to compare the direct and indirect

imports caused by their participation in the event and those related to alternative expenditures.

To estimate the amount of expenditure related to the event it is also important not to consider the amount of expenditure that stays in the regions of origin of sponsors, visitors, vendors, etc. Moreover it is important to assess the possible price increases in the region because of the event. Figure 8 summarizes the main factors limiting the impacts of an event.

Once we have estimated net expenditure related to the event vector by products, the content of imported final goods must be estimated. To do this the import ratios in the final consumption of each product or sector of activity by resident households, derived from the information in the input-output table, can be used. However, given that tourism consumption could have a significantly different import propensity relative to consumption by residents, these data can be corrected based on *ad hoc* studies or qualified information. If it is necessary to use the assumption that tourists' consumption of products in each sector has the same proportion of imports as that by local residents, differences in the impact on imports of expenditure by tourists and residents will not be due to the import propensity (which would be considered to be equal) but rather to the structure of the expenditure. After completing this step, we now have the direct impacts. To obtain total impacts we need the application of the relevant method: input-output open model or computable general equilibrium models. In this last case we can obtain crowding out effects of the event, due to price increases, resource constraints, technologies or consumption patterns, etc. If this last model is followed, information on the reliability of the type of CGE model chosen is advisable.

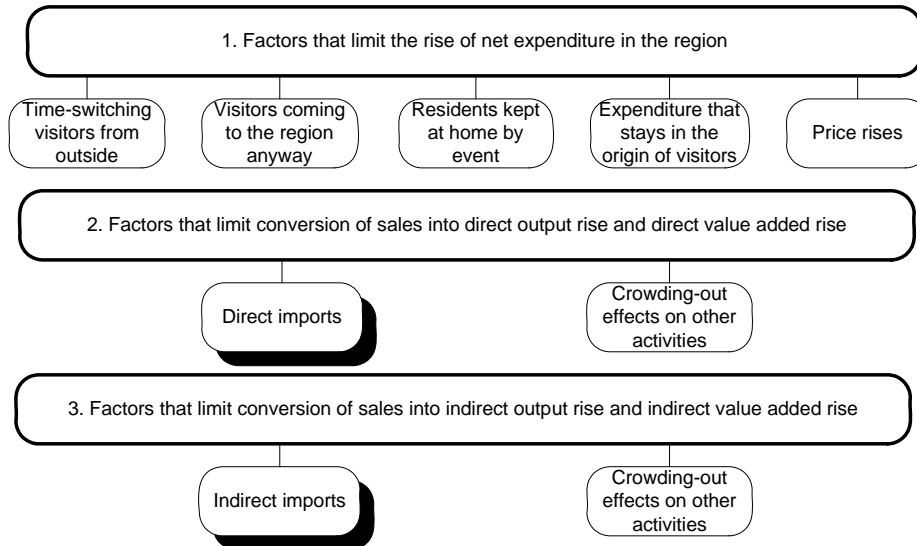Figure 8: Main factors that can limit the impacts of an event

Figure 9 shows an example of the type of results that can be obtained through an estimation of the impact on imports of an event. From a gross expenditure of 1,000 units, the resident expenditure reduction in other activities (100) must be subtracted. The expenditure by sponsors or visitors that remain outside the region (100) must not be considered in the net expenditure and the same applies to the expenditure by non-residents (200) that is not due to the event and would have happened without it.

Once we have the net expenditure related to the event, then direct imports can be subtracted to obtain the domestic direct production (550), and the domestic direct value added (275). To obtain the domestic direct production 350 additional units of intermediate production were necessary. This intermediate production caused 175 units of indirect value added and 75 units of imports.
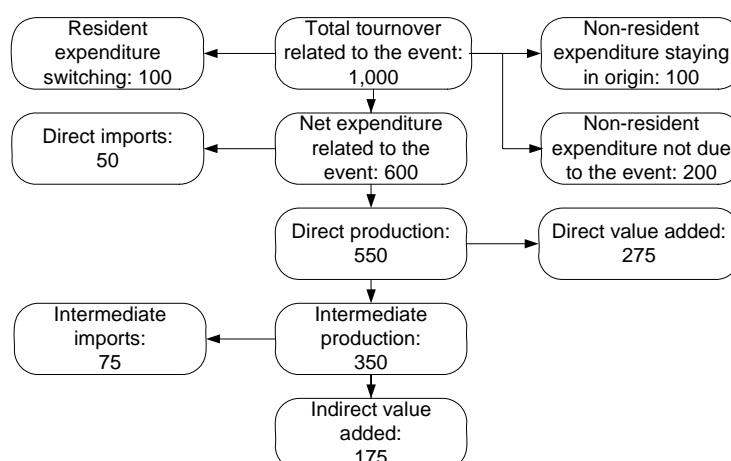
Figure 9. Outline of tourism impacts on an event

Figure 9 shows an example of the type of results that can be obtained through an estimation of the impact on imports of an event. From a gross expenditure of 1,000 units, the resident expenditure reduction in other activities (100) must be subtracted. The expenditure by sponsors or visitors that remain outside the region (100) must not be considered in the net expenditure and the same applies to the expenditure by non-residents (200) that is not due to the event and would have happened without it. Once we have the net expenditure related to the event, then direct imports can be subtracted to obtain the domestic direct production (550), and the domestic direct value added (275). To obtain the domestic direct production 350 additional units of intermediate production were necessary. This intermediate production caused 175 units of indirect value added and 75 units of imports.

CONCLUSIONS

The imports content of the expenditure related with an event can be considered a useful information given that it is one of the explanations why the impact on income in the zone of reference is often not as big as supposed. In addition, it is important to make such estimation with accurate data and with an appropriate model.

The analysis of the impact of events is often aimed at providing them with public and private financial support, and this can lead to an overestimation. The origins of overestimation can be diverse: overestimation of net expenditure due to the event; not considering leakages of income; increasing prices; crowding-out effects on other activities; and, particularly, not taking into account imports.

The relevance of imports as a factor that reduces an event impact is particularly relevant when we deal with a local event and we are interested in local impacts. The smaller the perspective of the study on impacts, the larger the value of imports from outside the local area. Consequently, the favourable impact of the event in terms of income generation is transferred to these other areas.

Two recommendations can be made from the approach followed in the paper. On the one hand, it is interesting to compare the impact of tourism events with that generated by tourism consumption in general. The differences could be due to: a) differences in the structure of expenditure; b) differences in the propensity to consume imported products between visitors to the event and the rest of tourism demand; c) differences in the propensity to consume imported inputs by event-related enterprises and their supply chain with respect to enterprises that satisfy tourism demand in general.

A second interesting recommendation is to estimate the import content generated by a tourism event, by product and/or activities. Detailed information on imports requirements can be very useful in order to avoid supply constraints during the event and can be a measure of the market increase that local firms can take advantage of if they are able to increase their supply.

As a guide for future research it is suggested that analysing the impact of events through time can be useful, particularly events that take place on a regular basis. As an event becomes more popular and crowded, there are new needs to be satisfied and new agents involved from the supply and demand side. As a result, we could reach a threshold at which factors that limit the positive effects of an event become more relevant. The changes that occur over time in the import content and other leakages associated to an event are a challenge for event managers seeking satisfactory economic results.

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