Migration, Unemployment and Net Benefits of Inbound Tourism in a Developing Country

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Summary

International tourism is increasingly viewed as one of the best opportunities for a sustainable economic and social development of developing countries. There is also an increasing concern from public policy makers as to whether mass tourism coastal resorts can play a catalytic role in the overall economic development and improve the real income of their community. In this paper, we present a general equilibrium model which explicitly takes into consideration specific features of some developing countries (e.g. coastal tourism, dual labour market, unemployment, migrations, competition between agriculture and tourism for land) to analyse the ways by which an inbound tourism boom affects this kind of country, in particular its real income. We define the conditions under which an inbound tourism boom makes developing countries residents worse off.

Keywords: Economic impacts, General equilibrium model, Inbound tourism, Migration, Unemployment, Developing countries

JEL Classification: F11, Q17, L83

The authors share research interests in the areas of economic impacts of tourism, tourism specialisation and tourism demand modelling.

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INTRODUCTION

The growth in international tourism has been remarkable and will probably continue for many years to come in spite of the temporary threat of terrorism and the recent earthquake and tsunami disaster in Indian Ocean. The tourism industry's importance to the economy of many industrial and developing countries has also increased. According to the World Tourism Organisation, around 702 million international tourists travelled internationally in 2002 and tourism created around US$474 billion and 214 million jobs all over the world.

International tourism is becoming a major foreign exchange earner for many low-income countries and small islands (henceforth referred to as SIDs), and it is a principal export (features in the top five) for 83% of developing countries and the principal export sector for one third of these countries (WTO 2001:60).

Not surprisingly, tourism is increasingly viewed as one of the best opportunities and most viable options for the sustainable economic and social development of developing countries (henceforth refereed to as DCs). However, in order to be able to accurately assess the merits of tourism promotion as part of a development strategy, we need a thorough knowledge of the mechanisms by which tourism can affect the host economy, particularly sectoral outputs, factor incomes, prices, other sectors' exports and, most importantly, domestic welfare.

But until recently, the predominant approaches in tourism have been based on incomplete partial-equilibrium frameworks with fixed prices and wages, and unlimited

supplies of factors (labour, capital...). For example, techniques such as Keynesian multipliers and Input-Output analysis are still very commonly used to estimate the economic impacts of an inbound tourism boom (Flechter, 1994; Frechtling and Horvath, 1998; Crompton, Lee and Shuser, 2001; West and Gamage, 2001).

The problem with these approaches is that they ignore the presence in the economy of constraints on resource availability (and, hence, of competition between sectors for scarce resources), the market relationships between sectors, inputs and agents, the role of price adjustments... As a result, indirect and feedback mechanisms are not taken into consideration. The specificity of tourism cannot be captured and an inbound tourism shock is modelled as any other demand shock (on private investment, domestic consumption...). As such a shock always draws previously unemployed resources (labour, capital...) into employment and no potentially negative feedback or indirect effect is considered, this kind of analysis predicts an increase in overall economic activity with no reduction of any sector's output and thus, a positive impact on the economy. Despite the presence of leakages caused by imports and saving, this positive impact is clearly over-estimated (for more details see Dwyer et al., 2004a).

But a real economy is an integrated system in which indirect and feedback mechanisms are important, along with direct mechanisms. In general, resources are limited and allocated by (sometimes imperfect) markets. There is strong competition between sectors, and price effects matter. Any change in tourism demand may have negative impacts which can be as strong as the positive impacts and sometimes even stronger. Therefore, an accurate assessment of the economic effects of an inward tourism boom requires a general equilibrium approach.

This approach is quite recent in tourism analysis and has been applied in both theoretical studies (see for example Copeland, 1991; Hazari and Kaur, 1995; Nowak and Sahli, 1999; Nowak, Sahli and Sgro, 2003) and empirical studies [with Computable General Equilibrium (CGE) modelling: see Adams and Parmenter, 1995; Zhou et al., 1997; Dwyer et al., 2000 and 2005; Blake et al., 2003; Gooroochurn and Sinclair, 2005]. All these studies suggest that an increase in tourism demand may seriously alter the country's patterns of production and specialization, in particular by crowding out internationally traded sectors (i.e. export and import-competing sectors). Moreover, most of these studies support Copeland's view (1991) that the main mechanism by which an inbound tourism boom may change domestic welfare is through an increase in the price of internationally non-traded goods and services bought by foreign tourists. Since their production never leaves the country, these goods and services are internationally non-traded according to standard definitions. But they become partially exportable thanks to foreign tourists who come specifically to the host country to consume them. Thus, any additional foreign tourists cause the price of these goods to rise which amounts to a terms-of-trade improvement for the host country[1]. This usual "terms of trade effect" provides a welfare gain to its residents.

