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**Article**

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## GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

# Wage differentials in Brazil: Tourism vs. other service sectors

Joaquim Ramos Silva<sup>1\*</sup> and Carla Regina Ferreira Freire Guimarães<sup>2</sup>

**Abstract:** This study aims to analyse the wage differentials between the Brazilian tourism and non-tourism service sectors. The statistics originate from micro-data for the year of 2012, published by the National Household Sample Survey, and released by the Brazilian Institute of Geography and Statistics. Using an econometric model, based on an updated version of the Oaxaca-Blinder decomposition, it was possible to measure wage differentials between workers in both sectors. We report that returns in the non-tourism sector were higher than that of the tourism sector, and also conclude that in the Brazilian service sector, the wage gap is derived from differences in worker characteristics, to the detriment of the tourism industry. Moreover, variables such as schooling and age proved to have weight for the explanation of the wage differential, the latter being taken as a proxy of experience in the labour market.

**Subjects:** Latin American & Hispanic Studies; Economics of Tourism; The Tourism Industry; Economics and Development; Labour Economics; Service Industries

**Keywords:** characteristics of tourism activities; labour market; services; comparative analysis of wages; Oaxaca-Blinder decomposition; tourism development; Brazilian economy

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### PUBLIC INTEREST STATEMENT

In the post-Second World War period, tourism has considerably expanded, first, in Europe and North America, and then, in recent decades, in the rest of the world, particularly the emergent economies. This process is typically accompanied by important shifts in domestic labour markets, with the migration of workers between sectors. Considered as a job creator, tourism is at the centre of this movement. In this article, for the case of Brazil, we analyse a major issue of the labour market: wage differentials. Being part of the services sector, wages in tourism are compared to those of the rest of the sector. It is found that wage differentials in services are detrimental for tourism, due to the workers' characteristics. As a recent newcomer to large-scale tourism, this conclusion has significant implications for Brazil, most notably for the design of policies and in improving the performance of this sector.

## 1. Introduction

Tourism has taken on an increasing importance for the economic performance of many countries and regions across the world, acting as a driver of economic development through generating employment and raising income levels whenever properly managed. Indeed, the tourism industry has expanded rapidly in recent decades, benefiting especially from economic growth, increased purchasing power, reduced transportation costs and communication facilities (Barros et al., 2011).

In Brazil, tourism has also significantly contributed to economic growth. Despite being well below the world level, the tourism industry represents 3.6% of Brazilian GDP (Empresa Brasileira de Turismo, 2015). From 2003 to 2009, this sector grew by 32.4%, whilst the Brazilian economy on the whole expanded 24.6% (Ministério do Turismo do Brasil, 2013), and the stock of formal jobs in tourism activities<sup>1</sup> increased from 1.71 million people employed in 2002, to 2.95 million in 2012 (Ministério do Turismo do Brasil, 2013). For the specific purpose of this paper, it is also important to situate this evolution within the context of Brazilian services: according to Simpósio Brasileiro de Políticas Públicas para o Comércio e Serviços (2013), from 2003 up until 2013, services' participation in the GDP increased around five percentage points, reaching almost 70% of the total (and 73% of total employment in 2013). Tourism activities have been outstanding in this process.

Tourism sector growth falls within the framework of modernisation theory, which considers that development represents an evolutionary process, which occurs in stages, in search of progress, i.e. development is obtained through economic improvement, and beyond a certain welfare level, some segments of the domestic markets, such as tourism, possess the conditions for a strong increase (Telfer, 2014). Hence, tourism activities grow and may drive the speeding up of the development process due to their multiplier effects (Faria, 2012), and also on account of the more direct and indirect linkages to the economic structure, for example when compared to economies based on commodities (Wattanakuljarus & Coxhead, 2008). In addition, tourism has also been gaining attention due to its ability to induce more balanced development by reducing disparities, insofar as it gives an opportunity for many regions with comparative advantages in the field, but which are relatively marginalised (Gomes & Silva, 2014). This also occurs by improving the integration of countries and regions into the world market, through the movement of people and capital (Oliveira, 2010).

As far as job creation is concerned, according to Lage and Milone (2000), this does not represent the sole objective of all tourism development, although it surely constitutes one of its main outcomes, insofar as the sector is a service activity with a large capacity for generating new jobs and occupations. Moreover, resulting from the sector's development, there are significant changes in the distribution of activities within the respective national labour market, as tourism boosts the need for the creation of jobs relative to other sectors. For example, tourism may absorb a large proportion of the labour released from agriculture, as indeed happened in many countries, thus impacting on the entire extent of the domestic labour market. However, as described above, the tourism sector contains very heterogeneous activities, with characteristics that also affect the labour market, such as educational levels, technical capabilities, etc. Despite these differences, whenever analysing the sector, it is relevant to include human capital as a source of increased productivity and economic growth, as explained by endogenous growth theory.

Although it is increasingly recognised that tourism activity has significant and growing importance for the performance of many countries or regions, acting as a driving force for economic development, it has been relatively little studied in Brazil. In spite of its potential, there are no specific and precise estimates that may guide policies on the development of the sector, and few studies quantify it, as it is considered to be one of the smaller sectors of the Brazilian economy (in comparison, for example, with the manufacturing, agricultural and mining sectors). This gap motivated the deepening of the theme. Indeed, the lack of studies of a quantitative nature may be one of the obstacles for growth in tourism, as policy-makers do not have reliable information to take decisions, making it difficult to determine which the best guidelines to be adopted are. However, as stressed before, the economic dimension of the sector is significant and growing, and beyond its impact on the labour

market, tourism activities have direct, indirect and induced effects on the economy through up-stream and downstream linkages, as well as the fact that it contributes to the diversification of the local economy (Eusébio, 2006).

In the light of this perspective, one much-debated issue in the literature on economic development is the topic of wage differentials. We observed how most research work on wage differentials targets the manufacturing sector, with only a few studies focusing on the services sector, with fewer still studying tourism. Therefore, this paper breaks new ground, by focusing on wage differentials in services, especially for tourism, when compared to the rest of the sector, insofar this activity, despite starting out from a low level, is gaining a steadily growing weight in the economic matrix of Brazil.

