How much does talent matter?
Evidences from the Brazilian formal cultural industry

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ABSTRACT: This paper aims at evaluating how much does talent – the individual non-observed characteristics – matter to explain the wage differences between workers from the cultural industry and workers from other formal industries in Brazil. With the importance of the cultural industry in Brazil in mind and noting that there are gaps in the earnings of artists and cultural workers from other workers, we use the data from 2003 to 2008 of the Rais-Migra – MTE, which is a true panel of formal workers from Brazil. We use fixed effects estimators to capture the talent measure and the Blinder (1973) and Oaxaca (1973) decomposition to seek for evidences of wage difference. We analyzed the workers in cultural activities, workers in cultural occupations and those workers in both cultural activities and occupations. Doing so, we were able to compare differences depending on the definition. The results enable us to affirm that the talent is important in the determination of wages especially when considering formal workers in the cultural activities, occupations and sector. The Oaxaca decomposition showed that when considering the talent, each of the groups mentioned above paid their workers even more just because they belong to the group, proving that not only the talent matter but also that the formal cultural environment in Brazil positively discriminates their workers.

KEYWORDS: Wage Differentials, Cultural Industry, Talent, Fixed Effects, Brazil
JEL CODE: J31, J24, Z10

RESUMO: Esse artigo tem como objetivo principal analisar o papel do talento – definido como as características individuais não-observadas – na explicação dos diferenciais salariais entre trabalhadores provenientes do setor cultural e demais trabalhadores do setor formal brasileiro. Diante da importância da indústria cultural no Brasil, e considerando a existência de diferenciais nos rendimentos dos artistas e trabalhadores do setor cultural em relação aos demais trabalhadores no Brasil, usaram-se dados da RAIS-Migra – MTE – entre 2003 a 2008. Tais dados constituem um painel de trabalhadores formais do Brasil, permitindo o uso do método de efeitos fixos para estimar a medida do talento, além da decomposição de Blinder (1973) e Oaxaca (1973) em busca de evidências sobre os diferenciais salariais. Foram analisadas diferentes definições para os trabalhadores da indústria cultural, conforme setor de atividade, ocupação e ambos. Os resultados revelam a importância do talento na determinação dos salários. A decomposição de Oaxaca mostrou que não apenas o talento é importante, mas também que o ambiente cultural discrimina positivamente seus trabalhadores no Brasil.

PALAVRAS-CHAVE: Diferenciais Salariais, Setor Cultural, Talento, Efeitos Fixos, Brasil

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1. INTRODUCTION

Wage differential between industries is well determined in Economics literature. Krueger and Summers (1987, 1988), Gittleman and Wolff (1993), Keane (1993), Dickens and Katz (1997), Kahn (1998), Shippen (1999) are some of the traditional papers that investigate the nature of the gap between wages. Along with these works, Blackburn and Neumark (1991), Jackubson (1991), Abowd *et al* (1999) and Carruth *et al* (2004) are also noteworthy as they point towards the importance of the non-observed characteristics to explain such differences and the use of the fixed effects estimators.

The case between artists and workers from other industries are known to exist and are extensively researched as seen in Filer (1986), Thorsby (1994), Benhamou (2003), Wassal and Alper (2006) and Wetzels (2008). Benhamou (2007) investigates the job market for the cultural sector analyzing hiring, the career, wages and earnings. In general, artists and workers from the cultural industries are underpaid compared to those from other industries. This can be related to fact that cultural workers usually are at informal jobs, or that this is partial job most of the times (WASSAL AND ALPER, 1992; THROSBY, 1992, TOWSE, 1992). On the order hand, Towse (2006) points out that talent is compared to the innate ability of people, i.e. it cannot be measured by traditional models and, indeed, affect the wages from artists and cultural workers.

The Brazilian cultural sector is growing steadily over the last years. According to the Brazilian Bureau of Statistics (IBGE, 2005), 5% of people were employed in cultural industries and these industries responded to 11% of countries' Gross Domestic Product (GDP). The João Pinheiro Foundation (FJP, 1998) asserts that workers in cultural activities are 30% better paid than others workers. Table 1 summarizes some evidence of the importance of the cultural industries in Brazil.

Table 1 – Cultural industry in Brazil

Year	Entreprises			People Employed			Mean Wage		
	Total	Cultural	%	Total	Cultural	%	Total	Cultural	%
2003	2.298.312	128.674	5,60	18.196.858	984.849	5,41	3,3	5,4	163,64
2004	2.358.242	136.028	5,77	19.663.877	1.059.345	5,39	3,2	5,3	165,63
2005	2.526.625	153.669	6,08	20.960.033	1.117.906	5,33	3,0	5,0	166,67
Year	Gross Production Value*			Government Expense*					
	Total	Cultural	%	Total	Cultural	%			
2003	1.375.775.404	150.521.203	10,94	1.208.814.474	2.358.084	0,20			
2004	1.650.616.502	179.516.479	10,88	1.282.899.039	2.581.670	0,20			
2005	1.809.695.178	199.746.956	11,04	1.538.810.372	3.129.414	0,20			

*In R$1.000,00.
Source: IBGE: Sistema de Informações e Indicadores 2003-2005

With the importance of the cultural industry in Brazil in mind and noting that there are gaps in the earnings of artists and cultural workers from other workers, the objective of this paper is to

evaluate how much does talent matter in the Brazilian case, i.e., we try to evaluate how much does the talent – the non-observed characteristics – contributes to the earnings of cultural workers while analyzing wage gaps between workers from the formal sector in Brazil. To achieve such goal we use the data from 1990 to 2002 of the Rais-Migra[3], which is a true panel of formal workers from Brazil. We use fixed effects estimators to capture the talent measure and the Blinder (1973) and Oaxaca (1973) decomposition to seek for evidences of wage difference.