But, as already pointed out by Dwyer and Forsyth (1993) and theoretically illustrated by Nowak, Sahli and Sgro (2003), the presence of some distortion in the economy (monopoly, taxation, subsidization, increasing returns to scale in manufacturing, external effects like pollution...) modifies the way by which tourism impacts on domestic welfare by adding other mechanisms. Since an inbound tourism expansion may change the economic cost of such a distortion, it can give rise to an extra welfare change which comes in addition to the usual terms of trade gain. Thus, if the cost of the distortion is aggravated, the resulting welfare loss

lessens the gain provided by the improvement of terms of trade. This loss can even be superior to the gain, in which case the inbound tourism expansion results in an immiserization of domestic residents.

As all kinds of distortions are present in real economies, much attention has to be paid to such costs when assessing the net benefit of a tourism expansion. This is especially true for DCs where, as already said above, tourism is viewed as one of the best available tools to promote growth and development (Sinclair 1998, WTO 2001). There is an increasing concern nowadays for public policy makers in DCs and SIDs as to whether mass tourism coastal resorts and other particular tourism activities, such as golf, safaris, etc. play a catalytic role in the overall economic development and truly improve the welfare of their community.

In this paper, we therefore present a *general equilibrium model* which explicitly takes into consideration specific features of some DCs (dualistic structure of the labour market, sectoral unemployment, inter-regional migrations, competition between agriculture and tourism for labour and land) to analyze the ways by which an inbound tourism boom affects this kind of country, in particular its national welfare. In particular, it highlights a channel specific to some DCs by which a tourism boom impacts on incomes and welfare. We show that, under realistic assumptions, tourism promotion may make DC residents worse off.

We begin the paper by describing the type of economy considered (Section 1). After describing the model used to represent this economy (Section 2), we analyse the consequences of an inbound tourism boom on sectors' outputs, relative prices, factor incomes, urban unemployment, internal migrations and domestic welfare (section 3). Finally, section 4 provides some concluding remarks.

I) DESCRIPTION OF THE ECONOMY STUDIED

In this model, we consider a small open economy that is made up of two regions: an urban region U and a coastal, or natural, area C.

The urban region contains only one sector, called S_N, which includes all modern activities: the manufacturing sector, public and private services (e.g. banking, insurance). Very often in DCs, these activities are non traded, that is, they are protected from international competition by high costs of transport, domestic regulations and trade protection. Nevertheless we have assumed in this economy that the urban sector S_N produces traded goods and services only, because this simplifies the model considerably by giving it a recursive structure. Moreover whether the urban sector is traded or not does not influence the main results regarding domestic welfare determination[2].

The coastal/natural area is made up of two sectors: agriculture S_A and tourism S_S. Agricultural sector is an importing sector, whereas the tourism sector exports its entire production. However, the exporting nature of the tourism sector is unusual in the respect that it stems not from the international mobility of the goods and services produced, but from the temporary international mobility of consumers. In fact, its production never leaves the country and is non-traded according to standard definitions. Consumption is by **non-residents** who come to the host country specifically for these tourism products. Thus it is the foreign consumers who come to the product and not the reverse, giving an international component to the demand faced by this sector[3].

The distinction of two separate regions, U and C, is based on two criteria: the first geographic and the second economic.

1) The relevance of the geographic criterion is shown by the following observation. In most DCs, manufacturing industries and modern services are located in large cities or in their immediate surroundings (see for example World Bank 2000, chap.VI) while agriculture is located in rural areas. The geographical location of tourism activities is not as clear cut, as regions U and C both have characteristics and attractions that are favourable to the development of varied forms of tourism (e.g. business, cultural, adventure, leisure). In this study, we have focused on a type of tourism particularly prevalent in DCs: leisure tourism, whose predominant forms take place either in coastal zones ("sun, sea and sand" holidays) or in inland areas in which the condition of the natural environment plays a major role in attracting foreign tourists (golf courses, oases, national parks, safaris, hinting etc). For both types of leisure tourism, natural features are essential to create and sustain these products, and are the main determining factor for the spatial location of attractions**,** often regardless of pre-existing cities. Even if proximity to a city can undeniably be a driving force, due to pre-existing transport networks (e.g. airports, sea ports, railways) and tourism facilities (hotels, restaurants, travel agencies, etc.), these types of tourism are primarily located in specific areas, chosen for the quality of their natural features and often functioning independently from any urban area[4].

