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The Economic Impacts of Tourism in Ouro Preto, MG, Brazil

Angela Cabral Flecha[a]
[a]Federal University of Ouro Preto (UFOP), Ouro Preto, Brazil.

João Paulo Alves Fusco[b]
[b]São Paulo State University (UNESP), Bauru, Brazil.

Wagner Bronze Damiani[c]
[c]School of Management of São Paulo (EAESP), Getúlio Vargas Foundation (FGV), São Paulo, Brazil.

Hudson Fernandes Amaral[d]
[d]Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil.

Abstract

The tourism spending like other activities has direct and secondary effects on the economy, and presents complex interaction with other activities deserving a special treatment for measuring its contribution to the global result of production and consumption. In this paper, it is used the Money Generation Model to measure the global economic impact of tourism sales in Ouro Preto, this method is not so limited by the data and it is able to produce good approximations to reality. It was not possible to adopt the WTO methodology due to data limitation. The results revealed the real importance of tourism for Ouro Preto, representing up to 10.4% of GDP in 2002, up to 21.8% of tax revenues in 2004, and approximately 11% of the region's population in 2002 was related to tourism sales. Some actions can be outlined from these results in order to illustrate the current economic reality of the tourism in Ouro Preto. It is also possible to improve the tourist planning accomplished by the local City Hall in a coherent way with the economic results generated by the tourism.

Keywords: *Economic impact of tourism, Money Generation Model, Multipliers, Ouro Preto – Brazil.*

Introduction

The tourist activity is responsible for the great part of economic growth in the world, for its non perishable characteristic, and for the possibility of maintaining it economically profitable through politics and planning. The study of the tourism had its origin in the economy and, nowadays, it has caught the attention of researchers, entrepreneurs and government because of its multiplier effect.

According to the FIPE (2002) tourism in Brazil, without considering the relative portion to the Gross Capital Formation, is responsible for 5.3% of GDP. The main contributions for that result are: Food services (22.6%); air transportation (17.9%); ground transportation (16.8%); hotels and other lodging (12.9%); secondary residence (8.9%); and cultural services, recreation and leisure (8.5%); among others.

Due to the historical, social, and cultural importance, and for the natural and architectural beauty that Ouro Preto city has, it is inevitable the tourism to come as a potential option for investment and financial return. However, data that measure how important is this economic sector are still scarce. The absence of this information is one of the reasons why most of the local population does not notice the effective benefits of tourism, and for linking the mining image as the main responsible for the local development. So locals are discouraged to know, to preserve, and even to work in the tourist sector. Nonetheless, the city has a great part of its economic activity turned to mining and metallurgy sectors. It is supposed that the income of the tourism in the city is more significant than only 5% of the district tax referred to the tourism, what is published by the local authorities.

This study analyzes the income originated by the tourist activity in Ouro Preto and it presents the analysis of the economical impacts generated by the tourist activity. This research will contribute to a better understanding of the economical effects of the tourism in the city, and to a better guide for the municipal government's specific actions. The article is organized as follows. The next section covers some of the basic aspects concerning the tourism sector, and economic methods for measuring economic impacts. This is followed by the description of the methodology used in the paper. After that, the next section deals with the analyses of the characteristics of Ouro Preto, and the results of the Money Generation Model with emphasis on the economic impacts, and also some methodological constraints are mentioned. Finally, the possible implications of tourism, the economic impact, are stated in the concluding section.

Literature Review

Economic Evaluation of the Tourism

As every sector, the tourism aims to increase the expense of the tourists/ visitors in a specific socioeconomic situation. Thus, the analysis of tourist expenses in the framework of a regional or local economy it is of vital importance. For this analysis to be possible, it is necessary to know better the habits of tourist consumption of a destination in matter to study the economical impact of tourist activity in the area.

A variety of economic analyses are carried out to support tourism decisions and to quantify the derived economical consequences of tourism activities. According to Stynes (1997) these analyses may be applied to any policy or action, but are defined here in the context of tourism. Where markets do not exist, values held by 'customers' must be elicited. An array of methods for eliciting both market and non-market values from people for environmental goods and services have been

developed over the last few decades. Though it is still a developing field, some of the more common and widely used methods include: economic impact assessment, fiscal impact analysis, financial analysis, demand analysis, benefit/cost analysis, feasibility study, environmental impact assessment, contingent valuation, hedonic pricing, travel cost method, change in productivity, loss (or gain) of earnings, opportunity cost, and replacement cost (Stynes, 1997; Phillips, 1998).