It is important to highlight that there are few works in the literature that analyses the wage gaps in the Brazilian cultural industries. Also we have no knowledge of a paper that used a true panel to analyze the difference in wages between cultural workers and others for the Brazilian case. So this paper contributes in the empirical literature expanding the insights in the Brazilian industry earning gaps and in the use of a dataset that may shed more light in the importance of talent per se.

2. THEORETICAL MODEL

The Walrasian competitive model of labor market states that the equilibrium wage is determined by marginal productivity. For example, two agents with identical productive characteristics would necessarily receive identical wages. However, similar individuals under different working conditions may receive the so-called compensating differences. Indeed, the disutility undergone by one individual following the performance of a task in an unfavorable situation may lead to wage compensation.

Though, pioneer observations by Slichter (1950), and more recently Dickens and Katz (1987), Krueger and Summers (1988) and Katz and Summers (1989) have challenged this simple description of wage determination. These authors were able to demonstrate that workers with the same observable individual characteristics and working conditions but employed in different sectors were paid differently in the U.S.

Comparable results have been obtained for a large number of countries in the past years (Araï et al., 1996; Hartog et al., 1997, 2000; Lucifora, 1993; Vainiomäki and Laaksonen, 1995). Furthermore, it has been shown that not only the structure of inter-industry wage is quite persistent, but also, it is strongly correlated between countries, however, its scale varies considerably between industrialized countries (Helwege, 1992; Zanchi, 1992). In addition, many studies (Barth and Zweimüller, 1992; Edin and Zetterberg, 1992; Gannon et al., 2007; Kahn, 1998; Teulings and Hartog, 1998) suggest that in countries with strong corporatism, regardless of the period studied, the sectoral effects are significantly weaker.

[3] Administrative data from the Labor Ministry. The dataset will be better explained in the Methodological section.

In this sense, the existence of a wage premium from different sector increasingly raises some questions over the assumption of a perfectly competitive labor market. Indeed, it suggests that individual wages are not solely determined by personal productive characteristics and task descriptions, but also by employer features in each sector. Nevertheless, great uncertainty remains.

Thus, following Wassal and Alper (2006) and Towse (2006), the Becker's human capital theory is widely used even in the case of cultural workers and artists. Hence, Mincer's (1974) earning function is proper to be used. So, expanding the equation presented by Micer (1974) we have that

$$w = f(S, X, \mu, \gamma)$$

where w is the wage, S is the schooling or formal training, X is the experience of the worker which is measured by the time of employment, μ are worker's characteristics and γ are characteristics of the job such as region, size of the firm, among others.

Towse (2006) states that the innate ability is the same as the talent for artists, and that it plays a bigger role in arts than non-arts occupations. Moreover, she discusses whether the human capital theory is the best to explain artist's labor market, concluding that although some experience it is a good point of start. She also affirms that artists should be compared to sportspeople, as many of their labor markets characteristics are quite similar.

3. METHODOLOGICAL APPROACH

This section is divided in two. Firstly, we will present the data used (RAIS-Migra) and a short descriptive analysis. Secondly, we will describe the econometric approach used in this paper.

3.1 Data

For our analysis on wage differential we use the longitudinal micro-data from the Relatório Anual de Informações Sociais – Migração (RAIS-Migra), of the Labor Ministry of Brazil, for the eight years between 2003 and 2008. This dataset is derived from RAIS, an annual administrative survey that makes available information to identify workers eligible to receive social benefits and to monitor the labor market. It also provides extensive employment coverage, besides a rich source of economic information at the individual level.[4] In this regard, it can be considered as a labor census of formal employment. Informal employment and illegal activities are not recorded by the RAIS census.

[4] See Arbache (2001) for further explanation about RAIS data base.

RAIS-Migra follows longitudinally the professional course of workers by industry and occupational features in the labor market, providing the conduction of studies on mobility of formal workers. The investigation of the wage structure, which considers wages deflated by the IPCA (Índice de Preços ao Consumidor – Amplo) and corrected by cost of living index[5], is carried out for the 26 Brazilian states plus the Federal District, the eight sectors of the economy classified by the Instituto Brasileiro de Geografia e Estatística (IBGE), and the six occupation categories based on the Brazilian Occupation Classification (CBO)[6]. The other independent variables are age, tenure (monthly), gender and nine educational levels, following the Labor Ministry classification. The micro-data sample is composed of workers between the ages of 14 and 65, with non-zero monthly income. Data definitions are presented in the Appendix 1.

Due to the large number of observations available, a random sample was generated in order to run the wage differentials regressions. This sample draws 5% of the total number of individuals from the original data base, generating a pooled and balanced sample of 8,684,232 individuals, being 1,447,372 by year.