2) Region U is also distinguished from region C by an economic criterion which is even more important than geography: the dualist structure of the labour market frequently observed in DCs. It is well known that in a number of countries, two kinds of sectors exist side by side. In the first category, because of certain rigidities, the wage rate is higher than its

equilibrium level, which is a source of unemployment. In the second category, wages are flexible, leading to equality between the supply and the demand of labour.

The first category generally includes manufacturing industries, public services and service industries (banks, insurance companies...), that is all the activities which are regrouped in our model within Sector S_N and located in urban region U. Here the labour market is generally regulated (with minimum wage, etc.), labour laws are enforced and unions are influential. The second category includes activities described as "informal" as well as agriculture, where a competitive wage determination predominates. In these sectors, even if labour laws exist, they are rarely respected (one example being the minimum agricultural wage).

The case of tourism is again problematic as both of these wage schemes are common. For example, in the hotel industry, where international chains are concerned, the labour market tends to be organized in the same way as the industrial sector (laws are respected, efficiency wages...). However, in many other small-scale tourism activities (e.g. independent hotels, restaurants and food services, night clubs, handicrafts trade...), it is well known that unionization is minimal; "under the table" and illegal immigrant labour are common; and there is a high wage variability. The labour market here has a competitive structure. But even if the two systems exist side by side, two arguments lead us to believe that flexibility is, in fact, globally predominant.

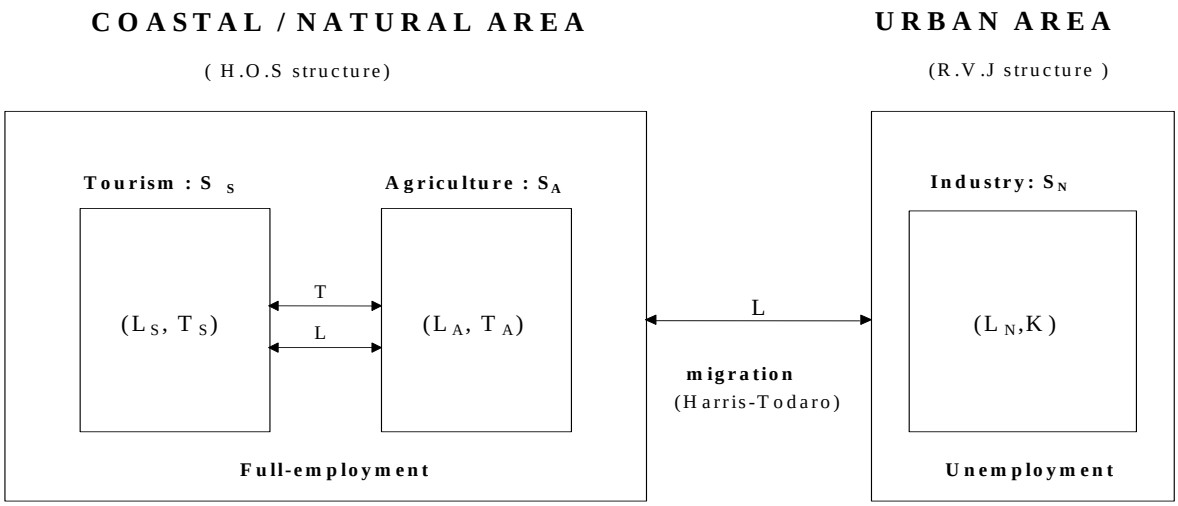
Firstly, small and mid-sized businesses predominate in tourism, both in DCs and developed countries (ILO, 2001). And in general, human resources management is more supple in these firms than in large ones. Secondly, tourism activity is highly seasonal in

nature, thus creating fluctuating labour needs. Flexibility in wages, hours, and recruitment is shown to be an essential part of human resource management in tourism (having, in fact, led to numerous abuses; see Lanquar, 1995:49). The ILO has demonstrated that deep similarities exist between the agriculture and tourism labour markets in developing countries (ILO, 1989). Consequently, we find it justified to consider the tourism labour market to be competitive (see also Poirier, 1994).

To sum up, manufacturing industries and modern services (S_N) are concentrated in the urban region U where the labour market is regulated and the real wage is rigid. The coastal/ natural area C encompasses agriculture (S_A) and tourism (S_S) and the wage rate is fully flexible thanks to the predominance of market forces. The sectors S_A and S_N are assumed to produce traded goods and the country is small on the international markets of these goods. But it has a monopoly power in trade for the tourism products (see below). Each region contains a given stock of specific capital to that region (physical capital $\overline{K}$ in the urban region U; and land $\overline{T}$ in the coastal/natural area C), while sharing the same labour factor of total quantity $\overline{L}$ in the economy. Perfect competition prevails in all sectors and firms operate under constant returns to scale technology using standard neo-classical production functions.