Therefore, this research strives to deepen our knowledge about wage differentials in services, particularly through the comparison between the tourism and non-tourism service sectors of Brazil. The tourism sector is defined here as those characteristic activities of tourism, which, as referred to above, are rather heterogeneous. Considering the features of income inequality across sectors of economic activity, one initial question to answer is: are there significant wage differentials between Brazilian employees in the tourism and non-tourism sectors? If so, what are their main determinants?

Seeking to answer to this question, this paper analyses the wage differentials between tourist and non-tourist activities in Brazil, including in the latter the remainder of the service sector (whilst excluding manufacturing, agriculture and mining from this study). Our data refer to the year of 2012. Specifically, this study attempts to describe the profile of workers employed in the tourism sector, as well as that of the non-tourism service sector of Brazil, and then comparing them, to examine whether there is a wage gap between the workers of both service sectors.

After this introduction, the paper is structured as follows: in Section 2, we provide a review of the literature, both theoretical and empirical, and put forward the assumptions to be tested. In Section 3, we refer to the sources of data, and also expose the econometric model and methods of analysis that are used in this research. Afterwards, in Section 4, the results are presented and discussed, allowing for a comparison between the Brazilian tourist and non-tourist service sectors through an analysis that draws upon the Oaxaca–Blinder decomposition. Finally, in Section 5, we set out the concluding remarks and the recommendations for further research on the subject.

## 2. Literature review and the hypotheses

A wage differential is defined as being the difference between the average wages earned by different groups or sectors, which are evaluated differently, based on non-productive attributes. For, even when adopting policies to reduce these income inequalities, they are still observed, particularly in the case of wages. Following Arbache (2001), the understanding of the causes of wage differentials not only results in theoretical implications, but also impacts at the level of public policy and may furthermore contribute decisively to the design of public policies for the labour market, income distribution, regional inequalities, employability, social exclusion, industrial development and local issues, among other dimensions.

In a truly competitive market, as underlined by Fernandes and Coelho (2002), there is no room for wage differentials and hence, should we wish to introduce them, then we need to relax some of its assumptions. One first assumption that merits questioning is deeming wages or salaries to be the only important variable for determining the optimal amount of labour, given that workers may also be interested in other working conditions (the theory of compensating wage differentials). Another assumption that requires re-evaluation is approaching workers as homogeneous, as workers may acquire the ability to become more valued in the market (human capital theory). Thus, by relaxing the perfect competition hypotheses, we may accept that market failures do occur (the theory of segmentation). In addition, we also need to take into account the non-productive characteristics of workers (sex, colour, ethnicity, etcetera), and make assumptions about individual preferences

(discrimination theory). Finally, we also consider trade unions and/or legislation that may introduce rigidity and thus render this market imperfect.

The main theories explaining the pay differential between tourism and non-tourism sectors are the following: the human capital theory and the theory of segmentation. The human capital theory suggests that education and experience are important indicators of worker productivity. According to Lillo-Bañuls and Casado-Díaz (2011), human capital refers to the knowledge and skills applicable for the production of goods, services and new knowledge accumulated by individuals through education and training, as well as throughout their working experience. This term additionally includes innate ability and talent, which are both strongly influenced by an individual's environment, especially their family.

Furthermore, Fernandes and Coelho (2002) approach market segmentation as incorporating the existence of separate or different labour markets, according to geographical areas, worker qualification, industries, sectors of activity, etc. Proponents of the dual labour market idea tend to divide it into "primary" and "secondary" sectors. The "secondary" jobs are characterised by low productivity, low mechanisation, low wages, the production of low value-added goods, few layoffs, a high labour turnover and a series of accompanying sociological characteristics (Weitzman, 1989). As for the "primary" jobs, these are characterised by high productivity, high-wages and the low turnover of skilled labour. In addition, Lima (1980) remarks that in the secondary sector, whose main features include job instability and seasonality, the total number of hours (weeks) worked is probably primarily responsible for the wage differentials that exist.

In order to better characterise the fundamentals of tourism, Beni (2003) states that tourism requires comparatively less capital and more labour. In developing countries, the service sector (particularly tourism) absorbs a large amount of labour that migrates from the countryside in search of employment. This shows the critical importance of using the sector to generate jobs. In spite of this, the available literature has amply demonstrated the fact that employment in tourism is generally characterised by negative factors (Kilbert & Moesch, 2014; Ladkin, 2011; Santos & Kadota, 2012). These include: (1) the increase in the price of goods and services may be disproportionate in relation to the real gains of the local community, often encouraging competitive business practices in the marketplace which rely on the provision of optimised services through the payment of low wages to workers; (2) the seasonality of tourism, which sometimes leads to discouraging the workers to commit themselves to the activity they carry out, as they have no guarantees either in terms of stable earnings, labour rights or stimulus for training; (3) the qualification that is required by entrepreneurs who set up business in tourist locations is often not compatible with the existing qualification of the receiving community, which implies the migration of people from other localities to meet this demand. This mainly happens in management positions, which require a higher level of training, whilst local workers are assigned to simpler activities, such as cleaning and tidying up (among others); (4) the increase in the participation of women in the labour market, who, in addition to having unequal conditions vis-à-vis the male labour force (which is not specific to tourism)—often receive lower wages, sometimes working longer hours, and carry out multitasking, and thus, in general, they work in more unfavourable conditions due to their double role: as a producer (hourly paid on a salaried basis), and as a reproducer (performing housework out of work hours).

After these theoretical remarks, we must also take into account the empirical studies that have been carried out on this subject. It must however be noted that most research on wage differentials addresses the manufacturing sector, probably on account of the openness of this sector, which ensures that it proves case-significant for international comparisons of the price/cost of traded goods and services, whereas only a few studies have focused on the service sector, and even fewer on tourism, not only due to its growing economic importance, but also to its greater level of heterogeneity and corresponding lower levels of comparability. Either way, we refer to some of these studies.

dos Santos (2007) reported a wage gap among workers employed in the formal and informal service sectors of Northeast Brazil, in both 1992 and 2005. He applied National Household Sample Survey (PNAD) data to estimate wage equations and thus calculate the determinants of income for those occupied in formal and informal services, and decomposed the wage gap in accordance with the Oaxaca-Blinder procedure.<sup>2</sup> He concluded that the population employed in the formal sector of services receive an average yield higher than those employed in the informal sector, even if only with a reduced level of difference, with more than 70% of the differential attributed to individual characteristics.