Table 2 presents some descriptive analysis from the dataset. From the data we can observe in the mean, the workers observed have worked 1,045.16 hours and have 39.16 years, and 43% of the data are women. Looking at their education, at least 24% have engaged in superior education, and from the rest, 38% have attended at least part of High School. Focusing on the cultural sector and occupation we have that 2.9% of the individuals are in the cultural activities defined by IBGE based on CNAE (Classificação Nacional de Atividades Econômicas) – the Brazilian classification of economic activities – as it is possible to see in Appendix 2. Furthermore, 2.4% of the individuals have some cultural occupation based on CBO (Classificação Brasileira de Ocupações) – the Brazilian classification of occupations. By interacting both, we find that only 0.5% of the individuals are in the so-called cultural sector working in both, cultural or artistic activity and assuming a cultural or artistic occupation. It is important to reinforce that this data contemplates only formal individuals, and most of artistic-cultural workers are in informal jobs. Nevertheless, it is crucial to be highlighted that the use of this dataset enables us to use an econometric approach that control the unobserved characteristics of the individuals which it is possible to assume to be mainly their innate ability or the talent itself.

Table 2 – Descriptive Analysis

Variable	Obs	Mean	Std. Dev.	Min	Max

[5] The ICV (a Brazilian cost of living index) used in this paper was computed by Azzoni *et al* (2003).

[6] (1) Scientifical, technical and artistical, (2) Legislative, executive, judiciary, public sector and directors, (3) Managerial, (4) Trade and services of tourism and embellishment, (5) Farming, forestry activities and fishing, (6) Bluecollars.

Exp	8684232	1045.158	926.1513	0	7853
Age	8684232	39.16545	10.51869	10	100
Dcnae	8684232	0.0296999	0.1697582	0	1
Dcbo	8684232	0.0241245	0.1534358	0	1
Dcult	8684232	0.0055585	0.0743476	0	1
Dfem	8684232	0.4321481	0.4953747	0	1
5 a CO Fund.	8684232	0.0720117	0.2585072	0	1
6 a 9 Fund.	8684232	0.0965711	0.2953729	0	1
Analphabet	8684232	0.0072925	0.0850844	0	1
Until 5 Inc.	8684232	0.0490866	0.2160488	0	1
Fund. Comp.	8684232	0.1400947	0.3470853	0	1
Med. Comp.	8684232	0.3231366	0.4676744	0	1
Med. Incomp.	8684232	0.0657973	0.2479275	0	1
Sup. Comp.	8684232	0.2033274	0.4024741	0	1
Sup. Incomp.	8684232	0.0426822	0.2021396	0	1
Wage nominal	8684232	161358.9	245474.4	0	6203835
Wage real	8684232	180157.4	269918.4	0	6203835

Source: RAIS-Migra (MTE).

3.2 Econometric approach

Deriving the earning function presented in the section 2, we have that the model to be estimated is:

$$\ln w_{it} = V_{it}'\beta + \delta J_{it} + \mu_i + \varepsilon_{it} \qquad \text{(i)}$$

where w_{it} is the wage, J_{it} is the job sector represented by the a cultural sector dummy, or a cultural-artistic occupation dummy or the interaction between both previous dummies, V_{it} is the matrix of variables containing a dummy variable for gender (feminine), dummies for regions (Brazilian states), dummies for level of education, age, age squared, experience, experience squared, μ_i represents the individuals unobserved characteristics and ε_{it} is the term of error.

Firstly, we use a pooled OLS including all years jointly as a large cross-section. To avoid further problems a vector of year dummies are also included as control variables. However, the main problem in this case is the possibility of correlation between ε_{it} and the explanatory variables nullifying the following hypothesis:

$$E(\varepsilon_i|J_i) = 0; E(\varepsilon_i|V_i) = 0 \qquad \text{(ii)}$$

If the hypothesis above cannot be hold, the causality relationship cannot be maintained either. Hence, an endogeneity[7] problem may appear, generating inconsistent and biased estimators.

[7] In general, we do not have information about the worker potential to obtain wages. As a consequence, these unobservable characteristics – ability, motivation, creativity, etc. – might be correlated to other wage determinants, such

Once, the dataset we are using is a longitudinal panel data of workers, this endogeneity problem can be solved by considering the unobserved heterogeneity, i.e., using the random effects or the fixed effects methods. As the unobserved characteristics of each worker will not change over the years, we have then, a fixed effect model[8].

The identification hypothesis of the model represented in equation (i) requires that the correlation among V_{it}, J_{it} and ε_{it} is provided by an explanatory variable that does not vary among years. Since we have differences of the individual values of the variables with regard to the average values, the constant term is eliminated. As a result, we have the fixed effects estimator, with consistent and efficient estimated parameters. It is important to stress, however, that the hypothesis from equation (i) may not eliminate the endogeneity problem. A random shock can increase wages independently of the worker sector, for example.

In order to capture the premium that the cultural sector may pay in the Brazilian case, following the evidences from Ferreira Neto, Freguglia and Fajardo (2012) we use the Oaxaca decomposition. Greene (2003) describes it as follows[9]:

Let it be a sample of workers, in which we have n_c workers in the cultural sector and n_{nc} workers in non-cultural sectors. A mincerian regression for earnings for each worker could be presented as

$$\ln w_{c,i} = X_{c,i}'\beta_c + \varepsilon_{c,i} \qquad i = 1,2,\dots,n_c \tag{iii}$$

and

$$\ln w_{nc,j} = X_{nc,j}'\beta_{nc} + \varepsilon_{nc,j} \qquad i = 1,2,\dots,n_{nc} \tag{iv}$$

where:

$X_{s,l}$ is the vector of socio-economic variables

β_s is the vector of parameters to be estimated

$\varepsilon_{s,l}$ is the vector of errors

in which, $s = c, nc$ and $l = i, j$

As we are interested in the wage differentials, we subtract (iii) from (iv):

$$\begin{aligned} E(\ln w_{nc,j}) - E(\ln w_{c,i}) &= X_{nc,j}'\beta_{nc} - X_{c,i}'\beta_c \\ &= X_{nc,j}'\beta_{nc} - X_{c,i}'\beta_c + X_{nc,j}'\beta_{nc} - X_{nc,j}'\beta_{nc} \\ &= X_{nc,j}'(\beta_{nc} - \beta_c) + (X_{nc,j} - X_{c,i})'\beta_c \end{aligned}$$

as education, region, occupation, etc, nullifying the causal interpretation of the estimated coefficients. See Wooldridge (2002).