Migratory flows connect the two regions. There is some unemployment in the urban region whereas full employment prevails in the coastal/natural area. The theoretical model chosen to represent this economic structure is based on Harris-Todaro (1970).

Figure 1: Model Structure



Let us now proceed to a more detailed description of each of the two regions.

II) THE MODEL

II/1) The urban region

In the urban sector, firms combine labour L_N and specific capital K to produce the urban good N. For the sake of simplicity, we assume that this urban good is traded (e.g. imported) and that the country is small on its international market. So its price P_N is set to its international level P_N^*. This is not a necessary condition to obtain meaningful results regarding to the welfare but it considerably simplifies the model.

The urban wage rate is denoted by $\overline{w}_U$ and the rental rate on capital by r. The zero profit condition is:

(1) $$P_N = C_N(\overline{w}_U, r)$$

C_j is the unit cost function in sector j (j=N,A,S). The unit factor requirements in each sector are given by the Shepherd-Samuelson relations: $C_j^i = \partial C_j / \partial i$ with i=w; r or t (t is the rental rate on land). P_j is the price of good j (j=A,S,N).

For the grounds exposed above, the real wage rate $\overline{w}_U$ is rigid downward and is set above its competitive level. It is expressed in terms of agriculture good A which is then chosen as the numéraire.

The flexibility of r ensures full employment of the stock of urban capital:

(2) $$C_N^r \cdot X_N = \overline{K}$$

X_j denotes the output of sector j (j=A,S,N).

On the contrary, the wage rigidity gives rise to some unemployment in this region:

(3) $$L_N + L_{ch} = L_U$$

L_N $(= C_N^w \cdot X_N)$ is the amount of labour employed by S_N, L_{ch} is the number of unemployed urban workers and L_U is the total urban labour force.

The urban goods N are consumed by all residents, regardless of whether their location is urban or coastal, but not by tourists. Using duality theory, the Hicksian compensated demand function for good N is given by $e_{P_N}(P_A, P_N, u)$ with $e_{P_j} = \partial e / \partial P_j$. $e(P_A, P_N, u)$ is the residents' well-behaved expenditure function and u is the level of residents' utility. Recall that residents consume only goods A and N, but no tourism products S.

Any welfare variation is expressed as:

(4) $$dy \equiv e_u \cdot du$$

where $e_u = \partial e / \partial u$ denotes the inverse of the marginal utility of income.

II/2) The coastal/natural region

In this region, we assume that agricultural and tourism compete for the same factors of production (labour L_j and land T_j) and produce under constant returns to scale. The hypothesis that agriculture and tourism are in competition for land and labour is corroborated by numerous empirical studies. Bryden (1973) and Weaver (1988) present the example of the Caribbean where the tourism sector exists at the detriment of both export and subsistence agriculture. While sceptical regarding the Caribbean, Latimer (1985) nonetheless affirms that this hypothesis holds true both for Mexico and for Bali. Tyrakowski (1986) for his part states that the development of resorts in some areas of the Spanish Mediterranean coastline has

resulted in the loss to the agricultural sector of vast expanses of high-yield land and a large number of workers. Parsons (1989) describes the case of the Canary Islands where this phenomenon is particularly striking[5]. The same can be said of other Mediterranean islands, such as Cyprus, Malta, Greek islands (Crete, Myconos, Corfu, etc) and destinations that combine both agriculture and an attractive natural environment since many occupations required in tourism are done by workers who used to work in the agricultural sector (landscaping, gardening, janitorial, maintenance, dishwashing, table bussing, and security services). For instance, the intensive tourism development and accompanying infrastructure of certain coastal areas and inland oases in Tunisia clearly illustrates the widespread loss of agriculture land and the transfer of rural labour from agriculture to tourism activities making farming and tourism an either/or situation in certain regions, such as Nabeul-Hammamet, Sousse-Monastir, and Tozeur.

Let us note here that the term "land" must be understood to also include water, an essential input for both sectors. The construction of large-scale resorts, swimming pools, golf courses, etc., exerts significant pressure on water resources and thus creates a drain on the reserves available to agriculture, particularly in regions such as the Mediterranean where water resources are scarce. As the high season for tourism often coincides with the dry period, water levels are already low and the shortage is exacerbated (see for example Groupe Huit, 1979 regarding Tunisia and McTaggart, 1988 regarding Bali). Moreover, Northern tourists' behaviour regarding water is very different from that of the local Southern populations and introduces wasteful habits (EEA, 2001)[6]. In certain regions this problem has shown such a degree of seriousness that deterioration of natural land and sea vegetation has been observed (See Cocossis and Mexa, 2004 for more details).