Medeiros (2011) analysed the trends in wages in the Brazilian service sector relative to the manufacturing sector, both in aggregate terms, and for groups of activities. He estimated a Mincerian equation of the logarithm for wages against education, and applied various controls to evaluate how their respective inclusion affects the wage gap between workers in both sectors (Mincer, 1958, 1974). He noted that remuneration in the service sector is lower than that of manufacturing, even though this differential decreased from 1995 to 2007. He acknowledged not only the heterogeneity prevailing in the service sector, but also how aggregated average years of education are higher than in manufacturing. He concluded that there still remains a wage gap in favour of the industrial sector, even though this was decreasing, given that the service sector was less affected by the economic stabilisation and trade liberalisation policies implemented in the 1990s.

The paper by Neto, Freguglia, and Fajardo (2012) examined the worker wage gap in the cultural and artistic sector in Brazil relative to other workers, according to PNAD data from 2002 to 2007. The authors deployed the fixed effects model in pseudo panel cohorts, and considered the correction of selection bias by using the Heckman procedure (1979) to estimate the pay differential. In order to capture the effects of the cultural sector, they implemented the decomposition of Oaxaca-Blinder, enhanced by Jann (2008). The conclusion was clear: the cultural sector pays its workers and artists better, who are correspondingly better paid, with the size of this difference being around 31 and 30%, respectively. Thus, their findings reported a positive discrimination in favour of the cultural sector.

Casado-Díaz and Simón (2016) examined the origin of wage differences between wages in the hospitality sector and the rest of the private sector in Spain, using micro-data from the Structure of Earnings Surveys, for 2002, 2006 and 2010. Two econometric methodologies were used: Oaxaca-Blinder Decomposition and Fortin-Lemieux-Firpo Decomposition. The results show that the disadvantage of hospitality has an increasing impact on the distribution of wages, and thus this is particularly relevant for those who earn comparatively higher wages. In contrast to other low-wage sectors, lower wages in hospitality are explained almost entirely by the specific characteristics of the workers and jobs in that sector (in particular, low schooling level and greater presence in low-skilled occupations). Highly qualified individuals are an exception, as they suffer a drop in salaries to work in the hospitality industry. In addition, the analysis shows that wage inequality is substantially lower in hospitality, which is not due to the relative characteristics of its workers and jobs.

In terms of wage differentials in the tourism and hospitality sectors, making use of different sources, both at a country or region level, studies have focused on various aspects, among others: gender discrimination (Ferreira Freire Guimarães & Silva, 2016; Muñoz-Bullón, 2009; Santos & Varejão, 2007); the comparison between wages in hospitality and other private services (Campos-Soria, García-Pozo, Sánchez-Ollero, & Benavides-Chicón, 2011), and; the effects of education on wages (García-Pozo, Campos-Soria, & Sánchez-Ollero, 2012; Lillo-Bañuls & Casado-Díaz, 2011). Most of these studies, in applying the Oaxaca-Blinder methodology, comply with the previously presented theoretical premises.

In short, these studies highlight the importance of adopting the Oaxaca-Blinder method for the analysis of wage differentials. Taking into account this theoretical and empirical background, our



comparison between those wages paid in the tourism and non-tourism services sectors of Brazil explores the following hypotheses:

*Hypothesis 1:* The tourism sector has lower incomes per worker, as the sector represents a market with low-productivity, is characterised by jobs requiring low levels of training or qualification and high churn rates, and is considered to be a secondary sector.

*Hypothesis 2:* Differences in the level of worker education between the respective sectors is responsible for, *ceteris paribus*, non-tourism sector workers being paid more per hour than in the tourism sector.

### 3. Methodology

#### 3.1. Data sources

We collected the statistical series from the micro-data of the PNAD<sup>3</sup> released by the Brazilian Institute of Geography and Statistics (IBGE) for the year 2012. In this study, all estimates took into account the sample design characteristics, and bearing this objective in mind, using the micro-data, two variables were considered for defining the sample design, namely: the layer that the accounted household belongs to, and the primary unit of its sample, following Neder (2006). Stata10 software was used to obtain the estimates, which contains a set of commands (called *svy* commands).

#### 3.2. Econometric model

In order to apply the econometric model, we adopted the following methodological procedures. First, we estimated the earnings equation for each group (Fortin, Lemieux, & Firpo, 2010; O'Neill & O'Neill, 2006). This earnings equation is based on the Mincer equation (1974), expanded by a set of other variables, as set out in Equation (1).

$$\ln w_i = X_i\beta + v_i + \varepsilon_i \quad (1)$$

where  $\ln w_i$  = natural logarithm of the real wage of worker;  $X_i$  = vector of control variables, including age, age squared, dummy of gender, race dummies, etcetera;  $\beta$  = vectors of parameters for estimation;  $v_i$  = individual fixed effect term;  $\varepsilon_i$  = random error term.

The subscript  $i = 1, 2$  represents, respectively, individuals of each sector, tourism and non-tourism.

Due to the possible existence of selection bias, bearing in mind that this study aims to only analyse employed workers with positive incomes, and thus excludes unemployed and inactive individuals, we applied the Heckman developed tobit II model to correct any eventual problems caused by sample selection.

Therefore, Equation (1) regression is represented by:

$$\ln w_i = X_i\beta + v_i + \lambda_i(\alpha_\mu) + \varepsilon_i \quad (2)$$

As  $w_i$  is expressed in logarithm form, the estimated marginal effect corresponds to the percentage change in real income per hour of work reported by  $[\exp(\text{marginal effect}) - 1] \times 100$ . The marginal effect thus reports the impact of changes in each variable unit increase, in terms of the probability of the explanatory variable. In addition, due to the characteristics of complex PNAD sampling, we applied the Maximum Pseudo-Likelihood Method.