[8] Although such assumption was made, formal Hausman's tests were done confirming our initial assumption.

[9] Greene (2003) presents the methodology comparing the differences between men and women, however in this paper we present it following the same model, but considering cultural and non-cultural sector.

The second term of the decomposition shows the differences explained by the human capital, which would be the sole difference if the Walrasian competitive model was true, and the wages were determined only by the marginal productivity. The first term instead, shows the differences in the wages attributed to the differences that the human capital cannot explain (GREENE, 2003).

Vaz e Hoffmann (2007) analyze the wage differential between the public and private sector in the Brazilian economy. The authors state that in this case the interpretation is little different from the one commonly used in the discrimination literature. In this sense, one part would explain the earnings according to the productive characteristics from the individuals of each group (E) and the other would explain the different criteria of remuneration of each sector (D). Thus:

$$E = \left(X_{nc,j} - X_{c,i}\right)'\beta_c$$

$$D = X_{nc,j}{}'(\beta_{nc} - \beta_c)$$

4. RESULTS

The results are presented following the methodology section. Firstly, at table 3 we present the results for models (1) to (3), being (1) for cultural activities (dcnae), (2) for cultural occupation (dcbo) and (3) for cultural 'sector' (dcult) – the interaction between dcnae and dcbo – considering an OLS model. Secondly, at table 4 we present the results for the models (4) to (6), being (4) for dcnae, (5) for dcbo and (6) for dcult considering a fixed effects (FE) model. Finally, at table 5 we present the Oaxaca decomposition for each dummy of interest (dcnae, dcbo and dcult) considering both the OLS and FE models in order to compare them.

For models (1) to (3) (table 3) we have similar results for the control and human capital variables as follows: a) women are paid 34% less than men; b) experience is positive but near to zero, showing little influence in the remuneration, however, the experience squared also shows a positive coefficient showing that even though there is little influence, it grows continually; c) regarding the age, each additional year represents an increase of 5%, and the age squared shows that there is a maximum for this increase; d) focusing on the education, we have that workers with fundamental education completed earns 37.5% more than analphabets, workers that completed the high school earns 74.4% more than analphabets and those with superior education earns 164% more than analphabets.

Regarding the dummies of interest we have that, on one hand workers in cultural activities (dcnae) earn 10.2% more than workers in non-cultural activities. On the other hand, workers in

cultural occupations (dcbo) earn 11.1% more than workers in non-cultural occupations. It is noteworthy that the interaction between dcnae and dcbo (dult), i.e., workers in cultural activities occupying cultural jobs, earn even more, 18.7% than others. These results show that occupation seems to be more important than activity to determine the wage, and goes in the same direction as the results presented by Ferreira Neto, Freguglia and Fajardo (2012) for formal and informal workers in Brazil.

Table 3 – OLS Results

	(1)	(2)	(3)
VARIABLES	Lw	Lw	lw
Dcnae	0.102***		
	(0.00142)		
Dcbo		0.111***	
		(0.00153)	
Dcult			0.187***
			(0.00354)
Dfem	-0.346***	-0.346***	-0.346***
	(0.000483)	(0.000483)	(0.000483)
Exp	0.000216***	0.000214***	0.000214***
	(8.59e-07)	(8.59e-07)	(8.60e-07)
exp2	1.67e-09***	1.75e-09***	2.04e-09***
	(2.63e-10)	(2.63e-10)	(2.63e-10)
Age	0.0561***	0.0562***	0.0561***
	(0.000151)	(0.000151)	(0.000151)
age2	-0.000607***	-0.000608***	-0.000607***
	(1.87e-06)	(1.87e-06)	(1.87e-06)
Fund. Comp.	0.375***	0.374***	0.375***
	(0.00210)	(0.00210)	(0.00210)
Med. Comp.	0.744***	0.744***	0.745***
	(0.00208)	(0.00208)	(0.00208)
Sup. Comp.	1.645***	1.645***	1.647***
	(0.00215)	(0.00215)	(0.00215)
Other education var.	Yes	Yes	Yes
Region	Yes	Yes	Yes
Year	Yes	Yes	Yes
Constant	4.721***	4.722***	4.725***
	(0.00348)	(0.00348)	(0.00348)
Observations	8,417,290	8,417,290	8,417,290
R-squared	0.484	0.484	0.484

Source: RAIS-Migra (MTE).
Note: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Following the same structure of analysis, we also have that the results of control and human capital variables are similar for models (4) to (6)[10]. However, we can highlight that as we control

[10] When analyzing the results for the fixed effects it will be said that the difference is due to the innate ability or talent. However, it is known that not only the talent is captured explaining the difference, but also it captures the information

for fixed effects from the workers, these results of the coefficients are smaller in general. Thus, we have: a) women are paid 1.4% less than men; b) experience presents similar results than model (1) to (3); c) each additional year represents an increase of 11.5%, and there is a maximum for this increase; d) focusing on the education, we have that workers with fundamental education completed earns 1.5% more than analphabets, workers that completed the high school earns 4.9% more than analphabets and those with superior education earns 19.8% more than analphabets.