The coastal wage rate w_C and the rental rate on land t are perfectly flexible, which ensures full employment of both factors:

(5) $$L_A + L_S = L_C$$

(6) $$T_A + T_S = \overline{T}$$

Where L_C is the total labour employed in the coastal/natural zone. Contrary to the land endowment $\overline{T}$ which is fixed, L_C is endogenous and varies as migratory flows occur between the two regions. $L_j (= C_j^w \cdot X_j)$ and $T_j (= C_j^t \cdot X_j)$ are the amounts of labour and land used by sector j (j=A,S).

The competitive profit conditions are expressed in terms of the "price equals unit cost" equations:

(7) $$P_A = 1 = C_A(w_C, t)$$

(8) $$P_S = C_S(w_C, t)$$

As agricultural products are homogenous goods and the economy is small on their international market, their price is thus exogenous. In addition, we assume that the country is a net importer of both goods. But, even if its tourist product S has strong similarities to its foreign equivalents, this country has certain unique characteristics (climate, natural and cultural riches...) which differentiate its product. This product consequently has no exact foreign substitute. Therefore, although the country is small on the scale of international tourism activity, the demand for services it faces is never perfectly elastic. The price P_S of its

tourism services can thus be different from the price in other countries. It is determined by the confrontation of the country's domestic supply X_S and the foreign tourists' demand DE_S:

$$(9) \qquad X_S = DE_S(P_S, \Delta)$$

This foreign tourists' demand DE_S depends positively on some exogenous factors (foreign income, fashion...) which are captured by the parameter Δ, and depends negatively on its own price P_S : $\partial DE_S/\partial\Delta > 0$ and $\partial DE_S/\partial P_S < 0$[7].

In this model, any inbound tourism boom is captured by an exogenous increase in Δ.

Let us finish the description of this region by noting that it has a Heckcher-Ohlin-Samuelon (HOS) structure, as revealed by the equation system (5)-(8). Because of this HOS structure, we have to consider the factor intensity of both the agricultural and the tourism sectors (T_S/L_S , T_A/L_A). But unlike the standard HOS model, the labour supply here is variable because of migration flows between the city and the coast (or the natural area). Therefore the supply functions of tourism and agriculture depend not only on the coastal relative price (P_S) but also on the labour supply (L_C) in this region. These supplies are then subject to a traditional price effect and to a Rybczynski quantity effect.

II/3) Links between the two regions

The two regions are related by migration flows. Moreover, the agricultural goods and the urban goods are available to all residents, regardless of their location. There is no income transfer (remittances) between urban people and coastal people.

These migration flows are modelled along the lines suggested by Harris and Todaro (1970). As long as the coastal wage differs from the urban expected wage (i.e. the fixed urban wage weighted by the probability of finding a job in the modern sector), there are labour migration flows. This process continues until both wages become equal to each other:

$$(10) \qquad w_C = w_U^e = \overline{w}_U \cdot \left(L_N / L_U\right) = \overline{w}_U / (1+\kappa)$$

w_U^e is the urban expected wage rate and $\kappa = L_{ch} / L_N$ is the ratio of unemployed to employed workers in the urban region and is often called the *ratio* of urban unemployment. It is easy to show that this ratio is closely related to the urban unemployment *rate* (L_{ch} / L_U) and thus always moves in the same direction. In the next section, we will use either one or the other to explain the results of a tourism boom.

Labour is the only factor that is completely mobile between the three sectors. The fixed amount of labour available in the economy ($\overline{L}$) is divided as follows [cf. (3 and (5)]:

$$(11) \qquad \overline{L} = L_C + L_U = (L_A + L_S) + L_N \cdot (1+\kappa)$$

The residents' budget constraint is:

$$e(P_A, P_N, u) = Y \tag{12}$$

where Y is the national income:

$$\begin{aligned} Y &= P_N \cdot X_N + P_A \cdot X_A + P_S \cdot X_S \\ &= \overline{w}_U \cdot L_N + r \cdot \overline{K} + w_C \cdot L_C + t \cdot \overline{T} \end{aligned} \tag{13}$$

We have thus defined the general equilibrium of this economy for any given level of the urban good's international price P_N^*, of the urban wage rate $\overline{w}_U$ and of the foreign tourists' demand Δ^0.

III) A CASE OF IMMISERIZING TOURISM

This section's objective is to show that an inbound tourism boom (e.g. an increase in foreign income) can incur costs which sometimes exceed its gains and can even lead to a deterioration of the domestic welfare.