The Economic Impact

The economic impact analysis traces the flows of spending associated with tourism activity in a region to identify changes in sales, tax revenues, income and jobs due to tourism activity. The methods used to gather this information include: visitor spending surveys; analyses of secondary data from government economic statistics; economic base models; input-output models; and multipliers (Frechtling, 1994).

Economic Impact Assessment (EIA) - traces changes in economic activity and will identify which economic sectors benefit from tourism and its impacts. An economic impact assessment (EIA) traces changes in economic activity resulting from some action, identifies the economic sectors that benefit from tourism, and estimates resulting changes in income and employment in the region. However, EIAs usually do not assess economic efficiency, or potential environmental, social and fiscal impacts. These are important concerns if one is to be capable of making a balanced assessment, so an EIA should be one part of a broader analysis (Stynes, 1999).

An economic impact assessment determines the contribution of tourism activity to a region's economy. The basic issues addressed by an economic impact study are summarized below. An economic impact assessment also reveals the interrelationships among economic sectors, and provides estimates of the changes that take place in an economy due to some existing or proposed action: Finding out how much tourists spend; determining how tourism impacts local businesses' sales; finding out how much income tourism generates for area households and businesses; measuring the number of jobs supported by the tourism industry; calculating the amount of tax revenue generated by tourism.

According to Rabahy (2003) there are three systems for measuring the impact of the tourism known globally:

1) The World Organization of Tourism's valuation system seeks to standardize, in the whole world, the national accounts, being focused in the value of the tourism production and of their components: the estimate of the gross value added and of the tourist incomes; the cost/benefit of investments; the impact in the domestic economic growth in countries or regions that developed the tourism; the fixed gross capital formation in the sector and the average balance of the transactions with the exterior.

2) The Tourism Satellite Account is a high specialized system of the national account for capturing in a better way the impacts of the tourism, through a complex system of information. The Structure of TSA is composed by

10 tables: inbound tourism; domestic tourism; international tourism; tourist consumption; production and productive structure of the tourist activities; calculation of the added value and of tourist GDP; generation of employment; gross capital formation; public services of tourism; number of indicators that demonstrate the characteristics of the sector. However, the unavailability of data on the structure of expenses in the country, about the gross capital formation and on the average composition of the packages of tourism hinders implantation of the Tourism Satellite Account in the district of Ouro Preto.

3) The Input-output model is a measurement system that seeks to find the value of what tourism generates in an indirect and induced form and in their successive reproductions. This model exposes the internal flows among the productive sectors of an economy, relating production of each of them, the intermediate consumption and the final consumption.

So, an input-output (I-O) model is a mathematical model that describes the flows of money between sectors within a region's economy. Flows are predicted based on the inputs that each industry must buy from every other industry to produce a dollar's worth of output. I-O models also determine the proportions of sales that go to wage and salary income, proprietor's income, and taxes. Multipliers can be estimated from input-output models based on the estimated re-circulation of spending within the region. Exports and imports are determined based on estimates of the propensity of households and firms to purchase goods and services from local sources (often called RPC's or regional purchase coefficients). The more self sufficient a region is, the fewer the leakages, so that the multipliers are correspondingly higher (Stynes, 1997).

Though, the theories that define the tourism and the economy of the tourism and consequently what is output, input, consumption and another variable that serve as base for these measurements don't broach the totality of elements that compose the capital generated by the tourism, excluding many times the trips on business, and including, most of times, only the components of the trilogy "transport-lodging-food services". This is a consequence of the fact that the theory of tourism, mainly in the economical sphere, is still in construction and leaving some gaps. Bowman and Eagles (2004) suggested the Provincial Economic Impact Model (PEIM). This is a computer application for estimating the economic impacts of expenditures at a provincial level on heritage activities such as the development and operation of natural areas, protected areas, parks and historic sites and the tourism spending associated with these events.

Chang (2001) and Stynes (1997) suggested three additional models, described below:

- **The Bureau of Economic Analysis's RIMS II Multipliers:** These explain how to apply published multipliers to estimate economic impacts. This approach starts with visitor spending (from a survey or secondary sources) divided into a number of spending categories, and applies sector-specific multipliers to estimate direct and total sales, income and employment effects.