Table 4 – Fixed Effect Results

	(4)	(5)	(6)
VARIABLES	Lw	Lw	Lw
Dcnae	-0.00318***		
	(0.00122)		
Dcbo		0.0164***	
		(0.00153)	
Dcult			0.0225***
			(0.00301)
Dfem	-0.0143***	-0.0143***	-0.0143***
	(0.00145)	(0.00145)	(0.00145)
Exp	3.79e-05***	3.79e-05***	3.79e-05***
	(7.25e-07)	(7.25e-07)	(7.25e-07)
exp2	3.65e-09***	3.64e-09***	3.65e-09***
	(2.44e-10)	(2.44e-10)	(2.44e-10)
Age	0.115***	0.115***	0.115***
	(0.000216)	(0.000216)	(0.000216)
age2	-0.000773***	-0.000773***	-0.000773***
	(2.62e-06)	(2.62e-06)	(2.62e-06)
Fund. Comp.	0.0159***	0.0159***	0.0159***
	(0.00316)	(0.00316)	(0.00316)
Med. Comp.	0.0495***	0.0494***	0.0494***
	(0.00316)	(0.00316)	(0.00316)
Sup. Comp.	0.198***	0.198***	0.198***
	(0.00325)	(0.00325)	(0.00325)
Other education var.	Yes	Yes	yes
Region	Yes	Yes	yes
Year	No	No	No
Constant	3.311***	3.311***	3.311***
	(0.00549)	(0.00549)	(0.00549)
Observations	8,417,290	8,417,290	8,417,290
R-squared	0.166	0.166	0.166

Source: RAIS-Migra (MTE).
Notes: (1) Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. (2) The Hausman test and the Breusch Pagan Test were both done, and for every model the p-value was 0.000 for both tests.

Turning our attention to the dummies of interest we have that, on one hand workers in cultural activities (dcnae) earn 0.3% less than workers in non-cultural activities. On the other hand,

of omitted variables, among other factors. Nonetheless, to facilitate the discussion the talent will be said to be the reason.

workers in cultural occupations (dcbo) earn 1.6% more than workers in non-cultural occupations. Workers in cultural activities occupying cultural jobs (dcult) earn 2.2% than others. This reinforces the importance of occupation over activity in the determination of earnings regarding cultural and artistic workers.

Comparing then, the results from table 3 and 4, we can highlight some interesting changes in results. Firstly, the gender results and the schooling results shows a significant drop in the coefficients, evidencing that although there is some difference – women are worst paid, and formal education and training increase the earning – it is not that much when considering the innate ability. Secondly, the age seems to be even more important when considering the talent (increase from 5% to 11% in the determination of earnings), which is an interesting result that allows us to do some assumptions: perhaps, the older the worker is, the more recognized he is, hence the more valued his work is. Thirdly, the results for activity, occupation and for the so-called cultural sector, also drops significantly, mainly for the activity which becomes negative.

However, these results cannot express fully the 'discrimination' from the cultural activities, occupation and sector, i.e., they are unable to show how much a group of workers earns more or less only because they belong to a determined group, in this case, the cultural activity, cultural occupation and cultural sector. So, table 5 presents the results for each dummy of group for both models – OLS and FE. We have then that, (U) is the unexplained portion of the differential (difference between model constants); (D) is the portion due to discrimination. If the number is positive, the advantage is to the high group (dummy of interest equal to one) and if it is negative, the low group (dummy of interest equal to zero) has the advantage.

Table 5 – Oaxaca results for OLS and FE models (as %)

	DCNAE		DCBO		DCULT	
	OLS	FE	OLS	FE	OLS	FE
Amount attributable:	76.7	-3.8	20.6	-31.8	80.8	-61.3
due to endowments (E):	28.8	-8.9	12.3	1.2	15.4	-6.8
due to coefficients (C):	55.9	5.1	8.3	-33.0	65.4	-54.5
Shift coefficient (U):	-46.2	34.4	-1.0	51.5	-41.5	100.6
Raw differential (R) {E+C+U}:	30.5	30.5	19.6	19.6	39.3	39.3
Adjusted differential (D) {C+U}:	9.8	39.5	7.3	18.5	23.8	46.1
Endowments as % total (E/R):	68.0	-29.3	62.9	6.0	39.3	-17.3
Discrimination as % total (D/R):	32.0	129.3	37.1	94.0	60.7	117.3

Source: RAIS-Migra (MTE).

Firstly, we should look at the raw differential (R). We have that the difference is positive, so it is higher for workers in cultural activities, occupation and sector. However, differently from the

above results we have that the difference is higher for cultural activities (30.5%) compared to cultural occupations (19.6%). This result is even higher for workers in the cultural sector (cultural activity and occupation), with a raw difference of 39.3%

The measure that interests us though is (D), or the discrimination portion. Analyzing (D) for cultural activities we have that for the OLS model it is 9.8% and for the FE model it raises for 39.5%. This means that controlling the model for the talent, which means that in the FE model we consider it, cultural activities pays 39.5% more than other activities for formal workers. Focusing on the cultural occupations we have that for the OLS model the discrimination portion is 7.3% while in the FE model it raises for 18.5%. The same inference as for dcnae is possible, when considering the talent, we see that cultural occupations pays more than other occupation, and this difference is 18.5% more. Finally, comparing the OLS and FE model for the so-called cultural sector (dcult) we note a raise from 23.8% to 46.1%. This means that formal workers engaged in cultural activities in cultural occupation earns 46.1% more than other workers just per se.