In the second stage, to investigate whether non-tourism sector workers benefit from the same remuneration levels as their peers in the tourism sector, we used the Oaxaca-Blinder decomposition, enhanced by Jann (2008). To identify the contribution made by the difference in the regression averages

(which indicate the productive characteristics of individuals and other aspects associated with their market occupations) and the difference in the  $\beta_i$  coefficients (which are the returns in terms of income from such attributes) to  $D$  (Cirino & de Lima, 2012; Jann, 2008), we use the following equation:

$$D = [E(X_2) - E(X_1)]' \beta_1 + E(X_1)' (\beta_2 - \beta_1) + [E(X_2) - E(X_1)]' (\beta_2 - \beta_1) \quad (3)$$

In the “threefold” decomposition equation put forward by Jann, the total gap between Group 1 and Group 2 of workers is divided into three components:

- (1)  $[E(X_2) - E(X_1)]' \beta_1$ , representing the explained component or *characteristic effect*, indicating the wage differentials that arise from the differentiation of the averages of production and the personal attributes of workers and other aspects related to the integration of each group into the labour market.
- (2)  $E(X_1)' (\beta_2 - \beta_1)$ , representing the term that remains unexplained or the *segmentation effect*, conveying a measurement of the differentiation between the groups, regardless of the averages of their labour market characteristics and personal worker attributes (both productive and non-productive).
- (3)  $[E(X_2) - E(X_1)]' (\beta_2 - \beta_1)$ , measuring the *interaction* between differences in the averages of labour characteristics and personal attributes and the coefficient differences between the two groups.

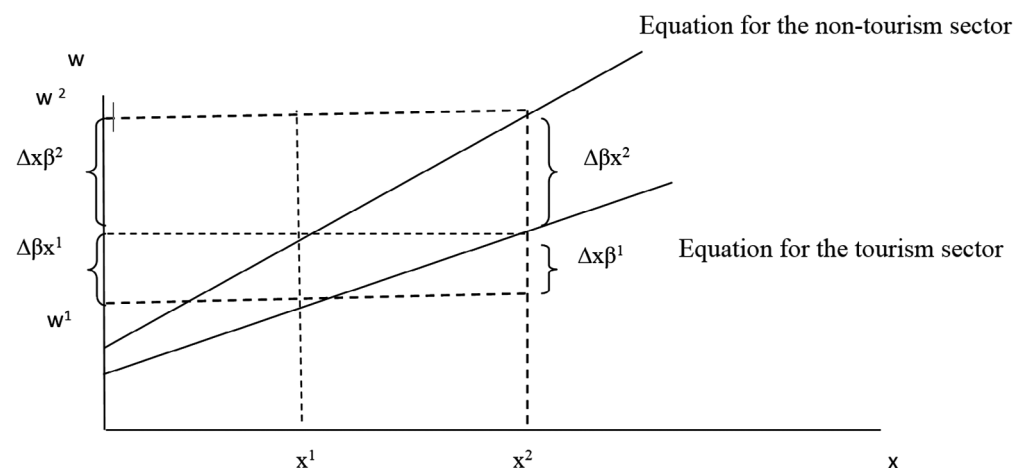
Figure 1 illustrates these differences, graphically displaying the Oaxaca–Blinder proposed decomposition. Referring to this figure, we note that the non-tourism sector has an advantage over the tourism sector, i.e. each value of  $x$  results in a  $w$  with a better value in the former sector. In addition, the non-tourism sector, on average, generates a higher  $x$  value, which means that tourism attains a lower average than non-tourism. In  $x^2$ , there is a  $\Delta\beta x^2$  increment from Group 1 to Group 2, which results in the differential between the two groups. After differential decomposition, we find that  $(\Delta\beta x^2 - \Delta\beta x^1)$  constitutes the characteristic effect, whilst  $(\Delta x\beta_2 - \Delta x\beta_1)$  represents the segmentation effect.

We present the equation models that were estimated in our research.

*Participation equation:*

$$L = \alpha_0 + \alpha_1 \text{north} + \alpha_2 \text{northeast} + \alpha_3 \text{south} + \alpha_4 \text{mid-west} + \alpha_5 \text{schooling} + \alpha_6 \text{age} + \alpha_7 \text{male} \\ + \alpha_8 \text{metropolitan} + \alpha_9 \text{white} + \alpha_{10} \text{urban} + \alpha_{11} \text{expschool} + \alpha_{12} \text{schooling}^2 + \alpha_{13} \text{spouse} \\ + \alpha_{14} \text{children} + \alpha_{15} \text{another position} + \alpha_{16} \text{children} < 14 \text{years} + \alpha_{17} \text{household income} + u \quad (4)$$

**Figure 1. Oaxaca–Blinder decomposition.**





where  $L$  = Binary dependent variable, taking the value 1 when the individual is employed, with a positive income, and 0 otherwise; North = 1 if North and 0 otherwise; Northeast = 1 if Northeast and 0 otherwise; South = 1 if South and 0 otherwise; Mid-west = 1 if Mid-west and 0 otherwise; Schooling = Years of study; Age = Worker age, measured in tens of years, to prevent very small coefficients. This is used as a proxy for experience, i.e. over the years it is expected that individuals become more efficient and consequently have higher returns. Male = 1 if male and 0 otherwise; Metropolitan = 1 if metropolitan area and 0 otherwise; White = 1 if white and 0 otherwise; Urban = 1 if urban area and 0 if rural area; Expschool = The interactive term between age (experience) and education; Schooling<sup>2</sup> = Years of schooling squared; Spouse = 1 if the household position is that of spouse and 0 otherwise; Children = 1 if the household situation is that of a child and 0 otherwise; Another position = 1 if the household situation is another position and 0 otherwise; Children < 14 years = 1 if there is a child aged under 14 in the household and 0 otherwise; Lnrendom = Logarithm of per capita household income from all sources, excluding that derived from the individual's job;  $U_j$  = Random errors obeying the usual assumptions;  $\alpha_i$  = Parameters for estimation, ( $i = 1, 2, \dots, 17$ ).