III/1) Two effects on domestic welfare

In fact, we can show that in this model, any inbound tourism boom has two effects on residents' real income: the first is generated by the variation in the country's terms of trade and the second by the modification of wage distortion.

The mathematic solution of the model leads to the following equation which describes the variations in real income[8] y [the (^) notation denotes relative changes, with $\hat{x} \equiv d\ln(x)$]:

$$\hat{y} = \underbrace{\delta_S \cdot \hat{P}_S}_{(a)} - \underbrace{\delta_{hi} \cdot \hat{\kappa}}_{(b)} \qquad (14)$$

The inbound tourism boom is captured by change in Δ in equation (9). The immediate consequence of this shock is an excess demand in the tourism sector which, due to the differentiated nature of the tourism product, provokes an increase in its price $\hat{P}_S$ ($\hat{P}_S > 0$). This increase of P_S is at the origin of the double effect on real income.

First, this increase brings about a gain in welfare to the resident community because of the country's improved terms of trade. Since the tourism product S is exported, the rise in its price[9] increases real income, as would a rise in any traditional export product. This gain is proportional to the share of this product's exports in national income (expressed by the parameter $\delta_S = P_S \cdot DE_S / Y > 0$) and its value is given by the expression (a) in equation (14), which is always positive.

Secondly, the rise in P_S modifies the cost of urban wage distortion. In fact, this increase changes factor incomes (w_C and t) in the coastal region according to the factor intensities of each sector (T_S/L_S , T_A/L_A), thus breaking the equality between the coastal wage and the expected urban wage. This imbalance gives rise to **migratory flows between the two zones** resulting in an **increase** or **decrease** in the urban unemployment rate. A reduction in unemployment is accompanied by the creation of income which further adds to

the gain provided by the improvement in terms of trade. In this case, the net benefit of an inbound tourism boom on domestic welfare is **unambiguously positive**.

However, an increase in unemployment leads to a reduction in available income, which drastically reduces the gain brought about by the improvement of terms of trade and can even eliminate this gain entirely. Tourism is thus at the origin of an economic cost which may induce a decline in domestic welfare. In this case, the net benefit of an inbound tourism boom on domestic welfare may be negative. This second effect is captured by expression (b) in equation (14) which, as we will see, can be positive or negative. It is proportional to δ_{ch} which represents the portion of national income which would have been paid to unemployed workers had they chosen to continue to work on the coast at the prevailing wage rate ($\delta_{ch} = w_C \cdot L_{ch}/Y > 0$). Recall that κ is the *ratio* of urban unemployment ($\kappa = L_{ch}/L_N$) and follows the same evolution as the urban unemployment *rate* (L_{ch}/L_U).

Let us examine in more detail the economic mechanisms at work in each case.

III/2) Tourism's net benefit is <u>always</u> positive

This case requires the tourism sector to be relatively **more labour intensive than the agricultural sector:** $(T_S/L_S) < (T_A/L_A)$. In accordance with the Stolper-Samuelson theorem [cf. equations (7) and (8)], the increase in P_S causes the labour remuneration w_C in the coastal zone to rise and the land remuneration t to fall. As urban jobs become less attractive [$w_C > w_U^e$, cf. (10)], some unemployed workers decide to return to the coast. This migration from the city towards the coast increases the labour force available on the coast and

reduces the number of urban unemployed, and thus the urban unemployment rate [$\hat{\kappa} < 0$ in equation (14)]. This drop in unemployment is accompanied by a rise in the economy's total production which results in additional incomes.

In other terms, the rise in P_S lessens the cost of wage distortion, which represents a social gain [the term (b) is positive in (14)]. This gain comes in addition to the first gain provided by P_S [due to the improvement in terms of trade; i.e. (a) in (14)]. **The total gain [(a)+(b)>0] turns out to be higher than without unemployment.**

Let us examine the consequences of an inbound tourism boom on agricultural and tourism outputs[10]. Again, the rise in P_S is the cause of two mechanisms. The first is a price effect, the second a quantity effect. The price effect is quite standard in a model with constant returns to scale and equilibrium stability[11]: the increase in the tourism product's price stimulates the output of the tourism sector to the detriment of the output of the agricultural sector.

The quantity effect is a result of migration flows. According to the Rybczynski theorem, the arrival of additional workers on the coast, following the migration, brings about an expansion of the more labour-intensive sector, in this case tourism, and a decline of the more land-intensive sector, here agriculture.

Thus, the two effects have the same consequences on the productions so that the coastal outputs follow an unambiguous evolution, i.e. tourism sector expansion and agricultural sector decline.