At last, analyzing the percentage of (D) in terms of (R) and (E) in terms of (R) we have that for cultural activities and occupation, in the OLS model the endowments represented more in terms of R than the discrimination, however when using the FE model this relation is reverted. For the cultural sector we have in both OLS and FE models that the (D) portion is more important than (E) in terms of (R). It is noteworthy that in the FE model for dcnae and dcult the D portion is higher than 100%.

5. FINAL REMARKS

This paper aims at evaluating how much the talent contributes to the earnings of cultural workers while analyzing wage gaps between workers from the formal sector in Brazil. To achieve such goal, we analyzed the workers in cultural activities, workers in cultural occupations and those workers in both cultural activities and education. Doing so, we were able to compare differences depending on the definition. Thus, the results help us to better understand the labor market in the cultural industry in Brazil.

To measure the talent effect we proposed two models, the first using ordinary least square estimation in which the talent was not considered and then a fixed effects model considering the talent. The results enable us to affirm that the talent is an important in the determination of wages especially when considering formal workers in the cultural activities, occupations and sector. The Oaxaca decomposition showed that when considering the talent, each of the groups mentioned above paid their workers even more just because they belong to the group, proving that not only the

talent matter but also that the formal cultural environment in Brazil positively discriminates their workers.

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APPENDIX

Appendix 1 – Definition of each variable

Variable	Definition

Age	Age of individual
Age2	Age squared
Exp	Hours worked monthly – representing experience
Exp2	Experience squared
Dfem	Dummy for gender – equals 1 if female
Fund. Comp.	Dummy of education – equals 1 if Fundamental education is completed
Med. Comp.	Dummy of education – equals 1 if High School education is completed
Sup. Comp.	Dummy of education – equals 1 if Superior education is completed
Dcnae	Dummy of cultural activity – equals 1 if belongs to cultural activity (appendix 2.1)
Dcbo	Dummy of cultural occupation – equals 1 if belongs to cultural occupation (appendix 2.2)
Dcult	Dummy of cultural sector – equals 1 dcnae and dcbo equals to 1
Duf*	duf1 to duf27 – equals to 1 if belongs to respective state
Dano*	dano1 to dano6 – equals to 1 if belongs to the year
Deduca*	deduca1 to deducca9 – equals 1 if belongs to the level of education

Fonte: Resultado da Pesquisa.

Appendix 2.1 – Cultural Activities in CNAE

Code	Definition
22000	Publishing, printing and recording;
33004	Manufacturing of apparel, instruments and optical, photographical and cinematographic material;
53062	Commerce of books, newspapers and stationary;
92011	Production of cinematographic movies and video tapes;
92012	Distribution and projection of movies and videos;
92013	Radio related activities;
92014	Television related activities;
92015	Other artistic activities and performances;
92020	News agencies related activities;
92030	Libraries, archives, museums and other cultural activities;
92040	Sports related activities and others related to leisure;
71030	Renting personal and household goods;
74030	Advertising.

Source: IBGE.
Note: Translation by the authors.

Appendix 2.2 – Cultural Occupation in CBO

Code	Definition

2330	Professors and instructors (with superior education) in professional education;
2531	Marketing, advertising and commercialization professionals;
2611	Jornalism related professionals;
2612	Information related professionals;
2613	Archive and museum experts;
2614	Linguists, translators and interpreters;
2615	Writers and editors;
2616	Specialists in publishing;
2617	Broadcasters and commentators;
2621	Producers of performances;
2622	Choreographers and dancers;
2623	Actors and directors of performances and others related;
2624	Composers, musicians and singers;
2625	Industrial designers, sculptors, painters and related (including artisans);
2627	Interior decorators and set designers;
3313	Professors (High School (mid-level) formation) in professional education;
3322	Lay Professors in Professional education;
3331	Instructors e professors in free schools;
3524	Enforcement agents for performance and media;
3544	Auctioneers and appraisers;
3711	Technicians in librarianship;
3712	Technicians in museology;
3713	Technicians in graphic arts;
3721	cinematographer;
3722	Photographers;
3723	Technicians in machine operations for data transmission;
3731	Technicians in operating radio station;
3732	Technicians in operating television station;
3741	Technicians in operating sound equipment;
3742	Technicians in operating scenography devices;
3743	Technicians in operating projection apparatus;
3751	Decorators and window dressers with High School (mid-level) education;
3761	Dancers of folk dances;
3762	Musicians and singers of folk music;
3763	Clowns, acrobats and related;
3764	Presenters of performances;
3765	Models;
4151	Clerks of library services and documentation;
7421	Makers of musical instruments;
7501	Supervisors of jewelry and related;
7502	Supervisors of glassware, ceramics and related;
7519	Jewelers and craftsmen of precious and semiprecious metals;
7521	Glassblowers, molders of glass and related;
7522	Cutters, polishers, blasters and recorders of glass and related;
7523	Potters (preparation and manufacturing);
7524	Glassblowers and potters (finishing and decoration);
7606	Supervisors of graphic arts;
7611	Workers of weaving preparation;
7612	Operators of weaving preparation;
7613	Operators of loom and similar machines;
7660	Polyvalent workers in graphic arts;
7661	Workers in graphic prepress;
7662	Workers in graphic printing;
7663	Workers in graphic finishing;
7664	Workers in photolab;
7681	Workers in craft weaving;
7682	Craft workers in clothing manufacturing;
7683	Craft workers in manufacturing footwear and leather and hides artifacts;
7686	Typographical workers, typesetters and related;
7687	Bookbinders and regenerators of books (small batches or unit);
9152	Repairers of musical instruments;
9912	Maintainers of leisure equipments.