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- **The MI-REC/IMPLAN System:** Stynes and Propst (1992, 1996) have developed a fairly complete micro-computer-based system for estimating economic impacts of recreation and tourism. The system combines spreadsheets for estimating spending with the IMPLAN input-output modeling system. IMPLAN uses county level data to estimate input-output models for regions down to a county level.

- **The Money Generation Model (MGM) (USDI, National Park Service, 1990):** This is a one-page cookbook that captures the essential elements of an economic impact analysis, though the approach it takes is extremely simple (Stynes, 1997). The average spending, number of visits and aggregate multipliers are entered on a simple worksheet: total estimates of the sales, income, employment, and tax effects of visitor spending are generated as a result. Provided the parameters are carefully chosen, the MGM model can yield good ballpark estimates of economic impacts at minimal cost. The MGM estimates total sales effects first, and then converts total sales to total tax and job effects (Chang, 2001).

The MGM is an example of a simple approach that relies largely on judgment and available secondary data in a highly aggregate form. While an extremely simple approach, it captures the essential elements of an economic impact analysis. The number of visits, average spending per visitor and an aggregate sales multiplier are entered on a simple worksheet to generate estimates of the direct and total sales effects of visitor spending. Sales effects are converted to income and jobs using ratios of income to sales and jobs to sales. Tax effects of visitor spending can also be estimated by applying local tax rates to sales estimates. With sound judgment in choosing the parameters, the MGM model can yield reasonable ballpark estimates of economic impacts at minimal cost. This approach, however, provides little detail on spending categories or which sectors of the economy benefit from either direct or secondary effects. The aggregate nature of the approach also makes it difficult to adjust recommended spending rates or multipliers to different applications (Stynes and Rutz, 1995).

MGM requires three aggregated multipliers: the direct sales are multiplied by the multiplier of secondary effects, the relationship of sales to be considered income and the multiplier of jobs originated in the tourist activity. In most cases these multipliers are adapted to a specific place. In Brazil, this model was already applied in the city of Lençóis, Maranhão State, to evaluate the impact of the tourism in the local economy (Rabahy, 2003).

Multipliers

Stynes (1997) states that the economists distinguish direct, indirect and induced economic effects of any change in a specific sector, such as tourism. In this context, a multiplier is the total effects (direct, indirect and/or induced) divided by, or expressed as a ratio of, the direct effects of tourism (Miller and Blair, 1985-p 101). This concept is based on the recirculation of income: recipients use some

of their income for consumption spending, which then results in further income and employment (Frechtling, 1994). Multipliers capture the "secondary economic effects", those are the summation of indirect and induced effects of tourism activity. The larger the multiplier, the greater the impact a dollar of visitor spending will have on the region's economy (Chang, 2001).

Direct effects are changes in the sectors associated directly with visitor spending with immediate effects of those changes. For example, an increase in the number of tourists staying overnight in hotels would directly increase room sales in the hotel sector. The additional hotel sales and associated changes in hotel payments for wages, salaries, taxes, supplies and services are direct effects of the tourist spending.

Indirect and induced effects are the secondary effects resulting from the initial visitor spending. Indirect effects are sales, income, or jobs resulting from various rounds of the purchases the hotel made to other "backward-linked" industries in the region. Changes in sales, jobs and income in the linen supply industry, for example, represent indirect effects of changes in hotel sales.

Induced effects are the sales, income, or jobs resulting from household spending of income earned as a result of visitor spending - either directly or indirectly. For example, hotel and linen supply employees supported directly or indirectly by tourism, spend their income in the local region for housing, food, transportation, and the usual array of household product and service needs.

Stynes (1997) says that multipliers are frequently misused and misinterpreted in tourism studies, and are therefore a considerable source of confusion for non-economists. Multipliers represent the economic interdependencies of sectors within a particular region's economy: they vary considerably from region to region and sector to sector, with distinct characteristics (Chang, 2001). There are many different kinds of multipliers depending on which secondary effects are included and which measure of economic activity is used (sales, income, or employment). The size of a multiplier for a given region depends on how the study region is defined and its economic characteristics.