*Income equation:*

$$\begin{aligned} \ln wh = & \alpha_0 + \alpha_1 \text{north} + \alpha_2 \text{northeast} + \alpha_3 \text{south} + \alpha_4 \text{mid-west} + \alpha_5 \text{schooling} + \alpha_6 \text{age} \\ & + \alpha_7 \text{male} + \alpha_8 \text{metropolitan} + \alpha_9 \text{white} + \alpha_{10} \text{urban} \\ & + \alpha_{11} \text{taxpayer} + \alpha_{12} \text{trade union} + \alpha_{13} \text{formal contract} + \alpha_{14} \text{age}^2 + \alpha_{15} \lambda + u_i \end{aligned} \quad (5)$$

where  $\ln wh$  = Natural logarithm of wage per hour; North = 1 if North and 0 otherwise; Northeast = 1 if Northeast and 0 otherwise; South = 1 if South and 0 otherwise; Mid-west = 1 if Mid-west and 0 otherwise; Metropolitan = 1 if metropolitan area and 0 otherwise; Schooling = Years of study; Age = Worker age measured in tens of years, to prevent very small coefficients. As in the previous equation, this is used as a proxy for experience, that is to say, over the years it is expected that individuals become more efficient, and consequently have higher returns. Male = 1 if male and 0 otherwise; White = 1 if white and 0 otherwise; Urban = 1 if urban area and 0 if rural; Taxpayer = 1 represents taxpayer and 0 otherwise; Trade union = 1 if a trade union member and 0 otherwise; Formal contract = 1 when having a formal contract and 0 otherwise; Age<sup>2</sup> = Age squared, due to the fact that wage does not vary linearly with age;  $u_j$  = Random errors, obeying the usual assumptions;  $\alpha_i$  = Parameters for estimation ( $i = 1, 2, \dots, 15$ ).

#### 4. Results and discussion

In this section, we first show and discuss the results of the analysis, taking into account the variables associated with the socio-economic characteristics of workers employed in the Brazilian services, whether in tourism or the non-tourism sector, in order to gain an overview of the general profile of the relevant labour markets. We also describe the main personal characteristics of workers, as well as those related to their jobs. Afterwards, when reporting the results of estimating the earnings equation through the Heckman method, we analyse paid labour market participation rates and the income determinants of workers in the tourism sector of Brazil. And finally, from these equations, we arrived at the decomposition of the wage gap between the tourism and the non-tourism sectors.

Table 1 contains the descriptive statistics of the variables applied in the estimated model. This accordingly reports how, for most variables, the tourism sector follows similar patterns to those of the non-tourism sector and services in general. It must be also highlighted that most respondents were employed in the Southeast (46.7%), followed by the Northeast (23.3%). In terms of place of residence of those employed in the tourism sector, clearly a fairly high percentage of workers live in urban areas (94%), with 38.1% living in a metropolitan area. Around 39% of individuals had children aged under 14, and 47.07% were white. Only a low percentage was unionised (14.5%), even though 47% had a formal contract, and about 60% paid into the public pension system. These figures do not however differ greatly from those employed in the non-tourism sector, or in services in general. On the contrary, there was a significantly higher proportion of men among those employed in the

**Table 1. Average (or ratio) of the variables associated with the socio-economic characteristics of workers employed in services (tourism and non-tourism sectors), Brazil, 2012**

Variables	Tourism	Non-tourism	Services
Age (years)	38.03	37.43	37.53
Schooling (in years)	9.49	11.04	10.75
Taxpayer (%)	60.74	69.79	68.13
Male (%)	66.97	40.45	45.33
Spouse (%)	22.27	29.37	28.06
Children (%)	20.76	22.84	22.46
Another position (%)	6.26	6.05	6.10
White (%)	47.07	50.27	49.68
Trade union (%)	14.53	15.41	15.25
Formal contract (%)	46.98	38.14	39.77
Metropolitan (%)	38.15	36.86	37.10
Urban (%)	94.18	94.26	94.25
North (%)	7.32	7.44	7.42
Northeast (%)	23.34	23.67	23.61
Southeast (%)	46.74	45.63	45.84
South (%)	14.73	14.33	14.41
Mid-west (%)	7.86	8.92	8.72
Children < 14 years (%)	39.17	36.70	37.15
Average monthly salary (R\$)	1,394.62	1,553.85	1,524.51
Household income (R\$)	1,808.42	2,389.02	2,282.05

Source: Prepared by the authors based on the PNAD 2012.

tourism industry, with a value of 67% of male workers, which is more than either in the services sector (45%), or in the non-tourism sector (40%). According to Wegrzynowski (2007), the prevalent type of job in the tourism sector is occupied by older males, with greater job security and full working days, i.e. working on average 40 h a week.

With regard to average monthly income, workers in the non-tourism sector received R\$1,553.85 per month, whilst those in the tourism sector received R\$1,394.62, i.e. the former received 10.25% more than the latter. According to Wegrzynowski (2007), the average salary in tourism is lower than that of the set of formal workers, which is attributable to the schooling factor, as this sector employs workers with lower education levels, particularly in the food segment. Furthermore, workers in tourism were about 0.6 years older than those in the non-tourism sector. They had 9.49 years of schooling on average, vs. 11.04 years for those in non-tourism. When analysing average household income, we observe that those working in the non-tourist sector received R\$2,389.02, whilst the income of those employed in tourism was R\$1,808.42, i.e. average household income for the first sector was 24.3% higher than that of tourism.

Table 2 presents the marginal effects of the participation equation for the paid labour market and the conditional marginal effects on the hourly earnings of workers in tourism. For this analysis, the population contains only workers employed in tourism activities.