Source: IBGE.
Note: Translation by the authors.

Appendix 3.1 – Complete OLS Regression

(1)	(2)	(3)		(1)	(2)	(3)

VAR.	lw	lw	Lw	VAR.	lw	lw	lw
dcnae	0.102***			duf18	-0.207***	-0.207***	-0.207***
	(0.00142)				(0.000937)	(0.000937)	(0.000937)
dcbo		0.111***		duf19	-0.169***	-0.167***	-0.168***
		(0.00153)			(0.000889)	(0.000889)	(0.000889)
dcult			0.187***	duf20	-0.600***	-0.600***	-0.600***
			(0.00354)		(0.00197)	(0.00197)	(0.00197)
dfem	-0.346***	-0.346***	-0.346***	duf21	-0.189***	-0.188***	-0.189***
	(0.000483)	(0.000483)	(0.000483)		(0.00303)	(0.00303)	(0.00303)
exp	0.000216***	0.000214***	0.000214***	duf22	0.0345***	0.0363***	0.0348***
	(8.59e-07)	(8.59e-07)	(8.60e-07)		(0.00738)	(0.00738)	(0.00737)
exp2	1.67e-09***	1.75e-09***	2.04e-09***	duf23	-0.0949***	-0.0950***	-0.0954***
	(2.63e-10)	(2.63e-10)	(2.63e-10)		(0.000918)	(0.000918)	(0.000918)
idade	0.0561***	0.0562***	0.0561***	duf24	-0.160***	-0.161***	-0.160***
	(0.000151)	(0.000151)	(0.000151)		(0.00103)	(0.00103)	(0.00103)
idade2	-0.000607***	-0.000608***	-0.000607***	duf25	-0.485***	-0.484***	-0.484***
	(1.87e-06)	(1.87e-06)	(1.87e-06)		(0.00242)	(0.00242)	(0.00241)
duf1	-0.264***	-0.263***	-0.264***	duf27	-0.350***	-0.351***	-0.352***
	(0.00398)	(0.00398)	(0.00398)		(0.00287)	(0.00288)	(0.00287)
duf2	-0.414***	-0.414***	-0.415***	deduca1	0.182***	0.181***	0.182***
	(0.00198)	(0.00198)	(0.00198)		(0.00213)	(0.00213)	(0.00213)
duf3	-0.138***	-0.135***	-0.136***	deduca2	0.265***	0.264***	0.265***
	(0.00220)	(0.00221)	(0.00221)		(0.00211)	(0.00211)	(0.00211)
duf4	0.0797***	0.0794***	0.0783***	deduca4	0.129***	0.128***	0.129***
	(0.00461)	(0.00460)	(0.00460)		(0.00218)	(0.00218)	(0.00218)
duf5	-0.436***	-0.436***	-0.437***	deduca5	0.375***	0.374***	0.375***
	(0.00113)	(0.00113)	(0.00113)		(0.00210)	(0.00210)	(0.00210)
duf6	-0.588***	-0.606***	-0.590***	deduca6	0.744***	0.744***	0.745***
	(0.00140)	(0.00141)	(0.00140)		(0.00208)	(0.00208)	(0.00208)
duf7	0.330***	0.331***	0.330***	deduca7	0.469***	0.468***	0.469***
	(0.00185)	(0.00185)	(0.00185)		(0.00219)	(0.00219)	(0.00219)
duf8	-0.249***	-0.249***	-0.250***	deduca8	1.645***	1.645***	1.647***
	(0.00178)	(0.00178)	(0.00178)		(0.00215)	(0.00215)	(0.00215)
duf9	-0.273***	-0.273***	-0.274***	deduca9	1.192***	1.194***	1.195***
	(0.00148)	(0.00148)	(0.00148)		(0.00239)	(0.00238)	(0.00239)
duf10	-0.523***	-0.524***	-0.525***	dano2	0.00355***	0.00363***	0.00361***
	(0.00219)	(0.00219)	(0.00219)		(0.000779)	(0.000779)	(0.000779)
duf11	-0.292***	-0.293***	-0.292***	dano3	0.0239***	0.0241***	0.0241***
	(0.000807)	(0.000807)	(0.000807)		(0.000780)	(0.000780)	(0.000780)
duf12	-0.249***	-0.249***	-0.250***	dano4	0.0692***	0.0696***	0.0695***
	(0.00216)	(0.00216)	(0.00216)		(0.000789)	(0.000789)	(0.000789)
duf13	-0.114***	-0.114***	-0.115***	dano5	0.0864***	0.0869***	0.0868***
	(0.00250)	(0.00250)	(0.00250)		(0.000797)	(0.000797)	(0.000797)
duf14	-0.295***	-0.295***	-0.295***	dano6	0.106***	0.107***	0.107***
	(0.00164)	(0.00164)	(0.00164)		(0.000804)	(0.000804)	(0.000804)
duf15	-0.753***	-0.754***	-0.754***	Constant	4.721***	4.722***	4.725***
	(0.00205)	(0.00205)	(0.00205)		(0.00348)	(0.00348)	(0.00348)
duf16	-0.493***	-0.493***	-0.494***				
	(0.00134)	(0.00134)	(0.00134)				
duf17	-0.729***	-0.733***	-0.730***	Observations	8,417,290	8,417,290	8,417,290
	(0.00222)	(0.00223)	(0.00222)	R-squared	0.484	0.484	0.484