When tourists buy goods produced by outside (non-local) manufacturers, there is an immediate leakage in the first round of spending and therefore no local impact from production. Before applying a multiplier to tourist spending, one must first deduct the producer prices of all imported goods that tourists buy: one should only include the local retail margins and possibly wholesale and transportation margins if these are 'created' within the region. Generally, only 60 to 70% of tourist spending shows up as local final demand (Chang, 2001). While all tourist purchases of services will accrue to the local region as final demand, only the margins on goods purchased at retail stores should be counted as local final demand. The ratio of local final demand to tourist spending is called the capture rate. Capture rates, like multipliers, vary as a function of the size and nature of the region as well as the kind of tourist spending included. Therefore, one must be cautious about taking a multiplier or the capture rate cited in one study and uses it in another.

Methodology

In this article, the input-output multipliers for measuring the economic effects of tourist were applied, combining the Money Generation Model (MGM) with survey-based approaches. From a methodological perspective, techniques that measure the effects of certain types of spending (e.g., tourism) on regional economies are called input-output analyses. This approach measures the monetary input into a national or regional economy, and how much of it leaves to the region as monetary output in the subsequent cycles of spending and re-spending.

The Money Generation Model is a very simple model to estimate the economic benefits to the local communities resulting from expenditures by area visitors who live outside the local area (non-local tourists). Surveys were used for identifying the amount of tourist spending, the permanence in the area, and other characteristics. In this study, it is used some of the results of NUPETUR (2005). It is a study that surveyed the profile, behavior, spending and other characteristics of tourist/ visitors of Ouro Preto in 2005.

In this model the economic impact on a region resulting from tourism and recreational visitation is typically calculated as a product of the following elements (Stynes, 1997):

amount of visitation x average spending per unit of visitation x regional multiplier

These three elements, necessary to estimate tourism economic impacts, come from distinct sources: Estimate of the change in the number and types of tourists in the region; estimate of the average levels of tourists spending in the local area (often within specific market sectors) and the effects of this spending on the region's economy, traced using regional input-output models or set of multipliers to determine the secondary effects.

The problem is how to assemble the required information from various sources in a consistent fashion so that reliable estimates of economic impacts can be made in a cost-effective manner.

Visitation - The focus for estimating visitation falls into two categories. The first category is the proportion of total reported visitors that fall into various visitor segments. If different types of visitors have different spending habits, taking subgroup averages should improve the accuracy of the estimate of their spending. The classification into categories will included estimating (a) percent of visitors from the local area, (b) percent of visitors staying overnight in the area, (c) percent of visitors staying inside vs. outside the area, (d) percent of visitors staying in campgrounds, backcountry sites, motels, seasonal homes and other accommodations.

The second category of focus is the total number of visitors to an area and characteristics of the visitors, particularly length of stay in the area and typical party size. The following issues should be considered in estimating visitation (Stynes,

1992):

- **Number of visitors**. A prerequisite to good spending estimates is always to use good information source. It is important that the units used are available and compatible with the unit of analysis for that spending is estimated. In this case, there is no other source of information, than the one it is used as a base sample: the number of persons that signed the book of the Inconfidência Museum in 2004.

- **Unit of analysis.** The units of analysis in recreation and tourism studies vary in terms of **a**) the number of individuals in the group, and **b**) the time period covered. It is recommended to begin with the party day or night as the basic unit of analysis for spending studies. In many cases, per day estimates will be derived from per party trip estimates by dividing by the length of the stay in the area. This study uses the per day unit for its analysis.

- **Visit**. The entry of any person. Visits may occur as recreation visits or non-recreation visits. Same day reentries, negligible transits, and entries to detached portions of the same area on the same day are considered as a single visit. Such adjustments are made insofar as practicable for noncontiguous parts of the same area (NPS, 1990). As the city is not a protected area there was not separation for recreation or non-recreation visits. But it is believed that all the persons who signed the book stay there for recreation.

- **Recreation visits**. Entries of persons in the area for recreational purposes excluding government personnel, through traffic (commuters), trades-people, and persons residing within area boundaries.

- **Visitor day**. Twelve hours visitor in a city.

Spending - The estimation of spending profiles is the most difficult task in estimating the economic impact of visitor spending in the area. There are different approaches that can be used. In this case, it is used the survey results of NUPETUR (2005).