To begin with the analysis of the participation equation results, we first observe that most variables are significant at the 1% level. Residing in the Southeast, the North, the Northeast and the South all results in a negative marginal effect on the probability of paid employment in the labour market, whereas residents in the Mid-west region experience a positive effect. Living in a metropolitan area

**Table 2. Labour market participation and the paid determinants of worker income in the tourism sector of Brazil, 2012**

	Participation equation		Income equation	
	Estimated coefficient	Significance	Estimated coefficient	Significance
Constant	3.3313	0.411*	−0.1482	0.068**
North	−0.2635	0.093*	−0.1256	0.026*
Northeast	−0.2267	0.083*	−0.3582	0.021*
South	−0.1157	0.080 <sup>ns</sup>	−0.0283	0.021 <sup>ns</sup>
Mid-west	0.0626	0.096 <sup>ns</sup>	0.0695	0.024*
Male	0.4625	0.052*	0.2944	0.013*
Metropolitan	0.3813	0.064*	0.1633	0.017*
Age	0.0022	0.001*	0.0037	0.000*
White	0.1196	0.058**	0.1502	0.014*
Urban	0.3330	0.091*	0.0769	0.033**
Schooling	0.0653	0.039 <sup>ns</sup>	0.0616	0.002*
Expschool	−0.0011	0.001***		
Children <14 years	−0.0157	0.060 <sup>ns</sup>		
Spouse	−0.6246	0.083*		
Children	−0.5137	0.097*		
Another position	−0.0238	0.121 <sup>ns</sup>		
Schooling <sup>2</sup>	0.0007	0.002 <sup>ns</sup>		
Household income	−0.4025	0.041*		
Age <sup>2</sup>			−0.0003	0.000*
Taxpayer			0.3630	0.025*
Trade union			0.1022	0.019*
Formal contract			−0.3151	0.023*
Rho			0.6997	
Lambda			0.5067	

Source: Prepared by the authors based on the PNAD 2012.

Level of significance: not significant, \*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%.

boosts the probability of paid employment in the labour market by 38%, whilst residing in urban areas, vs. rural areas, raises the likelihood of paid employment by 33%.

Being male increases the likelihood of being employed in the paid tourism labour market by 46%. This stems from the fact that the tourism industry remains predominantly male (67% of all workers are of that gender, according to Table 1). An increase in worker age also raises the probability of being employed in the paid labour market, in keeping with the study of Pereira, Lima, Lima, Braga, and Mendonça (2013), which also found that greater ages are linked to an initial trend of an increased likelihood of an individual being occupied up until a certain age, at which this probability reaches its maximal point. From that point onwards, ageing results in the reduction of the probability of being employed in the paid labour market. Furthermore, compared to heads of household, all positions reported negative marginal effects on being employed in the paid labour market, including spouses (62.4%), children (51.4%) and other positions (2.4%), whereas the latter did not attain statistical significance. For the household income variable, it is clearly proved that this reduces the probability of individuals being employed in the paid labour market (40.2%), insofar as workers experience fewer incentives and lower levels of the need to obtain paid work.

Regarding the determinants of income, we again report that most variables do prove significant at the 1% level, with only the South region variable falling short of this benchmark. The correlation coefficient between the residuals for participation and income equations returned a positive result. Noteworthy is that the inverse Mills ratio ( $\lambda$ ) also presented a positive sign, indicating how unmeasured factors boosting labour market participation also raise wage income. We also found that the inverse Mills ratio proved statistically significant, thus indicating a need for sample selection bias correction. Furthermore, comparing individuals resident in the Southeast with those residing in the North, Northeast, and South generates a negative effect on income. In addition, living in metropolitan or urban areas also provides significant positive effects for worker income, 17.78 and 8.0%, respectively.

Moving beyond the variable of regions, the Brazilian labour market is characterised by significant and persistent inequalities by gender and race. The tourism sector follows the general trend. Regarding gender, being male increases worker income by 34.2%. As stressed in the literature survey, one explanation for this difference may derive from the fact that women receive lower incomes, as they do not engage in formal sector jobs, and instead accept activities that may be combined with domestic work and with little or uncertain remuneration in the tourism sector, even if they have a similar educational level to that of men (Purcell, 2004). Furthermore, being white boosts earnings by 16.2%, i.e. just the fact of being white means that a worker receives more than their non-white peer, which can be explained by more than three hundred years of slavery (from the sixteenth Century up to the late nineteenth Century), which privileged whites, who represent the settlers. Another important factor for the determination of income in the tourism labour market is informality,<sup>4</sup> which is associated with lower wages. Indeed, it is observed that formality, i.e. contribution to the public pension system, leads to a 43.77% higher wage. As pointed out by Casari (2012), contribution to social security is used as a measure of the quality of employment.

For the education variable, in accordance with human capital theory, our results confirm that the higher the individual's educational level, the higher the income earned in the labour market, i.e. each additional year of education drives an increase in tourism sector wages by 6.36% on average. Regarding age, which is understood as a proxy for work experience, and once again in keeping with the human capital theory, the equation indicated a parabolic relationship between this variable and worker income.

Having estimated the participation and income equations for the tourism and non-tourism sectors, we are able to proceed with the Oaxaca–Blinder decomposition. As the data in Table 3 details, we can accordingly report that income/hour in the non-tourism sector outstripped that paid in the tourism sector by 18%. The next step is the decomposition of the average income differential of the two sectors, in order to know how the three effects of the model (characteristic, segmentation and interaction) contribute to the wage differential between the tourism and non-tourism sectors.

**Table 3. Decomposition of the logarithm/hour differences between the tourism sector and the non-tourism sector, 2012**

Differential of the expected value of the logarithm of income/hour	Coef.	Standard error	Est. "t"	p > z	Income/hour
Non-tourism sector	1.881	0.004	492.700	0.000	5.56
Tourism sector	1.715	0.005	368.280	0.000	4.56
Difference	0.166	0.005	31.330	0.000	18.05
Characteristic effect	0.089	0.005	18.260	0.000	53.60
Segmentation effect	0.032	0.001	21.720	0.000	19.27
Interaction effect	0.045	0.002	29.620	0.000	27.13

Source: Prepared by the authors based on the PNAD 2012.