To sum up, when tourism is **more labour intensive than agriculture**, any inbound tourism boom leads to the following results:

- An increase in the residents' real income;
- A rise in the coastal wage rate;
- A migration flow from the city towards the coast;
- A decrease of urban unemployment (in terms of rate and total numbers);
- An expansion of tourism output at the expense of agricultural output.

III/3) Tourism's net benefit is <u>ambiguous</u>

A necessary but not sufficient condition for immiserization is for **tourism to be relatively less labour intensive than agriculture**: $(T_S/L_S)>(T_A/L_A)$. Even if this case may seem surprising, studies have shown that it is relevant for a certain number of countries (Mauritius, South Africa, Zimbabwe) or regions (Page, 1999; WTO, 2001). It concerns destinations whose tourism products are mainly intensive users of coastal land or/and natural environment (large-scale resorts, national parks, safaris, golf tourism, adventure tourism, etc.) and whose agriculture sector is dominated by large families working on small farms.

With a land-intensive tourism sector, the result of the Stolper-Samuelson theorem is reversed: the rise in price of the tourism product P_S increases the rental rate on land t and decreases the coastal wage rate w_C which then becomes inferior to the urban expected wage rate [$w_C < w_U^e$, cf. (10)]. A migration from the coast to the city now occurs, reducing the total labor available on the coast and increasing the number of urban unemployed workers as well as the ratio of urban unemployment [$\hat{\kappa}>0$ in the equation (14)]. The initial waste of

human resources due to the presence of wage distortion on the urban labour market is thus worsened. This incurs a loss of real income in the community of the host country [the expression (b) is negative in (14)] and lessens the gain provided by the improvement of terms of trade. **This loss can even be superior to the gain, in which case tourism's net benefit turns out to be negative and results in an immiserization of the resident community**[12] [(a)+(b)<0].

Just as in the previous case, the coastal sector outputs are determined by a price-effect and a quantity-effect which work independently toward the same result. According to the Rybczynski theorem, the decline in the coastal labour supply following the departure of workers for the city leads to the decline of the more labour-intensive sector, here agriculture, and the expansion of the land-intensive sector, tourism.

Whatever the sectors' factor intensities, the migration flows always magnify the tourism sector's development and the agricultural sector's decline.

To sum up, when tourism is less **labour intensive than agriculture**, any inbound tourism boom leads to the following results:

- A decrease in the coastal wage rate;
- A migration flow from the coast towards the city;
- An increase of urban unemployment (in terms of rate and total numbers);
- An expansion of tourism output at the expense of agricultural output;
- An **ambiguous** net benefit on domestic welfare [(a)+(b)<(a) or (a)+(b)<0].

IV- Conclusion

There is now an extensive literature on the economic impacts of additional inbound tourism which sets out tools to measure these impacts and includes many case studies. The main objective of this work is to develop a theoretical explanation of the distinction between impacts and the net benefits (or welfare gain) of tourism growth to the community. Results obtained here are not meant to disparage tourism activity in DCs, but to show that in addition to the environmental, social and cultural costs traditionally recognized in the literature, tourism can also, under certain conditions, be the origin of *economic* costs. At times these costs could be so high that they result in the immiserization of the resident community. We have seen that in the kind of economy considered here, this result requires a specific configuration of factor intensities, i.e. a tourism sector which is more land-intensive than agriculture. This case, although it cannot be entirely discounted as shown by the examples cited above, does not seem to be the most common situation. However, the demonstration of the existence of these economic costs should encourage governments to give due consideration to the general macroeconomic equilibrium technique and CGE modelling when deciding on a tourism development strategy. They should not, as is customarily the case, limit the discussion of the effects of additional inbound tourism to a simple evaluation of its gross economic impacts and internal and external leakages, often presented as the only negative externalities.

Note that the analysis was based, for the sake of simplification, on an urban region which is exposed to international competition. The hypothesis of a non traded urban region, which is more realistic for a developing country, has no effect on the mechanism implied in immiserization and thus on the final result regarding welfare. However, this hypothesis becomes crucial when we study in details internal migration flows brought about by a tourism

boom: the presence of an urban job-providing region can cause paradoxical migration flows between the two regions and unexpected variations of sectoral outputs in the economy.

Endnotes

[1] A country's terms of trade is the relative price of its exports in terms of imports.

[2] The case of a non-traded urban sector is considered in an appendix available from the authors.

[3] In order to simplify the analysis, we make two hypothesises. First, we assume the absence of domestic and outbound tourism. All the tourism production is consumed by international tourists visiting the country (a likely hypothesis for a DC). The possibility of tourism imports is excluded because residents do not travel outside the country. Introducing outbound tourism or domestic tourism would reduce the welfare gain from the terms of trade improvement. The second simplifying hypothesis is that the goods and services produced by S_N are consumed by all residents, but not by foreign tourists.