Origin of visitors - In order to identify regional flows of money, it is important to separate residents of the designated region from non-residents (tourists or visitors). In a strict economic impact analysis, only non-resident spending in an area would be treated as "new money" for the region. The local residents spending may not represent new spending, unless if it would be spent somewhere else in the community. Separating residents from non-residents can also be argued based on significant differences in their spending patterns in the area. In this case, it was simulated a set of scenarios for non-residents defined from 90% to 105% in relation to the number of persons that signed the book of the Inconfidência Museum in 2004.

Multipliers - They were used to multipliers of indirect and induced effects of the spending. One defined for the Minas Gerais State and the other for Brazil as a country. It was not registered any publication of this indicator for the district of Ouro Preto. The first multiplier (1,6473) was the average of the sectors related to

the tourism, published in the Input-Output Model of the Minas Gerais State study by Haddad and Domingues (2003). While the second (1,8719) was a weighted average of the sectors related to the tourism, considering the value added Input-Output Model estimated for Brazil (Casimiro, 2002). The number of jobs generated by the tourist activity were estimated as an average of the results obtained by Casimiro (2002), i. e., 72,1 (43%) direct, indirect (25,9) (15%) and induced (70,7) (42%) jobs (see Table 1).

Results

Ouro Preto City: Some Characteristics

Located in the central area of the State of Minas Gerais, with an area of 1246,53 km^2 and a maximum altitude of 1,891 meters above sea level, have an annual medium temperature of 18,5ºC and 55% of its relief is mountainous. Their main rivers are Rio das Velhas and Ribeirão Funil. The city had a municipal tax revenue of (ICMS and others) 9,2 (2001), 7,3 (2002), 12,4 (2003) and 22 (2004) million of dollars (ALEMG, 2007).

The population, between urban and rural, was 65,731 inhabitants in 2000 (IBGE) and 68,635 inhabitants in 2005 (IBGE - preliminary data). The employed people by the economic sector (IBGE, 2000) shows that the agricultural, vegetable extraction and fishing sectors are composed by 1,980, the industrial sector by 6,812, goods sector by 3,220 and the service sector by 13,454 employed persons.

Ouro Preto has road services (passengers and goods/cargo) and rail (passengers and goods/cargo) (ALEMG, 2007). The main economic activities of the city (companies that have more than 10 employees) (IBGE, 2000) are: making, metallic and non-metallic minerals extraction, trade and improvement of minerals, production of machines, equipments, pieces of furniture, foods and beverage products, basic metallurgy. The minerals are: aluminum (bauxite), limestone, dolomite, iron, manganese, ocher, ornamental and broken stones (marble), quartzite, quartz and talc (ALEMG, 2007).

The city has in the services sector 02 hospitals with 79 beds and 78 lodging companies (NUPETUR, 2005).

The Ouro Preto's Gross Domestic Product in 1998 was US$ 665,4 millions and experienced a fall of approximately 50% the following year. However the participation of the Service Account, showed in Table 2, had a permanent growth up till 2002, while the industries sector suffered a strong fall (1999) and a slow recovery along the years 2000 and 2001. It can be observed that the service account sustained the stability of GDP during the years 2001 and 2002.

Table 1 – Multiplier and job generation by R$ 1 million demand – 1999

Sectors[1]	Value Added Share	Multiplier	Direct	Indirect	Induced	Total
Regular ground passenger transportation	20.03%	1,7417	72	15	70	157
Non-regular ground pass. transp.	1.46%	1,7417	52	15	70	137
Special regular transportation for local tourist	0.02%	1,7416	41	15	70	126
Regular air transportation	15.46%	1,9946	6	20	67	93
Non-regular air transportation	0.87%	1,9953	15	21	67	103
Travel and tourism agencies	3.08%	2,0023	30	18	67	115
Auxiliary activities ground transportation	1.30%	1,7367	42	18	67	127
Auxiliary activities air transportation	0.97%	1,9864	113	20	67	200
Hotel and others temporary lodging	10.22%	1,9445	101	36	71	208
Food services and others food services	37.23%	1,9445	97	36	71	204
Recreation and cultural activities cost	8.30%	1,5691	80	15	80	175
Car rentals and other transportation	1.06%	1,4282	23	11	79	113
Tourism sector	7.54%	1,8719	72,1	25,9	70,7	168,8

[1] In Brazil, the classification of economic activities officially adopted by the National Statistical System and for the registers of the public administration it is the National Classification of Economical Activities - CNAE. CNAE keeps compatibility with the International Industrial Standard Classification - ISIC. The classification of defined Tourism Characteristic Activities (ACT) for World Tourism Organization (WTO), in Brazil, is made exclusively from the compatibility of the codes of economical activities of ISIC Rev. 3 with CNAE 1.0 (IBGE, 2003).