The *characteristic effect*, which is statistically significant at 1%, contributed 53.6% to the total wage differential between the two sectors, i.e. the proportion of the income differential between the tourism and non-tourism sectors is determined by the differences in the distribution attributes of those employed, which implies that workers in the non-tourism sector receive 9.3% more than their tourism sector peers (this value is obtained by calculating the coefficient antilog). This plainly confirms our Hypothesis 1, and we may conclude that in most tourist markets, employment is characterised by low wages, precarious labour, reduced educational level, low educational returns and high occupational segregation (Campos-Soria, Ortega-Aguaza, & Ropero-García, 2009).

However, the *segmentation effect*, which is also statistically significant at 1%, accounts for 19.27% of the gap in the average income/hour logarithm, and therefore it represents that part of the unexplained wage gap that results from discrimination, i.e. that the worker belongs to one, or the other sector. The differences between both sectors mean that the average return from work was 3.25% higher in the non-tourism sector than the tourism sector. With regards to the *interaction term* between the two effects, which is statistically significant at 1%, this accounted for 27.13% of the wage differential between the sectors, i.e. the impact of this term increased the wage gap between the tourism and non-tourism sectors by 6.0%. We now proceed with a detailed analysis of the decomposed groups of variables related to the characteristic effect, as most variables proved statistically significant at 1% (Table 4).

The schooling variable was the one that provided the greatest contribution towards the characteristic wage differential effect, as the difference in educational levels resulted in workers in the non-tourism sector receiving 10.11% more than workers in the tourism sector, thus confirming Hypothesis 2. Therefore, this result proves the key role of education in increasing labour productivity, which in turn induces higher productivity, which leads to increased economic efficiency, creating the conditions for greater product creation per unit of production of the factor being used. This increase in labour productivity contributes towards accelerating economic growth, which, as economic theory predicts, simultaneously generates a redistributive effect through more equitable and better incomes resulting from rises in real wages, and consequently, in welfare. Surely, this must have important policy implications, particularly for such sectors as tourism, which demonstrate less favourable indicators from this point of view.

**Table 4. Characteristic decomposition effect of the difference in the logarithm/hour between the tourism and non-tourism sectors of Brazil, 2012**

Characteristic effect	Coeff.	Standard error	Est "t"	p > z	% Difference
North	-0.0003	0.0003	-0.9000	0.3670	-0.15
Northeast	-0.0001	0.0016	-0.0800	0.9380	-0.08
South	0.0002	0.0001	2.1000	0.0360	0.14
Midwest	0.0008	0.0002	4.8900	0.0000	0.50
Male	-0.0735	0.0014	-52.9100	0.0000	-44.28
Metropolitan	-0.0013	0.0009	-1.4600	0.1460	-0.79
Age <sup>2</sup>	0.0165	0.0036	4.5100	0.0000	9.92
Age	-0.0175	0.0051	-3.4100	0.0010	-10.55
Schooling	0.0963	0.0026	37.1100	0.0000	58.06
Taxpayer	0.0353	0.0019	18.5400	0.0000	21.28
Trade union	0.0010	0.0004	2.5800	0.0100	0.62
Formal contract	0.0273	0.0017	15.9400	0.0000	16.45
White	0.0041	0.0008	5.0500	0.0000	2.46
Urban	0.0000	0.0002	0.2100	0.8350	0.03
Endowments	0.0889	0.0049	18.2600	0.0000	53.60

Source: Prepared by the authors based on the PNAD 2012.

Our research also brought to light other factors, which significantly contribute to the wage differential between both sectors. A non-tourism sector worker, with a formal contract and a social security contributor, received a wage/hour 2.76 and 3.6% higher, respectively, than a worker in the same situation in the tourism sector, demonstrating the weight of formal relationships. The male gender and age variables return a negative signal, indicating a reduction in the wage differential between the two sectors, i.e. being a male reduced the pay gap, with workers experiencing lower differential levels over the course of their careers. Therefore, increasing experience drives a convergence in incomes between the two sectors, even when this convergence decreases, portraying a trend towards income equalisation over time. Thus, the age variable, which is understood to be a proxy for labour market experience, presents an important explanatory capacity for the wage differential, i.e. the greater the age (more experience), the greater the differential becomes. However, the study also showed that there is a parabolic relationship between this variable and workers' wages, meaning that, as time goes by, there is convergence between both groups, constituting a trend towards income equalisation after a certain level.

Moving on now to the breakdown of the segmentation effect between the tourism and non-tourism sectors, all the variables attained statistical significance at 1% (Table 5). First, regarding the schooling variable, which generated the largest single contribution to the total differential (196.3%), the gap in this variable across sectors accounted for, *ceteris paribus*, earning an income/hour 38.49% higher in the non-tourism sector than in the tourism sector. Residing in an urban area caused the wage/hour rate in the non-tourism sector to be 7.3% higher than in the tourism sector.

The results set out in this section convey how the differences in wages between the tourism and non-tourism sectors stem mainly from differences in worker characteristics. These results differ from those of the few other studies of the tourism sector, such as those of Campos-Soria et al. (2011), and García-Pozo et al. (2012), which both conclude that segmentation does exist in the hospitality industry.

**Table 5. Segmentation effect of the decomposition of the logarithm/hour difference between the tourism and non-tourism sectors in Brazil, 2012**

Segmentation effect	Coefficients	Standard error	Est "t"	$p > z$	% Difference
North	0.0043	0.0001	30.3000	0.0000	2.59
Northeast	0.0336	0.0007	48.0400	0.0000	20.24
South	0.0022	0.0001	36.4600	0.0000	1.34
Mid-west	0.0026	0.0001	32.5500	0.0000	1.57
Male	-0.0065	0.0000	-156.9500	0.0000	-3.90
Metropolitan	0.0022	0.0000	65.4600	0.0000	1.31
Age <sup>2</sup>	0.0787	0.0005	150.3900	0.0000	47.43
Age	0.0058	0.0000	292.0200	0.0000	3.52
Schooling	0.3257	0.0014	240.2200	0.0000	196.30
Taxpayer	-0.0364	0.0003	-119.7600	0.0000	-21.96
Trade union	0.0134	0.0003	38.8600	0.0000	8.06
Formal contract	0.0232	0.0003	91.9400	0.0000	14.00
White	0.0044	0.0000	89.7100	0.0000	2.68
Urban	0.0689	0.0002	292.1400	0.0000	41.50
Constant	0.0320	0.0015	21.7200	0.0000	19.27

Source: Prepared by the authors based on PNAD 2012.