[4] This is especially the case in the context of mass tourism coastal resorts created ex nihilo, as exemplified by the large-scale resort development in Tunisia (Poirier 1994). It is important to note that this kind of coastal mass tourism is not limited exclusively to DCs, but is also found in many Mediterranean coastal tourist destinations, such as the coastal resorts of Languedoc-Roussillon in France, Adriatic lidos of Sant'Andrea, Ghioggia and Rimini in Italy, and Costa del Sol and Costa Brava in Spain.

[5] An additional cause of loss of land is the proliferation of golf courses, often to the detriment of valuable arable land. This problem may seem anecdotal, but several DC governments have considered the situation so alarming that they decided to severely regulate their growth (Telfer and Wall 1996).

[6] In Mallorca, water consumption in rural areas is 140 litres per person per day, in urban areas 250 litres per person per day, while the average tourist consumption is 440 litres per person per day, or even 880 litres per day in the case of a luxury establishment (for further details, see. EEA 2001).

[7] A more detailed discussion of modelling tourism in this manner is available in Copeland (1991); Hazari and Kaur (1995); Nowak and Sahli (1999); and Nowak, Sahli and Sgro (2003).

[8] The mathematic development of the model is described in an appendix available from the authors.

[9] As goods A and N are imported and their prices are exogenously given on international markets, P_S follows the same evolution as the country's terms of trade and will represent them from now on.

[10] Recall that the urban sector's output remains unchanged because it has a specific factor and is a traded sector. In another version of the model, we assumed that S_N was a non-traded sector. The results are then more complex but the main conclusions on welfare are not affected.

[11] The proof of the equilibrium stability is available on request.

[12] The formal conditions for an immiserization are detailed in the mathematic appendix.

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NRM	148.2005	*Mondher SAHLI and Jean-Jacques NOWAK* (lxxviii): Migration, Unemployment and Net Benefits of Inbound Tourism in a Developing Country

(lxv) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications” organised by Fondazione Eni Enrico Mattei and sponsored by the EU, Milan, September 25-27, 2003
(lxvi) This paper has been presented at the 4th BioEcon Workshop on “Economic Analysis of Policies for Biodiversity Conservation” organised on behalf of the BIOECON Network by Fondazione Eni Enrico Mattei, Venice International University (VIU) and University College London (UCL) , Venice, August 28-29, 2003
(lxvii) This paper has been presented at the international conference on “Tourism and Sustainable Economic Development – Macro and Micro Economic Issues” jointly organised by CRENoS (Università di Cagliari e Sassari, Italy) and Fondazione Eni Enrico Mattei, and supported by the World Bank, Sardinia, September 19-20, 2003
(lxviii) This paper was presented at the ENGIME Workshop on “Governance and Policies in Multicultural Cities”, Rome, June 5-6, 2003
(lxix) This paper was presented at the Fourth EEP Plenary Workshop and EEP Conference “The Future of Climate Policy”, Cagliari, Italy, 27-28 March 2003
(lxx) This paper was presented at the 9th Coalition Theory Workshop on "Collective Decisions and Institutional Design" organised by the Universitat Autònoma de Barcelona and held in Barcelona, Spain, January 30-31, 2004
(lxxi) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by Fondazione Eni Enrico Mattei and Consip and sponsored by the EU, Rome, September 23-25, 2004
(lxxii) This paper was presented at the 10th Coalition Theory Network Workshop held in Paris, France on 28-29 January 2005 and organised by EUREQua.
(lxxiii) This paper was presented at the 2nd Workshop on "Inclusive Wealth and Accounting Prices" held in Trieste, Italy on 13-15 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics
(lxxiv) This paper was presented at the ENGIME Workshop on “Trust and social capital in multicultural cities” Athens, January 19-20, 2004
(lxxv) This paper was presented at the ENGIME Workshop on “Diversity as a source of growth” Rome November 18-19, 2004
(lxxvi) This paper was presented at the 3rd Workshop on Spatial-Dynamic Models of Economics and Ecosystems held in Trieste on 11-13 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics
(lxxvii) This paper was presented at the Workshop on Infectious Diseases: Ecological and Economic Approaches held in Trieste on 13-15 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics.
(lxxviii) This paper was presented at the Second International Conference on "Tourism and Sustainable Economic Development - Macro and Micro Economic Issues" jointly organised by CRENoS (Università di Cagliari and Sassari, Italy) and Fondazione Eni Enrico Mattei, Italy, and supported by the World Bank, Chia, Italy, 16-17 September 2005.

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