Source: Adapted from Casimiro, 2002.

Table 2 – Ouro Preto Gross Domestic Product (GDP) current prices

Unit R$(million)

Year	Agriculture	Industry	Service	Total Million R$	Total Million US$
1998	3,0	602,4	166,6	772,0	665,4
1999	3,3	398,7	164,8	566,7	312,3
2000	3,6	480,4	187,8	671,8	367,4
2001	3,5	491,1	208,5	703,1	299,0
2002	5,1	516,4	238,3	759,7	259,3

Source: Fundação João Pinheiro (FJP); (ALEMG, 2007).

Application of MGM

The MGM was applied following the technique listed below (see Table 3):

A – Sales

1) Estimated Visitors non-local residents (%) - It is the percentage of visits of the city for the measurement of the economic impact. It was used as sample the book of the visitors' signatures of the Inconfidência Museum (94,606 signatures in 2004), considering the following data:

- 90% of visitors non-residents and 10% of resident visitors;

- 95% of visitors non-residents and 5% of resident visitors;

- 100% of visitors non-residents and 0% of resident visitors;

- 105% of visitors non-residents + 5% of visitors non-residents that didn't sign the book.

2) Annual visitor day – It is the number of visitors that comes to the city during the year. Its calculation was the visitor's medium stays in Ouro Preto - 2,11 days multiplied by 94,606 signatures in the book of visit of the Inconfidência Museum performed a total of 199,872 visits day/year.

3) Average daily expenditure – To calculate this indicator, four segments directly related to the tourism were listed: food and beverage, lodging, entertainment and other (sectors that only has relevance in the final account). The average daily expenditure obtained was R$ 145.32 (NUPETUR, 2005), approximately US$ 68.6.

4) Direct Sales – Multiplying the three previous items (1x2x3) it performed the total visitor expenditures.

5) Indirect and induced sales multiplier – Two multipliers were used. The first index multiplier adopted had as base the study published on Input-Output Model of the State of Minas Gerais (Haddad and Domingues, 2003), while the second was adopted from the Input-Output Model based in the value added of the Brazilian tourism sector (Casimiro, 2002).

6) Sales benefits from tourism – It was calculated multiplying the visitors' expenditure (direct sales) (A.4) and the index of the indirect and induced effects of sale multiplier (A.5).

B – Tax Revenue Benefits from Tourism Sales

1) Sales benefits (A.6) - Calculated with the visitors' expenditure (direct sales) and the index of the indirect and induced effects of sale multiplier.

2) Tax on goods circulation and services (ICMS) and other local taxes – The ICMS and other local taxes originated by tourism activity performed 18% of the taxes revenue in the city.

3) Sales tax revenue benefits from tourism - Transformation of the percentage of taxes in an equivalent amount to each multiplier.

C – Job Benefits from Tourism Sales

1) Sales benefits from tourism (A.6) in millions. The same value of the A.6 item referring the sales due to activity of the tourism, considering the results of the defined sceneries in the item A.

2) Multiplier for jobs created per million of dollars based in the study of Casimiro (2002, p. 135-136) (Table. 1).

3) New jobs from tourism sales – calculated according the results performed in the C.2 item, i. e.: direct jobs, indirect and induced multiplied by the total of sales in the tourism activity.

Table 3 – Money Generation Model applied to Evaluate the economic impact of tourism in Ouro Preto City, MG, BR.