## 5. Concluding remarks

With regard to workers in the tourism sector of Brazil, we conclude that they are paid less than those in other service activities, insofar as tourism jobs are not well remunerated and are characterised by unfavourable conditions, such as frequently irregular shifts, Sunday work, unpaid overtime, and a large amount of informal links and a high turnover in staff, which are all attributable to the seasonality that is typical of this sector. Therefore, despite being one of the most promising sectors of the economy and one that demands only a relatively low level of investment to generate employment, Brazilian tourism still remains in its infancy when compared to other sectors. In this context, there is a need to improve the economic and social indicators of the sector in order to achieve better levels of performance and quality, and to explore all of its potential. To reach this objective, instruments at the public or private levels need to ensure that tourism development brings human, local and sustainable development.

As this sector has developed an increasing importance as a major economic activity throughout the world, international organizations are now producing more and more guidelines, studies, and recommending procedures to be followed in tourism, in order to maximise this sector's benefits. In the case of Brazil, at the governmental level, a Ministry of Tourism was created in 2003, with the objective of guaranteeing the necessary conditions to restructure tourism activities and to promote the interest of the sector. Furthermore, a National Secretariat for Public Policy was created, and a National Tourism Plan (Plano Nacional de Turismo—PNT, for 2003–2007) was approved. These initiatives were part of a policy aimed at achieving several policy objectives, such as the reduction of regional and social asymmetries in the creation and distribution of income, job creation, and also the contribution to a structurally sounder current balance.

In this context, studies such as this one prove highly necessary and useful for providing deeper knowledge about the situation prevailing in the tourism sector, particularly when compared to other sectors. The results also highlight the need for education and working experience to obtain increased incomes and to reduce wage disparities between the groups under analysis. Public policies can play an important role through measures designed to reduce the high level of wage inequality, which represents a characteristic that slows the development, not only of the tourism sector, but also of the overall socio-economic development of Brazil. Such policies might, for example, facilitate the terms for accessing credit in order to mitigate inequalities of opportunity, particularly in the education and training systems, causing problems that afflict individuals from the lower levels of income. In addition, measures, programmes and actions to reduce educational disparities should be specifically targeted and implemented, through more and better quality education, notably in areas with high growth potential for tourism. The Brazilian government has striven in recent years to expand and promote the infrastructure that serves the tourism industry, particularly through the PRODETUR (Programme for Tourism Development at a national level), and the credit line of the IDB (Inter-American Development Bank), together with CAF (Corporação Andina de Fomento—Andean Corporation for Development), which was created in 2008 to assist those states and municipalities that wish to invest and improve their tourist infrastructure. At the same time, PRONATEC Tourism (PRONATEC is a National Education Programme to facilitate access to Technical Learning and Employment) was developed specifically for the sector, with the aim of expanding, regionalising, and democratising the supply of professional and technological courses for tourism.

In spite of the fact that governments have a growing interest in topics related to tourism, they must not be considered to be the only stakeholders in the process—far from it. Furthermore, rather than concentrating on regulatory bodies or policies, governments should provide incentives for a favourable environment, which should be capable of stimulating the supply of high quality tourist goods and services in the private sector. Indeed, private entrepreneurs and managers (including foreign capital—Gomes & Silva, 2014), and their sectoral organisations, all play a key role in the process that may lead to a significant upgrading of the Brazilian tourism industry that also offer much better perspectives for their own workers, when compared to others.

By comparing wages in the tourism and non-tourism sectors of services, this paper contributes by filling the gap in the quantitative literature on Brazilian tourism. With regard to further research, this study may have important consequences at two levels. Firstly, it is necessary to expand this literature, and deeply examine other and new aspects of the tourism development process, for example, sustainability, which is a major dimension (and advantage) in the case of Brazil. Just as the increase of tourism characterises the more developed economies, the aim of leading it to adopt more and better practices will inevitably be an essential part of future research. Indeed, the availability of well-founded empirical studies will determine whether or not this objective will be achieved. From this perspective, Brazil has a lot to learn from the many experiences of the last decades in different regions of the world. Secondly, the search for more appropriate policies on the specific subject of this study, namely the relative low wages and unfavourable conditions of the workforce in the Brazilian tourism sector, require that this research be continued, and that there is a follow up of the policies that were, or will be designed. Indeed, the gap that we found in this research will not easily disappear, nor will it even be significantly reduced.

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#### Notes

1. Tourism activities are those whose main production is classified as typical of the sector, i.e. those in which consumption would be significantly reduced in the absence of tourists. According to Instituto Brasileiro de Geografia e Estatística (2012), these tourism activities are: accommodation services, food, railway and subway transport, road transport, water transport, air transport, auxiliary transport services, travel agency activities and travel organizers, the rental of movables and recreation activities such as culture and sports.
2. Applying a similar model, Oaxaca (1973) and Blinder (1973) pioneered the analysis of wage decomposition and thus their research became known as the Oaxaca–Blinder decomposition in the literature.
3. The survey covers the population living in households (private households and housing units in collective households). The survey of working characteristics and performance was made more broadly for people aged 10 or older, and more narrowly for children aged between 5 and 9. The PNAD incorporates a random sample of households obtained through three selection stages: primary units, municipalities; secondary units, census tracts; and tertiary units, households (private households and housing units in collective households). The PNAD sample of 2012 that we used for this study consisted of 98,648 employees in firms whose main activity in the reference week was classified as services.
4. Informal employment is when a worker does not follow the conditions and rules stipulated and supervised by

the government or other specific bodies, and therefore, where there are no (or only strict) binding employment contracts, and the worker is not registered, neither for benefits, neither for established rights, such as maternity leave or unemployment subsidies in the case of job loss (Alonso, 2016).

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