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix 3.2 – Completed FE Regression

VAR.	(4) lw	(5) lw	(6) Lw	VAR.	(4) Lw	(5) lw	(6) lw
dcnae	-0.00318***			duf16	-0.0965***	-0.0964***	-0.0965***
	(0.00122)				(0.00459)	(0.00459)	(0.00459)
dcbo		0.0164***		duf17	-0.202***	-0.202***	-0.202***
		(0.00153)			(0.0102)	(0.0102)	(0.0102)
dcult			0.0225***	duf18	-0.0702***	-0.0702***	-0.0702***
			(0.00301)		(0.00330)	(0.00330)	(0.00330)
dfem	-0.0143***	-0.0143***	-0.0143***	duf19	-0.0132***	-0.0131***	-0.0131***
	(0.00145)	(0.00145)	(0.00145)		(0.00266)	(0.00266)	(0.00266)
exp	3.79e-05***	3.79e-05***	3.79e-05***	duf20	-0.102***	-0.102***	-0.102***
	(7.25e-07)	(7.25e-07)	(7.25e-07)		(0.00712)	(0.00712)	(0.00712)
exp2	3.65e-09***	3.64e-09***	3.65e-09***	duf21	0.0382***	0.0382***	0.0382***
	(2.44e-10)	(2.44e-10)	(2.44e-10)		(0.0115)	(0.0115)	(0.0115)
idade	0.115***	0.115***	0.115***	duf22	0.0592***	0.0594***	0.0594***
	(0.000216)	(0.000216)	(0.000216)		(0.0201)	(0.0201)	(0.0201)
idade2	-0.000773***	-0.000773***	-0.000773***	duf23	-0.0401***	-0.0402***	-0.0402***
	(2.62e-06)	(2.62e-06)	(2.62e-06)		(0.00376)	(0.00376)	(0.00376)
duf1	0.0623***	0.0621***	0.0623***	duf24	-0.0574***	-0.0575***	-0.0575***
	(0.0205)	(0.0205)	(0.0205)		(0.00399)	(0.00399)	(0.00399)
duf2	-0.111***	-0.111***	-0.111***	duf25	-0.129***	-0.129***	-0.129***
	(0.00809)	(0.00809)	(0.00809)		(0.00840)	(0.00840)	(0.00840)
duf3	0.123***	0.123***	0.123***	duf27	0.0522***	0.0524***	0.0523***
	(0.00770)	(0.00770)	(0.00770)		(0.00997)	(0.00997)	(0.00997)
duf4	0.100***	0.100***	0.100***	deduca1	0.0114***	0.0114***	0.0114***
	(0.0170)	(0.0170)	(0.0170)		(0.00321)	(0.00321)	(0.00321)
duf5	-0.0793***	-0.0793***	-0.0793***	deduca2	0.0161***	0.0160***	0.0160***
	(0.00385)	(0.00385)	(0.00385)		(0.00318)	(0.00318)	(0.00318)
duf6	-0.140***	-0.139***	-0.139***	deduca4	0.0158***	0.0158***	0.0158***
	(0.00545)	(0.00545)	(0.00545)		(0.00318)	(0.00318)	(0.00318)
duf7	0.0634***	0.0635***	0.0635***	deduca5	0.0159***	0.0159***	0.0159***
	(0.00354)	(0.00354)	(0.00354)		(0.00316)	(0.00316)	(0.00316)
duf8	-0.0542***	-0.0541***	-0.0541***	deduca6	0.0495***	0.0494***	0.0494***
	(0.00535)	(0.00535)	(0.00535)		(0.00316)	(0.00316)	(0.00316)
duf9	-0.0442***	-0.0441***	-0.0441***	deduca7	0.0108***	0.0107***	0.0108***
	(0.00456)	(0.00456)	(0.00456)		(0.00323)	(0.00323)	(0.00323)
duf10	-0.0533***	-0.0530***	-0.0532***	deduca8	0.198***	0.198***	0.198***
	(0.00701)	(0.00701)	(0.00701)		(0.00325)	(0.00325)	(0.00325)
duf11	-0.0594***	-0.0594***	-0.0594***	deduca9	0.0906***	0.0906***	0.0905***
	(0.00277)	(0.00277)	(0.00277)		(0.00331)	(0.00331)	(0.00331)
duf12	-0.00969	-0.00968	-0.00967	Constant	3.311***	3.311***	3.311***
	(0.00628)	(0.00628)	(0.00628)		(0.00549)	(0.00549)	(0.00549)
duf13	0.0287***	0.0286***	0.0285***				
	(0.00614)	(0.00614)	(0.00614)				
duf14	0.0477***	0.0479***	0.0478***				
	(0.00611)	(0.00611)	(0.00611)	Observations	8,417,290	8,417,290	8,417,290
duf15	-0.131***	-0.131***	-0.131***	R-squared	0.166	0.166	0.166
	(0.00763)	(0.00763)	(0.00763)	Number of pis	1,442,147	1,442,147	1,442,147

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1