A. Sales									
1. Estimated visitors non-local residents (%)		105%	105%	100%	100%	95%	95%	90%	90%
2. Annual visitor day		199,872	199,872	199,872	199,872	199,872	199,872	199,872	199,872
3. Average daily expenditure	US$*	68.61	68.61	68.61	68.61	68.61	68.61	68.61	68.61
4. Direct Sales (1)x(2)x(3)	US$*	14,397,951	14,397,951	13,712,334	13,712,334	13,026,717	13,026,717	12,341,101	12,341,101
5. Indirect and induced sales multiplier **		1,8719	1,6473	1,8719	1,6473	1,8719	1,6473	1,8719	1,6473
6. Sales benefits from tourism (4)x(5)	US$*	26,951,524	23,717,744	25,668,118	22,588,328	24,384,712	21,458,911	23,101,306	20,329,495
B. Tax revenue benefits from tourism sales									
1. Sales benefits (A.6)	US$*	26,951,524	23,717,744	25,668,118	22,588,328	24,384,712	21,458,911	23,101,306	20,329,495
2. ICMS and other taxes (local taxes)		18%	18%	18%	18%	18%	18%	18%	18%
3. Sales tax revenue benefits from tourism	US$*	4,851,274	4,269,194	4,620,261	4,065,899	4,389,248	3,862,604	4,158,235	3,659,309
C. Job benefits from tourism sales									
1. Sales benefits from tourism (A.6) in millions	US$*	26.95	23.72	25.67	22.59	24.38	21.46	23.10	20.33
2. Multiplier for jobs created per R$ million		168.8	168.8	168.8	168.8	168.8	168.8	168.8	168.8
3. Jobs related to tourism sales	N°	9,637	8,480	9,178	8,077	8,719	7,673	8,260	7,269

* Exchange rate: R$/US$ =2,1182 (28/02/2007)

** Multiplier for Minas Gerais State = 1,6473 (Haddad and Domingues, 2003). Multiplier for Brazil = 1,8719 (Casimiro, 2002)

Source: Research results, NUPETUR (2007)

Analysis

According to the estimates of the MGM (Table 3), considered conservatives, the direct sales in the activities related to the tourism sector varies from US$ 12.3 to US$ 14.4 millions for the year 2004, depending on the scenario of the number of tourists and the multiplier. Considering the secondary, indirect and induced effects, this amount reaches from US$ 20.3 to US$ 27 millions.

Comparing those magnitudes with GDP of Ouro Preto in 2002, which was of US$ 259.3 millions, the estimate of the visitors' total expense would represent from 7.8% to 10.4% of GDP of the district. These numbers show the importance of the visitor spending in Ouro Preto City, to the local economy, an also to the surrounding areas of the regional economy, considering that Ouro Preto is an attractive point for national an international tourists. For each dollar spent by visitors, $1.6 to $ 1.9 of local sales are generated.

The sales of tourism in the case of Ouro Preto may be above the national average of 5.3% of national GDP estimated by FIPE (2002). Also, the tax revenues generated by the tourism represent from 1.4% to 1.9% of GDP 2002 and from 16.3% up to 21.8% of the tax revenues of the district in 2004. This estimation is much larger than the informally 5% mentioned by municipal authorities. Another important issue related to employment is verified. According to the results presented in Table 3, the number of jobs generated by the visitor's expenditure is significant in Ouro Preto, from the 65,731 inhabitants of the city in 2002, 7.269 people had their jobs related to the tourist activity (direct (43%), indirect (15%) and induced (42%), representing about 11% of the region's population.

Those staying overnight spent significantly more per day than day visitors in the city. To improve the economic contribution of visitors to the area, strategies could be considered which offer opportunities for visitors to become overnight visitors. Alternative strategies would include development of tourism products that offer visitors more spending opportunities. Another alternative is to give visitors a reason to become overnight visitors. For example, in our setting one more day of stay in the city would represent up to 47% of the increase in sales and jobs generation.

Some considerations about our results should be mentioned. The tourism services account was globally considered because it was difficult to gather the necessary information to separate its components, so there is a necessity of posterior researches. It is also important to state that the multipliers were relatively old, the one for Minas Gerais was defined for the year 1996 (Haddad and Domingues, 2003) and the second for Brazil for the year 1999 (Casimiro, 2002). So, there is a possibility of distortion in the results, and a necessity to be confirmed by other studies/methodologies.

Conclusions

The tourism differs from other activities for their specificities; the tourist consumption, for instance, does not limit to a matter productive sector and neither is

made in habitual surrounding of the consumers. It presents complex interactions with other activities deserving a special treatment that allows isolating the contribution of the tourism in the global result of production and consumption of the economy. One of the proposed solutions for measuring tourism influences in the economy is given by the World Tourism Organization - WTO, when predicating the Tourism Satellite Account (WTO, 2000), which is an instrument capable to measure the effective amount of income generated by the tourist activity.

In this paper it is used the Money Generation Model to measure the global economic impact of tourism sales in Ouro Preto, using the multipliers of Input/Output Matrix for Minas Gerais and Brazil, and survey results for spending characteristics of Ouro Preto visitors. It was not possible to adopt the WTO methodology due to data limitation to measure and to analyze the tourism satellite account. Then, because of the restricted sources of information it was necessary to choose the MGM method as this is not so limited by data, counting on it is ability to produce appropriate results for the reality.

The importance of the studies for public policy is demonstrated. However, generally there is a lack of such economic data in Ouro Preto City. This is a major inhibitor in public policy-making across the world (Eagles, 2001). For park economics to have the policy impact that it warrants, there must be a continuous stream of up-to-date data provided. At the very least, yearly studies are required. However, quarterly figures provided to government, business, and the media would be more useful and beneficial.

With these results it can be understood that the tourism sector has a real importance for the Ouro Preto district, representing up to 10.4% of GDP, up to 21.8% of tax revenues in 2004, and approximately 11% of the region's population in 2002 is direct or indirect related to the tourism sales. Some actions can be outlined starting from this research and maybe the first of them would be as an auxiliary in the accomplishment of the tourist planning in order to illustrate the current economic reality of the tourism in Ouro Preto. It is also possible to compare such diagnosis with the politics and proposals of tourist planning accomplished by the local City Hall, trying to identify points of conflicts and of coherence with the economic results generated by tourism.

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Biography

Angela Cabral Flecha graduate in tourism and master a PhD in Production Engineering. She is professor of the School of Tourism, Federal University of Ouro Preto, Minas Gerais, Brazil. She was Congress Professional Organizer when she had the opportunity to do part of the Rio'92 (ECO'92) organization and more than 70 others small, medium and great events. She teaches marketing, tourism, hospitality and events disciplines and coordinates two research groups. The first one focuses on tourism studies in general - Research and Advanced Studies Tourism Group, NUPETUR - where she has a special interest in the studies on tourism networks. The second one focuses on impacts of the events where she coordinates the Events Studies Group (GEVENTOS) that the main objective is investigate the impacts of the events. She was responsible for the organization of the most important event about tourism happened in Brazil in 2008 – EIGTUR 2008 - when it gathered specialists on the tourism management theme of 4 continents.
Contact: angela.flecha@gmail.com

José Paulo Alves Fusco is an Associate Professor in the Department of Production Engineering at UNESP – São Paulo State University, Campus located in Bauru, Brazil. Postdoctoral fellow in the Department of Operations Management at

UMIST School of Management, Manchester, UK. Graduate at Engenharia Mecânica at Universidade Estadual Paulista Júlio de Mesquita Filho (1977), master's degree in Production Engineering at Universidade de São Paulo (1993) and PhD in Production Engineering in Universidade de São Paulo (1996). Has experience in Production Engineering, acting on the following subjects: Competitiveness, Networks, Operations Management and Supply Chain Management.
Contact: jpafusco@uol.com.br

Prof. Dr. Wagner Damiani concluded his post doctoral studies at the Marriot School of Management at Brigham Young University (BYU). He is post graduated in Finance and Accounting at Stanford Graduate School of Business. He is a Professor in the Escola de Administração de Empresas de São Paulo da Fundação Getulio Vargas and in the School of Accountancy at BYU. He was a Visiting Scholar at University of Texas at Austin and a Visiting Professor at BYU. His researches and publications covers Knowledge Management, Executive Information Systems, Digital TV and the Tourism Industry. He is the President and CEO of B2 – Business Brain.
Contact: wagner.damiani@fgv.br

Hudson Fernandes Amaral is an Associate Professor and Researcher in Finance and Accounting in the Department of Business Administration at UFMG – Minas Gerais Federal University, Brazil. He was a doctoral fellow in the Pierre Mendes France University, Grenoble, France. He is the Financial and Administrative Director of ANPAD - Brazilian Association of Graduate Studies and Research in Business Administration, and has published almost one hundred papers in Brazilian and International Journals, such as RAC – Contemporary Administration Magazine, BAR – Brazilian Administration Review, RAC – Electronic, and Journal of Corporate Finance. He is frequently presenting papers in Conferences and meetings of important academic associations, such as SBFin, ANPAD, ANGRAD, ANPCONT and ABC. He is an active reviewer for several journals, conferences and meetings.
Contact: hfamaral@face.ufmg.br

Article Info: